Draft ENVIRONMENTAL ASSESSMENT

Majestic Chino Heritage

City of Chino, San Bernardino County, California



Lead Agency

U.S Army Corps of Engineers, Los Angeles District

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Acronyms and Abbreviations

AIA	Airport Influence Area
ALUCP	Airport Land Use Compatibility Plan
AMSL	Above meansea level
APE	Area of potential effect
BMPs	Best Practice Management
CBSC	California Building Standard Code
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulation
City	City of Chino
СМВ	Crushed Miscellaneous Base
CNDDB	California Natural Diversity Data Base
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
со	Carbon monoxide
Corps	United States Army Corps of Engineers
CSUF	California State University, Fullerton
CY	Cubic Yards
dBA	Decibel A-weighted scale
DIF	Development Impact Fee
EC	Environmental Commitment
EI	Expansion Index
EIC	Eastern Information Center
EIR	Environmental Impact Report
Ft	Feet
GLA	Glenn Lukos Associates
I-15	Interstate 15
IEUA	Inland Empire Utility Agency
L50	Median noise levels
Leq	Equivalent sound level
Lmax	Maximum noise level
NGVD	National Geodetic Vertical Datum
NO2	Nitrogen dioxide
NPDES	National Pollutant Discharge Elimination System
NRHP	Natural Register of Historic Places
0&M	Operation and Maintenance
ONT	Ontario International Airport
PCE	Passenger car equivalent
Pm10	Particulate matter 10 microns or less in diameter
Pm2.5	Particulate matter 2.5 microns or less in diameter
RP-5	Regional Water Recycling Plant No. 5
SCAG	Southern California Associations of Governments
SCCIC	South Central Coastal Information Center

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1.0 INTRODUCTION

1.1 Background

This Environmental Assessment (EA) describes the affected resources and evaluates the potential environmental consequences of a proposal by Majestic Realty Co. (Project Applicant) to develop two industrial/warehouse buildings and associated features on approximately 97 acres of lands in the City of Chino, located at the southeast corner of Mountain Avenue and Bickmore Avenue. As part of the development, import of fill to the site from local surrounding areas is required to elevate the site above the 566-foot elevation and offset that volume by removing fill material at lower elevations within the Prado Dam basin and thus a license agreement is needed from the Corps to remove borrow fill from lands within the Prado Dam basin (Proposed Project or Proposed Action). Additionally, various construction approvals, easement(s), and consent would be needed from the Corps for the overall proposed development as detailed in the EA.

As the lead agency, the Corps has prepared this EA in accordance with the requirements of the National Environmental Policy Act (NEPA) 42 United States Code (USC) 4321, et seq., Council on Environmental Quality (CEQ) regulations at 40 Code of Federal Regulations (CFR) parts 1500-1508¹, Corps' regulations at 33 CFR Part 230, and Corps guidance in Engineer Regulation (ER) 200-2-2, Procedures for Implementing NEPA, and other environmental laws. This EA has been prepared by RVA Inc. on behalf of the Corps and has been independently reviewed by Corps staff. The scope of the document, methods of analysis, and conclusions represent the independent judgment of the Corps. Staff members from the Corps and others who helped prepare this EA are identified in Chapter 8, *List of Preparers and Reviewers*.

In a separate and ongoing action, the Corps and the Orange County Flood Control District (OCFCD), as the non-federal sponsor, are raising the height of the Prado Dam and spillway to increase its flood control capabilities and to increase the storage capacity of the reservoir behind the Prado Dam. Following the completion of this project, flood waters could potentially reach an elevation of 566 feet above mean sea level (amsl) within the Prado Dam Reservoir during an approximately 190 year event. The proposed location for the development of the two industrial buildings lie below 566 feet amsl would be subject to potential inundation during a 190-year flood event once the spillway is raised.

The proposed development site and all the proposed borrow sites are vacant, unimproved lands and are located within the Prado Dam basin area, below the 566-foot contour elevation, and as such, the proposed buildings' finished floor elevations would be built at an elevation of 567 feet NGVD. To attain these proposed elevations, the proposed Project area would require approximately 608,896 cubic yards of fill that would be obtained from up to five proposed borrow site sources, all within the 566-foot elevation NGVD of the basin area and potential undefined sources up to five miles from the proposed Project area. The sources outside the basin would be utilized should specific material not found within the basin be needed. Majestic Realty Co. has an agreement for the development of the Project with the Orange County Flood Control District (OCFCD), who is the land owner of the

¹ New NEPA regulations issued by CEQ apply to NEPA processes begun after 14 Sep 2020, but federal agencies have discretion to apply the new NEPA regulations to on-going NEPA processes or proceed to apply the prior CEQ regulations. The NEPA process in this instance started before 14 Sep 2020, and the Corps has decided to proceed to apply the prior CEQ regulations.

proposed Project area and the five proposed borrow sites. This EA will be used to inform decision makers and the public about the environmental effects of the request.

The proposed Project area generally sheet flows from north to south at an approximately 0.5 percent average grade slope. The proposed borrow site locations 2-5 are vacant, unimproved lands with generally the same flow pattern in the north to south direction at an approximately one percent average grade slope. Proposed borrow site 1 currently has existing structures on site; which are slated for demolition as part of the Proposed Action.

1.2 Location

The proposed Project area is located in the southern portion of the City, which is located southwest of the City of Ontario, east of the City of Chino Hills, west of the City of Eastvale, and northwest of the City of Corona in the southwestern portion of San Bernardino County, California. As shown on Exhibit 1.1, Regional Map, the Proposed Action project area is approximately 1.0-mile east of State Route 71 (SR-71), approximately 6.5 miles west of Interstate 15 (I-15), and approximately 5.0 miles south of State Route (SR-60). The Chino Airport is located approximately 1.6 miles to the northeast of the Proposed Action project area.

Exhibit 1.2, Vicinity Map, shows the proposed Project area and borrow sites and the 566-foot Prado Dam inundation area within the City of Chino. At the local scale, the proposed Project area is located at the southeast corner of the intersection of Mountain Avenue and Bickmore Avenue (see Exhibit 1.2, Vicinity Map) which includes the following 11 Assessor Parcel Numbers (APNs): 1027-241-01, -02; 1027-231-01; 1027-371-01; 1027-381-01, -02; 1056-201-01; 1056-331-01, -06, -07; 1056-341-01. Additionally, the APNs for all five proposed borrow sites, a section of the El Prado Golf Course near the Cypress Channel, and the Mill Creek Wetlands near Borrow Site 4 are as follows:

Borrow Site 1 APNs: 1056-392-02, -03, -04, -05, -06, -11, -12

Borrow Site 2 APNs: 1057-191-01, -02

Borrow Site 3 APNs: 1057-201-05, -06, -07, -08

Borrow Site 4 APNs: 1057-212-10

Borrow Site 5 APNs: 1057-181-24

Section of El Prado Golf Course near Cypress Channel APN: 1056-351-02, -01

Mill Creek Wetlands APNs: 1057-212-09, -11

1.3 Scope and Content of the EA

The analyses contained in this EA were conducted based on professional judgment regarding the nature of the Proposed Act and the Corps' standard National Environmental Policy Act (NEPA) practices. The following resources are evaluated in this EA:

- 1. Biological Resources
- 2. Air Quality
- 3. Noise
- 4. Cultural Resources
- 5. Earth Resources

- 6. Water Resources and Hydrology
- 7. Public Safety (Hazardous Materials and Emergency Response)
- 8. Recreation
- 9. Aesthetics
- 10. Traffic and Circulation
- 11. Utilities
- 12. Land Use
- 13. Socioeconomic and Environmental Justice

These issues are discussed and analyzed in Chapters 3 and 4.

1.3.1 NEPA Scope of Analysis

As part of the NEPA process, the Corps is responsible for establishing the NEPA scope of analysis pursuant to 33 CFR Part 230. The Corps' NEPA scope of analysis encompasses the entire 97-acre Project site, as well as the 5 proposed borrow sites that are part of the proposed Project, which total approximately 265 acres, located in portions of the Prado Dam Flood Control Basin². The Project area is discussed and graphically shown in Chapter 2.

1.3.2 Agency and Public Input

This document is available for public review and comment for a period of thirty (30) days, beginning January 25, 2021 through February 24, 2021. Comments should be mailed to:

U.S. Army Corps of Engineers Los Angeles District, Planning Division (PDR-N) Attn: Megan Wong 915 Wilshire Boulevard, Suite 930 Los Angeles, California 90017

and via electronic submission to: Megan.T.Wong@usace.army.mil

If you have questions or would like additional information, please contact Megan Wong, Environmental Coordinator, Ecosystem Planning Section at (213) 448-4517.

1.4 Purpose and Need

In accordance with CEQ regulations, the Purpose and Need section "shall briefly specify the underlying purpose and need to which the agency is responding in proposing alternatives including the proposed action" (40 CFR 1502.13).

The Purpose and Need of the Proposed Action is as follows:

• **Purpose:** issue a license agreement to the Project Applicant for the development of two industrial/warehouse buildings and associated features as part of the proposed Majestic Chino Heritage Project. As part of the proposed Project, the Corps will be granting a new easement for the storm drain proposed on Corps land leased by San Bernardino County Regional Parks within the adjacent El Prado Golf Course, issuing a license to excavate on

² The Prado Dam Flood Control Basin was constructed pursuant to the Flood Control Act of June 22, 1936 (Public Law [PL] 74-738), as amended. Dam construction was completed in May 1941. The Dam's primary purpose is flood risk management for the Santa Ana River watershed. The Dam is also operated for water conservation.

Corps owned land adjacent to the Mill Creek Wetlands on Borrow Site 4 to maintain the current drainage pattern (further discussed below), issuing a consent to remove borrow material from the five (5) OCFCD owned Borrow Sites 1-5 within the Prado Dam basin, and a consent to park vehicles below the reservoir height. Additionally, letters of No Objection or Approval will be provided by the Corps to OCFCD for activities conducted within OCFCD-owned properties.

• **Need:** The Project Applicant is proposing to construct two industrial/warehouse buildings within the Prado Basin and the site would need to be elevated above the 566-foot flood inundation elevation.



Exhibit 1.1 - Regional Map



Exhibit 1.2 – Vicinity Map



Exhibit 1.3 - Overall Project with Borrow Sites







Exhibit 1.5 - Aerial Photo Map

2.0 ALTERNATIVES

Per the Council on Environmental Quality (CEQ) NEPA guidance, only reasonable alternatives should be discussed in detail (40 CFR §1502.14). This document evaluates two alternatives: The No Action Alternative and the Preferred Alternative, as described below.

Alternative 1: No Action Alternative. Alternative 1 is the No Action Alternative and is a no Federal action alternative. Under the No Action Alternative, the Corps would not issue a license agreement and associated requests for the removal of fill from the proposed borrow sites on land owned by OCFCD within the Prado Dam Basin's 566-foot elevation inundation line and the construction of the two industrial/warehouse buildings and associated features would not occur.

Alternative 2: Preferred Alternative/Proposed Project. Alternative 2 is the Proposed Project/Proposed Action. As part of the Proposed Action, the Corps would issue a license agreement to the Project Applicant for the removal of fill from the proposed borrow sites on land owned by OCFCD within the Prado Dam Basin's 566-foot elevation inundation line. Additionally, various construction approvals, easement(s), and consent would be needed from the Corps for the overall proposed development. The Proposed Action would allow the construction and operation of two industrial/warehouse buildings consisting of approximately 1,168,710 square feet (SF) and 914,040 SF, respectively, on an approximately 97-acre Project Site property. Other physical improvements associated with the proposed Project would include elements such as: increased flood inundation capacity, automobile and truck parking areas, vehicle drive aisles, landscaping, a water quality/detention basin, public street and utility infrastructure, exterior lighting, and signage. Further, the proposed Project would implement environmental commitment measures to ensure potential Project impacts are minimized or avoided. These environmental commitment measures relisted in full in Section 7.0 of this document.

Proposed Project area

Most of the proposed Project area's ground surface elevation is below the 566-foot elevation within the Prado Dam basin. In order to develop the proposed Project as designed, the ground surface elevations of the proposed buildings' footprints would need to be raised above the flood inundation elevation level for Prado Dam while simultaneously lowering the elevations of other sites within the basin area in order to maintain the basin area's overall capacity to hold water that may back up behind the dam during rare, extreme storm events. Accordingly, the proposed Project entails the moving of approximately 608,896 cubic yards (CY) of fill materials from five proposed borrow sites within the basin area to the proposed Project area in order to raise the proposed buildings' footprints above the 566-foot elevation NGVD inundation line and create additional free flow flood water holding capacity at the proposed borrow sites. Long term operations for the proposed Project would include the presence of employees working in the buildings, the transportation of items to and from the buildings, and other typical operations of an industrial building. Maintenance for the proposed Project area would include routine trash pickup, sediment and debris removal from the water quality/detention basin following each storm or deposition of material, and routine maintenance on and around the roadway, buildings and landscaping of the proposed Project area.

Proposed Borrow Sites

The proposed Project requires fill material to raise the proposed building finished floor elevations so that they are at 567 feet elevation. In addition, the dirt that is imported must be from a source

location that is currently below the 566-foot elevation so that the net impact of the proposed Project does not adversely impact the existing flood basin capacity below the 566-foot elevation. To accomplish this, the proposed Project has identified five nearby proposed borrow sites that can provide export to be used as import for the proposed Project area while also providing a 566-foot elevation capacity offset simultaneously. These proposed borrow sites along with the proposed Project area are identified on Exhibit 1.4, Proposed Borrow Sites Location Map. A brief description of the proposed borrow sites includes:

- Proposed Borrow Site 1 is an approximately 43.7-acre parcel located at the southeast corner of Euclid Ave and Pine Ave.
- Proposed Borrow Site 2 is an approximately 38.5-acre parcel located at the southeast corner of Johnson Ave and Pine Ave.
- Proposed Borrow Site 3 is an approximately 84.3-acre area located on the west side of Cucamonga Ave. south of the California Institution for Women.
- Proposed Borrow Site 4 is an approximately 12.9-acre parcel located at the southeast corner of Chino Corona Road and Comet Ave.
- Proposed Borrow Site 5 is an approximately 21.3-acre parcel located at the southwest corner of Legacy Park Street and Hellman Ave.

After construction activities are completed, the borrow sites would have native plant hydroseed at the areas of ground disturbance from grading activities.

Proposed Other Features

Moreover, the proposed Project area abuts an off-site concrete flood control channel, Cypress Channel, along a portion of its eastern boundary. Cypress Channel is a San Bernardino County Flood Control District facility which flows in a north to south direction for 2,527 feet. The proposed Project entails the construction of an underground 775 linear feet 48-inch storm drain line that would connect the proposed on-site stormwater drainage facilities (located along the southern edge of the proposed Project area) across the northern edge of the El Prado Golf Course to the Cypress Channel, which is located east of the proposed Project area. This area of improvement is referred to as the Off-Site Storm Drain Improvement, which would require a permanent 40-foot wide easement totaling 0.74 acre that would include that area needed for initial construction, long term operations and maintenance, and emergency repairs. A new outlet would be constructed within the Cypress Channel to receive stormwater runoff discharged via the new storm drain line. Cypress Channel is not a Corps constructed facility; however, the southern area of the concrete Cypress Channel is owned by the Corps as well as the earthen drainage that flows into the El Prado Golf Course to the south. The storm drain connection at the Cypress Channel will be constructed primarily from the west side (back side) of the concrete wing wall on the west side of the Cypress channel. A tarp will be installed above the 'Ordinary High Water Mark' (OHWM) on the east face of this concrete wing wall to prevent construction debris from enteringinto the Cypress Channel during the construction process. Further, access into the channel during the construction process will be limited to workers on foot utilizing hand tools, and no mechanized equipment will be brought into the channel. After construction, the Off-Site Storm Drain Improvement area's operations and maintenance would include routine maintenance to clear debris from the storm drain area as needed.

Additionally, proposed Borrow Site 4 would require a construction approval from the Corps in order to grade a small area of Corps land adjacent to proposed Borrow Site 4 to maintain the current drainage pattern. This area of Corps land totals approximately 0.97 acre.

Construction

Construction of the proposed Project area would require the import of approximately 608,896 CY of dirt (after shrinkage) from the nearby proposed borrow sites. However, the total export from proposed borrow sites 1, 3, and 4 will be approximately 786,994 CY of dirt due to projected shrinkage. In the event of shrinkage such that additional import is required, proposed Borrow Site 5 is available to provide up to approximately 98,867 CY, followed by the use of import of fill from Borrow Site 2. In addition to the grading considerations above, the quality of the soil at all five proposed borrow sites was examined and found the soil to be of moderate to poor quality. "Moderate Quality" soil is defined as soil with an Expansion Index (EI) less than 80 while "Poor Quality" soil is defined as soil with an EI equal to or greater than 80. There is very little "Good Quality" soil on these sites which would have an EI less than approximately 40. In order to provide proper structural support for the proposed buildings and paving areas, the applicant has developed a strategy with a qualified Geotechnical Engineer that allows the proposed Project to utilize Moderate Quality dirt under the building slab, building footings and paving. The dirt itself would be used in its current condition and would not be processed. During construction, a qualified geotechnical engineer would analyze the quality of the dirt and determine the use of the dirt based on the quality assessed. This strategy involves grading the site in such a manner to have a minimum of four feet of Moderate Quality dirt under the building footings and building slab and a minimum of two feet of Moderate Quality dirt under the paving areas.

The grading operations for the proposed Project area as well as the various proposed borrow sites would not need any specific comprehensive traffic control plans or measures. The haul routes from the proposed borrow sites to the proposed Project area would be along streets within the City and nearby highways with no need for special provisions. The widening of Mountain Avenue (and Bickmore Avenue, as applicable) along the Project area frontage would require some form of traffic control to construct the proposed improvements such as stop signs at the egress areas of the proposed Project area. A Traffic Control Plan would be developed during the finalization of the engineering plans for the public road improvements.

Employee trips are estimated based on the number of employees anticipated throughout the various stages of construction. The number of employees on-site would vary depending on the phase of construction but would range from up to 18 employees during grading activities and up to 890 employees during building construction. Each employee is assumed to drive to and from the construction site each day. It has been assumed that employees would arrive up to 30 minutes prior to the workday and would leave up to 30 minutes after the workday ends.

It is anticipated that the majority of employees would arrive and depart from the site between 5:00 PM and 6:00 PM for nighttime hauling or between 6:00 AM and 7:00 AM for daytime hauling. Employee trips are based on the number of employees estimated to be on site during different points throughout construction of the proposed Project. Initially, parking for employees and company-owned vehicles can be accommodated near the construction staging area of the Project area. Once the on-site roadway network is constructed, employee parking can be accommodated on the Project area.

It is estimated that approximately 522-600 haul truck loads would be required per day for the duration of the soil import activities. Each truck would generate one inbound and one outbound trip, accounting for a total of two truck trips per load of material imported. Thus, a total of approximately 1,044 to 1,200 haul trucks (two-way) per day would be generated, which translates to approximately 131-150 haul trips (two-way) per hour, which are anticipated to occur outside of the AM and PM peak periods. In the eventthat soil hauling activity is to occur during AM or PM peak periods, hauling activity should be limited to no more than 16 trucks trips per hour (8 trucks in and 8 trucks out) during the hours of 6:00 AM to 9:00 AM and 3:00 PM to 6:00 PM to ensure that haul activity would not significantly impact the intersections along the haul route.

The import activities from the proposed borrow sites would not overlap with another but will occur sequentially (i.e., hauling activity at one site is independent from other sites). Soil import activities could occur during typical construction daytime (7:00 AM – 3:00 PM) or off-peak/nighttime (6:00 PM – 2:00 AM) hours. The off-road construction equipment is also not anticipated to operate for more than 8 hours per day.

<u>Equipment</u>

Heavy equipment to be utilized on site during construction includes, but is not limited to: flat beds, dozers, scrapers, graders, track hoes, dump trucks, forklifts, cranes, cement trucks, pavers, rollers, water trucks, rolling container trucks and bobcats. Heavy equipment would be delivered and removed from the site throughout the construction phase. As most heavy equipment is typically not authorized to operate on a public roadway, most of the equipment would be delivered and removed from the site via large flatbed trucks. It is anticipated that delivery of heavy equipment would not occur on a daily basis, but rather periodically throughout the construction phase based on need.

The delivery and removal of heavy equipment is anticipated to occur outside of the morning and evening peak hours in order to have nominal impacts to traffic and circulation near the vicinity of the proposed Project. In order to minimize the impact of the flatbed truck traffic to the surrounding roadway network, it is anticipated that these delivery trucks utilize the most direct route between the proposed Project and the SR-71 Freeway via Euclid Avenue (SR-83). It is anticipated that traffic impacts associated with the delivery and removal of heavy equipment would be less than significant and would be temporary. All proposed Project access points are assumed to allow full access. Regional access to the proposed Project Site is provide via the SR-60 Freeway and the SR-71 Freeway. Roadway improvements necessary to provide site access and on-site circulation are assumed to be constructed in conjunction with site development.

Site Preparation

Prior to grading, the proposed Project area and borrow sites would be cleared of trash, debris, and any remaining foundations or pavements.

Construction Duration

Construction is planned to last approximately 18-24 months beginning in the spring/summer of 2021.

Staging Area

Staging areas would be located at the proposed Project area as well as each borrow site when grading activities are occurring on one of the borrow sites. As mentioned above, no soil would need to be processed at the borrow sites.

Access Routes/Roads

The haul routes to be used from the borrow sites to the proposed Project area would be:

- Borrow Site 1: Pine Avenue to El Prado Road to Mountain Avenue.
- Borrow Site 2: Pine Avenue to El Prado Road to Mountain Avenue.
- Borrow Site 3: Cucamonga Avenue/Chino Corona Road to Pine Avenue to El Prado Road to Mountain Avenue.
- Borrow Site 4: Chino Corona Road to Chino Corona Road to Pine Avenue to El Prado Road to Mountain Avenue.
- Borrow Site 5: Hellman Avenue to Pine Avenue to El Prado Road to Mountain Avenue.

<u>Utilities</u>

The proposed Project would include installation of new utility service facilities as necessary to serve the proposed Project area but would not require new utility service facilities at the proposed borrow sites and the proposed Other Features. The proposed Project area would result in operational consumption of natural gas and electricity. Natural gas would be supplied to the proposed Project area by Southern California Gas Company and electricity would be supplied to the proposed Project area by Southern California Edison.

In regard to water and sewage, conveyance services are provided to the Project area by the City of Chino. Under existing conditions, water lines are installed beneath Bickmore Avenue and Mountain Avenue, and a sewer line is installed beneath Mountain Avenue. In the proposed Project area, the City of Chino conveys wastewater flows to the Inland Empire Utility Agency (IEUA) for treatment at Regional Water Recycling Plant No. 5 (RP-5), which is located immediately northwest of the proposed Project area. Solid waste from the proposed Project area is expected to be disposed at the El Sobrante Landfill.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 Biological Resources

3.1.1 Affected Environment

Historically, the proposed Project area and proposed borrow sites were used for livestock farming and dairy operation, with some remnants of building foundations remaining within portions of each site. Each site has been heavily disturbed as part of ongoing agriculture and ranching uses for several decades. Due to the highly disturbed conditions of the sites, vegetation present is relatively sparse and reflects ornamental plantings or spontaneous, herb dominated species strongly adapted to human disturbances. A general description of the proposed Project area and each of the proposed borrow sites and proposed Other Features is listed below. Acreages listed below have been rounded to one decimal place to remain consistent with Exhibit 1.4 while reference acreages listed in the proposed Project's Biological Technical Report (Appendix A) are rounded to two decimal places.

Proposed Project area

The proposed Project area totals approximately 97 acres. The surrounding landscape consists of developed industrial areas to the north, northwest, and east, and an existing golf course to the south and west. The proposed Project area is slightly sloped from north to southeast, with elevations ranging from 558 feet above mean sea level (AMSL) to 536 feet AMSL, respectively. The proposed Project area abuts Cypress Channel, a concrete flood control channel, along a portion of its eastern boundary. Cypress Channel is a San Bernardino Flood Control District facility, which flows in a north to south direction for 2,527 feet. The soils mapped on the proposed Project area are Chino Silt Loam, Chualar Clay Loam, 0 to 2 Percent Slopes, and Chualar Clay Loam, 2 to 9 Percent Slopes (Exhibit 3.1 – Soils Map).

Proposed Borrow Sites

Proposed Borrow Site 1

Proposed Borrow Site 1 totals approximately 43.7 acres. The surrounding landscape consists of developed industrial areas to the northwest, an existing golf course to the west across Euclid Avenue, ranching operations to the north and east, and undeveloped park land in the Prado Basin to the south. The site is generally sloped from north to south, with elevations ranging from 561 feet AMSL to 521 feet AMSL, respectively. Proposed Borrow Site 1 contains a drainage course supporting wetland and riparian habitat, which flows in a north to south direction for 1,645 feet. The soils mapped in proposed Borrow Site 1 are Chino Silt Loam, Chualar Clay Loam, 2 to 9 Percent Slopes, Chualar Clay Loam, 9 to 15 Percent Slopes, and Grangeville Fine Sandy Loam (Exhibit 3.1 – Soils Map).

Proposed Borrow Site 2

Proposed Borrow Site 2 totals approximately 38.5 acres. The surrounding landscape consists of ranching operations to the north and east, undeveloped land and the Prado Basin to the west and south, and a correctional facility to the east. The site is generally sloped from northeast to southwest, with elevations ranging from 569 feet ASML to 548 feet AMSL, respectively. Proposed Borrow Site 2

does not contain a drainage course; only a roadside ditch and former waste treatment facilities are present. The soil mapped in proposed Borrow Site 2 is Chino Silt Loam (Exhibit 3.1 – Soils Map).

Proposed Borrow Site 3

Proposed Borrow Site 3 totals approximately 84.3 acres. The surrounding landscape consists of Prado Basin to the south, Prado Basin and a recreational vehicle campground to the west, a ranching operation to the east, and a correctional facility to the north. The site is generally sloped from northeast to south/southwest, with elevations ranging from 563 feet AMSL to 543 feet AMSL, respectively. Proposed Borrow Site 3 contains no drainages; only former waste treatment facilities are present. The soils mapped in proposed Borrow Site 3 are Chualar Clay Loam, 0 to 2 Percent Slopes and Chualar Clay Loam, 2 to 9 Percent Slopes (Exhibit 3.1 – Soils Map).

Proposed Borrow Site 4

Proposed Borrow Site 4 totals approximately 12.9 acres. The surrounding landscape consists of ranching operations to the north and west, and undeveloped land associated with the Mill Creek Wetlands to the south and east. The site is generally sloped from north to south, with elevations ranging from 564 feet AMSL to 544 feet AMSL, respectively. Proposed Borrow Site 4 does not contain a drainage course. The soils mapped in proposed Borrow Site 4 are Chualar Clay Loam, 0 to 2 Percent Slopes, Chualar Clay Loam, 2 to 9 Percent Slopes, and Chualar Clay Loam, 9 to 15 Percent Slopes (Exhibit 3.1 – Soils Map).

Proposed Borrow Site 5

Proposed Borrow Site 5 totals approximately 21.3 acres. The surrounding landscape consists of ranching operations to the north and east, undeveloped land and the Prado Basin to the west and south. The site is generally sloped from northeast to southwest, with elevations ranging from 569 feet AMSL to 550 feet AMSL, respectively. Proposed Borrow Site 5 does not contain a drainage course; only former waste treatment facilities are present. The soils mapped in Proposed Borrow Site 5 are Chino Silt Loam, Chualar Clay Loam, 2 to 9 Percent Slopes, and Grangeville Fine Sandy Loam (Exhibit 3.1 – Soils Map).

Proposed Other Features

Proposed Off-Site Storm Drain Improvement Area

The proposed Off-Site Storm Drain Improvement area totals approximately 0.34 acre. This area is bordered by the proposed Project area to the north, the El Prado Golf Course to the south and west, and industrial uses to the east. Additionally, the proposed Off-Site Storm Drain Improvement area includes a small portion of Cypress Channel that is concrete lined. This portion of Cypress Channel is included within the Off-Site Storm Drain Improvement area because the storm drain will terminate within the concrete headwall structure of Cypress Channel. Cypress Channel is a San Bernardino Flood Control District facility which flows in a north to south direction immediately east of the proposed Project area. This area is referred to as the Off-Site Storm Drain Improvement area. The soils mapped on these sites are Grangeville Fine Sandy Loam, Chualar Clay Loam, 0 to 2 Percent Slopes, Chualar Clay Loam, 2 to 9 Percent Slopes, and Chualar Clay Loam, 9 to 15 Percent Slopes (Exhibit 3.1 – Soils Map).





3.1.1.1 Vegetation

Proposed Project area

During vegetation mapping of the proposed Project area, one vegetation/land use type was identified. Table 3.1-1 provides a summary of vegetation/land uses and the corresponding acreage. Detailed descriptions of each vegetation type follow the table and Exhibit 3.2 (below) depicting the Vegetation Map. Site photographs depicting site conditions and various vegetation types at the proposed Project area are included in AppendixA (Biological Technical Report).

Vegetation Type/ Land Use Type	Acreage
Ruderal/Disturbed	96.9
TOTAL	96.9

Table 3.1-1. Summary of Vegetation/Land Use Types for the Proposed Project area

Ruderal/Disturbed. Approximately 97 acres of the proposed Project area consist of ruderal/disturbed habitat. Vegetation within the proposed Project area consists of Aleppo pine (Pinus halepensis), ash (Fraxinus sp), Bermuda grass (Cvnodon dactvlon), black willow (Salix gooddingii), blue elderberry (Sambucus nigra ssp. Caerulea), chaparral yucca (Hesperoyucca whipplei), cheeseweed mallow (Malva parviflora), clover (Trifolium sp), common dandelion (Taraxacum officinale), common fiddleneck (Amsinckia intermedia), common Mediterranean grass (Schismus barbatus), common sunflower (Helianthus annuus), curly dock (Rumex crispus), desert brittlebush (Encelia farinosa), dwarf nettle (Urtica urens), field bindweed (Convolvulus arvensis), foxtail barley (Hordeum murinum), golden crownbeard (Verbesing enceliodes), lamb's quarters (Chenopodium album), London rocket (Sisymbrium irio), Mexican fan palm (Washingtonia robusta), milk thistle (Silybum marianum), millet (Eleusine sp.), mission cactus (Opuntia ficus-indica), Peruvian pepper tree (Schinus molle), prostrate knotweed (Polygonum aviculare), red brome (Bromus madritensis), red stemmed filaree (Erodium cicutarium), Russian thistle (Salsola tragus), salt cedar (*Tamarix ramosissima*), silver puffs (*Uropappus lindleyi*), southern cattail (*Typha domingensis*), spiny sowthistle (Sonchus asper), summer mustard (Hirschfeldia incana), tree tobacco (Nicotiana glauca), western ragweed (Ambrosia psilostachya), and white horehound (Marrubium vulgare). Since the time of the September 2019 Biological Technical Report, a majority of the non-native trees were removed from the proposed Project area and the site has been disked.

Proposed Borrow Sites

Proposed Borrow Site 1

During vegetation mapping of proposed Borrow Site 1, three vegetation types were identified. Table 3.1-2 provides a summary of vegetation/land uses and the corresponding acreage. Detailed descriptions of each vegetation type follow the table. A Vegetation Map (Exhibit 3.2) is included below and Site photographs depicting the conditions and various vegetation types at proposed Borrow Site 1 are included in Appendix A (Biological Technical Report).

VEGETATION TYPE/ LAND USE TYPE	ACREAGE
Ruderal/Disturbed	39.05
Freshwater Marsh/Disturbed Freshwater Marsh	4.46
Southern Willow Scrub	0.16
TOTAL	43.7

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Table 5.1-2. Summar	v oi vegetation	/Lanu Use i vdes	S TOF P FODOSEL	I DUITUW SILE I
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Ruderal/Disturbed. Approximately 39.05 acres of land consists of ruderal/disturbed habitat within proposed Borrow Site 1. Vegetation consists of jimson weed (*Datura wrightii*), mulefat (*Baccharis salicifolia*), common sunflower (*Helianthus annuus*), Canada horseweed (*Erigeron canadensis*), nightshade (*Solanum sp.*), Russian thistle (*Salsola tragus*), nettle leaf goosefoot (*Chenopodium murale*), tumbleweed (*Amaranthus albus*), cheeseweed mallow (*Malva parviflora*), prickly lettuce (*Lactuca serriola*), milk thistle (*Silybum marianum*), London rocket (*Sisymbrium irio*), Bermudagrass (*Cynodon dactylon*), red stemmed filaree (*Erodium cicutarium*), prostrate knotweed (*Polygonum aviculare*), tree of heaven (*Ailanthus altissima*), Mexican fan palm (*Washingtonia robusta*), common Mediterranean grass (*Schismus barbatus*), goldentop grass (*Lamarckia aurea*), annual stinging nettle (*Urtica urens*), tree tobacco (*Nicotiana glauca*), mission cactus (*Opuntia ficus-indica*), creeping bentgrass (*Agrostic gigantea*) agave (*Agave attenuata*), and perennial pepperweed (*Lepidium latifolium*).

Freshwater Marsh/Disturbed Freshwater Marsh. Approximately 4.46 acres of land consist of freshwater marsh and disturbed freshwater marsh habitat within proposed Borrow Site 1. Vegetation consists of southern cattail (*Typha domingensis*), yerba mansa (*Anemopsis californica*), Canada horseweed (*Erigeron canadensis*), Mexican sprangletop grass (*Leptochloa fusca ssp. Uninervia*), common sunflower (*Helianthus annuus*), salt marsh sand spurry (*Spergularia marina*), common knotweed (*Persicaria lapathifolia*), nettle leaf goosefoot (*Chenopodium murale*), flax-leaved horseweed (Erigeron bonariensis), summer mustard (Hirschfeldia incana), wild radish (*Raphanus sativus*), cheeseweed mallow (*Malva parviflora*), rabbitsfoot grass (*Polypogon monspeliensis*) spiny sowthistle (*Sonchus asper*), sweet clover (*Melilotus sp.*), London rocket (*Sisymbrium irio*), Bermuda grass (*Cynodon dactylon*), tree tobacco (*Nicotiana glauca*), Mexican fan palm (*Washingtonia robusta*), golden crownbeard (*Verbesina encelioides*), and perennial pepperweed (*Lepidium latifolium*).

Southern Willow Scrub. Approximately 0.16 acre of land consists of southern willow scrub habitat within proposed Borrow Site 1. Vegetation consists of black willow (*Salix gooddingii*) and salt cedar (*Tamarix ramosissima*).

Proposed Borrow Site 2

During vegetation mapping of proposed Borrow Site 2, one vegetation type was identified. Table 3.1-3 provides a summary of vegetation/land uses and the corresponding acreage. Detailed descriptions of each vegetation type follow the table and a Vegetation Map (Exhibit 3.2) is included below.

VEGETATION TYPE/ LAND USE TYPE	ACREAGE
Ruderal/Disturbed	38.51
TOTAL	38.5

Table 3.1-3. Summary of Vegetation/Land Use Types for Proposed Borrow Site 2

Ruderal/Disturbed. All 38.5 acres of proposed Borrow Site 2 consist of ruderal/disturbed habitat. Vegetation within proposed Borrow Site 2 consists of Chinese parsley (*Heliotropium curassavicum*), telegraph weed (*Heterotheca grandiflora*), Russian thistle (*Salsola tragus*), spiny sowthistle (*Sonchus asper*), nettle leaf goosefoot (*Chenopodium murale*), cheeseweed mallow (*Malva parviflora*), Italian rye grass (*Festuca perennis*), poison hemlock (*Conium maculatum*), prickly lettuce (*Lactuca serriola*), London rocket (*Sisymbrium irio*), flax-leaved horseweed (*Erigeron bonariensis*), Bermuda grass (*Cynodon dactylon*), bull thistle (*Cirsium vulgare*), bristly ox-tongue (*Helminthotheca echioides*), prostrate knotweed (*Polygonum aviculare*), shamel ash (*Fraxinus uhdei*), field bindweed (*Convolvulus arvensis*), curly dock (*Rumex crispus*), sweet clover (*Melilotus sp.*), and Asian ponyfoot (*Dichondra micrantha*).

Proposed Borrow Site 3

TOTAL

During vegetation mapping of the proposed Borrow Site 3, one vegetation type was identified. Table 3.1-4 provides a summary of vegetation/land uses and the corresponding acreage. Detailed descriptions of each vegetation type follow the table. A Vegetation Map (Exhibit 3.2) is included below and Site photographs depicting the conditions and various vegetation types at proposed Borrow Site 3 are included in Appendix A (Biological Technical Report).

VEGETATION TYPE/	ACREAGE
LAND USE TYPE	
Ruderal/Disturbed	84.25

84.3

Table 3.1-4. Summary of Vegetation/Land Use Types for Proposed Borrow Site 3

Ruderal/Disturbed. All 84.3 acres of proposed Borrow Site 3 consist of ruderal/disturbed habitat. Vegetation within proposed Borrow Site 3 consists of Mexican fireweed (*Bassia scoparia*), five-hook bassia (*Bassia hyssopifolia*), prickly lettuce (*Lactuca serriola*), Russian thistle (*Salsola tragus*), soft chess (*Bromus tectorum*), wild oat (*Avena fatua*), goldentop grass (*Lamarkia aurea*), sunflower (*Heliantus annuus*), cheeseweed mallow (*Malva parviflora*), coyote brush (*Baccharis pilularis*), London rocket (*Sisymbrium irio*), Italian thistle (*Carduus sp.*), Bermuda grass (*Cynodon dactylon*), tumbleweed (*Amaranthus albus*), prickly sow-thistle (*Sonchus asper*), rabbitsfoot grass (*Polypogon monspeliensis*), common knotgrass (*Polygonum aviculare*), Australian saltbush (*Atriplex semibaccata*), big saltbush (*Atriplex lentiformis*), purple needlegrass (*Stipa pulchra*), salt heliotrope (*Heliotropium curassavicum*), Italian rye grass (*Festuca perennis*), wall barley (*Hordeum marinum*), pigweed (*Chenopodium album*), London rocket (*Sysimbrium irio*), Mediterranean grass (*Schismus barbatus*), perennial pepperweed (*Lepidium latifolium*), milk thistle (*Silybum marianum*), golden crownbeard (*Verbesina encelioides*), and California brittlebrush (*Encilia californica*).

Proposed Borrow Site 4

During vegetation mapping of proposed Borrow Site 4, two vegetation types were identified. Table 3.1-5 provides a summary of vegetation/land uses and the corresponding acreage. Detailed descriptions of each vegetation type follow the table. A Vegetation Map (Exhibit 3.2) is included below and Site photographs depicting the conditions and various vegetation types at proposed Borrow Site 4 are included in Appendix A (Biological Technical Report).

Table 3.1-5. Summary of Vegetation/Land Use Types for Proposed Borrow Site 4	
VEGETATION TYPE/	ACREAGE

VEGETATION TYPE/	ACREAGE
LAND USE TYPE	
Ruderal/Disturbed	11.83
Coastal Sage Scrub	1.09
TOTAL	12.9

Ruderal/Disturbed. Approximately 11.83 acres of proposed Borrow Site 4 consist of ruderal/disturbed habitat. Vegetation within Borrow Site 4 consists of coyote brush (*Baccharis pilularis*), coast goldenbush (*Isocoma menziesii*), common sunflower (*Helianthus annuus*), toyon (*Heteromeles arbutifolia*), lemonadeberry (*Rhus integrifolia*), creeping wild rye (*Elymus triticoides*), laurel sumac (*Malosma laurina*), deergrass (*Muhlenbergia rigens*), California sagebrush (*Artemisia californica*), Spanish lotus (*Acmispon americanus*), brittlebush (*Encelia farinosa*), mulefat (*Baccharis salicifolia*), saltgrass (*Distichlis spicata*), cheeseweed mallow (*Malva parviflora*), curly dock (*Rumex crispus*), Russian thistle (*Salsola tragus*), nettle leaf goosefoot (*Chenopodium murale*), London rocket (*Sisymbrium irio*), flax-leaved horseweed (*Erigeron bonariensis*), tumbleweed (*Amaranthus albus*), common red sage (*Kochia scoparia*), annual stinging nettle (*Urtica urens*), prickly lettuce (*Lactuca serriola*), Peruvian pepper tree (*Schinus molle*), Mexican fan palm (*Washingtonia robusta*), and Bermuda grass (*Cynodon dactylon*).

Coastal Sage Scrub. Approximately 1.09 acres along the southern and eastern boundaries of proposed Borrow Site 4 consist of a coastal sage scrub (CSS) vegetation community. This area is part of a native restoration effort and is dominated with native species including coast goldenbush (*Isocoma menziesii*), California sagebrush (*Artemisia californica*), golden crownbeard (*Verbesina encelioides*), California brittlebush (*Encelia californica*), and coyote brush (*Baccharis pilularis*). Scattered trees also occur throughout this area including toyon (*Heteromeles arbutifolia*), lemonade berry (*Rhus integrifolia*), laurel sumac (*Malosma laurina*), and coast live oak (*Quercus agrifolia*).

Proposed Borrow Site 5

During vegetation mapping of the proposed Borrow Site 5, one vegetation type was identified. Table 3.1-6 provides a summary of vegetation/land uses and the corresponding acreage. Detailed descriptions of each vegetation type follow the table. A Vegetation Map (Exhibit 3.2) is included below and site photographs depicting the conditions and various vegetation types at proposed Borrow Site 1 are included in Appendix A (Biological Technical Report).

VEGETATION TYPE/	ACREAGE
Ruderal/Disturbed	21.28
TOTAL	21.3

Table 3.1-6. Summary of Vegetation/Land Use Types for Proposed Borrow Site 5

Ruderal/Disturbed. All 21.3 acres of proposed Borrow Site 5 consist of ruderal/disturbed habitat. Vegetation within Borrow Site 5 consists of common sunflower (*Helianthus annuus*), Russian thistle (*Salsola tragus*), common red sage (*Kochia scoparia*), spiny sowthistle (*Sonchus asper*), nettle leaf goosefoot (Chenopodium murale), cheeseweed mallow (Malva parviflora), foxtail barley (Hordeum *murinum*), prickly lettuce (*Lactuca serriola*), London rocket (*Sisymbrium irio*), milk thistle (*Silybum marianum*), flax-leaved horseweed (*Erigeron bonariensis*), Bermuda grass (*Cynodon dactylon*), and annual stinging nettle (*Urtica urens*).

Proposed Other Features

Off-Site Storm Drain Improvement Area

During vegetation mapping of the proposed Off-Site Storm Drain Improvement area, two vegetation types were identified. Table 3.1-7 provides a summary of vegetation/land uses and the corresponding acreage. Detailed descriptions of each vegetation type follow the table. A Vegetation Map (Exhibit 3.2) is included below and Site photographs depicting the conditions and various vegetation types at proposed Borrow Site 1 are included in Appendix A (Biological Technical Report).

Table 3.1-7. Summary of Vegetation/Land Use Types for Proposed Off-Site Storm DrainImprovement Area

VEGETATION TYPE/ LAND USE TYPE	ACREAGE
Ornamental	0.30
Developed	0.03
Ruderal/Disturbed	0.01
TOTAL	0.34

Ornamental. Approximately 0.30 acre of the Off-Site Storm Drain Improvement area consists of ornamental habitat. Vegetation within the area appears to be maintained and ornamentally planted species dominated by coyote brush (*Baccharis pilularis*), with a few planted ornamental pines (Pinus sp.) and oak (Quercus sp.). Other species identified include salt cedar (*Tamarix ramosissima*), milk thistle (*Silybum marianum*), morning glory (*Ipomoea sp.*), and black nightshade (*Solanum americanum*).

Developed. Approximately 0.03 acres are considered developed and consists of an earthen road over Cypress Channel and a concrete headwall structure (headwall, wingwalls, and bottom) conveying the channel beneath the earthen road.

Ruderal/Disturbed. Approximately 0.01 acre of ruderal/disturbed habitat occurs east of the concrete headwall of Cypress Channel. Vegetation consists of foxtail barley (*Hordeum murinum*),

London rocket (*Sisymbrium irio*), red stemmed filaree (*Erodium cicutarium*), and Russian thistle (*Salsola tragus*).



Exhibit 3.2 - Vegetation Map

3.1.1.2 Special-Status Vegetation Communities

The California Natural Diversity Data Base (CNDDB) identifies the following 11 special-status vegetation communities for the Black Star Canyon, Corona North, Corona South, Guasti, Ontario, Orange, Prado Dam, San Dimas, and Yorba Linda quadrangle maps: Southern California Arroyo Chub/Santa Ana Sucker Stream, Riversidian Alluvial Fan Sage Scrub, Southern Riparian Forest, Southern Coast Live Oak Riparian Forest, Southern Cottonwood Willow Riparian Forest, Southern Sycamore Alder Riparian Woodland, Southern Riparian Scrub, Southern Willow Scrub, California Walnut Woodland, Walnut Forest, and Southern Interior Cypress Forest.

Proposed Borrow Site 1

Proposed Borrow Site 1 contains two special-status vegetation types: southern willow scrub and freshwater marsh/disturbed freshwater marsh habitat. A total of 0.16 acre of southern willow scrub habitat is present and a total of 4.46 acres of freshwater marsh/disturbed freshwater marsh habitat is present.

No other areas within the proposed Projectarea, proposed borrow sites, or proposed Other Features contain special-status vegetation communities.

3.1.1.3 Special-Status Plants

No special-status plants were detected within the proposed Project area, proposed borrow sites, or proposed Other Features, and none are expected to occur within these sites. Species within Table 4-8 of the Biological Technical Report (Appendix A) provide a list of special-status plants evaluated for the proposed Project area, proposed borrow sites, and proposed Other Features through a general biological survey and habitat assessment. Species were evaluated based on the following factors: 1) species identified by the CNDDB and California Native Plant Society (CNPS) as occurring (either currently or historically) on or in the vicinity of the proposed Project area, proposed borrow sites, or proposed Other Features and 2) any other special-status plants that are known to occur within the vicinity of the proposed Project area, proposed borrow sites, or proposed Other Features or for which potentially suitable habitat occurs within these sites. As the sites have either been a working farm or dairy operation for several decades, and while there are lands that are dominated by non-native grasses and forbs, there is no potential for the lands to function as natural vegetation communities that would support special-status plants.

3.1.1.4 Special-Status Animals

Table 4-9 of the Biological Technical Report (Appendix A) provides a list of special-status animals evaluated for the proposed Project area, proposed borrow sites, and proposed Other Features through general biological surveys, habitat assessments, and focused surveys. Species were evaluated based on the following factors, including: 1) species identified by the CNDDB as occurring (either currently or historically) on or in the vicinity of the proposed Project, proposed borrow sites, or proposed Other Features, and 2) any other special-status animals that are known to occur within the vicinity of the proposed Project area, proposed borrow sites, or proposed Other Features for which potentially suitable habitat occurs on the site.

Special-Status Wildlife Species Observed within the Proposed Project

Three special-status wildlife species were detected within the proposed Project. These species are the burrowing owl, least Bell's vireo, and tricolored blackbird.

Burrowing Owl (Athene cunicularia). The burrowing owl is a California Species of Special Concern whose habitat requirements include shortgrass prairies, grasslands, lowland scrub, agricultural lands (particularly rangelands), coastal dunes, desert floors, and some artificial open areas. This species is known to occupy abandoned ground squirrel burrows and artificial structures such as culverts and underpasses. There is potential for burrowing owls to occur within an approximate 298.19-acre portion of the proposed Project, except for the 0.03-acre developed portion of the Off-Site Storm Drain Improvement area.

Least Bell's Vireo (Vireo bellii pusillus). The least Bell's vireo is a State and Federally listed endangered species whose habitat requirements include dense riparian habitats with a stratified canopy, including southern willow scrub, mule fat scrub, and riparian forest. There is potential for least Bell's vireo to occur within an approximate 4.62-acre portion of the proposed Project within Borrow Site 1. There is no suitable habitat within the proposed Project area, proposed borrow sites 2 through 5, or the Off-Site Storm Drain Improvement area.

Tricolored Blackbird (Agelaius tricolor). The tricolored blackbird is a State listed Threatened species whose habitat requirements include nearby water sources and open-range foraging habitat of natural grassland, woodland, or agricultural cropland. There is potential for tricolored blackbird to occur within an approximate 10.58-acre portion of the proposed Project and Borrow Site 4. There is no suitable habitat within the proposed Project area, proposed borrow sites 1, 2, 3, and 5, or the Off-Site Storm Drain Improvement area.

Proposed Project area

Burrowing Owl (Athene cunicularia). Focused surveys for the burrowing owl were conducted for the proposed Project area on February 26, 2019; April 23, 2019; May 22, 2019; and July 2, 2019. Two burrowing owls were detected within proposed Project area within a remnant dairy portion of the proposed Project area (see Exhibit 3.3 – Burrowing Owl Survey Map). Based upon their presence during the breeding season, the two owls detected are thought to be a breeding pair. Additionally, the two owls occur within a portion of the proposed Project area that is outside of the Resources Management Plan (RMP) for the Prado Basin, which addresses mitigation requirements for impacts to burrowing owls.

Least Bell's Vireo (Vireo bellii pusillus). Focused surveys for the least Bell's vireo were conducted on April 11 and 25; May 8, 20, and 31; June 11 and 27; and July 8, 2019 according to survey protocol for the species. The least Bell's vireo was not detected within the proposed Project area, which contains ruderal/disturbed vegetation that does not support suitable habitat for the species.

Tricolored Blackbird (Agelaius tricolor). Surveys for the tricolored blackbird for all suitable habitat areas within the proposed Project area were conducted on March 12 and 13, 2019 as part of the general biological surveys performed for the proposed Project. The tricolored blackbird was not detected within the proposed Project area, which does not support suitable foraging or breeding habitat.

Proposed Borrow Sites

Burrowing Owl (Athene cunicularia). Focused surveys for the burrowing owl were conducted for proposed borrow sites 1 and 2 on February 26, 2019; April 16, 2019; May 21, 2019; and July 2, 2019. Focused surveys were conducted for proposed Borrow Site 3 on February 28, 2019; April 16, 2019; May 22, 2019; and July 3, 2019. The focused surveys for proposed borrow sites 4 and 5 were conducted on February 27, 2019; April 16, 2019; May 22, 2019; and July 3, 2019. No burrowing owls were detected within proposed borrow sites 1 through 5.

Least Bell's Vireo (Vireo bellii pusillus). Focused surveys for the least Bell's vireo were conducted on April 11 and 25; May 8, 20, and 31; June 11 and 27; and July 8, 2019 according to survey protocol for the species. The least Bell's vireo was detected within proposed Borrow Site 1 within the southern willow scrub habitat. The least Bell's vireo was also detected within the vicinity of proposed Borrow Sites 2 and 5; however, it was not detected within Borrow Site 2 or 5. The least Bell's vireo was not detected within proposed borrow sites 2, 3, 4, and 5, which do not support suitable habitat for the species.

It is assumed that the least Bell's vireo may be nesting within approximately 0.16 acre of southern willow scrub habitat and foraging within 4.46 acres of freshwater marsh/disturbed freshwater marsh habitat within proposed Borrow Site 1 (containing black willow thickets, tamarisk thickets, and cattail marshes). As mentioned above, there is no foraging habitat for the vireo present within proposed borrow sites 2, 3, 4, or 5.

Tricolored Blackbird (Agelaius tricolor). Surveys for the tricolored blackbird for all suitable habitat areas within the proposed borrow sites were conducted on March 12 and 13, 2019 as part of the general biological surveys performed for the proposed Project. The tricolored blackbird was observed foraging within and adjacent to proposed Borrow Site 4 near a known population of blackbirds associated with the Mill Creek Wetlands. Tricolored blackbirds were not detected in proposed borrow sites 1, 2, 3, or 5.

Proposed Other Features

Off-Site Storm Drain Improvement Area

Burrowing Owl (Athene cunicularia). Focused surveys for the burrowing owl were conducted at the proposed Off-Site Storm Drain Improvementarea on February 26, 2019; April 23, 2019; May 22, 2019; and July 2, 2019. No burrowing owls were detected within this site.

Least Bell's Vireo (Vireo bellii pusillus). Focused surveys for the least Bell's vireo were conducted on April 11 and 25; May 8, 20, and 31; June 11 and 27; and July 8, 2019 according to survey protocol for the species. The least Bell's vireo was not detected within the proposed Off-Site Storm Drain Improvement area, which traverses through a golf course and contains a developed concrete-lined channel and ornamental vegetation, all of which have very low potential to support vireo due to lack of suitable habitat.

Tricolored Blackbird (Agelaius tricolor). Surveys for the tricolored blackbird for all suitable habitat areas within the proposed Off-Site Storm Drain Improvement area were conducted on March 12 and 13, 2019 as part of the general biological surveys performed for the Project. No tricolored blackbirds were detected within this site

Exhibit 3.3 – Burrowing Owl Survey


Special-Status Wildlife Species Not Observed but with a Potential to Occur

Yellow Warbler. There is potential for the state Species of Special Concern yellow warbler (*Setophaga petechia*) to occur as this species' habitat requirements generally overlap with those of the least Bell's vireo. However, the proposed Project area, proposed Off-Site Storm Drain Improvement area, and proposed borrow sites 2, 3, 4 and 5 do no support suitable habitat for this species. Moreover, the proposed Project area and proposed Off-Site Storm Drain Improvement area lack suitable nesting habitat, and superior nesting habitat is present near off-site areas such as the Prado Basin. The yellow warbler was not detected on site during any of the focused surveys conducted for the least Bell's vireo.

Yellow-Breasted Chat. There is potential for the state Species of Special Concern yellow-breasted chat (*Icteria virens*) to occur as this species' habitat requirements generally overlap with those of the least Bell's vireo. However, the yellow-breasted chat was not detected during any of the focused surveys conducted for the least Bell's vireo. The proposed Project area, proposed Off-Site Storm Drain Improvement area, and proposed borrow sites 2, 3, 4 and 5 do not support suitable habitat for the species. Moreover, the proposed Project area and proposed Off-Site Storm Drain Improvement area lack suitable nesting habitat, and superior nesting habitat is present near off-site areas such as the Prado Basin.

White-Tailed Kite. There is moderate potential for the state Fully Protected white-tailed kite (*Elanus leucurus*) to nest within large ornamental trees and forage within the proposed Project area, but not within proposed borrow sites 1 through 5.

Bald Eagle. The state listed as Endangered bald eagle (*Haliaeetus leucocephalus*) has the potential to forage within the proposed Project; however, this species is not expected to nest within proposed Project as the proposed Project is located approximately one-half to one mile from the nearest large body of open water.

Swainson's Hawk. The state listed as Threatened Swainson's hawk (*Buteo swainsoni*) has the potential to forage within the proposed Project; however, the proposed Project is located outside of the nesting range for this species.

Golden Eagle. The state Fully Protected golden eagle (*Aquila chrysaetos*) has the potential to forage within the proposed Project; however, the proposed Project does not contain the high cliffs and rocky escarpments used for nesting by this species.

American Peregrine Falcon. The state Fully Protected American peregrine falcon (*Falco peregrinus anatum*) has the potential to forage within the proposed Project; however, the proposed Project does not contain the high cliffs, tall buildings, and bridges used for nesting by this species.

Bat Species. Five special-status bats have potential to forage within the proposed Project; these bat species are the: big free-tailed bat (*Nyctinomops macrotis*), pallid bat (*Antrozous pallidus*), western mastiff bat (*Eumops perotis californicus*), western yellow bat (*Lasiurus xanthinus*), and Yuma myotis (*Myotis yumanensis*). None of these species are state or federally listed but four of the five are state Species of Special Concern. Of these, the western yellow bat has the potential to roost within ornamental trees within the proposed Project area and the two sycamore trees within proposed Borrow Site 5. No suitable habitat is present within the remainder of the proposed Project.

3.1.1.5 Critical Habitat

Proposed Project area

The proposed Project area is not located within USFWS-designated critical habitat areas. Exhibit 3.4, Critical Habitat, depicts where critical habitat does occur within the proposed Project.

Proposed Borrow Sites

Proposed borrow sites 2 and 4 are not located within the USFWS-designated critical habitat areas. Proposed borrow sites 1, 3, and 5 are within mapped designated critical habitat for the state and federally listed endangered least Bell's vireo. During a 2019 focused survey, one detection of least Bell's vireo was made at the southern boundary of Borrow Site 1 within the freshwater marsh and southern willow scrub habitat. Borrow sites 3 and 5 are comprised of ruderal and disturbed habitat that do not contain the primary constituent elements or physical/biological attributes which could be utilized by the vireo for foraging or nesting activities. Exhibit 3.4, Critical Habitat, depicts where critical habitat occurs within these proposed borrow sites, and Exhibit 3.5, Least Bell's Survey Map, depicts the location of the vireo territory within proposed Borrow Site 1.

Proposed Other Features

Off-Site Storm Drain Improvement area

The proposed Off-Site Storm Drain Improvement area is within the mapped designated critical habitat for the state and federally listed endangered least Bell's vireo. The Off-Site Storm Drain Improvement area contains ornamental and ruderal/disturbed vegetation that does not contain the primary constituent elements or physical/biological attributes which could be utilized by the vireo for foraging or nesting activities. Exhibit 3.4, Critical Habitat, depicts where critical habitat occurs in this proposed Other Feature.

Draft Environmental Assessment







Exhibit 3.5 - Least Bell's Vireo Survey Map

3.1.1.6 Wildlife Linkages/Corridors & Nurseries

Habitat linkages are areas which provide a communication between two or more other habitat areas which are often larger or superior in quality to the linkage. Such linkage sites can be quite small or constricted but can be vital to the long-term health of connected habitats. Linkage values are often addressed in terms of "gene flow" between populations, with movement taking potentially many generations.

Corridors are similar to linkages but provide specific opportunities for individual animals to disperse or migrate between areas, generally extensive but otherwise partially or wholly separated regions. Adequate cover and tolerably low levels of disturbance are common requirements for corridors. Habitat in corridors may be quite different than that in the connected areas, but if used by the wildlife species of interest, the corridor will still function as desired.

The proposed Project does not support any habitat linkage or wildlife corridor.

Wildlife nurseries are sites where wildlife concentrate for hatching and/or raising young, such as rookeries, spawning areas, and bat colonies. Nurseries can be important to both special-status species as well as commonly occurring species.

The proposed Project does not support a wildlife nursery.

3.1.1.7 Jurisdictional Delineation

Corps jurisdiction within the proposed Project area is limited to one concrete flood control channel (Cypress Channel) contained within the Off-Site Storm Drain Improvement area (Exhibit 3.6.1 – Corps/Regional Board Jurisdictional Delineation Map – Off Site Storm Drain ImprovementArea) and one drainage, Drainage 1, within Borrow Site 1 (Exhibit 3.6.2 – Corps/Regional Board Jurisdictional Delineation Map – Proposed borrow sites 1&2). There are no Corps jurisdictional waters located within the Project area or at Borrow Sites 2, 3, 4, or 5.

Corps jurisdiction within the proposed Project is 4.60 acres, of which 4.59 acres consists of jurisdictional wetlands. A total of 4,033 linear feet of stream is present. Table 3.1-8 depicts a summary of existing jurisdictional WoUS resources.

Location	WoUS EXISTING RESOURCE
Projectarea	0
Off-Site Improvement area	0.01 ac;
	22 LF
Borrow Site 1	4.59 ac;
	1,645 LF
Borrow Site 2	0
Borrow Site 3	0
Borrow Site 4	0
Borrow Site 5	0
TOTAL	4.6 ac;
	1,667 LF

 Table 3.1-8. Summary of WoUS Existing Resources

The proposed Project Jurisdictional Delineation Report is in Appendix A and a copy of the delineation impact memorandum is attached within Appendix A as well.

Proposed Project area

There are no jurisdictional WoUS associated with the proposed Project area. The riparian trees/shrubs identified in the Project area include salt cedar (*Tamarix ramosissima*), mulefat (*Baccharis salicifolia*), and black willow (*Salix gooddingii*), which are all located within several non-jurisdictional waste treatment ponds constructed within the Project area. As stated in Corps regulations, "Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 123.11(m) which also meet the criteria of this definition) are not waters of the United States." Therefore, the waste treatment ponds at the Project area would not be jurisdictional under Section 404 of the Clean Water Act.

Proposed Borrow Sites

Proposed Borrow Site 1

Drainage 1 is a natural, intermittent channel located in the central portion of proposed Borrow Site 1. Drainage 1 enters proposed Borrow Site 1 from under the roadway through a drainage pipeline beneath Pine Avenue from the north and flows in a north to south direction for 1,645 feet before leaving proposed Borrow Site 1 and entering the Prado Basin. Drainage 1 is contained in a defined channel. The OHWM within Drainage 1 ranges from 10 to 16 feet in width. Approximately 4.59 acres of Corps jurisdiction is present within Drainage 1, all of which consists of jurisdictional wetlands. A total of 1,645 linear feet of Corps stream is present.

Proposed Borrow Site 2

There is no Corps jurisdiction associated with Borrow Site 2. Borrow Site 2 previously supported a dairy operation which was recently abandoned, and approximately three waste treatment ponds remain from that dairy operation. Waste treatment ponds are designed to meet the requirements of the Clean Water Act and are not waters of the U.S.

Borrow Site 2 also conveys a roadside ditch, Ditch 1, located parallel to Johnson Avenue within proposed Borrow Site 2. Ditch 1 enters the proposed Project beneath Pine Avenue to the north and flows in a north to south direction for 2,366 feet before leaving proposed Borrow Site 2 and entering the Prado Basin. There is no Corps jurisdiction within Ditch 1 as it would not be regulated under 33 CFR Section 328.3 of the Clean Water Rule per the definition of non-jurisdictional waters provided in Section 328.3(b)(5).

Proposed Borrow Site 3

Proposed Borrow Site 3 does not contain any Corps jurisdiction. The site does not contain any drainages, only former waste treatment facilities, which would not be jurisdictional under Section 404 of the Clean Water Act.

Proposed Borrow Site 4

No Corps jurisdiction is associated with proposed Borrow Site 4. The site does not contain a drainage course, and while the site previously supported a dairy operation that was recently abandoned, no waste treatment ponds remain and no jurisdictional waters are present. Though proposed Borrow

Site 4 is located adjacent to the Mill Creek Wetlands, there is no Corps jurisdiction within the proposed Borrow Site.

Proposed Borrow Site 5

Proposed Borrow Site 5 previously supported a dairy operation that was recently abandoned, and approximately two to three (2-3) waste treatment ponds remain from that operation. However, these wastewater treatment ponds would not be jurisdictional under Section 404 of the Clean Water Act; therefore, no Corps jurisdiction is present within proposed Borrow Site 5.

Proposed Other Features

Off-Site Storm Drain Improvement Area

A portion of the proposed Off-Site Storm Drain Improvement area includes a section of Cypress Channel. Cypress Channel is a concrete-lined, concrete-bottomed flood control channel that flows in a north to south direction immediately east of the proposed Project area. The only portion of Cypress Channel that is included in the proposed Project is where the channel outlets from beneath an earthen road. At this location, Cypress Channel conveys perennial flows for 22 linear feet through a 28-foot wide headwall structure that consists of a concrete headwall, vertical wingwalls, and the bottom channel. Further downstream, Cypress Channel enters the Prado Basin. Approximately 0.01 acre of Corps jurisdiction is present within Cypress Channel. A total of 22 linear feet of Corps stream is present.







Exhibit 3.6.2 - Corps/Regional Board Jurisdictional Delineation Map - Borrow Sites 1 & 2

3.1.2 Significance Criteria

An impact to biological resources would be considered significantif a proposed Project results in:

- A direct adverse effect on a population of a threatened, endangered, or candidate species or the unmitigated loss of designated critical habitat for a listed or candidate species, to the extent that the regional population is diminished.
- An unmitigated, net loss in the habitat value of a sensitive biological habitat or area of special biological significance.
- Significant impedance to the wildlife movement.
- Significant loss to the population of any native wildlife or vegetation.
- Significant loss in overall diversity of the ecosystem.

3.1.3 Environmental Commitments

The following environmental commitments would be implemented to avoid or minimize potential effects to the biological resources.

EC BIO-1: Once borrow activities within proposed borrow sites 1 through 5 have been completed, the Project Applicant will include application of a native hydroseed mix to each proposed Borrow Site to minimize the spread of non-native, invasive plant species and for erosion control purposes post-construction. The application(s) of all hydroseeding will be performed as close as possible to the rainy season to allow the seed mix to establish and have the best possibility to succeed.

EC BIO-2: Temporary impacts to 0.76 acre of CSS habitat within proposed Borrow Site 4 will be offset by restoring native habitat within the construction footprint by the Project Applicant. The southern and eastern boundary of proposed Borrow Site 4, where temporary impacts would occur, will be reseeded with a specific CSS seed mix comprising of the same species currently present. The application(s) of all hydroseeding will be performed as close as possible to the rainy season to allow the seed mix to establish and have the best possibility to succeed. The Project Applicant or their designee will conduct annual maintenance for three years within the 0.76-acre area at proposed Borrow Site 4 hydroseeded as CSS.

EC BIO-3:

(1) Prior to construction, the Project Applicant will conduct a preconstruction burrowing owl survey in accordance with burrowingowl survey requirements. The guidelines stipulate that four focused survey visits be conducted between February 15 and July 15, with the first visit occurring between February 15 and April 15. The remaining three visits will be conducted three weeks apart from each other, with at least one visit occurring between June 15 and July 15. If burrowing owl(s) is/are detected on site, the owl(s) will be handled as indicated by the Resources Management Plan (RMP) and/or the CDFW's 2012 protocol. The RMP addresses mitigation requirements for impacts to burrowingowls. The RMP states that the 1995 CDFG Staff Report on Burrowing Owl Mitigation (as supplemented by the RMP) shall be followed when burrowing owls are detected on properties. If avoidance of occupied habitat is infeasible, provisions will be made to passively relocate owls from sites in accordance with the current 2012 CDFG Staff Report (supersedes 1995 CDFG Staff Report).

Consistent with the RMP, the following measures will apply to the proposed Project area regarding burrowing owl mitigation:

- Prior to disturbance of the occupied burrows, suitable and unoccupied replacement burrows will be provided at a ratio of 2:1 within the City-designated relocation area (e.g. the NTS basins). A qualified biologist through coordination with the City will confirm that the artificial burrows are currently unoccupied and suitable for use by owls.
- If a Project area-specific exclusion and translocation plan for burrowing owl has not already been approved by CDFW, the Project Applicant will retain a qualified biologist to prepare such a plan for review and approval by CDFW. This plan will identify the procedures to be followed to exclude and/or translocate burrowing owls from the Project area, with separate procedures identified for during the breeding season and outside of the breeding season. For translocated owls, natural or artificial burrows will be provided at a 2:1 ratio at an off-site relocation area.
- Until suitable replacement burrows have been provided/confirmed within the Citydesignated relocation area (e.g. the NTS basins), no ground disturbance (clearing, grubbing, grading) will occur within 50 meters (approximately 160 feet) of occupied burrows during the nonbreeding season (September 1 through January 31) or within 100 meters (approximately 250 feet) during the breeding season (February 1 through August 31) until the owls have fledged or have been relocated per the CDFW-approved exclusion and translocation plan. All occupied burrows will have a visible marker placed near them to ensure that ground-disturbing equipment and machinery do not come within the specified distance to prevent disturbance of the owls or collapse of the burrows.
- Owls will not be excluded or translocated from occupied burrows and should not be disturbed during the nesting season (February 1 through August 31) unless a qualified biologist approved by CDFW verifies that juveniles from the occupied burrows are foraging independently and are capable of independent survival.
- Pursuant to mitigation measure B-3(8) of The Preserve Environmental Impact Report (EIR), and as noted on Page 4-39 of the RMP, the proposed Project will pay the required mitigation fee. One priority for funding supported by the mitigation fees is the establishment and long-term management of burrowing owl habitat within the Drainage Area B conservation area.

The proposed Project's implementation of these measures would minimize potential effects to burrowing owls and impacts would be less than significant.

(2) If there is more than a 14-day window between when the focused survey is performed and ground disturbance, a qualified biologist would conduct a pre-construction presence/absence survey for burrowing owls within 14 days prior to site disturbance and again within 48 hours of disturbance. If burrowing owls are detected on site, the owls would be relocated/excluded from the site outside of the breeding season following accepted protocols, and subject to the approval of CDFW (as described above).

EC BIO-4: The Project Applicant will retain a qualified biologist (hereafter "Project Biologist") to conduct training and monitoring activities for the Proposed Project.

EC BIO-5: Vegetation clearing will be conducted outside of the general passerine nesting season (February 1 through August 31). If avoidance of the nesting season is not feasible, then the Project Biologist will conduct a nesting bird survey, including suitable habitat within a 500-foot radius,

within three days prior any disturbance of the site, including disking, demolition activities, and grading. If active nests are identified, the biologist will establish suitable buffers around the nests, and the buffer areas will be avoided until the nests are no longer occupied and the juvenile birds can survive independently from the nests.

If the survey identifies the presence of active nests, then the Project Biologist would notify the Corps Biologist staff immediately (Megan Wong at 213-448-4517) and provide a copy of maps showing the location of all active nests and a species-appropriate buffer zone around each active nest sufficient to protect the nest from substantial adverse direct and/or indirect impacts. The Project Biologist may make other recommendations to determine the size of the buffer zone (such as the installation of temporary noise barriers). The size and location of all buffer zones, if required, would be determined by the qualified biologist and subject to review and approval by the Corps. The locations of any active nests and the size and location of all buffer zones determined by the qualified biologist and approved by the Corps would be indicated on the grading plan as reference.

The approved buffer zones (i.e., active bird nest protection zones) would be marked in the field with construction fencing. No construction vehicles would be permitted within these zones unless directly related to the management or protection of the legally protected bird species, until all nestlings have fledged and left the nest (or the nest has failed) as confirmed by a professional biological monitor. The biological monitor will have authority to redirect construction activities if nesting pairs exhibit signs of disturbance.

In the event that a nest is abandoned despite the established buffer as determined by the Project Biologist, if the nestlings are still alive, the Project Applicant/Developer or its designee would contact the California Department of Fish and Wildlife (CDFW) and, subject to CDFW approval, fund the recovery and hacking (controlled release of captive reared young) of the nestling(s).

EC BIO-6: No direct impact to vireo habitat where the species was detected at Borrow Site 1 will occur. Borrow/grading activities will occur outside of the nesting season for the vireo (March 15th to September 15th) to the greatest extent practicable. If grading activities extend into the nesting season, a sound wall barrier, such as hay bales or other noise attenuation methods will be constructed along the edge of the work area (a minimum of 125 feet from occupied habitat) prior to March 15 to avoid adverse effects related to construction noise. The Project Biologist will conduct noise monitoring for the duration of construction activities during the nesting season to ensure LBVI are not exposed to construction noise that exceeds 60 dBA Leq. 60 dBA Leq noise threshold level is used for Santa Ana River Mainstem (SARM) projects in the vicinity and so it is also proposed for this project. If noise thresholds are exceeded, then additional measures will be implemented, which may include shifting activities further away from habitat, modifying construction equipment and procedures, or halting work in this area until after the nesting season, or until the Project Biologist confirms that LBVI are no longer present.

EC BIO-7: Construction and/or borrow activities within Borrow Site 4 will occur outside of the nesting season for the tricolored blackbird (March 15th to September 15th) to the greatest extent practicable. If avoidance of the nesting season is not practicable, then the Project Biologist will conduct a nesting bird survey within three days prior any disturbance of the site, including disking, demolition activities, and grading. If active nests are identified, the biologist will establish suitable buffers around the nests, including sound walls, hay bales, or other measures designed to reduce

potential indirect noise effects and to ensure noise levels are below the 60 dBA Leq level at these buffer area locations. The buffer areas would be avoided until the nests are no longer occupied and the juvenile birds can survive independently from the nests.

EC BIO-8: Based on the presence of the least Bell's vireo at the southern boundary of Borrow Site 1 and its presence within the vicinity of borrow sites 2 and 5, and the presence of the tricolored blackbird (in a foraging role) in Borrow Site 4, night lighting will be shielded and directed away from foraging or nesting habitat areas, and will be placed in a manner that would not cause a significant effect on sensitive wildlife species at least 500 feet from known vireo territories in Borrow Site 1 and in the vicinity of borrow sites 2 and 5, and known nesting locations of the tricolored blackbird in Borrow Site 4. Additionally, no night work will be conducted within Borrow Site 1 during LBVI nesting season.

3.1.4 Environmental Consequences

No Action Alternative

Under the No Action Alternative, the Corps would not issue a license agreement or Section 404 permit to the applicant. The applicant would not modify the Federal channel or affect WoUS. Based on the above, there would be no impacts to biological resources located within the area encompassing the proposed project.

Preferred Alternative/Proposed Project

Under the Preferred Alternative, the Proposed Action would not permanently impact WoUS. The storm drain outlet would enter Cypress Channel above the OHWM and would therefore not permanently impact Corps jurisdictional waters or aquatic resources. Construction of the storm drain connection would occur primarily from the upland west side of the Cypress Channel concrete wing wall and access into the channel during construction activities would be limited to workers on foot with hand tools. Temporary impacts to WoUS would occur as a result of a temporary construction footprint to implement spill prevention control design features for the storm drain construction at the Cypress Channel. Moreover, under the Preferred Alternative, the Corps would not issue a Section 408 permit; rather, the Preferred Alternative would consist of a Real Estate action with Section 408-level review for the proposed Project.

Vegetation Impacts

The analysis below is based on the Biological Technical Report (Appendix A) prepared for the proposed Project dated September 2019 and updated in January 2020. Avoidance and minimization measures to sensitive biological resources have been developed for borrow site 1. Table 3.1-9 below summarizes vegetation acreage distribution and grading impacts.

	TO TAL ACREAGE	GRADING IMPACT ACREAGE	CRITICAL HABITAT LBVI	FO RAGING HABITAT TRICOLORED BLACKBIRD
Project area	96.9	96.9	0	0
Off-Site Improvement	0.34	0.32	0.14	0
area				
Borrow Site 1	43.67	28.51	0.23	0
Borrow Site 2	38.51	20.79	0	0
Borrow Site 3	84.25	31.97	0	0
Borrow Site 4	12.92	11.34	0	11.34
Borrow Site 5	21.28	18.58	0	0
TOTAL	297.87	208.41	0.37	11.34

	Table 3.1-9. Summar	v of Vegetation	Distribution	and Grading	Impact Acreages
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Vegetation Communities. There are three native vegetation communities present within the proposed Project: freshwater marsh/disturbed freshwater marsh, southern willow scrub, and coastal sage scrub habitat. Proposed Project impacts to coastal sage scrub (temporary impacts) and other vegetation types are discussed below; no impact to freshwater marsh/disturbed freshwater marsh or southern willow scrub habitatis proposed. The proposed Project will permanently impact up to 207.99 acres of non-native vegetation/ornamental vegetation in the form of 207.69 acres of ruderal/disturbed habitat and 0.30 acre of ornamental habitatfor a total permanent impact of up to 207.99 acres of disturbed lands. A Vegetation Impact Map is included as Exhibit 3.7, and Tables 3.1-10 through 3.1-16 provide a summary of vegetation community impacts.



Exhibit 3.7 - Vegetation Impacts Map

K-029E2-THE REST/1090-02CHNO/1090-02_GIS/Impacts/GIS/1090-2_Vegetation_Impacts/KeyMap.mxd

Proposed Project area

The proposed Project will permanently impact 96.9 acres of non-native vegetation in the form of ruderal/disturbed habitat within the proposed Project area. As previously discussed, the ruderal/disturbed habitat is not a natural vegetation community but rather consists of lands dominated by several non-native grass and forbs species. The removal of approximately 97 acres of ruderal/disturbed habitat from within the proposed Project area would not result in significant direct or indirect impacts to vegetation as these lands are not expected to support quality habitat for native plants and animals due to the decades of disking and pasture use by dairy cattle. Therefore, the change of sensitive biological habitat value, impact vegetation or loss in overall diversity of the ecosystem would not occur as a result of the proposed Project.

Table 5.1-10. Summary of Vegetation/Land Ose Impacts, Froposed Froject and	Гable 3.1-10	1-10. Summary of Ve	getation/Land Use	Impacts, Proposed	Project area
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VEGETATION TYPE/ LAND USE TYPE	ACREAGE
Ruderal/Disturbed	96.9
TOTAL	96.9

Proposed Borrow Sites

Proposed Borrow Site 1

The proposed Project will result in permanent impacts of up to 28.51 acres of disturbance to ruderal/disturbed habitat within proposed Borrow Site 1. As similarly discussed above, the removal of 28.51 acres of ruderal/disturbed habitat from within proposed Borrow Site 1 would not result in significant impacts to vegetation as this habitat type is dominated by non-native grass and forb species and the lands are not expected to support quality habitat for native plants and animals. Further, as per EC BIO-1, once borrow activities are completed within proposed borrow sites 1 through 5, a native hydroseed mix will be applied to each proposed Borrow Site to avoid infestation or the spread of invasive species. Therefore, the change of sensitive biological habitat value, impact to vegetation or loss in overall diversity of the ecosystem would not occur as a result of the proposed Project.

VEGETATION TYPE/ LAND USE TYPE	ACREAGE
Ruderal/Disturbed	28.51
TOTAL	28.51

Proposed Borrow Site 2

The proposed Project will result in permanent impacts of up to 20.79 acres of disturbance to ruderal/disturbed habitat within proposed Borrow Site 2 while no impacts to native habitat communities will occur within proposed Borrow Site 2. The removal of 20.79 acres of ruderal/disturbed habitat within proposed Borrow Site 2 would not result in significant impacts to vegetation. As previously discussed, ruderal/disturbed habitat consists of lands dominated by non-native grass and forb species and the lands are not expected to support quality habitat for native

plants and animals due to decades of disking and dairy cattle pasture use. Further, as per EC BIO-1, once borrow activities are completed within proposed borrow sites 1 through 5, a native hydroseed mix will be applied to each proposed Borrow Site to avoid infestation or the spread of invasive species. Therefore, the change of sensitive biological habitat value, impact to vegetation or loss in overall diversity of the ecosystem would not occur as a result of the proposed Project.

Table 3.1-12.	Summary of V	egetation/Land	Use Impacts, P	roposed Borrow	Site 2
14010 3.1 12.	Summary or V	egetation/ Dana	lose impacts, i	10poseu Dollow	Site 2

VEGETATION TYPE/ LAND USE TYPE	ACREAGE
Ruderal/Disturbed	20.79
TOTAL	20.79

Proposed Borrow Site 3

The proposed Project will result in permanent impacts of up to 31.97 acres of disturbance to ruderal/disturbed habitat within proposed Borrow Site 3. No impacts to native habitat will occur within proposed Borrow Site 3 as a result of the proposed Project. As similarly discussed above, the removal of 31.97 acres of ruderal/disturbed habitat within proposed Borrow Site 3 would not result in direct or indirect significant impacts to vegetation as this habitat type is dominated by non-native grasses and forbs, and the lands are not expected to support quality habitat for native plants and animals due to its history of disking and pasture use. Further, as per EC BIO-1, once borrow activities are completed within proposed borrow sites 1 through 5, a native hydroseed mix will be applied to each proposed Borrow Site to avoid infestation or the spread of invasive species. Therefore, the change of sensitive biological habitat value, impact to vegetation or loss in overall diversity of the ecosystem would not occur as a result of the proposed Project.

Table 3.1-13.	Summary of	Vegetation/l	Land Use Imj	pacts, Proposed	Borrow Site 3
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VEGETATION TYPE/ LAND USE TYPE	ACREAGE
Ruderal/Disturbed	31.97
TOTAL	31.97

Proposed Borrow Site 4

The proposed Project will result in permanent impacts of up to 10.58 acres of disturbance to ruderal/disturbed habitat and temporary impacts of up to 0.76 acres of disturbance to CSS habitat within proposed Borrow Site 4. The removal of 10.58 acres of ruderal/disturbed habitat from within proposed Borrow Site 4 would not result in significant impacts to vegetation as a result of the proposed Project. The ruderal/disturbed habitat is dominated by non-native grasses and forbs and the lands are not expected to support quality habitat for native plants and animals due to its history of disking and pasture use. The project would result in temporary impacts associated with the removal of up to 0.76 acre of CSS habitat. With the implementation of EC BIO-2, the impacts would be reduced to a less than significant level with post-construction reseeding of the impacted area with a specific CSS seed mix comprising of the same species currently present followed by three years of maintenance. In addition, as Per EC BIO-1, once borrow activities are completed within borrow sites 1 through 5, a native hydroseed mix will be applied to each proposed Borrow Site to avoid infestation

or the spread of invasive species. Therefore, the change of sensitive biological habitat value, impact to vegetation or loss in overall diversity of the ecosystem would be less than significant as a result of the proposed Project.

VEGETATION TYPE/ LAND USE TYPE	ACREAGE
Ruderal/Disturbed	10.58
CSS	0.76 (temporary)
TOTAL	11.34

Table 3.1-14.	Summary of	Vegetation/l	Land Use Imp	pacts, Proposed	Borrow Site 4
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Proposed Borrow Site 5

The proposed Project will permanently impact up to 18.58 acres of ruderal/disturbed habitat. The removal of 18.58 acres of ruderal/disturbed habitat from within proposed Borrow Site 5 would not result in significant impacts to vegetation as this habitat type is dominated by non-native grasses and forbs, and the lands are not expected to support quality habitat for native plants and animals due to its history of disking and pasture use. Per EC BIO-1, once borrow activities are completed within borrow sites 1 through 5, a native hydroseed mix will be applied to each proposed Borrow Site to avoid infestation or the spread of invasive species. Therefore, the change of sensitive biological habitat value, impact to vegetation or loss in overall diversity of the ecosystem would not occur as a result of the proposed Project.

Table 3.1-15.	Summary of Vegetation/Lan	d Use Impacts, Proposed Borrow Site 5
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VEGETATION TYPE/ LAND USE TYPE	ACREAGE
Ruderal/Disturbed	18.58
TOTAL	18.58

Proposed Other Features

Off-Site Storm Drain Improvement Area

The proposed Project will permanently impact up to 0.30 acre of ornamental habitat and temporarily impact up to 0.007 acre of the developed area that pertains to the connection to the concrete headwall. Temporary impacts would result from the temporary construction footprint for the connection of the off-site storm drain to the developed/disturbed land. The storm drain connection would terminate within the concrete headwall structure and the headwall structure would remain in the same location post-construction. No impacts to native habitat communities within the proposed Off-Site Storm Drain Improvement area would occur. As previously discussed, vegetation within the ornamental habitat consists of ornamentally planted and maintained species, and these lands are not expected to support quality habitat for plants and animals. Moreover, no vegetation is present within the developed area as the area consists of a concrete-sided, concrete-bottomed flood control channel (the Cypress Channel). Therefore, the change of sensitive biological habitat value, impact to vegetation or loss in overall diversity of the ecosystem would not occur as a result of the proposed Project.

Table 3.1-16. Summary of Vegetation/Land Use Impacts, Proposed Off-Site Storm DrainImprovement Area

VEGETATION TYPE/ LAND USE TYPE	ACREAGE
Ornamental	0.30
Developed	0.007 (Connection to the Concrete
	Headwall only)
TOTAL	0.31

Special Status Plants

No special-status plants were detected for the proposed Project. Table 4-8 of the attached Biological Technical Report (Appendix A) provides a list of special-status plants evaluated for the proposed Project (including the proposed Project area, proposed borrow sites 1-5, and the proposed Off-Site Storm Drain Improvement area) through a general biological survey and habitat assessment. Of the special-status plants evaluated for the proposed Project, the occurrence status for all plants were determined to be either "Does not occur" (i.e., the site does not contain habitat for the species and/or the site does not occur within the geographic range of the species) or "Absent" (i.e., the site contains suitable habitat for the species, but the species has been confirmed absentthrough focused surveys).

The proposed Project has been either a working farm or dairy operation for several decades and although there are lands that are dominated by non-native grasses and forbs, there is no potential for the lands to function as a natural vegetation community that would support special-status plants with the exception of freshwater marsh, including disturbed freshwater marsh. Therefore, the proposed Project will not affect or result in the loss of special-status plants, native vegetation population, or overall diversity of the ecosystem.

Special Status Wildlife Species

Burrowing Owl. The proposed Project has the potential to impact burrowing owl if this species is present during construction.

Least Bell's Vireo. The proposed Project has the potential to impact least Bell's vireo if this species is present during construction.

Tricolored Blackbird. The proposed Project has the potential to impact tricolored blackbird if this species is present during construction.

Proposed Project area

Burrowing Owl. As discussed in Section 3.1.1.5 Special Status Animals above, there are burrows on the proposed Project area that are potentially suitable for burrowing owl and one burrowing owl pair has been observed within the proposed Project area. Although a single burrowing owl pair was detected within the proposed Project area, the owls are assumed to be breeding based on their presence during the breeding season and occurrence within the portion of the proposed Project area located outside of the RMP. The possible presence of the burrowing owl is a potentially significant impact if this species is present during construction; however, with the implementation of EC BIO-3,

the level of impact would be less than significant and would not result in the loss of native wildlife or overall diversity of the ecosystem.

Least Bell's Vireo. The least Bell's vireo was not detected within the proposed Project area during the focused surveys conducted for the species. It is expected that the proposed Project would have no effect on vireo as a result of construction activities taking place within the proposed Project area as the proposed Project area primarily consists of ruderal/disturbed vegetation and does not support suitable habitat for the vireo. However, suitable nesting and foraging habitat are present within offsite areas, such as the Prado Basin. Thus, due to the lack of suitable habitat and absence of the vireo within or immediately adjacent to the proposed Project area, and with the implementation of EC BIO-4 and EC BIO-5, no effect to the Federally listed least Bell's vireo would occur within the proposed Project area and there would not be a loss of native wildlife or diversity of the ecosystem as a result of the proposed Project.

Tricolored Blackbird. The proposed Project area does not support suitable foraging or nesting habitat for the tricolored blackbird and the species was not detected within the proposed Project area during biological surveys conducted for the species. Therefore, there is a low potential for impacts to the tricolored blackbird to occur within the proposed Project area and the loss of native wildlife or overall diversity of the ecosystem would not occur.

Proposed Borrow Sites

Burrowing Owl. No burrowing owls were detected during the focused surveys conducted at proposed borrow sites 1 through 5; however, potentially suitable burrows for burrowing owls were observed in proposed borrow sites 1 through 5. The presence of burrowing owl is a potentially significant impact if this species is present during construction; however, with the implementation of EC BIO-3, impacts to the loss of native wildlife or diversity of the ecosystem would be less than significant.

Least Bell's Vireo. A least Bell's vireo was detected within proposed Borrow Site 1 at the southern boundary of the borrow site, within the freshwater marsh and southern willow scrub habitat. It is assumed that the vireo may be nesting within approximately 0.16 acre of southern willow scrub and foraging within 4.46 acres of freshwater marsh/disturbed freshwater marsh habitat (within black willow thickets, tamarisk thickets, and cattail marshes) within Borrow Site 1. As previously discussed, vegetation impacts within proposed Borrow Site 1 would occur within ruderal/disturbed habitat and no impacts to southern willow scrub or freshwater marsh/disturbed freshwater marsh within proposed Borrow Site 1 would occur. Grading was redesigned to avoid areas within and immediately adjacent to the riparian habitat and grading activities would occur outside of the freshwater marsh and southern willow scrub habitat. Additionally, indirect effects from grading on Borrow Site 1 will be avoided as the drainage flows and hydrology of the site will be substantially the same as the existing condition of the site. The grading design on proposed Borrow Site 1 has been designed to maintain flows draining to the same areas in the same manner as existing conditions per requirements from the Corps. Upon completion of grading activities at proposed Borrow Site 1, the proposed Project will conduct best management practices for erosion control that may include, but are not limited to, applying a native hydroseed to bare soils per environmental commitment EC BIO-1, use of a soil stabilizer, and/or placement of erosion control blankets.

Moreover, the proposed Project's Noise Impact Analysis (Appendix C) notes that the Equivalent Continuous (Average) Sound Level during construction activity ranges from 34.2 to 83.2 Leq in open space receiver locations. The threshold for special status wildlife species as per literature search,

including LBVI is 60 dBA Leq, which would be exceeded during construction soil import/export operations at proposed Borrow Site 1. Thus, EC BIO-6 would be implemented, which would include the implementation of sound attenuation measures if grading activities within proposed Borrow Site 1 are expected to extend into the nesting season. Additionally, per EC BIO-8, no night work will be conducted within Borrow Site 1 during LBVI nesting season.

Further, the ruderal/disturbed habitat that would be impacted is not expected to support quality habitat for native plants and animals. With implementation of EC BIO-4, EC BIO-5, EC BIO-6, and EC BIO-8 vegetation impacts within proposed Borrow Site 1 may affect, but are not likely to adversely affect the least Bell's vireo.

While least Bell's vireo was detected within the vicinity of proposed borrow sites 2 and 5, these proposed borrow sites do not contain foraging habitat for the species. Additional foraging habitat, however, is present in the project vicinity within the Prado Basin. Proposed borrow sites 3 and 4 also do not support suitable habitat for the vireo. Therefore, projects grading activities in borrow sites 2, 3, 4 and 5 would have no effect on vireo.

Tricolored Blackbird. Proposed borrow sites 1, 2, 3, and 5 do not support suitable foraging or nesting habitat for the tricolored blackbird, nor was this species detected within these sites during the biological surveys conducted. Tricolored blackbirds were detected within proposed Borrow Site 4 and a total of 10.58 acres of foraging habitat within proposed Borrow Site 4 would be impacted by the proposed Project. However, the blackbirds that were detected were only foraging and not nesting; therefore, the potential to impact the species is low given that more suitable habitat occurs within the Mill Creek Wetlands located adjacent to the proposed Project. With the implementation of EC BIO-6, EC BIO-7, and EC BIO-8, potential impacts to tricolored blackbird, loss of native wildlife or diversity of the ecosystem would be less than significant.

Proposed Other Features

Off-Site Storm Drain Improvement Area

Burrowing Owl. No burrowing owls or potentially suitable burrows for the species were detected during the focused surveys conducted at the proposed Off-Site Storm Drain Improvement area and therefore impacts to burrowing owls, loss of native wildlife or diversity of the ecosystem are not anticipated.

Least Bell's Vireo. The least Bell's vireo was not detected within the proposed Off-Site Storm Drain Improvement area during the focused surveys conducted for the species. While a total of 0.14 acre of lands designated as critical habitat would be impacted within this site through the permanent removal of up to 0.30 acre of ornamental vegetation within the proposed Off-Site Storm Drain Improvement area, these lands have been disturbed and are, as noted, dominated by ornamental vegetation. This ornamental habitat does not contain the primary constituent elements or physical/biological characteristics (i.e., riparian woodland habitat containing both canopy and shrub layers) that could be utilized for foraging or nesting by the vireo. Thus, as the vireo was not detected within the location during focused surveys, the 0.14 acre of critical habitat being impacted lacks primary constituent elements for vireo, and with the implementation of EC BIO-4 and EC BIO-5, the vegetation removal activities within the proposed Off-Site Storm Drain Improvement area may affect, but are not likely to adversely affect the least Bell's vireo at this location. *Tricolored Blackbird.* The tricolored blackbird was not detected within the proposed Off-Site Storm Drain Improvement area, and the site does not support suitable foraging or nesting habitat for the species. Therefore, there is a low potential for the blackbird to occur within this site and impacts are not expected to occur. Additionally, with implementation of EC BIO-6 any potential impacts to blackbird would be less than significant.

Critical Habitat

Proposed Project Area, Off-Site Storm Drain Improvement Area, and Borrow Sites

The proposed Project area, as well as Borrow Sites 2 and 4, are not located within USFWS-designated critical habitat areas, but the Off Site Storm Drain Improvement Area, and Borrow Sites 1, 3, and 5 are within mapped designated critical habitat for the least Bell's vireo. Project grading activities would avoid critical habitat areas within borrow sites 3 and 5 and therefore no effect to vireo critical habitat would occur for these two borrow sites.

The proposed Project contains two areas that are designated vireo critical habitat that would be affected by grading activities: Off-Site Storm Drain Improvement Area (0.14 acre) and proposed Borrow Site 1 (0.23 acre). Although the area at the Off-Site Storm Drain Improvement Area is designated as critical habitat for vireo, the vegetation consists of ornamental habitat that is maintained by the El Prado Golf Course and Cypress Channel is concrete-lined and includes an earthen maintenance road over the channel. Borrow Site 1 designated critical habitat that would be affected contains ruderal habitat with vegetation species such as jimson weed, mulefat, common sunflower, Canada horseweed, nightshade, and many other non-native invasive species (Exhibit 11 – Sheet 3). These two areas do not contain the primary constituent elements (PCEs) or physical/biological attributes (riparian woodland habitat that generally contains both canopy and shrub layers) which would be utilized by vireo for foraging or nesting. The proposed Project will include implementation of EC BIO-1, application of a native seed mix to the 28.51 acres at Borrow Site 1 where borrow activities would be conducted to avoid the spread of non-native, invasive plant species post construction. While the Corps is initiating Section 7 informal consultation with the U.S. Fish and Wildlife Service, it is expected that no additional measures beyond the application of native hydroseed at these locations would be required to offset impacts to vireo critical habitat within the proposed Borrow Site 1 area. Thus, proposed Project activities may affect, but is not likely to adversely affect least Bell's vireo critical habitat within these two locations.



Exhibit 3.8 - Least Bell's Vireo Critical Habitat Impact Map

Wildlife Linkages

The proposed Project would not interfere or impact the movement of native resident or migratory fish or wildlife species or established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites. The proposed Project lacks migratory wildlife corridors and wildlife nursery sites. Therefore, no impacts to wildlife linkages are expected to occur.

Jurisdictional Impacts

The proposed Project has been designed to avoid permanent impacts to all areas of jurisdictional waters; thus, no permanent impacts to jurisdictional waters are expected to occur. Up to 0.007 acre, 22 linear feet (LF) of temporary impacts to WoUS would occur as a result of a temporary construction footprint within the proposed Off-Site Storm Drain Improvement area. Table 3.1-17 depicts a summary of existing jurisdictional WoUS resources and permanent and temporary impacts to WoUS from implementation of the proposed Project.

Table 3.1-17. Summary of Existing Jurisdictional Resources and Impacts to Jurisdictional Resources

	WoUS EXISTING RESOURCE	WoUS TEMPORARY IMPACTS	WoUS PERMANENT IMPACTS
Projectarea	0	0	0
Off-Site Improvement area	0.01 ac; 22 LF	0.007 ac; 22 LF	0
3orrow Site 1	4.59 ac; 1,645 LF	0	0
3orrow Site 2	0	0	0
3orrow Site 3	0	0	0
3orrow Site 4	0	0	0
3orrow Site 5	0	0	0
TOTAL	4.6 ac; 1,667 LF	0.007 ac; 22 LF	0

Waters of the U.S.

Based on the current site plan, the proposed Project will not result in any permanent impacts to Corps jurisdictional waters or aquatic features under Section 404. Further, the proposed Project has additionally been designed to minimize temporary impacts to Corps jurisdictional features within Cypress Channel. Temporary impacts of 0.007 acre, 22 LF to WoUS within the Cypress Channel would occur as a result of a temporary construction footprint to implement spill prevention control design features for the storm drain construction at the Cypress Channel. As previously discussed, the storm drain at the Cypress Channel will be constructed primarily from the west side of the concrete wing wall on the west side of the Channel. A tarp will be installed above the OHWM on the east face of the concrete wing wall to prevent construction debris from spilling/entering into the Cypress Channel during construction of the storm drain. Further, access into the Channel during the construction will be limited to workers on foot using hand tools; no mechanized equipment would be used. Thus, temporary impacts would not be significant under this analysis.

Operation and Maintenance

As previously discussed, operations for the proposed Project area would include those typical of industrial buildings, such as employee presence and the transport of items to and from the proposed buildings. Maintenance for the proposed Project area would include routine trash pickup, sediment and debris removal from the water quality/detention basin following each storm or deposition of material, and routine maintenance on and around the roadway, buildings and landscaping of the proposed Project area. Moreover, per EC BIO-1, the proposed borrow sites would have native plant hydroseed at the areas of ground disturbance from grading activities. Thereafter, the sites would remain vacant and undisturbed as in pre-Project conditions. Further, the Off-Site Storm Drain Improvement area's operations and maintenance would include routine clearing of debris from the storm drain area as-needed. Therefore, potential operation and maintenance impacts associated with the proposed Project to biological resources would be less than significant. No effect to listed species or critical habitat would occur. There would be no net loss of sensitive biological habitat value; no impact to wildlife movement or loss of native wildlife or vegetation or loss in overall diversity of the ecosystem.

Majestic Chino Heritage



Exhibit 3.9 - Impacts to Corps/Regional Board Jurisdiction Map - Proposed Project area



Exhibit 3.10 – Impacts to Corps/Regional Board Jurisdiction Map – Proposed Borrow Sites 1 & 2

3.2 Air Quality

3.2.1 Affected Environment

An Air Quality and Greenhouse Gas Analysis was prepared for the proposed Project and is included in Appendix B.

National Ambient Air Quality Standards

The Clean Air Act identified and established the National Ambient Air Quality Standards (NAAQS) for a number of criteria pollutants in order to protect the public health and welfare. The criteria pollutants include ozone (O3), carbon monoxide (CO), suspended particulate matter (PM), sulfur dioxide (SO2), nitrogen dioxide (NO2), and lead (Pb). PM emissions are regulated in two size classes: Particulates up to 10 microns in diameter (PM10) and particulates up to 2.5 microns in diameter (PM2.5).

A region is given the status of "attainment" or "unclassified" if the NAAQS have not been exceeded. A status of "nonattainment" for particular criteria pollutants is assigned if the NAAQS have been exceeded. Once designated as nonattainment, attainment status may be achieved after three years of data showing non-exceedance of the standard. When an area is reclassified from nonattainment to attainment, it is designated as a "maintenance area," indicating the requirement to establish and enforce a plan to maintain attainment of the standard.

General Conformity Rule

Section 176(c) of the federal Clean Air Act states that a federal agency cannot issue a permit for, or support an activity within, a nonattainment or maintenance area unless the agency determines it will conform to the most recent U.S. Environmental Protection Agency approved State Implementation Plan (SIP). A conformity determination is required for each criteria pollutant or precursor where the total of direct and indirect emissions of the criteria pollutant or precursor in a nonattainment or maintenance area caused by the federal action would equal or exceed the General Conformity applicability rates specified in 40 C.F.R. section 93.153. Operation and maintenance emissions are considered exempt under 40 C.F.R. 93.153, therefore they are not included in the total direct and indirect and indirect effects of the federal action.

The proposed Project area is in the South Coast Air Basin (SCAB). The SCAB is composed of Orange County and the urban, non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. The climate of the SCAB is determined primarily by terrain and geography. Local climactic conditions are characterized by warm summers, mild winters, infrequent rainfall, moderate daytime on-shore breezes, and moderate humidity. The SCAB's normally mild climate is occasionally interrupted by periods of hot weather, winter storms, and hot easterly Santa Ana winds.

Table 3.2-1 summarizes the federal attainment status of criteria pollutants in the SCAB.

Criteria Pollutant	State Designation	Federal Designation	General Conformity Applicability Rates (tons/year)
Ozone (VOC)	Nonattainment	Nonattainment	10
PM ₁₀	Nonattainment	Attainment	100
PM _{2.5}	Nonattainment	Nonattainment	100
СО	Attainment	Unclassifiable/Attainment	100
NO2	Attainment	Unclassifiable/Attainment	100
SO2	Unclassifiable/Attainment	Unclassifiable/Attainment	100
Pb	Attainment	Unclassifiable/Attainment	25

Table 3.2-1: Attainment Status of Criteria Pollutants in the SCAB

Based on the present attainment designation for the SCAB, a federal action would conform to the SIP if annual emissions are below 100 tons of CO, PM2.5, PM10, or N02, 10 tons of VOC, or 25 tons of lead.

3.2.2 Significance Criteria

Impacts would be significant if the proposed Project would cause one or more of the following conditions to occur:

• Exceeds General Conformity Rule Applicability Rates.

3.2.3 Environmental Commitments

None required or proposed.

3.2.4 Environmental Consequences

No Action Alternative

Under the No Action Alternative, the proposed Project area would remain in pre-project conditions. No construction would occur with no impacts related to air quality.

Preferred Alternative/Proposed Project

Proposed Project area, Borrow Sites, and Other Features

General Conformity

The excavation and filling earthwork activities associated with the proposed Project would involve the operation of heavy construction equipment that would produce fuel combustion exhaust emissions. As part of the environmental review of the federal action, a general conformity evaluation

has been completed pursuant to 40 C.F.R. 93.153 for the direct effects from construction as related to construction emissions. The general conformity regulations apply because the proposed Project is situated in San Bernardino County within the SCAB, and the County is designated as a nonattainmentarea for ozone, and PM2.5, as well as an attainment/maintenance area for PM10, NO2, CO and Pb.

Table 3.2-2 summarizes the annual construction air quality emissions and associated General Conformity Applicability Rates. The emission from activity can be either direct or indirect emissions. The type of equipment needed for the activity, the duration it is needed and when during the construction phase it would be used. Particulate emissions from building and road construction may significantly affect local air quality for a temporary period. Construction activities include land clearing, drilling and blasting, ground excavation, cut and fill operations (i.e., earth moving), and construction of a given facility. The amount of particulate emissions is proportional to the area of land being worked on and the level of construction activity. Equipment traffic is a major contributor of emissions. The table indicates the expected emissions from construction activities in comparison to the general conformity rate.

Table 3.2-2: Comparison of Es	timated Annual Cor	struction Emiss	sions to General Conformity
	Applicability	v Rates	

	General	Estimated		
Pollutant				
		(tons		
		2021	2022	
Ozone	10	0.36	6.33	
(VOC)				
CO	100	5.86	12.60	
NO2	100	11.46	10.46	
SO2	100	0.02	0.05	
PM10	100	1.30	3.26	
PM2.5	100	0.23 1.00		
Pb	25	0	0	

Table 3.2-3 summarizes the annual operational air quality emissions and associated General Conformity Applicability Rates. The table indicates the expected emissions from operational activities in comparison to the general conformity rate.

Pollutant	General Conformity Applicability Rates (tons/year)	Estimated Operational Emissions (tons/year)			
Ozone	10	9.31			
(VOC)					
CO	100	24.48			
NO2	100	31.74			
SO2	100	0.17			
PM10	100	9.25			
PM2.5	100	2.64			
Pb	25	0			

Table 3.2-3: Comparison of Estimated Annual Operational Emissions to General ConformityApplicability Rates

For all pollutants, the emissions associated with construction of the federal action would be less than the applicability rates; therefore, a general conformity determination is not required. Little to no quantifiable and foreseeable lead emissions would be generated by the construction or operations of the proposed Project. Based on the Air Quality and Greenhouse Gas Analysis results, the proposed Project would not cause or contribute to any new violation of a NAAQS and would not increase the frequency or severity of any existing violation. Additionally, the proposed Project would not delay the timely attainment of any standard, interim emission reduction, or other milestone.

GHG Emissions

Per discussion of greenhouse gas (GHG) above, the estimated GHG emissions are included for the purpose of disclosure under NEPA. Table 3.2-4 identifies the estimated annual GHG emissions metric ton (MT) per year and comparing the two construction years along with the estimated operational emissions. The table indicates that the second construction year increases approximately two times from the first year.

Pollutant		Estimated	
		Operational	
	2021	2022	
GHGs	2,048.99	4,404.23	20,285.56
(CO2e)			

Table 3.2-4: Comparison of Estimated Annual GHG Emissions (Metric Tons/Year)

3.3 Noise

3.3.1 Affected Environment

The noise measurements presented below focus on the average or equivalent sound levels (Leq). The equivalent sound level (Leq) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. Table 3.3-1 identifies the hourly daytime (7:00

a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) noise levels at each noise level measurement location. Additional median noise levels (L_{50}) are provided on Table 3.3-1 consistent with applicable Municipal Code exterior noise level standards. A summary of the existing ambient noise level locations is described below:

Proposed Project area and Proposed Other Features

- Location L1 represents the noise levels near a Big-League Dreams sports park and Fairfield Ranch Park, west of the proposed Project area. The noise level measurements collected show an overall 24-hour exterior noise level of 57.8 dBA Community Noise Equivalent Level (CNEL). The energy (logarithmic) average daytime noise level was calculated at 53.9 dBA Leq with an average nighttime noise level of 50.3 dBA Leq.
- Location L2 represents the noise levels on Mountain Avenue, north of El Prado Road south of the proposed Project areaboundary. The noise level measurements collected show an overall 24-hour exterior noise level of 62.1 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 59.0 dBA Leq with an average nighttime noise level of 54.4 dBA Leq.

Proposed Borrow Sites

- Location L3 represents the noise levels on Pine Avenue, near Lizze Custom Processing, southeast of the proposed Project area. The 24-hour CNEL indicates that the overall exterior noise level is 67.9 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 62.6 dBA Leq with an average night noise level of 61.0 dBA Leq.
- Location L4 represents the noise levels on Johnson Avenue, near Prado Park Equestrian Center, southeast of the proposed Project area. The noise level measurements collected show an overall 24-hour exterior noise level of 58.3 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 53.9 dBA Leq with an average nighttime noise level of 50.9 dBA Leq.
- Location L5 represents the noise levels on Meadowhouse Avenue, near Meadow Square Apartment Homes, east of the proposed Project area. The noise level measurements collected show an overall 24-hour exterior noise level of 65.5 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 60.5 dBA Leq with an average nighttime noise level of 58.3 dBA Leq.
- Location L6 represents the noise levels in Prado Regional Park near campground areas. The noise level measurements collected show an overall 24-hour exterior noise level of 56.3 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 53.8 dBA Leq with an average nighttime noise level of 48.3 dBA Leq.
- Location L7 represents the noise levels on Cucamonga Road, near Vermontes Mulch, southeast of the proposed Project area. The noise level measurements collected show an overall 24-hour exterior noise level of 58.1 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 57.0 dBA Leq with an average nighttime noise level of 48.9 dBA Leq.
- Location L8 represents the noise levels on Chino Corona Road, near County Road, adjacent to existing rural residential homes. The noise level measurements collected show an overall 24-hour exterior noise level of 66.1 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 62.7 dBA Leq with an average nighttime noise level of 58.7 dBA Leq.

- Location L9 represents the noise levels on Hereford Road, near residential construction and a vacant area, east of the proposed Project area. The 24-hour CNEL indicates that the overall exterior noise level is 61.8 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 60.2 dBA Leq with an average nighttime noise level of 53.3 dBA Leq.
- Location L10 represents the noise levels at Walters Street and Hellman Avenue, adjacent to existing residential homes. The noise level measurements collected show an overall 24-hour exterior noise level of 79.7 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 75.4 dBA Leq with an average nighttime noise level of 72.6 dBA Leq.
- Location L11 represents the noise levels on Chandler Street, near a vacant area and existing residential neighborhood. The noise level measurements collected show an overall 24-hour exterior noise level of 65.4 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 61.9 dBA Leq with an average nighttime noise level of 57.7 dBA Leq.

Table 3.3-1 provides the (energy average) noise levels used to describe the daytime and nighttime ambient conditions. These daytime and nighttime energy average noise levels represent the average of all hourly noise levels observed during these time periods expressed as a single number.

The background ambient noise levels in the proposed Project area is dominated by the transportation-related noise associated with the arterial roadway network and background Chino Airport aircraft flyover events. The 24-hour existing noise level measurements shown on Table 3.3-1 present the existing ambient noise conditions.

Lo cation ¹		En ergy Average Noise Level (d BA L _{eq}) ²		Average Median Noise Level (dBA L ₅₀) ²		
		Daytime	Nighttime	Daytime	Nighttime	
L1	Located near a Big League Dreams sports park and Fairfield Ranch Park, west of the proposed Project area.	53.9	50.3	51.7	48.8	57.8
L2	Located on Mountain Avenue, north of El Prado Road south of the proposed Project area boundary.	59.0	54.4	52.9	47.9	62.1
L3	Located on Pine Avenue, near Lizze Custom Processing, southeast of the proposed Project area.	62.6	61.0	58.5	53.2	67.9
L4	Located on Johnson Avenue, near Prado Park Equestrian Center, southeast of the proposed Project area.	53.9	50.9	49.2	47.1	58.3
L5	Located on Meadowhouse Avenue, near Meadow Square Apartment Homes, east of the proposed Project area.	60.5	58.3	56.6	51.9	65.5
L6	Located in Prado Regional Park near campground areas.	53.8	48.3	48.1	45.9	56.3
L7	Located on Cucamonga Road, near Vermontes Mulch, southeast of the proposed Project area.	57.0	48.9	49.1	43.7	58.1

Table 3.3-1: 24-hour Ambient Noise Level Measurements

Lo cation ¹	Description	En ergy Average Noise Level (d BA L _{eq}) ²				
L8	Located on Chino Corona Road, near County Road, adjacent to existing rural residential homes.	Daytime 62.7	Nighttime 58.7	Daytime 47.7	Nighttime 43.7	66.1
L9	Located on Hereford Road, near residential construction and a vacant area, east of the proposed Project area.	60.2	53.3	51.5	45.1	61.8
L10	Located at Walters Street and Hellman Avenue, adjacent to existing residential homes.	75.4	72.6	68.9	53.4	79.7
L11	Located on Chandler Street, near a vacant area and existing residential neighborhood.	61.9	57.7	51.1	45.8	65.4
¹ See Exhibit 5-Afo ² Energy (logarithm "Daytime" = 7:00 a	 ¹ See Exhibit 5-Afor the noise level measurement locations. ² Energy (logarithmic) average hourly levels. The long-term 24-hour measurement worksheets are included in Appendix 5. ". "Daytime" = 7:00 a.m. to 10:00 p.m."; "Nighttime" = 10:00 p.m. to 7:00 a.m. 					

City of Chino Municipal Code – 15.44.030 – Construction Hours

- A) Construction shall occur only between the hours of 7 a.m. and 8 p.m. Monday through Saturday, with no construction allowed on Sundays and federal holidays. For the purposes of this section, construction shall mean any manmade change to improved or unimproved real estate, including but not limited to buildings or other structures, streets and other paving, utilities, filling, grading, excavation, mining, dredging, drilling operations, or pile driving.
- B) The director of community development may approve exceptions to the hours of construction noted in Subsection A of this section, provided that the change in hours does not adversely impact the adjacent neighborhood.

3.3.2 Significance Criteria

Impacts would be significant if the proposed Project would cause one or more of the following conditions to occur:

- Conduct construction outside of allowable hours per the City of Chino Municipal Code without obtaining a variance or exception.
- A significant increase in ambient noise levels for adjacent sensitive receptors.
- Generate excessive groundborne vibration or groundborne noise levels.

3.3.3 Environmental Commitments

None required or proposed.

3.3.4 Environmental Consequences

No Action Alternative

Under the No Action Alternative, the proposed Project area would remain in pre-project conditions. No construction would occur, and noise-related impacts would not occur.

Preferred Alternative/Proposed Project

Proposed Project area, Borrow Sites, and Other Features

A noise study was completed for the proposed Project to analyze construction and operations impacts related to noise; see Appendix C. Noise generated by the proposed Project construction equipment will include a combination of trucks, power tools, concrete mixers, and portable generators that when combined can reach high levels. The number and mix of construction equipment are expected to occur in the following stages:

- Soil Import/ExportProcess
- Grading
- Building Construction
- Paving
- Architectural Coating

Noise levels generated by heavy construction equipment can range from approximately 68 dBA to in excess of 80 dBA when measured at 50 feet. Based on the reference construction noise levels, the proposed Project-related construction noise levels when the highest reference noise level is operating at the edge of primary construction activity nearest each sensitive receiver location will range from 28.9 to 67.5 dBA Leq at the sensitive receiver locations, as detailed in the noise study. Under the City of Chino Municipal Code, construction activity within 500 feet of existing residences is exempt from the Noise Ordinance if the construction activity occurs between the hours from 8:00 AM to 7:00 PM on weekdays and Saturdays. The proposed Project construction activities would mostly occur within those time periods and a construction variance/exception will be obtained from the City of Chino to conduct construction outside of allowable hours. Import activities from the proposed borrow sites will not overlap with another (i.e., hauling activity at one site is independent from other sites). The construction noise levels would be temporary and would not be considered significant to the surrounding locations.

The Project-related short-term construction noise levels are expected to range approach 38.0 dBA Leq and will not exceed the 65 dBA Leq City of Chino construction noise level threshold at the nearby sensitive receiver locations. Based on the results of this analysis, all nearby sensitive receiver locations will not be experiencing a significant increase in ambient noise levels.

Additionally, construction activities can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures and soil type. It is expected that ground-borne vibration from proposed Project construction activities would cause only intermittent, localized intrusion and that the proposed Project related construction vibration levels do not represent levels capable of causing building damage to nearby residential homes. Moreover, the impacts at the site of the closest sensitive receivers are unlikely to be sustained during the entire construction period but will occur rather only during the times that heavy construction equipment is operating adjacent to the proposed Project area perimeter.

In regard to operational noise levels, the closest noise-sensitive receiver locations to the proposed Project area are located greater than 2,000 feet west of the proposed Project area in the City of Chino Hills. An additional noise-sensitive receiver location is identified east of the proposed Project area, at over 4,000 feet from the proposed Project area, in the City of Chino. The operational noise analysis shows that the proposed Project-related stationary-source noise levels at the nearby sensitive

receiver locations will satisfy the City of Chino exterior noise level standards and, overall, would not be considered significant.

3.4 Cultural Resources

This section describes the existing cultural resources setting and potential effects associated with the alternatives.

Section 106 of the National Historic Preservation Act (NHPA) requires Federal agencies to consider the effects of their undertakings on properties listed on or eligible for listing on the National Register of Historic Places (NRHP) (historic properties) and to afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment on any undertaking that would adversely affect historic properties. The NRHP is the official list of cultural resources recognized for their national, state, and local significance in American history, architecture, archaeology, engineering, and culture, and worthy of preservation. To be eligible for listing in the NRHP, a cultural resource must meet one of the four significance criteria, listed as items a-d below, specified at 36 CFR 60.4, which reads as follows: The quality of significance in American history, architecture, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and

- a. that are associated with events that have made a significant contribution to the broad patterns of our history; or
- b. that are associated with the lives of persons significant in our past; or
- c. that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- d. that have yielded, or may be likely to yield, information important in prehistory or history.

There is also a general requirement that properties be older than 50 years.

The Federal agency first determines if it has an undertaking that is a type of activity that could affect historic properties, and if so, the agency determines the area of potential effects (APE) and the scope of appropriate identification efforts. The agency then proceeds to identify historic properties in the APE through various methods, including consultation. If no historic properties are present or affected, the agency provides documentation to the State Historic Preservation Office (SHPO) and tribes, and, barring any objection in 30 days, proceeds with its undertaking. If historic properties are present, the agency proceeds to assess possible adverse effects on the identified historic properties based on criteria found in the ACHP regulations, in consultation with the SHPO/THPO. If they agree that there will be "no adverse effect," consultation is completed. If they find that there is an "adverse effect," or if the parties cannot agree and ACHP determines within 15 days that there is an adverse effect, the agency begins consultation to seek ways to avoid, minimize, or mitigate the adverse effects.
Mitigation under Section 106 of the NHPA is defined as a measure to resolve specific adverse effects to historic properties. Resolution of adverse effects is referenced in the NEPA review and documented in a Memorandum of Agreement (MOA) developed in consultation with the Section 106 consulting parties.

Per 36 CFR 800.16(d), the area of potential effect (APE) is the "geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist." The Corps has defined the APE as the 265.2-acres which consists of the approximately 97-acre proposed Project area and the five proposed borrow sites. This is consistent with the area evaluated in the proposed Project's EIR.

3.4.1 Affected Environment

Proposed Project area, Borrow Sites, and Other Features

A Cultural Resource Study of the APE was completed for the proposed Project by Brian F. Smith and Associates, Inc. (BFSA). The historic resource investigation of the undertaking included a review of archaeological records search information provided by the South Central Coastal Information Center (SCCIC) at California State University, Fullerton (CSU Fullerton) and the Eastern information Center (EIC) at the University of California at Riverside (UCR). The records search provided information regarding previous archaeological studies in the area and any previously recorded sites within, or in the immediate vicinity of, the APE.

In addition to the record search, a Class III cultural resources survey of the APE was conducted on March 14 and 15, 2019 and described in the report entitled A Section 106 (NHPA) Historic Properties Study for the Majestic Chino Heritage Project, on file at the Corps Los Angeles District. The majority of the property has been disturbed and cultivated in the past, and previous impacts include dairy operations, the establishment of dirt roads, and general agricultural use. A total of thirteen cultural resource sites were identified within the APE during the survey and /or record search. Seven of these sites had previously been recorded, CA-SBR-2845, CA-SBR-5241, CA-SBR-12573H, CA-SBR-12613H, P-36-029722, CA-SBR-29791H, and P-36-029792. Of these seven previously-recorded sites, six had been either recommended as ineligible for the NRHP or were determined to be not eligible for the California Register of Historic Places. As part of their assessment, BFSA re-examined these six sites and also recommended them as ineligible for the NRHP under all criteria. The seventh previously recorded site, CA-SBR-12573H, is a historic ditch known to have been in existence in 1888. The records search indicates a 430-foot portion of the ditch should be located within the southeast corner of Borrow Site Five; however, BFSA did not identify the presence of any portion of the historic era ditch remaining within the APE. Historical aerial photographs indicate that portions of the ditch in the APE were likely destroyed prior to 1938.

During their Class III cultural resources survey, BFSA identified six additional sites in the APE. Of the six newly recorded sites, five are foundation remnants of demolished buildings and structures, CA-SBR-33112H, CA-SBR-33113H, CA-SBR-33115H, CA-SBR-33116H, and CA-SBR-33117H. All five are associated with the region's dairy history. None of these sites retain enough integrity to be eligible under Criteria A-C. Further, since the burning of garbage was outlawed in 1939 and garbage collection was available in the early 1950s, it is unlikely that trash deposits associated with these foundations are present. The remainingsite, P-36-033114, consists of a single-family residence built between 1948 and 1959 and a detached garage built between 1967 and 1980. There is also a modern

shed and modern cabin built after 1980. The residence and garage lack essential integrity. Neither structure is representative of any specific architectural style or are associated with events or individuals.

The Corps has determined that the 12 sites still extant in the APE are not eligible for the NRHP under any criteria. The historic ditch, CA-SBR-12573H, is a long linear site and where it is still extant it may be eligible; however, it is no longer present within the APE. The Corps is currently consulting with the SHPO regarding their determinations of eligibility.

CEQA Native American Consultation

On October 15, 2018, BFSA requested a Sacred Lands File (SLF) Search for the Project from the California Native American Heritage Commission (NAHC). A return response by the NAHC was received on October 26, 2018 and indicated that the APE was negative for the presence of recorded sacred sites or locations of religious or ceremonial importance. The NAHC nonetheless recommended contacting Native American individuals and groups in the region of the APE and provided a list of contacts. BFSA subsequently contacted the individuals and groups on the NAHC-provided list via postal and email communications on November 6, 2018 and two responses were received.

The Morongo Band of Mission Indians indicated they have no additional information to provide at this time. Additionally, the Agua Caliente Band of Cahuilla Indians indicated the APE is not located within their Traditional Use Area and deferred to other tribes in the area. Copies of the Native American consultation documentation are provided in Appendix D.

Section 106 Native American Consultation

The Corps has initiated consultation under Section 106 of the NHPA, via letters dated August 6, 2020, with the following Federally recognized and non-Federally recognized Tribes. Fernandeño Tataviam Band of Mission Indians; Gabrieleno Band of Mission Indians - Kizh Nation; Gabrieleno/Tongva San Gabriel Band of Mission Indians; Gabrielino /Tongva Nation; Gabrielino Tongva Indians of California Tribal Council; Gabrielino-Tongva Tribe; San Fernando Band of Mission Indians; Soboba Band of Luiseno Indians. The Corps has provided the Federally recognized and non-Federally recognized Tribes a copy of the cultural resource report and has sought their assistance in identifying any properties which are of religious or cultural significance that may be affected by the project (pursuant to 36 C.F.R 800.4(a)(4)).

The Gabrieleno Band of Mission Indians - Kizh Nation (Kizh Nation) requested to consult on the undertaking. The Corps had a consultation meeting with Kizh Nation on September 2, 2020. Kizh Nation requested to monitor all ground disturbing activities. The Corps has required the applicant to notify Kitz Nation a minimum of 14 days prior to ground disturbing activities; to allow a tribal representative to attend the pre-grading meeting with the City and Project construction contractors; and to provide an opportunity for them to monitor ground disturbance as safety protocols allow. The San Fernando Band of Mission Indians has also responded to the Corps letter saying that the project does not fall within their traditional or ancestral territory, and that they will defer consultation to other local Tribes.

3.4.2 Significance Criteria

Under NEPA, significance is determined based on 'context' and 'intensity'. For cultural resources, context is often viewed in terms of how important the resource may or may not be, while intensity is

viewed in terms of the severity of the impacts to the resource. While cultural resources that are not eligible for the NRHP are still considered as part of the NEPA review, once that resource fails to meet the criteria for eligibility for inclusion on the NRHP its 'context' is found to be lacking. The phrase "adverse effect" (used in the NHPA) and "significant impact" (used in NEPA) are not equivalent terms but are similar in concept. Under the NHPA, impacts to cultural resources are typically examined in terms of how the project would affect the characteristics that make the property eligible for the National Register. Such impacts are referred to as adverse effects in the NHPA's implementing regulations. Impacts would be significant if the proposed Project would cause one or more of the following conditions to occur:

• The undertaking would result in a significant adverse effect to a historic property such that the implementation of the alternative would result in the destruction of a historic property or the loss of a property's eligibility.

3.4.3 Environmental Commitments

With the implementation of the following environmental commitment for the proposed Project, potential impacts to cultural resources would be reduced to a less than significant level.

EC CUL-1: Pursuant to 36 CFR section 800.13, in the event of any discoveries during construction of either human remains, archeological deposits, or any other type of historic property, the proposed Project Applicant shall notify the Corps Archaeology Staff within 24 hours (Danielle Storey at 213-452-3855 OR Meg McDonald at 213-452-3849). The proposed Project Applicant will immediately suspend all work in any area(s) where potential cultural resources are discovered. The proposed Project shall not resume construction in the area surrounding the potential cultural resources until the Corps re-authorizes project construction, per 36 C.F.R. section 800.13. Additionally, the Corps will consult with the appropriate tribes and would allow tribal monitoring during ground disturbing activities if requested.

EC CUL-2: The proposed Project Applicant will retain a qualified archaeologist (hereafter "Project Archaeologist") to conduct training and monitoring activities described in EC CUL-3 and EC CUL-4.

EC CUL-3: The proposed Project Applicant or construction contractor shall ensure the construction site supervisors and crew members involved with grading and trenching operations have received training by the Project Archaeologist to recognize historical and archaeological resources should such resources be unearthed during ground-disturbing construction activities. The training will include a brief review of the cultural sensitivity of the area; what resources could potentially be identified during earthmoving activities; the requirements of the monitoring program; the protocols that apply in the event inadvertent discoveries of cultural resources are identified, including who to contact and appropriate avoidance measures until the find(s) can be properly evaluated; and any other appropriate protocols. All new supervisorial construction personnel involved with grading and trenching operations that begin work on the proposed Project area, borrow sites, or Other Features sites following the initial training session must take the training prior to beginning work.

EC CUL-4: The Project Archaeologist shall conduct monitoring in the locations shown on Exhibit 3.12 through Exhibit 3.17. The Project Archaeologist shall be equipped to salvage artifacts if they are unearthed to avoid construction delays. Within the areas where full-time monitoring is required, monitoring shall occur during all grading, trenching, and excavation activities between zero and four feet below the existing ground surface. Within the areas where periodic monitoring is required,

monitoring shall occur one to two times per week only during active grading, trenching, or excavation activities up to four feet below the existing ground surface. No monitoring – either periodic or full-time – is required deeper than four feet below the existing ground surface. Should the Project Archaeologist determine that there are no archaeological resources within the proposed Project's disturbance area or should the archaeological sensitivity be reduced to low during construction activities, archaeological monitoring activities shall be allowed to cease.

EC CUL-5- The Project Applicant shall notify the Gabrieleno Band of Mission Indians - Kizh Nation (Kizh Nation) a minimum of 14 days prior to the start of ground disturbing activities and provide an opportunity to monitor construction as safety protocols allow. They shall be notified of and allowed to attend the pre-grading meeting with the City and Project construction contractors.

3.4.4Environmental Consequences

No Action Alternative

Under the No Action Alternative, the proposed Projectarea and proposed borrow sites would remain in pre-Project conditions. No construction would occur, and impacts related to NRHP structures, NRHP eligible structures, and sensitive cultural resources would not occur.

Preferred Alternative/Proposed Project

Proposed Project area, Borrow Sites, and Other Features

Cultural Resources

The cultural resources study for the proposed Project identified 13 cultural resources within the APE. The Corps has determined that twelve of these sites are not eligible for the NRHP under any criteria. The thirteenth cultural resource is no longer present within the APE and therefore would not be affected by the proposed Project. The Corps has found that the undertaking would result in no affect to historic properties and the SHPO has concurred with the Corps determinations and findings (Appendix D). Because there are no historic properties present in the APE, the proposed Project would not result in a significant adverse effect to a historic property such that the implementation of the alternative would result in the destruction of a historic property or the loss of a property's eligibility. Effects associated with the proposed alternative would be less than significant under NEPA. In order to address the residual risk that construction activities associated with the proposed Project may unearth buried or masked historic properties, EC CUL-1 through EC CUL-5 would be implemented to further reduce less than significant impacts.



Exhibit 3.12 - Cultural Monitoring Location Map: Project area



Exhibit 3.13 – Cultural Monitoring Location Map: Borrow Site 1







Exhibit 3.15 - Cultural Monitoring Location Map: Borrow Site 3



Feet







Exhibit 3.17 - Cultural Monitoring Location Map: Borrow Site 5

3.5 Earth Resources

3.5.1 Affected Environment

The below is based on Geotechnical Studies prepared for the proposed Project and is included in Appendix E.

Geological Setting

Regionally, the proposed Project area, proposed borrow sites, and proposed Other Features are located in the Peninsular Ranges geomorphic province, a prominent natural geomorphic province that extends from the Santa Monica Mountains approximately 900 miles south to the tip of Baja California, Mexico, and is bounded to the east by the Colorado Desert. The Peninsular Ranges province is composed of plutonic and metamorphic rock, lesser amounts of Tertiary Volcanic and sedimentary rock, and Quaternary drainage in-fills and sedimentary veneers.

The geologic structure of the entire southern California area is dominated mainly by northwesttrending faults associated with the San Andreas system. Similar to other properties throughout southern California, the subject properties are located within a seismically active region and are subject to ground shaking during seismic events; however, no known active faults exist on or near the proposed Project area, proposed borrow sites, or proposed Other Features, nor are the sites situated within an "Alquist-Priolo" Earthquake Fault Zone. A segment of the Chino Avenue Fault traverses the southwest portion of the proposed Project area; however, this fault has not moved in the previous 11,000 years and is presumed to be inactive. Further, there are no active or potentially active faults occurring on proposed borrow sites 1 through 5, and no known faults are mapped trending through or toward any of these sites.

Proposed Project area

The proposed Project area is presently vacant, and the buildings and cattle shelters from the past have been removed. However, many of the slabs on grade and foundations are still in place. The dominant features of the site are the many berms/levees that were constructed across the site. Many of these berms appear to have been constructed by pushing on-site soils into piles; however, the upper portion of some of the berms include imported soils. Within the northeast corner of the proposed Project area, some of the berms are fitted with concrete spillways. Most of the berms have heights in the range of 3 to 6 feet and consist of relatively loose undocumented fill. The northeast corner of the site contains several water detention basins that are 3 to 5 feet deep; most of these basins have concrete-lined spillways. Within the same area, there is a relatively deep pond (roughly 80 to 100 feet wide, 200 feet long and 12 to 20 feet deep) containing vegetation and trash; this pond retains water during several months of the year. Two relatively smaller ponds were observed adjacent to Mountain Avenue; these ponds also retain stormwater for several months of the year until the water evaporates. These ponds are about 10 to 12 feet deep. The site generally slopes gently from north to south with elevations ranging from about 565 to 553 feet. Along the east property line, within the southeast portion of the site, there is a slope descending about 10 to 13 feet to a flood basin area. This slope gradually decreases in height in the north direction until it reaches to about 5 feet. Within the eastern portion of the proposed Project area, there is an area measuring about 200 by 200 feet that was used to place import material. Several truckloads of soils were brought in and dumped in place without spreading. The average thickness of dumped material is on the order of 2.5 to 3 feet.

Proposed Borrow Sites

Proposed Borrow Site 1

The main topographic feature of proposed Borrow Site 1 is a creek/drainage channel that flows southerly and divides the property in two parts. The jurisdictional boundary of the creek ranges in width from about 30 to 60 feet. On the west side of the creek, the ground surface generally slopes moderately toward the creek except for the area immediately adjacent to the creek which is relatively level and subject to flooding. There is also relatively level ground immediately adjacent to Euclid Avenue to the west. The ground elevations hover around 560 feet along Euclid Avenue and range between about 530 and 540 feet (NAVD88) along the west side of the creek. On the east side of the creek, the highest area is located in the northeast corner portion of the site where there is relatively flat ground with elevations between about 559 and 560 feet. The ground surface generally slopes between elevations 560 and 550 feet, toward the south, along Johnson Avenue. Within the southern one-half of the site, west of Johnson Avenue, there is a relatively level area with elevations ranging from about 547 to 557 over a width of 280 to 330 feet. On the west side of this area, the ground surface generally slopes west toward the creek within a distance of about 250 feet from the creek. The grades along the creek generally ranges from 530 to 540 feet.

Other features of proposed Borrow Site 1 include above ground structures, which encompass a caretaker residence located within the northeast corner of the site. There is still a small area located in the vicinity of the caretaker residence being used for farming purpose. Along Johnson Avenue, there are several slabs at grade that appear to be the remains of former buildings. High voltage overhead power lines, which are supported by steel towers, cross the site from east to west.

There is some evidence that prior grading has occurred at the site. There are four small retaining walls located in the northwest corner of the site along with a remaining driveway ramp. There is an access road that begins along Pine Avenue, passes parallel to Euclid Avenue and loops down along the west side of the creek. A small retaining wall and a slope was built to support a portion of that loop road. On the east side of the creek, the main past grading appears to be near the south end of the site where up to about 15 feet of fill may have been placed to raise the grades in the vicinity of the creek. Some grading also appears to have been performed to bury the foundation of some buildings that have been removed. There are concentrations of large shrubs along the east side of the creek within the southern portion of the site.

Proposed Borrow Site 2

Proposed Borrow Site 2 in its present state has been cleared of the past structures such as buildings, animal shelters, and other above ground ancillary facilities; however, it appears that several foundations and slab on grade are still in place. The dominant features of the site are a few berms, a water pond that was constructed near the south end of the site, and power line towers. Many of the berms appear to have been constructed by pushing on-site soils into piles. Most of the berms have heights in the range of 3 to 5 feet and consist of relatively loose undocumented fill.

Near the southern end of the site, there is a detention basin approximately 100 feet long, 30 feet wide and 5 feet deep. High voltage overhead power lines, which are supported by steel towers, cross the site from east to west.

Proposed Borrow Site 3

No buildings are present on proposed Borrow Site 3, but there are remnants of concrete slabs on grade in various locations. Power lines supported on pile foundations cross the site about 100 feet north of West County Road. Portions of the site support irrigation lines that are being used to water recent seeding and other grass areas. More than one-half of the site is devoid of vegetation and the remainder of the site contains mostly sparse to dense grass vegetation.

The southern portion of proposed Borrow Site 3 contains several water storage ponds that range in depth mostly from about 3 to 7 feet. The ponds appear to have been created by excavating and mounding the native soils around the excavations. There are localized grass areas and low shrubs near the ponds.

The northern portion of the site slopes gently to the southwest while the southern portion generally slopes gently to the south. The existing elevations range between about 545 feet at the south end to 566 feet at the northeast corner of the site (NAVD88).

Proposed Borrow Site 4

Except for localized areas where concrete is exposed, the ground surface of proposed Borrow Site 4 is predominantly bare soils. There are some concrete slabs remaining at the southwest corner of the site and near the southeastern boundary along with an asphalt paved driveway in the northeastern portion of the site. The site has been cleared of trees as well as past structures such as buildings, animal shelters, and other above ground ancillary facilities. The site generally slopes to the south between about elevations 563 and 555 feet except for the south end of the site that has a 10-foot high slope dipping toward an existing retention pond.

Proposed Borrow Site 5

In its present state, proposed Borrow Site 5 has been cleared of all past structures such as buildings, shelters, and above ground ancillary facilities; however, it appears that several foundations, slabs on grade, and underground conduits are still in place. There are overhead powerlines present on site, trending north-south, west of Hellman Ave and roughly 60 feet into the property. The dominant features of the site are the many small berms and unpaved roads that were constructed across the site. Many of the berms appear to have been constructed by pushing on-site soils into piles. Most of the berms have heights in the range of 1 to 2 feet and consist of relatively loose undocumented fill. The site has exposed bare ground with a few trees and shrubs along Hellman Avenue and around seasonal water ponds.

The south side of the site contains a 4 to 6-foot-deep water detention basin; the basin has an entry ramp in the northeast corner. Little vegetation and trash were found within the basin.

The site generally slopes gently from north to south with elevations ranging for the most part from about 555 to 545 feet. Along the east property line, within the southeast portion of the site, there is a gentle slope descending about 8 to 11 feet to the Cucamonga Creek.

3.5.2 Significance Criteria

Impacts would be significant if the proposed Project would cause one or more of the following conditions to occur:

- Cause significant erosion or siltation;
- Expose people or structures to major geologic hazards, unstable earth conditions or changes in geologic substructure;
- Interfere significantly with groundwater recharge.

3.5.3 Environmental Commitments

With the implementation of the following environmental commitments for the proposed Project, potential impacts to earth resources would be reduced to a less than significant level.

EC GEO-1: The proposed Project would be required to adhere to the City's regulatory requirements, including, but not limited to, requirements imposed by the City's National Pollutant Discharge Elimination System (NPDES) Municipal Stormwater Permit, and Project-specific Stormwater Pollution Prevention Plan (SWPPP), and Water Quality Management Plan (WQMP) to minimize water pollutants including erosion and sedimentation in stormwater runoff.

3.5.4 Environmental Consequences

No Action Alternative

Under the No Action Alternative, the proposed Project area would remain in pre-project conditions. No construction would occur, and impacts related to water erosion, sedimentation, groundwater percolation or infiltration would not occur.

Preferred Alternative/Proposed Project

Proposed Project area, Borrow Sites, and Other Features

Erosion and Sedimentation

The proposed Project construction activities would involve earth movement and the exposure of soil, which would increase erosion and siltation susceptibility, but the impacts would be short term. Temporary indirect impacts may also occur due to heavy construction equipment tracking soil to offsite locations. Storm water could also carry loosened sediment beyond the project limits. Per EC GEO-1, the proposed Project would be required to adhere to the City's regulatory requirements, including, but not limited to, requirements imposed by the City's NPDES Municipal Stormwater Permit, a Project-specific SWPPP and WQMP to minimize water pollutants including erosion and sedimentation in stormwater runoff. With the implementation of EC GEO-1, potential impacts from erosion or siltation would be less than significant.

Geologic Hazards

The proposed Project is located in the seismically active area of Southern California and is expected to experience moderate to severe ground shaking during the lifetime of the proposed Project. The risk is not considered significantly different than that of other similar properties in the Southern California Area. The grading activities for the proposed Project would occur on relatively flat land with gentle slopes. Based on the geotechnical design, the proposed Project would not result in

unstable earth conditions or changes in geologic substructure nor expose people or structures to major geologic hazards.

Groundwater

The proposed Project would be served with potable water from the City of Chino and does not propose the use of any wells or other groundwater extraction activities. Therefore, the proposed Project would not directly draw water from the groundwater table. Development of the proposed Project area would increase the extent of impervious surfaces on site, which could reduce the amount of water that directly infiltrates into the ground and reaches the groundwater table. However, a majority of the groundwater recharge in the Chino groundwater basin occurs in the northern portion of the Basin, north of the City of Chino, within percolation basins located throughout San Bernardino County. The proposed Project area is located in the southern portion of the Chino groundwater basin and would not physically impact any of the major groundwater recharge facilities in the Basin and, therefore, would not result in significant, adverse effects to local groundwater levels. Additionally, the proposed Project area would include the installation of a water quality basin and permeable landscape areas to maximize the percolation of on-site stormwater runoff into the groundwater basin. Accordingly, buildout of the proposed Project with these design features would not interfere significantly with groundwater recharge. The removal of dirt from the off-site proposed borrow sites also would not have an adverse effect on groundwater because the surface permeability of the sites would not be affected.

Operations and Maintenance

Operations for the proposed Project area would include those typical of industrial buildings, such as employee presence and the transport of items to and from the proposed buildings. Maintenance for the proposed Project area would include routine trash pickup, sediment and debris removal from the water quality/detention basin following each storm or deposition of material, and routine maintenance on and around the roadway, buildings and landscaping of the proposed Project area. The sites would remain vacant and undisturbed, which would be the same as the existing condition. Further, the Off-Site Storm Drain Improvement area's routine operation and maintenance would include clearing debris from the storm drain area as needed. Therefore, potential operation and maintenance impacts associated with the proposed Project would not be significant. Overall, impacts to erosion, sedimentation and groundwater are not significant and would not be considered significant.

3.6 Water Resources and Hydrology

3.6.1 Affected Environment

Proposed Project area, Borrow Sites, and Other Features

The proposed Project area is located within the Prado Dam basin. As mentioned in Section 3.1 above, the proposed Project contains two drainages which include the Cypress Channel and Drainage 1. The Cypress Channel is concrete lined and eventually transitions to unlined and flows make their way downstream into Prado Dam basin. The Cypress Channel is impaired by pollutants (i.e., trash, metals, bacteria, nutrients) mainly because of the watershed's large, dense population and the amount of impervious ground surface that prevents large quantities of runoff from infiltrating into the soils. Drainage 1 is within proposed Borrow Site 1 and is a drainage course supporting wetland and

riparian habitat, which flows in a north to south direction for 1,645 feet before leaving proposed Borrow Site 1. The Cypress Channel and Drainage 1 are not listed on the Federal water quality impairment 303(d) list.

The Cypress Channel is within the vicinity of the proposed Project area. The sides of the channel are trapezoidal and concrete-lined to control flood events. The proposed Project area is located at the southeast corner of Mountain Avenue and Bickmore Avenue and is directly adjacent to the western side of the channel. Due to the improvements that exist on the perimeter of the proposed Project area and the existing topography, there are no tributary areas that direct runoff to the proposed Project area. The proposed Project is currently located within the Prado Dam basin area and below the 566-foot elevation. Most of the proposed Project is located within the basin area for the Prado Dam and the southwest portion of the proposed Project site contains a small sliver of land that is mapped as being located within the FEMA-mapped "Zone AE," which is considered a 100-year flood hazard area.

3.6.2 Significance Criteria

Impacts would be significant if the proposed Project would cause one or more of the following conditions to occur:

- Significantly alter drainage patterns or the rate and amount of surface runoff;
- Cause or result in significant flooding;
- Significantly degrade water quality.

3.6.3 Environmental Commitments

None required or proposed.

3.6.4 Environmental Consequences

No Action Alternative

Under the No Action Alternative, the proposed Project area would remain in pre-project conditions. No construction would occur, and impacts related to altering drainage patterns and surface runoffs, flooding, and water quality would not occur.

Preferred Alternative/Proposed Project

Proposed Project area, Borrow Sites, and Other Features

Implementation of the proposed Project would involve demolition, clearing, grading, paving, utility installation, building construction, and landscaping activities, which could result in the generation of water quality pollutants such as silt, debris, chemicals, paints, and other solvents with the potential to adversely affect water quality. As such, minor short-term water quality impacts have the potential to occur during construction of the proposed Project. However, the proposed Project would require that Best Management Practices (BMPs) be implemented during construction to address water pollutants and that they be identified and addressed in the final water quality management plan.

A preliminary water quality management plan (PWQMP) has been completed for the proposed Project and is included in Appendix F. Runoff from the proposed Project area under postdevelopment conditions could contain some water pollutants, but not at levels that would be considered significant. The PWQMP identifies all applicable BMPs typical of the type of proposed development, including a centrally located stormwater treatment basin designed as a water quality/detention basin be constructed. The water quality/detention basin would incorporate vegetative cover and preselected fill bottom material and sub-drain arrays to treat the required design volume as well as to draw down the design capture volume within the requisite timeframes. The proposed Project would not have impacts related to water quality that would be considered significant.

As part of the overall proposed Project's construction process, the proposed finished building floor surfaces would be raised in elevation to be above the 566-foot elevation inundation area. Other portions of the proposed Project area (e.g., parking lots, detention/water quality basins) may remain within the Prado Dam's basin area upon the completion of the proposed Project construction. The fill material to raise the buildings' site above the 566-foot elevation would be excavated from multiple proposed borrow sites, as explained above, that are owned by the Orange County Flood Control District and located within the 566-foot elevation or lower within the Prado Dam basin. Ultimately, a net increase of approximately 191,000 cubic yards (124 acre-feet) of flood capacity within the Prado Dam basin would result from the proposed Project. Thus, the proposed Project would not result in a significant additional flood risk within the Prado Dam basin and would not result in a significant flood ing to areas that were not already part of the Prado Dam basin flood area.

During construction, on-site surface flows from the proposed Project area and laydown areas would be required to implement standard BMPs, as specified in the SWPPP, which would ensure that surface runoff rates and amounts would not result in flooding to either on- or off-site areas. Each of the five proposed borrow sites would be graded to drain similar to the way the site currently drains. Construction of the proposed Project would not significantly alter the existing drainage patterns or hydrology of the proposed Project area.

After construction, the proposed Project area would have a water quality/detention basin at the southern portion of the property. This basin would address water quality of stormwater runoff and drainage from the proposed Project area. The water from the water quality/detention basin would eventually drain into the Cypress Channel via a new storm drain, which is part of the proposed Project's Off-Site Storm Drain Improvement. After construction, the proposed Project area's finished building floor surfaces would be above the 566-foot elevation as well as other portions of the site. Because the borrow sites are currently located within the Prado Dam basin area and below the 566-foot elevation, post-construction, the borrow sites that were graded would have overall increased flood capacity. This would be considered an incidental benefit to the public because of increased flood capacity within the Prado Dam backwater area.

The proposed Project would not indirectly impact drainage patterns or the rate and amount of surface runoff, increase flooding or degrade water quality.

As previously discussed, operations for the proposed Project area would include those typical of industrial buildings, such as employee presence and the transport of items to and from the proposed buildings. Maintenance for the proposed Project area would include routine trash pickup, sediment and debris removal from the water quality/detention basin following each storm or deposition of material, and routine maintenance on and around the roadway, buildings and landscaping of the proposed Project area. The sites would remain vacant and undisturbed after construction is

completed, which would be the same as the existing condition. Further, the Off-Site Storm Drain Improvement area's routine operation and maintenance would include clearing debris from the storm drain area as needed. Therefore, potential operation and maintenance impacts associated with the proposed Project to water resources and hydrology would not be significant.

3.7 Public Safety (Hazardous Materials and Emergency Response)

3.7.1 Affected Environment

Proposed Project area and Other Features

A Phase I Environmental Site Assessment (Phase I) was completed for the proposed Project area and the associated proposed borrow sites and are included in Appendix G. For the proposed Project area, historical land uses in the general area have included agriculture, dairy farming, golf courses, wastewater treatment, and commercial developments. No hazardous substances or hazardous wastes were observed at the proposed Project area during the site inspection. No recognized environmental conditions (RECs) were noted during the site inspection or identified during the review of regulatory database and other historical records. Regulatory database information identified few known and suspected contamination sites in the area surrounding the proposed Project property. Based on the available information, it is unlikely that any of these sites have affected the environmental condition of the proposed Project property.

Proposed Borrow Sites

For proposed Borrow Site 2, no hazardous substances or hazardous wastes were observed at proposed Borrow Site 2 during the site inspection. No RECs were noted during the site inspection or identified during the review of regulatory database information. In 1971, an underground fuel storage tank was removed from the Rocha Dairy Property located at 7311-7433 Pine Avenue. No environmental sampling was conducted during tank removal activities. In 2009, soil samples collected at the former tank location confirmed the presence of weathered gasoline constituents. The confirmed presence of residual gasoline is defined as a REC for the proposed Borrow Site 2 property. The tank was removed in 1971 and the extent of soil/groundwater impacts were defined; MTBE was not detected, and that future land use will exclude residential development. As a result, the Santa Ana RWQCB issued a 'No Further Action Letter' to the Rocha Dairy (dated July 2, 2009). However, since residual gasoline constituents are present, the Phase I assessment considers the contamination to be a controlled recognized environmental condition (CREC). Regulatory database information identified few known and suspected contamination sites in the area surrounding the proposed Borrow Site 2 property. Based on the available information, it is unlikely that any of these contamination sites have affected the environmental condition of proposed Borrow Site 2.

For all other proposed borrow sites, historical land uses in the general area have included agriculture, dairy farming, equestrian, state prison, etc. No hazardous substances or hazardous wastes were observed at the proposed Project Borrow Site properties during the site inspections. No RECs were noted during the site inspections or identified during the review of regulatory databases and other historical records. Regulatory database information identified few known and suspected contamination sites in the area surrounding the proposed Project Borrow Site properties. Based on

the available information, it is unlikely that any of these sites have affected the environmental condition of the proposed Project Borrow Site properties.

3.7.2 Significance Criteria

Impacts would be significant if the proposed Project would cause one or more of the following conditions to occur:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan;
- Expose people or structures to a significant risk of loss, injury or death involving wild land fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

3.7.3 Environmental Commitments

With the implementation of the following environmental commitments for the proposed Project, potential impacts to public safety (hazardous materials and emergency response) would be reduced to a less than significant level.

EC HAZ-1: During construction and operation of the Project, all local, state, and federal regulations would be complied with regarding the transportation, handling, and storage of hazardous substances.

EC HAZ-2: At each work area involving the operation of heavy equipment and handling and storage of hazardous substances, a Hazardous Material Spill Prevention Plan would be prepared. The Hazardous Material Spill Prevention Plan shall contain contingency plans in the event of an accidental release into the environment.

EC HAZ-3: Prior to the start of construction, the applicant would prepare an Emergency Evacuation Plan that contains procedures for the demobilization of construction equipment and evacuation of personnel from the study area in the event of a pending significant storm or other emergency that jeopardizes the safety of personnel or equipment.

3.7.4 Environmental Consequences

No Action Alternative

Under the No Action Alternative, the proposed Project area would remain in pre-project conditions. No construction would occur, and impacts related to public safety would not occur.

Preferred Alternative/Proposed Project

Proposed Project area

For the proposed Project area, the Phase I assessment has revealed no evidence of current conditions indicative of releases or threatened releases of hazardous substances. Therefore, further environmental investigation is not recommended by the Phase I.

The proposed Project would entail the construction of two industrial buildings on the proposed Project area, which would require the need for emergency access to-and-from the site. During construction, limited amounts of hazardous materials used in typical of construction activities would be stored, used, and transported to the proposed Project area (fuel, architectural coatings, etc.). While the proposed Project is not expected to result in the release of hazardous substances into the environment, potential direct and indirect impacts could result from the use of heavy equipment in the transport of fill from the proposed borrow sites to the proposed Project area. These potential impacts could occur through incidental release of hazardous substances, such as fuels and oil, during construction-related transport activities. Additionally, though future building user(s) are unknown at this time, hazardous materials may be used and stored on the proposed Project area as part of routine building occupant operations. However, the occupant would be required to follow applicable federal, state, and local laws for use and/or storage of hazardous materials. Further, with the implementation of EC HAZ-1 and EC HAZ-2, potential impacts would be less than significant. As a mandatory condition of the proposed Project's approval, the proposed industrial buildings are required to be constructed in accordance with the California Building Standards Code (CBSC), also known as California Code of Regulations (CCR), Title 24 (Part 2), and the Chino Building Code, which is based on the CBSC with local amendments. The CBSC and Chino Building Code have been specifically tailored for California earthquake conditions and provide standards that must be met to safeguard life or limb, health, property, and public welfare by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of all buildings and structures.

During construction and long-term operation, the proposed Project would be required to maintain adequate emergency access for emergency vehicles as required by the City. As mentioned above, the proposed Project is located in the City of Chino and as such, during the course of the City's design review process, the City will review the proposed site plan to ensure that the proposed Project provides adequate access to-and-from the proposed Project area for emergency vehicles. The City also will review the layout of the proposed Project's industrial buildings, drive aisles, parking lots, and truck courts provide adequate on-site circulation for emergency vehicles. The proposed Project's proposed driveways would connect directly to Mountain Avenue and Bickmore Avenue. Further, with the implementation of EC HAZ-3, which would require the preparation of an Emergency Evacuation Plan, potential impacts would be less than significant.

Maintenance for the proposed Project area would include routine trash pickup, sediment and debris removal from the water quality/detention basin following each storm or deposition of material, and routine maintenance on and around the roadway, buildings and landscaping of the proposed Project area. Potential operation and maintenance impacts associated with the proposed Project area would not be significant.

Proposed Borrow Sites and Other Features

For proposed Borrow Site 2, the Phase I assessment has revealed evidence of current conditions indicative of releases or threatened releases of hazardous substances. It is not anticipated that Borrow Site 2 would be needed for soil export and, thus, it is considered a 'last-case scenario' option as the last Borrow Site to be used in the sequencing if needed. Although further environmental investigation is not recommended by the Phase I, any soil excavated in the former tank area would be properly characterized prior to removal from the proposed Borrow Site 2 property.

For the rest of the proposed borrow sites and Other Features, the Phase I assessment has revealed no evidence of current conditions indicative of releases or threatened releases of hazardous substances. Therefore, further environmental investigation is not recommended by the Phase I. Impacts to public safety are not anticipated as a result of the proposed Project.

The sites would remain vacant and undisturbed after construction, which would be the same as the existing condition. Further, the Off-Site Storm Drain Improvement area's operations and maintenance would include routine maintenance to clear debris from the storm drain area as needed. Therefore, potential operation and maintenance impacts associated with the proposed Project would not be significant.

3.8 Recreation

3.8.1 Affected Environment

Proposed Project area, Borrow Sites and Other Features

There are several parks and recreational facilities adjacent to the proposed Project area, but not within the Project area. These parks are as follows: Fairfield Ranch Park, Chino Creek Wetlands and Educational Park, Pinehurst Park, Little Chino Skatepark, Big League Dreams Chino Hills, Prado Regional Park, and El Prado Golf Course.

3.8.2 Significance Criteria

Impacts would be significant if the proposed Project would cause one or more of the following conditions to occur:

• Increase the use of existing neighborhood and regional parks or other recreation facilities such that significant physical deterioration of the facility would occur or be accelerated.

3.8.3 Environmental Commitments

None required or proposed.

3.8.4 Environmental Consequences

No Action Alternative

Under the No Action Alternative, the proposed Project area would remain in pre-project conditions. No construction would occur and therefore recreational impacts would not occur.

Preferred Alternative/Proposed Project

Proposed Project area, Borrow Sites and Other Features

The proposed Project does not propose any type of residential use or other land use that may generate a population that would increase the use of existing neighborhood and regional parks or other recreational facilities.

Operations and maintenance activities for the proposed Project include routine trash pickup, sediment and debris removal from the water quality/detention basin following each storm or

deposition of material, and routine maintenance on and around the roadway, buildings and landscaping of the proposed Project area. No impact would occur to recreation resources.

3.9 Aesthetics

3.9.1 Affected Environment

Proposed Project area, Borrow Sites and Other Features

The proposed Project area is located in the City of Chino, which lies on relatively flat and gently sloping topography. No designated scenic vistas or scenic corridors are located in the vicinity of the proposed Project area (Chino, 2010, p. CC-21). Distant views of the Chino Hills to the west and south are available from public viewing areas in the proposed Project area vicinity; however, these views are not prominent from the proposed Project area and are available in numerous locales in the City. The proposed Project was formerly used for factory dairy farm operations that included dirt livestock pens (corrals) for the holding and separation of cattle intended for milking and slaughter and ancillary features such as hay/milking barns and open-air wastewater collection ponds. Structures proposed on the proposed Project area would be less than 60 feet tall. Other features including but not limited to, ancillary structures, walls, fencing, landscaping, and parking areas would be lower in profile and at grade. Other visual resources include distant views of the Chino Hills to the west and south are available from public viewing areas in the proposed Project area vicinity.

3.9.2 Significance Criteria

Impacts would be significant if the proposed Project would cause one or more of the following conditions to occur:

- Have a significant adverse effect on a scenic vista;
- Create a new source of significant light or glare which would adversely affect day or nighttime views in the area.

3.9.3 Environmental Commitments

None required or proposed.

3.9.4 Environmental Consequences

No Action Alternative

Under the No Action Alternative, the proposed Project area would remain in pre-project conditions. No construction would occur and impacts related to aesthetics would not occur.

Preferred Alternative/Proposed Project.

Proposed Project area, Borrow Sites and Other Features

As mentioned above, the proposed Project was formerly used for factory dairy farm operations that included dirt livestock pens (corrals) for the holding and separation of cattle intended for milking and slaughter and ancillary features such as hay/milking barns and open-air wastewater collection ponds. Implementation of the proposed Project would convert the proposed Project area from vacant land to an industrial development with two large industrial buildings as well as ancillary improvements such as parking lots, drive aisles, utility infrastructure, landscaping, exterior lighting

signage, and water quality/detention basins. The proposed Project would be compatible with the size, scale, height, and aesthetic qualities of other large industrial buildings constructed in the immediate vicinity of the proposed Project area and would be required to comply with the Chino Development Code that mandates the compliance with standards that regulate the visual quality of development. Further, the proposed borrow sites would include grading activities on vacant land that contains minimal aesthetic value. The proposed borrow sites contain predominately exposed bare ground where grading activities would occur. After grading, the proposed borrow sites would have less soil volume than their current state, but the aesthetics of the sites would be similar to existing conditions. Therefore, the proposed Project, borrow sites, and other features do not have a significant adverse effect on a scenic vista within Prado Basin and the surrounding areas.

The City of Chino Municipal Code includes design standards for outdoor lighting that apply to all development in the City (Chino, 2018, § 20.10.090). The Municipal Code lighting standards govern the placement and design of outdoor lighting fixtures to ensure adequate lighting for public safety while also minimizing light pollution and glare and precluding public nuisances (e.g., blinking/flashing lights, unusually high intensity or bright lighting). As a standard condition of approval, the proposed Project would be required to comply with the Chino Municipal Code, including provisions applicable to outdoor lighting. Mandatory compliance with the City of Chino Municipal Code would ensure that the proposed Project does not create a new source of significant light or glare that would adversely affect day or nighttime views in the area.

3.10 Traffic and Circulation

3.10.1 Affected Environment

Proposed Project area, Borrow Sites and Other Features

A Traffic Impact Analysis (TIA) was completed for the proposed Project and is included in Appendix H. Major streets serving the proposed Project are listed below. Sidewalks are generally available in the vicinity of the project area. The roadway classifications and planned roadway cross-sections of the major roadways within the proposed Project area are also described below. The TIA study area includes a total of 43 existing and future intersections. Exhibit 3.11 illustrates the proposed Project intersections located near the proposed Project and identifies the number of through traffic lanes for existing roadways and intersection traffic controls.

Currently, there are State truck routes and other truck routes throughout the City of Chino. The designated truck routes within the study area are El Prado Road, Mountain Avenue, Bickmore Avenue, Riverside Drive, Kimball Avenue, Flight Avenue, Merrill Avenue, Hellman Avenue, and Pine Avenue; while Euclid Avenue (SR-83) is a designated State Truck Route. Other large truck routes in the study area include Central Avenue and Edison Avenue. The designated truck routes are utilized to route truck traffic from both the proposed Project and future cumulative development projects throughout the study area.

3.10.2 Significance Criteria

Impacts would be significant if the proposed Project would cause one or more of the following conditions to occur:

- Cause an increase in traffic which is significant in relation to the existing traffic load and capacity of the street system (i.e., result in a significant increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections).
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses.

3.10.3 Environmental Commitments

With the implementation of the following environmental commitments for the proposed Project, potential impacts to traffic and circulation would be reduced to a less than significant level.

EC TRAF-1: At time of issuance of each building's certificate of occupancy, the proposed Project Applicant shall participate in the City's city-wide Development ImpactFee (DIF) program by paying the requisite DIF fee on a per building basis for Building 1 and Building 2, DIF fees may be reduced or off-set based on the cost DIF eligible facilities constructed by the proposed Project Applicant.

EC TRAF-2: Prior to the issuance of each building's certificate of occupancy, the proposed Project Applicant shall pay the proposed Project's fair share amount of \$27,445 for Building 1 and \$21,464 for Building 2 (total of \$48,909) for the improvements identified at intersections located within the City of Chino.

EC TRAF-3: The TIA includes intersections that either share a mutual border with or are wholly located within the City of Ontario, City of Chino Hills and City of Eastvale, or are subject to the jurisdiction of Caltrans that have recommended improvements which are not covered by DIF. Because the City does not have plenary control over intersections that share a border with these other agencies, the City cannot guarantee that such improvements will be constructed. Thus, the following additional measure is required: The City shall participate in a multi-jurisdictional effort with the City of Ontario, City of Chino Hills, City of Eastvale, and Caltrans to develop a study to identify fair share contribution funding sources attributable to and paid from private and public development to supplement other regional and State funding sources necessary to implement the improvements identified in the TIA, that are located in these other jurisdictions. The study shall include fair share contributions related to private and or public development and, to this end, the study shall recognize that impacts attributable to the City of Ontario, City of Chino Hills, City of Eastvale, and Caltrans facilities that are not attributable to development located within the City are not paying in excess of such developments' fair share obligations. The study shall set forth a timeline and other agreed upon relevant criteria for implementation of the recommendations contained within the study to the extent the other agencies agree to participate in the fee study program. Because the City and these other agencies have the responsibility of implementing this measure, the developer shall have no compliance obligations with respect to this measure.

EC TRAF-4: The developer's fair share amount for the intersections that either share a mutual border with or are wholly located within the City of Ontario, City of Chino Hills, and the City of Eastvale or are subject to the jurisdiction of Caltrans that have recommended improvements which are not covered by DIF are as follows:

- City of Ontario: \$33,635 for Building 1 and \$26,306 for Building 2 (total of \$59,941)
- City of Chino Hills: \$13,919 for Building 1 and \$10,886 for Building 2 (total of \$24,805)
- City of Eastvale: \$344 for Building 1 and \$268 for Building 2 (total of \$612)
- Caltrans: \$2,991 for Building 1 and \$2,338 for Building 2 (total of \$5,329)

The developer shall be required to pay the amount shown above to the City prior to the issuance of the Project's final certificate of occupancy. The City shall hold 'Developer's Fair Share' contribution in trust and shall apply 'Developer's Fair Share Contribution' to any fee program adopted or agreed upon by the City and other agencies as a result of implementation of TRAF EC-3. If, within five years of the date of collection of 'Developer's Fair Share Contribution', the City and other agencies do not comply with TRAF EC-3, then 'Developer's Fair Share Contribution' shall be returned to the developer.

EC TRAF-5: The proposed Project Applicant will be required to develop and implement a Corps and City-approved Construction Traffic Management Plan addressing potential construction-related traffic detours and disruptions. In general, the Construction Traffic Management Plan would ensure that to the extent practical, construction traffic would access the proposed Project area during off peak hours or limited access during the peak hours; and that construction traffic would be routed to avoid travel through, or proximate to, sensitive land uses.

EC TRAF-6: The delivery and removal of heavy equipment is recommended to minimize the heavy truck activity during the morning and evening peak periods (6:00 AM to 9:00 AM and 3:00 PM to 6:00 PM) in order to have nominal impacts to traffic and circulation near the vicinity of the proposed Project.

EC TRAF-7: During the site grading, the proposed Project shall limit soil import activity between the proposed Project area and excess dirt fill sites during the hours of 6:00 AM – 9:00 AM (morning peak period) and 3:00 PM – 6:00 PM (evening peak period) to fewer than the equivalent of 50 passenger car equivalent (PCE) truck trips perhour. 50 PCE truck trips equates to approximately 16 total trucks (8 trucks in and 8 trucks out) during the peak periods specified above in order to limit the potential impacts of haul truck activity during these busy commute times: 50 PCE truck trips / 3.0 PCE factor = 16 total trucks during the peak hour.

3.10.4 Environmental Consequences

No Action Alternative

Under the No Action Alternative, the proposed Project area would remain in pre-project conditions. No construction would occur and impacts related to traffic and circulation would not occur.

Preferred Alternative/Proposed Project

Proposed Project area, Borrow Sites and Other Features

As mentioned above, a TIA was prepared for the proposed Project, which is attached in Appendix H. Per the TIA, the proposed Project would have some impacts to intersections that would require some environmental commitments to reduce impacts to an acceptable level. The proposed Project is estimated to generate a net total of 4,440 trip-ends per day (actual vehicles) on a typical weekday with approximately 252 net AM peak hour trips and 338 net PM peak hour trips. The assumptions and methods used to estimate the proposed Project's trip generation characteristics are discussed in greater detail in the TIA. Additionally, the proposed Project would not create increased hazards due to a design feature or incompatible use. With the implementation of TRAF EC-1 to TRAF EC-7, traffic and circulation impacts will be less than significant.

Operation and Maintenance

Operations for the proposed Project area would include employee presence and the transport of items to and from the proposed buildings. Maintenance for the proposed Project area would include routine trash pickup, sediment and debris removal from the water quality/detention basin following each storm or deposition of material, and routine maintenance on and around the roadway, buildings and landscaping of the proposed Project area. Further, the Off-Site Storm Drain Improvement area's operations and maintenance would include routine maintenance to clear debris from the storm drain area as-needed. Therefore, potential operation and maintenance impacts associated with the proposed Project to traffic would not be significant; there would not be an increase in existing traffic loads.

3.11 Utilities

3.11.1 Affected Environment

Proposed Project area, Borrow Sites and Other Features

A variety of utilities such as power lines, telecommunications, and stormwater lines are adjacent to the proposed Project area. The City's Bureau of Sanitation and private waste management companies manage the collection, transfer, and disposal of municipal solid waste. Powerlines currently exist on the west site of the proposed Project area and run parallel with the site. There are also powerlines running north of Pine Ave, and south of Johnson Ave but which do not transverse into Borrow Site 1 and 2. Borrow Site 3 has a powerline on the east of the site running along Cucamonga Ave and Borrow Site 4 has a powerline north of the site on Chino Corona Road. Borrow Site 5 does not have powerlines on the street surrounding the site. Water and sewer conveyance services are provided to the Project area by the City of Chino. Under existing conditions, water lines are installed beneath Bickmore Avenue and Mountain Avenue, and a sewer line is installed beneath Mountain Avenue. In the proposed Project area, the City of Chino conveys wastewater flows to the Inland Empire Utility Agency (IEUA) for treatment at Regional Water Recycling Plant No. 5 (RP-5), which is located immediately northwest of the Project area. Solid waste from the Project area is expected to be disposed at the El Sobrante Landfill.

3.11.2 Significance Criteria

Impacts would be significant if the proposed Project would cause one or more of the following conditions to occur:

- If existing utility systems would be adversely affected by the proposed construction activities.
- If there is any unplanned disruption of utility service or physical impact to existing utility lines.

3.11.3 Environmental Commitments

None required or proposed.

3.11.4 Environmental Consequences

No Action Alternative

Under the No Action Alternative, the proposed Project area would remain in pre-project conditions. No construction would occur and impacts related to the existing utility, disruption of utility service or physical impact to utility lines would not occur.

Preferred Alternative/Proposed Project.

Proposed Project area, Borrow Sites and Other Features

The proposed Project would include installation of new utility service facilities as necessary to serve the proposed Project area but would not require new utility service facilities at the proposed borrow sites and the proposed Other Features. New utility service facilities on the proposed Project area would be required to follow local and state laws. The proposed Project area would result in operational consumption of natural gas and electricity. Natural gas would be supplied to the proposed Project area by Southern California Gas Company and electricity would be supplied by Southern California Edison. Regarding solid waste, the proposed Project would be required to comply with the City of Chino's waste reduction programs, including recycling and other diversion programs to divert the amount of solid waste deposited in landfills. Additionally, in accordance with the California Solid Waste Reuse and Recycling Act of 1991 (Cal Pub Res. Code § 42911), the proposed Project would provide adequate areas for collecting and loading recyclable materials where solid waste is collected. The collection areas are required to be shown on construction drawings and be in place before occupancy permits are issued. The implementation of these programs would reduce the amount of solid waste generated by the proposed Project and diverted to landfills, which in turn will aid in the extension of the life of affected disposal sites. There is no expectation of any unplanned disturbance on existing utility lines; however, improvements on existing utility lines may be necessary for off-site improvements.

Operation and Maintenance

As previously discussed, operations for the proposed Project area would include those typical of industrial buildings, such as employee presence and the transport of items to and from the proposed buildings. Maintenance for the proposed Project area would include routine trash pickup, sediment and debris removal from the water quality/detention basin following each storm or deposition of material, and routine maintenance on and around the roadway, buildings and landscaping of the proposed Project area. Further, the Off-Site Storm Drain Improvement area's operations and maintenance would include routine maintenance to clear debris from the storm drain area asneeded. Therefore, potential operation and maintenance impacts associated with the proposed Project to utilities would not be significant. No impacts related to the existing utility, disruption of utility service or physical impact to utility lines would occur.

3.12 Land Use

3.12.1 Affected Environment

Proposed Project area and Other Features

The proposed Project area is located in an area that was historically used for agriculture and factory dairy operations and is transitioning to a cluster of employment uses. The property to the north and east contains large light industrial/warehouse buildings. The property located to the south and west is occupied by the El Prado golf course. The IEUA and the Regional Water RP-5 are also located to the northeast of the proposed Project. The Chino Airport is located approximately 1.2 miles to the

northeast of the site. Land uses surrounding the proposed Project area include Property located to the north of the proposed Project area is occupied by large industrial/warehouse buildings to the north, El Prado golf course to the south, Mountain Avenue to the west, and Cypress Channel to the east.

The proposed Project area is located approximately 1.2 miles southwest of the nearest runways at the Chino Airport and is located approximately 7.1 miles southwest of the nearest runway at the Ontario International Airport (ONT). The proposed Project area is not located within the Airport Influence Area (AIA) for the ONT Airport, and as such would not be exposed to airport safety hazards associated with this facility (Ontario, 2011, Map 2-1). At present, there is no Airport Land Use Compatibility Plan (ALUCP) that addresses the current Master Plan for the Chino Airport (the most recent ALUCP, adopted in 1991, does not reflect the current Airport Master Plan for this facility). Based on the 1991 ALUCP, the Project is located within Safety Zones II and III of the Chino Airport's AIA.

The proposed Off-Site Storm Drain Improvement area totals approximately 2.98 acres. This area is bordered by the proposed Project area to the north, the El Prado Golf Course to the south and west, and Cypress Channel to the east. The proposed Project area abuts an off-site concrete flood control channel along a portion of its eastern boundary, which is adjacent to the site in the northeast and flows in a north to south direction.

Proposed Borrow Sites

Proposed Borrow Site 1 totals approximately 43.67 acres. The surrounding landscape consists of developed industrial areas to the northwest, an existing golf course to the west, ranching operations to the north and east, undeveloped land in the Prado Basin to the south, and a correctional facility to the east.

Proposed Borrow Site 2 totals approximately 38.51 acres. The surrounding landscape consists of ranching operations to the north and east, undeveloped land and the Prado Basin to the west and south, and a correctional facility to the east.

Proposed Borrow Site 3 totals approximately 84.25 acres. The surrounding landscape consists of Prado Basin to the south, Prado Basin and a recreational vehicle campground to the west, a ranching operation to the east, and a correctional facility to the north.

Proposed Borrow Site 4 totals approximately 12.94 acres. The surrounding landscape consists of ranching operations to the north and west, and undeveloped land associated with the Mill Creek Wetlands to the south and east.

Proposed Borrow Site 5 totals approximately 21.28 acres. The surrounding landscape consists of ranching operations to the north and east, undeveloped land and the Prado Basin to the west and south, and a correctional facility to the east.

3.12.2 Significance Criteria

Impacts would be significant if the proposed Project would cause one or more of the following conditions to:

- Physically divide an established community;
- Be incompatible with existing land uses;

• Be in conflict with applicable plans or policies.

3.12.3 Environmental Commitments

None required or proposed.

3.12.4 Environmental Consequences

No Action Alternative

Under the No Action Alternative, the proposed Project area would remain in pre-project conditions. No changes to land use in the area or construction would occur and no impacts related to division of a community or conflict with applicable plans, policies, or regulations would occur.

Preferred Alternative/Proposed Project

Proposed Project area, Borrow Sites and Other Features

The proposed Project consists of sites that are vacant and undeveloped, and no residences or established communities abut the proposed Project. The proposed Project area does not provide access to established communities and would not isolate any established communities or residences from neighboring communities. The proposed Project would allow for the future development of industrial land uses on the proposed Project area. Proposed GPA (PL18-0090) would amend the General Plan land use designation for the proposed Project area from "Agriculture (AG)" and "Recreation/Open Space (R/OS)" to "General Industrial (GI)." Proposed CZ (PL18-0091) would change the zoning designation for the proposed Project Site from "General Agriculture (AG)" and "Open Space-Natural (OS-2)" to "General Industrial (M2)." With its proximity to the Chino Airport, the proposed Project would ensure full compliance with the Federal Aviation Administration. The proposed Projected would comply with applicable plans and polices. Surrounding land uses include already established buildings with industrial uses which the proposed Project would be compatible with.

Construction and the future operation and maintenance of the proposed Project would thus not physically disrupt or divide the arrangement of an established community or conflict with applicable plans, policies, or regulations; therefore, no impacts to land use would occur.

3.13 Socioeconomic and Environmental Justice

3.13.1 Affected Environment

Proposed Project area, Borrow Sites and Other Features

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations requires federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations.

The proposed Project area is located in Census Tract 1.15 of San Bernardino County and adjacent to four census tracts. The total population within these five census tracks, according to 2017 U.S. Census data (5 Year Estimate), is 60,697 persons. Tract 122 includes a California State prison which is north of the proposed Project area. Selected demographic information from the 2017 U.S. Census and 2014 American Community Survey for the five census tracts are indicated in Table 3.13-1.

Census Tracts	Total	Minority	Average	Median	Below				
	Population	(Non-White)	Household Size	Household	Poverty Level				
	/a/	/b/	/b/	Income /d/	/c/				
Tract Including Pro	Tract Including Proposed Project area								
1.15 7,386		55.24%	3.53	3.53 \$106,585 4.9%					
Tracts Adjacent to Project area									
North – 122*	18,959	66.92%	50.1	\$100,980	18.8%				
East-19.03	ast—19.03 10,546 56.23%		5.79	\$92,957	11.8%				
South – 1.16	South – 1.16 12,396 51.7%		3.79	\$106,585	3.7%				
West – 1.13	West - 1.13 11,410 23.28% 3.48 \$71,994 11.5%								
Average of Census Tracts Adjacent 49.5% 4.34 \$93,129 11.45%									
to Proposed Project area (Excluding prison)									
/a/ U.S Census Bureau, 2013-2017 American Community Survey 5-Year Estimates. Age and Sex Table S0101									
/b/ U.S Census Bureau, 2013-2017 American Community Survey 5-Year Estimates. H13									
/c/ U.S Census Bureau, 2013-2017 American Community Survey 5-Year Estimates. S1701									
/d/ U.S Census Bureau, 2013-2017 American Community Survey 5-Year Estimates. B19013									
* Tract 122 includes a California State Prison									

Table 3.13-1: Socioeconomic Data

Source: U.S Census Bureau, American Fact Finder, available at http://data.census.gov accessed April 8, 2019.

Environmental Justice

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, require federal agencies to "make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income population." Section 1-101 of the Executive Order 12898 requires federal agencies to identify and address "disproportionately high and adverse human health or environmental effects" of programs on minority and low-income populations (Executive Order 1994).

The EPA has lead responsibility for implementation of Executive Order 12898. In exercising its responsibility, the EPA developed EJSCREEN, an online environmental justice screening and mapping tool, to assist federal agencies.

The Council on Environmental Quality (CEQ) has oversight of the federal government's compliance with this Executive Order and NEPA. The CEQ, in consultation with the EPA and other agencies, has prepared guidance to assist federal agencies in NEPA compliance in its Environmental Justice: Guidance under the National Environmental Policy Act (CEQ Guidance). The CEQ Guidance provides an overview of Executive Order 12898; summarizes its relationship to NEPA; recommends methods for the integration of environmental justice analysis into NEPA documents; and definitions of key terms and concepts contained in the order.

Per the CEQ Guidance, minority refers to people who are Hispanic or Latino of any race, as well as those who are non-Hispanic or Latino of a race other than White or European-American. The same CEQ Guidance suggests low-income populations be identified using the national poverty thresholds from the U.S. Census Bureau.

Methodology

Demographic data from the EPA's EJSCREEN, an online environmental justice screening and mapping tool, served as the source data for evaluation. EJSCREEN incorporates demographic data from the

U.S. Census Bureau. Two analyses recommended by the CEQ Guidance, Meaningfully Greater analysis and Fifty Percent analysis, were used to determine whether cities adjacent to the dam had a notable presence of minority or low-income population. Notable presence of either population would require either of the following results:

- Fifty Percent Analysis: The ratio of minority or low-income population of the area of analysis equals to or exceeds 50% of the total population of the area of analysis.
- Meaningfully Greater Analysis: The percentage of minority or low-income population relative of the area of analysis equals to or exceeds 50 % relative to the surrounding area.

The area of analysis is defined as a 1-mile radius around the project area. The reference area is defined as the cities of Redlands and Mentone. EJSCREEN analysis was conducted on each city. The percentage of minority and low-income populations for each city were collected and used to quantify the 50th percentile value for the reference area. The percentages of these groups within the area of analysis were then compared to the 50th percentile of the reference area. See Appendix I for all EJSCREEN output, including area of analysis and each city within the reference area.

ENVIRONMENTAL JUSTICE

Table 3.13-2 provides a summary of the minority and low-income population demographics for the affected area in the city of Chino and the State of California. Complete EJScreen Reports can be found in Appendix I. As shown in the table 3-13.2, the aggregate population percentage in the affected area is greater than 50%. Therefore, the affected area contains a minority population greater than the state of California.

As shown in the table 3.13-2, 15% of the individuals in the affected area are considered below the poverty level. This percentage in the affected area does not exceed 50%. In addition, the affected area of low-income population percentage is lower than the state of California, which is 34%. Therefore, the affected area does not contain a high concentration of a low-income population.

 Table 3.13-2: Minority Population and Low-Income Population Demographics

Demographics	City of Chino	State
Minority Population	79%	62%
Low-income	15%	34%
Population		

3.13.2 Significance Criteria

Impacts would be significant if the proposed Project would cause one or more of the following conditions to occur:

- Result in significant shifts in population trends or adversely affect regional spending and earning patterns.
- Have disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and/or low-income populations.

3.13.3 Environmental Commitments

None required or proposed.

3.13.4 Environmental Consequences

No Action Alternative

Under the No Action Alternative, the proposed Project area would remain in pre-project conditions. No construction would occur, and impacts related to the displacement of people, adverse effects on minority and low-income populations, and changes in the existing socioeconomic profile would not occur.

Preferred Alternative/Proposed Project

Proposed Project area, Borrow Sites and Other Features

The proposed Project would result in development of the subject property with industrial land uses that would add employment opportunities to the area. It is anticipated that the employment base for both the construction and operational phases of the proposed Project would come from the existing population in the Inland Empire, which comprises western Riverside County and southwestern San Bernardino County. According to the Bureau of Labor Statistics, the Riverside-San Bernardino Ontario region's civilian labor force exceeded 2,000,000 persons with more than 1,900,000 people employed and an unemployment rate of approximately 4 percent (approximately 86,000 persons). Accordingly, the proposed Project region already contains an ample supply of potential employees under existing conditions and the proposed Project's labor demand is not expected to draw significant numbers of new residents to the area. Furthermore, approximately 89 percent of City of Chino residents commute outside of the City for work (SCAG, 2019), with more homes currently under construction within The Preserve area; the proposed Project would provide job opportunities closer to home for existing and future Chino residents.

There are no components of the proposed Project that would reasonably result in indirect or unplanned population growth because the surrounding area is mostly developed under existing conditions or is planned for development and is in the process of developing pursuant to an approved land plan (i.e., The Preserve Specific Plan). The proposed Project would install new/expanded infrastructure; however, this infrastructure would either be master-planned facilities (meaning the facilities would be installed with or without the proposed Project) or would be private facilities for the sole use of the proposed Project (meaning they would not be available for general public use). Thus, no significant indirect impacts associated with population growth would result from any proposed Project-related improvements as the proposed Project and its required improvements would not induce significant growth on surrounding properties.

Based on the foregoing analysis, neither the proposed Project nor any proposed Project-related component would result in significant, direct, or indirect population growth that would cause a significant direct or indirect impact to the local economy or populations. Impacts would not be significant.

The minority population (55.24 percent) for the census tract that includes the proposed Project area is slightly higher than the average minority population (49.5 percent) for the four census tracts

adjacent to the proposed Project area. The median household income (\$93,129) for the census tract that includes the proposed Project area is higher than the average median household income (\$43,160) and its poverty rate (9.1 percent) is significantly lower than the average poverty rate (27.8 percent) for the four census tracts adjacent to the proposed Project area. The majority of these employment opportunities would be expected to be filled by currently employed and unemployed labor force participants from the local and surrounding area and would not generate significant new increases in population levels. Therefore, the proposed Project would not result in significant shifts in population trends or adversely affect regional spending and earning patterns nor significantly change the existing socioeconomic profile of the area.

The demographics within a 1-mile radius of the proposed project area is identified with 79% minority population and 15% low-income population. Although the minority population exceeds the state percentage, the proposed Project area and its surroundings are mostly undeveloped with existing land use zoned for industrial development. There is no residential or planned residential zoning within the proposed Project area. Therefore, the proposed Project would not have a disproportionately high and adverse human health or environmental effects on minority and/or low-income populations.

4.0 CUMULATIVE IMPACTS

Pursuant to 40 CFR Parts 1500-1508, cumulative impacts of a proposed Project must be assessed. A cumulative impact is "an impact on the environment which results from the incremental impact of the proposed Project when added to other past, present, and reasonably foreseeable future actions" (40 CFR § 1508.7). The intent is to identify impacts of other past, present, and reasonably foreseeable future projects that, when considered together with the proposed Project, may significantly compound or increase environmental impacts. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Infrastructure, industrial, commercial, residential, and other projects in proximity to the proposed Project are considered to have the potential for creating cumulative impacts in association with the proposed Project. CEQ's guidance for considering cumulative effects states that NEPA documents "should compare the cumulative effects of multiple actions with appropriate national, regional, state, or community goals to determine whether the total effect is significant" (CEQ 1997).

For the cumulative impacts analysis, the cumulative study area primarily includes the City of Chino, City of Eastvale, City of Ontario, and City of Chino Hills. These four cities encompass portions of southwestern San Bernardino County and northwestern Riverside County that have similar environmental characteristics as the proposed Project area. The selected study area has historically featured rural, commercial dairy, and/or other agricultural uses but in recent decades has transitioned to residential and industrial development. Table 4.1-1 lists past, present, and future projects within the proposed Project area that were considered in the cumulative analysis.

Past Actions: The proposed Project area was previously used for factory dairy farm operations that included dirt livestock pens (corrals) for the holding and separation of cattle intended for milking and slaughter and ancillary features such as hay/milking barns and open-air wastewater collection ponds. Dairy operations on the proposed Project area ceased between 2013 and 2014; all structures associated with the former dairy operations have since been demolished. The proposed Project area has also historically consisted of agriculture and dairy farming land uses. As a result of past land use approvals, the proposed Project area has transitioned from agriculture and dairy uses to more

urbanized land uses. The area has experienced a substantial amount of growth, which has resulted in cumulative adverse effects on traffic, air quality and water quality and increased demands on water and land resources within the proposed Project area. Additionally, past development within and around the proposed Project area has also increased the introduction of invasive species, pollutants, and human disturbance within the natural areas, such as Mill Creek.

Present Conditions: The proposed Project area is located in an area that was historically used for agriculture and factory dairy operations but is transitioning to a cluster of employment uses. Remnants of the former dairy activities (e.g., concrete pads/foundations) are still present on portions of the Project area. Under existing conditions, most of the proposed Project area lies within the Prado Dam's basin area (i.e., areas at or below 566 feet AMSL), meaning the proposed building footprints would need to be raised above the 566-foot elevation AMSL in order to be developed as proposed.

Future Actions: The surrounding area of the proposed Project is developed with large industrial/warehouse buildings to the north, El Prado golf course to the south, Mountain Avenue and El Prado golf course and the Regional Water RP-5 Solids Handling Facility to the west, and Cypress Channel and large industrial/warehouse buildings to the east. The proposed Project's potential cumulative impacts were considered with other probable future projects occurring in the area. The future projects considered in the cumulative analysis are located in the cities of Eastvale, Chino, and Corona. These projects are in various stages of approvals and can reasonably be expected to be developed and be operational during the implementation period of the proposed Project. Future development projects would be evaluated for potential impacts to the environment and would be required to comply with state and federal environmental laws and where needed, implement measures to minimize potential adverse effects to the environment. Overall, the proposed Project would not significantly impact the environment from incremental impact of the proposed Project when added to other past, present, and reasonably foreseeable future actions.

Project No.	Lead Agency	Name	Location	Project Type	Project Description	Status
1	US Army Corps of Engineers	Flood Risk Management	Prado Dam basin areas including: Alcoa Dike Phase II, minor improve- ments to existing dikes, Norco Bluffs, River Road Dike	Flood Risk Management	Corps involvement with the Santa Ana River Mainstem Project for construction and improvements to Corps flood risk management structures and facilities within areas of the Prado Dam basin. Construction of these features will continue for the next several years.	Planning, Environmental Assessment (under development)
2	US Army Corps of Engineers	Flood Risk Management	City of Corona	Flood Risk Management	Raising the Prado Dam spillway is the last major project component of the Prado Dam Separable Element of the Santa Ana River Mainstem Project.	Planning, Environmental Assessment (under development)

					Construction is currently scheduled to begin in 2021 or 2022.	
3	US Army Corps of Engineers	Flood Risk Management	City of Corona	Flood Risk Management	The Corps is currently conducting a Dam Safety Modification Study (DSMS) to evaluate alternatives for long term risk reduction.	Planning, Environmental Assessment (under development)
4	US Army Corps of Engineers	Flood Risk Management	City of Corona	Flood Risk Management	The Corps is considering modification of an existing flowage easement within the Prado Dam Flood Control Basin to facilitate the development of the Rancho Miramonte Residential and Commercial Development Project.	Planning, Environmental Assessment (under development)
5	City of Corona	Santa Ana River Trail	City of Corona	Recreation	The 22-mile Santa Ana River trail is divided into three sections: Lower, Middle, and Upper, and includes bicycle trails and hiking/equestrian trails. The Upper trail consists of proposed trail alignments that would cross adjacent the Lower Norco Bluffs Project area.	Planning
6	City of Chino	Rancho Miramonte	City of Eastvale	Easement/ Development	Implementation of the project includes modifying an existing flowage easement within the Prado Dam Flood Control Basin to facilitate development of the Rancho Miramonte Residential and Commercial Development Project.	Planning, Environmental Assessment (under development)
7	City of Chino	Pine Avenue Extension	City of Chino	Development	City of Chino is proposing to connect Pine Avenue west of SR-71 to Pine Avenue east of SR-71. As part of the extension project, Pine Avenue would be widened from a 2-lane roadway to a 4-lane roadway to match the existing 4-lane roadway east of SR-71 when connected, as well as elevated to above the 50- year flood level for Prado Basin and the 100-year flood level for Chino Creek and Cypress Channel.	Planning, Environmental Assessment (under development)
8	City of Chino	Altitude Business Centre	City of Chino	Redevelopment/ Development	Implementation of the project includes demolition of the property's existing	Planning, Final EIR published in September 2019

					residential and	
					agricultural/dairy	
					structures, and construction	
					and operation of a business	
					center complex with up to	
					25 light industrial buildings.	
9	City of	Rodriguez	City of	Redevelopment/	Implementation of the	Planning, Initial Proiect
	Chino	Warehouse Project	Chino	Development	project includes a General	published April 2019
					Plan amendment and a	
					Specific Plan amendment to	
					the (The Preserve Specific	
					Plan) to re-designate the	
					project from Open Space -	
					Agriculture within an	
					Agricultural Overlay to Light	
					Industrial (M1); and Site	
					Plan approval for the 3.28-	
					development of the site	
					The project site is located in	
					an area of transition from	
					agricultural to light	
					industrial uses.	
10	City of	Chino Parcel	City of	Development	The project involves the	Planning, Final EIR
	Chino	Delivery Facility	Chino		development of a	published in May 2019
					distribution hub facility for	
					a parcel delivery services	
					company on an	
					approximately 74.4-acre	
					site.	
11	City of	Block 4 – TTM	City of	Development	The project includes Master	Planning, Addendum
	Chino	20164	Chino		Site Approval and multiple	published in May 2019
					Tentative Tract Maps for a	
					total 388 nomes and a	
					nroject site also known as	
					South of Pine Block 4 (Tract	
					No. 20164) and is located	
					within the eastern portion	
					of the South of Pine	
					component of the Preserve	
					Specific Plan. The project's	
					residential uses are	
					comprised of single-family	
					detached condominium	
					units arranged around a	
					shared driveway/autocourt.	
					and four-pack detached	
					condominium units	
					accessed by a shared paseo	
					that leads to front entries	
					with shared alleys that lead	
					to garages.	
12	City of	Euclid Business	City of	Development	The project involves the	Planning, Addendum
	Chino	Center Project	Chino		development of an	published June 2019
					approximately 18.5-acre	
					property located at the northeast corner of the Euclid Avenue/Bickmore Avenue intersection in the City of Chino, San Bernardino County, California. The Project Applicant proposes to develop a business center with eight (8) buildings that could support warehouse, light industrial, and business park land uses. The project would develop up to 363,626 sf of floor area, with buildings ranging in size from 13,050 sf. to 206,118 sf	
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13	City of Chino	Lot 11 Preserve	City of Chino	Development	The project includes MSA and TTM 20223 (PL18-0049 & PL-18-0050 respectively) for development of a total of 176 homes, consisting of 70 Townhome (3-story) units and 106 Triplex Townhome (3-story) units on the 9.77-acre Property.	Planning, Addendum published April 2019
14	City of Chino	Van Vilet – Tract No. 20161	City of Chino	Development	The project includes up to 494 homes consisting of 102 single family units and 392 multi-family units.	Planning, Addendum published July 2019
15	City of Chino	Watson Industrial Park	City of Chino	Redevelopment/ Development	Under existing conditions, the approximately 211.9- acre project site is used by three dairy operations. The proposed project involves the demolition and removal of the existing onsite improvements, grading and preparation of the property for development, and the construction and operation of eight industrial buildings with loading docks suitable for a variety of tenants. No building tenants are yet identified, but could include industrial, distribution warehousing, manufacturing, assembly, e-commerce, and similar uses. Associated improvements to the property would include, but are not limited to, surface parking areas, vehicle drive aisles, truck courts, utility	Partially Complete/Construction, Final EIR published November 2015

					infrastructure, landscaping,	
					exterior lighting, signage,	
					and water	
					quality/detention basins.	
					The proposed buildings	
					would collectively contain a	
					a 872 000 square feet (s f)	
					of total building space. The	
					project also involves the	
					construction of an offsite	
					segment of Hellman	
					Avenue, between the	
					southern project site	
					boundary and Kimball	
					Avenue, and the installation	
					of an underground storm	
					drain line in the paved	
					section of Hellman Avenue	
					Autumn Path Street	
	City of	The lieurs de di	City of			Diamaine Nettors (
16	City of Eactualo	Ine Homestead	City of Eactuals	Development	the dovelopment of an	Planning, Notice of
	Edstvale	hy Orbis Real	Edstvale		industrial park on an	nublished Sentember
		Estate Partners			approximately 56-acre site.	2019
					The project would also	
					involve traffic and utility	
					improvements.	
17	City of	Eastvale Crossings	City of	Development	The project would	Planning, Draft EIR
	Eastvale	Project	Eastvale		subdivide the project site to	published September
					facilitate the development	2016
					of a 218,100-square-foot	
					commercial retail center on	
					the 24.78-acre project site.	
					anchored by a 192 000-	
					square-foot Walmart store	
					and feature smaller retail.	
					restaurant, and fuel station	
					uses totaling 26,100 square	
					feet. The proposed project	
					would have a Floor Area	
					Ratio of 0.22. The project	
					requires approval of a	
					Zone Change Major	
					Development Plan.	
					Tentative Tract Map,	
					Conditional Use Permits,	
					Sign Program, and Variance.	
18	City of	VantagePoint	City of	Development	The City of Eastvale is	Planning, Draft IS/MND
	le.i	Church	Fastvale	,	processing an application	published February 2018
	Eastvale	Church	Lastraic			
	Eastvale				for a Major Development	
	Eastvale	Church			for a Major Development Plan for the VantagePoint	
	Eastvale	Church			for a Major Development Plan for the VantagePoint Church (proposed project),	
	Lastvale	Church			for a Major Development Plan for the VantagePoint Church (proposed project), which consists of	

					church facility, a high- school building, and a children's building totaling approximately 122,000- square-feet on approximately 10.5 acres.	
19	City of Eastvale	The Merge Project	City of Eastvale	Development	The project proposes construction and operation of approximately 336,501 square feet of light industrial and 71,100 square feet of commercial/retail uses (407,601 total square feet) within an approximately 26.28-acre site located in the northwest portion of the City of Eastvale.	Planning, Draft EIR published September 2018
Sources	City of Ch	ino, 2019a; 2019b; 2	2019c; 201	9d; 2019e; 2019f;	2019g; 2019h; 2019i, City of	Eastvale, 2019a; 2019b;

4.1 Analysis of Cumulative Impacts

4.1.1 Biological Resources

No Action Alternative

Under the No Action Alternative, there would be no development of the two proposed warehouse buildings. No borrowing of dirt fill from the proposed borrow sites, and the proposed Project area would remain in pre-project conditions. Therefore, there would be no earth disturbances and no potential for direct or indirect impacts to occur biological resources that would result in cumulative impacts to biological resources.

Proposed Project

Implementation of the proposed Project would not result in significant cumulative impacts to biological resources (See Section 3.1). The proposed Project is site specific on mostly open or developed land consisting of ruderal/disturbed habitat and would not result in incremental cumulative impacts to biological resources through increased human encroachment (e.g., removal of habitat, degradation of habitat through trampling, increased noise, or decreased water quality). Thus, the proposed Project would not significantly impact sensitive habitat or species or native wildlife such that it would result in a cumulative impacts to biological resources in the region. At the conclusion of construction, the proposed Project area or applicable habitat area would be restored to pre-project condition with the appropriate native hydroseed mix. Impacts of the proposed Project would not be considered cumulatively significant.

4.1.2 Air Quality

No Action Alternative

Under the No Action Alternative, there would be no development of the two proposed warehouse buildings and no borrowing of dirt fill from the proposed borrow sites, and the proposed Project area

would remain in pre-project conditions. Thus, no construction equipment emissions would occur that would potentially result in cumulative air quality impacts.

Proposed Project

Implementation of the proposed Project would not result in significant cumulative impacts to air quality. With respect to nearby projects whose construction activities may be concurrent to the proposed Project's construction, the construction and operational emissions of the Alcoa Dike Project were analyzed along with those of the proposed Project to determine potential cumulative air quality impacts to the area. As shown in Tables 4.1-2 and 4.1-3 below, the proposed Project would not cumulatively contribute to the total estimated construction and operational emissions of the nearby Alcoa Dike Project in such a way as would exceed General Conformity Applicability Rates. Further, as previously discussed in Section 3.2.2, the proposed Project would not result in any significant impacts under the air quality impact significance criteria analyzed. It is therefore expected that the proposed Project would not contribute to or result in cumulatively significant impacts to air quality.

Table 4.1-2 - Cumulative Annual Construction Emissions Comparison to General Conformity
Applicability Rates

	General Conformity	Estimated Construction Emissions (tons/year)		
Pollutant	Applicability Rates (tons/year)	Proposed Project	Alcoa Dike	Total Cumulative
O ₃ (VOC)	10	6.33	0.57	6.90
CO	100	12.60	3.84	16.44
NO ₂	100	11.46	5.79	17.25
SO ₂	100	0.05	0.007	0.06
PM ₁₀	100	3.26	1.10	4.36
PM _{2.5}	100	1.00	0.67	1.67
Pb	25	0	0	0

Table 4.1-3 - Cumulative Annual Operational En	vissions Comparison to General Applicability
Dete	-

		Rates		
Pollutant	General Conformity Applicability Rates (tons/year)	Proposed Project Estimated Operational Emissions (tons/year)	Alcoa Dike Estimated Operational Emissions (tons/year)	Total Cumulative
O ₃ (VOC)	10	9.31	Negligible	9.31
СО	100	24.48	Negligible	24.48
NO ₂	100	31.74	Negligible	31.74
SO ₂	100	0.17	Negligible	0.17
PM ₁₀	100	9.25	Negligible	9.25
PM _{2.5}	100	2.64	Negligible	2.64
Pb	25	0	Negligible	0

4.1.3 Noise

No Action Alternative

Under the No Action Alternative, there would be no development of the two proposed warehouse buildings and no borrowing of dirt fill from the proposed borrow sites, and the proposed Project area would remain in pre-project conditions. Therefore, there would not be use of construction equipment or construction vehicles that would result in potential cumulative impacts.

Proposed Project

Cumulative noise and vibration effects typically occur when multiple projects affect the same geographic areas simultaneously or when sequential projects extend the duration of noise and vibration impacts on a given area over a longer period. With regard to a cumulative increase in temporary noise levels of the proposed Project construction in conjunction with construction of cumulative projects identified in Table 4.1-1, the proposed Project construction would temporarily increase ambient noise levels in the vicinity of the proposed Project area. As discussed in Section 3.3, the closest noise-sensitive receiver locations to the proposed Project area are located greater than 2,000 feet west of the proposed Project area in the City of Chino Hills. An additional noise-sensitive receiver location is identified east of the proposed Project area, at over 4,000 feet from the proposed Project area, in the City of Chino. Construction activities associated with other projects in close proximity to the proposed Project could potentially occur at the same time as the proposed Project and further increase noise levels at these sensitive receptor locations. However, due to the distances and construction timing of projects identified in Table 4.1-1, and the distances of the nearest sensitive receptors, it is unlikely that construction noise from the proposed Project would combine with construction noise from those projects to increase potential cumulative construction noise impacts to sensitive receptors. In the event this occurred, these impacts would be temporary and of short duration. While mobile construction vehicles bringing construction supplies to cumulative project sites could share travel routes with the Proposed Action, it is assumed these shared routes would be limited to regional access roadways. Due to the traffic volumes on these roadways, no significant cumulative noise from mobile construction sources would occur to sensitive receptors along shared travel routes.

As discussed in Section 3.3, the operational noise analysis shows that the proposed Project-related stationary-source noise levels at the nearby sensitive receiver locations will satisfy the City of Chino exterior noise level standards and, overall, would not be considered significant. Therefore, while overall development of the proposed Project area could result in cumulative temporary increases to existing ambientnoise levels, the proposed Project would have a minimal cumulative contribution to these potential noise impacts. Therefore, noise impacts of the proposed Project would not combine with impacts of present and reasonably foreseeable projects to result in a significant cumulative impact.

4.1.4 Cultural Resources

No Action Alternative

Under the No Action Alternative, there would be no development of the two proposed warehouse buildings and no borrowing of dirt fill from the proposed borrow sites, and the proposed Project area would remain in pre-project conditions. Thus, there would be no project-associated earthwork

activities, earth disturbances, and no potential to effect unknown cultural resources that might be present.

Proposed Project

As discussed in Section 3.4, the historic resources identified within the proposed Project are not considered eligible for nomination to the NRHP and are not independently significant in accordance with the criteria identified in 36 CFR 60.4. Moreover, there is a low likelihood of encountering archaeological resources during construction activities as no archaeological resources were identified during the field survey conducted for the proposed Project, nor are any human remains known to exist in the Project area. It is therefore expected that the proposed Project in conjunction with ongoing and future actions would not contribute significantly to the loss of cultural values or data within the basin.

4.1.5 Earth Resources

No Action Alternative

Under the No Action Alternative, there would be no development of the two proposed warehouse buildings and no borrowing of dirt fill from the proposed borrow sites, and the proposed Project area would remain in pre-project conditions. Therefore, there would be no uncovering of soils, earthwork activities, and no potential erosion, siltation, impacts. Additionally, no habitable structures would be constructed that could be subject to seismic risks. There would be no potential cumulative impacts to earth resources.

Proposed Project

The proposed Project would not result in significant erosion or siltation and would be required to adhere to the City's regulatory requirements, including, but not limited to, requirements imposed by the City's NPDES Municipal Stormwater Permit, a Project-specific SWPPP and WQMP to minimize water pollutants including erosion and sedimentation in stormwater runoff. Additionally, the proposed Project, located in the southern portion of the Chino groundwater basin, would not directly draw water from the groundwater table and would not physically impact any of the major groundwater recharge facilities in the Basin. Therefore, erosion, sedimentation, and groundwater impacts of the proposed Project would not combine with impacts of present and reasonably foreseeable projects to result in a significant cumulative impact.

The proposed Project is located in the seismically active area of Southern California, but it does not contain major geologic hazards. Further, Geologic and seismic impacts typically are tied to site specific conditions and the geotechnical hazards that are present which do not combine with other sites to become cumulatively significant. The proposed Project does not include the construction of habitable structures and therefore, would not cumulatively increase the potential for habitable structures within the project area to be adversely affected by seismic impacts.

4.1.6 Water Resources and Hydrology

No Action Alternative

Under the No Action Alternative, there would be no development of the two proposed warehouse buildings and no borrowing of dirt fill from the proposed borrow sites, and the proposed Project area would remain in pre-project conditions. Therefore, there would be no uncovering of soils and no potential for erosion impacts and sedimentation impacts. No impervious surfaces would be constructed and no increased rates of runoff would occur that would affect capacities of existing drainage facilities.

Proposed Project

As discussed in Section 3.6, implementation of the proposed Project would involve demolition, clearing, grading, paving, utility installation, building construction, and landscaping activities, which could result in the generation of water quality pollutants such as silt, debris, chemicals, paints, and other solvents with the potential to adversely affect water quality. As such, minor short-term water quality impacts have the potential to occur during construction of the proposed Project. However, the proposed Project would require that BMPs be implemented during construction to address water pollutants and that they be identified and addressed in the final water quality management plan. Moreover, the proposed Project would not cause or result in significant flooding to areas that were not already part of the Prado Dam basin flood inundation area, nor would construction of the proposed Project area. As such, potential water resources and hydrology impacts of the proposed Project would not combine cumulatively with similar impacts of other projects.

4.1.7 Public Safety (Hazardous Materials and Emergency Response)

No Action Alternative

Under the No Action Alternative, there would be no development of the two proposed warehouse buildings and no borrowing of dirt fill from the proposed borrow sites, and the proposed Project area would remain in pre-project conditions. Therefore, there would be no on-site construction equipment, handling of hazardous materials, or risks to public safety.

Proposed Project

As discussed in Section 3.7, the proposed Project would not result in increased risks to public safety. The two proposed industrial buildings are required to be constructed in accordance with the CBSC, also known as CCR, Title 24 (Part 2), and the Chino Building Code, which is based on the CBSC with local amendments. Moreover, the Phase I assessment for the proposed Project revealed no evidence of current conditions indicative of releases or threatened releases of hazardous substances, and the future occupant would be required to follow applicable federal, state, and local laws for use and/or storage of hazardous materials.

Construction operations associated with the proposed Project, residential, commercial, and industrial developments within vicinity of the project area, off-site drainage improvement area, and borrow site area could involve operation of heavy construction equipment and the handling of incidental amounts of hazardous materials, such fuels, oil and solvents, which could have the potential to be inadvertently released into the environment. The operation of heavy construction equipment for the proposed Project and other activities in the area would be required to comply with Federal, State and local laws and regulations regarding the handling of hazardous materials. With

compliance with Federal, State and local laws, proposed Project combined with other activities in the vicinity would avoid the potential for significant cumulative hazardous impacts resulting in public safety concerns.

4.1.8 Recreation

No Action Alternative

Under the No Action Alternative, there would be no development of the two proposed warehouse buildings and no borrowing of dirt fill from the proposed borrow sites, and the proposed Project area would remain in pre-project conditions. Therefore, there would be no effect to recreation facilities that would result in potential cumulative impacts to recreation.

Proposed Project

The proposed Project would be consistent with the General Plan, Zoning Ordinance, other applicable plans, policies, and regulations. Thus, the impacts to recreation from the proposed Project are not anticipated, and therefore, no contribution to cumulative impacts in the region would occur.

4.1.9 Aesthetics

No Action Alternative

Under the No Action Alternative, there would be no development of the two proposed warehouse buildings and no borrowing of dirt fill from the proposed borrow sites, and the proposed Project area would remain in pre-project conditions. Thus, there would be no construction activity that would result in aesthetic resource impacts cumulatively.

Proposed Project

As discussed in Section 3.9, given that the proposed Project area is not a scenic vista, is not located near a designated scenic resource, prominent and scenic views would not be obscured by the proposed Project there were would be no significant adverse effect on aesthetic resources. The proposed Project would also not create a new source of significant light or glare which would adversely affect day or nighttime views in the area. As such, no cumulative aesthetics impacts would occur.

4.1.10 Traffic and Circulation

No Action Alternative

Under the No Action Alternative, there would be no development of the two proposed warehouse buildings and no borrowing of dirt fill from the proposed borrow sites, and the proposed Project area would remain in pre-project conditions. Thus, no impacts to traffic would occur that would result in potential cumulative impacts to traffic and circulation.

Proposed Project

Cumulative projects within the area (as identified in Table 4.1-1) will generate trips to and from the respective project sites using local roadways. The combined contribution of these vehicle trips could result in an increase to existing roadway network levels of service. However, each project identified

in Table 4.1-1 would be required to comply with the performance standards identified in their respective General Plans. While development of cumulative projects identified in Table 4.1-1 will result in a cumulative addition to traffic volumes on study area roadways, the proposed Project's contribution to this impact would be minimal during both construction and operation (refer to Section 3.9). Therefore, the contribution of the proposed Project cumulative impacts would be less than significant.

4.1.11 Utilities

No Action Alternative

Under the No Action Alternative, there would be no development of the two proposed warehouse buildings and no borrowing of dirt fill from the proposed borrow sites, and the proposed Project area would remain in pre-project conditions. Therefore, there would be no demands on public services and utilities that would result in potential cumulative impacts to utilities.

Proposed Project

As discussed in Section 3.11, utilities would not be significantly impacted as a result of the proposed Project as there is no expectation of any unplanned disturbance on existing utility lines, and new utility service facilities on the proposed Project area would be required to follow local and state laws. As such, the proposed Project would not contribute to a cumulative impact to utilities.

4.1.12 Land Use

No Action Alternative

Under the No Action Alternative, there would be no development of the two proposed warehouse buildings and no borrowing of dirt fill from the proposed borrow sites, and the proposed Project area would remain in pre-project conditions. Thus, there would be no potential land use conflicts that would result in cumulative impacts to land use.

Proposed Project

Land use impacts tend to be localized, affecting properties in the immediate vicinity of the project. As discussed in Section 3.12, the proposed Project consists of sites that are vacant and undeveloped, and no residences or established communities abut the proposed Project. Moreover, surrounding land uses include already established buildings with industrial uses with which the proposed Project would be compatible. As no land use impacts would occur as a result of the proposed Project, the proposed Project would not contribute to a cumulative impact land uses.

4.1.13 Socioeconomic and Environmental Justice

No Action Alternative

Under the No Action Alternative, there would be no development of the two proposed warehouse buildings and no borrowing of dirt fill from the proposed borrow sites, and the proposed Project area would remain in pre-project conditions. Therefore, there would be no construction activity combined with the other activities occurring in the project area that could have the potential to result in

disproportionally high and adverse effects to minority households. There would be no cumulative socioeconomic and environmental justice impacts.

Proposed Project

As discussed in Section 3.13, impacts on Socioeconomic and Environmental Justice factors would not be significantly impacted as a result of the proposed Project as there will not be a significant shift in population trends or adversely affect regional spending and earning patterns. As such, the proposed Project would not contribute to a cumulative impact to Socioeconomic and Environmental Justice.

5.0 APPLICABLE ENVIRONMENTAL LAWS AND REGULATIONS

Clean Air Act of 1972, as amended, 42 U.S.C. 7401, et seq. 'Under Section 176(c) of the Clean Air Act Amendments (CAAA) of 1990, the Lead Agency is required to make a determination of whether the proposed Project "conforms" with the SIP. Conformity is defined in Section 176(c) of the CAAA as compliance with the SIP's purpose of eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious attainment of such standards. If the total direct and indirect emissions of the criteria pollutant or precursor in a nonattainment or maintenance area caused by a Federal action would equal or exceed the applicability rates at 40 CFR 93.153(b), a conformity determination is not required. The proposed Project would be in full compliance as the total direct and indirect emissions of the federal action would not equal or exceed the USEPA's applicability rates; therefore, a general conformity determination is not required.

Clean Water Act of 1972, as amended, 33 U.S.C. 1251, et seq. The proposed Project is in compliance with 40 CFR Part 230, regulations promulgated by the USEPA pursuant to Section 404(b)(1) of the Clean Water Act (CWA). The proposed Project would not modify a Federal channel or result in any permanent impacts to Corps jurisdictional waters or aquatic features under Section 404, nor would the proposed Project result in any permanent impacts to jurisdictional waters under Section 401. Permits under both Sections 404 and 401 for temporary impacts to jurisdictional WoUS within the proposed Off-Site Storm Drain Improvement area are being obtained for the proposed Project. Additionally, the proposed Project would adhere to NPDES requirements under Section 402 as well as the City's regulatory requirements, including, but not limited to, requirements imposed by the City's NPDES Municipal Stormwater Permit, a Project-specific SWPPP and WQMP to minimize water pollutants including erosion and sedimentation in stormwater runoff. Thus, as permits are being obtained for the Project under applicable sections of the CWA, the proposed Project is in compliance with the CWA.

Endangered Species Act of 1973, as amended, 16 U.S.C. 1531, et seq. The proposed Project may affect but is not likely to adversely affect up to 0.23 acre of designated critical habitat within proposed Borrow Site 1 for the least Bell's vireo. Although vireo critical habitat will be affected, the areas lack the primary constituent elements to provide suitable habitat to support vireos. ECs BIO-5 and 6, would be implemented to include application of native hydroseed to the entirety of proposed Borrow Site 1 to offset any adverse effects to vireo critical habitat and borrow activities would occur outside of vireo nesting season (March 15 to September 15) to the greatest extent practicable. Additional measures (i.e. noise monitoring and, if necessary, erect sound wall(s), hay bales) would be implemented prior to the nesting season if grading activities extend into the nesting season. The Corps is initiating Section 7 informal consultation with the U.S. Fish and Wildlife Service. It is not expected that additional measures would be required to address potential effects to vireo or vireo critical habitat, as the application of native hydroseed mix post construction would more than offset effects to the 0.23 of critical habitat impacted within proposed Borrow Site 1. In addition, the implementation of environmental commitments would further reduce potential effects to the species or critical habitat. Thus, with implementation of the above, the Corps has determined that there would be a "not likely to adversely affect" to least Bell's vireo and its critical habitat. The Corps has sent out a Section 7 informal consultation letter to the U.S. Fish and Wildlife Service for a "not likely to adversely affect" determination on January 22, 2021 and would obtain concurrence from the USFWS prior to finalization of the EA. The Project would be in compliance with the Endangered Species Act.

Fish and Wildlife Coordination Act. This Act requires Federal agencies consult with the USFWS and the fish and wildlife agencies of States where the "waters of any stream or other body of water are proposed or authorized, permitted or licensed to be impounded, diverted . . . or otherwise controlled or modified" by any agency under a Federal permit or license. Consultation is to be undertaken for the purpose of "preventing loss of and damage to wildlife resources." The intent is to give fish and wildlife conservation equal consideration with other purposes of water resources development projects. As the proposed Project does not involve the control or use of water as described, the proposed Project does not require a Fish and Wildlife Coordination Act Report. The proposed Project does not involve any diversion or impoundment of water; all water will flow in the same state as it currently exists. Therefore, a Fish and Wildlife Coordination Act Report is not required. This Project is in compliance with the Fish and Wildlife Coordination Act.

Migratory Bird Treaty Act. The Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-711) makes it unlawful to possess, buy, sell, purchase, barter or "take" any migratory bird listed in Title 50 of the Code of Federal Regulations Part 10. "Take" is defined as possession or destruction of migratory birds, their nests or eggs. In accordance with the requirements of the Migratory Bird Treaty Act, the applicant is required to remove vegetation outside of the bird nesting season and additional avoidance and minimization measures have been developed to avoid impacts to migratory birds, their nests, or eggs. Therefore, the proposed Project is in compliance with the Migratory Bird Treaty Act.

Bald and Golden Eagle Protection Act, as Amended. The Bald and Golden Eagle Protection Act of 1940, as amended, protects bald and golden eagles by prohibiting the taking, possession, and commerce of such birds and nests without a permit and establishes civil penalties for violation of this Act. Take of bald and golden eagles is defined as follows: "disturb means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by s significantly interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by significantly interfering with normal breeding, feeding, or sheltering behavior" (72 FR31132; 50 CFR 22.3). While both the Bald Eagle and Golden Eagle have the potential to forage within the proposed Project, both species are not expected to nest within the proposed Project as the Projectareas lack species-specific required nesting features, such as close proximity to the nearest large body of water (Bald Eagles) and high cliffs and rocky escarpments (Golden Eagles). Moreover, the implementation of EC-BIO-2 would minimize and/or avoid any potential impacts. Therefore, the proposed Project is in compliance with the Bald and Golden Eagle Protection Act, as amended.

Noise Control Act of 1972, as amended (42 U.S.C. 4901 et seq.). Noise generated by any activity, which may affect human health or welfare on Federal, state, county, local, or private lands, must comply with noise limits specified in the Noise Control Act. The proposed Project would not have significant impacts to noise levels in the area. Noise would continue to be regulated with Federal, state, and local laws and ordinances. The proposed Project is in compliance with the Act.

Executive Order 13112, Invasive Species. Federal agencies are to expand and coordinate efforts to prevent the introduction and spread of invasive plant species and to minimize the economic, ecological, and human health impacts that invasive species may cause. Eradication/maintenance of invasive species and the future replacement of non-native ornamental trees and other plant material per USACE guidance, may be carried out with other future projects and the intent of the EO is met. The proposed Project would include the application of native hydroseed mix to areas in which the proposed Project activities would involve the removal of vegetation, including ruderal/disturbed and ornamental vegetation. The proposed Project is in compliance with this Executive Order.

National Environmental Policy Act of 1969, as amended, 42 U.S.C. 4321, et seq. This Environmental Assessment (EA) has been prepared in accordance with the NEPA, the purposes of which are to, "declare a national policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation; and to establish a Council on Environmental Quality." The proposed Project will be in full compliance with NEPA upon execution of the FONSI.

National Historic Preservation Act of 1966, as amended, 54 U.S.C. 100101 et seq.

The National Historic Preservation Act (NHPA) and its implementing regulations 36 CFR Part 800 provide a regulatory framework for the identification, documentation, and evaluation of cultural resources that may be affected by Federal undertakings. Under the Act, Federal agencies must take into account the effects of their undertakings on historic properties (cultural resources that have been found to be eligible for listing or which are listed in the NRHP) and afford the Advisory Council on Historic Properties a reasonable opportunity to comment on such undertaking.

Pursuant to 36 C.F.R. 800.4, the Corps has determined and documented the APE in consultation with the SHPO (Appendix D) and has reviewed existing information on historic properties within the APE, including data concerning possible historic properties not yet identified. A cultural resources survey of the APE was conducted on March 14 and 15, 2019 and described in the report entitled A Section 106 (NHPA) Historic Properties Study for the Majestic Chino Heritage Project, on file at the Corps Los Angeles District. A total of thirteen cultural resource sites were identified within the APE during the survey and/or record search. Seven of these sites had previously been recorded, CA-SBR-2845, CA-SBR-5241, CA-SBR-12573H, CA-SBR-12613H, P-36-029722, CA-SBR-29791H, and P-36-029792. Of these seven previously-recorded sites, six had been either recommended as ineligible for the NRHP or were determined to be not eligible for the California Register of Historic Places. The consultant completing the cultural resource survey also recommended these six sites as ineligible for the NRHP under all criteria. The seventh previously recorded site, CA-SBR-12573H, is a historic ditch known to have been in existence in 1888. No evidence of the ditch was found during the survey and historical aerial photographs indicate that portions of the ditch in the APE were likely destroyed prior to 1938. Of the six newly recorded sites, five are foundation remnants of demolished buildings and structures, CA-SBR-33112H, CA-SBR-33113H, CA-SBR-33115H, CA-SBR-33116H, and CA-SBR-33117H. All five are associated with the region's dairy history. None of these sites retain enough integrity to be eligible for the NRHP. The remaining site, P-36-033114, consists of a single-family residence built between 1948 and 1959 and a detached garage built between 1967 and 1980.

As part of their historic property identification efforts, the Corps has consulted with the following Federally recognized and non-Federally recognized Tribes. Fernandeño Tataviam Band of Mission Indians; Gabrieleno Band of Mission Indians - Kizh Nation; Gabrieleno/Tongva San Gabriel Band of Mission Indians; Gabrielino /Tongva Nation; Gabrielino Tongva Indians of California Tribal Council; Gabrielino-Tongva Tribe; San Fernando Band of Mission Indians; Soboba Band of Luiseno Indians. The Corps has provided the Federally recognized and non-Federally recognized Tribes a copy of the cultural resource report and has sought their assistance in identifying any properties which are of religious or cultural significance that may be affected by the project (pursuant to 36 C.F.R 800.4(a)(4)).

The Corps has determined that the 12 sites still extant in the APE are not eligible for the NRHP under any criteria. The historic ditch, CA-SBR-12573H, is a long linear site and where it is still extant it may be eligible; however it is no longer present within the APE. The Corps has found that the project would result in no historic properties affected. The Corps has consulted with the SHPO regarding its determinations and findings and the SHPO has concurred (Appendix D). The Corps is in compliance with the Act.

Executive Order 11988: Floodplain Management. Executive Order 11988, signed by President Jimmy Carter on 24 May 1977, and published in 42 FR 26351. Its purpose is to "...avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative." The proposed Project would avoid development in the Prado basin to the extent practicable to reduce flood hazards and human safety and health risks. Therefore, the proposed Project is in compliance with this Executive Order.

Executive Order 12088, Federal Compliance with Pollution Control Standards. Federal Agencies are responsible for ensuring that all necessary actions are taken for the prevention, control, and abatement of environmental pollution with respect to Federal facilities and activities under control of the agency. The proposed Project does not significantly affect the natural and beneficial values of the Prado Basin as the lands below the 566-foot backwater area of the basin conserve and protect existing natural areas from further development. The proposed Project is in compliance with the EO.

Executive Order 12898, Environmental Justice Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. Full compliance. Executive Order 1289 (Federal Actions to Address Environmental Justice in Minority and Low-Income Populations) was signed on February 11, 1994. This order directs Federal agencies to make achieving environmental justice part of its mission by identifying and addressing disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the U.S. Based on the evaluation in Section 3.13.2, the proposed Project would not result in disproportionate adverse human health or environmental effects on minority and/or low-income populations. Therefore, the proposed Project is in compliance with this Executive Order.

6.0 AGENCY COORDINATION

An Initial Study and public notice were made available on March 23, 2019 for the preparation of an Environmental Assessment for the proposed Project. The Corps is in coordination and informally consulting with the USFWS to obtain concurrence for a "not likely to adversely affect" determination on the Proposed Action. A letter has been mailed to the USFWS on January 22, 2021 to initiate Section 7 informal consultation. The Corps is expecting to receive a letter of concurrence from the USFWS prior to finalization of the EA.

7.0 ENVIRONMENTAL COMMITMENT MEASURES

The following is a list of the Environmental Commitment measures required to be implemented as part of the proposed Project:

Biological Resources

EC BIO-1: Once borrow activities within proposed borrow sites 1 through 5 have been completed, the Project Applicant will include application of a native hydroseed mix to each proposed Borrow Site to minimize the spread of non-native, invasive plant species and for erosion control purposes post-construction. The application(s) of all hydroseeding will be performed as close as possible to the rainy season to allow the seed mix to establish and have the best possibility to succeed.

EC BIO-2: Temporary impacts to 0.76 acre of CSS habitat within proposed Borrow Site 4 will be offset by restoring native habitat within the construction footprint by the Project Applicant. The southern and eastern boundary of proposed Borrow Site 4, where temporary impacts would occur, will be reseeded with a specific CSS seed mix comprising of the same species currently present. The application(s) of all hydroseeding will be performed as close as possible to the rainy season to allow the seed mix to establish and have the best possibility to succeed. The Project Applicant or their designee will conduct annual maintenance for three years within the 0.76-acre area at proposed Borrow Site 4 hydroseeded as CSS.

EC BIO-3:

(3) Prior to construction, the Project Applicant will conduct a preconstruction burrowing owl survey in accordance with burrowing owl survey requirements. The guidelines stipulate that four focused survey visits be conducted between February 15 and July 15, with the first visit occurring between February 15 and April 15. The remaining three visits will be conducted three weeks apart from each other, with at least one visit occurring between June 15 and July 15. If burrowing owl(s) is/are detected on site, the owl(s) will be handled as indicated by the Resources Management Plan (RMP) and/or the CDFW's 2012 protocol. The RMP addresses mitigation requirements for impacts to burrowing owls. The RMP states that the 1995 CDFG Staff Report on Burrowing Owl Mitigation (as supplemented by the RMP) shall be followed when burrowing owls are detected on properties. If avoidance of occupied habitat is infeasible, provisions would be made to passively relocate owls from sites in accordance with the current 2012 CDFG Staff Report (supersedes 1995 CDFG Staff Report).

Consistent with the RMP, the following measures will apply to the proposed Project area regarding burrowing owl mitigation:

- Prior to disturbance of the occupied burrows, suitable and unoccupied replacement burrows will be provided at a ratio of 2:1 within the City-designated relocation area (e.g. the NTS basins). A qualified biologist through coordination with the City will confirm that the artificial burrows are currently unoccupied and suitable for use by owls.
- If a Project area-specific exclusion and translocation plan for burrowing owl has not already been approved by CDFW, the Project Applicant will retain a qualified biologist to prepare such a plan for review and approval by CDFW. This plan will identify the procedures to be followed to exclude and/or translocate burrowing owls from the Project area, with separate procedures identified for during the breeding season and outside of the breeding season. For

translocated owls, natural or artificial burrows will be provided at a 2:1 ratio at an off-site relocation area.

- Until suitable replacement burrows have been provided/confirmed within the Citydesignated relocation area (e.g. the NTS basins), no ground disturbance (clearing, grubbing, grading) will occur within 50 meters (approximately 160 feet) of occupied burrows during the nonbreeding season (September 1 through January 31) or within 100 meters (approximately 250 feet) during the breeding season (February 1 through August 31) until the owls have fledged or have been relocated per the CDFW-approved exclusion and translocation plan. All occupied burrows will have a visible marker placed near them to ensure that ground-disturbing equipment and machinery do not come within the specified distance to prevent disturbance of the owls or collapse of the burrows.
- Owls will not be excluded or translocated from occupied burrows and should not be disturbed during the nesting season (February 1 through August 31) unless a qualified biologist approved by CDFW verifies that juveniles from the occupied burrows are foraging independently and are capable of independent survival.
- Pursuant to mitigation measure B-3(8) of The Preserve Environmental Impact Report (EIR), and as noted on Page 4-39 of the RMP, the proposed Project will pay the required mitigation fee. One priority for funding supported by the mitigation fees is the establishment and long-term management of burrowing owl habitat within the Drainage Area B conservation area.

The proposed Project's implementation of these measures would minimize potential effects to burrowing owls and impacts would be less than significant.

(4) If there is more than a 14-day window between when the focused survey is performed and ground disturbance, a qualified biologist would conduct a pre-construction presence/absence survey for burrowing owls within 14 days prior to site disturbance and again within 48 hours of disturbance. If burrowing owls are detected on site, the owls would be relocated/excluded from the site outside of the breeding season following accepted protocols, and subject to the approval of CDFW (as described above).

EC BIO-4: The Project Applicant will retain a qualified biologist (hereafter "Project Biologist") to conduct training and monitoring activities for the Proposed Project

EC BIO-5: Vegetation clearing will be conducted outside of the general passerine nesting season (February 1 through August 31). If avoidance of the nesting season is not feasible, then the Project Biologist will conduct a nesting bird survey, including suitable habitat within a 500-foot radius, within three days prior any disturbance of the site, including disking, demolition activities, and grading. If active nests are identified, the biologist will establish suitable buffers around the nests, and the buffer areas will be avoided until the nests are no longer occupied and the juvenile birds can survive independently from the nests.

If the survey identifies the presence of active nests, then the Project Biologist would notify the Corps Biologist staff immediately (Megan Wong at 213-448-4517) and provide a copy of maps showing the location of all active nests and a species-appropriate buffer zone around each active nest sufficient to protect the nest from substantial adverse direct and/or indirect impacts. The Project Biologist may make other recommendations to determine the size of the buffer zone (such as the installation of temporary noise barriers). The size and location of all buffer zones, if required, would be determined by the qualified biologist and subject to review and approval by the Corps. The locations of any active

nests and the size and location of all buffer zones determined by the qualified biologist and approved by the Corps would be indicated on the grading plan as reference.

The approved buffer zones (i.e., active bird nest protection zones) would be marked in the field with construction fencing. No construction vehicles would be permitted within these zones unless directly related to the management or protection of the legally protected bird species, until all nestlings have fledged and left the nest (or the nest has failed) as confirmed by a professional biological monitor. The biological monitor will have authority to redirect construction activities if nesting pairs exhibit signs of disturbance.

In the event that a nest is abandoned despite the established buffer as determined by the Project Biologist, if the nestlings are still alive, the Project Applicant/Developer or its designee would contact the California Department of Fish and Wildlife (CDFW) and, subject to CDFW approval, fund the recovery and hacking (controlled release of captive reared young) of the nestling(s).

EC BIO-6: No direct impact to vireo habitat where the species was detected at Borrow Site 1 will occur. Borrow/grading activities will occur outside of the nesting season for the vireo (March 15th to September 15th) to the greatest extent practicable. If grading activities extend into the nesting season, a sound wall barrier, such as hay bales or other noise attenuation methods will be constructed along the edge of the work area (a minimum of 125 feet from occupied habitat) prior to March 15 to avoid adverse effects related to construction noise. The Project Biologist will conduct noise monitoring for the duration of construction activities during the nesting season to ensure LBVI are not exposed to construction noise that exceeds 60 dBA Leq. 60 dBA Leq noise threshold level is used for Santa Ana River Mainstem (SARM) projects in the vicinity and so it is also proposed for this project. If noise thresholds are exceeded, then additional measures will be implemented, which may include shifting activities further away from habitat, modifying construction equipment and procedures, or halting work in this area until after the nesting season, or until the Project Biologist confirms that LBVI are no longer present.

EC BIO-7: Construction and/or borrow activities within Borrow Site 4 will occur outside of the nesting season for the tricolored blackbird (March 15th to September 15th) to the greatest extent practicable. If avoidance of the nesting season is not practicable, then the Project Biologist will conduct a nesting bird survey within three days prior any disturbance of the site, including disking, demolition activities, and grading. If active nests are identified, the biologist will establish suitable buffers around the nests, including sound walls, hay bales, or other measures designed to reduce potential indirect noise effects and to ensure noise levels are below the 60 dBA Leq level at these buffer area locations. The buffer areas would be avoided until the nests are no longer occupied and the juvenile birds can survive independently from the nests.

EC BIO-8: Based on the presence of the least Bell's vireo at the southern boundary of Borrow Site 1 and its presence within the vicinity of borrow sites 2 and 5, and the presence of the tricolored blackbird (in a foraging role) in Borrow Site 4, night lighting will be shielded and directed away from foraging or nesting habitat areas, and will be placed in a manner that would not cause a significant effect on sensitive wildlife species at least 500 feet from known vireo territories in Borrow Site 1 and in the vicinity of borrow sites 2 and 5, and known nesting locations of the tricolored blackbird in

Borrow Site 4. Additionally, no night work will be conducted within Borrow Site 1 during LBVI nesting season.

Cultural Resources

EC CUL-1: Pursuant to 36 CFR section 800.13, in the event of any discoveries during construction of either human remains, archeological deposits, or any other type of historic property, the proposed Project Applicant shall notify the Corps Archeology Staff within 24 hours (Danielle Storey at 213-452-3855). The proposed Project Applicant shall immediately suspend all work in any area(s) where potential cultural resources are discovered. The proposed Project shall not resume construction in the area surrounding the potential cultural resources until the Corps re-authorizes project construction, per 36 C.F.R. section 800.13.

EC CUL-2: The proposed Project Applicant shall retain a qualified archaeologist (hereafter "Project Archaeologist") to conduct training and monitoring activities described in EC CUL-3 and EC CUL-4.

EC CUL-3: The proposed Project Applicant or construction contractor shall ensure the construction site supervisors and crew members involved with grading and trenching operations have received training by the Project Archaeologist to recognize historical and archaeological resources should such resources be unearthed during ground-disturbing construction activities. The training will include a brief review of the cultural sensitivity of the area; what resources could potentially be identified during earthmoving activities; the requirements of the monitoring program; the protocols that apply in the event inadvertent discoveries of cultural resources are identified, including who to contact and appropriate avoidance measures until the find(s) can be properly evaluated; and any other appropriate protocols. All new supervisorial construction personnel involved with grading and trenching operations that begin work on the proposed Project area, borrow sites, or Other Features sites following the initial training session must take the training prior to beginning work.

EC CUL-4: The Project Archaeologist shall conduct monitoring in the locations shown on Exhibit 3.12 through Exhibit 3.17. The Project Archaeologist shall be equipped to salvage artifacts if they are unearthed to avoid construction delays. Within the areas where full-time monitoring is required, monitoring shall occur during all grading, trenching, and excavation activities between zero and four feet below the existing ground surface. Within the areas where periodic monitoring is required, monitoring shall occur one to two times per week only during active grading, trenching, or excavation activities up to four feet below the existing ground surface. No monitoring – either periodic or full-time – is required deeper than four feet below the existing ground surface. Should the Project Archaeologist determine that there are no archaeological resources within the proposed Project's disturbance area, or should the archaeological sensitivity be reduced to low during construction activities, archaeological monitoring activities shall be allowed to cease.

EC CUL-5- The Project Applicant shall notify the Gabrieleno Band of Mission Indians - Kizh Nation (Kizh Nation) a minimum of 14 days prior to the start of ground disturbing activities and provide an opportunity to monitor construction as safety protocols allow. They shall be notified of and allowed to attend the pre-grading meeting with the City and Project construction contractors.

Earth Resources

EC GEO-1: The proposed Project would be required to adhere to the City's regulatory requirements, including, but not limited to, requirements imposed by the City's NPDES Municipal Stormwater Permit, and Project-specific SWPPP, and WQMP to minimize water pollutants including erosion and sedimentation in stormwater runoff.

Public Safety (Hazardous Materials and Emergency Response)

EC HAZ-1: During construction and operation of the Project, all local, state, and federal regulations would be complied with regarding the transportation, handling, and storage of hazardous substances.

EC HAZ-2: At each work area involving the operation of heavy equipment and handling and storage of hazardous substances, a Hazardous Material Spill Prevention Plan would be prepared. The Hazardous Material Spill Prevention Plan shall contain contingency plans in the event of an accidental release into the environment.

EC HAZ-3: Prior to the start of construction, the applicant would prepare an Emergency Evacuation Plan that contains procedures for the demobilization of construction equipment and evacuation of personnel from the study area in the event of a pending significant storm or other emergency that jeopardizes the safety of personnel or equipment.

Traffic and Circulation

EC TRAF-1: Prior to the issuance of each occupancy permits, the Project Applicant shall participate in the City's DIF program by paying the requisite DIF fee in the amount of \$5,973,184; or where applicable, the City may require proposed Project to construct Off-Site improvements. The construction of facilities by the Project Applicant would be eligible for DIF credit and reimbursement if the construction exceeds the proposed Project's fair share, as identified on Table 1-3.

EC TRAF-2: Prior to the issuance of each occupancy permits, the Project Applicant shall pay the proposed Project's fair share amount of \$48,909 for the improvements identified on Table 1-3 at intersections located within the City of Chino, or as agreed to by the City and Project Applicant.

EC TRAF-3: Table 1-3 of the TIA includes intersections that either share a mutual border with or are wholly located within the City of Ontario, City of Chino Hills, City of Eastvale, and Caltrans that have recommended improvements which are not covered by DIF. Because the City of Chino does not have plenary control over intersections that share a border with these other agencies, the City cannot guarantee that such improvements will be constructed. Thus, the following additional mitigation measure is required: The City of Chino shall participate in a multi-jurisdictional effort with the City of Ontario, City of Chino Hills, City of Eastvale, and Caltrans to develop a study to identify fair share contribution funding sources attributable to and paid from private and public development to supplement other regional and State funding sources necessary to implement the improvements identified on Table 1-3 of the TIA, that are located in these other jurisdictions. The study shall include fair-share contributions related to private and or public development based on nexus requirements contained in the Mitigation Fee Act (Govt. Code § 66000 et seq.) and 14 Cal. Code of Regs. § 15126.4(a)(4) and, to this end, the study shall recognize that impacts attributable to the City of Ontario, City of Chino Hills, City of Eastvale, and Caltrans facilities that are not attributable to development located within the City of Chino are not paying in excess of such developments' fair share obligations. The fee study shall also be compliant with Government Code § 66001(g) and any other applicable provisions of law. The study shall set forth a timeline and other agreed-upon relevant criteria for implementation of the recommendations contained within the study to the extent the other agencies agree to participate in the fee study program. Because the City and these other agencies have the responsibility of implementing this measure, the developer shall have no compliance obligations with respect to this measure.

EC TRAF-4: The Developer's fair-share amount for the intersections that either share a mutual border with or are wholly located within the City of Ontario, City of Chino Hills, City of Eastvale, and Caltrans that have recommended improvements which are not covered by DIF are as follows:

- City of Ontario: \$59,941
- City of Chino Hills: \$24,805
- City of Eastvale: \$612
- Caltrans: \$5,329

Developer shall be required to pay the amount shown above to the City of Chino prior to the issuance of the proposed Project's certificate of occupancy. The City of Chino shall hold Developer's Fair Share contribution in trust and shall apply Developer's Fair Share Contribution to any fee program adopted or agreed upon by the City of Chino and other agencies as a result of implementation of Mitigation Measure 3.1. If, within five years of the date of collection of Developer's Fair Share Contribution, the City of Chino and other agencies do not comply with Mitigation Measure 3.1, then Developer's Fair Share Contribution shall be returned to the Developer.

EC TRAF-5: The Project Applicant will be required to develop and implement a City-approved Construction Traffic Management Plan addressing potential construction-related traffic detours and disruptions. In general, the Construction Traffic Management Plan would ensure that to the extent practical, construction traffic would access the proposed Project area during off-peak hours or limited access during the peak hours; and that construction traffic would be routed to avoid travel through, or proximate to, sensitive land uses.

EC TRAF-6: The delivery and removal of heavy equipment is recommended to minimize the heavy truck activity during the morning and evening peak periods (6:00 AM to 9:00 AM and 3:00 PM to 6:00 PM) in order to have nominal impacts to traffic and circulation near the vicinity of the Project.

EC TRAF-7: During the site grading, the proposed Project shall limit soil import activity between the proposed Project area and proposed borrow sites during the hours of 6:00 AM – 9:00 AM (morning peak period) and 3:00 PM – 6:00 PM (evening peak period) to fewer than the equivalent of 50 passenger car equivalent (PCE) truck trips per hour. 50 PCE truck trips equates to approximately 16 total trucks (8 trucks in and 8 trucks out) during the peak periods specified above in order to limit the potential impacts of haul truck activity during these busy commute times:

50 PCE truck trips / 3.0 PCE factor = 16 total trucks during the peak hour

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Appendix A

Biological Technical Report

BIOLOGICAL TECHNICAL REPORT

FOR

MAJESTIC CHINO HERITAGE PROJECT

LOCATED IN THE CITY OF CHINO, SAN BERNARDINO, CALIFORNIA

Prepared For:

Commerce Construction Company, L.P. 13191 Crossroads Parkway North Sixth Floor City of Industry, California 91746 Contact: John Burroughs Phone: (562) 948-4380

Prepared By:

Glenn Lukos Associates, Inc. 29 Orchard Lake Forest, California 92630 Phone: (949) 340-3851 Report Preparers: Martin Rasnick

May 16, 2019 Revised September 25, 2019

INFORMATION SUMMARY

А.	Report Date:	May 16, 2019 Revised September 25, 2019
B.	Report Title:	Biotechnical Report for the Majestic Chino Heritage Project

C. Project Site Location:

The Majestic Chino Heritage Development Project (Project) totals approximately 96.91 acres and is located at latitude 33.957541 and longitude -117.662515 in the City of Chino, San Bernardino County, California [Exhibit 1] within an unsectioned area and Section 31, Township 2 South, and Range 7 West, and Section 36, Township 2 South, and Range 8 West of the U.S. Geological Survey (USGS) 7.5" quadrangle map Prado Dam (dated 1967 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. The Project site is bordered by Bickmore Avenue to the north, the El Prado Golf Course to the south, Cypress Channel to the east, and Mountain Avenue to the west.

The Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the Project Site totals approximately 2.98 acres and is located at latitude 33.954018 and longitude 659439 in the City of Chino, San Bernardino County, California [Exhibit 1] within an unsectioned area of Township 2 South and Range 7 West of the U.S. Geological Survey (USGS) 7.5" quadrangle map Prado Dam (dated 1967 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. This area is bordered by the Project to the north, the El Prado Golf Course to the south and west, and the Cypress Channel to the east.

Borrow Site One (Borrow 1) totals approximately 43.67 acres and is located at latitude 33.952213 and longitude -117.648256 in the City of Chino, San Bernardino County, California [Exhibit 1] within an unsectioned area of Township 2 South and Range 7 West, of the U.S. Geological Survey (USGS) 7.5" quadrangle map Prado Dam (dated 1967 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. Borrow 1 is bordered by Pine Avenue to the north, the Prado Regional Park to the south, Johnson Avenue to the east, and Euclid Avenue to the west.

Borrow Site Two (Borrow 2) totals approximately 38.51 acres and is located at latitude 33.952641 and longitude -117.644448 in the City of Chino, San Bernardino County, California [Exhibit 1] within an unsectioned area of Township 2 South and Range 7 West, of the U.S. Geological Survey (USGS) 7.5" quadrangle map Prado Dam (dated 1967 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. Borrow 2 is bordered by Pine Avenue to the north, the Prado Regional Park and the Prado Equestrian Center to the south, the California Institute for Women to the east, and Johnson Avenue to the west.

Borrow Site Three (Borrow 3) totals approximately 84.25 acres and is located at latitude 33.941462 and longitude -117.635815 in the City of Chino, San Bernardino County, California [Exhibit 1] within Section 5, Township 3 South, and Range 7 West, of the U.S. Geological Survey (USGS) 7.5" quadrangle map Prado Dam (dated 1967 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. Borrow 3 is bordered by the California Institute for Women to the north, the Prado Basin to the south and west, and Cucamonga Avenue to the east.

Borrow Site Four (Borrow 4) totals approximately 12.94 acres and is located at latitude 33.945011 and longitude -117.622304 in the City of Chino, San Bernardino County, California [Exhibit 1] within Section 4, Township 3 South, and Range 7 West of the U.S. Geological Survey (USGS) 7.5" quadrangle map Corona North (dated 1967 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. Borrow 4 is bordered by Chino-Corona Road to the north, the Mill Creek Wetlands to the south and east, and Comet Avenue to the west.

Borrow Site Five (Borrow 5) totals approximately 21.28 acres and is located at latitude 33.949712 and longitude -117.613437 in the City of Chino, San Bernardino County, California [Exhibit 1] within Section 33, Township 2 South, and Range 7 West, of the U.S. Geological Survey (USGS) 7.5" quadrangle map Corona North (dated 1967 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. Borrow 5 is bordered by undeveloped land to the north and south, Hellman Avenue to the east, and Chino-Corona Road to the west.

The Project also may be conditioned with a request for the Project applicant to use good faith efforts to acquire right-of-way for a proposed realignment of Mountain Avenue from the southwest Project boundary to El Prado Road. The Project will not be conditioned to construct such realigned road. The approximate location for this proposed road improvement is latitude 33.954357 and longitude -117.667229.

D.	Owner/Applicant:	John Burroughs
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Principal	
Investigator:	Glenn Lukos Associates, Inc.
_	29 Orchard
	Lake Forest, California 92630
	Phone: (949) 340-3851
	Report Preparer: Martin Rasnick
	Principal Investigator:

F. Report Summary:

A biological study was performed for the proposed Majestic Chino Heritage Project (Project). Discretionary actions requested for the Project include a General Plan Amendment (PL18-0090), a Change of Zone (PL18-0091), a Vesting Tentative Parcel Map (PL18-0119), two (2) Site Approvals (PL18-0118) and (PL18-0120), and a Special Conditional Use Permit (PL19-0011).

The Project would involve the construction and operation of two warehouse buildings consisting of 1,168,710 square feet (sf) and 914,040 sf, respectively, on an approximately 96.91-acre property located at the southeast corner of the intersection of Mountain Avenue and Bickmore Avenue in the City of Chino, San Bernardino County, California. Other physical improvements on the Project site would include, but would not be limited to, automobile and truck parking areas, vehicle drive aisles, landscaping, a water quality/detention basin, public street and utility infrastructure, exterior lighting, and signage.

A majority of the Project site's ground surface elevation is below 566 feet above mean sea level (amsl); the portions of the site located at and below 566 feet amsl are located within the inundation area for the Prado Dam.

In order to develop the Project as proposed, the ground surface elevations of the proposed building footprints would need to be raised above the inundation line for the Prado Dam while simultaneously lowering the elevations of other sites within the Inundation Area in order to maintain the Inundation Area's capacity to hold water that may back up behind the Dam during rare, extreme storm events. Accordingly, the Project entails the potential movement of earth materials from five (5) off-site "excess fill dirt sites" (known as Borrow Sites 1-5 in this report) within the Inundation Area to the Project site in order to raise the proposed building footprints above the inundation line and create additional flood water holding capacity at the excess fill dirt sites.

The Project also entails the construction of an off-site, underground storm drain line that would connect proposed on-site stormwater drainage facilities (along the southern boundary of the Project site) to the Cypress Channel, which is located approximately 600 feet east of the Project site. This improvement is documented as the Off Site Storm Drain Improvement Area Adjacent to the Project Site in this report. A new outlet would be constructed within the Cypress Channel to receive stormwater runoff discharged via the new storm drain line.

The Project is also may be conditioned with a request for the Project applicant to use good faith efforts to acquire right-of-way for a proposed realignment of Mountain Avenue from the southwest Project boundary to El Prado Road. The Project will not be conditioned to construct such realigned road. The specific alignment for this road realignment has not been finalized but the area proposed for this disturbance is an existing golf course, and the area in question does not support sensitive biological resources, nor does it support drainage features that could be regulated by the resource agencies under Section 401 or 404 of the Clean Water Act, Section 13260 of the State Water Code, or Section 1602 of the State Fish and Game Code.

This document provides the results of a field study performed to evaluate the potential occurrence of biological resources and the requirements triggered by environmental laws and regulations. A habitat assessment was performed for the Study Area which determined the presence of potential habitat for the burrowing owl (*Athene cunicularia*), the tri-colored blackbird (*Agelaius tricolor*), and the least Bell's vireo (*Vireo bellii pusillus*). The Study Area contains two drainage features, including the Cypress Channel, a concrete flood control channel, along the eastern boundary of the Project site, and Drainage 1, an intermittent soft-bottom streambed passing through Borrow Site 1, as well as one roadside drainage ditch, which is parallel to Johnson Avenue and Pine Avenue within Borrow Site 2. Although artificially created, this ditch is subject to jurisdiction by both the Santa Ana Regional Water Quality Control Board (Regional Board) and the California Department of Fish and Wildlife (CDFW), no part of which is wetland or supports riparian habitat.

The Cypress Channel and Drainage 1 would be subject to U.S. Army Corps of Engineers (Corps) jurisdiction under Section 404 of the Clean Water Act (CWA), Regional Board jurisdiction under Section 401 of the CWA, and CDFW jurisdiction under Section 1602 of the state Fish and Game Code, and regulatory permits and agreements from these agencies would be needed, should impact to these resources occur.

G. Individuals Conducting Fieldwork:

David Smith, Trina Ming, Zack West, Jeff Ahrens, Stephanie Cashin, Amy Walters, Martin Rasnick, and Lesley Lokovic Gamber

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1.0 INTRODUCTION

1.1 Background and Scope of Work

This document provides the results of a biological study for the approximately 96.91-acre Majestic Chino Heritage Project (the Project) located in the City of Chino, San Bernardino County, California, an off site storm drain improvement area/drainage study area adjacent to the Project site, and its five potential borrow sites, totaling an additional 203.63 acres, all also located in the City of Chino, San Bernardino County, California. Combined, this report covers and analyzes approximately 300.54 acres of land, hereafter considered as the "Study Area," plus the potential acquisition of right of way for a proposed realignment of Mountain Avenue from the southwestern Project boundary to El Prado Road. This report identifies and evaluates impacts to biological resources associated with the proposed Project and related areas including its five potential borrow sites in the context of the California Environmental Quality Act (CEQA), and State and Federal regulations such as the Endangered Species Act (ESA), Clean Water Act (CWA), Porter-Cologne Water Quality Control Act (CWC), and the California Fish and Game Code.

The scope of this report includes a discussion of existing conditions for the approximate 300.54acre Study Area, and the potential acquisition of right of way for the realignment of Mountain Avenue from the southwestern Project boundary to El Prado Road, all methods employed regarding the biological study, the documentation of botanical and wildlife resources identified (including special-status species), and an analysis of impacts to biological resources. Methods of the study include a review of relevant literature, field surveys, and a Geographical Information System (GIS)-based analysis of vegetation communities. As appropriate, this report is consistent with accepted scientific and technical standards and survey guideline requirements issued by the U.S. Fish and Wildlife Service (USFWS), the CDFW, the California Native Plant Society (CNPS), and other applicable agencies/organizations.

The field study focused on a number of primary objectives that would comply with CEQA requirements, including (1) general reconnaissance survey and vegetation mapping; (2) general biological study; (3) habitat assessments for special-status plant species; and (4) habitat assessments for special-status wildlife species. Observations of all plant and wildlife species were recorded during the general biological survey and are included as Appendix A: Floral Compendium and Appendix B: Faunal Compendium.

1.2 Project Location

The Project site totals approximately 96.91 acres and is located at latitude 33.957541 and longitude -117.662515 in the City of Chino, San Bernardino County, California [Exhibit 1] within an unsectioned area and Section 31, Township 2 South, and Range 7 West, and Section 36, Township 2 South, and Range 8 West of the U.S. Geological Survey (USGS) 7.5" quadrangle map Prado Dam (dated 1967 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. The Project site is bordered by Bickmore Avenue to the north, the El Prado Golf Course to the south, Cypress Channel to the east, and Mountain Avenue to the west.

The Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the Project site totals approximately 2.98 acres and is located at latitude 33.954018 and longitude - 117.659439 in the City of Chino, San Bernardino County, California [Exhibit 1] within an unsectioned area of Township 2 South and Range 7 West of the U.S. Geological Survey (USGS) 7.5" quadrangle map Prado Dam (dated 1967 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. This area is bordered by the Project site to the north, the El Prado Golf Course to the south and west, and Cypress Channel to the east.

Borrow Site One (Borrow 1) totals approximately 43.67 acres and is located at latitude 33.952213 and longitude -117.648256 in the City of Chino, San Bernardino County, California [Exhibit 1] within an unsectioned area of Township 2 South and Range 7 West, of the U.S. Geological Survey (USGS) 7.5" quadrangle map Prado Dam (dated 1967 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. Borrow 1 is bordered by Pine Avenue to the north, the Prado Regional Park to the south, Johnson Avenue to the east, and Euclid Avenue to the west.

Borrow Site Two (Borrow 2) totals approximately 38.51 acres and is located at latitude 33.952641 and longitude -117.644448 in the City of Chino, San Bernardino County, California [Exhibit 1] within an unsectioned area of Township 2 South and Range 7 West, of the U.S. Geological Survey (USGS) 7.5" quadrangle map Prado Dam (dated 1967 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. Borrow 2 is bordered by Pine Avenue to the north, the Prado Regional Park and the Prado Equestrian Center to the south, the California Institute for Women to the east, and Johnson Avenue to the west.

Borrow Site Three (Borrow 3) totals approximately 84.25 acres and is located at latitude 33.941462 and longitude -117.635815 in the City of Chino, San Bernardino County, California [Exhibit 1] within Section 5, Township 3 South, and Range 7 West, of the U.S. Geological Survey (USGS) 7.5" quadrangle map Prado Dam (dated 1967 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. Borrow 3 is bordered by the California Institute for Women to the north, the Prado Basin to the south and west, and Cucamonga Avenue to the east.

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Borrow Site Five (Borrow 5) totals approximately 21.28 acres and is located at latitude 33.949712 and longitude -117.613437 in the City of Chino, San Bernardino County, California [Exhibit 1] within Section 33, Township 2 South, and Range 7 West, of the U.S. Geological Survey (USGS) 7.5" quadrangle map Corona North (dated 1967 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. Borrow 5 is bordered by undeveloped land to the north and south, Hellman Avenue to the east, and Chino-Corona Road to the west.

The Project also may be conditioned with a request for the Project applicant to use good faith efforts to acquire right-of-way for a proposed realignment of Mountain Avenue from the
southwest Project boundary to El Prado Road. The Project will not be conditioned to construct such realigned road. The approximate location for this proposed road improvement is latitude 33.954357 and longitude -117.667229.

1.3 Project Description

Discretionary actions requested for the Project include a General Plan Amendment (PL18-0090), a Change of Zone (PL18-0091), a Vesting Tentative Parcel Map (PL18-0119), two (2) Site Approvals (PL18-0118) and (PL18-0120), and a Special Conditional Use Permit (PL19-0011).

The Project would involve the construction and operation of two warehouse buildings consisting of 1,168,710 square feet (sf) and 914,040 sf, respectively, on an approximately 96.91-acre property located at the southeast corner of the intersection of Mountain Avenue and Bickmore Avenue in the City of Chino, San Bernardino County, California. Other physical improvements on the Project site would include, but would not be limited to, automobile and truck parking areas, vehicle drive aisles, landscaping, a water quality/detention basin, public street and utility infrastructure, exterior lighting, and signage.

A majority of the Project site's ground surface elevation is below 566 feet above mean sea level (amsl); the portions of the site located at and below 566 feet amsl are located within the inundation area for the Prado Dam.

In order to develop the Project as proposed, the ground surface elevations of the proposed building footprints would need to be raised above the inundation line for the Prado Dam while simultaneously lowering the elevations of other sites within the Inundation Area in order to maintain the Inundation Area's capacity to hold water that may back up behind the Dam during rare, extreme storm events. Accordingly, the Project entails the potential movement of earth materials from five (5) off-site "excess fill dirt sites" (known as Borrow Sites 1-5 in this report) within the Inundation Area to the Project site in order to raise the proposed building footprints above the inundation line and create additional flood water holding capacity at the excess fill dirt sites.

The Project further entails the construction of an off-site, underground storm drain line that would connect proposed on-site stormwater drainage facilities (located along the southern boundary of the Project site) to the Cypress Channel, which is located approximately 600 feet east of the Project site. A new outlet would be constructed within the Cypress Channel to receive stormwater runoff discharged via the new storm drain line.

The Project also may be conditioned with a request for the Project applicant to use good faith efforts to acquire right-of-way for a proposed realignment of Mountain Avenue from the southwest Project boundary to El Prado Road. The Project will not be conditioned to construct such realigned road. The specific alignment for this road improvement and realignment has not been finalized but the area proposed for this disturbance is west of Mountain Avenue in an existing golf course, and the area in question does not support sensitive biological resources, nor does it support drainage features that could be regulated by the resource agencies under Section

401 or 404 of the Clean Water Act, Section 13260 of the State Water Code, or Section 1602 of the State Fish and Game Code.

2.0 METHODOLOGY

In order to adequately identify biological resources in accordance with the requirements of CEQA, Glenn Lukos Associates (GLA) assembled biological data consisting of three main components:

- Performance of a jurisdictional waters and wetlands delineation;
- Performance of vegetation mapping; and
- Performance of habitat assessments to evaluate the presence/absence of special-status species in accordance with the requirements of CEQA.

The focus of the biological study was determined through initial site reconnaissance, a review of the CNDDB [CDFW 2019], CNPS 8th edition online inventory (CNPS 2019), Natural Resource Conservation Service (NRCS) soil data, other pertinent literature, and knowledge of the region. Site-specific general surveys within the Project site were conducted on foot in the proposed development areas for each target plant or animal species identified below.

Vegetation was mapped directly onto a 200-scale (1"=200') aerial photograph. All flora and fauna identified on site during vegetation mapping was included in a floral and faunal compendia prepared for the Project (Appendix A and B, respectively). The site has been historically maintained for agricultural purposes and has been subject to past disking. Due to highly disturbed site conditions there are no natural vegetation alliances or associations fitting or approaching criteria for membership rules in A Manual of California Vegetation, Second Edition or MCVII (Baldwin et al. 2012), which is the California expression of the National Vegetation Classification. Vegetation present is relatively sparse overall and reflects ornamental plantings (e.g. nonnative trees) or spontaneous, herb-dominated species strongly adapted to anthropogenic disturbance. Vegetation present was mapped directly onto a 200-scale (1"=200') aerial photograph.

2.1 Summary of Surveys

GLA conducted biological studies in order to identify and analyze actual or potential impacts to biological resources associated with development of the Study Area. Observations of all plant and wildlife species were recorded during field efforts [Appendix A: Floral Compendium and Appendix B: Faunal Compendium]. The studies conducted include the following:

- Performance of vegetation mapping;
- Performance of site-specific habitat assessments to evaluate the potential presence/absence of special-status species (or potentially suitable habitat) to the satisfaction of CEQA and federal and state regulations;
- Performance of focused burrowing owl surveys;
- Performance of focused surveys for the least Bell's vireo;

- Performance of focused surveys for sensitive plant species; and
- Performance of a jurisdictional waters and wetlands delineation;

Table 2-1 provides a summary list of survey dates, survey types and personnel.

Table 2-1.	Summary o	of Biological	Surveys for	the Study Area.
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Survey Type	2019 Survey Dates	Biologists
Habitat Assessment	3/12/19, 3/13/19, and 4/16/19	ZW, SC, JA, DS
Focused Burrowing Owl Surveys	2/26/19, 2/28/19, 4/16/19,	ZW, JA, SC, DS, TM, AN, JS
	4/23/19, 5/21/19, 5/22/19,	
	7/02/19, and 7/03/19.	
Focused Least Bell's Vireo	4/11/19, 4/25/19, 5/08/19,	JA, DS
Surveys	5/20/19, 5/31/19, 6/11/19,	
	6/27/19, and 7/08/19.	
Focused Sensitive Plant Surveys	4/16/19 and 5/10/19	ZW, TM, JA, DS
Jurisdictional Delineation	3/2019, 4/2019, and 5/2019	MR, LLG, AW

DS = David Smith, TM = Trina Ming, MR = Martin Rasnick, LLG = Lesley Lokovic Gamber, ZW = Zack West, SC = Stephanie Cashin, JA = Jeff Ahrens, AW = Amy Walters, AN = April Nakagawa, JS = Jillian Stephens

Individual plants and wildlife species are evaluated in this report based on their "special-status." For the purpose of this report, plants were considered "special-status" based on one or more of the following criteria:

- Listing through the Federal and/or State Endangered Species Act (ESA);
- Occurrence in the CNPS Rare Plant Inventory (Rank 1A/1B, 2A/2B, 3, or 4); and/or
- Occurrence in the CNDDB inventory.

Wildlife species were considered "special-status" based on one or more of the following criteria:

- Listing through the Federal and/or State ESA; and
- Designation by the State as a Species of Special Concern (SSC) or California Fully Protected (CFP) species.

Vegetation communities and habitats were considered "special-status" based on one or more of the following criteria:

- Global (G) and/or State (S) ranking of category 3 or less based on CDFW (see Section 3.2.2 below for further explanation); and
- Riparian habitat.

2.2 Botanical Resources

A site-specific survey program was designed to accurately document the botanical resources within the Study Area, and consisted of five components: (1) a literature search; (2) preparation of a list of target special-status plant species and sensitive vegetation communities that could

occur within the Study Area; (3) a field reconnaissance survey; (4) vegetation mapping; and (5) habitat assessments for special-status plants.

2.2.1 Literature Search

Prior to conducting fieldwork, pertinent literature on the flora of the region was examined. A thorough archival review was conducted using available literature and other historical records. These resources included the following:

- California Native Plant Society, Rare Plant Program. 2019. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39) for the USGS 7.5' quadrangles: Black Star Canyon, Corona North, Corona South, Guasti, Ontario, Orange, Prado Dam, San Dimas, and Yorba Linda (CNPS 2019); and
- CNDDB for the USGS 7.5' quadrangles: Black Star Canyon, Corona North, Corona South, Guasti, Ontario, Orange, Prado Dam, San Dimas, and Yorba Linda (CNDDB 2019).

2.2.2 Vegetation Mapping

Vegetation communities within the Project site were mapped according to Holland (1986) when possible. The Project site does not meet the parameters of any natural vegetation classification system. These vegetation communities were named based on the dominant plant species present. Plant communities were mapped in the field directly onto a 200-scale (1"=200') aerial photograph. Vegetation maps are included as Exhibit 4,Sheets 1 through 6. Representative site photographs are included as Exhibit 13.

2.2.3 Special-Status Plant Species and Habitats Evaluated for the Study Area

A literature search was conducted to obtain a list of special status plants with the potential to occur within the Study Area. The CNDDB was initially consulted to determine well-known occurrences of plants and habitats of special concern in the region. Other sources used to develop a list of target species for the survey program included the CNPS online inventory (2019).

Based on this information, vegetation profiles and a list of target sensitive plant species and habitats that could occur within the Study Area were developed and incorporated into a mapping and survey program to achieve the following goals: (1) characterize the vegetation associations and land use; (2) prepare a detailed floristic compendium; (3) identify the potential for any special status plants that may occur within the Study Area; and (4) prepare a map showing the distribution of any sensitive botanical resources associated with the Study Area, if applicable.

2.2.4 Botanical Surveys

GLA biologists Stephanie Cashin, Zack West, Jeff Ahrens, and David Smith visited the Study Area on March 12, April 16, and May 10, 2019 to conduct habitat assessments for special-status species, including plants. Surveys were conducted in accordance with accepted botanical survey guidelines (CDFG 2009, CNPS 2001, USFWS 2000). An aerial photograph, a soil map, and/or a topographic map were used to determine the community types and other physical features that may support sensitive and uncommon taxa or communities within the Study Area. The habitat assessment was conducted by following meandering transects within the Study Area. All plant species encountered during the field surveys were identified and recorded following the above-referenced guidelines adopted by CNPS (2010) and CDFW by Nelson (1984). A complete list of the plant species observed is provided in Appendix A. Scientific nomenclature and common names used in this report follow Baldwin et al (2012), and Munz (1974).

2.3 Wildlife Resources

Wildlife species were evaluated and detected during the field visit by sight, call, tracks, and scat. Site reconnaissance was conducted in such a manner as to allow inspection of the entire Study Area by direct observation, including the use of binoculars. Observations of physical evidence and direct sightings of wildlife were recorded in field notes during the visit. A complete list of wildlife species observed within the Study Area is provided in Appendix B. Scientific nomenclature and common names for vertebrate species referred to in this report follow the Complete List of Amphibian, Reptile, Bird, and Mammal Species in California (CDFW 2016), Standard Common and Scientific Names for North American Amphibians, Turtles, Reptiles, and Crocodilians 6th Edition, Collins and Taggert (2009) for amphibians and reptiles, and the American Ornithologists' Union Checklist 7th Edition (2009) for birds. The methodology (including any applicable survey protocols) utilized to conduct general surveys, habitat assessments, and/or focused surveys for special-status animals are included below.

2.3.1 General Surveys

Birds

During the general biological and reconnaissance survey within the Study Area, birds were detected incidentally by direct observation and/or by vocalizations, with identifications recorded in field notes.

Mammals

During general biological and reconnaissance survey within the Study Area, mammals were identified and detected incidentally by direct observations and/or by the presence of diagnostic sign (i.e., tracks, burrows, scat, etc.).

Reptiles and Amphibians

During general biological and reconnaissance surveys within the Study Area, reptiles and amphibians were identified incidentally during surveys. Habitats were examined for diagnostic reptile sign, which include shed skins, scat, tracks, snake prints, and lizard tail drag marks. All reptiles and amphibian species observed, as well as diagnostic sign, were recorded in field notes.

2.3.2 Special-Status Animal Species Reviewed

A literature search was conducted in order to obtain a list of special-status wildlife species with the potential to occur within the Study Area. Species were evaluated based on two factors: 1) species identified by the CNDDB as occurring (either currently or historically) on or in the vicinity of the Study Area, and 2) any other special-status animals that are known to occur within the vicinity of the Study Area, or for which potentially suitable habitat occurs on the Study Area.

2.3.3 Habitat Assessment for Special Status Animal Species

GLA biologists Stephanie Cashin, Zack West, Jeff Ahrens, and David Smith visited the Study Area on March 12, March 13, and April 16, 2019 to conduct a habitat assessment for special-status wildlife species. An aerial photograph, soil map and/or topographic map were used to determine the community types and other physical features that may support special-status and uncommon taxa within the Study Area.

Burrowing Owl

GLA biologists Jeff Ahrens, Stephanie Cashin, David Smith, Trina Ming, Jillian Stephens, April Nakagawa, and Zack West conducted focused surveys for the burrowing owl (Athene cunicularia) for all suitable habitat areas within the Project Study Area. Surveys were conducted in accordance with survey guidelines described in the 2012 CDFG Staff Report on Burrowing Owl Mitigation. The guidelines stipulate that four focused survey visits should be conducted between February 15 and July 15, with the first visit occurring between February 15 and April 15. The remaining three visits should be conducted three weeks apart from each other, with at least one visit occurring between June 15 and July 15. Focused surveys for the burrowing owl were conducted for the Project site and the Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the Project Site on February 26, 2019, April 23, 2019, May 22, 2019, and July 2, 2019. Focused surveys were conducted for Borrow Sites 1 and 2 on February 26, 2019, April 16, 2019, May 21, 2019, and July 2, 2019. Focused surveys were conducted for Borrow Site 3 on February 28, 2019, April 16, 2019, May 22, 2019, and July 3, 2019. Focused surveys were conducted for Borrow Sites 4 and 5 on February 27, 2019, April 16, 2019, May 22, 2019, and July 3, 2019. As recommended by the survey guidelines, the survey visits were conducted between morning civil twilight and 10:00 AM, and between two hours before sunset and evening civil twilight. Weather conditions during the surveys were conducive to a high level of bird activity.

Surveys were conducted by walking meandering transects throughout areas of suitable habitat. Exhibit 7 – Burrowing Owl Survey Map identifies the burrowing owl survey areas within the Project study area. Transects were spaced between 7 m and 20 m apart, adjusting for vegetation height and density, in order to provide adequate visual coverage of the survey areas. At the start of each transect, and at least every 100 m along transects, the survey area was scanned for burrowing owls using binoculars. All suitable burrows were inspected for diagnostic owl sign (e.g., pellets, prey remains, whitewash, feathers, bones, and/or decoration) in order to identify potentially occupied burrows. Exhibit 7 – Burrowing Owl Survey Map provides locations of suitable burrows mapped during the transect surveys. Table 2-2 summarizes the burrowing owl survey visits. The results of the burrowing owl surveys are documented in Section 4.0 of this report.

Survey	Survey	Biologist	Start/End	Start/End	Wind	Cloud Cover
Date	Location/		Time	Temperature	Speed	
	Survey			(Fahrenheit)	(mph)	
2/26/10	Number		06.00	42.55	1.0	N (1 1
2/26/19	Project	JA/SC	06:00-	42-55	1-2	Mostly clear
	Site/Off Site		10:00			
	Storm Drain					
	Improvement					
	Area					
	Adjacent to					
	the Project					
	Site					
	Survey 1					
2/26/19	Borrow Site	JA/SC/ZW	06:30-	47-61	1-2	Clear/ Partly
	1 and 2		09:45			Cloudy
	Survey 1					
2/27/19	Borrow Site	JA	05:55-	45-54	1-3	Partly Cloudy/
	4 and 5/		09:30			Overcast
	Survey 1					
2/28/19	Borrow Site	DS	06:30-	54-55	0	Overcast
	3		09:00			
	Survey 1					
4/16/19	Borrow Site	JA/SC/ZW	06:30-	47-61	1-2	Clear/ Partly
	1 and 2/		09:45			Cloudy
	Survey 2					
4/16/19	Borrow Site	JA	05:50-	54-59	2-4	Overcast
	3		10:00			
	Survey 2					-
4/16/19	Borrow Site	ZW	07:05-	56-59	0-2	Overcast
	4 and 5/		09:50			
4/20/110	Survey 2	.	16.00	7 0.70		
4/23/19	Project Site/	JA	16:00-	78-68	1-5	Mostly Clear
	Off Site		19:30			
	Storm Drain					
	Improvement					

 Table 2-2.
 Summary of Burrowing Owl Surveys

Survey Date	Survey Location/	Biologist	Start/End Time	Start/End Temperature	Wind Speed	Cloud Cover
	Survey Number			(Fanrenneit)	(mpn)	
	Area Adjacent to					
	the Project Site					
	Survey 2					
5/21/19	Borrow Site 1 and 2/	SC/TM	05:30- 07:30	53-54	0-1	Overcast/Cloudy
	Survey 3					
5/22/19	Borrow Site 3, 4, and 5/	JS/AN	05:45- 08:15	49-56	0-2	Partially Cloudy
	Survey 3					
5/22/19	Off Site Storm Drain Improvement Area	DS	08:00	52-36	0-1	
	Adjacent to the Project Site					
7/02/19	Project Site/ Off Site Storm Drain Improvement Area Adjacent to the Project Site Survey 4	DS	06:00- 09:00	63-66	0-1	Clear
7/02/19	Borrow Site 1 and 2/	AN/JS	06:00- 08:15	63-64	0-1	Mostly Clear
7/03/19	Borrow Sites 3, 4, and 5/ Survey 4	TM/JS	05:45- 08:00	59-64	0-2	Partially Clear

JA = Jeff Ahrens ZW = Zack West SC = Stephanie Cashin DS = David Smith JS = Jillian Stephens AN = April Nakagawa TM = Trina Ming

Least Bell's Vireo

GLA biologists Jeff Ahrens and David Smith conducted focused surveys for the least Bell's vireo (*Vireo bellii pusillus*) for all suitable habitat areas within the Study Area. Surveys were conducted in accordance with the 2001 USFWS survey guidelines, which stipulate that eight surveys should be conducted between April 10 and July 31, with a minimum of ten days separating each survey visit.

Focused surveys for the least Bell's vireo were conducted on April 11, April 25, May 8, May 20, May 31, June 11, June 27, and July 8, 2019 per the protocol. Pursuant to the survey guidelines, the surveys have been conducted between sunrise and 11:00 a.m. Weather conditions during the surveys were conducive to a high level of bird activity. Table 2-3 summarizes the vireo survey visits. The results of the vireo surveys are documented in Section 4.0 of this report.

Survey	Biologist	Start/End Time	Start/End	Start/End	Cloud Cover
Date			Temperature	Wind Speed	
			(⁰ F)	(mph)	
4/11/19	JA	6:00/8:00 a.m.	46/56	1-3/1-3	Clear
4/25/19	JA	6:00/8:00 a.m.	52/60	1-3/1-3	Clear
5/08/19	JA	6:00/8:00 a.m.	54/60	1-3/1-3	Clear
5/20/19	DS	6:00/9:00 a.m.	68/70	0-2/0-1	Partly Cloudy
5/31/19	DS	6:30/9:30 a.m.	75/77	0-1/0-1	Clear
6/11/19	DS	5:30/8:30 a.m.	63/89	0-1/0-1	Clear
6/27/19	DS	7:00/9:05 a.m.	65/68	0-1/0-1	Partially Cloudy
7/08/19	DS	7:00/9:55 a.m.	65/76	0-1/0-1	Clear

Table 2-3. Summary of Least Bell's Vireo Surveys

JA=Jeff Ahrens DS = David Smith

Tri-Colored Blackbird

GLA biologist Zack West conducted surveys for the tri-colored blackbird (*Agelaius tricolor*) for all suitable habitat areas within the Study Area as part of GLA's general biological surveys conducted on March 12 and 13, 2019. The surveys have been conducted between sunrise and 11:00 a.m. Weather conditions during the surveys were conducive to a high level of bird activity. The results of the blackbird surveys are documented in Section 4.0 of this report.

2.4 Jurisdictional Delineation

In March, April, and May 2019, regulatory specialists Martin Rasnick, Amy Walters, and Lesley Lokovic Gamber performed a jurisdictional delineation. Prior to beginning the field delineation, a color aerial photograph, a topographic base map of the property, and the USGS topographic map for the site were examined to determine the locations of potential areas of Corps/Regional Board/CDFW jurisdiction. Suspected jurisdictional areas were field checked for the presence of definable channels and/or wetland vegetation, soils and hydrology. Suspected wetland habitats

on the site were evaluated using the methodology set forth in the U.S. Army Corps of Engineers 1987 Wetland Delineation Manual¹ (Wetland Manual) and the 2008 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Supplement (Arid West Supplement)². While in the field the limits of Corps/Regional Board/CDFW jurisdiction were recorded onto a color aerial photograph using visible landmarks and/or sub-meter accuracy global positioning system devices.

3.0 **REGULATORY SETTING**

The Study Area is subject to state and federal regulations associated with a number of regulatory programs. These programs often overlap and were developed to protect natural resources, including: state- and federally listed plants and animals; aquatic resources including rivers and creeks, ephemeral streambeds, wetlands, and areas of riparian habitat; other special-status species which are not listed as threatened or endangered by the state or federal governments; and other special-status vegetation communities.

3.1 State and/or Federally Listed Plants or Animals

3.1.1 State of California Endangered Species Act

California's Endangered Species Act (CESA) defines an endangered species as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease." The State defines a threatened species as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an Endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter. Any animal determined by the commission as rare on or before January 1, 1985 is a threatened species." Candidate species are defined as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the commission has formally noticed as being under review by the department for addition to either the list of endangered species or the list of threatened species, or a species for which the commission has published a notice of proposed regulation to add the species to either list." Candidate species may be afforded temporary protection as though they were already listed as threatened or endangered at the discretion of the Fish and Game Commission. Unlike the Federal Endangered Species Act (FESA), CESA does not list invertebrate species.

Article 3, Sections 2080 through 2085, of the CESA addresses the taking of threatened, endangered, or candidate species by stating "No person shall import into this state, export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product

¹ Environmental Laboratory. 1987. <u>Corps of Engineers Wetlands Delineation Manual</u>, Technical Report Y-87-1, U.S. Army Engineer Waterways Experimental Station, Vicksburg, Mississippi.

² U.S. Army Corps of Engineers. 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-08-28. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

thereof, that the commission determines to be an endangered species or a threatened species, or attempt any of those acts, except as otherwise provided." Under the CESA, "take" is defined as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Exceptions authorized by the state to allow "take" require permits or memoranda of understanding and can be authorized for endangered species, threatened species, or candidate species for scientific, educational, or management purposes and for take incidental to otherwise lawful activities. Sections 1901 and 1913 of the California Fish and Game Code provide that notification is required prior to disturbance.

3.1.2 Federal Endangered Species Act

The FESA of 1973 defines an endangered species as "any species that is in danger of extinction throughout all or a significant portion of its range." A threatened species is defined as "any species that is likely to become an Endangered species within the foreseeable future throughout all or a significant portion of its range." Under provisions of Section 9(a)(1)(B) of the FESA it is unlawful to "take" any listed species. "Take" is defined in Section 3(18) of FESA: "...harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Further, the USFWS, through regulation, has interpreted the terms "harm" and "harass" to include certain types of habitat modification that result in injury to, or death of species as forms of "take." These interpretations, however, are generally considered and applied on a case-by-case basis and often vary from species to species. In a case where a property owner seeks permission from a Federal agency for an action that could affect a federally listed plant and animal species, the property owner and agency are required to consult with USFWS. Section 9(a)(2)(b) of the FESA addresses the protections afforded to listed plants.

3.1.3 State and Federal Take Authorizations for Listed Species

Federal or state authorizations of impacts to or incidental take of a listed species by a private individual or other private entity would be granted in one of the following ways:

- Section 7 of the FESA stipulates that any federal action that may affect a species listed as threatened or endangered requires a formal consultation with USFWS to ensure that the action is not likely to jeopardize the continued existence of the listed species or result in destruction or adverse modification of designated critical habitat. 16 U.S.C. 1536(a)(2).
- In 1982, the FESA was amended to give private landowners the ability to develop Habitat Conservation Plans (HCP) pursuant to Section 10(a) of the FESA. Upon development of an HCP, the USFWS can issue incidental take permits for listed species where the HCP specifies at minimum, the following: (1) the level of impact that will result from the taking, (2) steps that will minimize and mitigate the impacts, (3) funding necessary to implement the plan, (4) alternative actions to the taking considered by the applicant and the reasons why such alternatives were not chosen, and (5) such other measures that the Secretary of the Interior may require as being necessary or appropriate for the plan.
- Sections 2090-2097 of the CESA require that the state lead agency consult with CDFW on projects with potential impacts on state-listed species. These provisions also require

CDFW to coordinate consultations with USFWS for actions involving federally listed as well as state-listed species. In certain circumstances, Section 2080.1 of the California Fish and Game Code allows CDFW to adopt the federal incidental take statement or the 10(a) permit as its own based on its findings that the federal permit adequately protects the species under state law.

3.2 California Environmental Quality Act

3.2.1 CEQA Guidelines Section 15380

CEQA requires evaluation of a project's impacts on biological resources and provides guidelines and thresholds for use by lead agencies for evaluating the significance of proposed impacts. Sections 5.1.1 and 5.2.2 below set forth these thresholds and guidelines. Furthermore, pursuant to the CEQA Guidelines Section 15380, CEQA provides protection for non-listed species that could potentially meet the criteria for state listing. For plants, CDFW recognizes that plants on Lists 1A, 1B, or 2 of the CNPS *Inventory of Rare and Endangered Plants in California* may meet the criteria for listing and should be considered under CEQA. CDFW also recommends protection of plants, which are regionally important, such as locally rare species, disjunct populations of more common plants, or plants on the CNPS Lists 3 or 4.

3.2.2 Special-Status Plants, Wildlife and Vegetation Communities Evaluated Under CEQA

Federally Designated Special-Status Species

Within recent years, the USFWS instituted changes in the listing status of candidate species. Former C1 (candidate) species are now referred to simply as candidate species and represent the only candidates for listing. Former C2 species (for which the USFWS had insufficient evidence to warrant listing) and C3 species (either extinct, no longer a valid taxon or more abundant than was formerly believed) are no longer considered as candidate species. Therefore, these species are no longer maintained in list form by the USFWS, nor are they formally protected. This term is employed in this document, but carries no official protections. All references to federally protected species in this report (whether listed, proposed for listing, or candidate) include the most current published status or candidate category to which each species has been assigned by USFWS.

For this report the following acronyms are used for federal special-status species:

- FE Federally listed as Endangered
- FT Federally listed as Threatened
- FPE Federally proposed for listing as Endangered
- FPT Federally proposed for listing as Threatened

State-Designated Special-Status Species

Some mammals and birds are protected by the state as Fully Protected (SFP) Mammals or Fully Protected Birds, as described in the California Fish and Game Code, Sections 4700 and 3511, respectively. California SSC are designated as vulnerable to extinction due to declining population levels, limited ranges, and/or continuing threats. This list is primarily a working document for the CDFW's CNDDB project. Informally listed taxa are not protected, but warrant consideration in the preparation of biotic assessments. For some species, the CNDDB is only concerned with specific portions of the life history, such as roosts, rookeries, or nest sites.

For this report the following acronyms are used for State special-status species:

- SE State-listed as Endangered
- ST State-listed as Threatened
- SFP State Fully Protected
- SSC State Species of Special Concern

California Native Plant Society

The CNPS is a private plant conservation organization dedicated to the monitoring and protection of sensitive species in California. The CNPS's Eighth Edition of the *California Native Plant Society's Inventory of Rare and Endangered Plants of California* separates plants of interest into five ranks. CNPS has compiled an inventory comprised of the information focusing on geographic distribution and qualitative characterization of Rare, Threatened, or Endangered vascular plant species of California. The list serves as the candidate list for listing as threatened and endangered by CDFW. CNPS has developed five categories of rarity that are summarized in Table 3-1.

CNPS Rank	Comments
Rank 1A – Plants Presumed	Thought to be extinct in California based on a lack of observation or
Extirpated in California and	detection for many years.
Either Rare or Extinct	
Elsewhere	
Rank 1B – Plants Rare,	Species, which are generally rare throughout their range that are also
Threatened, or Endangered in	judged to be vulnerable to other threats such as declining habitat.
California and Elsewhere	
Rank 2A – Plants presumed	Species that are presumed extinct in California but more common
Extirpated in California, But	outside of California
Common Elsewhere	
Rank 2B – Plants Rare,	Species that are rare in California but more common outside of
Threatened or Endangered in	California
California, But More	
Common Elsewhere	
Rank 3 – Plants About Which	Species that are thought to be rare or in decline but CNPS lacks the
More Information Is Needed	information needed to assign to the appropriate list. In most instances,
(A Review List)	the extent of surveys for these species is not sufficient to allow CNPS
	to accurately assess whether these species should be assigned to a

 Table 3-1. CNPS Ranks 1, 2, 3, & 4, and Threat Code Extensions

CNPS Rank	Comments
	specific rank. In addition, many of the Rank 3 species have associated taxonomic problems such that the validity of their current taxonomy is
	unclear.
Rank 4 – Plants of Limited	Species that are currently thought to be limited in distribution or range
Distribution (A Watch List)	whose vulnerability or susceptibility to threat is currently low. In
	some cases, as noted above for Rank 3 species, CNPS lacks survey
	data to accurately determine status in California. Many species have
	been placed on Rank 4 in previous editions of the "inventory" and
	mare common than previously thought CNPS recommends that
	species currently included on this list should be monitored to ensure
	that future substantial declines are minimized.
Extension	Comments
.1 – Seriously endangered in	Species with over 80% of occurrences threatened and/or have a high
California	degree and immediacy of threat.
.2 – Fairly endangered in	Species with 20-80% of occurrences threatened.
California	
.3 – Not very endangered in	Species with <20% of occurrences threatened or with no current
California	threats known.

3.3 Jurisdictional Waters

3.3.1 Army Corps of Engineers

Pursuant to Section 404 of the Clean Water Act (CWA), the Corps regulates the discharge of dredged and/or fill material into waters of the United States. The term "waters of the United States" is defined in Corps regulations at 33 CFR Part 328.3(a)³ as:

- (1) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- (2) All interstate waters, including interstate wetlands;
- (3) The territorial seas;
- (4) All impoundments of waters otherwise identified as waters of the United States under this section;
- (5) All tributaries, as defined in paragraph (c)(3) of this section, of waters identified in paragraphs (a)(1) through (3) of this section;
- (6) All waters adjacent to a water identified in paragraphs (a)(1) through (5) of this section, including wetlands, ponds, lakes, oxbows, impoundments, and similar waters;
- (7) All waters in paragraphs (a)(7)(i) through (v) of this section where they are determined, on a case-specific basis, to have a significant nexus to a water identified in paragraphs (a)(1) through (3) of this section. The waters identified in each of paragraphs (a)(7)(i) through (v) of this section are similarly situated and shall be combined, for purposes of a significant nexus analysis, in the watershed that drains to the nearest water identified in paragraphs (a)(1) through (3) of this section. Waters identified in this

³ As revised by the Corps and EPA, "Clean Water Rule: Definition of 'Waters of the United States"; Final Rule," 80 Federal Register 124 (29 June, 2015), pp. 37054-37127.

paragraph shall not be combined with waters identified in paragraph (a)(6) of this section when performing a significant nexus analysis. If waters identified in this paragraph are also an adjacent water under paragraph (a)(6), they are an adjacent water and no case-specific significant nexus analysis is required.

- *(i) Prairie potholes. Prairie potholes are a complex of glacially formed wetlands, usually occurring in depressions that lack permanent natural outlets, located in the upper Midwest.*
- (ii) Carolina bays and Delmarva bays. Carolina bays and Delmarva bays are ponded, depressional wetlands that occur along the Atlantic coastal plain.
- (iii) Pocosins. Pocosins are evergreen shrub and tree dominated wetlands found predominantly along the Central Atlantic coastal plain.
- (iv) Western vernal pools. Western vernal pools are seasonal wetlands located in parts of California and associated with topographic depression, soils with poor drainage, mild, wet winters and hot, dry summers.
- (v) Texas coastal prairie wetlands. Texas coastal prairie wetlands are freshwater wetlands that occur as a mosaic of depressions, ridges, intermound flats, and mima mound wetlands located along the Texas Gulf Coast.
- (8) All waters located within the 100- year floodplain of a water identified in paragraphs (a)(1) through (3) of this section and all waters located within 4,000 feet of the high tide line or ordinary high water mark of a water identified in paragraphs (a)(1) through (5) of this section where they are determined on a case-specific basis to have a significant nexus to a water identified in paragraphs (a)(1) through (3) of this section. For waters determined to have a significant nexus, the entire water is a water of the United States if a portion is located within the 100-year floodplain of a water identified in paragraphs (a)(1) through (3) of this section of the high tide line or ordinary high water mark. Waters identified in this paragraph shall not be combined with waters identified in paragraph (a)(6) of this section when performing a significant nexus analysis. If waters identified in this paragraph are also an adjacent water under paragraph (a)(6), they are an adjacent water and no case-specific significant nexus analysis is required.

In the absence of wetlands, the limits of Corps jurisdiction in non-tidal waters, such as intermittent streams, extend to the OHWM which is defined at 33 CFR 328.3(e) as:

...that line on the shore established by the fluctuation of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

The term "wetlands" (a subset of "waters of the United States") is defined at 33 CFR 328.3(b) as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support...a prevalence of vegetation typically adapted for life in saturated soil conditions." In 1987 the Corps published a manual to guide its field personnel in determining jurisdictional wetland boundaries. The methodology set forth in the 1987 Wetland Delineation Manual and the Arid West Supplement generally require that, in order to be considered a wetland, the vegetation, soils, and hydrology of an area exhibit at least minimal hydric characteristics. While the manual and Supplement provide great detail in methodology and allow for varying special conditions, a wetland should normally meet each of the following three criteria:

- more than 50 percent of the dominant plant species at the site must be typical of wetlands (i.e., rated as facultative or wetter in the National List of Plant Species that Occur in Wetlands⁴);
- soils must exhibit physical and/or chemical characteristics indicative of permanent or periodic saturation (e.g., a gleyed color, or mottles with a matrix of low chroma indicating a relatively consistent fluctuation between aerobic and anaerobic conditions); and
- Whereas the 1987 Manual requires that hydrologic characteristics indicate that the ground is saturated to within 12 inches of the surface for at least five percent of the growing season during a normal rainfall year, the Arid West Supplement does not include a quantitative criteria with the exception for areas with "problematic hydrophytic vegetation", which require a minimum of 14 days of ponding to be considered a wetland.

The following are not "waters of the United States" even where they otherwise meet the terms of paragraphs (a)(4) through (8) of the section above as defined in Corps regulations at 33 CFR Part 328.3(b):

- (1) Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the Clean Water Act.
- (2) Prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other Federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.
- (3) The following ditches:

(*i*) Ditches with ephemeral flow that are not a relocated tributary or excavated in a tributary.

(*ii*) *Ditches with intermittent flow that are not a relocated tributary, excavated in a tributary, or drain wetlands.*

(iii) Ditches that do not flow, either directly or through another water, into a water identified in paragraphs (a)(1) through (3) of this section.

(4) The following features:

⁴ Lichvar, R. W. 2013. *The National Wetland Plant List:* 2013 wetland ratings. Phytoneuron 2013-49: 1-241.

(i) Artificially irrigated areas that would revert to dry land should application of water to that area cease;
(ii) Artificial, constructed lakes and ponds created in dry land such as farm and stock watering ponds, irrigation ponds, settling basins, fields flooded for rice growing, log cleaning ponds, or cooling ponds;
(iii) Artificial reflecting pools or swimming pools created in dry land;
(iv) Small ornamental waters created in dry land incidental to mining or construction activity, including pits excavated for obtaining fill, sand, or gravel that fill with water;
(vi) Erosional features, including gullies, rills, and other ephemeral features that do not meet the definition of tributary, non-wetland swales, and lawfully constructed grassed waterways; and
(vii) Puddles.

(5) Groundwater, including groundwater drained through subsurface drainage systems.

(6) Stormwater control features constructed to convey, treat, or store stormwater that are created in dry land.

(7) Wastewater recycling structures constructed in dry land; detention and retention basins built for wastewater recycling; groundwater recharge basins; percolation ponds built for wastewater recycling; and water distributary structures built for wastewater recycling.

3.3.2 Regional Water Quality Control Board

Section 401 of the CWA requires any applicant for a Section 404 permit to obtain certification from the State that the discharge (and the operation of the facility being constructed) will comply with the applicable effluent limitation and water quality standards. In California this 401 certification is obtained from the Regional Water Quality Control Board. The Corps, by law, cannot issue a Section 404 permit until a 401 certification is issued or waived.

Subsequent to the SWANCC decision, the Chief Counsel for the State Water Resources Control Board issued a memorandum that addressed the effects of the SWANCC decision on the Section 401 Water Quality Certification Program.⁵ The memorandum stating that for waters that are no longer considered subject to federal jurisdiction pursuant to Section 404 of the Clean Water Act, but which remain "waters of the state", the State will continue to regulate discharges under the Porter-Cologne Act. In such cases the applicant must apply for and obtain a Waste Discharge Requirement from the Regional Board.

⁵ Wilson, Craig M. January 25, 2001. Memorandum addressed to State Board Members and Regional Board Executive Officers.

3.3.3 California Department of Fish and Wildlife

Pursuant to Division 2, Chapter 6, Sections 1600-1617 of the California Fish and Game Code, the CDFCDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake, which supports fish or wildlife.

CDFW defines a "stream" (including creeks and rivers) as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation." CDFW's definition of "lake" includes "natural lakes or manmade reservoirs."

CDFW jurisdiction within altered or artificial waterways is based upon the value of those waterways to fish and wildlife. CDFW Legal Advisor has prepared the following opinion⁶:

- Natural waterways that have been subsequently modified and which have the potential to contain fish, aquatic insects and riparian vegetation will be treated like natural waterways...
- Artificial waterways that have acquired the physical attributes of natural stream courses and which have been viewed by the community as natural stream courses, should be treated by [CDFW] as natural waterways...
- Artificial waterways without the attributes of natural waterways should generally not be subject to Fish and Game Code provisions...

Thus, CDFW jurisdictional limits closely mirror those of the Corps. Exceptions are CDFW's addition of artificial stock ponds and irrigation ditches constructed on uplands, and the addition of riparian habitat supported by a river, stream, or lake regardless of the riparian area's federal wetland status.

3.4 City of Chino, The Preserve Specific Plan Resource Management Plan

Borrow Sites 1-5 are located within the boundary of the City of Chino's "The Preserve Specific Plan" (EDAW AECOM 2011[amended]) and The Preserve, Chino Sphere of Influence – Subarea 2, Environmental Impact Report (EIR) (Michael Brandman Associates, 2003a), but the Project site and the Off Site Storm Drain Improvement Area/Off Site Streambed Study Area are not. A Resources Management Plan (RMP) (Michael Brandman Associates, 2003b) was adopted and provides the roadmap for successfully implementing the vision and requirements of the Specific Plan and the EIR. Therefore, this report provides analysis and mitigation consistent with the RMP for resources located within the RMP boundary; specifically, burrowing owl.

⁶ California Department of Fish and Game. Environmental Services Division (ESD). 1994. A Field Guide to Lake and Streambed Alteration Agreements, Sections 1600-1607, California Fish and Game Code.

4.0 **RESULTS**

This section provides the results of general biological surveys, vegetation mapping, habitat assessments for special-status plants and animals, and a jurisdictional delineation for Waters of the United States (including wetlands) subject to the jurisdiction of the Corps and Regional Board, and streams (including riparian vegetation) and lakes subject to the jurisdiction of CDFW.

4.1 Existing Conditions

Historically, the Project site and borrow sites have been used for livestock farming and dairy operation with remnants of building foundations within portion of each property in the Study Area. Each site has been heavily disturbed as part of ongoing agriculture and ranching for several decades. The Project also may be conditioned with a request for the Project applicant to use good faith efforts to acquire right-of-way for a proposed realignment of Mountain Avenue from the southwest Project boundary to El Prado Road. The Project will not be conditioned to construct such realigned road. The specific alignment for this road improvement and realignment has not been finalized but the area proposed for this disturbance is west of Mountain Avenue in an existing golf course, and the area in question does not support sensitive biological resources, nor does it support drainage features that could be regulated by the resource agencies under Section 4001 or 404 of the Clean Water Act, Section 13260 of the State Water Code, or Section 1602 of the State Fish and Game Code. A description of each property is listed below.

Project Site

The Project site totals approximately 96.91 acres and is located at latitude 33.957541 and longitude -117.662515 in the City of Chino, San Bernardino County, California [Exhibit 1] within an unsectioned area and Section 31, Township 2 South, and Range 7 West, and Section 36, Township 2 South, and Range 8 West of the U.S. Geological Survey (USGS) 7.5" quadrangle map Prado Dam (dated 1967 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. The Project site is bordered by Bickmore Avenue to the north, the El Prado Golf Course to the south, Cypress Channel to the east, and Mountain Avenue to the west. The Project site abuts an off site concrete flood control channel along a portion of its eastern boundary, which enters the site at the northeast and flows in a north to south direction for 2,527 feet before leaving the Study Area. The soils mapped on the Project site are Chino Silt Loam, Chualar Clay Loam, 0 to 2 Percent Slopes, and Chualar Clay Loam, 2 to 9 Percent Slopes [Exhibit 6, Sheet 2].

Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to Project Site

The Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the Project site totals approximately 2.98 acres and is located at latitude 33.954018 and longitude - 117.659439 in the City of Chino, San Bernardino County, California [Exhibit 1] within an unsectioned area of Township 2 South and Range 7 West of the U.S. Geological Survey (USGS) 7.5" quadrangle map Prado Dam (dated 1967 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. This area is bordered by the Project site to the north, the El Prado Golf Course to the south and west, and Cypress Channel to the east.

The Project site abuts an off site concrete flood control channel along a portion of its eastern boundary, which enters the site at the northeast and flows in a north to south direction for 2,527 feet before leaving the Study Area. The soils mapped on this site are Grangeville Fine Sandy Loam, Chualar Clay Loam, 0 to 2 Percent Slopes, Chualar Clay Loam, 2 to 9 Percent Slopes, and Chualar Clay Loam, 9 to 15 Percent Slopes [Exhibit 6, Sheet 2].

Borrow Site 1

Borrow 1 totals approximately 43.67 acres and is located at latitude 33.952213 and longitude -117.648256 in the City of Chino, San Bernardino County, California [Exhibit 1] within an unsectioned area of Township 2 South and Range 7 West, of the U.S. Geological Survey (USGS) 7.5" quadrangle map Prado Dam (dated 1967 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. Borrow 1 is bordered by Pine Avenue to the north, the Prado Regional Park to the south, Johnson Avenue to the east, and Euclid Avenue to the west.

Borrow 1 contains a drainage course supporting wetland and riparian habitat, which flows in a north to south direction for 1,645 feet before leaving the Study Area. The soils mapped in Borrow 1 are Chino Silt Loam, Chualar Clay Loam, 2 to 9 Percent Slopes, Chualar Clay Loam, 9 to 15 Percent Slopes, and Grangeville Fine Sandy Loam [Exhibit 6, Sheet 3].

Borrow Site 2

Borrow 2 totals approximately 38.51 acres and is located at latitude 33.952641 and longitude -117.644448 in the City of Chino, San Bernardino County, California [Exhibit 1] within an unsectioned area of Township 2 South and Range 7 West, of the U.S. Geological Survey (USGS) 7.5" quadrangle map Prado Dam (dated 1967 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. Borrow 2 is bordered by Pine Avenue to the north, the Prado Regional Park and the Prado Equestrian Center to the south, the California Institute for Women to the east, and Johnson Avenue to the west.

Borrow 2 does not contain a drainage course; only a roadside ditch and former waste treatment facilities are present. The soil mapped in Borrow 2 is Chino Silt Loam [Exhibit 6, Sheet 3].

Borrow Site 3

Borrow Site Three (Borrow 3) totals approximately 84.25 acres and is located at latitude 33.941462 and longitude -117.635815 in the City of Chino, San Bernardino County, California [Exhibit 1] within Section 5, Township 3 South, and Range 7 West, of the U.S. Geological Survey (USGS) 7.5" quadrangle map Prado Dam (dated 1967 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. Borrow 3 is bordered by the California Institute for Women to the north, the Prado Basin to the south and west, and Cucamonga Avenue to the east.

Borrow 3 contains no drainages; only former waste treatment facilities are present. The soils mapped in Borrow 3 are Chualar Clay Loam, 0 to 2 Percent Slopes and Chualar Clay Loam, 2 to 9 Percent Slopes [Exhibit 6, Sheet 4].

Borrow Site 4

Borrow 4 totals approximately 12.94 acres and is located at latitude 33.945011 and longitude - 117.622304 in the City of Chino, San Bernardino County, California [Exhibit 1] within Section 4, Township 3 South, and Range 7 West of the U.S. Geological Survey (USGS) 7.5" quadrangle map Corona North (dated 1967 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. Borrow 4 is bordered by Chino-Corona Road to the north, the Mill Creek Wetlands to the south and east, and Comet Avenue to the west.

Borrow 4 does not contain a drainage course. The soils mapped in Borrow 4 are Chualar Clay Loam, 0 to 2 Percent Slopes, Chualar Clay Loam, 2 to 9 Percent Slopes, and Chualar Clay Loam, 9 to 15 Percent Slopes [Exhibit 6, Sheet 5].

Borrow Site 5

Borrow 5 totals approximately 21.28 acres and is located at latitude 33.949712 and longitude - 117.613437 in the City of Chino, San Bernardino County, California [Exhibit 1] within Section 33, Township 2 South, and Range 7 West, of the U.S. Geological Survey (USGS) 7.5" quadrangle map Corona North (dated 1967 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. Borrow 5 is bordered by undeveloped land to the north and south, Hellman Avenue to the east, and Chino-Corona Road to the west.

Borrow 5 does not contain a drainage course; only former waste treatment facilities are present. The soils mapped in Borrow 5 are Chino Silt Loam, Chualar Clay Loam, 2 to 9 Percent Slopes, and Grangeville Fine Sandy Loam [Exhibit 6, Sheet 6].

Mountain Avenue Improvement/Realignment

The Project also may be conditioned with a request for the Project applicant to use good faith efforts to acquire right-of-way for a proposed realignment of Mountain Avenue from the southwest Project boundary to El Prado Road. The Project will not be conditioned to construct such realigned road. The approximate location for this proposed road improvement is latitude 33.954357 and longitude -117.667229.

4.2 Vegetation

Project Site

During vegetation mapping of the Project site, one vegetation type was identified. Table 4-1 provides a summary of vegetation/land uses and the corresponding acreage. Detailed descriptions of each vegetation type follow the table. A Vegetation Map is attached as Exhibit 4, Sheet 2. Photographs depicting the various vegetation types are attached as Exhibit 13.

Table 4-1. Summary of Vegetation/Land Use Types for the Project Site

VEGETATION TYPE/ LAND USE TYPE	ACREAGE
Ruderal/Disturbed	96.91
TOTAL	96.91

Ruderal/Disturbed

Approximately 96.91 acres of the Project site consist of ruderal/disturbed habitat. Vegetation within the Project site consists of Aleppo pine (Pinus halepensis), ash (Fraxinus sp), Bermuda grass (Cynodon dactylon), black willow (Salix gooddingii), blue elderberry (Sambucus nigra ssp. caerulea), chaparral yucca (Hesperoyucca whipplei), cheeseweed mallow (Malva parviflora), clover (Trifolium sp), common dandelion (Taraxacum officinale), common fiddleneck (Amsinckia intermedia), common Mediterranean grass (Schismus barbatus), common sunflower (Helianthus annuus), curly dock (Rumex crispus), desert brittlebush (Encelia farinosa), dwarf nettle (Urtica urens), field bindweed (Convolvulus arvensis), foxtail barley (Hordeum murinum), golden crownbeard (Verbesina enceliodes), lamb's quarters (Chenopodium album), London rocket (Sisymbrium irio), Mexican fan palm (Washingtonia robusta), milk thistle (Silvbum marianum), millet (Eleusine sp.), mission cactus (Opuntia ficus-indica), Peruvian pepper tree (Schinus molle), prostrate knotweed (Polygonum aviculare), red brome (Bromus madritensis), red stemmed filaree (Erodium cicutarium), Russian thistle (Salsola tragus), salt cedar (Tamarix ramosissima), silver puffs (Uropappus lindleyi), southern cattail (Typha domingensis), spiny sowthistle (Sonchus asper), summer mustard (Hirschfeldia incana), tree tobacco (Nicotiana glauca), western ragweed (Ambrosia psilostachya), and white horehound (Marrubium vulgare).

Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the Project Site

During vegetation mapping of the Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the Project Site, two vegetation types were identified. Table 4-2 provides a summary of vegetation/land uses and the corresponding acreage. Detailed descriptions of each vegetation type follow the table. A Vegetation Map is attached as Exhibit 4, Sheet 2. Photographs depicting the various vegetation types are attached as Exhibit 13.

Table 4-2. Summary of Vegetation/Land Use Types for Off Site Storm Drain Improvement Area/Streambed Study Area Adjacent to the Project Site

VEGETATION TYPE/ LAND USE TYPE	ACREAGE
Ornamental	0.66
Developed	2.32
TOTAL	2.98

Ornamental

Approximately 0.66 acre of the Off Site Storm Drain Improvement Area/Off Site Streambed Study Area adjacent to the Project site consists of ornamental habitat. Vegetation within the area appears to be maintained and ornamentally planted species dominated by coyote brush (Baccharis pilularis), with a few planted ornamental pines (*Pinus* sp.) and oak (*Quercus* sp.). Other species identified include salt cedar (*Tamarix ramosissima*), milk thistle (*Silybum marianum*), morning glory (*Ipomoea* sp.), and black nightshade (*Solanum americanum*).

Developed

Approximately 2.32 acres are considered developed, which are associated with the Cypress Channel located easterly of the Project site. No vegetation is present as the area in question consists of a concrete-sided, concrete-bottomed flood control channel.⁷

Borrow Site 1

During vegetation mapping of the Borrow Site 1, three vegetation types were identified. Table 4-3 provides a summary of vegetation/land uses and the corresponding acreage. Detailed descriptions of each vegetation type follow the table. A Vegetation Map is attached as Exhibit 4, Sheet 3. Photographs depicting the various vegetation types are attached as Exhibit 13.

VEGETATION TYPE/	ACREAGE
LAND USE TYPE	
Ruderal/Disturbed	39.05
Freshwater Marsh/Disturbed Freshwater Marsh	4.46
Southern Willow Scrub	0.16
TOTAL	43.67

Table 4-3. Summary of Vegetation/Land Use Types for Borrow Site 1

Ruderal/Disturbed

Approximately 39.05 acres of land consists of ruderal/disturbed habitat within Borrow Site 1. Vegetation consists of jimson weed (*Datura wrightii*), mulefat (*Baccharis salicifolia*), common sunflower (*Helianthus annuus*), Canada horseweed (*Erigeron canadensis*), nightshade (*Solanum* sp.), Russian thistle (*Salsola tragus*), nettle leaf goosefoot (*Chenopodium murale*), tumbleweed (*Amaranthus albus*), cheeseweed mallow (*Malva parviflora*), prickly lettuce (*Lactuca serriola*), milk thistle (*Silybum marianum*), London rocket (*Sisymbrium irio*), Bermuda grass (*Cynodon dactylon*), red stemmed filaree (*Erodium cicutarium*), prostrate knotweed (*Polygonum aviculare*), tree of heaven (*Ailanthus altissima*), Mexican fan palm (*Washingtonia robusta*), common Mediterranean grass (*Schismus barbatus*), goldentop grass (*Lamarckia aurea*), annual stinging nettle (*Urtica urens*), tree tobacco (*Nicotiana glauca*), mission cactus (*Opuntia ficus*-

⁷ Please note that the Cypress Channel, an off site concreate flood control channel, was studied and analyzed as part of the Project; however, only 0.01 acre and 21 linear feet of channel will be affected by the Project. The remainder of the Cypress Channel is not a part of the Project.

indica), creeping bentgrass (*Agrostic gigantea*) agave (*Agave attenuata*), and perennial pepperweed (*Lepidium latifolium*).

Freshwater Marsh/Disturbed Freshwater Marsh

Approximately 4.46 acres of land consist of freshwater marsh and disturbed freshwater marsh habitat within Borrow Site 1. Vegetation consists of southern cattail (*Typha domingensis*), yerba mansa (*Anemopsis californica*), Canada horseweed (*Erigeron canadensis*), Mexican sprangletop grass (*Leptochloa fusca* ssp. *uninervia*), common sunflower (*Helianthus annuus*), salt marsh sand spurry (*Spergularia marina*), common knotweed (*Persicaria lapathifolia*), nettle leaf goosefoot (*Chenopodium murale*), flax-leaved horseweed (*Erigeron bonariensis*), summer mustard (*Hirschfeldia incana*), wild radish (*Raphanus sativus*), cheeseweed mallow (*Malva parviflora*), rabbitsfoot grass (*Polypogon monspeliensis*) spiny sowthistle (*Sonchus asper*), sweet clover (*Melilotus sp.*), London rocket (*Sisymbrium irio*), Bermuda grass (*Cynodon dactylon*), tree tobacco (*Nicotiana glauca*), Mexican fan palm (*Washingtonia robusta*), golden crownbeard (*Verbesina encelioides*), and perennial pepperweed (*Lepidium latifolium*).

Southern Willow Scrub

Approximately 0.16 acre of land consists of southern willow scrub habitat within Borrow Site 1. Vegetation consists of black willow (*Salix gooddingii*) and salt cedar (*Tamarix ramosissima*).

Borrow Site 2

During vegetation mapping of the Borrow Site 2, one vegetation type was identified. Table 4-4 provides a summary of vegetation/land uses and the corresponding acreage. Detailed descriptions of each vegetation type follow the table. A Vegetation Map is attached as Exhibit 4, Sheet 3. Photographs depicting the various vegetation types are attached as Exhibit 13.

VEGETATION TYPE/ LAND USE TYPE	ACREAGE
Ruderal/Disturbed	38.51
TOTAL	38.51

Table 4-4. Summary of Vegetation/Land Use Types for Borrow Site 2

Ruderal/Disturbed

All 38.51 acres of Borrow Site 2 consist of ruderal/disturbed habitat. Vegetation within Borrow Site 2 consists of Chinese parsley (*Heliotropium curassavicum*), telegraph weed (*Heterotheca grandiflora*), Russian thistle (*Salsola tragus*), spiny sowthistle (*Sonchus asper*), nettle leaf goosefoot (*Chenopodium murale*), cheeseweed mallow (*Malva parviflora*), italian rye grass (*Festuca perennis*), poison hemlock (*Conium maculatum*), prickly lettuce (*Lactuca serriola*), London rocket (*Sisymbrium irio*), flax-leaved horseweed (*Erigeron bonariensis*), Bermuda grass (*Cynodon dactylon*), bull thistle (*Cirsium vulgare*), bristly ox-tongue (*Helminthotheca echioides*), prostrate knotweed (*Polygonum aviculare*), shamel ash (*Fraxinus* uhdei), field

bindweed (*Convolvulus arvensis*), curly dock (*Rumex crispus*), sweet clover (*Melilotus sp.*), and Asian ponyfoot (*Dichondra micrantha*).

Borrow Site 3

During vegetation mapping of the Borrow Site 3, one vegetation type was identified. Table 4-5 provides a summary of vegetation/land uses and the corresponding acreage. Detailed descriptions of each vegetation type follow the table. A Vegetation Map is attached as Exhibit 4, Sheet 4. Photographs depicting the various vegetation types are attached as Exhibit 13.

Table 4-5.	Summary of	Vegetation/Land	Use Types for	r Borrow Site 3

VEGETATION TYPE/ LAND USE TYPE	ACREAGE
Ruderal/Disturbed	84.25
TOTAL	84.25

Ruderal/Disturbed

All 84.25 acres of Borrow Site 3 consist of ruderal/disturbed habitat. Vegetation within Borrow Site 3 consists of Mexican fireweed (*Bassia scoparia*), five-hook bassia (*Bassia hyssopifolia*), prickly lettuce (*Lactuca serriola*), Russian thistle (*Salsola tragus*), soft chess (*Bromus tectorum*), wild oat (*Avena fatua*), goldentop grass (*Lamarkia aurea*), sunflower (*Heliantus annuus*), cheeseweed mallow (*Malva parviflora*), coyote brush (*Baccharis pilularis*), London rocket (*Sisymbrium irio*), Italian thistle (*Carduus* sp.), Bermuda grass (*Cynodon dactylon*), tumbleweed (*Amaranthus albus*), prickly sow-thistle (*Sonchus asper*), rabbitsfoot grass (*Polypogon monspeliensis*), common knotgrass (*Polygonum aviculare*), Australian saltbush (*Atriplex semibaccata*), big saltbush (*Atriplex lentiformis*), purple needlegrass (*Stipa pulchra*), salt heliotrope (*Heliotropium curassavicum*), Italian rye grass (*Festuca perennis*), wall barley (*Hordeum marinum*), pigweed (*Chenopodium album*), London rocket (*Sysimbrium irio*), Mediterranean grass (Schismus barbatus), perennial pepperweed (*Lepidium latifolium*), milk thistle (*Silybum marianum*), golden crownbeard (*Verbesina encelioides*), and California brittlebrush (*Encilia californica*).

Borrow Site 4

During vegetation mapping of Borrow Site 4, one vegetation type was identified. Table 4-6 provides a summary of vegetation/land uses and the corresponding acreage. Detailed descriptions of each vegetation type follow the table. A Vegetation Map is attached as Exhibit 4, Sheet 5. Photographs depicting the various vegetation types are attached as Exhibit 13.

Table 4-6. Summary of Vegetation/Land Use Types for Borrow Site 4

VEGETATION TYPE/ LAND USE TYPE	ACREAGE
Ruderal/Disturbed	12.94
TOTAL	12.94

Ruderal/Disturbed

All 12.94 acres of Borrow Site 4 consist of ruderal/disturbed habitat. Vegetation within Borrow Site 4 consists of coyote brush (*Baccharis pilularis*), coast goldenbush (*Isocoma menziesii*), common sunflower (*Helianthus annuus*), toyon (*Heteromeles arbutifolia*), lemonadeberry (*Rhus integrifolia*), creeping wild rye (*Elymus triticoides*), laurel sumac (*Malosma laurina*), deergrass (*Muhlenbergia rigens*), California sagebrush (*Artemisia californica*), Spanish lotus (*Acmispon americanus*), brittlebush (*Encelia farinosa*), mulefat (*Baccharis salicifolia*), saltgrass (*Distichlis spicata*), cheeseweed mallow (*Malva parviflora*), curly dock (*Rumex crispus*), Russian thistle (*Salsola tragus*), nettle leaf goosefoot (*Chenopodium murale*), London rocket (*Sisymbrium irio*), flax-leaved horseweed (*Erigeron bonariensis*), tumbleweed (*Amaranthus albus*), common red sage (*Kochia scoparia*), annual stinging nettle (*Urtica urens*), prickly lettuce (*Lactuca serriola*), Peruvian pepper tree (*Schinus molle*), Mexican fan palm (*Washingtonia robusta*), and Bermuda grass (*Cynodon dactylon*).

Borrow Site 5

During vegetation mapping of the Borrow Site 5, one vegetation type was identified. Table 4-7 provides a summary of vegetation/land uses and the corresponding acreage. Detailed descriptions of each vegetation type follow the table. A Vegetation Map is attached as Exhibit 4, Sheet 6. Photographs depicting the various vegetation types are attached as Exhibit 13.

VEGETATION TYPE/ LAND USE TYPE	ACREAGE
Ruderal/Disturbed	21.28
TOTAL	21.28

Table 4-7. Summary of Vegetation/Land Use Types for Borrow Site 5

Ruderal/Disturbed

All 21.28 acres of Borrow Site 5 consist of ruderal/disturbed habitat. Vegetation within Borrow Site 5 consists of common sunflower (*Helianthus annuus*), Russian thistle (*Salsola tragus*), common red sage (*Kochia scoparia*), spiny sowthistle (*Sonchus asper*), nettle leaf goosefoot (*Chenopodium murale*), cheeseweed mallow (*Malva parviflora*), foxtail barley (*Hordeum murinum*), prickly lettuce (*Lactuca serriola*), London rocket (*Sisymbrium irio*), milk thistle (*Silybum marianum*), flax-leaved horseweed (*Erigeron bonariensis*), Bermuda grass (*Cynodon dactylon*), and annual stinging nettle (*Urtica urens*).

Mountain Avenue Improvement/Realignment

The Project also may be conditioned with a request for the Project applicant to use good faith efforts to acquire right-of-way for a proposed realignment of Mountain Avenue from the southwest Project boundary to El Prado Road. The Project will not be conditioned to construct such realigned road. The specific alignment for this road improvement and realignment has not been finalized but the area proposed for this disturbance is west of Mountain Avenue in an existing golf course, and the area in question does not support sensitive biological resources, nor does it support drainage features that could be regulated by the resource agencies under Section 4001 or 404 of the Clean Water Act, Section 13260 of the State Water Code, or Section 1602 of the State Fish and Game Code.

4.3 Wildlife

On March 12, March 13, and April 16,2019, biologist Zack West conducted a habitat assessment of the Study Area, during which all detected wildlife was recorded. No special status species were detected, though portions of the Study Area do constitute potential habitat for the burrowing owl (*Athene cunicularia*), tri-colored blackbird (*Agelaius tricolor*), and the least Bell's vireo (*Vireo bellii pusillus*).

Species detected within the Project site and the Off Site Storm Drain Improvement Area/ Adjacent to the Project Site included:⁸

- Invertebrates: painted lady (Vanessa cardui);
- Birds: American coot (Fulica americana), American crow (Corvus brachyrhynchos), American pipit (Anthus rubescens), Anna's hummingbird (Calypte anna), black phoebe (Sayornis nigricans), blue-gray gnatcatcher (Polioptila caerulea), Brewer's blackbird (Euphagus cyanocephalus), Canada goose (Branta canadensis), Cassin's kingbird (Tyrannus vociferans), common raven (Corvus corax), common yellowthroat (Geothlypis trichas), Eurasian-collared dove (Streptopelia decaocto), European starling (Sturnus vulgaris), great-tailed grackle (Quiscalus mexicanus), house finch (Haemorhous mexicanus), killdeer (Charadrius vociferous), lesser goldfinch (Spinus psaltria), mallard (Anas platyrhynchos), northern harrier (Circus hudsonius), red-tailed hawk (Buteo jamaicensis), ring-billed gull (Larus delawarensis), Say's phoebe (Sayornis saya), song sparrow (Melospiza melodia), tree swallow (Tachycineta bicolor), turkey vulture (Cathartes aura), willet (Tringa semipalmata), yellow-rumped warbler (Setophaga coronata);
- Reptiles and Amphibians: western fence lizard (*Sceloporus occidentalis*), western toad (*Anaxyrus boreas*); and

⁸ Please note that the Cypress Channel, an off site concreate flood control channel, was studied and analyzed as part of the Project; however, only 0.01 acre and 21 linear feet of channel will be affected by the Project. The remainder of the Cypress Channel is not a part of the Project.

• Mammals: California ground squirrel (*Otospermophilus beecheyi*), coyote (*Canis latrans*).

Species detected in Borrow Sites 1 and 2 included:

- Invertebrates: Painted lady (Vanessa cardui);
- Birds: American crow (*Corvus brachyrhynchos*), American pipit (*Anthus rubescens*), black phoebe (*Sayornis nigricans*), Brewer's blackbird (*Euphagus cyanocephalus*), Canada goose (*Branta canadensis*), common raven (*Corvus corax*), common yellowthroat (*Geothlypis trichas*), Cooper's hawk (*Accipiter cooperi*), double-crested cormorant (*Phalacrocorax auratus*), Eurasian-collared dove (*Streptopelia decaocto*), European starling (*Sturnus vulgaris*), great egret (*Ardea alba*), great-tailed grackle (*Quiscalus mexicanus*), greater yellowlegs (*Tringa melanoleuca*), horned lark (*Eremophila alpestris*), house finch (*Haemorhous mexicanus*), house sparrow (*Passer domesticus*), killdeer (*Charadrius vociferous*), mallard (*Anas platyrhynchos*), northern flicker (*Colaptes auratus*), northern mockingbird (*Mimus polyglottos*), red-tailed hawk (*Buteo jamaicensis*), red-winged blackbird (*Agelaius phoeniceus*), rock pigeon (*Columba livia*), rufous hummingbird (*Selasphorus rufus*), savannah sparrow (*Passerculus sandwichensis*), Say's phoebe (*Sayornis saya*), song sparrow (*Melospiza melodia*), white-crowned sparrow (*Zonotrichia leucophrys*), white-faced ibis (*Plegadis chihi*), yellow-rumped warbler (*Setophaga coronata*); and
- Mammals: Botta's pocket gopher (*Thomomys bottae*), California ground squirrel (*Otospermophilus beecheyi*), common raccoon (*Procyon lotor*).

Species detected in Borrow Site 3 included:

• Birds: American crow (*Corvus brachyrhynchos*), cinnamon teal (*Spatula cyanoptera*), European starling (*Sturnus vulgaris*), greater yellowlegs (*Tringa melanoleuca*), house wren (*Troglodytes aedon*), killdeer (*Charadrius vociferous*), lark sparrow (*Chondestes grammacus*), lesser scaup (*Aythya affinis*), northern flicker (*Colaptes auratus*), northern shoveler (*Spatula clypeata*), red-winged blackbird (*Agelaius phoeniceus*), song sparrow (*Melospiza melodia*), tree swallow (*Tachycineta bicolor*), turkey vulture (*Cathartes aura*), western meadowlark (*Sturnella neglecta*), western sandpiper (*Calidris mauri*), willet (*Tringa semipalmata*).

Species detected in Borrow Sites 4 and 5 included:

- Invertebrates: painted lady (Vanessa cardui);
- Birds: American kestrel (*Falco sparverius*), barn swallow (*Hirundo rustica*), black phoebe (*Sayornis nigricans*), Brewer's blackbird (*Euphagus cyanocephalus*), brownheaded cowbird (*Molothrus ater*), California gull (*Larus californicus*), California thrasher (*Toxostoma redivivum*), California towhee (*Melozone crissalis*), Canada goose (*Branta canadensis*), common raven (*Corvus corax*), common yellowthroat (*Geothlypis trichas*), Cooper's hawk (*Accipiter cooperi*), Eurasian-collared dove (*Streptopelia decaocto*),

European starling (*Sturnus vulgaris*), great-tailed grackle (*Quiscalus mexicanus*), house finch (*Haemorhous mexicanus*), killdeer (*Charadrius vociferous*), northern mockingbird (*Mimus polyglottos*), northern rough-winged swallow (*Stelgidopteryx serripennis*), redtailed hawk (*Buteo jamaicensis*), red-winged blackbird (*Agelaius phoeniceus*), savannah sparrow (*Passerculus sandwichensis*), song sparrow (*Melospiza melodia*), tricolored blackbird (*Agelaius tricolor*), western kingbird (*Tyrannus verticalis*), yellow-headed blackbird (*Xanthocephalus xanthocephalus*);

- Reptiles and Amphibians: western fence lizard (Sceloporus occidentalis); and
- Mammals: Botta's pocket gopher (*Thomomys bottae*), California ground squirrel (*Otospermophilus beecheyi*), desert cottontail (*Sylvilagus audubonii*).

4.4 Special-Status Vegetation Communities (Habitats)

The CNDDB identifies the following 11 special-status vegetation communities for the Black Star Canyon, Corona North, Corona South, Guasti, Ontario, Orange, Prado Dam, San Dimas, and Yorba Linda quadrangle maps: Southern California Arroyo Chub/Santa Ana Sucker Stream, Riversidian Alluvial Fan Sage Scrub, Southern Riparian Forest, Southern Coast Live Oak Riparian Forest, Southern Cottonwood Willow Riparian Forest, Southern Sycamore Alder Riparian Woodland, Southern Riparian Scrub, Southern Willow Scrub, California Walnut Woodland, Walnut Forest, and Southern Interior Cypress Forest.

The Study Area contains two special-status vegetation types, southern willow scrub and freshwater marsh/disturbed freshwater marsh habitat. A total of 0.16 acre of southern willow scrub habitat is present and a total of 4.46 acres of freshwater marsh/disturbed freshwater marsh habitat is present.

4.5 Special-Status Plants

No special-status plants were detected within the Study Area. Species within Table 4-8 provide a list of special-status plants evaluated for the Study Area through a general biological survey and habitat assessment. Species were evaluated based on the following factors: 1) species identified by the CNDDB and CNPS as occurring (either currently or historically) on or in the vicinity of the Study Area, and 2) any other special-status plants that are known to occur within the vicinity of the Study Area, or for which potentially suitable habitat occurs within the Study Area.

Table 4-8. Special-Status Plants Evaluated for the Study Area

SE - State Endangered

ST - State Threatened

<u>Status</u>

Federal

FE – Federally Endangered

- FT Federally Threatened
- FC Federal Candidate

CNPS

- Rank 1A Plants presumed extirpated in California and either rare or extinct elsewhere.
- Rank 1B Plants rare, threatened, or endangered in California and elsewhere.
- Rank 2A Plants presumed extirpated in California, but common elsewhere.
- Rank 2B Plants rare, threatened, or endangered in California, but more common elsewhere.

State

- Rank 3 Plants about which more information is needed (a review list).
- Rank 4 Plants of limited distribution (a watch list).

CNPS Threat Code extension

- .1 Seriously endangered in California (over 80% occurrences threatened)
- .2 Fairly endangered in California (20-80% occurrences threatened)
- .3 Not very endangered in California (<20% of occurrences threatened or no current threats known)

Occurrence

- Does not occur The site does not contain habitat for the species and/or the site does not occur within the geographic range of the species.
- Absent The site contains suitable habitat for the species, but the species has been confirmed absent through focused surveys.
- Not expected to occur The species is not expected to occur onsite due to low habitat quality, however absence cannot be ruled out.
- Potential to occur The species has a potential to occur onsite based on suitable habitat, however its presence/absence could not be confirmed.
- Present The species was detected onsite incidentally or through focused surveys.

Species Name	Status	Habitat Requirements	Occurrence
Allen's pentachaeta Pentachaeta aurea ssp. allenii	Federal: None State: None CNPS: Rank 1B.1	Openings in coastal sage scrub, and valley and foothill grasslands.	Does not occur.
Brand's star phacelia Phacelia stellaris	Federal: None State: None CNPS: Rank 1B.1	Coastal dunes and coastal sage scrub.	Does not occur
Braunton's milk-vetch Astragalus brauntonii	Federal: FE State: None CNPS: Rank 1B.1	Closed-cone coniferous forest, chaparral, coastal sage scrub, valley and foothill grassland. Usually carbonate soils. Recent burn or disturbed areas.	Does not occur.
California beardtongue Penstemon californicus	Federal: None State: None CNPS: Rank 1B.2	Sandy soils in chaparral, lower montane coniferous forest, and pinyon and juniper woodland.	Does not occur
California saw-grass <i>Cladium californicum</i>	Federal: None State: None CNPS: Rank 2B.2	Meadows and seeps, and alkaline or freshwater marshes and swamps.	Does not occur.

Species Name	Status	Habitat Requirements	Occurrence
Chaparral nolina cismontana	Federal: None State: None CNPS: Rank 1B.2	Chaparral, coastal sage scrub. Occurring on sandstone or gabbro substrates.	Does not occur
Chaparral ragwort Senecio aphanactis	Federal: None State: None CNPS: Rank 2B.2	Chaparral, cismontane woodland, coastal scrub. Sometimes associated with alkaline soils.	Does not occur
Chaparral sand-verbena Abronia villosa var. aurita	Federal: None State: None CNPS: Rank 1B.1	Sandy soils in chaparral, coastal sage scrub.	Does not occur
Coulter's saltbush Atriplex coulteri	Federal: None State: None CNPS: Rank 1B.2	Coastal bluff scrub, coastal dunes, coastal sage scrub, valley and foothill grassland. Occurring on alkaline or clay soils.	Does not occur
Gambel's water cress Nasturtium gambelii	Federal: FE State: ST CNPS: Rank 1B.1	Marshes and swamps (freshwater or brackish).	Absent
Heart-leaved pitcher sage Lepechinia cardiophylla	Federal: None State: None CNPS: Rank 1B.2	Closed-cone coniferous forest, chaparral, and cismontane woodland.	Does not occur
Intermediate mariposa-lily Calochortus weedii var. intermedius	Federal: None State: None CNPS: Rank 1B.2	Rocky soils in chaparral, coastal sage scrub, valley and foothill grassland.	Does not occur
Intermediate monardella Monardella hypoleuca ssp.intermedia	Federal: None State: None CNPS: Rank 1B.3	Usually in the understory of chaparral, cismontane woodland, and lower montane coniferous forest (sometimes)	Does not occur
Jokerst's monardella <i>Monardella australis</i> ssp. jokerstii	Federal: None State: None CNPS: Rank 1B.1	Steep scree or talus slopes between breccia, secondary alluvial benches along drainages and washes. Chaparral, lower montane coniferous forest.	Does not occur
Long-spined spineflower Chorizanthe polygonoides var. longispina	Federal: None State: None CNPS: Rank 1B.2	Clay soils in chaparral, coastal sage scrub, meadows and seeps, and valley and foothill grasslands	Does not occur
Lucky morning-glory Calystegia felix	Federal: None State: None CNPS: Rank 3.1	Historically associated with wetland and marshy places, but possibly in drier situations as well. Possibly silty loam and alkaline soils. Meadows and seeps (sometimes alkaline), riparian scrub (alluvial).	Absent
Malibu baccharis Baccharis malibuensis	Federal: None State: None CNPS: Rank 1B.1	Chaparral, cismontane woodland, coastal sage scrub.	Does not occur
Many-stemmed dudleya Dudleya multicaulis	Federal: None State: None CNPS: Rank 1B.2	Chaparral, coastal sage scrub, valley and foothill grassland. Often occurring in clay soils.	Does not occur.

Species Name	Status	Habitat Requirements	Occurrence
Mesa horkelia Horkelia cuneata var. puberula	Federal: None State: None CNPS: Rank 1B.1	Sandy or gravelly soils in chaparral (maritime), cismontane woodland, and coastal scrub.	Does not occur
Parry's spineflower Chorizanthe parryi var. parryi	Federal: None State: None CNPS: Rank 1B.1	Sandy or rocky soils in open habitats of chaparral and coastal sage scrub.	Does not occur
Prostrate vernal pool navarretia Navarretia prostrata	Federal: None State: None CNPS: Rank 1B.1	Coastal sage scrub, valley and foothill grassland (alkaline), vernal pools. Occurring in mesic soils.	Does not occur
Rigid fringepod Thysanocarpus rigidus	Federal: None State: None CNPS: Rank 1B.2	Dry rocky slopes in pinyon and juniper woodland.	Does not occur
Salt Spring checkerbloom Sidalcea neomexicana	Federal: None State: None CNPS: Rank 2B.2	Mesic, alkaline soils in chaparral, coastal sage scrub, lower montane coniferous forest, Mojavean desert scrub, and playas.	Does not occur
San Bernardino aster Symphyotrichum defoliatum	Federal: None State: None CNPS: Rank 1B.2	Cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, valley and foothill grassland (vernally mesic).	Does not occur
San Fernando Valley spineflower <i>Chorizanthe parryi</i> var. <i>fernandina</i>	Federal: FPT State: SE CNPS: Rank 1B.1	Coastal sage scrub, occurring on sandy soils.	Does not occur
Santa Ana River woolly star Eriastrum densifolium ssp. sanctorum	Federal: FE State: SE CNPS: Rank 1B.1	Alluvial fan sage scrub, chaparral. Occurring on sandy or rocky soils.	Does not occur
Santiago Peak phacelia Phacelia keckii	Federal: None State: None CNPS: Rank 1B.3	Closed-cone coniferous forest, chaparral	Does not occur
Slender-horned spineflower Dodecahema leptoceras	Federal: FE State: SE CNPS: Rank 1B.1	Sandy soils in alluvial scrub, chaparral, cismontane woodland.	Does not occur
Smooth tarplant <i>Centromadia pungens</i> ssp. <i>laevis</i>	Federal: None State: None CNPS: Rank 1B.1	Alkaline soils in chenopod scrub, meadows and seeps, playas, riparian woodland, valley and foothill grasslands, disturbed habitats.	Absent
Southern tarplant <i>Centromadia parryi</i> ssp. <i>australis</i>	Federal: None State: None CNPS: Rank 1B.1	Disturbed habitats, margins of marshes and swamps, vernally mesic valley and foothill grassland, vernal pools.	Absent
Tecate cypress Hesperocyparis forbesii	Federal: None State: None CNPS: Rank 1B.1	Closed-cone coniferous forest, chaparral.	Does not occur

Species Name	Status	Habitat Requirements	Occurrence
White rabbit-tobacco	Federal: None	Sandy or gravelly soils in	Does not occur
Pseudognaphalium	State: None	chaparral, cismontane woodland,	
leucocephalum	CNPS: Rank 2B.2	coastal scrub, and riparian	
		woodland.	

4.5.1 Special-Status Plants Detected within the Study Area

No special-status plants were detected within the Study Area and none are expected. The Study Area has been either a working farm or dairy operation for several decades and although there are lands that are dominated by non-native grasses and forbes, there is no potential for the lands to function as a natural vegetation community that would support special-status plants.

4.6 Special-Status Animals

Table 4-9 provides a list of special-status animals evaluated for the Study Area through general biological surveys, habitat assessments, and focused surveys. Species were evaluated based on the following factors, including: 1) species identified by the CNDDB as occurring (either currently or historically) on or in the vicinity of the Study Area, and 2) any other special-status animals that are known to occur within the vicinity of the Study Area, for which potentially suitable habitat occurs on the site.

Table 4-9. Special Status Animals Evaluated for the Study Area

<u>Status</u>	
Federal FE – Federally Endangered FT – Federally Threatened FPT – Federally Proposed Threatened BGEPA– Bald and Golden Eagle Protection Act SSC – Species of Special Concern	State SE – State Endangered ST – State Threatened SC– State Candidate CFP – California Fully-Protected Species
Western Bat Working Group (WBWG) H – High Priority LM – Low-Medium Priority M – Medium Priority MH – Medium-High Priority Occurrence	
 Absent – The species is absent from the step is located outside of the known raabsence of the species. Not expected to occur – The species is not absence cannot be ruled out. Potential to occur – The species has a popresence/absence could not be confirmed. Present – The species was detected onsite 	site, either because the site lacks suitable habitat for the species, ange of the species, or focused surveys has confirmed the of expected to occur onsite due to low habitat quality, however tential to occur onsite based on suitable habitat, however its l. e incidentally or through focused surveys.

Species Name	Status	Habitat	Occurrence
-		Requirements	
Invertebrates			
Delhi-sands flower-loving fly Raphiomidas terminatus abdominalis	Federal: FE State: None	Fine, sandy soils, often associated with wholly or partially consolidated dunes referred to as the "Delhi" series. Vegetation consists of a sparse cover, including California buckwheat, California croton, deerweed, and evening primrose.	Does not occur
San Diego fairy shrimp	Federal: FE	Seasonal vernal pools	Does not occur
Branchinecta sandiegonensis	State: None		
Vernal pool fairy shrimp	Federal: FT	Seasonal vernal pools	Does not occur
Branchinecta lynchi	State: None		
Fish		1	1
Arroyo chub Gila orcutti	Federal: None State: SSC	Slow-moving or backwater sections of warm to cool streams with substrates of sand or mud.	Does not occur
Santa Ana sucker Catostomus santaanae	Federal: FT State: None	Small, shallow streams, less than 7 meters in width, with currents ranging from swift in the canyons to sluggish in the bottom lands. Preferred substrates are generally coarse and consist of gravel, rubble, and boulders with growths of filamentous algae, but occasionally they are found on sand/mud substrates.	Does not occur
Amphibians		D 1 C 1/	
Arroyo toad Anaxyrus californicus	Federal: FE State: SSC	Breed, forage, and/or aestivate in aquatic habitats, riparian, coastal sage scrub, oak, and chaparral habitats. Breeding pools must be open and shallow with minimal current, and with a sand or pea gravel substrate overlain with sand or flocculent silt. Adjacent banks with sandy or gravely terraces and very little herbaceous cover for adult and	Does not occur

Species Name	Status	Habitat	Occurrence
		Requirements	
		juvenile foraging areas, within a moderate riparian canopy of cottonwood, willow, or oak.	
Coast Range newt Taricha torosa	Federal: None State: SSC	Found in wet forests, oak forests, chaparral, and rolling grasslands. In southern California, drier chaparral, oak woodland, and grasslands are used.	Does not occur
Northern leopard frog Lithobates pipiens	Federal: None State: SSC	Inhabits grassland, wet meadows, potholes, forests, woodland, brushlands, springs, canals, bogs, marshes, reservoirs. Generally prefers permanent water with abundant aquatic vegetation.	Does not occur
Western spadefoot Spea hammondii	Federal: None State: SSC	Seasonal pools in coastal sage scrub, chaparral, and grassland habitats.	Does not occur.
Reptiles			
California glossy snake Arizona elegans occidentalis	Federal: None State: SSC	Inhabits arid scrub, rocky washes, grasslands, chaparral.	Does not occur
Coastal whiptail Aspidoscelis tigris stejnegeri (multiscutatus)	Federal: None State: SSC	Open, often rocky areas with little vegetation, or sunny microhabitats within shrub or grassland associations.	Does not occur
Coast horned lizard Phrynosoma blainvillii	Federal: None State: SSC	Occurs in a variety of vegetation types including coastal sage scrub, chaparral, annual grassland, oak woodland, and riparian woodlands.	Does not occur
Coast patch-nosed snake Salvadora hexalepis virgultea	Federal: None State: SSC	Occurs in coastal chaparral, desert scrub, washes, sandy flats, and rocky areas.	Does not occur
Red-diamond rattlesnake Crotalus ruber	Federal: None State: SSC	Habitats with heavy brush and rock outcrops, including coastal sage scrub and chaparral.	Does not occur
San Diego banded gecko Coleonyx variegatus abbotti	Federal: None State: SSC	Primarily a desert species, but also occurs in cismontane chaparral, desert scrub, and open sand dunes.	Does not occur
Southern California legless lizard Anniella stebbinsi	Federal: None State: SSC	Broadleaved upland forest, chaparral, coastal dunes, coastal scrub; found in a	Does not occur

Species Name	Status	Habitat	Occurrence
•		Requirements	
		broader range of habitats	
		that any of the other	
		species in the genus. Often	
		locally abundant,	
		specimens are found in	
		coastal sand dunes and a	
		variety of interior habitats,	
		including sandy washes	
		and alluvial fans	
Two-striped garter snake	Federal: None	Aquatic snake typically	Not expected to occur
Thamnophis hammondii	State: SSC	associated with wetland	
		habitats such as streams,	
XX7 , 1 , ,1	E 1 1 M	creeks, and pools.	D
Western pond turtle	Federal: None	Slow-moving permanent	Does not occur
Emys marmorata	State: SSC	or intermittent streams,	
		small ponds and lakes,	
		reservoirs, abandoned	
		anhameral shallow	
		wetlands stock ponds and	
		treatment lagoons	
		Abundant basking sites	
		and cover necessary.	
		including logs, rocks.	
		submerged vegetation, and	
		undercut banks.	
Birds	•	•	•
American peregrine falcon	Federal: Delisted	Breeding habitat consists	Foraging only
(nesting)	State: Delisted, FP	of high cliffs, tall	
Falco peregrinus anatum		buildings, and bridges	
		along the coast and inland.	
		Foraging habitat primarily	
		includes open areas near	
		wetlands, marshes, and	
		adjacent urban landscapes.	
Bald eagle (nesting &	Federal: Delisted	Primarily in or near	Foraging only
wintering)	State: SE, FP	seacoasts, rivers, swamps,	
Haliaeetus leucocephalus		and large lakes. Perching	
		sites consist of large trees	
		or broken tens	
Burrowing owl (burrow	Federal: None	Shortgrass prairies	Present within project site
sites & some wintering	State: SSC	grasslands lowland scrub	Moderate potential to
sites)	State. SSC	agricultural lands	occur within the Off Site
Athene cunicularia		(particularly rangelands)	Storm Drain Improvement
		coastal dunes, desert	Area Adjacent to the
		floors, and some artificial.	Project Site and Borrow
		open areas as a year-long	Sites 1-5.
		resident. Occupies	
		abandoned ground squirrel	
		burrows as well as	
		artificial structures such as	
		culverts and underpasses.	
Species Name	Status	Habitat	Occurrence
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		Requirements	
California black rail Laterallus jamaicensis coturniculus	Federal: None State: ST, FP	Nests in high portions of salt marshes, shallow freshwater marshes, wet meadows, and flooded grassy vegetation.	Does not occur
Coastal cactus wren (San Diego & Orange County only) Campylorhynchus brunneicapillus sandiegensis	Federal: None State: SSC	Occurs almost exclusively in cactus (cholla and prickly pear) dominated coastal sage scrub.	Does not occur
Coastal California gnatcatcher Polioptila californica californica	Federal: FT State: SSC	Low elevation coastal sage scrub and coastal bluff scrub.	Does not occur
Golden eagle (nesting & wintering) Aquila chrysaetos	Federal: None State: FP	In southern California, occupies grasslands, brushlands, deserts, oak savannas, open coniferous forests, and montane valleys. Nests on rock outcrops and ledges.	Foraging only
Grasshopper sparrow (nesting) Ammodramus savannarum	Federal: None State: SSC	Open grassland and prairies with patches of bare ground.	Does not occur
Least Bell's vireo (nesting) Vireo bellii pusillus	Federal: FE State: SE	Dense riparian habitats with a stratified canopy, including southern willow scrub, mule fat scrub, and riparian forest.	Present within Borrow Site 1 and adjacent to Borrow Sites 2 and 5. No suitable habitat in Borrow Sites 3 or 4. Very low potential to occur in Project site and the Off Site Storm Drain Improvement Area Adjacent to the Project Site.
Long-eared owl (nesting) Asio otus	Federal: None State: SSC	Riparian habitats are required by the long-eared owl, but it also uses live- oak thickets and other dense stands of trees.	Does not occur
Southwestern willow flycatcher (nesting) Empidonax traillii extimus	Federal: FE State: SE	Riparian woodlands along streams and rivers with mature dense thickets of trees and shrubs.	Does not occur
Swainson's hawk (nesting) Buteo swainsoni	Federal: None State: ST	Summer in wide open spaces of the American West. Nest in grasslands, but can use sage flats and agricultural lands. Nests are placed in lone trees.	Foraging only
Tricolored blackbird (nesting colony) Agelaius tricolor	Federal: None State: SE	Breeding colonies require nearby water, a suitable nesting substrate, and	Present in foraging role within and adjacent Borrow Site 4. No

Species Name	Status	Habitat	Occurrence
•		Requirements	
		open-range foraging habitat of natural grassland, woodland, or agricultural cropland.	suitable foraging or breeding habitat present within Project site, the Off Site Storm Drain Improvement Area Adjacent to the Project Site, or Borrow Sites 1, 2, 3, and 5.
Western yellow-billed cuckoo (nesting) Coccyzus americanus occidentalis	Federal: FT State: SE	Dense, wide riparian woodlands with well- developed understories.	Does not occur
White-tailed kite (nesting) Elanus leucurus	Federal: None State: FP	Low elevation open grasslands, savannah-like habitats, agricultural areas, wetlands, and oak woodlands. Dense canopies used for nesting and cover.	Foraging only.
Yellow rail Coturnicops noveboracensis	Federal: None State: SSC	Shallow marshes, and wet meadows; in winter, drier freshwater and brackish marshes, as well as dense, deep grass, and rice fields.	Does not occur
Yellow warbler (nesting) Setophaga petechia	Federal: None State: SSC	Breed in lowland and foothill riparian woodlands dominated by cottonwoods, alders, or willows and other small trees and shrubs typical of low, open-canopy riparian woodland. During migration, forages in woodland, forest, and shrub habitats.	Moderate potential to occur in Borrow Site 1. No suitable habitat is present in Project site, the Off Site Storm Drain Improvement Area Adjacent to the Project Site, or Borrow Sites 2, 3, 4, or 5.
Yellow-breasted chat (nesting) <i>Icteria virens</i>	Federal: None State: SSC	Dense, relatively wide riparian woodlands and thickets of willows, vine tangles, and dense brush with well-developed understories.	Moderate potential to occur in Borrow Site 1. No suitable habitat present in Project site, the Off Site Storm Drain Improvement Area Adjacent to the Project Site, or Borrow Sites 2, 3, 4, or 5.
Mammals			• · · · ·
American badger <i>Taxidea taxus</i>	Federal: None State: SSC	Most abundant in drier open stages of most scrub, forest, and herbaceous habitats, with friable soils.	Absent
Big free-tailed bat Nyctinomops macrotis	Federal: None State: SSC WBWG: MH	Roost mainly in crevices and rocks in cliff situations; also utilize buildings, caves, and tree cavities.	Foraging only

Species Name	Status	Habitat	Occurrence
		Requirements	
Los Angeles pocket mouse Perognathus longimembris brevinasus	Federal: None State: SSC	Fine, sandy soils in coastal sage scrub and grasslands.	Does not occur
Mexican long-tongued bat Choeronycteris mexicana	Federal: None State: SSC WBWG: H	Variety of habitats ranging from desert, montane, riparian, to pinyon-juniper habitats. Found roosting in desert canyons, deep caves, mines, or rock crevices. Can use abandoned buildings.	Does not occur
Northwestern San Diego pocket mouse <i>Chaetodipus fallax fallax</i>	Federal: None State: SSC	Coastal sage scrub, sage scrub/grassland ecotones, and chaparral.	Does not occur
Pallid bat Antrozous pallidus	Federal: None State: SSC WBWG: H	Deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting.	Roosting: Low potential to occur within project site, the Off Site Storm Drain Improvement Area Adjacent to the Project Site and Borrow Site 5. No suitable habitat for roosting in Borrow Sites 1, 2, 3, or 4.
Pocketed free-tailed bat Nyctinomops femorosaccus	Federal: None State: SSC WBWG: M	Rocky areas with high cliffs in pine-juniper woodlands, desert scrub, palm oasis, desert wash, and desert riparian.	Does not occur
San Bernardino kangaroo rat Dipodomys merriami parvus	Federal: FE State: SSC	Typically found in Riversidean alluvial fan sage scrub and sandy loam soils, alluvial fans and floodplains, and along washes with nearby sage scrub.	Does not occur
San Diego desert woodrat Neotoma lepida intermedia	Federal: None State: SSC	Occurs in a variety of shrub and desert habitats, primarily associated with rock outcrops, boulders, cacti, or areas of dense undergrowth.	Absent
Stephens' kangaroo rat Dipodomys stephensi	Federal: FE State: ST	Open grasslands or sparse shrublands with less than 50% vegetation cover during the summer.	Does not occur
Western mastiff bat Eumops perotis californicus	Federal: None State: SSC WBWG: H	Occurs in many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, and chaparral. Roosts in crevices in cliff faces, high	Roosting: Low potential to occur within Project site, the Off Site Storm Drain Improvement Area Adjacent to the Project Site and Borrow Site 5. No suitable habitat for

Species Name	Status	Habitat	Occurrence
-		Requirements	
		buildings, trees, and	roosting in Borrow Sites 1,
		tunnels.	2, 3, or 4.
Western yellow bat	Federal: None	Found in valley foothill	Roosting: Low potential
Lasiurus xanthinus	State: SSC	riparian, desert riparian,	to occur within Project
	WBWG: H	desert wash, and palm	site, the Off Site Storm
		oasis habitats. Roosts in	Drain Improvement Area
		trees, particularly palms.	Adjacent to the Project
		Forages over water and	Site and Borrow Site 5.
		among trees.	No suitable habitat for
			roosting in Borrow Sites 1,
			2, 3, or 4.
Yuma myotis	Federal: None	Optimal habitats are open	Foraging only.
Myotis yumanensis	State: None	forests and woodlands	
	WBWG: LM	with sources of water over	
		which to feed. Distribution	
		is closely tied to bodies of	
		water. Maternity colonies	
		in caves, mines, buildings	
		or crevices.	

4.6.1 Special-Status Wildlife Species Observed within the Study Area

Three special-status wildlife species were detected within the Study Area. These species are the least Bell's vireo, burrowing owl, and tri-colored blackbird.

Burrowing Owl (Athene cunicularia)

Focused surveys for the burrowing owl were conducted for the Project site and the Off Site Storm Drain Improvement Area Adjacent to the Project Site on February 26, 2019, April 23, 2019, May 22, 2019, and July 2, 2019. Focused surveys were conducted for Borrow Sites 1 and 2 on February 26, 2019, April 16, 2019, May 21, 2019, and July 2, 2019. Focused surveys were conducted for Borrow Site 3 on February 28, 2019, April 16, 2019, May 22, 2019, and July 3, 2019. Focused surveys were conducted for Borrow Site 3 on February 28, 2019, April 16, 2019, May 22, 2019, and July 3, 2019. Focused surveys were conducted for Borrow Sites 4 and 5 on February 27, 2019, April 16, 2019, May 22, 2019, and July 3, 2019. No burrowing owls were detected within Borrow Sites 1 through 5, or the Off Site Storm Drain Improvement Area Adjacent to the Project Site. Two burrowing owls were detected within the Project Study Area within a remnant dairy portion of the Project Site (Exhibit 7 – Burrowing Owl Survey Area Map). These owls are assumed to be a breeding pair based upon their presence during the breeding season. These owls occur within the Project Study Area located outside of the RMP. There is potential for burrowing owls to occur within an approximate 300.54-acre portion of the Study Area.

Least Bell's Vireo (Vireo bellii pusillus)

Focused surveys for the least Bell's vireo were conducted on April 11, April 25, May 8, May 20, May 31, June 11, June 27, and July 8, 2019 per the protocol. The Least Bell's vireo has been detected within Borrow Site 1, and off site within the vicinity of Borrow Sites 2 and 5 but has not been detected within the remainder of the Study Area (Project site, Off Site Storm Drain

Improvement Area Adjacent to the Project Site, and Borrow Sites 3 and 4) as these other borrow sites do not support suitable habitat for this species. It is assumed that the vireo may be nesting within approximately 0.16 acre of riparian habitat and foraging within 4.46 acres of Borrow Site 1 (black willow thickets, tamarisk thickets, cattail marshes) in the Study Area. It is not expected that the vireo will be temporarily or permanently affected in Borrow Sites 2 or 5 as no foraging habitat for this species is present within either Borrow Site 2 or 5. No suitable habitat for this species is present within Borrow Sites 3 or 4. The Project Site and the Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the Project site or the Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the Project site or the Project Site, and superior habitat present within off site areas nearby the Project site, such as the Prado Basin.

Yellow Warbler (Setophaga petechia)

Focused surveys for the least Bell's vireo were conducted between mid-April and July 2019. The habitat requirements for the least Bell's vireo generally overlap with the habitat requirements for the yellow warbler. Suitable habitat for the yellow warbler is present within Borrow Site 1, and off site within the vicinity of Borrow Sites 2 and 5. The yellow warbler was not detected within Borrow Site 1, 2, or 5. The yellow warbler was also not detected within the remainder of the Study Area (Project site, the Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the Project Site, or Borrow Sites 3 and 4) as these areas do not support suitable habitat for this species. It is not expected that the yellow warbler will be temporarily or permanently affected in Borrow Sites 2 or 5 as they were not detected. No suitable nesting habitat for this species is present within Borrow Sites 3 or 4. The Project site and the Off Site Storm Drain Improvement Area/Off Site Storm Drain Improvement Area/Off Site Store Site have very low potential to support the warbler due to the lack of suitable nesting habitat present within either site, and superior nesting habitat present within off site areas nearby the Project site. In addition, compensatory mitigation proposed for the least Bell's vireo would also compensate for potential yellow warbler nesting habitat loss.

Yellow-Breasted Chat (Icteria virens)

Focused surveys for the least Bell's vireo were conducted between mid-April and July 2019. The habitat requirements for the least Bell's vireo generally overlap with the habitat requirements for the yellow-breasted chat. Suitable habitat for the yellow-breasted chat is present within Borrow Site 1, and off site within the vicinity of Borrow Sites 2 and 5. The yellow-breasted chat was not detected within Borrow Site 1, 2, or 5. The yellow-breasted chat was also not detected within the remainder of the Study Area (Project site, the Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the Project Site, or Borrow Sites 3 and 4) as these areas do not support suitable habitat for this species. It is not expected that the yellow warbler will be temporarily or permanently affected in Borrow Sites 2 or 5 as they were not detected. No suitable nesting habitat for this species is present within Borrow Sites 3 or 4. The Project site and the Off Site Storm Drain Improvement Area/Off Site and the Off Site Storm Drain Improvement Area/Off Site Storm View Sites 3 or 4. The Project site and the Off Site Storm Drain Improvement Area/Off Site Storm View Site Study Area Adjacent to the Project Site and the othe Project Site have very low potential to support the yellow-breasted chat due to the lack of suitable nesting habitat present within either site, and

superior nesting habitat present within off site areas nearby the Project site. In addition, compensatory mitigation proposed for the least Bell's vireo would also compensate for potential yellow-breasted chat nesting habitat loss.

Tri-Colored Blackbird (Agelaius tricolor)

The tricolored blackbird is listed as a Threatened species by the state. The tri-colored blackbird was observed foraging within and adjacent to Borrow Site 4 near a known population of blackbirds associated with the Mill Creek Wetlands. GLA biologists did not detect the tri-colored blackbird within the Project site, the Off Site Storm Drain Improvement Area Adjacent to the Project Site, or Borrow Sites 1, 2, 3, or 5.

4.6.2 Special-Status Wildlife Species Not Observed but with a Potential to Occur within the Study Area

There is moderate potential for the state Fully Protected white-tailed kite (*Elanus leucurus*) to nest within large ornamental trees and forage within the Project site but not within Borrow Sites 1-5.

The state listed as Endangered bald eagle (*Haliaeetus leucocephalus*) has the potential to forage within the Project Study Area; however, this species is not expected to nest within the Project Study Area, as it is located approximately one-half to one mile from the nearest large body of open water.

The state listed as Threatened Swainson's hawk (*Buteo swainsoni*) has the potential to forage within the Project Study Area; however, the Project Study Area is located outside of the nesting range for this species.

The state Fully Protected golden eagle (*Aquila chrysaetos*) has the potential to forage within the Project Study Area; however, the Project Study Area does not contain the high cliffs and rocky escarpments used for nesting by this species.

The state Fully Protected American peregrine falcon (*Falco peregrinus anatum*) has the potential to forage within the Project Study Area; however, the Project study area does not contain the high cliffs, tall buildings, and bridges used for nesting by this species.

Five special-status bats have potential to forage within the Project study area: big free-tailed bat (*Nyctinomops macrotis*), pallid bat (*Antrozous pallidus*), western mastiff bat (*Eumops perotis californicus*), western yellow bat (*Lasiurus xanthinus*), and Yuma myotis (*Myotis yumanensis*).

None of these species are state or federally listed but four of the five are state Species of Special Concern. Of these, the western yellow bat has the potential to roost within ornamental trees within the site and the two sycamore trees within Borrow Site 5. No suitable habitat is present within the remainder of the Study Area.

4.6.3 Critical Habitat

The Project site, as well as Borrow Sites 2 and 4, is not located within USFWS-designated critical habitat areas, but the Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the Project Site, Borrow Sites 1, 3, and 5 are within mapped designated Critical Habitat for the least Bell's vireo, a state and federal endangered songbird. Exhibit 9, Sheet 1 through 6 depict Critical Habitat within the Study Area.

4.7 Raptor Use

The Study Area has the potential to support raptor foraging habitat for several species and nesting habitat for burrowing owl. The four most regionally abundant raptor species, red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), Great Horned Owl (*Bubo virginianus*) and Barn Owl (*Tyto alba*), may forage on the site throughout the year. As indicated above in Section 4.6.2, the burrowing owl is present within the Project site and has the potential to be present in Borrow Sites 1-5, but surveys for the burrowing owl documented its absence is Borrow Sites 1-5.

There are approximately 300.54 acres of raptor foraging habitat within the Study Area.

4.8 Nesting Birds

The Study Area contains trees, shrubs, and ground cover that provide suitable habitat for nesting migratory birds. Impacts to nesting birds are prohibited under the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code.⁹

4.9 Wildlife Linkages/ Corridors and Nursery Sites

Habitat linkages are areas which provide a communication between two or more other habitat areas which are often larger or superior in quality to the linkage. Such linkage sites can be quite small or constricted, but may can be vital to the long-term health of connected habitats. Linkage values are often addressed in terms of "gene flow" between populations, with movement taking potentially many generations.

Corridors are similar to linkages but provide specific opportunities for individual animals to disperse or migrate between areas, generally extensive but otherwise partially or wholly separated regions. Adequate cover and tolerably low levels of disturbance are common requirements for corridors. Habitat in corridors may be quite different than that in the connected areas, but if used by the wildlife species of interest, the corridor will still function as desired.

The Study Area does not support any habitat linkage or wildlife corridor.

⁹ The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 C.F.R. Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 C.F.R.21). In addition, sections 3505, 3503.5, and 3800 of the California Department of Fish and Game Code prohibit the take, possession, or destruction of birds, their nests or eggs.

Wildlife nurseries are sites where wildlife concentrate for hatching and/or raising young, such as rookeries, spawning areas, and bat colonies. Nurseries can be important to both special-status species as well as commonly occurring species.

The Study Area does not support a wildlife nursery.

4.10 Jurisdictional Delineation

The Study Area contains one concrete flood control channel (Cypress Channel) adjacent to the Project site, one drainage, Drainage 1, within Borrow Site 1, and one artificially created roadside ditch, Ditch 1, within Borrow Site 2 [Exhibit 5A – Corps/Regional Board Jurisdictional Delineation Map and Exhibit 5B – CDFW Jurisdictional Delineation Map].

The Cypress Channel is a concrete-lined, concrete-bottomed flood control channel abutting a portion of the eastern boundary of the Project site. It enters the Study Area near the northeast corner of the site beneath Bickmore Avenue and flows for 2,527 linear feet before leaving the Study Area and entering the Prado Basin. Approximately 1.45 acres of Corps and Regional Board jurisdiction, and 2.32 acres of CDFW jurisdiction, are present within the Cypress Channel.¹⁰

Drainage 1 is an intermittent channel located in the central portion of Borrow 1. Drainage 1 enters Borrow 1 beneath Pine Avenue to the north and flows in a north to south direction for 1,645 feet before leaving Borrow Site 1 and entering the Prado Basin. Approximately 4.59 acres of Corps and Regional Board jurisdiction, and 4.81 acres of CDFW jurisdiction, are present within Drainage 1.

Ditch 1 is an artificially created roadside ditch located parallel to Johnson Avenue within Borrow Site 2. Ditch 1 enters the Study Area beneath Pine Avenue to the north and flows in a north to south direction for 2,366 feet before leaving Borrow Site 2 and entering the Prado Basin. Approximately 0.27 acre of Regional Board and CDFW jurisdiction is present within Ditch 1. There is no Corps jurisdiction within Ditch 1 as it would not be regulated under 33 CFR Section 328.3(b)(3)(i) of the Clean Water Rule.

Based on the current site plan, the Study Area will result in permanent impact to 0.07 acre of Corps jurisdictional waters, of which 0.06 acre consist of jurisdictional wetlands. A total of 190 feet of streambed will be disturbed.

Impacts to Corps jurisdictional waters are limited to Drainage 1 within Borrow Site 1 (0.06 acre and 169 linear feet of streambed) and the Cypress Channel within the Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the Project Site (0.01 acre and 21 linear feet of streambed). Impacts to Corps/Regional Board jurisdiction are depicted on Exhibit 10A.

¹⁰ Please note that the Cypress Channel, an off site concreate flood control channel, was studied and analyzed as part of the Project; however, only 0.01 acre and 21 linear feet of channel will be affected by the Project. The remainder of the Cypress Channel is not a part of the Project, nor will it be affected by the Project.

Based on the current site plan, the Study Area will result in permanent impact to 0.07 acre of Regional Board jurisdictional waters, of which 0.06 acre consist of jurisdictional wetlands. A total of 190 feet of streambed will be disturbed.

Impacts to Regional Board jurisdictional waters are limited to Drainage 1 within Borrow Site 1 (0.06 acre and 169 linear feet of streambed) and the Cypress Channel within the Off Site Storm Drain Improvement Area Adjacent to the Project Site site (0.01 acre and 21 feet of streambed). Impacts to Corps/Regional Board jurisdiction are depicted on Exhibit 10A.

Based on the current site plan, the Study Area will result in permanent impact to 0.07 acre of CDFW jurisdiction, of which 0.06 acre consists of riparian habitat and 0.01 acre consists of non-riparian streambed. A total of 190 feet of streambed will be disturbed.

Impacts to CDFW jurisdiction are limited to Drainage 1 within Borrow Site 1 (0.06 acre and 169 linear feet of streambed) and the Cypress Channel within the Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the Project Site (0.01 acre and 21 linear feet of streambed). Impacts to CDFW jurisdiction are depicted on Exhibit 10B.

The Study Area jurisdictional delineation report is attached as Appendix C and a copy of the delineation impact memorandum is attached as Appendix D.

5.0 IMPACT ANALYSIS

The following discussion examines the potential impacts to plant and wildlife resources that would occur as a result of the proposed project. Impacts (or effects) can occur in two forms, direct and indirect. Direct impacts are considered to be those that involve the loss, modification or disturbance of plant communities, which in turn, directly affect the flora and fauna of those habitats. Direct impacts also include the destruction of individual plants or animals, which may also directly affect regional population numbers of a species or result in the physical isolation of populations thereby reducing genetic diversity and population stability.

Indirect impacts pertain to those impacts that result in a change to the physical environment, but which is not immediately related to a project. Indirect (or secondary) impacts are those that are reasonably foreseeable and caused by a project, but occur at a different time or place. Indirect impacts can occur at the urban/wildland interface of projects, to biological resources located downstream from projects, and other off site areas where the effects of the project may be experienced by plants and wildlife. Examples of indirect impacts include the effects of increases in ambient levels of noise or light; predation by domestic pets; competition with exotic plants and animals; introduction of toxics, including pesticides; and other human disturbances such as hiking, off-road vehicle use, unauthorized dumping, etc. Indirect impacts are often attributed to the subsequent day-to-day activities associated with project build-out, such as increased noise, the use of artificial light sources, and invasive ornamental plantings that may encroach into native areas. Indirect effects may be both short-term and long-term in their duration. These impacts are commonly referred to as "edge effects" and may result in a slow replacement of

native plants by non-native invasives, as well as changes in the behavioral patterns of wildlife and reduced wildlife diversity and abundance in habitats adjacent to project sites.

Cumulative impacts refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. A cumulative impact can occur from multiple individual effects from the same project, or from several projects. The cumulative impact from several projects is the change in the environment resulting from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

5.1 California Environmental Quality Act (CEQA)

5.1.1 Thresholds of Significance

Environmental impacts to biological resources are assessed using impact significance threshold criteria, which reflect the policy statement contained in CEQA, Section 21001(c) of the California Public Resources Code. Accordingly, the State Legislature has established it to be the policy of the State of California:

"Prevent the elimination of fish or wildlife species due to man's activities, ensure that fish and wildlife populations do not drop below self-perpetuating levels, and preserve for future generations representations of all plant and animal communities..."

Determining whether a project may have a significant effect, or impact, plays a critical role in the CEQA process. According to CEQA, Section 15064.7 (Thresholds of Significance), each public agency is encouraged to develop and adopt (by ordinance, resolution, rule, or regulation) thresholds of significance that the agency uses in the determination of the significance of environmental effects. A threshold of significance is an identifiable quantitative, qualitative or performance level of a particular environmental effect, non-compliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant. In the development of thresholds of significance for impacts to biological resources CEQA provides guidance primarily in Section 15065, Mandatory Findings of Significance, and the CEQA Guidelines, Appendix G, Environmental Checklist Form. Section 15065(a) states that a project may have a significant effect where:

"The project has the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or wildlife community, reduce the number or restrict the range of an endangered, rare, or threatened species, ..."

Therefore, for the purpose of this analysis, impacts to biological resources are considered potentially significant (before considering offsetting mitigation measures) if one or more of the following criteria discussed below would result from implementation of the proposed project.

5.1.2 Criteria for Determining Significance Pursuant to CEQA

Appendix G of the 2019 State CEQA guidelines indicate that a project may be deemed to have a significant effect on the environment if the project is likely to:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.

c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

5.2 Impacts to Native Vegetation

Tables 5-1 through 5-7 provide a summary of vegetation community impacts. There are two native vegetation communities present within the Study Area, Freshwater Marsh/Disturbed Freshwater Marsh and Southern Willow Scrub habitat. The Project proposed for the Study Area will result in permanent impacts of up to 0.06 acre of disturbance to Disturbed Freshwater Marsh habitat within Borrow Site 1. No other impact to native habitat communities will occur in the Project Site, the Off Site Storm Drain Improvement Area Adjacent to the Project Site or Borrow Sites 2 through 5. No impact to Southern Willow Scrub habitat is proposed.

The removal of up to 0.06 acre of Disturbed Freshwater Marsh habitat within Borrow Site 1 would be considered significant pursuant to CEQA; however, with the incorporation of compensatory mitigation for this habitat impact at a minimum 1:1 mitigation-to-impact ratio, the impact would be reduced to a less than significant level.

The proposed Project Study Area will permanently impact up to 210.06 acres of non-native vegetation/ornamental vegetation in the form of ruderal/disturbed habitat and ornamental habitat, and 0.01 acre of developed area for a total permanent impact of up to 210.07 acres of disturbed lands. As discussed in Section 4.2, the ruderal/disturbed habitat is not a natural vegetation community but rather are lands dominated by several non-native grass and forb species. The Study Area has been in agriculture and ranching (dairy) for decades.

Once borrow activities have been completed within Borrow Sites 1 through 5, the Project will apply a native hydroseed mix to each borrow site to avoid infestation or the spread of invasive species.

The removal of up to 209.75 acres of ruderal/disturbed lands, up to 0.31 acre of ornamental vegetation, and 0.01 acre of developed area would not be a significant impact under CEQA. These lands are not expected to support quality habitat for plants and animals due to the decades of disking and pasture use by dairy cattle.

Vegetation impact maps are attached as Exhibit 11, Sheet 1 through 6.

Table 5-1. Summary of Vegetation/Land Use Impacts, Project Site

VEGETATION TYPE/ LAND USE TYPE	ACREAGE
Ruderal/Disturbed	96.91
TOTAL	96.91

Table 5-2. Summary of Vegetation/Land Use Impacts,Off Site Storm Drain Improvement Area/Off Site Streambed Study AreaAdjacent to the Project Site

VEGETATION TYPE/ LAND USE TYPE	ACREAGE
Ornamental	0.31
Developed	0.01
TOTAL	0.32

Table 5-3. Summary of Vegetation/Land Use Impacts, Borrow Site 1

VEGETATION TYPE/ LAND USE TYPE	ACREAGE
Ruderal/Disturbed	28.53
Freshwater Marsh/Disturbed Freshwater Marsh	0.06
TOTAL	28.59

Table 5-4. Summary of Vegetation/Land Use Impacts, Borrow Site 2

VEGETATION TYPE/ LAND USE TYPE	ACREAGE
Ruderal/Disturbed	20.79
TOTAL	20.79

Table 5-5. Summary of Vegetation/Land Use Impacts, Borrow Site 3

VEGETATION TYPE/ LAND USE TYPE	ACREAGE
Ruderal/Disturbed	32.00
TOTAL	32.00

Table 5-6. Summary of Vegetation/Land Use Impacts, Borrow Site 4

VEGETATION TYPE/ LAND USE TYPE	ACREAGE
Ruderal/Disturbed	12.94
TOTAL	12.94

Table 5-7. Summary of Vegetation/Land Use Impacts, Borrow Site 5

VEGETATION TYPE/ LAND USE TYPE	ACREAGE
Ruderal/Disturbed	18.58
TOTAL	18.58

5.3 Impacts to Special-Status Plants

The proposed Project in the Study Area will not impact special-status plants as there is no potential for any to occur.

5.4 Impacts to Special-Status Animals

The proposed Project in the Study Area has the potential to impact burrowing owl, least Bell's vireo, tri-colored blackbird, as well as raptors such as the white-tailed kite, bald eagle, golden eagle, peregrine falcon, and Swainson's hawk, if any of these species is present during construction. The Project may also potentially affect the big free-tailed bat, pallid bat, western mastiff bat, western yellow bat, and Yuma myotis.

Focused surveys for the burrowing owl were conducted for the Project site and the Off Site Storm Drain Improvement Area Adjacent to the Project Site on February 26, 2019, April 23,

2019, May 22, 2019, and July 2, 2019. Focused surveys were conducted for Borrow Sites 1 and 2 on February 26, 2019, April 16, 2019, May 21, 2019, and July 2, 2019. Focused surveys were conducted for Borrow Site 3 on February 28, 2019, April 16, 2019, May 22, 2019, and July 3, 2019. Focused surveys were conducted for Borrow Sites 4 and 5 on February 27, 2019, April 16, 2019, May 22, 2019, and July 3, 2019. As discussed in Section 4.6.1, there are burrows on the Project Site that are potentially suitable for burrowing owl and a pair of burrowing owls have been observed within the Project Site. There were also potentially suitable burrows for the burrowing owl on Borrow Sites 1 through 5, but no owls were detected within Borrow Sites 1 through 5. No suitable burrows were observed within the Off Site Storm Drain Improvement Area Adjacent to the Project Site. The potential presence of burrowing owls within the Project site is a potentially significant impact under CEQA. Refer to Section 6 to address this potential impact.

Focused surveys for the least Bell's vireo were conducted on April 11, April 25, May 8, May 20, May 31, June 11, June 27, and July 8, 2019 per the protocol. A total of 0.38 acre of lands designated as critical habitat for the vireo are being impacted; however, 0.15 acre of these lands within the Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the Project site have been disturbed and are dominated by ornamental vegetation consisting of planted coyote brush, with a few planted ornamental pines and oaks. This ornamental habitat area does not contain the primary constituent elements or physical/biological attributes [riparian woodland habitat that generally contains both canopy and shrub layers] which could be utilized by the vireo for foraging or nesting.

As a result, impact to this area would be considered less than significant pursuant to CEQA and would not be subject to compensatory mitigation. A total of 0.23 acre of permanent impact to areas supporting primary constituent elements for least Bell's vireo critical habitat will occur. A total of 0.23 acre of this critical habitat is within Borrow Site 1. No critical habitat impacts will occur to Borrow Sites 2, 3, 4, or 5. Borrow Sites 2 and 4 are not within critical habitat, nor is the Project Site. Impacts to least Bell's vireo will require a minimum 1:1 mitigation-to-impact ratio for habitat to reduce impacts to a less than significant level. Compensatory mitigation is expected to occur at a local mitigation bank or in-lieu fee program within the Santa Ana River (or adjacent) watershed. Refer to Section 6 to address this resource.

Focused surveys for the least Bell's vireo were conducted between mid-April and July 2019. The habitat requirements for the least Bell's vireo generally overlap with the habitat requirements for the yellow warbler. Suitable habitat for the yellow warbler is present within Borrow Site 1, and off site within the vicinity of Borrow Sites 2 and 5. The yellow warbler was not detected within Borrow Site 1, 2, or 5. The yellow warbler was also not detected within the remainder of the Study Area (Project site, the Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the Project Site, or Borrow Sites 3 and 4) as these areas do not support suitable habitat for this species. It is not expected that the yellow warbler will be temporarily or permanently affected in Borrow Sites 2 or 5 as they were not detected. No suitable nesting habitat for this species is present within Borrow Sites 3 or 4. The Project site and the Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the Project Site Streambed Study Area Adjacent to the Project Site Streambed Study Area Adjacent to the Project Site 2 or 5 as they were not detected. No suitable nesting habitat for this species is present within Borrow Sites 3 or 4. The Project site and the Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the Project Site have very low potential to support the warbler due to the lack of suitable nesting habitat present within either site, and superior nesting habitat present within off site areas nearby

the Project site, such as the Prado Basin. In addition, compensatory mitigation proposed for the least Bell's vireo (see Section 6.5) would also compensate for potential yellow warbler nesting habitat loss.

Focused surveys for the least Bell's vireo were conducted between mid-April and July 2019. The habitat requirements for the least Bell's vireo generally overlap with the habitat requirements for the yellow-breasted chat. Suitable habitat for the yellow-breasted chat is present within Borrow Site 1, and off site within the vicinity of Borrow Sites 2 and 5. The yellow-breasted chat was not detected within Borrow Site 1, 2, or 5. The yellow-breasted chat was also not detected within the remainder of the Study Area (Project site, the Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the Project Site, or Borrow Sites 3 and 4) as these areas do not support suitable habitat for this species. It is not expected that the yellow warbler will be temporarily or permanently affected in Borrow Sites 2 or 5 as they were not detected. No suitable nesting habitat for this species is present within Borrow Sites 3 or 4. The Project site and the Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the Project Site have very low potential to support the yellow-breasted chat due to the lack of suitable nesting habitat present within either site, and superior nesting habitat present within off site areas nearby the Project site, such as the Prado Basin. In addition, compensatory mitigation proposed for the least Bell's vireo (see Section 6.5) would also compensate for potential yellow-breasted chat nesting habitat loss.

Surveys for the tri-colored blackbird were conducted in March 2019. A total of 12.94 acres of foraging habitat for the blackbird are being impacted, all of which are in Borrow Site 4. The Project site, the Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the Project Site, and Borrow Sites 1, 2, 3, and 5 do not support suitable foraging or nesting habitat for the blackbird. The blackbirds located on site were foraging only and not nesting; therefore, the potential to incidentally take this species very low given the more suitable nesting habitat within the Mill Creek Wetlands adjacent to the site. The applicant will conduct borrow activities within Borrow Site 4 outside of the nesting season for the blackbird (March 15th to September 15th) to the greatest extent feasible. If this is not possible, sound walls will be erected to ensure that the blackbird is not affected by borrow activities.

The Study Area impact boundary provides 210.13 acres of potential foraging habitat for whitetailed kite, bald eagle, golden eagle, peregrine falcon, and Swainson's hawk. The lands are not good quality given the amount of disturbance over the years and this species remains common in the region. The removal of up to 210.13 acres of potential foraging habitat for these species would be less than significant under CEQA, especially given the higher quality habitat surrounding the Study Area in Prado Basin, Prado Regional Park, Chino Hills State Park, and the Santa Ana Mountains.

The Study Area impact boundary provides 210.13 acres of potential foraging habitat for the big free-tailed bat (*Nyctinomops macrotis*), pallid bat (*Antrozous pallidus*), western mastiff bat (*Eumops perotis californicus*), western yellow bat (*Lasiurus xanthinus*), and Yuma myotis (*Myotis yumanensis*).

However, based on the level of ongoing human disturbance within the Project study area, and the regional availability of foraging habitat in the vicinity of the Project site, such as the Prado Basin, Chino Hills State Park, and the Santa Ana Mountains, the loss of up to 212.01 acres of low-quality potential bat foraging habitat is not judged to be significant under CEQA.

5.5 Impacts to Critical Habitat

The proposed Project in the Study Area will result in permanent impact to 0.23 acre of areas supporting primary constituent elements for least Bell's vireo. The Project will also result in permanent impact to 0.15 acre of lands within the Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the Project site which do not contain the primary constituent elements or physical/biological attributes [riparian woodland habitat that generally contains both canopy and shrub layers] which could be utilized by the vireo for foraging or nesting. A total of 0.23 acre of this critical habitat is within Borrow Site 1. No critical habitat impacts will occur to Borrow Sites 2, 3, 4, or 5. Borrow Sites 2 and 4 are not within critical habitat, nor is the Project Site. Critical Habitat impact maps are attached as Exhibit 12, Sheet 1 through 6.

Impacts to least Bell's vireo will require a minimum 1:1 mitigation-to-impact ratio for habitat containing primary constituent elements to reduce impacts to a less than significant level. Compensatory mitigation is expected to occur at a local mitigation bank or in-lieu fee program within the Santa Ana River (or adjacent) watershed. Refer to Section 6 to address this resource.

5.6 Raptor Use

The proposed Project would remove up to 210.13 acres of potential foraging habitat (disturbed non-native grassland, non-native ruderal) for species common to the region. This would consist of the loss of up to 96.91 acres of raptor foraging habitat within the Project site, up to 0.32 acre of raptor foraging habitat within the Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the Project Site, up to 28.53 acres of raptor foraging habitat in Borrow Site 1, up to 20.79 of raptor foraging habitat in Borrow Site 2, up to 32.00 acres of raptor foraging habitat in Borrow Site 3, up to 12.94 acres of raptor foraging habitat in Borrow Site 4, and up to 18.58 acres of raptor foraging habitat in Borrow Site 5.

However, based on the level of ongoing human disturbance within the Project Study Area, and due to the regional availability of foraging habitat in the vicinity of the Project site, such as the Prado Basin, Prado Regional Park, Chino Hills State Park, and the Santa Ana Mountains, the loss of 210.13 acres of low-quality potential raptor foraging habitat is not judged to be significant under CEQA

5.7 Impacts to Nesting Birds

The Project in the Study Area has the potential to impact active bird nests if vegetation is removed during the nesting season (February 1 to August 31). Impacts to nesting native birds are prohibited by the MBTA and California Fish and Game Code. A Project-specific mitigation measure is identified in Section 6.2 of this report to avoid impacts to native nesting birds.

Although impacts to native birds are prohibited by MBTA and similar provisions of California Fish and Game Code, impacts to native birds by the proposed Project would not be a significant impact under CEQA. The native birds with potential to nest on the Project site would be those that are extremely common to the region and highly adapted to human landscapes (Anna's Hummingbird, House Finch). The number of individuals potentially affected by the Project would not significantly affect regional, let alone local, populations of such species. Thus, the impacts to nesting birds is not judged to be significant under CEQA.

5.8 Wildlife Migration/Nurseries

The proposed Project in the Study Area would not interfere or impact the movement of native resident or migratory fish or wildlife species or established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites. The Study Area lacks migratory wildlife corridors and wildlife nursery sites, although they are nearby. The impacts on the movement of native resident or migratory wildlife species, or native resident or wildlife corridors or nursery sites is not judged to be significant under CEQA.

5.9 Impacts to Jurisdictional Waters

Based on the current site plan, impacts within the Study Area will result in permanent impact to 0.07 acre of Corps jurisdictional waters, of which 0.06 acre consist of jurisdictional wetlands. A total of 190 feet of streambed will be disturbed.

Impacts to Corps jurisdictional waters are limited to Drainage 1 within Borrow Site 1 (0.06 acre and 169 linear feet of streambed) and the Cypress Channel within the Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the Project site (0.01 acre and 21 linear feet of streambed). Impacts to Corps/Regional Board jurisdiction are depicted on Exhibit 10A.

Based on the current site plan, impacts within the Study Area will result in permanent impact to 0.07 acre of Regional Board jurisdictional waters, of which 0.06 acre consist of jurisdictional wetlands. A total of 190 feet of streambed will be disturbed.

Impacts to Regional Board jurisdictional waters are limited to Drainage 1 within Borrow Site 1 (0.06 acre and 169 linear feet of streambed) and the Cypress Channel within the Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the Project site (0.01 acre and 21 feet of streambed). Impacts to Corps/Regional Board jurisdiction are depicted on Exhibit 10A.

Based on the current site plan, impacts within the Study Area will result in permanent impact to 0.07 acre of CDFW jurisdiction, of which 0.06 acre consists of riparian habitat and 0.01 acre consist of non-riparian streambed. A total of 190 feet of streambed will be disturbed.

Impacts to CDFW jurisdiction are limited to Drainage 1 within Borrow Site 1 (0.06 acre and 169 linear feet of streambed) and the Cypress Channel within the Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the Project site (0.01 acre and 21 linear feet of streambed). Impacts to CDFW jurisdiction are depicted on Exhibit 10B.

Impacts to Corps, CDFW, and Regional Board jurisdiction will require a minimum 1:1 mitigation-to-impact ratio to reduce impacts to a less than significant level. Compensatory mitigation is expected to occur at a local mitigation bank or in-lieu fee program within the Santa Ana River (or adjacent) watershed. Refer to Section 6 to address this resource.

5.10 Indirect Impacts to Biological Resources

In the context of biological resources, indirect effects are those effects associated with developing areas adjacent to native open space. Potential indirect effects associated with development include water quality impacts associated with drainage into adjacent open space/downstream aquatic resources; dust effects; lighting effects; noise effects; invasive plant species from landscaping; and effects from human entry into adjacent open space, such as recreational activities (including hiking), pets, dumping, etc. Temporary, indirect effects may also occur as a result of construction-related activities.

There would be potential for these indirect effects to occur temporarily during construction and also in the long-term by the proposed development. These potential indirect effects can degrade the existing functions and values of creek and habitat areas and include introduction of non-native invasive plants that outcompete native riparian plant species and thus cause reduced value to native plants and wildlife; a temporary reduction of insect production (which may reduce available food sources for bats), and increased mortality to native wildlife from dogs and cats. These impacts can occur to non-special status as well as special-status species (e.g. western Mastiff bat, nesting hawks).

There would be potential for indirect effects to occur temporarily during construction and also in the long-term by the proposed development. These potential indirect effects can degrade the existing functions and values of creek and habitat areas and include increased depredation of wildlife from noise and lighting, and dissuaded use of creeks or natural areas by wildlife from noise and lighting.

However, based on the level of ongoing human disturbance within the Project Study Area, and the regional availability of habitat and foraging resources available to these species in the vicinity of the Project site, such as the Prado Regional Park, Prado Basin, Chino Hills State Park, and the Santa Ana Mountains, these temporary impacts described above are not judged to be significant under CEQA.

Noise

The Project Noise Study notes that the Equivalent Continuous [Average] Sound Level (Leq) during construction activity ranges from 28.9 to 67.5 dBA Leq at noise-sensitive receiver locations. It also ranges from 34.2 to 83.2 dBA Leq in open space receiver locations.

The threshold for special-status wildlife species (i.e., least Bell's vireo and tricolored blackbird) is 65 dBA Leq, which would be exceeded during construction soil import/export operations at Borrow Sites 1, 3, and 4. This noise impact to special-status species is potentially significant under CEQA prior to mitigation; however, a Project specific measure is included in Section 6.7 to reduce this impact to a level of less than significant.

Construction noise levels are below the 65 dBA Leq level at the Project Site, the Off Site Storm Drain Improvement Area Adjacent to the Project Site, and Borrow Sites 2 and 5; therefore, the noise levels at these locations are considered less than significant under CEQA.

Operational noise levels are all below the 65 dBA Leq level for areas that may support sensitive wildlife within the Study Area; therefore, these noise levels are considered less than significant under CEQA.

Lighting

Activities may include working at night within portions of the Project Site, the Off Site Storm Drain Improvement Area Adjacent to the Project Site or Borrow Sites 1 through 5. Night working activities would include erecting and installing lighting, and the use of heavy equipment. The same noise measures noted above would be followed as project design features at night to minimize the potential effect of lighting on sensitive wildlife species. Night lighting would be shielded and directed away from known sensitive habitat areas within the Study Area. Night work and lighting would also be limited around areas supporting, or with the potential to support, sensitive wildlife species.

Based on the presence of the least Bell's vireo in Borrow Site 1 and its presence within the vicinity of Borrow Sites 2 and 5, and the presence of the tri-colored blackbird (in a foraging role) in Borrow Site 4, night lighting would be shielded and directed away from foraging or nesting habitat areas for these species, and would not affect sensitive wildlife species more than 500 feet from known vireo territories in Borrow Site 1 and in the vicinity of Borrow Sites 2 and 5, and known nesting locations of the tri-colored blackbird in Borrow Site 4. With the mitigation measures noted above, lighting effects on the Study Area within Borrow Sites 1, 2, 4, and 5 would be reduced to a less than significant level.

Night work and lighting would not be considered significant under CEQA at the Project Site, the Off Site Storm Drain Improvement Area Adjacent to the Project Site or Borrow Site 3 with the incorporation of the Project design features noted above (shielded and directional lighting).

Streambed Habitat

Although the portion of the streambeds and natural habitat areas adjacent to the Study Area already demonstrate many of these indirect impacts caused from past development, the proposed project would increase the severity of such impacts. The potential indirect impacts that the project in the Study Area could cause to the Disturbed Freshwater Marsh; and the existing wildlife, would be a potentially significant impact under CEQA.

Bats

As it relates to bats, based on the level of ongoing human disturbance within the Project Study Area, and the regional availability of foraging habitat in the vicinity of the Project site, such as the Prado Basin, Prado Regional Park, Chino Hills State Park, and the Santa Ana Mountains, the potential indirect effect to bat foraging habitat is not judged to be significant under CEQA

Sensitive Bird Species

Potential indirect impacts to yellow warbler, yellow breasted chat, least Bell's vireo, and tricolored blackbird would be adverse but not significant. These species have remained common to many riparian habitats and only a small number of individuals would be expected to be potentially affected by the proposed project (two to three pairs or less). The yellow warbler and yellow-breasted chat were not detected during surveys conducted for the least Bell's vireo, which is found in habitat areas overlapping those of the warbler and chat. Additionally, with the regional availability of foraging and nesting habitat in the vicinity of the Project Study Area, such as the Prado Basin, Prado Regional Park, Chino Hills State Park, and the Santa Ana Mountains, the potential indirect effect to these species would not be judged to be significant under CEQA.

The biological resources within the Study Area are degraded and heavily dominated by nonnative species, as are the biological resources adjacent to the site. The potential for the Study Area to indirectly impact biological resources to a significant degree is less than reasonable. The Study Area lacks significant natural lands, other than the 4.46-acre Freshwater Marsh/Disturbed Freshwater Marsh and 0.16-acre Southern Willow Scrub habitats within Borrow Site 1, and portions of the Study Area are adjacent to active agriculture and ranching (dairy). Potential indirect impacts would be mitigated to less than significant levels with potential mitigation documented in Section 6 below.

5.11 Cumulative Impacts to Biological Resources

Cumulative impacts are defined as the direct and indirect effects of a proposed project which, when considered alone, would not be deemed a substantial impact, but when considered in addition to the impacts of related projects in the area, would be considered potentially significant. "Related projects" refers to past, present, and reasonably foreseeable probable future projects, which would have similar impacts to the proposed project.

There is potential for burrowing owl, least Bell's vireo, and tri-colored blackbird to be present. As such, the Project in the Study Area could make a cumulatively considerable contribution to regional impacts to these species (if present). Refer to Section 6 to address this potential impact and its reduction to a less than significant level.

For other biological resources potentially present and impacted by the Project Study Area (such as such as the yellow bat), the degree of contribution to the regional decline of these resources is judged to not be considerable at the project and regional levels.

However, based on the level of ongoing human disturbance within the Project Study Area, and the regional availability of foraging habitat in the vicinity of the Study Area, such as the Prado Regional Park, Prado Basin, Chino Hills State Park, and the Santa Ana Mountains, the loss of 210.13 acres of low-quality potential raptor and/or bat foraging habitat is not judged to be significant under CEQA

6.0 MITIGATION/AVOIDANCE MEASURES

The following discussion provides project-specific mitigation/avoidance measures for actual or potential impacts to special-status resources.

6.1 Burrowing Owl

A qualified biologist will conduct a pre-construction presence/absence survey for burrowing owls within 14 days prior to site disturbance.

If the species is absent, no additional mitigation will be required. If burrowing owl(s) is(are) detected within the Study Area's disturbance footprint in the City of Chino RMP boundary, the owl(s) are required to be handled as indicated by the RMP:

The RMP addresses mitigation requirements for impacts to burrowing owls. The RMP states that the 1995 CDFG Staff Report on Burrowing Owl Mitigation (as supplemented by the RMP) shall be followed when burrowing owls are detected on properties. If avoidance of occupied habitat is infeasible, provisions shall be made to passively relocate owls from sites in accordance with the current 2012 CDFG Staff Report (supersedes 1995 CDFG Staff Report).

According to the Preserve EIR and RMP, Burrowing Owls to be relocated from properties within the City's Subarea 2 are intended to be accommodated within a "300-acre conservation area" and/or additional Candidate Relocation Areas as described on Page 4-16 and 4-21 of the RMP. One such contingency conservation area is identified in the RMP as "Drainage Area B".

Drainage Area B consists of a series of Natural Treatment System (NTS) facilities that were constructed south of Kimball Avenue and west of Mill Creek Road. When the NTS facilities were constructed, approximately 50 artificial owl burrows were installed within the basins to accommodate relocated owls and additional owls dispersing to the site. This location was given top priority as an owl relocation site by the RMP due to its proximity to areas that have been and will be converted to urban development. If Burrowing Owls are present at the Project site at time of site disturbance, the Burrowing Owls would be more likely to initially relocate to the immediately surrounding properties, including additional locations within the Chino Airport. However, the NTS basins represent the nearest conservation area providing regional mitigation for the loss of burrowing owl habitat.

Consistent with the RMP, the following measures shall apply to the portion of the Project site within the RMP boundary regarding burrowing owl mitigation:

- Prior to disturbance of the occupied burrows, suitable and unoccupied replacement burrows shall be provided at a ratio of 2:1 within the City of Chino designated relocation area (e.g. the NTS basins). A qualified biologist through coordination with the City shall confirm that the artificial burrows are currently unoccupied and suitable for use by owls.
- Until suitable replacement burrows have been provided/confirmed within the designated relocation area (e.g. the NTS basins), no disturbance shall occur within 50 meters (approximately 160 feet) of occupied burrows during the nonbreeding season (September 1 through January 31) or within 75 meters (approximately 250 feet) during the breeding season (February 1 through August 31).
- Occupied burrows should not be disturbed during the nesting season (February 1 through August 31) unless a qualified biologist approved by CDFW verifies through non-invasive methods that either: 1) the birds have not begun egg-laying and incubation; or 2) that juveniles from the occupied burrows are foraging independently and are capable of independent survival.
- If Burrowing Owls are present at the time that the occupied burrows are to be disturbed, then the owls shall be excluded from the site following the 2012 CDFG Staff Report and Table 4-6 of the RMP.
- Pursuant to mitigation measure B-3(8) of The Preserve EIR, and as noted on Page 4-39 of the RMP, the Project applicant shall pay the required mitigation fee prior to initiation of ground disturbing activities. One priority for funding supported by the mitigation fees is the establishment and long-term management of burrowing owl habitat within the Drainage Area B conservation area.

If burrowing owl(s) is(are) detected within the Study Area's proposed disturbance footprint outside of the RMP boundary:

- Prior to disturbance of the occupied burrows, suitable and unoccupied replacement burrows shall be provided at a ratio of 2:1 within designated off-site conserved lands to be identified through coordination with the City in which the burrowing owl(s) is(are) detected (City of Chino). A qualified biologist shall confirm that the artificial burrows are currently unoccupied and suitable for use by owls.
- Until suitable replacement burrows have been provided/confirmed within the off-site conserved lands to be identified through coordination with the City of Chino, no disturbance shall occur within 50 meters (approximately 160 feet) of occupied burrows during the nonbreeding season (September 1 through January 31) or within 75 meters (approximately 250 feet) during the breeding season (February 1 through August 31).
- Occupied burrows should not be disturbed during the nesting season (February 1 through August 31) unless a qualified biologist approved by CDFW verifies through non-invasive methods that either: 1) the birds have not begun egg-laying and incubation; or 2) that

juveniles from the occupied burrows are foraging independently and are capable of independent survival.

• If burrowing owls are present at the time that the occupied burrows are to be disturbed, then the owls shall be excluded from the site following the 2012 CDFG Staff Report.

With the implementation of these mitigation measures, impacts to burrowing owls will be reduced to below a level of significance.

6.2 Nesting Birds

Vegetation clearing should be conducted outside of the nesting season (February 1 through August 31). If avoidance of the nesting season is not feasible, then a qualified biologist shall conduct a nesting bird survey within three days prior any disturbance of the site, including disking, demolition activities, and grading. If active nests are identified, the biologist shall establish suitable buffers around the nests, and the buffer areas shall be avoided until the nests are no longer occupied and the juvenile birds can survive independently from the nests.

6.3 Jurisdictional Waters

Impacts to Corps, Regional Board, and CDFW jurisdiction will be mitigated at a minimum 1:1 ratio through off site mitigation, targeting in-lieu fee mitigation with a local Resource Conservation District (RCD), or other approved mitigation bank within the Santa Ana River watershed and/or an adjacent watershed. The Project applicant will obtain the necessary permits from the Corps, CDFW, and/or Regional Board prior to any impacts within jurisdictional areas. With mitigation, impacts to state waters will be less than significant.

6.4 Least Bell's Vireo Critical Habitat

Impacts to up to 0.23 acre of designated critical habitat for the least Bell's vireo will be mitigated at a minimum 1:1 ratio through off site mitigation, targeting in-lieu fee mitigation with a local Resource Conservation District (RCD), or other approved mitigation bank within the Santa Ana River watershed and/or an adjacent watershed. The Project applicant will obtain this compensatory mitigation prior to any impacts to critical habitat areas. With mitigation, impacts to critical habitat will be less than significant.

6.5 Least Bell's Vireo

Impacts to up to 0.23 acre of potential habitat for the least Bell's vireo is identical to the impact for least Bell's vireo critical habitat, which will be mitigated at a minimum 1:1 ratio through off site mitigation, targeting in-lieu fee mitigation with a local Resource Conservation District (RCD), or other approved mitigation bank within the Santa Ana River watershed and/or an adjacent watershed. The Project applicant will obtain this compensatory mitigation prior to any impacts to critical habitat areas. With mitigation, impacts to critical habitat and the least Bell's vireo will be less than significant. Please note that the compensatory mitigation described in Section 6.5 is the same as described in Section 6.4. It is not additive.

Impacts to up to 0.23 acre of vireo habitat will be limited to Borrow Site 1. Borrow activities will occur outside of the nesting season for the vireo (February 1st to August 31st) to the greatest extent feasible. If this is not possible, the Project applicant will erect sound wall(s), hay bales, or other measures outside of the nesting season [for use during the nesting season] to ensure that the vireo is not affected by borrow activities conducted during the nesting season.

The Project will also result in permanent impact to 0.15 acre of lands within the Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the Project site which do not contain the primary constituent elements or physical/biological attributes [riparian woodland habitat that generally contains both canopy and shrub layers] which could be utilized by the vireo for foraging or nesting. Compensatory mitigation is not required for this impact as the disturbance to critical habitat lacking primary constituent elements and containing ornamental habitat areas would be considered less than significant.

6.6 Tri-Colored Blackbird

Impacts to up to 12.94 acres of tri-colored blackbird foraging habitat will be limited to Borrow Site 4. Borrow activities will occur outside of the nesting season for the blackbird (February 1st to August 31st) to the greatest extent feasible. If this is not possible, the project will erect sound wall(s), hay bales, or other measures outside of the nesting season to ensure that the blackbird is not affected by borrow activities conducted during the nesting season.

6.7 Noise (Construction)

Soil import and/or export work should be conducted outside of the breeding season (March 15 to September 15 is recognized as the breeding season) at Borrow Sites 1, 3, and 4 to reduce potential indirect noise effects on special-status wildlife. If this is not feasible, then sound walls, hay bales, or other measures designed to reduce effects from Project noise levels on special-status wildlife species would be installed/erected prior to the commencement of ground-disturbing activities and sound monitoring would occur as needed, within 500 feet of known least Bell's vireo territories and tricolored blackbird nesting colonies to ensure that noise levels at these locations are below the 65 dBA Leq level and would not affect special-status wildlife species.

6.8 Lighting

Based on the presence of the least Bell's vireo in Borrow Site 1 and its presence within the vicinity of Borrow Sites 2 and 5, and the presence of the tri-colored blackbird (in a foraging role) in Borrow Site 4, night lighting would be shielded and directed away from foraging or nesting habitat areas, and would be placed in a manner that would not cause a significant effect on sensitive wildlife species at least 500 feet from known vireo territories in Borrow Site 1 and in the vicinity of Borrow Sites 2 and 5, and known nesting locations of the tri-colored blackbird in Borrow Site 4.

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8.0 **CERTIFICATION**

I hereby certify that the statements furnished above and in the attached exhibits present data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

IG. Kix W/ac

Signed:

Date: <u>09/25/19</u>

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Study Area Boundary

Limits of Grading



0 725 1,450 2,900 Feet

1 inch = 1,450 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: September 9, 2019

MAJESTIC CHINO HERITAGE PROJECT

Grading Plan - Key Map

GLENN LUKOS ASSOCIATES



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Exhibit 3 - Sheet 1



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0 125 250 500

1 inch = 250 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: September 9, 2019

MAJESTIC CHINO HERITAGE PROJECT

Grading Plan - Borrow Sites 1 & 2

GLENN LUKOS ASSOCIATES

Exhibit 3 - Sheet 3

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Limits of Grading



500 125 250 Feet

1 inch = 250 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: September 9, 2019

MAJESTIC CHINO HERITAGE PROJECT

Grading Plan - Borrow Site 3

GLENN LUKOS ASSOCIATES



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Limits of Grading



200 50 100 Feet

1 inch = 100 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: September 9, 2019

MAJESTIC CHINO HERITAGE PROJECT

Grading Plan - Borrow Site 4

GLENN LUKOS ASSOCIATES

Exhibit 3 - Sheet 5

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Limits of Grading



300 75 150 Feet

1 inch = 150 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: September 9, 2019

MAJESTIC CHINO HERITAGE PROJECT

Grading Plan - Borrow Site 5

GLENN LUKOS ASSOCIATES

<u> \//</u> Exhibit 3 - Sheet 6 1/1

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0 725 1,450 2,900 Feet

1 inch = 1,450 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: August 8, 2019

MAJESTIC CHINO HERITAGE PROJECT

Vegetation - Key Map

GLENN LUKOS ASSOCIATES



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Exhibit 4 - Sheet 1







0 137.5 275 550

1 inch = 275 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: August 8, 2019



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1 inch = 250 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: August 8, 2019



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1 inch = 250 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: August 8, 2019

MAJESTIC CHINO HERITAGE PROJECT Vegetation Map - Borrow Site 3 GLENN LUKOS ASSOCIATES

Exhibit 4 - Sheet 4

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1 inch = 100 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: August 8, 2019

MAJESTIC CHINO HERITAGE PROJECT

Vegetation Map - Borrow Site 4

GLENN LUKOS ASSOCIATES

M/ - M Exhibit 4 - Sheet 5

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0 75 150 300 Feet

1 inch = 150 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: August 8, 2019

MAJESTIC CHINO HERITAGE PROJECT

Vegetation Map - Borrow Site 5

GLENN LUKOS ASSOCIATES

Exhibit 4 - Sheet 6

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W indicates Borrow Site 1 Wetland in Channel



500 125 250 Feet

1 inch = 250 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: August 8, 2019



Corps/RWQCB Jurisdictional Delineation Map - Borrow Sites 1 & 2

GLENN LUKOS ASSOCIATES M/ - M/

Exhibit 5A - Sheet 2

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5

Study Area Boundary Limits of Grading CDFW Non-Riparian Streambed **CDFW** Riparian Width in Feet

R indicates Borrow Site 1 Riparian in Channel



1 inch = 250 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: September 9, 2019



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Cb - CHINO SILT LOAM

CkA - CHUALAR CLAY LOAM, 0 TO 2 PERCENT SLOPES

CkC - CHUALAR CLAY LOAM, 2 TO 9 PERCENT SLOPES

CkD - CHUALAR CLAY LOAM, 9 TO 15 PERCENT SLOPES

Gr - GRANGEVILLE FINE SANDY LOAM

Hr - HILMAR LOAMY FINE SAND



0 725 1,450 2,900 Feet

1 inch = 1,450 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: August 8, 2019

MAJESTIC CHINO HERITAGE PROJECT

Soils - Key Map

GLENN LUKOS ASSOCIATES



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Exhibit 6 - Sheet 1





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Cb - CHINO SILT LOAM

CkC - CHUALAR CLAY LOAM, 2 TO 9 PERCENT SLOPES

CkD - CHUALAR CLAY LOAM, 9 TO 15 PERCENT SLOPES

Gr - GRANGEVILLE FINE SANDY LOAM



500 125 250 Feet

1 inch = 250 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: August 8, 2019

MAJESTIC CHINO HERITAGE PROJECT

Soils Map - Borrow Sites 1 & 2

GLENN LUKOS ASSOCIATES

M/2 - M/2 Exhibit 6 - Sheet 3

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CkA - CHUALAR CLAY LOAM, 0 TO 2 PERCENT SLOPES

CkC - CHUALAR CLAY LOAM, 2 TO 9 PERCENT SLOPES



500 125 250 Feet

1 inch = 250 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: August 8, 2019

MAJESTIC CHINO HERITAGE PROJECT

Soils Map - Borrow Site 3

GLENN LUKOS ASSOCIATES



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CkA - CHUALAR CLAY LOAM, 0 TO 2 PERCENT SLOPES

CkC - CHUALAR CLAY LOAM, 2 TO 9 PERCENT SLOPES

CkD - CHUALAR CLAY LOAM, 9 TO 15 PERCENT SLOPES



200 50 100 Feet

1 inch = 100 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: August 8, 2019

MAJESTIC CHINO HERITAGE PROJECT

Soils Map - Borrow Site 4

GLENN LUKOS ASSOCIATES



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Cb - CHINO SILT LOAM

CkC - CHUALAR CLAY LOAM, 2 TO 9 PERCENT SLOPES

Gr - GRANGEVILLE FINE SANDY LOAM

Hr - HILMAR LOAMY FINE SAND



0 75 150 300 Feet

1 inch = 150 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: August 8, 2019

MAJESTIC CHINO HERITAGE PROJECT

Soils Map - Borrow Site 5

GLENN LUKOS ASSOCIATES

Exhibit 6 - Sheet 6

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- Burrowing Owl
- Burrow With Owl Sign
- Burrows



0 725 1,450 2,900 Feet

1 inch = 1,450 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: August 8, 2019

MAJESTIC CHINO HERITAGE PROJECT Burrowing Owl Survey Map





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Exhibit 7





Least Bell's Vireo



0 725 1,450 2,900

1 inch = 1,450 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: August 8, 2019

MAJESTIC CHINO HERITAGE PROJECT

Least Bell's Vireo Survey Map





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Exhibit 8









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Least Bell's Vireo Critical Habitat

500 125 250 Feet

1 inch = 250 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: August 8, 2019

MAJESTIC CHINO HERITAGE PROJECT

Least Bell's Vireo Critical Habitat Map - Borrow Sites 1 & 2

GLENN LUKOS ASSOCIATES <u>\\//</u> M/2 - M/2 Exhibit 9 - Sheet 3

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Study Area Boundary

Least Bell's Vireo Critical Habitat



500 125 250 Feet

1 inch = 250 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: August 8, 2019



Least Bell's Vireo Critical Habitat Map - Borrow Site 3



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Least Bell's Vireo Critical Habitat Map - Borrow Site 4



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0 75 150 300 Feet

1 inch = 150 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: August 8, 2019

MAJESTIC CHINO HERITAGE PROJECT

Least Bell's Vireo Critical Habitat Map - Borrow Site 5

GLENN LUKOS ASSOCIATES Exhibit 9 - Sheet 6

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1 inch = 275 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: September 9, 2019



Corps/Regional Board Jurisdictional Delineation Impact Map

Exhibit 10A - Sheet 1

GLENN LUKOS ASSOCIATES



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W indicates Borrow Site 1 Wetland in Channel



1 inch = 250 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: September 9, 2019



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5

Study Area Boundary Limits of Grading CDFW Non-Riparian Streambed **CDFW** Riparian Width in Feet

R indicates Borrow Site 1 Riparian in Channel



1 inch = 250 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: September 9, 2019



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1 inch = 275 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: September 9, 2019



Vegetation Impact Map, Project Site and Off Site Storm Drain Improvement Area/ Off Site Streambed Study Area Adjacent to the Project Site

GLENN LUKOS ASSOCIATES



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1 inch = 250 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: September 9, 2019



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Study Area Boundary Limits of Grading Ruderal / Disturbed



0 125 250 500

1 inch = 250 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: September 9, 2019



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0 50 100 200

1 inch = 100 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: September 9, 2019



Exhibit 11 - Sheet 5

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Study Area Boundary Limits of Grading Ruderal / Disturbed



300 75 150 Feet

1 inch = 150 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: September 9, 2019



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Least Bell's Vireo Critical Habitat



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Limits of Grading

Least Bell's Vireo Critical Habitat



500 125 250 Feet

1 inch = 250 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: September 9, 2019

MAJESTIC CHINO HERITAGE PROJECT

Least Bell's Vireo Critical Habitat Impact Map - Borrow Sites 1 & 2

GLENN LUKOS ASSOCIATES

Exhibit 12 - Sheet 3

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Limits of Grading

Least Bell's Vireo Critical Habitat



500 125 250 Feet

1 inch = 250 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: September 9, 2019



Least Bell's Vireo Critical Habitat Impact Map - Borrow Site 3

GLENN LUKOS ASSOCIATES \sim

Exhibit 12 - Sheet 4

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Limits of Grading

Least Bell's Vireo Critical Habitat



0 50 100 200

1 inch = 100 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: September 9, 2019



Least Bell's Vireo Critical Habitat Impact Map - Borrow Site 4



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Limits of Grading

Least Bell's Vireo Critical Habitat



300 75 150 Feet

1 inch = 150 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: September 9, 2019

MAJESTIC CHINO HERITAGE PROJECT

Least Bell's Vireo Critical Habitat Impact Map - Borrow Site 5



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Photograph 1: Photograph depicting Project Site. Note the disturbed condition of the site.



Photograph 3: Photograph depicting typical waste treatment pond within Project Site.



Photograph 2: Photograph depicting Project Site. Note the disturbed condition of the site.



Photograph 4: Photograph depicting Project Site. Note the disturbed condition of the site.



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HERITAGE

CHINO

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Photographs – Project Site

Site

Exhibit 13



Photograph 5: Photograph depicting Project Site. Note the disturbed condition of the site.



Photograph 7: Photograph depicting Project Site. Note the presence of a typical waste treatment pond on site.



Photograph 6: Photograph depicting Project Site. Note the disturbed condition of the site.



Photograph 8: Photograph depicting Project Site. Note the disturbed condition of the site.



Exhibit 13





Photograph 9: Photograph depicting Project Site. Note the disturbed condition of the site.



Photograph 11: Photograph depicting Project Site. Note the disturbed condition of the site.



Photograph 10: Photograph depicting Project Site. Note the disturbed condition of the site.



Photograph 12: Photograph depicting Project Site. Note the disturbed condition of the site.



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HERITAGE

CHINO

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Photographs – Borrow Site 4

Site

Exhibit 13



Photograph 13: Photograph depicting Project Site. Note the disturbed condition of the site.



Photograph 15: Photograph depicting Project Site. Note the disturbed condition of the site.



Photograph 14: Photograph depicting Project Site. Note the disturbed condition of the site.



Photograph 16: Photograph depicting Project Site. Note the disturbed condition of the site.



Exhibit 13

AGE Photographs – Borrow Site 5 HERIT CHINO Π Site



Photograph 17: Photograph depicting Drainage 1 and freshwater marsh habitat on site.



Photograph 19: Photograph depicting Drainage 1 and freshwater marsh habitat on site.



Photograph 18: Photograph depicting freshwater marsh/seep area within Borrow Site 1 westerly of Drainage 1.



Photograph 20: Photograph depicting disturbed freshwater marsh area on site.



GLENN LUKOS ASSOCIATES

Exhibit 13

AGE Photographs – Borrow Site 1 HERIT CHINO

Site





Exhibit 13

GLENN LUKOS ASSOCIATES

Photograph 21: Photograph depicting Cypress Channel. Note the concrete sides and bottom.





Photograph 22: Photograph depicting Cypress Channel. Note the concrete sides and bottom.

APPENDIX A: FLORAL COMPENDIUM

The floral compendium lists all species identified during floristic level plant surveys conducted for the Study Area. Taxonomy typically follows Jepson Flora Project $(2013)^{1}$. An asterisk (*) denotes a non-native species.

EUDICOTS

Adoxaceae - Moschatel Family

Sambucus nigra ssp. caerulea, Blue Elderberry

Agavaceae – Agave Family

- * Agave americana, American Century Plant
- * Agave attenuata, Agave Hesperoyucca whipplei, Chaparral Yucca

Amarnthaceae – Amaranth Family

* Amaranthus albus, Tumbleweed

Anacardiaceae – Sumac Family

- Malosma laurina, Laurel Sumac
- Rhus integrifolia, Lemonade Berry
- * Schinus molle, Peruvian Pepper Tree

Apiaceae – Umbellifer Family

* *Conium maculatum*, Poison Hemlock

Apocynaceae – Dogbane Family

* Nerium oleander, Oleander

Asteraceae - Sunflower Family

- Ambrosia psilostachya, Western Ragweed Artemisia californica, California Sagebrush Baccharis pilularis, Coyote Brush Baccharis salicifolia, Mulefat
- * *Cirsium vulgare*, Bull Thistle *Encelia farinosa*, Desert Brittlebush
- * Erigeron bonariensis, Flax-leaved Horseweed Erigeron canadensis, Canada Horseweed Helianthus annuus, Common Sunflower
- * Helminthotheca echioides, Bristly Ox-Tongue

¹ Jepson Flora Project (B. D. Baldwin, D. J. Keil, S. Markos, B. D. Mishler, R. Patterson, T. J. Rosatti, and D. H. Wilken, eds.) [JFP]. 2013. *Jepson Flora Project*. Accessed through 31 Oct 2014. Facets of this extensive online resource include the Jepson eFlora, available at http://ucjeps.berkeley.edu//IJM.html and Jepson Online Interchange (JOI), available at http://ucjeps.berkeley.edu/interchange.html. The latter enables searches of the Index to California Plant Names (ICPN) for nomenclature, status, and relationships, often with links to helpful details and discussion. All information incorporated here was accessed after, or confirmed accurate through, inclusion of the "Errata and Small Changes" at http://ucjeps.berkeley.edu/JM12_errata.html (dated 01 Jul 2013) and "Supplement 1 to" TJM2 at http://ucjeps.berkeley.edu/IJM_suppl_summary.html, (dated Jul 2013).

Heterotheca grandiflora, Telegraph Weed

- Isocoma mensiesii, Coast Goldenbush
- * Lactuca serriola, Prickly Lettuce
- * Sonchus asper, Spiny Sowthistle
- * Silybum marianum, Milk Thistle
- * *Taraxacum officinale*, Common Dandelion *Uropappus lindleyi*, Silver Puffs
- * Verbesina enceliodes, Golden Crownbeard

Arecaceae – Palm Tree Family

* Washingtonia robusta, Mexican Fan Palm

Boraginaceae – Forget-Me-Not Family

Amsinckia intermedia, Common Fiddleneck Heliotropium curassavicum, Chinese Parsley

Brassicaceae – Mustard Family

- * *Hirschfeldia incana*, Summer Mustard
- * Lepidium latifolium, Perennial Pepperweed
- * Raphanus sativus, Wild Radish
- * Sisymbrium irio, London Rocket

Cactaceae – Cactus Family

* *Opuntia ficus-indica*, Mission Cactus

Caryophyllaceae – Pink Family

Spergularia marina, Salt Marsh Sand Spurry

Chenopodiaceae – Goosefoot Family

Atriplex sp., Saltbush

- * Chenopodium album, Lamb's Quarters
- * Chenopodium murale, Nettle-leaf Goosefoot
- * Kochia scoparia, Common Red Sage
- * Salsola tragus, Russian Thistle

Convolvulaceae – Morning-Glory Family

- * Convolvulus arvensis, Field Bindweed
- * Dichondra micrantha, Asian Ponyfoot

Fabaceae – Pea Family

- Acmison americanus, Spanish Lotus
- * Melilotus sp. Sweet Clover

Geraniaceae - Geranium Family

* Erodium cicutarium, Red stemmed Filaree

Lamiaceae – Mint Family

* *Marrubium vulgare*, White Horehound

Malvaceae – Mallow Family

* *Malva parviflora*, Cheeseweed Mallow

Oleaceae – Olive Family

Fraxinus uhdei., Shamel Ash

Pinaceae – Pine Family

* Pinus halepensis, Aleppo Pine

Polygonaceae – Knotweed Family

- Eriogonum fasciculatum, California Buckwheat
- * *Polygonum aviculare*, Prostrate Knotweed
- * *Rumex crispus*, Curly Dock

Rosaceae – Rose Family

Heteromeles arbutifolia, Toyon

Salicaeae - Willow Family

Salix gooddingii, Goodding's Black Willow

Saururaceae – Lizard's-Tail Family

Anemopsis californica, Yerba Mansa

Simaroubaceae – Quassia Family

* *Ailanthus altissima*, Tree of Heaven

Solanaeceae – Nightshade Family

Datura wrightii, Jimsonweed

* *Nicotiana glauca*, Tree Tobacco *Solanum* sp., Nightshade

Tamaricaceae – Tamarisk Family

* Tamarix ramosissima, Salt Cedar

Urticaceae – Nettle Family

* Urtica urens, Annual Stinging Nettle

MONOCOTS

Poaceae – Grass Family

- * Agrostis gigantea, Creeping Bentgrass
- * Bromus madritensis, Red Brome

- * Cynodon dactylon, Bermuda Grass Distichlis spicata, Saltgrass
- * Eleusine sp., Millet
 Elymus triticoides, Creeping Wild Rye
- * *Festuca perennis*, Italian Rye Grass
- * *Hordeum murinum*, Foxtail Barley
- * Lamarckia aurea, Goldentop Grass Leptochloa fusca ssp. uninervia, Mexican Sprangletop Muhlenbergia rigens, Deergrass
- * Polypogon monspeliensis, Rabbitsfoot Grass
- * Schismus barbatus, Common Mediterranean Grass Typha domingensis, Southern Cattail

APPENDIX B: FAUNAL COMPENDIUM

The faunal compendium lists species that were either observed within or adjacent to the Project site. Taxonomy and common names are taken from Pelham $(2008)^2$ for butterflies, AOU (1998 et seq.)³ for birds, Crother $(2012)^4$ for amphibian, turtle, and reptile taxonomy, and Wilson and Reeder $(2005)^5$ for mammals.

INVERTEBRATES

Nymphalidae - Brush-Footed Butterflies

Vanessa cardui, Painted Lady

REPTILES AND AMPHIBIANS

Bufonidae – True Toad Family Anaxyrus boreas, Western Toad

Phrynosomatidae - Phrynosomatid Lizards

Sceloporus occidentalis, Western Fence Lizard

BIRDS

Accipitridae – Diurnal Raptor Family

Accipiter cooperi, Cooper's Hawk Buteo jamaicensis, Red-tailed Hawk Circus hudsonius, Northern Harrier

Aegithalidae – Bushtit Family

Psaltriparus minimus, Bushtit

Alaudidae - Lark Family

Eremophila alpestris, Horned Lark

Anatidae – Duck, Geese, and Swan Family

Anas platyrhynchos, Mallard Aythya affinis, Lesser Scaup Branta canadensis, Canada Goose Spatula clypeata, Northern Shoveler

² Jonathan Pelham. 2008. Catalogue of the Butterflies of the United States and Canada. Journal of Research on the Lepidoptera 40: xiv + 658 pp. ³American Ornithologists' Union 1998. The A.O.U. Checklist of North American Birds, seventh edition. American Ornithologists' Union, Washington D.C.; and 2000, 2002, 2003, and 2004 supplements.

⁴ Crother, B. I., ed. 2012. Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico, with Comments Regarding Confidence in Our Understanding, 7th Edition. SSAR Herpetological Circular 39:1-92. Shoreview, MN: Society for the Study of Amphibians and Reptiles, Committee On Standard English And Scientific Names.

⁵ Wilson, D. E., and D. M. Reeder, eds. 2005. Mammal Species of the World: A Taxonomic and Geographic Reference, 3rd Edition. Baltimore, MD: Johns Hopkins University Press. Available online at http://www.bucknell.edu/msw3/browse.asp. No separate corrigenda or updates since initial publication.

Spatula cyanoptera, Cinnamon Teal

Ardeidae – Heron Family

Ardea alba, Great Egret

Cathartidae – New World Vulture Family

Cathartes aura, Turkey Vulture

Charadriidae – Plover Family

Charadrius vociferous, Killdeer

Columbidae – Pigeon and Dove Family

- * Columba livia, Rock Pigeon
- * *Streptopelia decaocto*, Eurasian-collared Dove *Zenaida macroura*, Mourning Dove

Corvidae – Jay and Crow Family

Corvus brachyrhynchos, American Crow *Corvus corax*, Common Raven

Falconidae – Falcons and Caracaras

towee, American Kestrel

Fringillidae – Finch Family

Haemorhous mexicanus, House Finch Spinus psaltria, Lesser Goldfinch

Hirundinidae – Swallow Family

Hirundo rustica, Barn Swallow *Stelgidopteryx serripennis*, Northern Rough-winged Swallow *Tachycineta bicolor*, Tree Swallow

Icteridae – Icterid Family

Agelaius phoeniceus, Red-winged Blackbird *Agelaius tricolor*, Tricolored Blackbird *Euphagus cyanocephalus*, Brewer's Blackbird

* Molothrus ater, Brown-headed Cowbird Quiscalus mexicanus, Great-tailed Grackle Sturnella neglecta, Western Meadowlark Xanthocephalus xanthocephalus, Yellow-headed Blackbird

Laniidae – Shrike Family

Lanius ludovicianus, Loggerhead Shrike

Laridae – Gull and Tern Family

Larus californicus, California Gull

Larus delawarensis, Ring-billed Gull

Mimidae – Thrasher Family

Mimus polyglottos, Northern Mockingbird Toxostoma redivivum, California Thrasher

Motacillidae – Wagtail and Pipit Family

Anthus rubescens, American Pipit

Parulidae - Wood-Warbler Family

Geothlypis trichas, Common Yellowthroat *Setophaga coronata*, Yellow-rumped Warbler

Passerellidae – New World Sparrow Family

Chondestes grammacus, Lark Sparrow Melospiza melodia, Song Sparrow Melozone crissalis, California Towhee Passerculus sandwichensis Savannah Sparrow Zonotrichia leucophrys, White-crowned Sparrow

Passeridae – Old World Sparrow Family

* *Passer domesticus*, House Sparrow

Phalacrocoracidae - Cormorant Family

Phalacrocorax auratus, Double-crested Cormorant

Picidae – Woodpecker Family

Colaptes auratus, Northern Flicker

Polioptilidae – Gnatcatcher Family

Polioptila caerulea, Blue-gray Gnatcatcher

Rallidae – Rail Family

Fulica americana, American Coot

Recurvirostridae – Stilts and Avocets

Himantopus mexicanus, Black-necked Stilt

Scolopacidae – Sandpiper Family

Calidris mauri, Western Sandpiper Calidris minutilla, Least Sandpiper Gallinago delicata, Wilson's Snipe Tringa flavipes, Lesser Yellowlegs Tringa melanoleuca, Greater Yellowlegs Tringa semipalmata, Willet

Strigidae – True Owl Family

Athene cunicilaria, Burrowing Owl

Sturnidae – Starling Family

* Sturnus vulgaris, European Starling

Threskiornithidae – Ibis and Spoonbill Family

Plegadis chihi, White-faced Ibis

Trochilidae – Hummingbird Family

Calypte anna, Anna's Hummingbird Selasphorus rufus, Rufous Hummingbird

Troglodytidae – Wren Family

Troglodytes aedon, House Wren

Tyrannidae – Tyrant Flycatcher Family

Sayornis nigricans, Black Phoebe Sayornis saya, Say's Phoebe Tyrannus verticalis, Western Kingbird Tyrannus vociferans, Cassin's Kingbird

MAMMALS

Canidae – Canid Family Canis latrans, Coyote

Geomyidae – Pocket Gopher Family

Thomomys bottae, Botta's Pocket Gopher

Leporidae – Hare and Rabbit Family

Sylvilagus audubonii, Desert Cottontail

Procyonidae – Raccoon and Allies Family

Procyon lotor, Common Raccoon

Sciuridae – Squirrel Family

Otospermophilus beecheyi, California Ground Squirrel

GLENN LUKOS ASSOCIATE



Regulatory Services

September 25, 2019

John Burroughs Commerce Construction Company, L.P. 13191 Crossroads Parkway North Sixth Floor City of Industry, California 91746

SUBJECT: Jurisdictional Delineation of the Majestic Chino Heritage Project and Five Borrow Sites, a Total of Approximately 300.54-Acres of Property Located in the City of Chino, San Bernardino County, California.

Dear Mr. Burroughs:

This letter report summarizes our preliminary findings of U.S. Army Corps of Engineers (Corps), Santa Ana Regional Water Quality Control Board (Regional Board), and California Department of Fish and Wildlife (CDFW) jurisdiction for the above-referenced property.¹

Project Location

The Majestic Chino Heritage Development Project (Project) totals approximately 96.91 acres and is located at latitude 33.957541 and longitude -117.662515 in the City of Chino, San Bernardino County, California [Exhibit 1] within an unsectioned area and Section 31, Township 2 South, and Range 7 West, and Section 36, Township 2 South, and Range 8 West of the U.S. Geological Survey (USGS) 7.5" quadrangle map Prado Dam (dated 1967 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. The Project site is bordered by Bickmore Avenue to the north, the El Prado Golf Course to the south, Cypress Channel to the east, and Mountain Avenue to the west.

¹ This report presents our best effort at estimating the subject jurisdictional boundaries using the most up-to-date regulations and written policy and guidance from the regulatory agencies. Only the regulatory agencies can make a final determination of jurisdictional boundaries. If a final jurisdictional determination is required, GLA can assist in getting written confirmation of jurisdictional boundaries from the agencies.

The Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the Project Site totals approximately 2.98 acres and is located at latitude 33.954018 and longitude 659439 in the City of Chino, San Bernardino County, California [Exhibit 1] within an unsectioned area of Township 2 South and Range 7 West of the U.S. Geological Survey (USGS) 7.5" quadrangle map Prado Dam (dated 1967 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. This area is bordered by the Project to the north, the El Prado Golf Course to the south and west, and the Cypress Channel to the east.

Borrow Site One (Borrow 1) totals approximately 43.67 acres and is located at latitude 33.952213 and longitude -117.648256 in the City of Chino, San Bernardino County, California [Exhibit 1] within an unsectioned area of Township 2 South and Range 7 West, of the U.S. Geological Survey (USGS) 7.5" quadrangle map Prado Dam (dated 1967 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. Borrow 1 is bordered by Pine Avenue to the north, the Prado Regional Park to the south, Johnson Avenue to the east, and Euclid Avenue to the west.

Borrow Site Two (Borrow 2) totals approximately 38.51 acres and is located at latitude 33.952641 and longitude -117.644448 in the City of Chino, San Bernardino County, California [Exhibit 1] within an unsectioned area of Township 2 South and Range 7 West, of the U.S. Geological Survey (USGS) 7.5" quadrangle map Prado Dam (dated 1967 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. Borrow 2 is bordered by Pine Avenue to the north, the Prado Regional Park and the Prado Equestrian Center to the south, the California Institute for Women to the east, and Johnson Avenue to the west.

Borrow Site Three (Borrow 3) totals approximately 84.25 acres and is located at latitude 33.941462 and longitude -117.635815 in the City of Chino, San Bernardino County, California [Exhibit 1] within Section 5, Township 3 South, and Range 7 West, of the U.S. Geological Survey (USGS) 7.5" quadrangle map Prado Dam (dated 1967 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. Borrow 3 is bordered by the California Institute for Women to the north, the Prado Basin to the south and west, and Cucamonga Avenue to the east.

Borrow Site Four (Borrow 4) totals approximately 12.94 acres and is located at latitude 33.945011 and longitude -117.622304 in the City of Chino, San Bernardino County, California [Exhibit 1] within Section 4, Township 3 South, and Range 7 West of the U.S. Geological Survey (USGS) 7.5" quadrangle map Corona North (dated 1967 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. Borrow 4 is bordered by Chino-Corona Road to the north, the Mill Creek Wetlands to the south and east, and Comet Avenue to the west.

Borrow Site Five (Borrow 5) totals approximately 21.28 acres and is located at latitude 33.949712 and longitude -117.613437 in the City of Chino, San Bernardino County, California [Exhibit 1] within Section 33, Township 2 South, and Range 7 West, of the U.S. Geological Survey (USGS) 7.5" quadrangle map Corona North (dated 1967 and photorevised in 1981)

[Exhibit 2 – Vicinity Map]. Borrow 5 is bordered by undeveloped land to the north and south, Hellman Avenue to the east, and Chino-Corona Road to the west.

The Project also may be conditioned with a request for the Project applicant to use good faith efforts to acquire right-of-way for a proposed realignment of Mountain Avenue from the southwest Project boundary to El Prado Road. The Project will not be conditioned to construct such realigned road. The approximate location for this proposed road improvement is latitude 33.954357 and longitude -117.667229.

Jurisdictional Delineation

In March, April, and May 2019, regulatory specialists of Glenn Lukos Associates, Inc. (GLA) examined the Project site and borrow areas to determine the limits of (1) Corps jurisdiction pursuant to Section 404 of the Clean Water Act (CWA), (2) Regional Board jurisdiction pursuant to Section 401 of the CWA and Section 13260 of the California Water Code (CWC) [the Porter-Cologne Water Quality Act (Porter-Cologne)], and (3) CDFW jurisdiction pursuant to Division 2, Chapter 6, Sections 1600-1617 of the California Fish and Game Code.

Enclosed are aerial maps [Exhibit 3] that depict the Project Site, the Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the Project Site, and the Borrow Areas and exhibits that depict the areas of potential Corps/Regional Board (Exhibit 4A) and CDFW jurisdiction (Exhibits 4B). Photographs to document the topography, vegetative communities, and general widths of each of the waters are provided as Exhibit 5 and maps depicting the soils are included as Exhibit 6, Sheets 1 through 6.

Corps jurisdiction associated with the Study Area is 6.04 acres, of which 4.59 acres consists of jurisdictional wetlands. A total of 4,172 linear feet of streambed is present.

Regional Board jurisdiction associated with the Study Area is 6.31 acres, of which 4.59 acres consists of jurisdictional wetlands. A total of 6,538 linear feet of streambed is present.

CDFW jurisdiction associated with the Study Area totals 7.40 acres, of which 4.62 acres consists of riparian habitat and 2.78 acres consist of non-riparian streambed. A total of 6,538 linear feet of streambed is present.

Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the Project Site

Corps and Regional Board jurisdiction associated with the Off Site Storm Drain Improvement Area Adjacent to the Project Site totals 1.45 acres, none of which consists of jurisdictional

wetlands. A total of 2,527 linear feet of streambed is present associated with the Cypress Channel, a concrete-sided and concrete-bottomed drainage.

CDFW jurisdiction within the Off Site Storm Drain Improvement Area Adjacent to the Project Site totals 2.32 acres, all of which consists of non-riparian streambed within the Cypress Channel, a concrete-sided and concrete-bottomed drainage. A total of 2,527 linear feet of streambed is present.

Borrow Site 1

Corps and Regional Board jurisdiction associated with Borrow 1 totals 4.59 acres, all of which consists of jurisdictional wetlands. A total of 1,645 linear feet of streambed is present associated with Drainage 1.

CDFW jurisdiction within Borrow 1 totals 4.81 acres, of which 4.62 acres consists of riparian habitat and 0.19 acre consists of non-riparian streambed. A total of 1,645 linear feet of streambed is present associated with Drainage 1.

Borrow Site 2

There is no Corps jurisdiction associated with Borrow 2 as the only drainage feature present is a roadside ditch which would not be regulated by the Corps under the Clean Water Rule (CWR) at 33 CFR 328.3(b)(3)(i).

Regional Board jurisdiction associated with Borrow 2 totals 0.27 acre, none of which consists of jurisdictional wetlands. A total of 2,366 linear feet of streambed is present associated with Ditch 1, which is a roadside ditch located along the western boundary of Borrow Site 2 and adjacent to Johnson Avenue.

CDFW jurisdiction within Borrow 2 totals 0.27 acre, all of which consists of non-riparian streambed associated with Ditch 1. A total of 2,366 linear feet of streambed is present associated with Drainage 1.

Borrow Site 3

There is no Corps, CDFW, or Regional Board jurisdiction associated with Borrow 3.

Borrow Site 4

There is no Corps, CDFW, or Regional Board jurisdiction associated with Borrow 4.

Borrow Site 5

There is no Corps, CDFW, or Regional Board jurisdiction associated with Borrow 5.

I. METHODOLOGY

Prior to beginning the field delineation, a color aerial photograph, a topographic base map of the property, and the previously cited USGS topographic map were examined to determine the locations of potential areas of Corps/Regional Board/CDFW jurisdiction. Suspected jurisdictional areas were field checked for the presence of definable channels and/or wetland vegetation, soils and hydrology. Suspected wetland habitats on the site were evaluated using the methodology set forth in the U.S. Army Corps of Engineers 1987 Wetland Delineation Manual² (Wetland Manual) and the 2008 Regional Supplement to the Corps of Engineers Wetland Delineation Manual² Arid West Supplement (Arid West Supplement)³. While in the field the limits of Corps/Regional Board/CDFW jurisdiction were recorded onto a color aerial photograph using visible landmarks and/or sub-meter accuracy global positioning system devices.

The Soil Conservation Service (SCS)⁴ has mapped the following soil type as occurring in the general vicinity of the project site and borrow areas:

<u>Project Site</u>

Chino Silt Loam (Cb)

The Chino series consists of somewhat poorly drained, nearly level soils. These soils formed on flood plains and in basins in moderately fine textured alluvium. Slopes are zero to two percent and elevations range from 700 to 750 feet. Vegetation consists of annual grasses and forbs.

² Environmental Laboratory. 1987. <u>Corps of Engineers Wetlands Delineation Manual</u>, Technical Report Y-87-1, U.S. Army Engineer Waterways Experimental Station, Vicksburg, Mississippi.

³ U.S. Army Corps of Engineers. 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-08-28. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

⁴ SCS is now known as the National Resource Conservation Service or NRCS.

In a typical surface layer, soils are gray silt loam about 16 inches thick. The underlying material is gray light silty clay loam and silty clay loam that extends to a depth of 60 inches or more. Chino soils are moderately alkaline and strongly calcareous throughout.

These soils are used for irrigated alfalfa, grains, corn silage, and pasture plants. Small areas are used for homesites and related uses.

Chualar clay loam, 0 to 2 Percent Slopes (CkA), Chualar clay loam, 2 to 9 Percent Slopes (CkC)

The Chualar series consists of well-drained soils. These soils are formed on alluvial fans and terraces in mixed, moderately fine textured alluvium. The vegetation commonly associated with Chualar soils includes annual grasses and forbs. Chualar soils are used for irrigated small grains, pasture plants, alfalfa, and silage. Some areas are used for dry farmed small grains and pasture plants.

<u>Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the</u> <u>Project Site</u>

Chualar clay loam, 0 to 2 Percent Slopes (CkA), Chualar clay loam, 2 to 9 Percent Slopes (CkC), and Chualar clay loam, 9 to 15 Percent Slopes (CkD

The Chualar series consists of well-drained soils. These soils are formed on alluvial fans and terraces in mixed, moderately fine textured alluvium. The vegetation commonly associated with Chualar soils includes annual grasses and forbs. Chualar soils are used for irrigated small grains, pasture plants, alfalfa, and silage. Some areas are used for dry farmed small grains and pasture plants.

Grangeville fine sandy loam (Gr)

The Grangeville series consists of somewhat poorly drained soils. These soils are formed on slopes of alluvial fans in moderately coarse textured granitic alluvium. The vegetation commonly associated with Grangeville soils includes annual grasses and forbs and scattered cottonwood trees. Grangeville soils are used for irrigated alfalfa, small grain and pasture plants.

<u>Borrow Site 1</u>

Chino Silt Loam (Cb)

The Chino series consists of somewhat poorly drained, nearly level soils. These soils formed on flood plains and in basins in moderately fine textured alluvium. Slopes are zero to two percent and elevations range from 700 to 750 feet. Vegetation consists of annual grasses and forbs.

In a typical surface layer, soils are gray silt loam about 16 inches thick. The underlying material is gray light silty clay loam and silty clay loam that extends to a depth of 60 inches or more. Chino soils are moderately alkaline and strongly calcareous throughout.

These soils are used for irrigated alfalfa, grains, corn silage, and pasture plants. Small areas are used for homesites and related uses.

Chualar clay loam, 2 to 9 Percent Slopes (CkC) and Chualar clay loam, 9 to 15 Percent Slopes (CkD)

The Chualar series consists of well-drained soils. These soils are formed on alluvial fans and terraces in mixed, moderately fine textured alluvium. The vegetation commonly associated with Chualar soils includes annual grasses and forbs. Chualar soils are used for irrigated small grains, pasture plants, alfalfa, and silage. Some areas are used for dry farmed small grains and pasture plants.

Grangeville fine sandy loam (Gr)

The Grangeville series consists of somewhat poorly drained soils. These soils are formed on slopes of alluvial fans in moderately coarse textured granitic alluvium. The vegetation commonly associated with Grangeville soils includes annual grasses and forbs and scattered cottonwood trees. Grangeville soils are used for irrigated alfalfa, small grain and pasture plants.

Borrow Site 2

Chino Silt Loam (Cb)

The Chino series consists of somewhat poorly drained, nearly level soils. These soils formed on flood plains and in basins in moderately fine textured alluvium. Slopes are zero to two percent and elevations range from 700 to 750 feet. Vegetation consists of annual grasses and forbs.

In a typical surface layer, soils are gray silt loam about 16 inches thick. The underlying material is gray light silty clay loam and silty clay loam that extends to a depth of 60 inches or more. Chino soils are moderately alkaline and strongly calcareous throughout.

These soils are used for irrigated alfalfa, grains, corn silage, and pasture plants. Small areas are used for homesites and related uses.

Borrow Site 3

Chualar clay loam, 0 to 2 Percent Slopes (CkA) and Chualar clay loam, 2 to 9 Percent Slopes (CkC)

The Chualar series consists of well-drained soils. These soils are formed on alluvial fans and terraces in mixed, moderately fine textured alluvium. The vegetation commonly associated with Chualar soils includes annual grasses and forbs. Chualar soils are used for irrigated small grains, pasture plants, alfalfa, and silage. Some areas are used for dry farmed small grains and pasture plants.

Borrow Site 4

Chualar clay loam, 0 to 2 Percent Slopes (CkA); Chualar clay loam, 2 to 9 Percent Slopes (CkC); and Chualar clay loam, 9 to 15 Percent Slopes (CkD)

The Chualar series consists of well-drained soils. These soils are formed on alluvial fans and terraces in mixed, moderately fine textured alluvium. The vegetation commonly associated with Chualar soils includes annual grasses and forbs. Chualar soils are used for irrigated small grains, pasture plants, alfalfa, and silage. Some areas are used for dry farmed small grains and pasture plants.

Borrow Site 5

Chino Silt Loam (Cb)

The Chino series consists of somewhat poorly drained, nearly level soils. These soils formed on flood plains and in basins in moderately fine textured alluvium. Slopes are zero to two percent and elevations range from 700 to 750 feet. Vegetation consists of annual grasses and forbs.

In a typical surface layer, soils are gray silt loam about 16 inches thick. The underlying material is gray light silty clay loam and silty clay loam that extends to a depth of 60 inches or more. Chino soils are moderately alkaline and strongly calcareous throughout.

These soils are used for irrigated alfalfa, grains, corn silage, and pasture plants. Small areas are used for homesites and related uses.

Chualar clay loam, 2 to 9 Percent Slopes (CkC)

The Chualar series consists of well-drained soils. These soils are formed on alluvial fans and terraces in mixed, moderately fine textured alluvium. The vegetation commonly associated with Chualar soils includes annual grasses and forbs. Chualar soils are used for irrigated small grains, pasture plants, alfalfa, and silage. Some areas are used for dry farmed small grains and pasture plants.

Grangeville fine sandy loam (Gr)

The Grangeville series consists of somewhat poorly drained soils. These soils are formed on slopes of alluvial fans in moderately coarse textured granitic alluvium. Slopes are typically zero to two percent. The vegetation commonly associated with Grangeville soils includes annual grasses and forbs and scattered cottonwood trees. Grangeville soils are used for irrigated alfalfa, small grain and pasture plants.

Hilmar Loamy Fine Sand (Hr)

The Hilmar series consists of somewhat poorly drained, nearly level soils on alluvial valley floors and fans. These soils formed on wind-laid, coarse-textured material underlain by medium-textured granitic alluvium. The vegetation commonly associated with this soil unit includes annual grasses and forbs. Hilmar soils are used for irrigated crops such as grapes, alfalfa, pasture plants, and small grains.

These soil units are not identified as hydric in the SCS's publication, <u>Hydric Soils of the United</u> <u>States.</u>⁵ None of these soils are identified as hydric for the local Hydric Soils List of Southwestern San Bernardino County, however, inclusions of the Chino, Chualar, and Grangeville soil may be considered hydric for soils in the Aquic suborder, Aquic subgroups, Albolls suborder, Salorthids great group, Pell great groups of vertisols, Pachic subgroups, or Cumulic subgroups, which have a frequently occurring water table at less than 1.5 feet from the surface for a significant period (usually more than two weeks) during the growing season if permeability is less than 6.0 inches an hour in all layers within 20 inches and/or soils that are

⁵ United States Department of Agriculture, Soil Conservation Service. 1991. <u>Hydric Soils of the United States</u>, 3rd Edition, Miscellaneous Publication Number 1491. (In cooperation with the National Technical Committee for Hydric Soils.)

frequently ponded for a long duration during the growing season. It would also be considered hydric under FSA items 1, 4, and/or 5 due to saturation, seasonally flooded or ponded areas, and/or areas farmed under natural conditions without removing woody vegetation or other manipulation.

It is important to note that under the Arid West Region Supplement, the presence of mapped hydric soils is no longer dispositive for the presence of hydric soils. Rather, the presence of hydric soils must now be confirmed in the field.

II. JURISDICTION

A. <u>Army Corps of Engineers</u>

Pursuant to Section 404 of the CWA, the Corps regulates the discharge of dredged and/or fill material into waters of the United States. The term "waters of the United States" is defined in Corps regulations at 33 CFR Part 328.3(a)⁶ as:

- (1) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- (2) All interstate waters, including interstate wetlands;
- (3) The territorial seas;
- (4) All impoundments of waters otherwise identified as waters of the United States under this section;
- (5) All tributaries, as defined in paragraph (c)(3) of this section, of waters identified in paragraphs (a)(1) through (3) of this section;
- (6) All waters adjacent to a water identified in paragraphs (a)(1) through (5) of this section, including wetlands, ponds, lakes, oxbows, impoundments, and similar waters;
- (7) All waters in paragraphs (a)(7)(i) through (v) of this section where they are determined, on a case-specific basis, to have a significant nexus to a water identified in paragraphs (a)(1) through (3) of this section. The waters identified in each of paragraphs (a)(7)(i) through (v) of this section are similarly situated and shall be combined, for purposes of a significant nexus analysis, in the watershed that drains to the nearest water identified in paragraphs (a)(1) through (3) of this section. Waters identified in this paragraph shall not be combined with waters identified in paragraph

⁶ As revised by the Corps and EPA, "Clean Water Rule: Definition of 'Waters of the United States"; Final Rule," 80 Federal Register 124 (29 June, 2015), pp. 37054-37127, redacted October 9, 2015, enjoined and ordered by the U.S. District on August 16, 2018.

(a)(6) of this section when performing a significant nexus analysis. If waters identified in this paragraph are also an adjacent water under paragraph (a)(6), they are an adjacent water and no case-specific significant nexus analysis is required.

- (i) Prairie potholes. Prairie potholes are a complex of glacially formed wetlands, usually occurring in depressions that lack permanent natural outlets, located in the upper Midwest.
- (ii) Carolina bays and Delmarva bays. Carolina bays and Delmarva bays are ponded, depressional wetlands that occur along the Atlantic coastal plain.
- (iii) Pocosins. Pocosins are evergreen shrub and tree dominated wetlands found predominantly along the Central Atlantic coastal plain.
- (iv) Western vernal pools. Western vernal pools are seasonal wetlands located in parts of California and associated with topographic depression, soils with poor drainage, mild, wet winters and hot, dry summers.
- (v) Texas coastal prairie wetlands. Texas coastal prairie wetlands are freshwater wetlands that occur as a mosaic of depressions, ridges, intermound flats, and mima mound wetlands located along the Texas Gulf Coast.
- (8) All waters located within the 100- year floodplain of a water identified in paragraphs (a)(1) through (3) of this section and all waters located within 4,000 feet of the high tide line or ordinary high water mark of a water identified in paragraphs (a)(1) through (5) of this section where they are determined on a case-specific basis to have a significant nexus to a water identified in paragraphs (a)(1) through (3) of this section. For waters determined to have a significant nexus, the entire water is a water of the United States if a portion is located within the 100-year floodplain of a water identified in paragraphs (a)(1) through (3) of this section they high tide line or ordinary high water mark. Waters identified in this paragraph shall not be combined with waters identified in paragraph (a)(6) of this section when performing a significant nexus analysis. If waters identified in this paragraph are also an adjacent water under paragraph (a)(6), they are an adjacent water and no case-specific significant nexus analysis is required.

In the absence of wetlands, the limits of Corps jurisdiction in non-tidal waters, such as intermittent streams, extend to the ordinary high-water mark (OHWM) which is defined at 33 CFR 328.3(e) as:

...that line on the shore established by the fluctuation of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

The term "wetlands" (a subset of "waters of the United States") is defined at 33 CFR 328.3(b) as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support...a prevalence of vegetation typically adapted for life in saturated soil conditions." In 1987 the Corps published a manual to guide its field personnel in determining jurisdictional wetland boundaries. The methodology set forth in the 1987 Wetland Delineation Manual and the Arid West Supplement generally require that, in order to be considered a wetland, the vegetation, soils, and hydrology of an area exhibit at least minimal hydric characteristics. While the manual and Supplement provide great detail in methodology and allow for varying special conditions, a wetland should normally meet each of the following three criteria:

- more than 50 percent of the dominant plant species at the site must be typical of wetlands (i.e., rated as facultative or wetter in the National List of Plant Species that Occur in Wetlands⁷);
- soils must exhibit physical and/or chemical characteristics indicative of permanent or periodic saturation (e.g., a gleyed color, or mottles with a matrix of low chroma indicating a relatively consistent fluctuation between aerobic and anaerobic conditions); and
- Whereas the 1987 Manual requires that hydrologic characteristics indicate that the ground is saturated to within 12 inches of the surface for at least five percent of the growing season during a normal rainfall year, the Arid West Supplement does not include a quantitative criteria with the exception for areas with "problematic hydrophytic vegetation", which require a minimum of 14 days of ponding to be considered a wetland.

B. <u>Regional Water Quality Control Board</u>

Section 401 of the CWA requires any applicant for a Section 404 permit to obtain certification from the State that the discharge (and the operation of the facility being constructed) will comply with the applicable effluent limitation and water quality standards. In California, this 401 certification is obtained from the Regional Board. The Corps, by law, cannot issue a Section 404 permit until a 401 certification is issued or waived.

⁷ Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. *The National Wetland Plant List*: 2016 wetland ratings. Phytoneuron 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X.

Subsequent to the SWANCC decision, the Chief Counsel for the State Water Resources Control Board issued a memorandum that addressed the effects of the SWANCC decision on the Section 401 Water Quality Certification Program.⁸ The memorandum states:

California's right and duty to evaluate certification requests under section 401 is pendant to (or dependent upon) a valid application for a section 404 permit from the Corps, or another application for a federal license or permit. Thus, if the Corps determines that the water body in question is not subject to regulation under the COE's 404 program, for instance, no application for 401 certification will be required...

The SWANCC decision does not affect the Porter Cologne authorities to regulate discharges to isolated, non-navigable waters of the states....

Water Code section 13260 requires "any person discharging waste, or proposing to discharge waste, within any region that could affect the waters of the state to file a report of discharge (an application for waste discharge requirements)." (Water Code § 13260(a)(1) (emphasis added).) The term "waters of the state" is defined as "any surface water or groundwater, including saline waters, within the boundaries of the state." (Water Code § 13050(e).) The U.S. Supreme Court's ruling in SWANCC has no bearing on the Porter-Cologne definition. While all waters of the United States that are within the borders of California are also waters of the state, the converse is not true—waters of the United States is a subset of waters of the state. Thus, since Porter-Cologne was enacted California always had and retains authority to regulate discharges of waste into any waters of the state, regardless of whether the COE has concurrent jurisdiction under section 404. The fact that often Regional Boards opted to regulate discharges to, e.g., vernal pools, through the 401 program in lieu of or in addition to issuing waste discharge requirements (or waivers thereof) does not preclude the regions from issuing WDRs (or waivers of WDRs) in the absence of a request for 401 certification....

In this memorandum, the SWRCB's Chief Counsel has made the clear assumption that fill material to be discharged into isolated waters of the United States is to be considered equivalent to "waste" and therefore subject to the authority of the Porter Cologne Water Quality Act.⁹

⁸ Wilson, Craig M. January 25, 2001. Memorandum addressed to State Board Members and Regional Board Executive Officers.

⁹ On June 17, 2016, the SWRCB issued a draft "Procedures for Discharges of Dredged or Fill Materials to Waters of the State" which provides definitions for wetlands, procedures for jurisdictional delineations, and procedures for obtaining permits for impacts to waters of the State.

C. <u>California Department of Fish and Wildlife</u>

Pursuant to Division 2, Chapter 6, Sections 1600-1617 of the California Fish and Game Code, the CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake, which supports fish or wildlife.

CDFW defines a stream (including creeks and rivers) as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation." CDFW's definition of "lake" includes "natural lakes or manmade reservoirs." CDFW also defines a stream as "a body of water that flows, or has flowed, over a given course during the historic hydrologic regime, and where the width of its course can reasonably be identified by physical or biological indicators."

It is important to note that the Fish and Game Code defines fish and wildlife to include: all wild animals, birds, plants, fish, amphibians, invertebrates, reptiles, and related ecological communities including the habitat upon which they depend for continued viability (FGC Division 5, Chapter 1, section 45 and Division 2, Chapter 1 section 711.2(a) respectively). Furthermore, Division 2, Chapter 5, Article 6, Section 1600 et seq. of the California Fish and Game Code does not limit jurisdiction to areas defined by specific flow events, seasonal changes in water flow, or presence/absence of vegetation types or communities.

III. RESULTS

A. <u>Corps Jurisdiction</u>

Corps jurisdiction associated with the Study Area totals 6.04 acres, of which 4.59 acres consists of jurisdictional wetlands. A total of 4,172 linear feet of streambed is present.

Corps jurisdiction within the Study Area is limited to the Cypress Channel, a concrete-sided and concrete-bottomed flood control channel located just east of the easterly boundary of the Project Site, and Drainage 1, an unnamed tributary located within Borrow Site 1 near the intersection of Pine Avenue and Euclid Avenue.

There are no Corps jurisdictional waters located within Borrow Sites 2, 3, 4, or 5. Exhibit 4A depicts the limits of Corps jurisdiction within the Project Site and Borrow Areas.

Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the Project Site

The Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the Project Site totals approximately 2.98 acres and is located at latitude 33.954018 and longitude 659439 in the City of Chino, San Bernardino County, California [Exhibit 1] within an unsectioned area of Township 2 South and Range 7 West of the U.S. Geological Survey (USGS) 7.5" quadrangle map Prado Dam (dated 1967 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. This area is bordered by the Project to the north, the El Prado Golf Course to the south and west, and the Cypress Channel to the east.

Corps jurisdiction associated with the Cypress Channel totals 1.45 acres, none of which consist of jurisdictional wetlands. A total of 2,527 linear feet of Corps streambed is present. The Cypress Channel is an ephemeral, concrete-sided and concrete-bottomed flood control channel located just east of the easterly boundary of the Project Site. The Cypress Channel enters the Study Area at Bickmore Avenue located northeast of the Project Site and flows in a north to south direction for 2,527 linear feet before leaving the Study Area and continuing to flow southerly into the Prado Basin.

Under 33 CFR Section 328.3(b)(1), the CWR of 2015 does not consider waste treatment ponds as Waters of the United States. 33 CFR Section 328.3(b) states as follows:

The following are not waters of the United States even where they otherwise meet the terms of paragraphs (a)(4) through (8) of this section.

(1) Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the Clean Water Act.

(2) Prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other Federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

(3) The following ditches:

(i) Ditches with ephemeral flow that are not a relocated <u>*tributary*</u> *or excavated in a* <u>*tributary*</u>.

(*ii*) *Ditches with intermittent flow that are not a relocated <u>tributary</u>, excavated in a <u>tributary</u>, or drain <u>wetlands</u>.*

(iii) Ditches that do not flow, either directly or through another water, into a water identified in paragraphs (a)(1) through (3) of this section.

(4) The following features:

(*i*) Artificially irrigated areas that would revert to dry land should application of water to that area cease;

(ii) Artificial, constructed lakes and ponds created in dry land such as farm and stock watering ponds, irrigation ponds, settling basins, fields flooded for rice growing, log cleaning ponds, or cooling ponds;

(iii) Artificial reflecting pools or swimming pools created in dry land;

(*iv*) Small ornamental waters created in dry land;

(v) Water-filled depressions created in dry land incidental to mining or construction activity, including pits excavated for obtaining fill, sand, or gravel that fill with water; (vi) Erosional features, including gullies, rills, and other ephemeral features that do not meet the definition of <u>tributary</u>, non-wetland swales, and lawfully constructed grassed waterways; and

(vii) Puddles.

(5) Groundwater, including groundwater drained through subsurface drainage systems.

(6) Stormwater control features constructed to convey, treat, or store stormwater that are created in dry land.

(7) Wastewater recycling structures constructed in dry land; detention and retention basins built for wastewater recycling; groundwater recharge basins; percolation ponds built for wastewater recycling; and water distributary structures built for wastewater recycling.

The OHWM within the Cypress Channel ranges from approximately 20-25 feet wide. No vegetation is present within the Cypress Channel as this feature is a concrete-sided and concrete-bottomed flood control channel.

Vegetation within the Project Site consists of Aleppo pine (*Pinus halepensis*), ash (*Fraxinus* sp), Bermuda grass (*Cynodon dactylon*), black willow (*Salix gooddingii*), blue elderberry (*Sambucus nigra* ssp. *caerulea*), chaparral yucca (*Hesperoyucca whipplei*), cheeseweed mallow (*Malva parviflora*), clover (*Trifolium* sp), common dandelion (*Taraxacum officinale*), common fiddleneck (*Amsinckia intermedia*), common Mediterranean grass (*Schismus barbatus*), common sunflower (*Helianthus annuus*), curly dock (*Rumex crispus*), desert brittlebush (*Encelia farinosa*), dwarf nettle (*Urtica urens*), field bindweed (*Convolvulus arvensis*), foxtail barley (*Hordeum murinum*), golden crownbeard (*Verbesina enceliodes*), lamb's quarters (*Chenopodium album*), London rocket (*Sisymbrium irio*), Mexican fan palm (*Washingtonia robusta*), milk thistle (*Silybum marianum*), millet (*Eleusine* sp.), mission cactus (*Opuntia ficus-indica*), Peruvian pepper tree (*Schinus molle*), prostrate knotweed (*Polygonum aviculare*), red brome (*Bromus madritensis*), red stemmed filaree (*Erodium cicutarium*), Russian thistle (*Salsola tragus*), salt cedar (*Tamarix ramosissima*), silver puffs (*Uropappus lindleyi*), southern cattail (*Typha domingensis*), spiny sowthistle (*Sonchus asper*), summer mustard (*Hirschfeldia incana*),

tree tobacco (*Nicotiana glauca*), western ragweed (*Ambrosia psilostachya*), and white horehound (*Marrubium vulgare*).

The riparian trees/shrubs identified in this report include salt cedar (*Tamarix ramosissima*), mulefat (*Baccharis salicifolia*), and black willow (*Salix gooddingii*), which are all located within the non-jurisdictional waste treatment ponds constructed within the Project Site.

Exhibit 4A depicts the limits of Corps jurisdiction within the Cypress Channel.

Borrow Site 1

Borrow Site One (Borrow 1) totals approximately 43.67 acres and is located at latitude 33.952213 and longitude -117.648256 in the City of Chino, San Bernardino County, California [Exhibit 1] within an unsectioned area of Township 2 South and Range 7 West, of the U.S. Geological Survey (USGS) 7.5" quadrangle map Prado Dam (dated 1967 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. Borrow 1 is bordered by Pine Avenue to the north, the Prado Regional Park to the south, Johnson Avenue to the east, and Euclid Avenue to the west.

Borrow 1 previously supported a combination of a dairy operation, which was recently abandoned, and a residence.

Corps jurisdiction associated with Borrow 1 is limited to Drainage 1, an unnamed intermittent tributary located near the intersection of Pine Avenue and Euclid Avenue. Corps jurisdiction associated with Drainage 1 totals 4.59 acres, all of which consist of jurisdictional wetlands. A total of 1,645 linear feet of Corps streambed is present.

Drainage 1 enters Borrow 1 from a culvert and pipe beneath Pine Avenue near its intersection with Euclid Avenue. The drainage flows in a north to south direction for 1,645 linear feet before leaving Borrow 1 and entering the Prado Basin. Ultimately, flows from Drainage 1 enter the lakes located at the El Prado Golf Course before flowing into Prado Basin.

Drainage 1 is contained in a channel with a defined bed and bank, which appears to be relatively uniform in width. The OHWM within Drainage 1 ranges from 10 to 16 feet in width and is all wetland.

Vegetation within Drainage 1 consists of black willow (*Salix gooddingii*), blue elderberry (*Sambucus nigra* ssp. *caerulea*), cheeseweed mallow (*Malva parviflora*), common Mediterranean grass (*Schismus barbatus*), common sunflower (*Helianthus annuus*), curly dock (*Rumex crispus*), salt cedar (*Tamarix ramosissima*), southern cattail (*Typha domingensis*), wild radish (*Raphanus raphanistrum*), prostrate knotweed (*Polygonum aviculare*), duckweed (*Lemna sp.*), and Yerba mansa (*Anemopsis californica*).
Drainage 1 was considered a wetland based on its existing condition of flowing water (hydrology), the presence of dominant hydrophytic vegetation, and hydric soils. There is also an adjacent wetland next to Drainage 1. This adjacent wetland has been significantly disturbed by past clearing and maintenance operations. Currently, the area is dominated by Bermuda grass; however, it also supports southern cattail (*Typha domingensis*), salt grass (*Distichlis spicata*), salt marsh sand spurry (*Spergularia marina*), pepperweed (*Lepidium latifolium*), and stinging nettle (*Urtica dioica*). Data Point 2 documents the vegetation within the data point area as well as the presence of wetland hydrology and hydric soils. This adjacent wetland also supports surface water, contains soil cracks, ponding, and discoloration of the soil surface typical of an anaerobic and wetland condition.

Due to the amount of disturbance (vegetation maintenance) in this adjacent wetland area, it is considered a problematic situation under the Corps' Arid West Supplement and would meet the criteria for a jurisdictional wetland due to the presence of hydric soils and wetland hydrology, absent the presence of hydrophytic vegetation¹⁰.

Borrow Site 2

Borrow Site Two (Borrow 2) totals approximately 38.51 acres and is located at latitude 33.952641 and longitude -117.644448 in the City of Chino, San Bernardino County, California [Exhibit 1] within an unsectioned area of Township 2 South and Range 7 West, of the U.S. Geological Survey (USGS) 7.5" quadrangle map Prado Dam (dated 1967 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. Borrow 2 is bordered by Pine Avenue to the north, the Prado Regional Park and the Prado Equestrian Center to the south, the California Institute for Women to the east, and Johnson Avenue to the west.

There is no Corps jurisdiction associated with Borrow 2. Borrow 2 previously supported a dairy operation which was recently abandoned, and approximately three waste treatment ponds remaining from that dairy operation.

Vegetation within Borrow Site 2 consists of Chinese parsley (*Heliotropium curassavicum*), telegraph weed (*Heterotheca grandiflora*), Russian thistle (*Salsola tragus*), spiny sow thistle (*Sonchus asper*), nettle leaf goosefoot (*Chenopodium murale*), cheese weed mallow (*Malva parviflora*), Italian rye grass (*Festuca perennis*), poison hemlock (*Conium maculatum*), prickly lettuce (*Lactuca serriola*), London rocket (*Sisymbrium irio*), flax-leaved horseweed (*Erigeron bonariensis*), Bermuda grass (*Cynodon dactylon*), bull thistle (*Cirsium vulgare*), bristly oxtongue (*Helminthotheca echioides*), prostrate knotweed (*Polygonum aviculare*), shamel ash

¹⁰ U.S. Army Corps of Engineers. 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-08-28. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

(*Fraxinus* uhdei), field bindweed (*Convolvulus arvensis*), curly dock (*Rumex crispus*), sweet clover (*Melilotus sp.*), and Asian ponyfoot (*Dichondra micrantha*).

Under 33 CFR Section 328.3(b)(1), the CWR does not consider waste treatment ponds as Waters of the United States. 33 CFR Section 328.3(b) states as follows:

The following are not waters of the United States even where they otherwise meet the terms of paragraphs (a)(4) through (8) of this section.

(1) Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the Clean Water Act.

(2) Prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other Federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

(3) The following ditches:

(i) Ditches with ephemeral flow that are not a relocated <u>tributary</u> or excavated in a <u>tributary</u>.

(*ii*) *Ditches with intermittent flow that are not a relocated <u>tributary</u>, excavated in a <u>tributary</u>, or drain <u>wetlands</u>.*

(iii) Ditches that do not flow, either directly or through another water, into a water identified in paragraphs (a)(1) through (3) of this section.

(4) The following features:

(*i*) Artificially irrigated areas that would revert to dry land should application of water to that area cease;

(*ii*) Artificial, constructed lakes and ponds created in dry land such as farm and stock watering ponds, irrigation ponds, settling basins, fields flooded for rice growing, log cleaning ponds, or cooling ponds;

(iii) Artificial reflecting pools or swimming pools created in dry land;

(iv) Small ornamental waters created in dry land;

(v) Water-filled depressions created in dry land incidental to mining or construction activity, including pits excavated for obtaining fill, sand, or gravel that fill with water; (vi) Erosional features, including gullies, rills, and other ephemeral features that do not meet the definition of <u>tributary</u>, non-wetland swales, and lawfully constructed grassed waterways; and

(vii) Puddles.

(5) Groundwater, including groundwater drained through subsurface drainage systems.

(6) Stormwater control features constructed to convey, treat, or store stormwater that are created in dry land.

(7) Wastewater recycling structures constructed in dry land; detention and retention basins built for wastewater recycling; groundwater recharge basins; percolation ponds built for wastewater recycling; and water distributary structures built for wastewater recycling.

Borrow 2 also contains an ephemeral roadside ditch constructed in the uplands. Under the CWR, at 33 CFR 328.3(b)(3)(i), roadside ditches with ephemeral flow that are not a relocated tributary or excavated in a tributary would be considered non-jurisdictional.

Section 33 CFR 328.3(b) states as follows:

The following are not waters of the United States even where they otherwise meet the terms of paragraphs (a)(4) through (8) of this section.

(1) Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the Clean Water Act.

(2) Prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other Federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

(3) The following ditches:

(i) Ditches with ephemeral flow that are not a relocated <u>tributary</u> or excavated in a <u>tributary</u>.
(ii) Ditches with intermittent flow that are not a relocated <u>tributary</u>, excavated in a <u>tributary</u>, or drain <u>wetlands</u>.
(iii) Ditches that do not flow, either directly or through another water, into a water identified in paragraphs (a)(1) through (3) of this section....

As noted above, this ditch would be considered non-jurisdictional under the CWR or the CWA.

Borrow Site 3

Borrow Site Three (Borrow 3) totals approximately 84.25 acres and is located at latitude 33.941462 and longitude -117.635815 in the City of Chino, San Bernardino County, California [Exhibit 1] within Section 5, Township 3 South, and Range 7 West, of the U.S. Geological

Survey (USGS) 7.5" quadrangle map Prado Dam (dated 1967 and photorevised in 1981) [Exhibit 2 - Vicinity Map]. Borrow 3 is bordered by the California Institute for Women to the north, the Prado Basin to the south and west, and Cucamonga Avenue to the east.

There is no Corps jurisdiction associated with Borrow 3. Borrow 3 previously supported a dairy operation which was recently abandoned, and several waste treatment ponds remaining from that dairy operation.

Vegetation within Borrow 3 includes Mexican fireweed (*Bassia scoparia*), five-hook bassia (*Bassia hyssopifolia*), prickly lettuce (*Lactuca serriola*), Russian thistle (*Salsola tragus*), soft chess (*Bromus tectorum*), wild oat (*Avena fatua*), goldentop grass (*Lamarkia aurea*), sunflower (*Heliantus annuus*), cheeseweed mallow (*Malva parviflora*), coyote brush (*Baccharis pilularis*), London rocket (*Sisymbrium irio*), Italian thistle (*Carduus sp.*), Bermuda grass (*Cynodon dactylon*), tumbleweed (*Amaranthus albus*), prickly sow-thistle (*Sonchus asper*), rabbitfoot grass (*Polypogon monspeliensis*), common knotgrass (*Polygonum aviculare*), Australian saltbush (*Atriplex semibaccata*), big saltbush (*Atriplex lentiformis*), purple needlegrass (*Stipa pulchra*), salt heliotrope (*Heliotropium curassavicum*), Italian rye grass (*Festuca perennis*), wall barley (*Hordeum marinum*), pigweed (*Chenopodium album*), London rocket (*Sysimbrium irio*), Mediterranean grass (Schismus barbatus), perennial pepperweed (*Lepidium latifolium*), milk thistle (*Silybum marianum*), golden crownbeard (*Verbesina encelioides*), and California brittlebrush (*Encilia californica*).

Under 33 CFR Section 328.3(b)(1), the CWR does not consider waste treatment ponds as Waters of the United States. 33 CFR Section 328.3(b) states as follows:

The following are not waters of the United States even where they otherwise meet the terms of paragraphs (a)(4) through (8) of this section.

(1) Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the Clean Water Act.

(2) Prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other Federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

(3) The following ditches:

(i) Ditches with ephemeral flow that are not a relocated <u>tributary</u> or excavated in a <u>tributary</u>.
(ii) Ditches with intermittent flow that are not a relocated <u>tributary</u>, excavated in a <u>tributary</u>, or drain <u>wetlands</u>.

(iii) Ditches that do not flow, either directly or through another water, into a water identified in paragraphs (a)(1) through (3) of this section.

(4) The following features:

(*i*) Artificially irrigated areas that would revert to dry land should application of water to that area cease;

(ii) Artificial, constructed lakes and ponds created in dry land such as farm and stock watering ponds, irrigation ponds, settling basins, fields flooded for rice growing, log cleaning ponds, or cooling ponds;

(iii) Artificial reflecting pools or swimming pools created in dry land;

(*iv*) Small ornamental waters created in dry land;

(v) Water-filled depressions created in dry land incidental to mining or construction activity, including pits excavated for obtaining fill, sand, or gravel that fill with water; (vi) Erosional features, including gullies, rills, and other ephemeral features that do not meet the definition of <u>tributary</u>, non-wetland swales, and lawfully constructed grassed waterways; and

(vii) Puddles.

(5) Groundwater, including groundwater drained through subsurface drainage systems.

(6) Stormwater control features constructed to convey, treat, or store stormwater that are created in dry land.

(7) Wastewater recycling structures constructed in dry land; detention and retention basins built for wastewater recycling; groundwater recharge basins; percolation ponds built for wastewater recycling; and water distributary structures built for wastewater recycling.

Borrow Site 4

Borrow Site Four (Borrow 4) totals approximately 12.94 acres and is located at latitude 33.945011 and longitude -117.622304 in the City of Chino, San Bernardino County, California [Exhibit 1] within Section 4, Township 3 South, and Range 7 West of the U.S. Geological Survey (USGS) 7.5" quadrangle map Corona North (dated 1967 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. Borrow 4 is bordered by Chino-Corona Road to the north, the Mill Creek Wetlands to the south and east, and Comet Avenue to the west.

There is no Corps jurisdiction associated with Borrow 4. Borrow 4 previously supported a dairy operation which was recently abandoned, but no jurisdictional waters were present on site. Borrow 4 is located adjacent to the Mill Creek Wetlands but as noted, does not support Corps jurisdictional waters.

Vegetation within Borrow Site 4 consists of coyote brush (*Baccharis pilularis*), coast goldenbush (*Isocoma menziesii*), common sunflower (*Helianthus annuus*), toyon (*Heteromeles arbutifolia*), lemonadeberry (*Rhus integrifolia*), creeping wild rye (*Elymus triticoides*), laurel sumac (*Malosma laurina*), deergrass (*Muhlenbergia rigens*), California sagebrush (*Artemisia californica*), Spanish lotus (*Acmispon americanus*), brittlebush (*Encelia farinosa*), mulefat (*Baccharis salicifolia*), saltgrass (*Distichlis spicata*), cheeseweed mallow (*Malva parviflora*), curly dock (*Rumex crispus*), Russian thistle (*Salsola tragus*), nettle leaf goosefoot (*Chenopodium murale*), London rocket (*Sisymbrium irio*), flax-leaved horseweed (*Erigeron bonariensis*), tumbleweed (*Amaranthus albus*), common red sage (*Kochia scoparia*), annual stinging nettle (*Urtica urens*), prickly lettuce (*Lactuca serriola*), Peruvian pepper tree (*Schinus molle*), Mexican fan palm (*Washingtonia robusta*), and Bermuda grass (*Cynodon dactylon*).

Borrow Site 5

Borrow Site Five (Borrow 5) totals approximately 21.28 acres and is located at latitude 33.949712 and longitude -117.613437 in the City of Chino, San Bernardino County, California [Exhibit 1] within Section 33, Township 2 South, and Range 7 West, of the U.S. Geological Survey (USGS) 7.5" quadrangle map Corona North (dated 1967 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. Borrow 5 is bordered by undeveloped land to the north and south, Hellman Avenue to the east, and Chino-Corona Road to the west.

There is no Corps jurisdiction associated with Borrow 5.

Vegetation within Borrow Site 5 consists of common sunflower (*Helianthus annuus*), Russian thistle (*Salsola tragus*), common red sage (*Kochia scoparia*), spiny sow thistle (*Sonchus asper*), nettle leaf goosefoot (*Chenopodium murale*), cheeseweed mallow (*Malva parviflora*), foxtail barley (*Hordeum murinum*), prickly lettuce (*Lactuca serriola*), London rocket (*Sisymbrium irio*), milk thistle (*Silybum marianum*), flax-leaved horseweed (*Erigeron bonariensis*), Bermuda grass (*Cynodon dactylon*), and annual stinging nettle (*Urtica urens*). There is also one California sycamore (*Platanus racemosa*).

Borrow 5 previously supported a dairy operation which was recently abandoned, and approximately two to three waste treatment ponds remaining from that dairy operation. Under 33 CFR Section 328.3(b)(1), the CWR does not consider waste treatment ponds as Waters of the United States. 33 CFR Section 328.3(b) states as follows:

The following are not waters of the United States even where they otherwise meet the terms of paragraphs (a)(4) through (8) of this section.

(1) Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the Clean Water Act.

(2) Prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other Federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.
(3) The following ditches:

(i) Ditches with ephemeral flow that are not a relocated <u>tributary</u> or excavated in a <u>tributary</u>.

(*ii*) Ditches with intermittent flow that are not a relocated <u>tributary</u>, excavated in a <u>tributary</u>, or drain <u>wetlands</u>.

(iii) Ditches that do not flow, either directly or through another water, into a water identified in paragraphs (a)(1) through (3) of this section.

(4) The following features:

(*i*) Artificially irrigated areas that would revert to dry land should application of water to that area cease;

(*ii*) Artificial, constructed lakes and ponds created in dry land such as farm and stock watering ponds, irrigation ponds, settling basins, fields flooded for rice growing, log cleaning ponds, or cooling ponds;

(iii) Artificial reflecting pools or swimming pools created in dry land;

(*iv*) Small ornamental waters created in dry land;

(v) Water-filled depressions created in dry land incidental to mining or construction activity, including pits excavated for obtaining fill, sand, or gravel that fill with water; (vi) Erosional features, including gullies, rills, and other ephemeral features that do not meet the definition of <u>tributary</u>, non-wetland swales, and lawfully constructed grassed waterways; and

(vii) Puddles.

(5) Groundwater, including groundwater drained through subsurface drainage systems.

(6) Stormwater control features constructed to convey, treat, or store stormwater that are created in dry land.

(7) Wastewater recycling structures constructed in dry land; detention and retention basins built for wastewater recycling; groundwater recharge basins; percolation ponds built for wastewater recycling; and water distributary structures built for wastewater recycling.

B. <u>Regional Board Jurisdiction</u>

Regional Board jurisdiction associated with the Study Area totals 6.31 acres, of which 4.59 acres consists of jurisdictional wetlands. A total of 6,538 linear feet of streambed is present. Regional Board jurisdiction within the Study Area is limited to the Cypress Channel, a concrete-sided and concrete-bottomed flood control channel located just east of the easterly boundary of the Project Site, Drainage 1, an unnamed tributary located within Borrow 1 near the intersection of Pine Avenue and Euclid Avenue, and Ditch 1, a roadside ditch constructed in the uplands adjacent to Johnson Avenue in Borrow 2.

There are no Regional Board jurisdictional waters located within Borrow Sites 3, 4, or 5. Exhibit 4A depicts the limits of Regional Board jurisdiction within the Project Site and Borrow Areas.

Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the Project Site

The Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the Project Site totals approximately 2.98 acres and is located at latitude 33.954018 and longitude 659439 in the City of Chino, San Bernardino County, California [Exhibit 1] within an unsectioned area of Township 2 South and Range 7 West of the U.S. Geological Survey (USGS) 7.5" quadrangle map Prado Dam (dated 1967 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. This area is bordered by the Project to the north, the El Prado Golf Course to the south and west, and the Cypress Channel to the east.

Regional Board jurisdiction associated with the Cypress Channel totals 1.45 acres, none of which consist of jurisdictional wetlands. A total of 2,527 linear feet of streambed is present. The Cypress Channel is a concrete-sided and concrete-bottomed flood control channel located just east of the easterly boundary of the Project Site. The Cypress Channel enters the Study Area at Bickmore Avenue located northeast of the Project Site and flows in a north to south direction for 2,527 linear feet before leaving the Study Area and continuing to flow southerly into the Prado Basin.

The OHWM within the Cypress Channel ranges from approximately 20-25 feet wide. No vegetation is present within the Cypress Channel as this feature is a concrete-sided and concrete-bottomed flood control channel.

Vegetation within the Project Site consists of Aleppo pine (*Pinus halepensis*), ash (*Fraxinus* sp), Bermuda grass (*Cynodon dactylon*), black willow (*Salix gooddingii*), blue elderberry (*Sambucus nigra* ssp. *caerulea*), chaparral yucca (*Hesperoyucca whipplei*), cheeseweed mallow (*Malva parviflora*), clover (*Trifolium* sp), common dandelion (*Taraxacum officinale*), common

fiddleneck (*Amsinckia intermedia*), common Mediterranean grass (*Schismus barbatus*), common sunflower (*Helianthus annuus*), curly dock (*Rumex crispus*), desert brittlebush (*Encelia farinosa*), dwarf nettle (*Urtica urens*), field bindweed (*Convolvulus arvensis*), foxtail barley (*Hordeum murinum*), golden crownbeard (*Verbesina enceliodes*), lamb's quarters (*Chenopodium album*), London rocket (*Sisymbrium irio*), Mexican fan palm (*Washingtonia robusta*), milk thistle (*Silybum marianum*), millet (*Eleusine* sp.), mission cactus (*Opuntia ficus-indica*), Peruvian pepper tree (*Schinus molle*), prostrate knotweed (*Polygonum aviculare*), red brome (*Bromus madritensis*), red stemmed filaree (*Erodium cicutarium*), Russian thistle (*Salsola tragus*), salt cedar (*Tamarix ramosissima*), silver puffs (*Uropappus lindleyi*), southern cattail (*Typha domingensis*), spiny sowthistle (*Sonchus asper*), summer mustard (*Hirschfeldia incana*), tree tobacco (*Nicotiana glauca*), western ragweed (*Ambrosia psilostachya*), and white horehound (*Marrubium vulgare*).

The riparian trees identified in this report include salt cedar (*Tamarix ramosissima*), mulefat (*Baccharis salicifolia*), and black willow (*Salix gooddingii*), which are all located within the non-jurisdictional waste treatment ponds constructed within the Project Site.

The Project Site previously supported a dairy operation which was recently abandoned, and several waste treatment ponds remaining from that dairy operation. None of these features would be subject to Regional Board jurisdiction as they do not support beneficial uses that would be regulated under the Regional Board's Basin Plan.

Exhibit 3 depicts the limits of Regional Board jurisdiction within the Cypress Channel.

Borrow Site 1

Borrow Site One (Borrow 1) totals approximately 43.67 acres and is located at latitude 33.952213 and longitude -117.648256 in the City of Chino, San Bernardino County, California [Exhibit 1] within an unsectioned area of Township 2 South and Range 7 West, of the U.S. Geological Survey (USGS) 7.5" quadrangle map Prado Dam (dated 1967 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. Borrow 1 is bordered by Pine Avenue to the north, the Prado Regional Park to the south, Johnson Avenue to the east, and Euclid Avenue to the west.

Borrow 1 previously supported a combination of a dairy operation, which was recently abandoned, and a residence.

Regional Board jurisdiction associated with Borrow 1 is limited to Drainage 1, an unnamed tributary located near the intersection of Pine Avenue and Euclid Avenue. Regional Board jurisdiction associated with Drainage 1 totals 4.59 acres, all of which consist of jurisdictional wetlands. A total of 1,645 linear feet of Regional Board streambed is present.

Drainage 1 enters Borrow 1 from a culvert and pipe beneath Pine Avenue near its intersection with Euclid Avenue. The drainage flows in a north to south direction for 1,645 linear feet before leaving Borrow 1 and entering the Prado Basin. Ultimately, flows from Drainage 1enter the lakes located at the El Prado Golf Course before flowing into Prado Basin.

Drainage 1 is contained in a channel with a defined bed and bank, which appears to be relatively uniform in width. The OHWM within Drainage 1 ranges from 10 to 16 feet in width and is all wetland.

Vegetation within Drainage 1 consists of black willow (*Salix gooddingii*), blue elderberry (*Sambucus nigra* ssp. *caerulea*), cheeseweed mallow (*Malva parviflora*), common Mediterranean grass (*Schismus barbatus*), common sunflower (*Helianthus annuus*), curly dock (*Rumex crispus*), salt cedar (*Tamarix ramosissima*), southern cattail (*Typha domingensis*), wild radish (*Raphanus raphanistrum*), prostrate knotweed (*Polygonum aviculare*), duckweed (*Lemna sp.*), and Yerba mansa (*Anemopsis californica*).

Drainage 1 was considered a wetland based on its existing condition of flowing water (hydrology), the presence of dominant hydrophytic vegetation, and hydric soils. There is also an adjacent wetland next to Drainage 1. This adjacent wetland has been significantly disturbed by past clearing and maintenance operations. Currently, the area is dominated by Bermuda grass; however, it also supports southern cattail (*Typha domingensis*), salt grass (*Distichlis spicata*), salt marsh sand spurry (*Spergularia marina*), pepperweed (*Lepidium latifolium*), and stinging nettle (*Urtica dioica*). Data Point 2 documents the vegetation within the data point area as well as the presence of wetland hydrology and hydric soils. This adjacent wetland also supports surface water, contains soil cracks, ponding, and discoloration of the soil surface typical of an anaerobic and wetland condition.

Due to the amount of disturbance (vegetation maintenance) in this adjacent wetland area, it is considered a problematic situation under the Corps' Arid West Supplement and would meet the criteria for a jurisdictional wetland due to the presence of hydric soils and wetland hydrology, absent the presence of hydrophytic vegetation¹¹. As such, this feature would be considered as Corps jurisdictional waters. Since the Drainage 1 adjacent wetland would be considered as Corps jurisdictional waters, it would also be considered as Regional Board jurisdiction.

¹¹ U.S. Army Corps of Engineers. 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-08-28. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

Borrow Site 2

Borrow Site Two (Borrow 2) totals approximately 38.51 acres and is located at latitude 33.952641 and longitude -117.644448 in the City of Chino, San Bernardino County, California [Exhibit 1] within an unsectioned area of Township 2 South and Range 7 West, of the U.S. Geological Survey (USGS) 7.5" quadrangle map Prado Dam (dated 1967 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. Borrow 2 is bordered by Pine Avenue to the north, the Prado Regional Park and the Prado Equestrian Center to the south, the California Institute for Women to the east, and Johnson Avenue to the west.

Regional Board jurisdiction within Borrow 2 is limited to a roadside ditch along the western and northern edge of the borrow area. Regional Board jurisdiction associated with Ditch 1 totals 0.27 acre, none of which consist of jurisdictional wetlands. A total of 2,366 linear feet of streambed is present. Ditch 1 is a soft-bottomed ditch located parallel to Johnson Avenue along the western edge of the borrow area. Ditch 1 enters the Study Area at :Pine Avenue located and flows in a north to south or east to west direction for 2,366 linear feet before leaving the Study Area and continuing to flow southerly into the Prado Basin.

The OHWM within Ditch 1 is about five feet wide.

Vegetation within Borrow Site 2 consists of Chinese parsley (*Heliotropium curassavicum*), telegraph weed (*Heterotheca grandiflora*), Russian thistle (*Salsola tragus*), spiny sow thistle (*Sonchus asper*), nettle leaf goosefoot (*Chenopodium murale*), cheeseweed mallow (*Malva parviflora*), Italian rye grass (*Festuca perennis*), poison hemlock (*Conium maculatum*), prickly lettuce (*Lactuca serriola*), London rocket (*Sisymbrium irio*), flax-leaved horseweed (*Erigeron bonariensis*), Bermuda grass (*Cynodon dactylon*), bull thistle (*Cirsium vulgare*), bristly oxtongue (*Helminthotheca echioides*), prostrate knotweed (*Polygonum aviculare*), shamel ash (*Fraxinus* uhdei), field bindweed (*Convolvulus arvensis*), curly dock (*Rumex crispus*), sweet clover (*Melilotus sp.*), and Asian ponyfoot (*Dichondra micrantha*).

Borrow 2 previously supported a dairy operation which was recently abandoned, and approximately three waste treatment ponds remaining from that dairy operation. None of these features would be subject to Regional Board jurisdiction as they do not support beneficial uses that would be regulated under the Regional Board's Basin Plan.

Borrow Site 3

Borrow Site Three (Borrow 3) totals approximately 84.25 acres and is located at latitude 33.941462 and longitude -117.635815 in the City of Chino, San Bernardino County, California [Exhibit 1] within Section 5, Township 3 South, and Range 7 West, of the U.S. Geological

Survey (USGS) 7.5" quadrangle map Prado Dam (dated 1967 and photorevised in 1981) [Exhibit 2 - Vicinity Map]. Borrow 3 is bordered by the California Institute for Women to the north, the Prado Basin to the south and west, and Cucamonga Avenue to the east.

There is no Regional Board jurisdiction associated with Borrow 3.

Vegetation within Borrow 3 includes Mexican fireweed (*Bassia scoparia*), five-hook bassia (*Bassia hyssopifolia*), prickly lettuce (*Lactuca serriola*), Russian thistle (*Salsola tragus*), soft chess (*Bromus tectorum*), wild oat (*Avena fatua*), goldentop grass (*Lamarkia aurea*), sunflower (*Heliantus annuus*), cheeseweed mallow (*Malva parviflora*), coyote brush (*Baccharis pilularis*), London rocket (*Sisymbrium irio*), Italian thistle (*Carduus sp.*), Bermuda grass (*Cynodon dactylon*), tumbleweed (*Amaranthus albus*), prickly sow-thistle (*Sonchus asper*), rabbitfoot grass (*Polypogon monspeliensis*), common knotgrass (*Polygonum aviculare*), Australian saltbush (*Atriplex semibaccata*), big saltbush (*Atriplex lentiformis*), purple needlegrass (*Stipa pulchra*), salt heliotrope (*Heliotropium curassavicum*), Italian rye grass (*Festuca perennis*), wall barley (*Hordeum marinum*), pigweed (*Chenopodium album*), London rocket (Sysimbrium irio), Mediterranean grass (Schismus barbatus), perennial pepperweed (*Lepidium latifolium*), milk thistle (*Silybum marianum*), golden crownbeard (*Verbesina encelioides*), and California brittlebrush (*Encilia californica*).

Borrow 3 previously supported a dairy operation which was recently abandoned, and several waste treatment ponds remaining from that dairy operation. None of these features would be subject to Regional Board jurisdiction as they do not support beneficial uses that would be regulated under the Regional Board's Basin Plan.

Borrow Site 4

Borrow Site Four (Borrow 4) totals approximately 12.94 acres and is located at latitude 33.945011 and longitude -117.622304 in the City of Chino, San Bernardino County, California [Exhibit 1] within Section 4, Township 3 South, and Range 7 West of the U.S. Geological Survey (USGS) 7.5" quadrangle map Corona North (dated 1967 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. Borrow 4 is bordered by Chino-Corona Road to the north, the Mill Creek Wetlands to the south and east, and Comet Avenue to the west.

There is no Regional Board jurisdiction associated with Borrow 4.

Vegetation within Borrow Site 4 consists of coyote brush (*Baccharis pilularis*), coast goldenbush (*Isocoma menziesii*), common sunflower (*Helianthus annuus*), toyon (*Heteromeles arbutifolia*), lemonadeberry (*Rhus integrifolia*), creeping wild rye (*Elymus triticoides*), laurel sumac (*Malosma laurina*), deergrass (*Muhlenbergia rigens*), California sagebrush (*Artemisia*)

californica), Spanish lotus (*Acmispon americanus*), brittlebush (*Encelia farinosa*), mulefat (*Baccharis salicifolia*), saltgrass (*Distichlis spicata*), cheeseweed mallow (*Malva parviflora*), curly dock (*Rumex crispus*), Russian thistle (*Salsola tragus*), nettle leaf goosefoot (*Chenopodium murale*), London rocket (*Sisymbrium irio*), flax-leaved horseweed (*Erigeron bonariensis*), tumbleweed (*Amaranthus albus*), common red sage (*Kochia scoparia*), annual stinging nettle (*Urtica urens*), prickly lettuce (*Lactuca serriola*), Peruvian pepper tree (*Schinus molle*), Mexican fan palm (*Washingtonia robusta*), and Bermuda grass (*Cynodon dactylon*).

Borrow 4 previously supported a dairy operation which was recently abandoned, but no jurisdictional waters were present on site. Borrow 4 is located adjacent to the Mill Creek Wetlands but as noted, does not support Regional Board jurisdictional waters.

Borrow Site 5

Borrow Site Five (Borrow 5) totals approximately 21.28 acres and is located at latitude 33.949712 and longitude -117.613437 in the City of Chino, San Bernardino County, California [Exhibit 1] within Section 33, Township 2 South, and Range 7 West, of the U.S. Geological Survey (USGS) 7.5" quadrangle map Corona North (dated 1967 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. Borrow 5 is bordered by undeveloped land to the north and south, Hellman Avenue to the east, and Chino-Corona Road to the west.

There is no Regional Board jurisdiction associated with Borrow 5.

Vegetation within Borrow Site 5 consists of common sunflower (*Helianthus annuus*), Russian thistle (*Salsola tragus*), common red sage (*Kochia scoparia*), spiny sow thistle (*Sonchus asper*), nettle leaf goosefoot (*Chenopodium murale*), cheeseweed mallow (*Malva parviflora*), foxtail barley (*Hordeum murinum*), prickly lettuce (*Lactuca serriola*), London rocket (*Sisymbrium irio*), milk thistle (*Silybum marianum*), flax-leaved horseweed (*Erigeron bonariensis*), Bermuda grass (*Cynodon dactylon*), and annual stinging nettle (*Urtica urens*). There is also one California sycamore (*Platanus racemosa*).

Borrow 5 previously supported a dairy operation which was recently abandoned, and approximately two to three waste treatment ponds remaining from that dairy operation. None of these features would be subject to Regional Board jurisdiction as they do not support beneficial uses that would be regulated under the Regional Board's Basin Plan.

C. <u>CDFW Jurisdiction</u>

CDFW jurisdiction associated with the Study Area totals 7.40 acres, of which 4.62 acres consist of riparian habitat and 2.78 acres consist of non-riparian streambed. A total of 6,538 linear feet of streambed is present.

CDFW jurisdiction within the Study Area is limited to the Cypress Channel, a concrete-sided and concrete-bottomed flood control channel located just east of the easterly boundary of the Project Site, Drainage 1, an unnamed tributary located within Borrow 1 near the intersection of Pine Avenue and Euclid Avenue, and Ditch 1, a roadside ditch constructed in the uplands adjacent to Johnson Avenue in Borrow Site 2.

There is no CDFW jurisdiction located within Borrow Sites 3, 4, or 5. Exhibit 4B depicts the limits of CDFW jurisdiction within the Project Site and Borrow Areas.

Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the Project Site

The Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the Project Site totals approximately 2.98 acres and is located at latitude 33.954018 and longitude 659439 in the City of Chino, San Bernardino County, California [Exhibit 1] within an unsectioned area of Township 2 South and Range 7 West of the U.S. Geological Survey (USGS) 7.5" quadrangle map Prado Dam (dated 1967 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. This area is bordered by the Project to the north, the El Prado Golf Course to the south and west, and the Cypress Channel to the east.

CDFW jurisdiction associated with the Cypress Channel totals 2.32 acres, all of which consist of non-riparian, concrete streambed. A total of 2,527 linear feet of streambed is present. The Cypress Channel is a concrete-sided and concrete-bottomed flood control channel located just east of the easterly boundary of the Project Site. The Cypress Channel enters the Study Area at Bickmore Avenue located northeast of the Project Site and flows in a north to south direction for 2,527 linear feet before leaving the Study Area and continuing to flow southerly into the Prado Basin.

The high-water mark (HWM) within the Cypress Channel ranges from approximately 40-45 feet wide. No vegetation is present within the Cypress Channel as this feature is a concrete-sided and concrete-bottomed flood control channel.

Vegetation within the Project Site consists of Aleppo pine (*Pinus halepensis*), ash (*Fraxinus* sp), Bermuda grass (*Cynodon dactylon*), black willow (*Salix gooddingii*), blue elderberry (*Sambucus nigra* ssp. *caerulea*), chaparral yucca (*Hesperoyucca whipplei*), cheeseweed mallow (*Malva*)

parviflora), clover (Trifolium sp), common dandelion (Taraxacum officinale), common fiddleneck (Amsinckia intermedia), common Mediterranean grass (Schismus barbatus), common sunflower (Helianthus annuus), curly dock (Rumex crispus), desert brittlebush (Encelia farinosa), dwarf nettle (Urtica urens), field bindweed (Convolvulus arvensis), foxtail barley (Hordeum murinum), golden crownbeard (Verbesina enceliodes), lamb's quarters (Chenopodium album), London rocket (Sisymbrium irio), Mexican fan palm (Washingtonia robusta), milk thistle (Silybum marianum), millet (Eleusine sp.), mission cactus (Opuntia ficus-indica), Peruvian pepper tree (Schinus molle), prostrate knotweed (Polygonum aviculare), red brome (Bromus madritensis), red stemmed filaree (Erodium cicutarium), Russian thistle (Salsola tragus), salt cedar (Tamarix ramosissima), silver puffs (Uropappus lindleyi), southern cattail (Typha domingensis), spiny sowthistle (Sonchus asper), summer mustard (Hirschfeldia incana), tree tobacco (Nicotiana glauca), western ragweed (Ambrosia psilostachya), and white horehound (Marrubium vulgare).

The riparian trees identified in this report include salt cedar (*Tamarix ramosissima*), mulefat (*Baccharis salicifolia*), and black willow (*Salix gooddingii*), which are all located within the non-jurisdictional waste treatment ponds constructed within the Project Site.

The Project Site previously supported a dairy operation which was recently abandoned, and several waste treatment ponds remaining from that dairy operation. None of these features would be subject to CDFW jurisdiction as they are not rivers, streams, or lakes and their disturbance will not occur in the bed, bank, or channel of a river, stream, or lake, nor will they affect riparian habitat protected by Section 1602 of the State of California Fish and Game Code. Additionally, the repair activities would not result in 1) the substantial diversion, obstruction, or alteration of the natural flow or bed, channel, or bank of a river, stream, or lake, 2) the use of material from a streambed, or 3) a substantial adverse effect upon existing fish or wildlife resources.

Exhibit 4B depicts the limits of CDFW jurisdiction within the Cypress Channel.

Borrow Site 1

Borrow Site One (Borrow 1) totals approximately 43.67 acres and is located at latitude 33.952213 and longitude -117.648256 in the City of Chino, San Bernardino County, California [Exhibit 1] within an unsectioned area of Township 2 South and Range 7 West, of the U.S. Geological Survey (USGS) 7.5" quadrangle map Prado Dam (dated 1967 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. Borrow 1 is bordered by Pine Avenue to the north, the Prado Regional Park to the south, Johnson Avenue to the east, and Euclid Avenue to the west.

Borrow 1 previously supported a combination of a dairy operation, which was recently abandoned, and a residence.

CDFW jurisdiction associated with Borrow 1 is limited to Drainage 1 located near the intersection of Pine Avenue and Euclid Avenue. CDFW jurisdiction associated with Drainage 1 totals 4.81 acres, of which 4.62 acres consist of riparian habitat and 0.19 acre consists of non-riparian streambed. A total of 1,645 linear feet of CDFW streambed is present.

Drainage 1 enters Borrow 1 from a culvert and pipe beneath Pine Avenue near its intersection with Euclid Avenue. The drainage flows in a north to south direction for 1,645 linear feet before leaving Borrow 1 and entering the Prado Basin. Ultimately, flows from Drainage 1 enter the lakes located at the El Prado Golf Course before flowing into Prado Basin. Drainage 1 is contained in a channel with a defined bed and bank, which appears to be relatively uniform in width. The HWM within Drainage 1 ranges from 16 to 24 feet in width. Vegetation within Drainage 1 consists of black willow (*Salix gooddingii*), blue elderberry (*Sambucus nigra* ssp. *caerulea*), cheeseweed mallow (*Malva parviflora*), common Mediterranean grass (*Schismus barbatus*), common sunflower (*Helianthus annuus*), curly dock (*Rumex crispus*), salt cedar (*Tamarix ramosissima*), southern cattail (*Typha domingensis*), wild radish (*Raphanus raphanistrum*), prostrate knotweed (*Polygonum aviculare*), duckweed (*Lemna sp.*), and Yerba mansa (*Anemopsis californica*).

Drainage 1 was considered a wetland/riparian habitat area based on its existing condition of flowing water (hydrology), the presence of dominant hydrophytic vegetation, and hydric soils.

There is also an adjacent wetland/riparian area next to Drainage 1. This adjacent wetland/riparian area has been significantly disturbed by past clearing and maintenance operations. Currently, the area is dominated by Bermuda grass; however, it also supports southern cattail (*Typha domingensis*), salt grass (*Distichlis spicata*), salt marsh sand spurry (*Spergularia marina*), pepperweed (*Lepidium latifolium*), and stinging nettle (*Urtica dioica*). This adjacent wetland/riparian area also supports surface water, contains soil cracks, ponding, and discoloration of the soil surface typical of an anaerobic and wetland condition.

Based on the presence of riparian habitat upstream and downstream of this maintained, disturbed area, it is assumed that riparian habitat would re-establish if maintenance would cease. As such, this feature would be considered as CDFW jurisdiction.

Borrow Site 2

Borrow Site Two (Borrow 2) totals approximately 38.51 acres and is located at latitude 33.952641 and longitude -117.644448 in the City of Chino, San Bernardino County, California

[Exhibit 1] within an unsectioned area of Township 2 South and Range 7 West, of the U.S. Geological Survey (USGS) 7.5" quadrangle map Prado Dam (dated 1967 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. Borrow 2 is bordered by Pine Avenue to the north, the Prado Regional Park and the Prado Equestrian Center to the south, the California Institute for Women to the east, and Johnson Avenue to the west.

Vegetation within Borrow Site 2 consists of Chinese parsley (*Heliotropium curassavicum*), telegraph weed (*Heterotheca grandiflora*), Russian thistle (*Salsola tragus*), spiny sow thistle (*Sonchus asper*), nettle leaf goosefoot (*Chenopodium murale*), cheeseweed mallow (*Malva parviflora*), Italian rye grass (*Festuca perennis*), poison hemlock (*Conium maculatum*), prickly lettuce (*Lactuca serriola*), London rocket (*Sisymbrium irio*), flax-leaved horseweed (*Erigeron bonariensis*), Bermuda grass (*Cynodon dactylon*), bull thistle (*Cirsium vulgare*), bristly oxtongue (*Helminthotheca echioides*), prostrate knotweed (*Polygonum aviculare*), shamel ash (*Fraxinus* uhdei), field bindweed (*Convolvulus arvensis*), curly dock (*Rumex crispus*), sweet clover (*Melilotus sp.*), and Asian ponyfoot (*Dichondra micrantha*).

CDFW jurisdiction within Borrow 2 is limited to a roadside ditch along the western edge of the borrow area. CDFW jurisdiction associated with Ditch 1 totals 0.27 acre, all of which consists of non-riparian roadside ditch. A total of 2,366 linear feet of streambed is present. Ditch 1 is a soft-bottomed ditch located parallel to Johnson Avenue and/or Pine Avenue along the western and northern edge of the borrow area. Ditch 1 enters the Study Area at :Pine Avenue and flows in a north to south or east to west direction for 2,366 linear feet before leaving the Study Area and continuing to flow southerly into the Prado Basin.

The HWM within Ditch 1 is about five feet wide.

Vegetation within Ditch 1 consists of Russian thistle (*Salsola tragus*), wild oat (*Avena fatua*), brome grasses (*Bromus sp.*), barnyard grass (*Echinochloa crus-galli*), and bull thistle (*Cirsium vulgare*).

Borrow 2 previously supported a dairy operation which was recently abandoned, and approximately three waste treatment ponds remaining from that dairy operation. These features would be subject to CDFW jurisdiction as they are not rivers, streams, or lakes and their disturbance will not occur in the bed, bank, or channel of a river, stream, or lake, nor will they affect riparian habitat protected by Section 1602 of the State of California Fish and Game Code. Additionally, the repair activities would not result in 1) the substantial diversion, obstruction, or alteration of the natural flow or bed, channel, or bank of a river, stream, or lake, 2) the use of material from a streambed, or 3) a substantial adverse effect upon existing fish or wildlife resources.

Borrow Site 3

Borrow Site Three (Borrow 3) totals approximately 84.25 acres and is located at latitude 33.941462 and longitude -117.635815 in the City of Chino, San Bernardino County, California [Exhibit 1] within Section 5, Township 3 South, and Range 7 West, of the U.S. Geological Survey (USGS) 7.5" quadrangle map Prado Dam (dated 1967 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. Borrow 3 is bordered by the California Institute for Women to the north, the Prado Basin to the south and west, and Cucamonga Avenue to the east.

There is no CDFW jurisdiction associated with Borrow 3.

Vegetation within Borrow 3 includes Mexican fireweed (*Bassia scoparia*), five-hook bassia (*Bassia hyssopifolia*), prickly lettuce (*Lactuca serriola*), Russian thistle (*Salsola tragus*), soft chess (*Bromus tectorum*), wild oat (*Avena fatua*), goldentop grass (*Lamarkia aurea*), sunflower (*Heliantus annuus*), cheeseweed mallow (*Malva parviflora*), coyote brush (*Baccharis pilularis*), London rocket (*Sisymbrium irio*), Italian thistle (*Carduus sp.*), Bermuda grass (*Cynodon dactylon*), tumbleweed (*Amaranthus albus*), prickly sow-thistle (*Sonchus asper*), rabbitfoot grass (*Polypogon monspeliensis*), common knotgrass (*Polygonum aviculare*), Australian saltbush (*Atriplex semibaccata*), big saltbush (*Atriplex lentiformis*), purple needlegrass (*Stipa pulchra*), salt heliotrope (*Heliotropium curassavicum*), Italian rye grass (*Festuca perennis*), wall barley (*Hordeum marinum*), pigweed (*Chenopodium album*), London rocket (Sysimbrium irio), Mediterranean grass (Schismus barbatus), perennial pepperweed (*Lepidium latifolium*), milk thistle (*Silybum marianum*), golden crownbeard (*Verbesina encelioides*), and California brittlebrush (*Encilia californica*).

Borrow 3 previously supported a dairy operation which was recently abandoned, and several waste treatment ponds remaining from that dairy operation. None of these features would be subject to CDFW jurisdiction as they are not rivers, streams, or lakes and their disturbance will not occur in the bed, bank, or channel of a river, stream, or lake, nor will they affect riparian habitat protected by Section 1602 of the State of California Fish and Game Code. Additionally, the repair activities would not result in 1) the substantial diversion, obstruction, or alteration of the natural flow or bed, channel, or bank of a river, stream, or lake, 2) the use of material from a streambed, or 3) a substantial adverse effect upon existing fish or wildlife resources.

Borrow Site 4

Borrow Site Four (Borrow 4) totals approximately 12.94 acres and is located at latitude 33.945011 and longitude -117.622304 in the City of Chino, San Bernardino County, California [Exhibit 1] within Section 4, Township 3 South, and Range 7 West of the U.S. Geological Survey (USGS) 7.5" quadrangle map Corona North (dated 1967 and photorevised in 1981)

[Exhibit 2 – Vicinity Map]. Borrow 4 is bordered by Chino-Corona Road to the north, the Mill Creek Wetlands to the south and east, and Comet Avenue to the west.

There is no CDFW jurisdiction associated with Borrow 4.

Vegetation within Borrow Site 4 consists of coyote brush (*Baccharis pilularis*), coast goldenbush (*Isocoma menziesii*), common sunflower (*Helianthus annuus*), toyon (*Heteromeles arbutifolia*), lemonadeberry (*Rhus integrifolia*), creeping wild rye (*Elymus triticoides*), laurel sumac (*Malosma laurina*), deergrass (*Muhlenbergia rigens*), California sagebrush (*Artemisia californica*), Spanish lotus (*Acmispon americanus*), brittlebush (*Encelia farinosa*), mulefat (*Baccharis salicifolia*), saltgrass (*Distichlis spicata*), cheeseweed mallow (*Malva parviflora*), curly dock (*Rumex crispus*), Russian thistle (*Salsola tragus*), nettle leaf goosefoot (*Chenopodium murale*), London rocket (*Sisymbrium irio*), flax-leaved horseweed (*Erigeron bonariensis*), tumbleweed (*Amaranthus albus*), common red sage (*Kochia scoparia*), annual stinging nettle (*Urtica urens*), prickly lettuce (*Lactuca serriola*), Peruvian pepper tree (*Schinus molle*), Mexican fan palm (*Washingtonia robusta*), and Bermuda grass (*Cynodon dactylon*).

Borrow 4 previously supported a dairy operation which was recently abandoned, but no jurisdictional waters were present on site. Borrow 4 is located adjacent to the Mill Creek Wetlands but as noted, does not support Regional Board jurisdictional waters.

Borrow Site 5

Borrow Site Five (Borrow 5) totals approximately 21.28 acres and is located at latitude 33.949712 and longitude -117.613437 in the City of Chino, San Bernardino County, California [Exhibit 1] within Section 33, Township 2 South, and Range 7 West, of the U.S. Geological Survey (USGS) 7.5" quadrangle map Corona North (dated 1967 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. Borrow 5 is bordered by undeveloped land to the north and south, Hellman Avenue to the east, and Chino-Corona Road to the west.

There is no CDFW jurisdiction associated with Borrow 5.

Vegetation within Borrow Site 5 consists of common sunflower (*Helianthus annuus*), Russian thistle (*Salsola tragus*), common red sage (*Kochia scoparia*), spiny sow thistle (*Sonchus asper*), nettle leaf goosefoot (*Chenopodium murale*), cheeseweed mallow (*Malva parviflora*), foxtail barley (*Hordeum murinum*), prickly lettuce (*Lactuca serriola*), London rocket (*Sisymbrium irio*), milk thistle (*Silybum marianum*), flax-leaved horseweed (*Erigeron bonariensis*), Bermuda grass (*Cynodon dactylon*), and annual stinging nettle (*Urtica urens*).

Borrow 5 previously supported a dairy operation which was recently abandoned, and approximately two to three waste treatment ponds remaining from that dairy operation. None of these features would be subject to CDFW jurisdiction as they are not rivers, streams, or lakes and their disturbance will not occur in the bed, bank, or channel of a river, stream, or lake, nor will they affect riparian habitat protected by Section 1602 of the State of California Fish and Game Code. Additionally, the repair activities would not result in 1) the substantial diversion, obstruction, or alteration of the natural flow or bed, channel, or bank of a river, stream, or lake, 2) the use of material from a streambed, or 3) a substantial adverse effect upon existing fish or wildlife resources.

IV. DISCUSSION

A. <u>Impact Analysis</u>

An analysis of impacts will be performed, based upon this delineation and the current Project design (or design alternative) upon the client's request. This analysis will be provided as a separate memorandum and accompanying map.

If you have any questions about this letter report, please contact me at (949) 340-3851 at the office or (714) 323-6221 on my cellular telephone.

Sincerely,

GLENN LUKOS ASSOCIATES, INC.

Mart. C. Rix

Martin A. Rasnick Principal/Senior Regulatory Specialist

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0 725 1,450 2,900

1 inch = 1,450 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: September 9, 2019

MAJESTIC CHINO HERITAGE PROJECT

Aerial Map





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W indicates Borrow Site 1 Wetland in Channel



0 125 250 500 Feet

1 inch = 250 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: August 8, 2019



Corps/RWQCB Jurisdictional Delineation Map - Borrow Sites 1 & 2

GLENN LUKOS ASSOCIATES

on Airbus DS

Exhibit 4A - Sheet 2

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Study Area Boundary CDFW Non-Riparian Streambed CDFW Riparian Width in Feet

R indicates Borrow Site 1 Riparian in Channel



0 125 250 500

1 inch = 250 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: August 8, 2019



CDFW Jurisdictional Delineation Map - Borrow Sites 1 & 2



on Airbus DS

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Photograph 1: Photograph depicting Drainage 1 and freshwater marsh habitat on site.



Photograph 3: Photograph depicting Drainage 1 and freshwater marsh habitat on site.



Photograph 2: Photograph depicting freshwater marsh/seep area within Borrow Site 1 westerly of Drainage 1.



Photograph 4: Photograph depicting disturbed freshwater marsh area on site.



GLENN LUKOS ASSOCIATES

Exhibit 5







GLENN LUKOS ASSOCIATES

Exhibit 5

Photograph 5: Photograph depicting Cypress Channel. Note the concrete sides and bottom.





Photograph 6: Photograph depicting Cypress Channel. Note the concrete sides and bottom.





Cb - CHINO SILT LOAM

CkA - CHUALAR CLAY LOAM, 0 TO 2 PERCENT SLOPES

CkC - CHUALAR CLAY LOAM, 2 TO 9 PERCENT SLOPES

CkD - CHUALAR CLAY LOAM, 9 TO 15 PERCENT SLOPES

Gr - GRANGEVILLE FINE SANDY LOAM

Hr - HILMAR LOAMY FINE SAND



0 725 1,450 2,900 Feet

1 inch = 1,450 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: August 8, 2019

MAJESTIC CHINO HERITAGE PROJECT

Soils - Key Map

GLENN LUKOS ASSOCIATES

<u>____//</u>_____

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Exhibit 6 - Sheet 1







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Cb - CHINO SILT LOAM

CkC - CHUALAR CLAY LOAM, 2 TO 9 PERCENT SLOPES

CkD - CHUALAR CLAY LOAM, 9 TO 15 PERCENT SLOPES

Gr - GRANGEVILLE FINE SANDY LOAM



500 125 250 Feet

1 inch = 250 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: August 8, 2019

MAJESTIC CHINO HERITAGE PROJECT

Soils Map - Borrow Sites 1 & 2

GLENN LUKOS ASSOCIATES

M/2 - M/2 Exhibit 6 - Sheet 3

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CkA - CHUALAR CLAY LOAM, 0 TO 2 PERCENT SLOPES

CkC - CHUALAR CLAY LOAM, 2 TO 9 PERCENT SLOPES



500 125 250 Feet

1 inch = 250 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: August 8, 2019

MAJESTIC CHINO HERITAGE PROJECT

Soils Map - Borrow Site 3

GLENN LUKOS ASSOCIATES



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CkA - CHUALAR CLAY LOAM, 0 TO 2 PERCENT SLOPES

CkC - CHUALAR CLAY LOAM, 2 TO 9 PERCENT SLOPES

CkD - CHUALAR CLAY LOAM, 9 TO 15 PERCENT SLOPES



200 50 100 Feet

1 inch = 100 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: August 8, 2019

MAJESTIC CHINO HERITAGE PROJECT

Soils Map - Borrow Site 4

GLENN LUKOS ASSOCIATES



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Cb - CHINO SILT LOAM

CkC - CHUALAR CLAY LOAM, 2 TO 9 PERCENT SLOPES

Gr - GRANGEVILLE FINE SANDY LOAM

Hr - HILMAR LOAMY FINE SAND



0 75 150 300 Feet

1 inch = 150 feet

Coordinate System: State Plane 5 NAD 83 Projection: Lambert Conformal Conic Datum: NAD83 Map Prepared by: B. Gale, GLA Date Prepared: August 8, 2019

MAJESTIC CHINO HERITAGE PROJECT

Soils Map - Borrow Site 5

GLENN LUKOS ASSOCIATES

Exhibit 6 - Sheet 6

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MEMORANDUM

GLENN LUKOS ASSOCIATE



Regulatory Services

PROJECT NUMBER:	1090-0002chno
TO:	John Burroughs Commerce Construction Company, L.P. 13191 Crossroads Parkway North Sixth Floor City of Industry, California 91746
FROM:	Martin Rasnick
DATE:	September 25, 2019
SUBJECT:	Jurisdictional Delineation Impact Assessment for the Majestic Chino Heritage Project and Five Borrow Sites, a Total of Approximately 300.54- Acres of Property Located in the City of Chino, San Bernardino County, California.

Mr. Burroughs

This memorandum summarizes our preliminary findings and an impact analysis of U.S. Army Corps of Engineers (Corps), California Department of Fish and Wildlife (CDFW), and Santa Ana Regional Water Quality Control Board (Regional Board) jurisdiction for the Majestic Chino Heritage Project and its five borrow sites located in the City of Chino, San Bernardino County, California: An impact analysis was conducted for the Project Study Area based upon files received from the Project engineer. Impacts to each regulatory jurisdiction are described below.

1. Impacts to Potential Corps/Regional Board Jurisdiction

Corps Jurisdiction

Corps jurisdiction associated with the Study Area is 6.04 acres, of which 4.59 acres consists of jurisdictional wetlands. A total of 4,172 linear feet of streambed is present.

Corps jurisdiction within the Study Area is limited to the Cypress Channel, a concretesided and concrete-bottomed flood control channel located just east of the easterly boundary of the Project Site, and Drainage 1, an unnamed tributary located within Borrow Site 1 near the intersection of Pine Avenue and Euclid Avenue.
Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the Project Site

Corps jurisdiction associated with the Cypress Channel totals 1.45 acres, none of which consist of jurisdictional wetlands. A total of 2,527 linear feet of Corps streambed is present. The Cypress Channel is an ephemeral, concrete-sided and concrete-bottomed flood control channel located just east of the easterly boundary of the Project Site. The Cypress Channel enters the Study Area at Bickmore Avenue located northeast of the Project Site and flows in a north to south direction for 2,527 linear feet before leaving the Study Area and continuing to flow southerly into the Prado Basin.

Borrow Site 1

Corps jurisdiction associated with Borrow 1 is limited to Drainage 1, an unnamed intermittent tributary located near the intersection of Pine Avenue and Euclid Avenue. Corps jurisdiction associated with Drainage 1 totals 4.59 acres, all of which consist of jurisdictional wetlands. A total of 1,645 linear feet of Corps streambed is present.

Drainage 1 enters Borrow 1 from a culvert and pipe beneath Pine Avenue near its intersection with Euclid Avenue. The drainage flows in a north to south direction for 1,645 linear feet before leaving Borrow 1 and entering the Prado Basin. Ultimately, flows from Drainage 1 enter the lakes located at the El Prado Golf Course before flowing into Prado Basin.

There are no Corps jurisdictional waters located within Borrow Sites 2, 3, 4, or 5.

Impacts to Corps Jurisdiction

Based on the current site plan, impacts within the Study Area will result in permanent impact to 0.07 acre of Corps jurisdictional waters, of which 0.06 acre consist of jurisdictional wetlands. A total of 190 feet of streambed will be disturbed.

Impacts to Corps jurisdictional waters are limited to Drainage 1 within Borrow Site 1 (0.06 acre and 169 linear feet of streambed) and the Cypress Channel within the Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the Project site (0.01 acre and 21 linear feet of streambed).

Regional Board Jurisdiction

Regional Board jurisdiction associated with the Study Area totals 6.31 acres, of which 4.59 acres consists of jurisdictional wetlands. A total of 6,538 linear feet of streambed is present.

Regional Board jurisdiction within the Study Area is limited to the Cypress Channel, a concrete-sided and concrete-bottomed flood control channel located just east of the easterly boundary of the Project Site, Drainage 1, an unnamed tributary located within Borrow 1 near the intersection of Pine Avenue and Euclid Avenue, and Ditch 1, a roadside ditch constructed in the uplands adjacent to Johnson Avenue in Borrow 2.

There are no Regional Board jurisdictional waters located within Borrow Sites 3, 4, or 5.

Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the Project Site

Regional Board jurisdiction associated with the Cypress Channel totals 1.45 acres, none of which consist of jurisdictional wetlands. A total of 2,527 linear feet of streambed is present. The Cypress Channel is an ephemeral, concrete-sided and concrete-bottomed flood control channel located just east of the easterly boundary of the Project Site. The Cypress Channel enters the Study Area at Bickmore Avenue located northeast of the Project Site and flows in a north to south direction for 2,527 linear feet before leaving the Study Area and continuing to flow southerly into the Prado Basin.

Borrow Site 1

Regional Board jurisdiction associated with Borrow 1 is limited to Drainage 1, an unnamed intermittent tributary located near the intersection of Pine Avenue and Euclid Avenue. Regional Board jurisdiction associated with Drainage 1 totals 4.59 acres, all of which consist of jurisdictional wetlands. A total of 1,645 linear feet of streambed is present.

Drainage 1 enters Borrow 1 from a culvert and pipe beneath Pine Avenue near its intersection with Euclid Avenue. The drainage flows in a north to south direction for 1,645 linear feet before leaving Borrow 1 and entering the Prado Basin. Ultimately, flows from Drainage 1 enter the lakes located at the El Prado Golf Course before flowing into Prado Basin.

Borrow Site 2

Regional Board jurisdiction within Borrow 2 is limited to a roadside ditch along the western and northern edge of the borrow area. Regional Board jurisdiction associated with Ditch 1 totals 0.27 acre, none of which consist of jurisdictional wetlands. A total of 2,366 linear feet of streambed is present. Ditch 1 is a soft-bottomed ditch located parallel to Johnson Avenue along the western edge of the borrow area. Ditch 1 enters the Study Area at :Pine Avenue located and flows in a north to south or east to west direction for 2,366 linear feet before leaving the Study Area and continuing to flow southerly into the Prado Basin.

Impacts to Regional Board Jurisdiction

Based on the current site plan, impacts within the Study Area will result in permanent impact to 0.07 acre of Regional Board jurisdictional waters, of which 0.06 acre consist of jurisdictional wetlands. A total of 190 feet of streambed will be disturbed.

Impacts to Regional Board jurisdictional waters are limited to Drainage 1 within Borrow Site 1 (0.06 acre and 169 linear feet of streambed) and the Cypress Channel within the Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the Project site (0.01 acre and 21 feet of streambed).

2. Impacts to Potential CDFW Jurisdiction

CDFW Jurisdiction

CDFW jurisdiction associated with the Study Area totals 7.40 acres, of which 4.62 acres consist of riparian habitat and 2.78 acres consist of non-riparian streambed. A total of 6,538 linear feet of streambed is present.

CDFW jurisdiction within the Study Area is limited to the Cypress Channel, a concretesided and concrete-bottomed flood control channel located just east of the easterly boundary of the Project Site, Drainage 1, an unnamed tributary located within Borrow 1 near the intersection of Pine Avenue and Euclid Avenue, and Ditch 1, a roadside ditch constructed in the uplands adjacent to Johnson Avenue in Borrow Site 2.

Page 5

Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the **Project Site**

CDFW jurisdiction associated with the Cypress Channel totals 2.32 acres, all of which consist of non-riparian, concrete streambed. A total of 2,527 linear feet of streambed is present. The Cypress Channel is a concrete-sided and concrete-bottomed flood control channel located just east of the easterly boundary of the Project Site. The Cypress Channel enters the Study Area at Bickmore Avenue located northeast of the Project Site and flows in a north to south direction for 2,527 linear feet before leaving the Study Area and continuing to flow southerly into the Prado Basin.

Borrow Site 1

CDFW jurisdiction associated with Borrow 1 is limited to Drainage 1 located near the intersection of Pine Avenue and Euclid Avenue. CDFW jurisdiction associated with Drainage 1 totals 4.81 acres, of which 4.62 acres consist of riparian habitat and 0.19 acre consists of non-riparian streambed. A total of 1,645 linear feet of CDFW streambed is present.

Drainage 1 enters Borrow 1 from a culvert and pipe beneath Pine Avenue near its intersection with Euclid Avenue. The drainage flows in a north to south direction for 1,645 linear feet before leaving Borrow 1 and entering the Prado Basin. Ultimately, flows from Drainage 1enter the lakes located at the El Prado Golf Course before flowing into Prado Basin.

Borrow Site 2

CDFW jurisdiction within Borrow 2 is limited to a roadside ditch along the western edge of the borrow area. CDFW jurisdiction associated with Ditch 1 totals 0.27 acre, all of which consists of non-riparian roadside ditch. A total of 2,366 linear feet of streambed is present. Ditch 1 is a soft-bottomed ditch located parallel to Johnson Avenue and/or Pine Avenue along the western and northern edge of the borrow area. Ditch 1 enters the Study Area at :Pine Avenue and flows in a north to south or east to west direction for 2,366 linear feet before leaving the Study Area and continuing to flow southerly into the Prado Basin.

Impacts to CDFW Jurisdiction

Based on the current site plan, impacts within the Study Area will result in permanent impact to 0.07 acre of CDFW jurisdiction, of which 0.06 acre consists of riparian habitat and 0.01 acre consist of non-riparian streambed. A total of 190 feet of streambed will be disturbed.

Impacts to CDFW jurisdiction are limited to Drainage 1 within Borrow Site 1 (0.06 acre and 169 linear feet of streambed) and the Cypress Channel within the Off Site Storm Drain Improvement Area/Off Site Streambed Study Area Adjacent to the Project site (0.01 acre and 21 linear feet of streambed).

If you have any questions regarding this memorandum, please call me at (949) 340-3851 at the office or (714) 323-6221 on my cellular telephone. Thanks again.

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Tracy Zinn cc: David Ornelas Ruth Villalobos Appendix B

Air Quality and Greenhouse Gas Analysis



July 15, 2019

Ms. Ruth Villalobos Ruth Villalobos & Associated, Inc. 3602 Inland Empire Boulevard, Suite C310 Ontario, CA 91764

SUBJECT: MAJESTIC CHINO HERITAGE AIR QUALITY AND GREENHOUSE GAS ANALYSIS FOR NEPA

Dear Ms. Ruth Villalobos:

This Analysis for NEPA has been prepared for the Majestic Chino Heritage Project, which is located on the southeast corner of Mountain Avenue and Bickmore Avenue in the City of Chino.

AIR QUALITY

AFFECTED ENVIRONMENT

National Ambient Air Quality Standards

The Clean Air Act identified and established the National Ambient Air Quality Standards (NAAQS) for a number of criteria pollutants in order to protect the public health and welfare. The criteria pollutants include ozone (O3), carbon monoxide (CO), suspended particulate matter (PM), sulfur dioxide (SO2), nitrogen dioxide (NO2), and lead (Pb). PM emissions are regulated in two size classes: Particulates up to 10 microns in diameter (PM10) and particulates up to 2.5 microns in diameter (PM2.5).

A region is given the status of "attainment" or "unclassified" if the NAAQS have not been exceeded. A status of "nonattainment" for particular criteria pollutants is assigned if the NAAQS have been exceeded. Once designated as nonattainment, attainment status may be achieved after three years of data showing non-exceedance of the standard. When an area is reclassified from nonattainment to attainment, it is designated as a "maintenance area," indicating the requirement to establish and enforce a plan to maintain attainment of the standard.

General Conformity Rule

Section 176(c) of the federal Clean Air Act states that a federal agency cannot issue a permit for, or support an activity within, a nonattainment or maintenance area unless the agency determines it will conform to the most recent U.S. Environmental Protection Agency-approved State Implementation Plan. Thus, a federal action must not:

- Cause or contribute to any new violation of a NAAQS.
- Increase the frequency or severity of any existing violation.

Ms. Ruth Villalobos Ruth Villalobos & Associated, Inc. July 15, 2019 Page 2 of 5

• Delay the timely attainment of any standard, interim emission reduction, or other milestone.

A conformity determination is required for each criteria pollutant or precursor where the total of direct and indirect emissions of the criteria pollutant or precursor in a nonattainment or maintenance area caused by the federal action would equal or exceed the General Conformity applicability rates specified in 40 C.F.R. section 93.153. Operation and maintenance emissions are considered exempt under 40 C.F.R. 93.153, therefore they are not included in the total direct and indirect effects of the federal action.

The project site is in the South Coast Air Basin (SCAB). The SCAB is composed of Orange County and the urban, non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. The climate of the SCAB is determined primarily by terrain and geography. Local climactic conditions are characterized by warm summers, mild winters, infrequent rainfall, moderate daytime on-shore breezes, and moderate humidity. The SCAB's normally mild climate is occasionally interrupted by periods of hot weather, winter storms, and hot easterly Santa Ana winds.

Table 1 summarizes the federal attainment status of the San Bernardino County portion of the SCAB.

Pollutant	Attainment Status	General Conformity Applicability Rates (tons/year)
Ozone	Nonattainment, Extreme	10
со	Attainment/Maintenance	100
NO2	Attainment/Maintenance	100
SO2	Attainment	100
PM10	Attainment/Maintenance	100
PM2.5	Nonattainment	100
Pb	Attainment/Maintenance	25

TABLE 1: FEDERAL ATTAINMENT STATUS FOR CRITERIA POLLUTANTS

The SCAB is currently in extreme nonattainment for ozone (precursors: VOC or NOx); nonattainment for PM2.5; attainment/maintenance for PM10; attainment/maintenance for NO2; attainment/maintenance for CO; and attainment/maintenance for lead (with the exception of the LA County portion of the basin which is in nonattainment). Based on the present attainment designation for the SCAB, a federal action would conform to the SIP if annual emissions are below 100 tons of CO, PM2.5, PM10, NO2, or Pb, 10 tons of VOC, or 25 tons of lead.

Ms. Ruth Villalobos Ruth Villalobos & Associated, Inc. July 15, 2019 Page 3 of 5

Greenhouse Gases

Gases that trap heat in the atmosphere are often called greenhouse gases (GHG). GHGs are emitted by natural processes and human activities. Examples of GHGs that are produced both by natural processes and industry include carbon dioxide (CO2), methane (CH4), and nitrous oxide (N2O). Currently, there are no Federal standards for GHG emissions, and no Federal regulations have been set at this time.

Emission Estimates Methodology

Emissions were estimated using the California Emissions Estimator Model[™] (CalEEMod[™]) v2016.3.2 emission modeling software.

Estimates of lead emissions were not calculated. Lead emissions from mobile sources in California have significantly decreased due to the near elimination of lead in fuels. Thus, CalEEMod, the SCAQMD-approved emission modeling software, does not provide estimated emissions for lead.

Ozone (O3) formation is driven by two major classes of directly emitted precursors: nitrogen oxides (NOx) and volatile organic compounds (VOC). The relation between O3, NOx and VOC is driven by complex nonlinear photochemistry. Due to the variability in rates of O3 formation, CalEEMod does not provide estimates for the compound. Instead, the emission estimates for VOCs is used as a surrogate for reporting O3 emissions per the General Conformity Applicability Rates. Since the consumption of VOC in O3 formation reaction is variable, actual O3 levels are lower than those reported.

ENVIRONMENTAL CONSEQUENCES

No Action Alternative. Under the No Action Alternative, the project site would remain in pre-project conditions. No construction would occur, and impacts related to air quality and objectionable odors would not occur.

Preferred Alternative/Proposed Action

General Conformity. As part of the environmental review of the federal action, a general conformity evaluation has been completed pursuant to 40 C.F.R. 93.153. The general conformity regulations apply because the project is situated in San Bernardino County within the SCAB, and the County is designated as a nonattainment area for ozone, and PM2.5, as well as a attainment/maintenance area for PM10, NO2, CO and Pb.

Table 2 summarizes the annual construction air quality emissions and associated General ConformityApplicability Rates.

Table 3 summarizes the annual operational air quality emissions and associated General ConformityApplicability Rates.



Pollutant	General Conformity Applicability Rates (tons/year)	Estimated Construction Emissions (tons/year)	
		2021	2022
Ozone (VOC)	10	0.36	6.33
со	100	5.86	12.60
NO2	100	11.46	10.46
SO2	100	0.02	0.05
PM10	100	1.30	3.26
PM2.5	100	0.23	1.00
Pb	25	0	0

TABLE 2: COMPARISON OF ESTIMATED ANNUAL CONSTRUCTION EMISSIONS TO GENERAL CONFORMITY APPLICABILITY RATES

TABLE 3: COMPARISON OF ESTIMATED ANNUAL OPERATIONAL EMISSIONS TO GENERAL CONFORMITY APPLICABILITY RATES

Pollutant	General Conformity Applicability Rates (tons/year)	Estimated Operational Emissions (tons/year)
Ozone (VOC)	10	9.31
СО	100	24.48
NO2	100	31.74
SO2	100	0.17
PM10	100	9.25
PM2.5	100	2.64
Pb	25	0

For all pollutants, the emissions associated with construction of the federal action would be less than the applicability rates. Therefore, a general conformity determination is not required. Little to no quantifiable and foreseeable lead emissions would be generated by the construction or operations of the proposed project. The proposed project would have no significant impacts on air quality.



GHG Emissions. Per discussion of GHG above, the estimated GHG emissions are included for the purpose of disclosure under NEPA. **Table 4** summarizes the annual greenhouse gas emissions.

Pollutant	Estimated Construction Emissions (MT/year)		Estimated Operational Emissions
	2021	2022	(wir/year)
GHGs (CO2e)	2,048.99	4,404.23	20,285.56

TABLE 4: COMPARISON OF ESTIMATED ANNUAL GREENHOUSE GAS EMISSIONS (METRIC TONS/YEAR)

Objectionable Odors. Although offensive odors rarely cause physical harm, they can be unpleasant and lead to considerable distress among the public. According to CARB's *Air Quality and Land Use Handbook*, land uses associated with odor complaints typically include sewage treatment plants, landfills, recycling facilities, and manufacturing facilities (CARB, 2005). Short-term objectionable odors during construction of the proposed action would be associated with the use of diesel-powered construction equipment and on-road vehicles. During construction activities, odors would mostly occur on-site, would be short-term and transient. Any odors during routine maintenance during project operation would also be minor and transient. Therefore, construction and operation of the proposed action would affect a substantial number of people. There would be no significant impacts to air quality due to objectionable odors.

If you have any questions, please contact me directly at (949) 336-5987.

Respectfully submitted, URBAN CROSSROADS, INC.

Haseeb Qureshi Associate Principal





March 2, 2020

Ms. Ruth Villalobos Ruth Villalobos & Associates, Inc. 3602 Inland Empire Boulevard, Suite C310 Ontario, CA 91764

SUBJECT: MAJESTIC CHINO HERITAGE AIR QUALITY CUMULATIVE ANALYSIS FOR NEPA

Dear Ms. Ruth Villalobos:

This Cumulative Analysis for NEPA has been prepared for the Majestic Chino Heritage Project, which is located on the southeast corner of Mountain Avenue and Bickmore Avenue in the City of Chino.

CUMULATIVE AIR QUALITY EMISSIONS

In addition to the construction and operational emissions associated with the proposed Majestic Chino Heritage Project, the nearby Alcoa Dike Project construction activities may occur concurrently. Operational activities associated with the Alcoa Dike Project would be negligible as identified in the Environmental Assessment prepared for the Alcoa Dike Project. As such, the potential cumulative impacts from the Majestic Chino Heritage and Alcoa Dike Projects are considered.

Table 1 summarizes the cumulative annual construction air quality emissions and associated GeneralConformity Applicability Rates.

Table 2 summarizes the cumulative annual operational air quality emissions and associated GeneralConformity Applicability Rates.

As shown, the cumulative air quality emissions do not exceed any of the applicable general conformity rates and therefore a less than significant impact would occur.

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Ms. Ruth Villalobos Ruth Villalobos & Associates, Inc. March 2, 2020 Page 2

	General Conformity	Estimated Construction Emissions (tons/year)		
Pollutant	Applicability Rates (tons/year)	Majestic Chino Heritage	Alcoa Dike	Total Cumulative
O ₃ (VOC)	10	6.33	0.57	6.90
со	100	12.60	3.84	16.44
NO ₂	100	11.46	5.79	17.25
SO ₂	100	0.05	0.007	0.06
PM10	100	3.26	1.10	4.36
PM _{2.5}	100	1.00	0.67	1.67
Pb	25	0	0	0

TABLE 1: CUMULATIVE ANNUAL CONSTRUCTION EMISSIONS COMPARISON TO GENERAL CONFORMITY APPLICABILITY RATES

TABLE 2: CUMULATIVE ANNUAL OPERATIONAL EMISSIONS COMPARISON TO GENERAL CONFORMITY APPLICABILITY RATES

Pollutant	General Conformity Applicability Rates (tons/year)	Estimated Operational Emissions (tons/year) Majestic Chino Heritage	Estimated Operational Emissions (tons/year) Alcoa Dike	Total Cumulative
O ₃ (VOC)	10	9.31	Negligible	9.31
со	100	24.48	Negligible	24.48
NO ₂	100	31.74	Negligible	31.74
SO ₂	100	0.17	Negligible	0.17
PM10	100	9.25	Negligible	9.25
PM _{2.5}	100	2.64	Negligible	2.64
Pb	25	0	Negligible	0

If you have any questions, please contact me directly at (949) 336-5987.

Respectfully submitted, URBAN CROSSROADS, INC.

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Haseeb Qureshi Associate Principal

Appendix C

Noise Impact Analysis



Majestic Chino Heritage

NOISE IMPACT ANALYSIS CITY OF CHINO

PREPARED BY:

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AUGUST 12, 2019

10351-12 Noise Study



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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
ANSI	American National Standards Institute
Calveno	California Vehicle Noise
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dBA	A-weighted decibels
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
INCE	Institute of Noise Control Engineering
L _{eq}	Equivalent continuous (average) sound level
L _{max}	Maximum level measured over the time interval
L _{min}	Minimum level measured over the time interval
mph	Miles per hour
PPV	Peak Particle Velocity
Project	Majestic Chino Heritage
REMEL	Reference Energy Mean Emission Level
RMS	Root-mean-square
VdB	Vibration Decibels

EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this noise study to determine the noise exposure and the necessary noise mitigation measures for the proposed Majestic Chino Heritage development ("Project"). The Project site is located on the southeast corner of Mountain Avenue and Bickmore Avenue in the City of Chino. The total development is proposed to consist of up to 2,082,750 square feet of industrial uses. As a part of Project construction, five nearby soil borrow sites (or "Excess Fill Dirt Sites") have been identified to provide the soil export to be used as the import required for the Project site, and as such, construction activity associated with these sites has included in this analysis.

This study has been prepared consistent with applicable City of Chino noise standards, and significance criteria based on guidance provided by Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1) In addition, since nearby sensitive receiver locations are located in the adjacent City of Chino Hills and City of Eastvale, applicable noise level standards of each jurisdiction are used in this analysis to evaluate potential impacts. Further, additional receiver locations are identified at open space locations in the Project study area for information purposes only; the Project's Biology report will analyze the significance of any potential noise impacts to sensitive wildlife species.

OFF-SITE PROJECT TRAFFIC NOISE ANALYSIS

Traffic generated by the operation of the proposed Project will influence the traffic noise levels in surrounding off-site areas. To quantify the traffic noise increases on the surrounding off-site areas, the changes in traffic noise levels on 34 roadway segments surrounding the Project site were calculated based on the change in the average daily traffic (ADT) volumes. The traffic noise levels provided in this analysis are based on the traffic forecasts found in *Majestic Chino Heritage Traffic Impact Analysis*. (2) To assess the off-site noise level impacts associated with the proposed Project, noise contour boundaries were developed for Existing, Opening Year 2022, and Horizon Year 2040 traffic conditions. The analysis shows that the unmitigated Project-related traffic noise level increases under all traffic scenarios will be *less than significant*.

SOIL IMPORT/EXPORT HAUL TRUCK OFF-SITE TRAFFIC NOISE ANALYSIS

Traffic generated by the soil import/export truck haul activity associated with construction of the proposed Project will influence the traffic noise levels in surrounding off-site areas under Existing conditions. To quantify the traffic noise increases on the surrounding off-site areas during Project construction, the changes in traffic noise levels on eight roadway segments surrounding the Project site were calculated based on the change in the average daily traffic (ADT) volumes. The traffic noise levels provided in this analysis are based on the traffic forecasts found in *Majestic Chino Heritage Traffic Impact Analysis*. (2) To assess the off-site noise level impacts associated with the soil import/export haul truck trips, noise contour boundaries were developed for Existing traffic conditions.



The analysis shows that the unmitigated Project-related traffic noise level increases will be *potentially significant* at existing and future noise-sensitive land uses, if built and occupied at the time of soil import/export haul truck activity to and from the Excess Fill Dirt Sites, adjacent to the following roadway segments, as shown on Exhibits ES-A and ES-B, if haul truck activity occurs within the proposed daytime (7:00 a.m. - 3:00 p.m.) or off-peak (6:00 p.m. - 2:00 a.m.) hour conditions:

DAYTIME HAUL TRUCK OFF-SITE TRAFFIC NOISE IMPACTS

- Pine Av. west of W. Preserve Loop (Excess Fill Dirt Site #5);
- Chino Corona Rd. south of Pine Av. (Excess Fill Dirt Sites #3 & #4);
- Chino Corona Rd. east of Cucamonga Av. (Excess Fill Dirt Site #4);
- Hellman Av. south of Pine Av. (Excess Fill Dirt Site #5).

OFF-PEAK HAUL TRUCK OFF-SITE TRAFFIC NOISE IMPACTS

- Pine Av. east of Euclid Av. (Excess Fill Dirt Sites #2 to #5);
- Pine Av. west of Chino Corona Rd. (Excess Fill Dirt Sites #2 to #5);
- Pine Av. west of W. Preserve Loop (Excess Fill Dirt Site #5);
- Pine Av. west of E. Preserve Loop (Excess Fill Dirt Site #5);
- Pine Av. west of Hellman Av. (Excess Fill Dirt Site #5);
- Chino Corona Rd. south of Pine Av. (Excess Fill Dirt Sites #3 & #4);
- Chino Corona Rd. east of Cucamonga Av. (Excess Fill Dirt Site #4);
- Hellman Av. south of Pine Av. (Excess Fill Dirt Site #5).

PROJECT OPERATIONAL NOISE ANALYSIS

Using reference noise levels to represent the expected noise sources from the Majestic Chino Heritage site, this analysis estimates the Project-related stationary-source noise levels at nearby sensitive receiver locations. The normal activities associated with the proposed Majestic Chino Heritage are anticipated to include roof-top air conditioning units, idling trucks, delivery truck activities, backup alarms, as well as loading and unloading of dry goods, and parking lot vehicle movements. For this analysis, the closest noise-sensitive receiver locations to the Project site are located greater than 2,000 feet west of the Project site in the City of Chino Hills. An additional noise-sensitive receiver location is identified east of the Project site, at over 4,000 feet from the Project site, in the City of Chino. The operational noise analysis shows that the Project-related stationary-source noise levels at the nearby sensitive receiver locations will not exceed the City of Chino and City of Chino Hills exterior noise level standards. Therefore, the operational noise level impacts associated with the proposed Project activities, such as the roof-top air conditioning units, idling trucks, delivery truck activities, backup alarms, as well as loading and unloading of dry goods, and parking lot vehicle movements, are considered *less than significant*.



PROJECT OPERATIONAL VIBRATION ANALYSIS

The operation of the Project site will include heavy trucks moving on site to and from the loading dock areas. Truck vibration levels are dependent on vehicle characteristics, load, speed, and pavement conditions. Typical vibration levels for the Majestic Chino Heritage heavy truck activity at normal traffic speeds will approach 0.004 in/sec peak-particle-velocity (PPV) and 0.003 in/sec root-mean-square (RMS) velocity at 25 feet based on the Federal Transit Administration (FTA) *Transit Noise Impact and Vibration Assessment.* (3) Trucks transiting on site will be travelling at very low speeds so it is expected that delivery truck vibration impacts at nearby homes will not exceed the City of Chino 0.05 in/sec RMS vibration level standard, the City of Chino Hills 0.2 in/sec PPV standard, and the City of Eastvale 0.0787 in/sec PPV, and therefore, will be *less than significant*.

PROJECT SITE CONSTRUCTION NOISE ANALYSIS

Construction-related noise impacts are expected to create temporary and intermittent high-level noise conditions at receivers surrounding the Project site. Using sample reference noise levels to represent the planned construction activities of the Majestic Chino Heritage site, this analysis estimates the Project-related construction noise levels at nearby sensitive receiver locations. The analysis shows that the Project-related short-term construction noise levels, including those generated by both daytime and nighttime concrete pouring activity, are expected to approach 38.0 dBA L_{eq} and will not exceed the 65 dBA L_{eq} City of Chino construction noise level threshold at the nearby sensitive receiver locations. Therefore, based on the results of this analysis, all nearby sensitive receiver locations will experience *less than significant* impacts due to Project site construction noise levels.

SOIL IMPORT/EXPORT CONSTRUCTION NOISE ANALYSIS

Using sample reference noise levels to represent the planned construction activities at the Excess Fill Dirt Sites, this analysis estimates the construction noise levels at nearby sensitive receiver locations to each site. The short-term construction noise levels are expected to range from 30.0 to 67.5 dBA L_{eq} and will exceed the 65 dBA L_{eq} City of Chino construction noise level threshold at one of the sensitive receiver locations, R10, near Excess Fill Dirt Site #4. Therefore, based on the results of this analysis, if sensitive receiver location R10 represents built and occupied residential use it will experience *potentially significant* impacts due to construction noise levels generated by activities at Excess Fill Dirt Site #4. As such, a construction noise mitigation plan shall be required, as outlined below, if Excess Fill Dirt Site #4 is used for soil import/export activities, and if R10 represents built and occupied residential use at the time of the soil import/export activities.

All other receiver locations will experience *less than significant* noise impacts due to construction activities at the Excess Fill Dirt Sites.



SOIL IMPORT/EXPORT CONSTRUCTION NOISE MITIGATION MEASURES

A construction noise mitigation plan shall be prepared outlining the noise reduction measures to be implemented during construction activities at Excess Fill Dirt Site #4 if used for soil import/export, and if R10 represents built and occupied residential use at the time of the soil import/export activities. The construction noise mitigation plan shall indicate the mitigation measure(s) to be implemented to reduce construction noise levels at adjacent sensitive residential receiver locations to satisfy the City of Chino 65 dBA L_{eq} construction noise level limit. The following noise reduction measures represent individual examples of mitigation measures which, if implemented, would be capable of reducing construction noise levels at R10. A minimum of one of the following, or equivalent, measures shall be required to be implemented as a part of the construction noise mitigation plan:

- Install minimum 8-foot high temporary construction noise barriers at the construction activity boundaries adjacent to sensitive receiver R10, as shown on Exhibit ES-C, if R10 represents built and occupied noise-sensitive residential uses at the time of construction. The noise control barriers must have a solid face from top to bottom and must block the line-of-sight to the noise source. The noise control barriers must meet the minimum height and be constructed as follows:
 - The temporary noise barriers shall provide a minimum transmission loss of 20 dBA (Federal Highway Administration, Noise Barrier Design Handbook). The noise barrier shall be constructed using an acoustical blanket (e.g. vinyl acoustic curtains or quilted blankets) attached to the construction site perimeter fence or equivalent temporary fence posts;
 - The noise barrier must be maintained, and any damage promptly repaired. Gaps, holes, or weaknesses in the barrier or openings between the barrier and the ground shall be promptly repaired;
 - The noise control barrier and associated elements shall be completely removed, and the site appropriately restored upon the conclusion of the construction activity; or
- Install sound dampening mats or blankets to the engine compartments of heavy mobile equipment (e.g., dozers, graders, scrapers) capable of a minimum 5 dBA noise reduction (FHWA, Construction Noise Special Report). (4) The dampening materials must be capable of the minimum 5 dBA noise reduction and can be made of commercially-available sound dampening materials, including but not limited to polyurethane foam and vinyl sheeting (University of Massachusetts Lowell The Use of Noise Dampening Mats to Reduce Heavy-Equipment Noise). (5)
 - The sound dampening mats or blankets must be installed prior to the use of heavy mobile construction equipment within the Project site;
 - The sound dampening mats or blankets must remain installed for the duration of the use of the equipment during Project construction; or
- Prohibit the use of large construction equipment (greater than 80,000 pounds) within 170 feet of sensitive receiver R10, if R10 represents built and occupied noise-sensitive residential uses at the time of construction. Instead, small rubber-tired or alternative equipment shall be used within this buffer area during construction to reduce noise impacts.



PROJECT & SOIL IMPORT/EXPORT CONSTRUCTION VIBRATION ANALYSIS

The construction vibration analysis is based on the shortest distance to either Project site construction or Excess Fill Dirt Site soil import/export activities. Based on the analysis, construction vibration velocity levels are expected to approach 0.012 in/sec PPV, and 0.009 in/sec RMS. Based on the results of the analysis, the Project construction vibration levels will remain below the City of Chino 0.05 in/sec RMS vibration level standard, the City of Chino Hills 0.2 in/sec PPV standard, and the City of Eastvale 0.0787 in/sec PPV standard at the nearby sensitive receiver locations.

Further, the Project-related construction vibration levels do not represent levels capable of causing building damage to nearby residential homes. The FTA identifies construction vibration levels capable of building damage ranging from 0.12 to 0.5 in/sec PPV. (3) The peak Project-construction vibration levels approaching 0.012 in/sec PPV will remain below the FTA vibration levels for building damage at the residential homes near the Project site. Moreover, the impacts at the site of the closest sensitive receivers are unlikely to be sustained during the entire construction period, but will occur rather only during the times that heavy construction equipment is operating adjacent to the Project site perimeter.

SUMMARY OF CEQA SIGNIFICANCE FINDINGS

The results of this Majestic Chino Heritage Noise Impact Analysis are summarized below based on the significance criteria in Section 4 of this report consistent with Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1). Table ES-1 shows the findings of significance for each potential noise and vibration impact under CEQA.



Anglasia	Report	Significance Findings		
Analysis	Section	Unmitigated	Mitigated	
Off-Site Traffic Noise Levels (Long-Term Operation)	7	Less Than Significant	-	
Off-Site Traffic Noise Levels (Short-Term Dirt Haul Trips)	7	Potentially Significant	Significant	
Operational Noise Levels (Stationary Source)	0	Less Than Significant	-	
Operational Vibration Levels	9	Less Than Significant	-	
Project Construction Noise Levels (Stationary Source)		Less Than Significant	-	
Soil Export Construction Noise Levels (Stationary-Source)	10	Potentially Significant	Less Than Significant	
Construction Vibration Levels (Project & Soil Export)		Less Than Significant	-	

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS





EXHIBIT ES-A: DAYTIME EXCESS FILL DIRT SITE OFF-SITE TRAFFIC NOISE IMPACTS





EXHIBIT ES-B: OFF-PEAK EXCESS FILL DIRT SITE OFF-SITE TRAFFIC NOISE IMPACTS





EXHIBIT ES-C: TEMPORARY CONSTRUCTION NOISE BARRIER LOCATIONS



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1 INTRODUCTION

This noise analysis has been completed to determine the noise impacts associated with the development of the proposed Majestic Chino Heritage ("Project"). This noise study briefly describes the proposed Project, provides information regarding noise fundamentals, describes the local regulatory setting, provides the study methods and procedures for transportation noise analysis, and evaluates the future exterior noise environment. In addition, this study includes an analysis of the potential Project-related long-term operational noise and short-term construction noise and vibration impacts.

1.1 SITE LOCATION

The Project site is located on the southeast corner of Mountain Avenue and Bickmore Avenue in the City of Chino, as shown on Exhibit 1-A. The closest noise-sensitive receiver locations to the Project site are located greater than 2,000 feet west of the Project site in the City of Chino Hills. Additional noise-sensitive receiver locations are identified east of the Project site, at over 4,000 feet from the Project site, in the City of Chino and City of Eastvale.

1.2 PROJECT DESCRIPTION

Exhibit 1-B shows the preliminary Project site plan. As indicated on Exhibit 1-B, the total development is proposed to consist of up to 2,082,750 square feet of industrial uses. Consistent with the *Traffic Impact Analysis*, the following land uses are assumed in this report:

- Building 1: 1,168,710 square feet of High-Cube Fulfillment Center Warehouse use
- Building 2: 814,040 square feet of High-Cube Without Cold Storage use
- Remainder of Building 2: 100,000 square feet of High-Cube with Cold Storage use

Total of 2,082,750 square feet

At the time this noise analysis was prepared, the future tenants of the proposed Project were unknown. The on-site Project-related noise sources are expected to include: roof-top air conditioning units, idling trucks, delivery truck activities, backup alarms, as well as loading and unloading of dry goods, and parking lot vehicle movements. This noise analysis is intended to describe noise level impacts associated with the expected typical, 24-hour seven days per week operational activities at the Project site.

Per the *Majestic Chino Heritage Traffic Impact Analysis* prepared by Urban Crossroads, Inc. the Project is expected to generate a net total of approximately 4,440 trip-ends per day (actual vehicles) and includes 824 truck trip-ends per day from the proposed buildings within the Project site. (6) This noise study relies on the actual Project trips (as opposed to the passenger car equivalents) to accurately account for the effect of individual truck trips on the study area roadway network.



EXHIBIT 1-A: LOCATION MAP

mme ± E . الج. وسسس Street Centerin Bickmore E) CURE -----17 Tanter Sals (22(57) 60 Trailer Stalls (12x50 1111U T.E. 123 Doc Future 8 Building 1 - Parcel 1 1,168,710 sf 40' Clr. @ 1st Column 55' 554 Bidg () Typ 9 ed SCE 2 1 1 1 1 1 1 1 1 TITI Future # Ē 125 Dock High Truck Bays 84 Trailer Stalls (12'x50' Gate & Future Guard House 10 0 | | | | Blisiph CL Fende | | | | | | | Gate & Future 20x AT.E 69 Dock High Truck Bays Future 87 8.6" S Bay Property Line w' Future 8 High Ci Fence Building 2- Parcel 2 914,040f ÷i – 1 ed SCE 40' Clr. @ 1st Column Fire Pump Ra erty Line 1 N Puture 1,356' Bidg Couble Bike Locks 77 Dock High Truck Bays T.E. Gate & Future 100 Trailer Stalis (12x50) ŀ 13' Tall Con Screen Wall Property Line -

EXHIBIT 1-B: SITE PLAN

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2 FUNDAMENTALS

Noise has been simply defined as "unwanted sound." Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health. Noise is measured on a logarithmic scale of sound pressure level known as a decibel (dB). A-weighted decibels (dBA) approximate the subjective response of the human ear to broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies which are audible to the human ear. Exhibit 2-A presents a summary of the typical noise levels and their subjective loudness and effects that are described in more detail below.

COMMON OUTDOOR ACTIVITIES	COMMON INDOOR ACTIVITIES	A - WEIGHTED SOUND LEVEL dBA	SUBJECTIVE LOUDNESS	EFFECTS OF NOISE
THRESHOLD OF PAIN		140		
NEAR JET ENGINE		130	INTOLERABLE OR DEAFENING	HEARING LOSS
		120		
JET FLY-OVER AT 300m (1000 ft)	ROCK BAND	110		
LOUD AUTO HORN		100		
GAS LAWN MOWER AT 1m (3 ft)		90		
DIESEL TRUCK AT 15m (50 ft), at 80 km/hr (50 mph)	FOOD BLENDER AT 1m (3 ft) 80			
NOISY URBAN AREA, DAYTIME	VACUUM CLEANER AT 3m (10 ft)	70	LOUD	SPEECH INTERFERENCE
HEAVY TRAFFIC AT 90m (300 ft)	NORMAL SPEECH AT 1m (3 ft)	60		
QUIET URBAN DAYTIME	JRBAN DAYTIME LARGE BUSINESS OFFICE		MODERATE	SLEED
QUIET URBAN NIGHTTIME	THEATER, LARGE CONFERENCE ROOM (BACKGROUND)	40		DISTURBANCE
QUIET SUBURBAN NIGHTTIME	LIBRARY	30	FAINT	NO EFFECT
QUIET RURAL NIGHTTIME	BEDROOM AT NIGHT, CONCERT HALL (BACKGROUND)	20		
	BROADCAST/RECORDING STUDIO	10		
LOWEST THRESHOLD OF HUMAN HEARING	WEST THRESHOLD OF HUMAN HEARING LOWEST THRESHOLD OF HUMAN HEARING			

EXHIBIT 2-A: TYPICAL NOISE LEVELS

Source: Environmental Protection Agency Office of Noise Abatement and Control, Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (EPA/ONAC 550/9-74-004) March 1974.

2.1 RANGE OF NOISE

Since the range of intensities that the human ear can detect is so large, the scale frequently used to measure intensity is a scale based on multiples of 10, the logarithmic scale. The scale for measuring intensity is the decibel scale. Each interval of 10 decibels indicates a sound energy ten times greater than before, which is perceived by the human ear as being roughly twice as loud. (7) The most common sounds vary between 40 dBA (very quiet) to 100 dBA (very loud). Normal conversation at three feet is roughly at 60 dBA, while loud jet engine noises equate to 110 dBA



at approximately 100 feet, which can cause serious discomfort. (8) Another important aspect of noise is the duration of the sound and the way it is described and distributed in time.

2.2 NOISE DESCRIPTORS

Environmental noise descriptors are generally based on averages, rather than instantaneous, noise levels. The most commonly used figure is the equivalent level (L_{eq}). Equivalent sound levels are not measured directly but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period and is commonly used to describe the "average" noise levels within the environment.

To describe the time-varying character of environmental noise, the statistical or percentile noise descriptors L_{50} , L_{25} , L_8 and L_2 , are commonly used. The percentile noise descriptors are the noise levels equaled or exceeded during 50 percent, 25 percent, 8 percent and 2 percent of a stated time. Sound levels associated with the L_2 and L_8 typically describe transient or short-term events, while levels associated with the L_{50} describe the steady state (or median) noise conditions. The City of Chino relies on the percentile noise levels to describe the stationary source noise level limits. While the L_{50} describes the noise levels occurring 50 percent of the time, the L_{eq} accounts for the total energy (average) observed for the entire hour.

Peak hour or average noise levels, while useful, do not completely describe a given noise environment. Noise levels lower than peak hour may be disturbing if they occur during times when quiet is most desirable, namely evening and nighttime (sleeping) hours. To account for this, the Community Noise Equivalent Level (CNEL), representing a composite 24-hour noise level is utilized. The CNEL is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time of day corrections require the addition of 5 decibels to dBA L_{eq} sound levels in the evening from 7:00 p.m. to 10:00 p.m., and the additions are made to account for the noise sensitive time periods during the evening and night hours when sound appears louder. CNEL does not represent the actual sound level heard at any time, but rather represents the total sound exposure. The City of Chino relies on the 24-hour CNEL level to assess land use compatibility with transportation related noise sources.

2.3 SOUND PROPAGATION

When sound propagates over a distance, it changes in level and frequency content. The way noise reduces with distance depends on the following factors.

2.3.1 GEOMETRIC SPREADING

Sound from a localized source (i.e., a stationary point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Highways consist of several localized noise sources on a defined path and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to
as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source. (7)

2.3.2 GROUND ABSORPTION

The propagation path of noise from a highway to a receptor is usually very close to the ground. Noise attenuation from ground absorption and reflective wave canceling adds to the attenuation associated with geometric spreading. Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually sufficiently accurate for distances of less than 200 ft. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receptor, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receptor such as soft dirt, grass, or scattered bushes and trees), an excess ground attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance from a line source. (9)

2.3.3 ATMOSPHERIC EFFECTS

Receptors located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (e.g., more than 500 feet) due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects. (7)

2.3.4 SHIELDING

A large object or barrier in the path between a noise source and a receptor can substantially attenuate noise levels at the receptor. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Shielding by trees and other such vegetation typically only has an "out of sight, out of mind" effect. That is, the perception of noise impact tends to decrease when vegetation blocks the line-of-sight to nearby resident. However, for vegetation to provide a substantial, or even noticeable, noise reduction, the vegetation area must be at least 15 feet in height, 100 feet wide and dense enough to completely obstruct the line-of sight between the source and the receiver. This size of vegetation may provide up to 5 dBA of noise reduction. The FHWA does not consider the planting of vegetation to be a noise abatement measure. (9)

2.4 NOISE CONTROL

Noise control is the process of obtaining an acceptable noise environment for an observation point or receptor by controlling the noise source, transmission path, receptor, or all three. This concept is known as the source-path-receptor concept. In general, noise control measures can be applied to these three elements.



2.5 Noise Barrier Attenuation

Effective noise barriers can reduce noise levels by 10 to 15 dBA, cutting the loudness of traffic noise in half. A noise barrier is most effective when placed close to the noise source or receptor. Noise barriers, however, do have limitations. For a noise barrier to work, it must be high enough and long enough to block the path of the noise source. (9)

2.6 LAND USE COMPATIBILITY WITH NOISE

Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches, and residences are more sensitive to noise intrusion than are commercial or industrial developments and related activities. As ambient noise levels affect the perceived amenity or livability of a development, so too can the mismanagement of noise impacts impair the economic health and growth potential of a community by reducing the area's desirability as a place to live, shop and work. For this reason, land use compatibility with the noise environment is an important consideration in the planning and design process. The FHWA encourages State and Local government to regulate land development in such a way that noise-sensitive land uses are either prohibited from being located adjacent to a highway, or that the developments are planned, designed, and constructed in such a way that noise impacts are minimized. (10)

2.7 COMMUNITY RESPONSE TO NOISE

Community responses to noise may range from registering a complaint by telephone or letter, to initiating court action, depending upon everyone's susceptibility to noise and personal attitudes about noise. Several factors are related to the level of community annoyance including:

- Fear associated with noise producing activities;
- Socio-economic status and educational level;
- Perception that those affected are being unfairly treated;
- Attitudes regarding the usefulness of the noise-producing activity;
- Belief that the noise source can be controlled.

Approximately ten percent of the population has a very low tolerance for noise and will object to any noise not of their making. Consequently, even in the quietest environment, some complaints will occur. Another twenty-five percent of the population will not complain even in very severe noise environments. Thus, a variety of reactions can be expected from people exposed to any given noise environment. (11) Surveys have shown that about ten percent of the people exposed to traffic noise of 60 dBA will report being highly annoyed with the noise, and each increase of one dBA is associated with approximately two percent more people being highly annoyed. When traffic noise exceeds 60 dBA or aircraft noise exceeds 55 dBA, people may begin to complain. (11) Despite this variability in behavior on an individual level, the population can be expected to exhibit the following responses to changes in noise levels as shown on Exhibit 2-B. An increase or decrease of 1 dBA cannot be perceived except in carefully controlled laboratory experiments, a change of 3 dBA are considered *barely perceptible*, and changes of 5 dBA are considered *readily perceptible*. (9)





EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION

2.8 VIBRATION

Per the Federal Transit Administration (FTA) *Transit Noise Impact and Vibration Assessment*, vibration is the periodic oscillation of a medium or object. The rumbling sound caused by the vibration of room surfaces is called structure-borne noise. Sources of ground-borne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or human-made causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, such as factory machinery, or transient, such as explosions. As is the case with airborne sound, ground-borne vibrations may be described by amplitude and frequency.

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings but is not always suitable for evaluating human response (annoyance) because it takes some time for the human body to respond to vibration signals. Instead, the human body responds to average vibration amplitude often described as the root mean square (RMS). The RMS amplitude is defined as the average of the squared amplitude of the signal and is most frequently used to describe the effect of vibration on the human body. Decibel notation (VdB) is commonly used to measure RMS. Decibel notation (VdB) serves to reduce the range of numbers used to describe human response to vibration. Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receivers for vibration include structures (especially older masonry structures), people (especially residents, the elderly, and sick), and vibration-sensitive equipment.

The background vibration-velocity level in residential areas is generally 50 VdB. Ground-borne vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels. Typical outdoor sources of perceptible ground-borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the ground-borne vibration is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings. Exhibit 2-C illustrates common vibration sources and the human and structural response to ground-borne vibration.





EXHIBIT 2-C: TYPICAL LEVELS OF GROUND-BORNE VIBRATION

* RMS Vibration Velocity Level in VdB relative to 10⁻⁶ inches/second

Source: Federal Transit Administration (FTA) Transit Noise Impact and Vibration Assessment.



3 REGULATORY SETTING

To limit population exposure to physically and/or psychologically damaging as well as intrusive noise levels, the federal government, the State of California, various county governments, and most municipalities in the state have established standards and ordinances to control noise. In most areas, automobile and truck traffic is the major source of environmental noise. Traffic activity generally produces an average sound level that remains constant with time. Air and rail traffic, and commercial and industrial activities are also major sources of noise in some areas. Federal, state, and local agencies regulate different aspects of environmental noise. Federal and state agencies generally set noise standards for mobile sources such as aircraft and motor vehicles, while regulation of stationary sources is left to local agencies.

3.1 STATE OF CALIFORNIA NOISE REQUIREMENTS

The State of California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires that each county and city adopt a General Plan that includes a Noise Element which is to be prepared per guidelines adopted by the Governor's Office of Planning and Research. (12) The purpose of the Noise Element is to *limit the exposure of the community to excessive noise levels*. In addition, the California Environmental Quality Act (CEQA) requires that all known environmental effects of a project be analyzed, including environmental noise impacts.

3.2 STATE OF CALIFORNIA BUILDING CODE

The State of California's noise insulation standards are codified in the California Code of Regulations, Title 24, Building Standards Administrative Code, Part 2, and the California Building Code. These noise standards are applied to new construction in California for the purpose of controlling interior noise levels resulting from exterior noise sources. The regulations specify that acoustical studies must be prepared when noise-sensitive structures, such as residential buildings, schools, or hospitals, are developed near major transportation noise sources, and where such noise sources create an exterior noise level of 60 dBA CNEL or higher. Acoustical studies that accompany building plans for noise-sensitive land uses must demonstrate that the structure has been designed to limit interior noise in habitable rooms to acceptable noise levels. For new residential buildings, schools, and hospitals, the acceptable interior noise limit for new construction is 45 dBA CNEL.

3.3 CITY OF CHINO GENERAL PLAN NOISE ELEMENT

The City of Chino has adopted a Noise Element of the General Plan (13) to minimize problems from intrusive sound and to ensure that development does not expose people to unacceptable noise levels. The Noise Element specifies the maximum exterior and interior noise levels for new developments impacted by transportation noise sources such as arterial roads, freeways, airports, and railroads. In addition, the Noise Element identifies noise polices designed to protect, create, and maintain an environment free from noise that may jeopardize the health or



welfare of sensitive receivers, or degrade quality of life. To protect Chino residents from unacceptable noise levels, the Noise Element contains the following three objectives:

- *N-1.1.* Ensure appropriate exterior and interior noise levels for existing and new land uses;
- *N-1.2 Reduce noise impacts from transportation;*
- *N-1.3 Control sources of construction noise.*

The noise policies specified in the City of Chino Noise Element provide the guidelines necessary to satisfy these objectives. To ensure the appropriate exterior and interior noise levels for existing and new land uses (N-1.1), Table N-3 of the City of Chino General Plan Noise Element, identifies a maximum allowable exterior noise level of 65 dBA CNEL and an interior noise level limit of 45 dBA CNEL for new residential developments impacted by transportation noise sources such as arterial roads, freeways, airports, railroads, and warehousing uses.

The City of Chino General Plan Noise Element does not identify criteria to assess the impacts associated with exterior off-site transportation-related noise impacts at non-noise-sensitive uses, such as industrial, and therefore, the Office of Planning and Research (OPR) land use/noise compatibility criteria, found in Figure 2 of the *General Plan Guidelines, Appendix C: Noise Element Guidelines* criteria can be used to assess potential impacts at adjacent land uses. The *normally acceptable* exterior noise level for non-noise-sensitive land use, such as industrial use, is 70 dBA CNEL. Noise levels greater than 70 dBA CNEL are considered *conditionally acceptable* per the *Land Use Compatibility Criteria*. (14)

ADJACENT JURISDICTIONS

The City of Chino residential exterior noise level standard for transportation noise sources of 65 dBA CNEL is generally consistent with the adjacent jurisdictional guidelines of the City of Chino Hills, City of Ontario, and City of Eastvale, as indicated in Table 7-1 of the City of Chino Hills General Plan, The Ontario Plan Safety Section on Noise Hazards (Table LU-7), and Table N-3 of the City of Eastvale General Plan Noise Element, respectively. As such, this noise study relies on the 65 dBA CNEL City of Chino residential exterior noise level standard for transportation noise sources when evaluating Project-related off-site traffic noise level increases at noise-sensitive land uses. (15) (16) (17) In addition, the guidelines of the City of Chino Hills, City of Ontario, and City of Eastvale, as indicated in their respective General Plans, also generally identify 70 dBA CNEL as *normally acceptable* for non-noise-sensitive uses, such as industrial.

3.4 OPERATIONAL NOISE STANDARDS

To analyze noise impacts originating from a designated fixed location or private property such as the Majestic Chino Heritage, operational noise that may include roof-top air conditioning units, idling trucks, delivery truck activities, backup alarms, as well as loading and unloading of dry goods, and parking lot vehicle movements are typically evaluated against standards established under a City's Municipal Code. Since nearby sensitive receiver locations are located in the adjacent City of Chino Hills, applicable noise level standards of each jurisdiction are used in this analysis to evaluate potential impacts.



3.4.1 CITY OF CHINO MUNICIPAL CODE

The City of Chino Noise Ordinance included in the Municipal Code (Chapter 9.40) establishes the maximum permissible noise level that may intrude into a neighbor's property. The Noise Ordinance (Section 9.40.040) establishes the exterior noise level criteria for residential properties affected by stationary noise sources. While the Municipal Code identifies noise zones for commercial (Zone II), manufacturing and industrial properties (Zone III), it only establishes exterior noise standards for residential property (Section 9.40.030). For residential properties (Noise Zone 1), the exterior noise level shall not exceed 55 dBA during daytime hours (7:00 a.m. to 10:00 p.m.) and shall not exceed 50 dBA during the nighttime hours (10:00 p.m. to 7:00 a.m.) for more than 30 minutes in any hour. (18) These standards shall apply for a cumulative period of 30 minutes in any hour, or the standard plus 5 dBA cannot be exceeded for a cumulative period of more than 15 minutes in any hour, or the standard plus 10 dBA for a cumulative period of more than 5 minutes in any hour, or the standard plus 15 dBA for a cumulative period of more than 1 minute in any hour, or the standard plus 20 dBA for any period of time. The City of Chino Municipal Code operational noise level standards are shown on Table 3-1 and included in Appendix 3.1.

3.4.2 CITY OF CHINO HILLS MUNICIPAL CODE

The City of Chino Hills Municipal Code, Chapter 16 *Performance Standards*, Section 16.48.020(B) *Noise Standards*, identifies the City's standards as the *"Zone C" noise standard for that receiving land use specified in Table N-1 of the General Plan Noise Element*. (19) Consistent with Table 7-1 of the General Plan Noise Element, single-family residential land use shall not exceed a transportation-related exterior noise level of 65 dBA CNEL or an interior noise level of 45 dBA CNEL.

To assess the stationary noise sources associated with the Project, Development Code, Section 16.48.020(B)(2), identifies percentile noise level standards by land use category. The percentile noise levels represent the noise level standard (as show on Table 7-1 of the General Plan Noise Element) for that receiving land use for a cumulative period of more than 30 minutes (L_{50}) in any hour. For a cumulative period of more than fifteen minutes (L_{25}) in any hour, the standard plus 5 dBA may not be exceeded. For a cumulative period of more than five minutes (L_8) in any hour, the standard plus 10 dBA may not be exceeded. For any one minute period (L_2) in any hour, the standard plus 15 dBA may not be exceeded, and the noise standard plus 20 dBA (L_{max}) may not be exceeded for any period of time. (19) Table 3-1 shows the Chino Hills exterior noise level limits for residential uses.



			Exterior Noise Level Standards (dBA) ¹					
City	Land Use	Period	L ₅₀ (30 mins)	L ₂₅ (15 mins)	L ₈ (5 mins)	L₂ (1 min)	L _{max} (Anytime)	
Chino ²	Residential	Daytime	55	60	65	70	75	
Chino ²		Nighttime	50	55	60	65	70	
Chino Hills ³		Any Time	65	70	75	80	85	

TABLE 3-1: OPERATIONAL NOISE STANDARDS

 1 The percent noise level is the level exceeded "n" percent of the time during the measurement period. L₅₀ is the noise level exceeded 50% of the time.

² Source: Section 9.40.040 of the City of Chino Municipal Code (Appendix 3.1).

³ Source: Section 16.48.020 of the City of Chino Hills Development Code and Table 7-1 of the City of Chino Hills Noise Element. "Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

3.5 CONSTRUCTION NOISE STANDARDS

The City of Chino has set restrictions to control noise impacts associated with construction activities throughout the City. Section 9.40.060(D) of the City's Noise Ordinance indicates that noise sources associated with construction, repair, remodeling, or grading of any real property, are exempt from the provisions of the noise ordinance, provided the construction activities take place between the hours of 7:00 a.m. and 8:00 p.m. Monday through Saturday, with no construction allowed on Sundays and Federal holidays (Section 15.44.030), and provided the noise levels exceeding 65 dBA when measured on residential property do not endanger the public health, welfare and safety. (20) The City can authorize construction activities to occur outside of the hours specified above.

Although construction noise may not pose an immediate a health risk or damage human hearing, it has the potential to adversely affect people's quality of life. Noise annoys, awakens, angers, and frustrates noise-sensitive individuals. It disrupts communication and affects performance capabilities. Noise is one of the biological stressors associated with everyday life. Thus, the numerous effects of noise combine to detract from the quality of people's lives and the environment. (21) In addition, acceptance of temporary construction noise varies with the individual. For this reason, and to present a conservative evaluation of construction noise effects in this report, the numerical noise standard of 65 dBA (with higher noise level allowances for short bursts of louder noise) established in the City of Chino Municipal Code, Section 9.40.060(D) *Special Provisions*, is used in this analysis to determine the significance of construction noise on noise-sensitive receivers.

The reference construction noise limit of 65 dBA L_{eq} provides an acceptable numerical threshold for determining the relative significance of Project construction noise levels at nearby residential receivers. Note that pursuant to the City of Chino Municipal Code, Section 9.40.060(D), the noise limit of 65 dBA is the noise standard for a cumulative period of more than thirty minutes in any hour (L_{50}). In addition, the Municipal Code allows for short bursts or periods of increased construction-related noise as follows:

• 70 dBA for a cumulative period of no more than fifteen minutes in any hour (L₂₅);



- 75 dBA for a cumulative period of no more than five minutes in any hour (L_8) ;
- 80 dBA for a cumulative period of more than one minute in any hour (L₂);
- Noise levels greater than 85 dBA experienced at a sensitive receiver for any period (L_{max}).

For the purposes of this analysis, the 65 dBA L_{eq} threshold is used to represent a single numerical average threshold to assess the potential construction noise level impacts at nearby sensitive receivers. While the L_{50} describes the median noise levels occurring 50 percent of the time, the L_{eq} accounts for the total energy (average) observed for the entire hour during construction activities. In addition, the City of Chino Hills and Eastvale do not identify specific construction noise level thresholds, and as such, this analysis relies on the conservative City of Chino 65 dBA L_{eq} threshold.

Mobile construction equipment will operate throughout the Project site and will not remain stationary, and therefore, the stationary-source noise level limits of Section 9.40.040 of the City of Chino Municipal Code are not applied to Project construction noise levels. Moreover, since the City of Chino specifically identifies a 65 dBA exterior noise level limit for construction noise, the previously identified Municipal Code stationary-source noise level limits described in Section 3.4 for operational noise are not used in the evaluation of potential construction noise impacts.

3.6 VIBRATION STANDARDS

To analyze vibration impacts originating from the operation and construction of the Majestic Chino Heritage, vibration-generating activities are typically evaluated against standards established under a City's Municipal Code. The City of Chino and Chino Hills Municipal Code and the City of Eastvale General Plan vibration level standards are used in this analysis to assess potential impacts at nearby sensitive receiver locations within each jurisdiction, respectively.

The Project construction vibration levels are evaluated in this report base on the City of Chino 0.05 in/sec RMS vibration level standard, the City of Chino Hills 0.2 in/sec PPV standard, and the City of Eastvale 0.0787 in/sec PPV standard. (18) (19) (16)



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4 SIGNIFICANCE CRITERIA

The following significance criteria are based on currently adopted guidance provided by Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1) For the purposes of this report, impacts would be potentially significant if the Project results in or causes:

- A. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?
- B. Generation of excessive ground-borne vibration or ground-borne noise levels?
- C. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

While the City of Chino General Plan Guidelines provide direction on noise compatibility and establish noise standards by land use type that are sufficient to assess the significance of noise impacts, they do not define the levels at which increases are considered substantial for use under Guideline A. CEQA Appendix G Guideline C applies to nearby public and private airports, if any, and the Project's land use compatibility.

4.1 CEQA GUIDELINES NOT FURTHER ANALYZED

Based on future Year 2030 conditions provided in the *Chino Airport Master Plan* and the *Airport Comprehensive Land Use Plan*, the Project site is located outside of the 55 to 60 dBA CNEL noise level contour boundary. (22) As such, exterior noise levels due to aircraft overflight activities would not exceed the exterior noise level standards of the City of Chino General Plan Noise Element, and Project interior noise levels would be reduced with standard building construction. Therefore, no impact related to the exposure of people residing or working in the Project area to excessive airport related noise levels is anticipated, and no further analysis is required under Guideline C.

4.2 SIGNIFICANCE CRITERIA SUMMARY

Noise impacts shall be considered significant if any of the following occur as a direct result of the proposed development. The significance criteria is shown on Table 4-1.

OFF-SITE TRAFFIC NOISE

• When off-site traffic noise levels, without or with the Project, at existing and future noise-sensitive land uses (e.g. residential, schools, churches, etc.) exceed the 65 dBA CNEL standard for noise-sensitive uses identified in Table N-3 of the City of Chino General Plan Noise Element, and the Project creates a community noise level increase of greater than 1.5 dBA CNEL (FICON). (23)





• When off-site traffic noise levels, without or with the Project, at existing and future non-noisesensitive land uses (e.g. industrial, etc.) exceed the OPR General Plan Guidelines, Appendix C: Noise Element Guidelines, *normally acceptable* 70 dBA CNEL noise level criteria and the Project creates a community noise level increase of greater than 1.5 dBA CNEL (FICON). (23)

OPERATIONAL NOISE

• If Project-related operational (stationary-source) noise levels exceed the exterior noise level standards for sensitive residential land uses in the City of Chino or City of Chino Hills, as previously shown on Table 3-1.

OPERATIONAL VIBRATION

- If long-term Project-generated operational-source vibration levels could exceed:
 - the vibration standard of 0.05 inch/sec RMS at noise-sensitive receiver locations in the City of Chino;
 - the vibration standard of 0.2 inch/sec PPV at noise-sensitive receiver locations in the City of Chino Hills;
 - the vibration standard of 0.0787 inch/sec PPV at noise-sensitive receiver locations in the City of Eastvale.

CONSTRUCTION NOISE

• If Project-related construction activities create noise levels during the approved hours at sensitive residential receiver locations which exceed the construction noise level limit of 65 dBA L_{eq} (City of Chino Municipal Code, Section 9.40.060(D)).

CONSTRUCTION VIBRATION

- If short-term Project-generated construction-source vibration levels could exceed:
 - the vibration standard of 0.05 inch/sec RMS at noise-sensitive receiver locations in the City of Chino;
 - the vibration standard of 0.2 inch/sec PPV at noise-sensitive receiver locations in the City of Chino Hills;
 - the vibration standard of 0.0787 inch/sec PPV at noise-sensitive receiver locations in the City of Eastvale.



Analysia	City	Receiving	Condition(a)	Significa	nce Criteria
Analysis	City	Land Use	Condition(s)	Daytime	Nighttime
Off-Site	411	Noise- Sensitive ¹	If off-site traffic noise is > 65 dBA CNEL	≥ 1.5 dBA CNE	L Project increase
Traffic Noise	All	Non-Noise- Sensitive ²	If off-site traffic noise is > 70 dBA CNEL	≥ 1.5 dBA CNEL Project increas	
Operational ³	Multiple	Noise- Sensitive	Exterior Noise Level Limits	See T	able 3-1
	All	Residential	Noise Level Threshold ⁴	65 0	BA L _{eq}
Construction ^{4,5}	Chino		Vibration Level Threshold	0.05 in	/sec RMS
	Chino Hills	Sensitive	Vibration Level Threshold	0.2 in	/sec PPV
	Eastvale		Vibration Level Threshold	0.0787	in/sec PPV

TABLE 4-1: SIGNIFICANCE CRITERIA SUMMARY

¹ Based on City of Chino General Plan criteria and FICON guidance (1992).

² Based on the land use compatibility criteria found in the Office of Planning and Research General Plan Guidelines, Figure 2, and the General Plans of the City of Chino, Chino Hills, and Eastvale, and FICON guidance (1992).

³ Municipal Code exterior noise level limits.

⁴ Based on the conservative construction noise level threshold for residential uses identified in the City of Chino Municipal Code, Section 9.40.060(D).

⁵ Vibration thresholds based on the Municipal Codes of the City of Chino and Chino Hills and Eastvale General Plan.

"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.; "RMS" = root-mean-square; "PPV" = peak-particle-velocity



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5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, 11 24-hour noise level measurements were taken at sensitive receiver locations in the Project study area. The receiver locations were selected to describe and document the existing noise environment within the Project study area. Exhibit 5-A provides the boundaries of the Project study area and the noise level measurement locations. To fully describe the existing noise conditions, noise level measurements were collected by Urban Crossroads, Inc. on Tuesday, April 2nd, 2019. Appendix 5.1 includes study area photos.

5.1 MEASUREMENT PROCEDURE AND CRITERIA

To describe the existing noise environment, the hourly noise levels were measured during typical weekday conditions over a 24-hour period. By collecting individual hourly noise level measurements, it is possible to describe the daytime and nighttime hourly noise levels and calculate the 24-hour CNEL. The long-term noise readings were recorded using Piccolo Type 2 integrating sound level meter and dataloggers. The Piccolo sound level meters were calibrated using a Larson-Davis calibrator, Model CAL 150. All noise meters were programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (24)

5.2 NOISE MEASUREMENT LOCATIONS

The long-term noise level measurements were positioned as close to the nearest sensitive receiver locations as possible to assess the existing ambient hourly noise levels surrounding the Project site. Both Caltrans and the FTA recognize that it is not reasonable to collect noise level measurements that can fully represent any part of a private yard, patio, deck, or balcony normally used for human activity when estimating impacts for new development projects. This is demonstrated in the Caltrans general site location guidelines which indicate that, *sites must be free of noise contamination by sources other than sources of interest. Avoid sites located near sources such as barking dogs, lawnmowers, pool pumps, and air conditioners unless it is the express intent of the analyst to measure these sources. (7)* Further, FTA guidance states, that it is not necessary nor recommended that existing noise exposure be determined by measuring at every noise-sensitive location in the project area. Rather, the recommended approach is to characterize the noise environment for clusters of sites based on measurements or estimates at representative locations in the community. (3)

Based on recommendations of Caltrans and the FTA, it is not necessary to collect measurements at each individual building or residence, because each receiver measurement represents a group of buildings that share acoustical equivalence. In other words, the area represented by the receiver shares similar shielding, terrain, and geometric relationship to the reference noise source. Receivers represent a location of noise sensitive areas and are used to estimate the future noise level impacts. Collecting reference ambient noise level measurements at the nearby sensitive receiver locations allows for a comparison of the before and after Project noise levels



and is necessary to assess potential noise impacts due to the Project's contribution to the ambient noise levels.

5.3 NOISE MEASUREMENT RESULTS

The noise measurements presented below focus on the average or equivalent sound levels (L_{eq}). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. Table 5-1 identifies the hourly daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) noise levels at each noise level measurement location. Additional median noise levels (L_{50}) are provided on Table 5-1 consistent with applicable Municipal Code exterior noise level standards. Appendix 5.2 provides a summary of the existing ambient noise levels described below:

- Location L1 represents the noise levels near a Big League Dreams and Fairfield Ranch Park, west
 of the Project site. The noise level measurements collected show an overall 24-hour exterior noise
 level of 57.8 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at
 53.9 dBA Leq with an average nighttime noise level of 50.3 dBA Leq.
- Location L2 represents the noise levels on Mountain Avenue, north of El Prado Road south of the Project site boundary. The noise level measurements collected show an overall 24-hour exterior noise level of 62.1 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 59.0 dBA L_{eq} with an average nighttime noise level of 54.4 dBA L_{eq}.
- Location L3 represents the noise levels on Pine Avenue, near Lizze Custom Processing, southeast
 of the Project site. The 24-hour CNEL indicates that the overall exterior noise level is 67.9 dBA
 CNEL. The energy (logarithmic) average daytime noise level was calculated at 62.6 dBA L_{eq} with
 an average nighttime noise level of 61.0 dBA L_{eq}.
- Location L4 represents the noise levels on Johnson Avenue, near Prado Park Equestrian Center, southeast of the Project site. The noise level measurements collected show an overall 24-hour exterior noise level of 58.3 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 53.9 dBA L_{eq} with an average nighttime noise level of 50.9 dBA L_{eq}.
- Location L5 represents the noise levels on Meadowhouse Avenue, near Meadow Square Apartment Homes, east of the Project site. The noise level measurements collected show an overall 24-hour exterior noise level of 65.5 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 60.5 dBA Leq with an average nighttime noise level of 58.3 dBA Leq.
- Location L6 represents the noise levels in Prado Regional Park near campground areas. The noise level measurements collected show an overall 24-hour exterior noise level of 56.3 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 53.8 dBA L_{eq} with an average nighttime noise level of 48.3 dBA L_{eq}.
- Location L7 represents the noise levels on Cucamonga Road, near Vermontes Mulch, southeast of the Project site. The noise level measurements collected show an overall 24-hour exterior noise level of 58.1 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 57.0 dBA L_{eq} with an average nighttime noise level of 48.9 dBA L_{eq}.
- Location L8 represents the noise levels on Chino Corona Road, near County Road, adjacent to
 existing rural residential homes. The noise level measurements collected show an overall 24-hour
 exterior noise level of 66.1 dBA CNEL. The energy (logarithmic) average daytime noise level was
 calculated at 62.7 dBA L_{eq} with an average nighttime noise level of 58.7 dBA L_{eq}.



- Location L9 represents the noise levels on Hereford Road, near residential construction and a vacant area, east of the Project site. The 24-hour CNEL indicates that the overall exterior noise level is 61.8 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 60.2 dBA L_{eq} with an average nighttime noise level of 53.3 dBA L_{eq}.
- Location L10 represents the noise levels at Walters Street and Hellman Avenue, adjacent to
 existing residential homes. The noise level measurements collected show an overall 24-hour
 exterior noise level of 79.7 dBA CNEL. The energy (logarithmic) average daytime noise level was
 calculated at 75.4 dBA Leq with an average nighttime noise level of 72.6 dBA Leq.
- Location L11 represents the noise levels on Chandler Street, near a vacant area and existing residential neighborhood. The noise level measurements collected show an overall 24-hour exterior noise level of 65.4 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 61.9 dBA L_{eq} with an average nighttime noise level of 57.7 dBA L_{eq}.

Table 5-1 provides the (energy average) noise levels used to describe the daytime and nighttime ambient conditions. These daytime and nighttime energy average noise levels represent the average of all hourly noise levels observed during these time periods expressed as a single number. Appendix 5.2 provides summary worksheets of the noise levels for each hour as well as the minimum, maximum, L₁, L₂, L₅, L₈, L₂₅, L₅₀, L₉₀, L₉₅, and L₉₉ percentile noise levels observed during the daytime and nighttime periods.

The background ambient noise levels in the Project study area are dominated by the transportation-related noise associated with the arterial roadway network and background Chino Airport aircraft flyover events. The 24-hour existing noise level measurements shown on Table 5-1 present the existing ambient noise conditions.



Location ¹	Description	Energy Noise (dBA	Average e Level A L _{eq}) ²	Average Noise (dBA	e Median e Level A L ₅₀) ²	CNEL
		Daytime	Nighttime	Daytime	Nighttime	
L1	Located near a Big League Dreams and Fairfield Ranch Park, west of the Project site.	53.9	50.3	51.7	48.8	57.8
L2	Located on Mountain Avenue, north of El Prado Road south of the Project site boundary.	59.0	54.4	52.9	47.9	62.1
L3	Located on Pine Avenue, near Lizze Custom Processing, southeast of the Project site.	62.6	61.0	58.5	53.2	67.9
L4	Located on Johnson Avenue, near Prado Park Equestrian Center, southeast of the Project site.	53.9	50.9	49.2	47.1	58.3
L5	Located on Meadowhouse Avenue, near Meadow Square Apartment Homes, east of the Project site.	60.5	58.3	56.6	51.9	65.5
L6	Located in Prado Regional Park near campground areas.	53.8	48.3	48.1	45.9	56.3
L7	Located on Cucamonga Road, near Vermontes Mulch, southeast of the Project site.	57.0	48.9	49.1	43.7	58.1
L8	Located on Chino Corona Road, near County Road, adjacent to existing rural residential homes.	62.7	58.7	47.7	43.7	66.1
L9	Located on Hereford Road, near residential construction and a vacant area, east of the Project site.	60.2	53.3	51.5	45.1	61.8
L10	Located at Walters Street and Hellman Avenue, adjacent to existing residential homes.	75.4	72.6	68.9	53.4	79.7
L11	Located on Chandler Street, near a vacant area and existing residential neighborhood.	61.9	57.7	51.1	45.8	65.4

TABLE 5-1: 24-HOUR AMBIENT NOISE LEVEL MEASUREMENTS

¹ See Exhibit 5-A for the noise level measurement locations.

² Energy (logarithmic) average hourly levels. The long-term 24-hour measurement worksheets are included in Appendix 5.2.
 "Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.



EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS



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6 METHODS AND PROCEDURES

The following section outlines the methods and procedures used to model and analyze the future traffic noise environment.

6.1 FHWA TRAFFIC NOISE PREDICTION MODEL

The estimated roadway noise impacts from vehicular traffic were calculated using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108. (25) The FHWA Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). In California the national REMELs are substituted with the California Vehicle Noise (Calveno) Emission Levels. (26) Adjustments are then made to the REMEL to account for: the roadway classification (e.g., collector, secondary, major or arterial), the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT), the travel speed, the percentages of automobiles, medium trucks, and heavy trucks in the traffic volume, the roadway grade, the angle of view (e.g., whether the roadway view is blocked), the site conditions ("hard" or "soft" relates to the absorption of the ground, pavement, or landscaping), and the percentage of total ADT which flows each hour throughout a 24-hour period. Research by Caltrans has shown that the use of soft site conditions is appropriate for the application of the FHWA traffic noise prediction model used in this analysis. (27)

6.2 OFF-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

Table 6-1 presents the roadway parameters used to assess the Project's off-site transportation noise impacts. Table 6-1 identifies the 37 study area roadway segments, the distance from the centerline to adjacent land use based on the functional roadway classifications per the City of Chino General Plan Circulation Element, and the posted vehicle speeds.

6.2.1 PROJECT OPERATIONAL TRAFFIC

The Existing, Opening Year 2022, and Horizon Year 2040 average daily traffic volumes used for this study are presented on Table 6-2 and are provided by *Majestic Chino Heritage Traffic Impact Analysis*. (2) To quantify the off-site noise levels, the Project related truck trips were added to the heavy truck category in the FHWA noise prediction model. The addition of the Project related truck trips increases the percentage of heavy trucks in the vehicle mix. This approach recognizes that the FHWA noise prediction model is significantly influenced by the number of heavy trucks in the vehicle mix.



Table 6-4 provides the time of day (daytime, evening, and nighttime) vehicle splits. The daily Project truck trip-ends were assigned to the individual off-site study area roadway segments based on the Project truck trip distribution percentages documented in the *Traffic Impact Analysis*. Using the Project truck trips in combination with the Project trip distribution, Urban Crossroads, Inc. calculated the number of additional Project truck trips and vehicle mix percentages for each of the study area roadway segments. Table 6-5 shows the traffic flow by vehicle type (vehicle mix) used for all without Project traffic scenarios, and Tables 6-6 to 6-8 show the vehicle mixes used for the with Project traffic scenarios.

6.2.2 SOIL IMPORT/EXPORT HAUL TRUCK TRAFFIC

The Existing and Existing with Project (haul truck trips) average daily traffic volumes used for the soil import/export off-site traffic noise analysis are presented on Table 6-3 and are based on the daytime and off-peak hour time periods, described in Section 7.5, and trips identified in the *Majestic Chino Heritage Traffic Impact Analysis*. (2)



ID	Roadway	Segment	Adjacent Planned (Existing if Different) Land Use ¹	Distance from Centerline to Nearest Adjacent Land Use (Feet) ²	Vehicle Speed (mph) ³
1	Central Av.	n/o El Prado Rd.	Industrial/Urban Reserve	60'	45
2	Central Av.	s/o El Prado Rd.	Industrial	60'	45
3	El Prado Rd.	n/o Kimball Av.	Industrial/Urban Reserve	44'	45
4	Euclid Av.	n/o Walnut Av.	Commercial	84'	55
5	Euclid Av.	n/o Riverside Dr.	Residential/Commercial	84'	55
6	Euclid Av.	n/o Chino Av.	Residential/Commercial	84'	55
7	Euclid Av.	n/o Schaefer Av.	Residential/Commercial	84'	55
8	Euclid Av.	n/o Edison Av.	Residential/Commercial	84'	55
9	Euclid Av.	n/o Eucalyptus Av.	Residential/Commercial	84'	55
10	Euclid Av.	n/o Merrill Av.	Residential/Agricultural	84'	55
11	Euclid Av.	s/o Merrill Av.	Open Space/Airport Related	84'	55
12	Euclid Av.	n/o Kimball Av.	Industrial/Airport Related	84'	55
13	Euclid Av.	n/o Bickmore Av.	Industrial/Commercial	84'	55
14	Archibald Av.	n/o Limonite Av.	Commercial/Residential	84'	55
15	Archibald Av.	s/o Limonite Av.	Commercial/Residential	76'	45
16	Archibald Av.	s/o Schleisman Rd.	Commercial/ Residential	76'	45
17	Kimball Av.	w/o Mountain Av.	Urban Reserve/Industrial	44'	50
18	Kimball Av.	w/o Euclid Av.	Industrial/Airport Related	44'	50
19	Kimball Av.	e/o Euclid Av.	Industrial/Airport Related	49'	50
20	Kimball Av.	w/o Rincon Meadows Av.	Airport Related/Residential	49'	50
21	Kimball Av.	e/o Rincon Meadows Av.	Airport Related/Residential	49'	50
22	Kimball Av.	e/o Mill Creek Av.	Airport Related/Residential	49'	50
23	Kimball Av.	e/o Main St.	Airport Related/Residential	49'	50
24	Kimball Av.	e/o Flight Av.	Industrial/Residential	49'	50
25	Limonite Av.	w/o Archibald Av.	Industrial	76'	50
26	Limonite Av.	e/o Archibald Av.	Commercial/Residential	76'	50
27	Pine Av.	w/o El Prado Rd.	Open Space (Golf Course)	60'	45
28	Pine Av.	w/o Euclid Av.	Industrial/Open Space	60'	45
29	Pine Av.	e/o Euclid Av.	Comm./Recreation (Residential)	60'	45
30	Pine Av.	w/o Chino Corona Rd.	Commercial/Residential	60'	45
31	Pine Av.	w/o W. Preserve Loop	Residential	60'	45
32	Pine Av.	w/o E. Preserve Loop	Residential	60'	45
33	Pine Av.	w/o Hellman Av.	Residential	60'	45
34	Schleisman Rd.	w/o Archibald Av.	Commercial/Residential	76'	45
35 ⁴	Chino Corona Rd.	s/o Pine Av.	Commercial/Residential	30'	45
36 ⁴	Chino Corona Rd.	e/o Cucamonga Av.	Residential/Agricultural	30'	40
37 ⁴	Hellman Av.	s/o Pine Av.	Residential	49'	45

TABLE 6-1: OFF-SITE ROADWAY PARAMETERS

¹ Sources: Land Use Maps of the City of Chino, Chino Hills, Ontario, and Eastvale, and aerial imagery.

² Distance to adjacent land use is based upon the right-of-way distances for each roadway classification provided in the General Plan Circulation Element. ³ Sources: Majestic Chino Heritage Traffic Impact Analysis, prepared by Urban Crossroads, Inc.

⁴ Segments 35 to 37 are only analyzed under Existing and Existing with Project conditions to determine potential off-site traffic noise impacts during dirt haul truck trips associated with Project construction.

			Average Daily Traffic Volumes ¹						
ID	Roadway	Segment	Exis 20	ting 19	Openir 20	ng Year 22	Horizo 20	n Year 40	
			Without Project	With Project	Without Project	With Project	Without Project	With Project	
1	Central Av.	n/o El Prado Rd.	29,420	29,772	31,600	31,954	33,180	33,535	
2	Central Av.	s/o El Prado Rd.	34,911	35,873	37,909	38,873	39,805	40,021	
3	El Prado Rd.	n/o Kimball Av.	24,718	26,099	27,269	28,653	28,632	29,164	
4	Euclid Av.	n/o Walnut Av.	30,254	30,863	34,918	35,531	52,793	53,422	
5	Euclid Av.	n/o Riverside Dr.	25,283	25,924	29,681	30,326	45,572	46,231	
6	Euclid Av.	n/o Chino Av.	25,245	25,994	29,908	30,662	49,051	49,822	
7	Euclid Av.	n/o Schaefer Av.	27,794	28,582	32,723	33,515	49,457	50,264	
8	Euclid Av.	n/o Edison Av.	29,878	30,668	35,053	35,847	52,051	52,860	
9	Euclid Av.	n/o Eucalyptus Av.	27,743	28,639	32,935	33,836	47,542	48,456	
10	Euclid Av.	n/o Merrill Av.	31,921	32,894	36,593	37,570	47,149	48,135	
11	Euclid Av.	s/o Merrill Av.	30,618	31,662	34,987	36,035	49,987	51,048	
12	Euclid Av.	n/o Kimball Av.	30,229	31,272	34,574	35,621	49,377	50,437	
13	Euclid Av.	n/o Bickmore Av.	18,579	19,643	22,353	23,421	36,945	38,833	
14	Archibald Av.	n/o Limonite Av.	25,446	25,613	29,340	29,511	46,489	46,675	
15	Archibald Av.	s/o Limonite Av.	24,166	24,896	27,324	28,057	36,298	36,347	
16	Archibald Av.	s/o Schleisman Rd.	21,994	22,146	24,024	24,178	27,702	27,859	
17	Kimball Av.	w/o Mountain Av.	19,433	20,629	21,661	22,859	22,744	23,271	
18	Kimball Av.	w/o Euclid Av.	22,184	22,245	24,434	24,497	29,863	29,889	
19	Kimball Av.	e/o Euclid Av.	17,975	18,063	20,429	20,520	24,348	25,135	
20	Kimball Av.	w/o Rincon Meadows Av.	19,031	19,120	21,291	21,382	22,356	23,141	
21	Kimball Av.	e/o Rincon Meadows Av.	18,215	18,304	20,432	20,523	21,454	22,238	
22	Kimball Av.	e/o Mill Creek Av.	16,458	16,545	18,591	18,680	19,521	20,303	
23	Kimball Av.	e/o Main St.	15,466	15,552	17,491	17,579	18,365	19,110	
24	Kimball Av.	e/o Flight Av.	13,131	13,143	14,790	14,803	15,529	16,235	
25	Limonite Av.	w/o Archibald Av.	n/a	n/a	n/a	n/a	27,217	27,934	
26	Limonite Av.	e/o Archibald Av.	18,317	18,897	22,105	22,688	43,320	43,906	
27	Pine Av.	w/o El Prado Rd.	25	25	27	27	27,780	29,483	
28	Pine Av.	w/o Euclid Av.	7,306	7,979	7,772	8,446	25,288	25,605	
29	Pine Av.	e/o Euclid Av.	25,747	26,758	28,876	29,889	37,279	37,606	
30	Pine Av.	w/o Chino Corona Rd.	29,771	30,785	32,911	33,928	36,277	36,604	
31	Pine Av.	w/o W. Preserve Loop	16,445	17,411	18,578	19,546	19,507	19,782	
32	Pine Av.	w/o E. Preserve Loop	26,664	27,639	30,018	30,996	31,519	31,805	
33	Pine Av.	w/o Hellman Av.	26,513	27,488	29,448	30,426	30,920	31,206	
34	Schleisman Rd.	w/o Archibald Av.	28,660	29,565	31,944	32,852	38,337	38,557	

TABLE 6-2: OPERATIONAL AVERAGE DAILY TRAFFIC VOLUMES

¹ Source: Majestic Chino Heritage Traffic Impact Analysis, Urban Crossroads, Inc. "n/a" = Roadway segment does not represent a paved and/or fully constructed roadway under the given scenario.



				Average Daily Traffic Volumes ¹			
ID	Roadway	Segment	Existing 2019				
			Without Project	With Daytime Hauling	With Off-Peak Hauling		
29	Pine Av.	e/o Euclid Av.	25,747	26,935	26,935		
30	Pine Av.	w/o Chino Corona Rd.	29,771	30,959	30,959		
31	Pine Av.	w/o W. Preserve Loop	16,445	17,495	17,495		
32	Pine Av.	w/o E. Preserve Loop	26,664	27,714	27,714		
33	Pine Av.	w/o Hellman Av.	26,513	27,563	27,563		
35	Chino Corona Rd.	s/o Pine Av.	3,068	4,256	4,256		
36	Chino Corona Rd.	e/o Cucamonga Av.	3,068	4,256	4,256		
37	Hellman Av.	s/o Pine Av.	13,118	14,168	14,168		

TABLE 6-3: SOIL IMPORT/EXPORT AVERAGE DAILY TRAFFIC VOLUMES

¹ Source: Majestic Chino Heritage Traffic Impact Analysis, Urban Crossroads, Inc.

"n/a" = Roadway segment does not represent a paved and/or fully constructed roadway under the given scenario.

TABLE 6-4: TIME OF DAY VEHICLE SPLITS

		Total of Time of		
venicie rype	Daytime	Evening	Nighttime	Day Splits
Autos	66.20%	13.50%	20.30%	100.00%
Medium Trucks	77.10%	5.30%	17.60%	100.00%
Heavy Trucks	86.30%	1.50%	12.20%	100.00%

Based on an existing vehicle count taken at Pine Avenue and Chino Corona Road (Majestic Chino Heritage Traffic Impact Analysis, Urban Crossroads, Inc.). Vehicle mix percentage values rounded to the nearest one-hundredth.

"Daytime" = 7:00 a.m. to 7:00 p.m.; "Evening" = 7:00 p.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

TABLE 6-5: WITHOUT PROJECT CONDITIONS VEHICLE MIX

Classification		Total			
Classification	Autos	Autos Medium Trucks Heavy Trucks			
All Segments	93.40%	4.70%	1.90%	100.00%	

Based on an existing vehicle count taken at Pine Avenue and Chino Corona Road (Majestic Chino Heritage Traffic Impact Analysis, Urban Crossroads, Inc.). Vehicle mix percentage values rounded to the nearest one-hundredth.

"Daytime" = 7:00 a.m. to 7:00 p.m.; "Evening" = 7:00 p.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.



				With P	roject ¹	
ID	Roadway	Segment	Autos	Medium Trucks	Heavy Trucks	Total ²
1	Central Av.	n/o El Prado Rd.	93.47%	4.65%	1.88%	100.00%
2	Central Av.	s/o El Prado Rd.	92.99%	4.82%	2.19%	100.00%
3	El Prado Rd.	n/o Kimball Av.	93.11%	4.72%	2.17%	100.00%
4	Euclid Av.	n/o Walnut Av.	92.46%	5.06%	2.48%	100.00%
5	Euclid Av.	n/o Riverside Dr.	92.29%	5.12%	2.59%	100.00%
6	Euclid Av.	n/o Chino Av.	92.32%	5.10%	2.58%	100.00%
7	Euclid Av.	n/o Schaefer Av.	92.42%	5.06%	2.52%	100.00%
8	Euclid Av.	n/o Edison Av.	92.49%	5.03%	2.48%	100.00%
9	Euclid Av.	n/o Eucalyptus Av.	92.45%	5.04%	2.51%	100.00%
10	Euclid Av.	n/o Merrill Av.	92.59%	4.98%	2.43%	100.00%
11	Euclid Av.	s/o Merrill Av.	92.57%	4.99%	2.44%	100.00%
12	Euclid Av.	n/o Kimball Av.	92.56%	4.99%	2.45%	100.00%
13	Euclid Av.	n/o Bickmore Av.	92.28%	5.07%	2.65%	100.00%
14	Archibald Av.	n/o Limonite Av.	93.44%	4.67%	1.89%	100.00%
15	Archibald Av.	s/o Limonite Av.	93.36%	4.66%	1.98%	100.00%
16	Archibald Av.	s/o Schleisman Rd.	93.33%	4.72%	1.95%	100.00%
17	Kimball Av.	w/o Mountain Av.	92.98%	4.77%	2.26%	100.00%
18	Kimball Av.	w/o Euclid Av.	93.23%	4.77%	2.00%	100.00%
19	Kimball Av.	e/o Euclid Av.	93.43%	4.68%	1.89%	100.00%
20	Kimball Av.	w/o Rincon Meadows Av.	93.42%	4.68%	1.89%	100.00%
21	Kimball Av.	e/o Rincon Meadows Av.	93.43%	4.68%	1.89%	100.00%
22	Kimball Av.	e/o Mill Creek Av.	93.43%	4.68%	1.89%	100.00%
23	Kimball Av.	e/o Main St.	93.43%	4.68%	1.89%	100.00%
24	Kimball Av.	e/o Flight Av.	93.40%	4.70%	1.90%	100.00%
25	Limonite Av.	w/o Archibald Av.	93.40%	4.70%	1.90%	100.00%
26	Limonite Av.	e/o Archibald Av.	93.29%	4.69%	2.02%	100.00%
27	Pine Av.	w/o El Prado Rd.	93.40%	4.70%	1.90%	100.00%
28	Pine Av.	w/o Euclid Av.	92.40%	4.96%	2.64%	100.00%
29	Pine Av.	e/o Euclid Av.	93.33%	4.66%	2.01%	100.00%
30	Pine Av.	w/o Chino Corona Rd.	93.34%	4.66%	2.00%	100.00%
31	Pine Av.	w/o W. Preserve Loop	93.28%	4.64%	2.07%	100.00%
32	Pine Av.	w/o E. Preserve Loop	93.33%	4.66%	2.01%	100.00%
33	Pine Av.	w/o Hellman Av.	93.33%	4.66%	2.01%	100.00%
34	Schleisman Rd.	w/o Archibald Av.	93.32%	4.68%	2.01%	100.00%

TABLE 6-6: EXISTING WITH PROJECT CONDITIONS VEHICLE MIX

¹ Source: Majestic Chino Heritage Traffic Impact Analysis, Urban Crossroads, Inc.
 ² Total of vehicle mix percentage values rounded to the nearest one-hundredth.



				With P	roject ¹	
ID	Roadway	Segment	Autos	Medium Trucks	Heavy Trucks	Total ²
1	Central Av.	n/o El Prado Rd.	93.47%	4.65%	1.88%	100.00%
2	Central Av.	s/o El Prado Rd.	93.03%	4.81%	2.16%	100.00%
3	El Prado Rd.	n/o Kimball Av.	93.14%	4.72%	2.15%	100.00%
4	Euclid Av.	n/o Walnut Av.	92.58%	5.01%	2.41%	100.00%
5	Euclid Av.	n/o Riverside Dr.	92.45%	5.06%	2.49%	100.00%
6	Euclid Av.	n/o Chino Av.	92.48%	5.04%	2.48%	100.00%
7	Euclid Av.	n/o Schaefer Av.	92.57%	5.01%	2.43%	100.00%
8	Euclid Av.	n/o Edison Av.	92.62%	4.99%	2.39%	100.00%
9	Euclid Av.	n/o Eucalyptus Av.	92.60%	4.99%	2.42%	100.00%
10	Euclid Av.	n/o Merrill Av.	92.69%	4.95%	2.36%	100.00%
11	Euclid Av.	s/o Merrill Av.	92.67%	4.95%	2.38%	100.00%
12	Euclid Av.	n/o Kimball Av.	92.66%	4.95%	2.38%	100.00%
13	Euclid Av.	n/o Bickmore Av.	92.46%	5.01%	2.53%	100.00%
14	Archibald Av.	n/o Limonite Av.	93.43%	4.68%	1.89%	100.00%
15	Archibald Av.	s/o Limonite Av.	93.36%	4.67%	1.97%	100.00%
16	Archibald Av.	s/o Schleisman Rd.	93.34%	4.72%	1.95%	100.00%
17	Kimball Av.	w/o Mountain Av.	93.02%	4.76%	2.22%	100.00%
18	Kimball Av.	w/o Euclid Av.	93.24%	4.76%	1.99%	100.00%
19	Kimball Av.	e/o Euclid Av.	93.42%	4.68%	1.89%	100.00%
20	Kimball Av.	w/o Rincon Meadows Av.	93.42%	4.68%	1.89%	100.00%
21	Kimball Av.	e/o Rincon Meadows Av.	93.42%	4.68%	1.89%	100.00%
22	Kimball Av.	e/o Mill Creek Av.	93.43%	4.68%	1.89%	100.00%
23	Kimball Av.	e/o Main St.	93.43%	4.68%	1.89%	100.00%
24	Kimball Av.	e/o Flight Av.	93.40%	4.70%	1.90%	100.00%
25	Limonite Av.	w/o Archibald Av.	93.40%	4.70%	1.90%	100.00%
26	Limonite Av.	e/o Archibald Av.	93.31%	4.69%	2.00%	100.00%
27	Pine Av.	w/o El Prado Rd.	93.40%	4.70%	1.90%	100.00%
28	Pine Av.	w/o Euclid Av.	92.45%	4.95%	2.60%	100.00%
29	Pine Av.	e/o Euclid Av.	93.34%	4.66%	2.00%	100.00%
30	Pine Av.	w/o Chino Corona Rd.	93.35%	4.67%	1.99%	100.00%
31	Pine Av.	w/o W. Preserve Loop	93.30%	4.65%	2.05%	100.00%
32	Pine Av.	w/o E. Preserve Loop	93.33%	4.67%	2.00%	100.00%
33	Pine Av.	w/o Hellman Av.	93.33%	4.67%	2.00%	100.00%
34	Schleisman Rd.	w/o Archibald Av.	93.32%	4.68%	2.00%	100.00%

TABLE 6-7: OPENING YEAR WITH PROJECT CONDITIONS VEHICLE MIX

¹ Source: Majestic Chino Heritage Traffic Impact Analysis, Urban Crossroads, Inc.

² Total of vehicle mix percentage values rounded to the nearest one-hundredth.



			With Project ¹			
ID	Roadway	Segment	Autos	Medium Trucks	Heavy Trucks	Total ²
1	Central Av.	n/o El Prado Rd.	93.46%	4.65%	1.88%	100.00%
2	Central Av.	s/o El Prado Rd.	93.43%	4.68%	1.89%	100.00%
3	El Prado Rd.	n/o Kimball Av.	93.51%	4.62%	1.87%	100.00%
4	Euclid Av.	n/o Walnut Av.	92.86%	4.91%	2.24%	100.00%
5	Euclid Av.	n/o Riverside Dr.	92.78%	4.94%	2.29%	100.00%
6	Euclid Av.	n/o Chino Av.	92.84%	4.91%	2.26%	100.00%
7	Euclid Av.	n/o Schaefer Av.	92.85%	4.90%	2.25%	100.00%
8	Euclid Av.	n/o Edison Av.	92.87%	4.89%	2.23%	100.00%
9	Euclid Av.	n/o Eucalyptus Av.	92.84%	4.90%	2.26%	100.00%
10	Euclid Av.	n/o Merrill Av.	92.85%	4.89%	2.26%	100.00%
11	Euclid Av.	s/o Merrill Av.	92.89%	4.88%	2.24%	100.00%
12	Euclid Av.	n/o Kimball Av.	92.88%	4.88%	2.24%	100.00%
13	Euclid Av.	n/o Bickmore Av.	92.76%	4.88%	2.36%	100.00%
14	Archibald Av.	n/o Limonite Av.	93.42%	4.69%	1.89%	100.00%
15	Archibald Av.	s/o Limonite Av.	93.36%	4.72%	1.93%	100.00%
16	Archibald Av.	s/o Schleisman Rd.	93.35%	4.71%	1.94%	100.00%
17	Kimball Av.	w/o Mountain Av.	93.54%	4.60%	1.86%	100.00%
18	Kimball Av.	w/o Euclid Av.	93.40%	4.70%	1.90%	100.00%
19	Kimball Av.	e/o Euclid Av.	93.44%	4.62%	1.94%	100.00%
20	Kimball Av.	w/o Rincon Meadows Av.	93.44%	4.62%	1.94%	100.00%
21	Kimball Av.	e/o Rincon Meadows Av.	93.44%	4.61%	1.94%	100.00%
22	Kimball Av.	e/o Mill Creek Av.	93.45%	4.61%	1.95%	100.00%
23	Kimball Av.	e/o Main St.	93.44%	4.61%	1.95%	100.00%
24	Kimball Av.	e/o Flight Av.	93.43%	4.60%	1.97%	100.00%
25	Limonite Av.	w/o Archibald Av.	93.42%	4.64%	1.94%	100.00%
26	Limonite Av.	e/o Archibald Av.	93.39%	4.68%	1.93%	100.00%
27	Pine Av.	w/o El Prado Rd.	92.38%	5.02%	2.60%	100.00%
28	Pine Av.	w/o Euclid Av.	93.32%	4.71%	1.97%	100.00%
29	Pine Av.	e/o Euclid Av.	93.34%	4.71%	1.95%	100.00%
30	Pine Av.	w/o Chino Corona Rd.	93.34%	4.71%	1.95%	100.00%
31	Pine Av.	w/o W. Preserve Loop	93.28%	4.72%	2.00%	100.00%
32	Pine Av.	w/o E. Preserve Loop	93.32%	4.72%	1.96%	100.00%
33	Pine Av.	w/o Hellman Av.	93.32%	4.72%	1.96%	100.00%
34	Schleisman Rd.	w/o Archibald Av.	93.33%	4.72%	1.95%	100.00%

TABLE 6-8: HORIZON YEAR WITH PROJECT CONDITIONS VEHICLE MIX

¹ Source: Majestic Chino Heritage Traffic Impact Analysis, Urban Crossroads, Inc.

² Total of vehicle mix percentage values rounded to the nearest one-hundredth.



6.3 VIBRATION ASSESSMENT

This analysis focuses on the potential ground-borne vibration associated with vehicular traffic and construction activities. Ground-borne vibration levels from automobile traffic are generally overshadowed by vibration generated by heavy trucks that roll over the same uneven roadway surfaces. However, due to the rapid drop-off rate of ground-borne vibration and the short duration of the associated events, vehicular traffic-induced ground-borne vibration is rarely perceptible beyond the roadway right-of-way, and rarely results in vibration levels that cause damage to buildings in the vicinity.

However, while vehicular traffic is rarely perceptible, construction has the potential to result in varying degrees of temporary ground vibration, depending on the specific construction activities and equipment used. Ground vibration levels associated with various types of construction equipment are summarized on Table 6-9. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the human response (annoyance) using the following vibration assessment methods defined by the FTA. To describe the human response (annoyance) associated with vibration impacts the FTA provides the following equation: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$

Equipment	PPV (in/sec) at 25 feet
Small bulldozer	0.003
Jackhammer	0.035
Loaded Trucks	0.076
Large bulldozer	0.089

TABLE 6-9: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment, September 2018.



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7 OFF-SITE TRAFFIC NOISE IMPACTS

To assess the off-site transportation CNEL noise level impacts associated with development of the proposed Project, noise contours were developed based on *Majestic Chino Heritage Traffic Impact Analysis*. (2) Noise contour boundaries represent the equal levels of noise exposure and are measured in CNEL from the center of the roadway. Noise contours were developed for the following traffic scenarios:

PROJECT OPERATIONAL TRAFFIC

- <u>Existing Conditions Without Project</u>: This scenario refers to the existing present-day noise conditions without the proposed Project.
 - <u>Existing With Project</u>: This scenario refers to the existing present-day noise conditions with the proposed Project.
- <u>Opening Year 2022 Without the Project</u>: This scenario refers to Opening Year noise conditions without the proposed Project.
 - <u>Opening Year 2022 With Project</u>: This scenario includes all cumulative projects identified in the *Traffic Impact Analysis*.
- <u>Horizon Year 2040 Without Project</u>: This scenario refers to the background noise conditions at Horizon Year 2040 without the proposed Project.
 - <u>Horizon Year 2040 With Project</u>: This scenario corresponds to Horizon Year 2040 conditions, and includes all cumulative projects identified in the *Traffic Impact Analysis*.

SOIL IMPORT/EXPORT HAUL TRUCK CONSTRUCTION TRAFFIC

- <u>Existing Conditions Without Project</u>: This scenario refers to the existing present-day noise conditions without the proposed Project.
 - <u>Existing With Project</u>: This scenario refers to the existing present-day noise conditions with the proposed soil import/export truck haul trips to the Excess Fill Dirt Sites.

7.1 PROJECT OPERATIONAL TRAFFIC NOISE CONTOURS

Noise contours were used to assess the Project's incremental traffic-related noise impacts at land uses adjacent to roadways conveying Project traffic. The noise contours represent the distance to noise levels of a constant value and are measured from the center of the roadway for the 70, 65, and 60 dBA noise levels. The noise contours do not consider the effect of any existing noise barriers or topography that may attenuate ambient noise levels. In addition, because the noise contours reflect modeling of vehicular noise on area roadways, they appropriately do not reflect noise contributions from the surrounding stationary noise sources within the Project study area. Tables 7-1 and 7-6 present a summary of the exterior traffic noise levels, without barrier attenuation, for the study area roadway segments analyzed from the without Project to the with Project conditions for Existing, Opening Year 2022, and Horizon Year 2040 conditions. Appendix 7.1 includes a summary of the traffic noise level contours for each of the traffic scenarios.



			Adjacent	CNEL at Nearest	Distance to Contour from Centerline (Feet)		
ID	Road	Segment	Planned (Existing) Land Use ¹	Adjacent Land Use (dBA) ²	70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Central Av.	n/o El Prado Rd.	Industrial/Urban Reserve	74.5	119	257	553
2	Central Av.	s/o El Prado Rd.	Industrial	75.3	136	293	632
3	El Prado Rd.	n/o Kimball Av.	Industrial/Urban Reserve	74.7	90	194	417
4	Euclid Av.	n/o Walnut Av.	Commercial	78.8	322	695	1497
5	Euclid Av.	n/o Riverside Dr.	Residential/Commercial	78.0	286	616	1328
6	Euclid Av.	n/o Chino Av.	Residential/Commercial	78.0	286	616	1327
7	Euclid Av.	n/o Schaefer Av.	Residential/Commercial	78.4	305	657	1414
8	Euclid Av.	n/o Edison Av.	Residential/Commercial	78.7	320	689	1484
9	Euclid Av.	n/o Eucalyptus Av.	Residential/Commercial	78.4	304	656	1413
10	Euclid Av.	n/o Merrill Av.	Residential/Agricultural	79.0	334	720	1551
11	Euclid Av.	s/o Merrill Av.	Open Space/Airport Related	78.8	325	700	1509
12	Euclid Av.	n/o Kimball Av.	Industrial/Airport Related	78.8	322	694	1496
13	Euclid Av.	n/o Bickmore Av.	Industrial/Commercial	76.6	233	502	1081
14	Archibald Av.	n/o Limonite Av.	Commercial/Residential	78.0	287	619	1334
15	Archibald Av.	s/o Limonite Av.	Commercial/Residential	71.4	94	204	438
16	Archibald Av.	s/o Schleisman Rd.	Commercial/ Residential	71.0	89	191	412
17	Kimball Av.	w/o Mountain Av.	Urban Reserve/Industrial	74.7	90	195	420
18	Kimball Av.	w/o Euclid Av.	Industrial/Airport Related	75.3	99	213	459
19	Kimball Av.	e/o Euclid Av.	Industrial/Airport Related	74.1	92	198	426
20	Kimball Av.	w/o Rincon Meadows Av.	Airport Related/Residential	74.3	95	205	443
21	Kimball Av.	e/o Rincon Meadows Av.	Airport Related/Residential	74.1	93	200	430
22	Kimball Av.	e/o Mill Creek Av.	Airport Related/Residential	73.7	87	187	402
23	Kimball Av.	e/o Main St.	Airport Related/Residential	73.4	83	179	386
24	Kimball Av.	e/o Flight Av.	Industrial/Residential	72.7	74	160	346
25	Limonite Av.	w/o Archibald Av.	Industrial	n/a	n/a	n/a	n/a
26	Limonite Av.	e/o Archibald Av.	Commercial/Residential	71.3	93	200	431
27	Pine Av.	w/o El Prado Rd.	Open Space (Golf Course)	43.8	RW	RW	RW
28	Pine Av.	w/o Euclid Av.	Industrial/Open Space	68.4	RW	101	219
29	Pine Av.	e/o Euclid Av.	Comm./Recreation (Residential)	73.9	109	235	506
30	Pine Av.	w/o Chino Corona Rd.	Commercial/Residential	74.5	120	259	558
31	Pine Av.	w/o W. Preserve Loop	Residential	71.9	81	174	376
32	Pine Av.	w/o E. Preserve Loop	Residential	74.0	112	241	518
33	Pine Av.	w/o Hellman Av.	Residential	74.0	111	240	516
34	Schleisman Rd.	w/o Archibald Av.	Commercial/Residential	72.2	106	228	491

TABLE 7-1: EXISTING WITHOUT PROJECT CONDITIONS NOISE CONTOURS

¹ Sources: Land Use Maps of the City of Chino, Chino Hills, Ontario, and Eastvale, and aerial imagery.
 ² The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.



			Adjacent	CNEL at Nearest	Distance to Contour from Centerline (Feet)		
ID	Road	Segment	Planned (Existing) Land Use ¹	Adjacent Land Use (dBA) ²	70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Central Av.	n/o El Prado Rd.	Industrial/Urban Reserve	74.5	120	258	556
2	Central Av.	s/o El Prado Rd.	Industrial	75.6	142	307	661
3	El Prado Rd.	n/o Kimball Av.	Industrial/Urban Reserve	75.0	95	206	443
4	Euclid Av.	n/o Walnut Av.	Commercial	79.2	344	741	1596
5	Euclid Av.	n/o Riverside Dr.	Residential/Commercial	78.5	309	665	1434
6	Euclid Av.	n/o Chino Av.	Residential/Commercial	78.5	309	666	1434
7	Euclid Av.	n/o Schaefer Av.	Residential/Commercial	78.9	327	705	1520
8	Euclid Av.	n/o Edison Av.	Residential/Commercial	79.1	342	737	1587
9	Euclid Av.	n/o Eucalyptus Av.	Residential/Commercial	78.9	327	705	1520
10	Euclid Av.	n/o Merrill Av.	Residential/Agricultural	79.4	357	768	1655
11	Euclid Av.	s/o Merrill Av.	Open Space/Airport Related	79.3	348	750	1615
12	Euclid Av.	n/o Kimball Av.	Industrial/Airport Related	79.2	345	744	1603
13	Euclid Av.	n/o Bickmore Av.	Industrial/Commercial	77.3	257	554	1194
14	Archibald Av.	n/o Limonite Av.	Commercial/Residential	78.0	288	620	1336
15	Archibald Av.	s/o Limonite Av.	Commercial/Residential	71.6	97	209	449
16	Archibald Av.	s/o Schleisman Rd.	Commercial/ Residential	71.1	90	193	416
17	Kimball Av.	w/o Mountain Av.	Urban Reserve/Industrial	75.1	97	209	450
18	Kimball Av.	w/o Euclid Av.	Industrial/Airport Related	75.3	100	215	464
19	Kimball Av.	e/o Euclid Av.	Industrial/Airport Related	74.1	92	198	427
20	Kimball Av.	w/o Rincon Meadows Av.	Airport Related/Residential	74.3	96	206	443
21	Kimball Av.	e/o Rincon Meadows Av.	Airport Related/Residential	74.2	93	200	431
22	Kimball Av.	e/o Mill Creek Av.	Airport Related/Residential	73.7	87	187	402
23	Kimball Av.	e/o Main St.	Airport Related/Residential	73.4	83	179	386
24	Kimball Av.	e/o Flight Av.	Industrial/Residential	72.7	74	160	346
25	Limonite Av.	w/o Archibald Av.	Industrial	n/a	n/a	n/a	n/a
26	Limonite Av.	e/o Archibald Av.	Commercial/Residential	71.5	95	206	443
27	Pine Av.	w/o El Prado Rd.	Open Space (Golf Course)	43.8	RW	RW	RW
28	Pine Av.	w/o Euclid Av.	Industrial/Open Space	69.3	RW	115	248
29	Pine Av.	e/o Euclid Av.	Comm./Recreation (Residential)	74.1	113	243	523
30	Pine Av.	w/o Chino Corona Rd.	Commercial/Residential	74.7	124	266	574
31	Pine Av.	w/o W. Preserve Loop	Residential	72.3	85	183	395
32	Pine Av.	w/o E. Preserve Loop	Residential	74.3	115	248	535
33	Pine Av.	w/o Hellman Av.	Residential	74.2	115	247	533
34	Schleisman Rd.	w/o Archibald Av.	Commercial/Residential	72.3	109	235	505

TABLE 7-2: EXISTING WITH PROJECT CONDITIONS NOISE CONTOURS

¹ Sources: Land Use Maps of the City of Chino, Chino Hills, Ontario, and Eastvale, and aerial imagery. ² The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.



			Adjacent	CNEL at Nearest	Distance to Contour from Centerline (Feet)		
ID	Road	Segment	Planned (Existing) Land Use ¹	Adjacent Land Use (dBA) ²	70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Central Av.	n/o El Prado Rd.	Industrial/Urban Reserve	74.8	125	269	580
2	Central Av.	s/o El Prado Rd.	Industrial	75.7	144	310	667
3	El Prado Rd.	n/o Kimball Av.	Industrial/Urban Reserve	75.1	96	207	446
4	Euclid Av.	n/o Walnut Av.	Commercial	79.4	355	764	1647
5	Euclid Av.	n/o Riverside Dr.	Residential/Commercial	78.7	318	686	1478
6	Euclid Av.	n/o Chino Av.	Residential/Commercial	78.7	320	689	1485
7	Euclid Av.	n/o Schaefer Av.	Residential/Commercial	79.1	340	732	1577
8	Euclid Av.	n/o Edison Av.	Residential/Commercial	79.4	356	766	1651
9	Euclid Av.	n/o Eucalyptus Av.	Residential/Commercial	79.1	341	735	1584
10	Euclid Av.	n/o Merrill Av.	Residential/Agricultural	79.6	366	789	1699
11	Euclid Av.	s/o Merrill Av.	Open Space/Airport Related	79.4	355	765	1649
12	Euclid Av.	n/o Kimball Av.	Industrial/Airport Related	79.3	352	759	1636
13	Euclid Av.	n/o Bickmore Av.	Industrial/Commercial	77.4	264	568	1223
14	Archibald Av.	n/o Limonite Av.	Commercial/Residential	78.6	316	681	1466
15	Archibald Av.	s/o Limonite Av.	Commercial/Residential	72.0	103	221	476
16	Archibald Av.	s/o Schleisman Rd.	Commercial/ Residential	71.4	94	203	437
17	Kimball Av.	w/o Mountain Av.	Urban Reserve/Industrial	75.2	97	210	451
18	Kimball Av.	w/o Euclid Av.	Industrial/Airport Related	75.7	105	227	489
19	Kimball Av.	e/o Euclid Av.	Industrial/Airport Related	74.6	100	215	464
20	Kimball Av.	w/o Rincon Meadows Av.	Airport Related/Residential	74.8	103	221	477
21	Kimball Av.	e/o Rincon Meadows Av.	Airport Related/Residential	74.6	100	215	464
22	Kimball Av.	e/o Mill Creek Av.	Airport Related/Residential	74.2	94	202	436
23	Kimball Av.	e/o Main St.	Airport Related/Residential	74.0	90	194	419
24	Kimball Av.	e/o Flight Av.	Industrial/Residential	73.2	81	174	374
25	Limonite Av.	w/o Archibald Av.	Industrial	28.7	RW	RW	RW
26	Limonite Av.	e/o Archibald Av.	Commercial/Residential	72.1	105	227	488
27	Pine Av.	w/o El Prado Rd.	Open Space (Golf Course)	44.1	RW	RW	RW
28	Pine Av.	w/o Euclid Av.	Industrial/Open Space	68.7	RW	106	228
29	Pine Av.	e/o Euclid Av.	Comm./Recreation (Residential)	74.4	118	254	547
30	Pine Av.	w/o Chino Corona Rd.	Commercial/Residential	75.0	128	277	596
31	Pine Av.	w/o W. Preserve Loop	Residential	72.5	88	189	407
32	Pine Av.	w/o E. Preserve Loop	Residential	74.6	121	260	561
33	Pine Av.	w/o Hellman Av.	Residential	74.5	119	257	554
34	Schleisman Rd.	w/o Archibald Av.	Commercial/Residential	72.6	114	245	528

TABLE 7-3: OPENING YEAR WITHOUT PROJECT CONDITIONS NOISE CONTOURS

¹ Sources: Land Use Maps of the City of Chino, Chino Hills, Ontario, and Eastvale, and aerial imagery.
 ² The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.



			Adjacent	CNEL at Nearest	Distance to Contour from Centerline (Feet)		
ID	Road	Segment	Planned (Existing) Land Use ¹	Adjacent Land Use (dBA) ²	70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Central Av.	n/o El Prado Rd.	Industrial/Urban Reserve	74.8	125	270	582
2	Central Av.	s/o El Prado Rd.	Industrial	76.0	150	323	696
3	El Prado Rd.	n/o Kimball Av.	Industrial/Urban Reserve	75.4	101	218	470
4	Euclid Av.	n/o Walnut Av.	Commercial	79.7	375	808	1742
5	Euclid Av.	n/o Riverside Dr.	Residential/Commercial	79.1	340	733	1578
6	Euclid Av.	n/o Chino Av.	Residential/Commercial	79.1	342	737	1587
7	Euclid Av.	n/o Schaefer Av.	Residential/Commercial	79.5	361	778	1677
8	Euclid Av.	n/o Edison Av.	Residential/Commercial	79.8	377	812	1749
9	Euclid Av.	n/o Eucalyptus Av.	Residential/Commercial	79.5	363	782	1685
10	Euclid Av.	n/o Merrill Av.	Residential/Agricultural	80.0	387	835	1799
11	Euclid Av.	s/o Merrill Av.	Open Space/Airport Related	79.8	377	813	1751
12	Euclid Av.	n/o Kimball Av.	Industrial/Airport Related	79.7	375	807	1738
13	Euclid Av.	n/o Bickmore Av.	Industrial/Commercial	78.0	286	617	1329
14	Archibald Av.	n/o Limonite Av.	Commercial/Residential	78.6	317	682	1469
15	Archibald Av.	s/o Limonite Av.	Commercial/Residential	72.1	105	226	486
16	Archibald Av.	s/o Schleisman Rd.	Commercial/ Residential	71.4	95	204	440
17	Kimball Av.	w/o Mountain Av.	Urban Reserve/Industrial	75.6	103	223	480
18	Kimball Av.	w/o Euclid Av.	Industrial/Airport Related	75.8	107	229	494
19	Kimball Av.	e/o Euclid Av.	Industrial/Airport Related	74.7	100	216	465
20	Kimball Av.	w/o Rincon Meadows Av.	Airport Related/Residential	74.8	103	222	478
21	Kimball Av.	e/o Rincon Meadows Av.	Airport Related/Residential	74.7	100	216	465
22	Kimball Av.	e/o Mill Creek Av.	Airport Related/Residential	74.2	94	203	436
23	Kimball Av.	e/o Main St.	Airport Related/Residential	74.0	90	195	419
24	Kimball Av.	e/o Flight Av.	Industrial/Residential	73.2	81	174	374
25	Limonite Av.	w/o Archibald Av.	Industrial	28.7	RW	RW	RW
26	Limonite Av.	e/o Archibald Av.	Commercial/Residential	72.3	108	232	500
27	Pine Av.	w/o El Prado Rd.	Open Space (Golf Course)	44.1	RW	RW	RW
28	Pine Av.	w/o Euclid Av.	Industrial/Open Space	69.5	RW	119	257
29	Pine Av.	e/o Euclid Av.	Comm./Recreation (Residential)	74.6	121	261	563
30	Pine Av.	w/o Chino Corona Rd.	Commercial/Residential	75.1	132	284	612
31	Pine Av.	w/o W. Preserve Loop	Residential	72.8	92	198	426
32	Pine Av.	w/o E. Preserve Loop	Residential	74.7	124	268	577
33	Pine Av.	w/o Hellman Av.	Residential	74.7	123	264	570
34	Schleisman Rd.	w/o Archibald Av.	Commercial/Residential	72.8	117	251	542

TABLE 7-4: OPENING YEAR WITH PROJECT CONDITIONS NOISE CONTOURS

¹ Sources: Land Use Maps of the City of Chino, Chino Hills, Ontario, and Eastvale, and aerial imagery.

² The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.



			Adjacent	CNEL at Nearest	Distance to Contour from Centerline (Feet)		
ID	Road	Segment	Planned (Existing)	Adjacent	70	65	60
		-	Land Use ¹	Land Use	dBA	dBΔ	dΒΔ
				(dBA) ²	CNEL	CNEL	CNEL
1	Central Av.	n/o El Prado Rd.	Industrial/Urban Reserve	75.0	129	278	600
2	Central Av.	s/o El Prado Rd.	Industrial	75.9	149	320	689
3	El Prado Rd.	n/o Kimball Av.	Industrial/Urban Reserve	75.3	99	214	460
4	Euclid Av.	n/o Walnut Av.	Commercial	81.2	467	1007	2169
5	Euclid Av.	n/o Riverside Dr.	Residential/Commercial	80.5	424	913	1967
6	Euclid Av.	n/o Chino Av.	Residential/Commercial	80.9	445	959	2066
7	Euclid Av.	n/o Schaefer Av.	Residential/Commercial	80.9	447	964	2077
8	Euclid Av.	n/o Edison Av.	Residential/Commercial	81.1	463	998	2149
9	Euclid Av.	n/o Eucalyptus Av.	Residential/Commercial	80.7	436	939	2023
10	Euclid Av.	n/o Merrill Av.	Residential/Agricultural	80.7	433	934	2012
11	Euclid Av.	s/o Merrill Av.	Open Space/Airport Related	80.9	451	971	2092
12	Euclid Av.	n/o Kimball Av.	Industrial/Airport Related	80.9	447	963	2075
13	Euclid Av.	n/o Bickmore Av.	Industrial/Commercial	79.6	368	794	1710
14	Archibald Av.	n/o Limonite Av.	Commercial/Residential	80.6	429	925	1993
15	Archibald Av.	s/o Limonite Av.	Commercial/Residential	73.2	124	267	575
16	Archibald Av.	s/o Schleisman Rd.	Commercial/ Residential	72.0	103	223	480
17	Kimball Av.	w/o Mountain Av.	Urban Reserve/Industrial	75.4	100	216	466
18	Kimball Av.	w/o Euclid Av.	Industrial/Airport Related	76.6	120	260	559
19	Kimball Av.	e/o Euclid Av.	Industrial/Airport Related	75.4	112	242	522
20	Kimball Av.	w/o Rincon Meadows Av.	Airport Related/Residential	75.0	106	229	493
21	Kimball Av.	e/o Rincon Meadows Av.	Airport Related/Residential	74.9	103	223	480
22	Kimball Av.	e/o Mill Creek Av.	Airport Related/Residential	74.4	97	209	450
23	Kimball Av.	e/o Main St.	Airport Related/Residential	74.2	93	201	432
24	Kimball Av.	e/o Flight Av.	Industrial/Residential	73.5	83	179	387
25	Limonite Av.	w/o Archibald Av.	Industrial	73.0	121	260	561
26	Limonite Av.	e/o Archibald Av.	Commercial/Residential	75.0	165	355	764
27	Pine Av.	w/o El Prado Rd.	Open Space (Golf Course)	74.2	115	247	533
28	Pine Av.	w/o Euclid Av.	Industrial/Open Space	73.8	108	232	500
29	Pine Av.	e/o Euclid Av.	Comm./Recreation (Residential)	75.5	140	301	648
30	Pine Av.	w/o Chino Corona Rd.	Commercial/Residential	75.4	137	295	636
31	Pine Av.	w/o W. Preserve Loop	Residential	72.7	91	195	421
32	Pine Av.	w/o E. Preserve Loop	Residential	74.8	125	269	579
33	Pine Av.	w/o Hellman Av.	Residential	74.7	123	266	572
34	Schleisman Rd.	w/o Archibald Av.	Commercial/Residential	73.4	128	277	596

TABLE 7-5: HORIZON YEAR WITHOUT PROJECT CONDITIONS NOISE CONTOURS

¹ Sources: Land Use Maps of the City of Chino, Chino Hills, Ontario, and Eastvale, and aerial imagery.

² The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.

"RW" = Location of the respective noise contour falls within the right-of-way of the road.


	Adjacent	CNEL at Nearest	Distar from C	nce to Co enterline	ntour e (Feet)		
ID	Road	Segment	Planned (Existing)	Adjacent	70	65	60
		_	Land Use ¹	Land Use	dBA	dBA	dBA
				(dBA) ²	CNEL	CNEL	CNEL
1	Central Av.	n/o El Prado Rd.	Industrial/Urban Reserve	75.0	130	279	602
2	Central Av.	s/o El Prado Rd.	Industrial	75.9	149	320	690
3	El Prado Rd.	n/o Kimball Av.	Industrial/Urban Reserve	75.3	100	215	463
4	Euclid Av.	n/o Walnut Av.	Commercial	81.4	485	1045	2252
5	Euclid Av.	n/o Riverside Dr.	Residential/Commercial	80.8	443	954	2054
6	Euclid Av.	n/o Chino Av.	Residential/Commercial	81.1	464	999	2153
7	Euclid Av.	n/o Schaefer Av.	Residential/Commercial	81.2	466	1005	2164
8	Euclid Av.	n/o Edison Av.	Residential/Commercial	81.4	482	1037	2235
9	Euclid Av.	n/o Eucalyptus Av.	Residential/Commercial	81.0	455	981	2113
10	Euclid Av.	n/o Merrill Av.	Residential/Agricultural	81.0	453	976	2104
11	Euclid Av.	s/o Merrill Av.	Open Space/Airport Related	81.2	470	1013	2183
12	Euclid Av.	n/o Kimball Av.	Industrial/Airport Related	81.2	467	1005	2166
13	Euclid Av.	n/o Bickmore Av.	Industrial/Commercial	80.1	395	852	1835
14	Archibald Av.	n/o Limonite Av.	Commercial/Residential	80.6	430	926	1995
15	Archibald Av.	s/o Limonite Av.	Commercial/Residential	73.2	124	268	577
16	Archibald Av.	s/o Schleisman Rd.	Commercial/ Residential	72.1	104	225	484
17	Kimball Av.	w/o Mountain Av.	Urban Reserve/Industrial	75.4	101	218	470
18	Kimball Av.	w/o Euclid Av.	Industrial/Airport Related	76.6	120	260	559
19	Kimball Av.	e/o Euclid Av.	Industrial/Airport Related	75.5	115	247	533
20	Kimball Av.	w/o Rincon Meadows Av.	Airport Related/Residential	75.2	109	234	504
21	Kimball Av.	e/o Rincon Meadows Av.	Airport Related/Residential	75.0	106	228	491
22	Kimball Av.	e/o Mill Creek Av.	Airport Related/Residential	74.6	100	215	462
23	Kimball Av.	e/o Main St.	Airport Related/Residential	74.4	96	206	444
24	Kimball Av.	e/o Flight Av.	Industrial/Residential	73.7	86	185	399
25	Limonite Av.	w/o Archibald Av.	Industrial	73.1	123	265	571
26	Limonite Av.	e/o Archibald Av.	Commercial/Residential	75.1	166	358	772
27	Pine Av.	w/o El Prado Rd.	Open Space (Golf Course)	74.9	128	275	593
28	Pine Av.	w/o Euclid Av.	Industrial/Open Space	73.9	109	236	508
29	Pine Av.	e/o Euclid Av.	Comm./Recreation (Residential)	75.6	141	304	654
30	Pine Av.	w/o Chino Corona Rd.	Commercial/Residential	75.4	138	298	643
31	Pine Av.	w/o W. Preserve Loop	Residential	72.8	92	199	428
32	Pine Av.	w/o E. Preserve Loop	Residential	74.8	126	272	586
33	Pine Av.	w/o Hellman Av.	Residential	74.8	125	269	579
34	Schleisman Rd.	w/o Archibald Av.	Commercial/Residential	73.5	130	279	602

TABLE 7-6: HORIZON YEAR WITH PROJECT CONDITIONS NOISE CONTOURS

¹ Sources: Land Use Maps of the City of Chino, Chino Hills, Ontario, and Eastvale, and aerial imagery.

² The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.

"RW" = Location of the respective noise contour falls within the right-of-way of the road.



7.2 EXISTING CONDITION PROJECT OPERATIONAL TRAFFIC NOISE LEVEL CONTRIBUTIONS

An analysis of existing traffic noise levels plus traffic noise generated by the proposed Project has been included in this report for informational purposes. However, the analysis of existing traffic noise levels plus traffic noise generated by the proposed Project scenario will not actually occur since the Project would not be fully constructed and operational until Year 2022 cumulative conditions. Moreover, a focused analysis of the construction-related soil import/export truck haul trips is provided n Section 7.5.

Table 7-1 presents the Existing without Project conditions CNEL noise levels. The without Project exterior noise levels are expected to range from 43.8 to 79.0 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-2 shows the Existing with Project conditions will range from 43.8 to 79.4 dBA CNEL. As shown on Table 7-7 the Project will generate a noise level increase of up to 0.8 dBA CNEL on the study area roadway segments.

7.3 OPENING YEAR 2022 PROJECT OPERATIONAL TRAFFIC NOISE LEVEL CONTRIBUTIONS

Table 7-3 presents the Opening Year without Project conditions CNEL noise levels which are expected to range from 44.1 to 79.6 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography.

Table 7-4 shows the Opening Year with Project conditions will range from 44.1 to 80.0 dBA CNEL. As shown on Table 7-8 the Project will generate a noise level increase of up to 0.8 dBA CNEL on the study area roadway segments. Based on the significance criteria in Section 4, the Project-related noise level increases are considered *less than significant* under Opening Year with Project conditions at the land uses adjacent to roadways conveying Project traffic.

7.4 HORIZON YEAR 2040 PROJECT OPERATIONAL TRAFFIC NOISE LEVEL CONTRIBUTIONS

Table 7-5 presents the Horizon Year 2040 without Project conditions CNEL noise levels are expected to range from 72.0 to 81.2 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography.

Table 7-6 shows the Horizon Year 2040 with Project conditions will range from 72.1 to 81.4 dBA CNEL. As shown on Table 7-9 the Project will generate a noise level increase of up to 0.7 dBA CNEL on the study area roadway segments. Based on the significance criteria in Section 4, the Project-related noise level increases are considered *less than significant* under Horizon Year 2040 with Project conditions at the land uses adjacent to roadways conveying Project traffic.



ID	Road	Segment	Adjacent Planned (Existing) Land Use ¹	CN Lai	EL at Adja nd Use (d	acent BA) ²	Noise- Sensitive Land Use?	Threshold Exceeded? ²
				No Project	With Project	Project Addition	Use?	
1	Central Av.	n/o El Prado Rd.	Industrial/Urban Reserve	74.5	74.5	0.0	No	No
2	Central Av.	s/o El Prado Rd.	Industrial	75.3	75.6	0.3	No	No
3	El Prado Rd.	n/o Kimball Av.	Industrial/Urban Reserve	74.7	75.0	0.4	No	No
4	Euclid Av.	n/o Walnut Av.	Commercial	78.8	79.2	0.4	No	No
5	Euclid Av.	n/o Riverside Dr.	Residential/Commercial	78.0	78.5	0.5	Yes	No
6	Euclid Av.	n/o Chino Av.	Residential/Commercial	78.0	78.5	0.5	Yes	No
7	Euclid Av.	n/o Schaefer Av.	Residential/Commercial	78.4	78.9	0.5	Yes	No
8	Euclid Av.	n/o Edison Av.	Residential/Commercial	78.7	79.1	0.4	Yes	No
9	Euclid Av.	n/o Eucalyptus Av.	Residential/Commercial	78.4	78.9	0.5	Yes	No
10	Euclid Av.	n/o Merrill Av.	Residential/Agricultural	79.0	79.4	0.4	Yes	No
11	Euclid Av.	s/o Merrill Av.	Open Space/Airport Related	78.8	79.3	0.4	No	No
12	Euclid Av.	n/o Kimball Av.	Industrial/Airport Related	78.8	79.2	0.4	No	No
13	Euclid Av.	n/o Bickmore Av.	Industrial/Commercial	76.6	77.3	0.6	No	No
14	Archibald Av.	n/o Limonite Av.	Commercial/Residential	78.0	78.0	0.0	Yes	No
15	Archibald Av.	s/o Limonite Av.	Commercial/Residential	71.4	71.6	0.2	Yes	No
16	Archibald Av.	s/o Schleisman Rd.	Commercial/ Residential	71.0	71.1	0.1	Yes	No
17	Kimball Av.	w/o Mountain Av.	Urban Reserve/Industrial	74.7	75.1	0.4	No	No
18	Kimball Av.	w/o Euclid Av.	Industrial/Airport Related	75.3	75.3	0.1	No	No
19	Kimball Av.	e/o Euclid Av.	Industrial/Airport Related	74.1	74.1	0.0	No	No
20	Kimball Av.	w/o Rincon Meadows Av.	Airport Related/Residential	74.3	74.3	0.0	Yes	No
21	Kimball Av.	e/o Rincon Meadows Av.	Airport Related/Residential	74.1	74.2	0.0	Yes	No
22	Kimball Av.	e/o Mill Creek Av.	Airport Related/Residential	73.7	73.7	0.0	Yes	No
23	Kimball Av.	e/o Main St.	Airport Related/Residential	73.4	73.4	0.0	Yes	No
24	Kimball Av.	e/o Flight Av.	Industrial/Residential	72.7	72.7	0.0	Yes	No
25	Limonite Av.	w/o Archibald Av.	Industrial	n/a	n/a	n/a	No	n/a
26	Limonite Av.	e/o Archibald Av.	Commercial/Residential	71.3	71.5	0.2	Yes	No
27	Pine Av.	w/o El Prado Rd.	Open Space (Golf Course)	43.8	43.8	0.0	No	No

TABLE 7-7: EXISTING OFF-SITE PROJECT-RELATED TRAFFIC NOISE IMPACTS



ID	Road	Segment	Adjacent Planned (Existing)	CNEL at Adjacent Land Use (dBA) ²			Noise- Sensitive Land	Threshold Exceeded? ²
				No Project	With Project	Project Addition	Use?	
28	Pine Av.	w/o Euclid Av.	Industrial/Open Space	68.4	69.3	0.8	No	No
29	Pine Av.	e/o Euclid Av.	Comm./Recreation (Residential)	73.9	74.1	0.2	Yes	No
30	Pine Av.	w/o Chino Corona Rd.	Commercial/Residential	74.5	74.7	0.2	Yes	No
31	Pine Av.	w/o W. Preserve Loop	Residential	71.9	72.3	0.3	Yes	No
32	Pine Av.	w/o E. Preserve Loop	Residential	74.0	74.3	0.2	Yes	No
33	Pine Av.	w/o Hellman Av.	Residential	74.0	74.2	0.2	Yes	No
34	Schleisman Rd.	w/o Archibald Av.	Commercial/Residential	72.2	72.3	0.2	Yes	No

¹ Sources: Land Use Maps of the City of Chino, Chino Hills, Ontario, and Eastvale, and aerial imagery.

² The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use. Values rounded to the nearest one-tenth. "n/a" = Roadway segment does not represent a paved and/or fully constructed roadway under the given scenario.



ID	Road	Segment	CNEL at Adjacent Land Use (dBA) ¹ No With Project			Noise- Sensitive Land	Threshold Exceeded? ²
			No Project	With Project	Project Addition	User	
1	Central Av.	n/o El Prado Rd.	74.8	74.8	0.0	No	No
2	Central Av.	s/o El Prado Rd.	75.7	76.0	0.3	No	No
3	El Prado Rd.	n/o Kimball Av.	75.1	75.4	0.4	No	No
4	Euclid Av.	n/o Walnut Av.	79.4	79.7	0.4	No	No
5	Euclid Av.	n/o Riverside Dr.	78.7	79.1	0.4	Yes	No
6	Euclid Av.	n/o Chino Av.	78.7	79.1	0.4	Yes	No
7	Euclid Av.	n/o Schaefer Av.	79.1	79.5	0.4	Yes	No
8	Euclid Av.	n/o Edison Av.	79.4	79.8	0.4	Yes	No
9	Euclid Av.	n/o Eucalyptus Av.	79.1	79.5	0.4	Yes	No
10	Euclid Av.	n/o Merrill Av.	79.6	80.0	0.4	Yes	No
11	Euclid Av.	s/o Merrill Av.	79.4	79.8	0.4	No	No
12	Euclid Av.	n/o Kimball Av.	79.3	79.7	0.4	No	No
13	Euclid Av.	n/o Bickmore Av.	77.4	78.0	0.5	No	No
14	Archibald Av.	n/o Limonite Av.	78.6	78.6	0.0	Yes	No
15	Archibald Av.	s/o Limonite Av.	72.0	72.1	0.1	Yes	No
16	Archibald Av.	s/o Schleisman Rd.	71.4	71.4	0.1	Yes	No
17	Kimball Av.	w/o Mountain Av.	75.2	75.6	0.4	No	No
18	Kimball Av.	w/o Euclid Av.	75.7	75.8	0.1	No	No
19	Kimball Av.	e/o Euclid Av.	74.6	74.7	0.0	No	No
20	Kimball Av.	w/o Rincon Meadows Av.	74.8	74.8	0.0	Yes	No
21	Kimball Av.	e/o Rincon Meadows Av.	74.6	74.7	0.0	Yes	No
22	Kimball Av.	e/o Mill Creek Av.	74.2	74.2	0.0	Yes	No
23	Kimball Av.	e/o Main St.	74.0	74.0	0.0	Yes	No
24	Kimball Av.	e/o Flight Av.	73.2	73.2	0.0	Yes	No
25	Limonite Av.	w/o Archibald Av.	n/a	n/a	n/a	No	n/a
26	Limonite Av.	e/o Archibald Av.	72.1	72.3	0.2	Yes	No
27	Pine Av.	w/o El Prado Rd.	44.1	44.1	0.0	No	No
28	Pine Av.	w/o Euclid Av.	68.7	69.5	0.8	No	No
29	Pine Av.	e/o Euclid Av.	74.4	74.6	0.2	Yes	No
30	Pine Av.	w/o Chino Corona Rd.	75.0	75.1	0.2	Yes	No
31	Pine Av.	w/o W. Preserve Loop	72.5	72.8	0.3	Yes	No
32	Pine Av.	w/o E. Preserve Loop	74.6	74.7	0.2	Yes	No
33	Pine Av.	w/o Hellman Av.	74.5	74.7	0.2	Yes	No
34	Schleisman Rd.	w/o Archibald Av.	72.6	72.8	0.2	Yes	No

TABLE 7-8: OPENING YEAR OFF-SITE PROJECT-RELATED TRAFFIC NOISE IMPACTS

¹ The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use. Values rounded to the nearest one-tenth.

² Significance Criteria (Section 4).

"n/a" = Roadway segment does not represent a paved and/or fully constructed roadway under the given scenario.



ID	Road	Segment	CNEL at Adjacent Land Use (dBA) ¹ No With Project Project Project Addition			Noise- Sensitive Land Use?	Threshold Exceeded? ²
1	Central Av.	n/o El Prado Rd.	75.0	75.0	0.0	No	No
2	Central Av.	s/o El Prado Rd.	75.9	75.9	0.0	No	No
3	El Prado Rd.	n/o Kimball Av.	75.3	75.3	0.0	No	No
4	Euclid Av.	n/o Walnut Av.	81.2	81.4	0.2	No	No
5	Euclid Av.	n/o Riverside Dr.	80.5	80.8	0.3	Yes	No
6	Euclid Av.	n/o Chino Av.	80.9	81.1	0.3	Yes	No
7	Euclid Av.	n/o Schaefer Av.	80.9	81.2	0.3	Yes	No
8	Euclid Av.	n/o Edison Av.	81.1	81.4	0.3	Yes	No
9	Euclid Av.	n/o Eucalyptus Av.	80.7	81.0	0.3	Yes	No
10	Euclid Av.	n/o Merrill Av.	80.7	81.0	0.3	Yes	No
11	Euclid Av.	s/o Merrill Av.	80.9	81.2	0.3	No	No
12	Euclid Av.	n/o Kimball Av.	80.9	81.2	0.3	No	No
13	Euclid Av.	n/o Bickmore Av.	79.6	80.1	0.5	No	No
14	Archibald Av.	n/o Limonite Av.	80.6	80.6	0.0	Yes	No
15	Archibald Av.	s/o Limonite Av.	73.2	73.2	0.0	Yes	No
16	Archibald Av.	s/o Schleisman Rd.	72.0	72.1	0.0	Yes	No
17	Kimball Av.	w/o Mountain Av.	75.4	75.4	0.1	No	No
18	Kimball Av.	w/o Euclid Av.	76.6	76.6	0.0	No	No
19	Kimball Av.	e/o Euclid Av.	75.4	75.5	0.1	No	No
20	Kimball Av.	w/o Rincon Meadows Av.	75.0	75.2	0.1	Yes	No
21	Kimball Av.	e/o Rincon Meadows Av.	74.9	75.0	0.2	Yes	No
22	Kimball Av.	e/o Mill Creek Av.	74.4	74.6	0.2	Yes	No
23	Kimball Av.	e/o Main St.	74.2	74.4	0.2	Yes	No
24	Kimball Av.	e/o Flight Av.	73.5	73.7	0.2	Yes	No
25	Limonite Av.	w/o Archibald Av.	73.0	73.1	0.1	No	No
26	Limonite Av.	e/o Archibald Av.	75.0	75.1	0.1	Yes	No
27	Pine Av.	w/o El Prado Rd.	74.2	74.9	0.7	No	No
28	Pine Av.	w/o Euclid Av.	73.8	73.9	0.1	No	No
29	Pine Av.	e/o Euclid Av.	75.5	75.6	0.1	Yes	No
30	Pine Av.	w/o Chino Corona Rd.	75.4	75.4	0.1	Yes	No
31	Pine Av.	w/o W. Preserve Loop	72.7	72.8	0.1	Yes	No
32	Pine Av.	w/o E. Preserve Loop	74.8	74.8	0.1	Yes	No
33	Pine Av.	w/o Hellman Av.	74.7	74.8	0.1	Yes	No
34	Schleisman Rd.	w/o Archibald Av.	73.4	73.5	0.1	Yes	No

TABLE 7-9: HORIZON YEAR 2040 OFF-SITE PROJECT-RELATED TRAFFIC NOISE IMPACTS

¹ The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use. Values rounded to the nearest one-tenth.

² Significance Criteria (Section 4).



7.5 SOIL IMPORT/EXPORT HAUL TRUCK CONSTRUCTION TRAFFIC

The 96.9-acre Project site is located at the southeast corner of Mountain Avenue and Bickmore Avenue in the City of Chino and is generally below the 566 elevation. In order for the Project to be feasible, it requires that dirt be imported to raise the proposed building elevations so that they are 567-feet above mean sea level. To accomplish this, five nearby borrow sites (or "Excess Fill Dirt Sites") have been identified that can provide export to be used as import for the Project. The order in which soil will be imported from the Excess Fill Dirt Sites is as follows (see Exhibits 7-B and 7-C):

- Excess Fill Dirt Site #1
- Excess Fill Dirt Site #3
- Excess Fill Dirt Site #4
- Excess Fill Dirt Site #5
- Excess Fill Dirt Site #2

It is our understanding that import activities from the Excess Fill Dirt Sites will not overlap with another (i.e., hauling activity at one site is independent from other sites). Soil import/export activity could occur during typical construction daytime (7:00 a.m. – 3:00 p.m.) or off-peak/nighttime (6:00 p.m. – 2:00 a.m.) hours. Notwithstanding, the off-road construction equipment is not anticipated to operate for more than eight hours per day. Exhibit 7-A shows the hauling hours in comparison to the time of day used in calculating the 24-hour CNEL for off-site traffic noise analysis. Exhibits 7-B and 7-C show the truck distribution used in the *Traffic Impact Analysis* and the associated Excess Fill Dirt Sites.



Hour	CNEL Timeframe	Hauling Activity
0		
1		Hauling (Off-Peak)
2		(On reak)
3	Nighttime	
4		No Hauling
5		Activity
6		
7		
8		
9		
10		
11		Hauling (Davtime)
12	Doutimo	(Buytinic)
13	Daytime	
14		
15		
16		No Hauling
17		Activity
18		Hauling (Off-Peak)
19		Unuling
20	Evening	(Off-Peak)
21		
22		
23	Nighttime	(Off-Peak)
24		

EXHIBIT 7-A: HAUL TRUCK HOURS





EXHIBIT 7-B: EXCESS FILL DIRT SITE LOCATION MAP (1 OF 2)

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EXHIBIT 7-C: EXCESS FILL DIRT SITE LOCATION MAP (2 OF 2)

LEGEND:

- 10 PERCENT TO/FROM PROJECT
- STAGING AREA



7.5.1 DAYTIME HAUL TRUCK OFF-SITE TRAFFIC NOISE IMPACTS

The following analysis presents the potential off-site traffic noise impacts if all truck haul trips occur within the daytime hours of 7:00 a.m. to 7:00 p.m. for analysis purposes using the CNEL metric. Actual daytime soil import/export haul truck activities are anticipated to occur between the hours of 7:00 a.m. and 3:00 p.m. Table 7-10 presents the Existing without Project conditions CNEL noise levels which are expected to range from 66.4 to 74.5 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-11 shows the Existing with daytime-only soil import/export truck haul trip conditions will range from 72.1 to 75.5 dBA CNEL.

As shown on Table 7-12 the Project will generate a noise level increase ranging from 1.0 to 5.7 dBA CNEL on the study area roadway segments if activity occurs during the daytime hours. Based on the significance criteria in Section 4, the Project soil import/export truck trip-related noise level increases are considered *potentially significant* impacts under Existing conditions at the land uses adjacent to roadways conveying Project traffic.

The analysis shows that the unmitigated Project-related traffic noise level increases will be *potentially significant* at existing and future noise-sensitive land uses, if built and occupied at the time of soil import/export haul truck activity adjacent to the following roadway segments, as shown on Exhibit 7-D:

- Pine Av. west of W. Preserve Loop (Excess Fill Dirt Site #5);
- Chino Corona Rd. south of Pine Av. (Excess Fill Dirt Sites #3 & #4);
- Chino Corona Rd. east of Cucamonga Av. (Excess Fill Dirt Site #4);
- Hellman Av. south of Pine Av. (Excess Fill Dirt Site #5).

			Adjacent	CNEL at Nearest	Distance to Contour from Centerline (Feet)		
ID	Road Segment Planned (Existing) Land Use ¹ Land Use ¹		Adjacent Land Use (dBA) ²	70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	
29	Pine Av.	e/o Euclid Av.	Comm./Recreation (Residential)	73.9	109	235	506
30	Pine Av.	w/o Chino Corona Rd.	Commercial/Residential	74.5	120	259	558
31	Pine Av.	w/o W. Preserve Loop	Residential	71.9	81	174	376
32	Pine Av.	w/o E. Preserve Loop	Residential	74.0	112	241	518
33	Pine Av.	w/o Hellman Av.	Residential	74.0	111	240	516
35	Chino Corona Rd.	s/o Pine Av.	Commercial/Residential	67.6	RW	45	96
36	Chino Corona Rd.	e/o Cucamonga Av.	Residential/Agricultural	66.4	RW	37	80
37	Hellman Av.	s/o Pine Av.	Residential	71.6	63	136	292

TABLE 7-10: EXISTING WITHOUT PROJECT CONDITIONS NOISE CONTOURS

¹ Sources: Land Use Maps of the City of Chino, Chino Hills, Ontario, and Eastvale, and aerial imagery.

² The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.

"RW" = Location of the respective noise contour falls within the right-of-way of the road.



			Adjacent	CNEL at Nearest	Distance to Contour from Centerline (Feet)		
ID	Road	Segment	Planned (Existing) Land Use ¹	Adjacent Land Use (dBA) ²	70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
29	Pine Av.	e/o Euclid Av.	Comm./Recreation (Residential)	75.0	129	279	600
30	Pine Av.	w/o Chino Corona Rd.	Commercial/Residential	75.5	140	301	648
31	Pine Av.	w/o W. Preserve Loop	Residential	73.4	101	218	470
32	Pine Av.	w/o E. Preserve Loop	Residential	75.0	129	279	601
33	Pine Av.	w/o Hellman Av.	Residential	75.0	129	278	599
35	Chino Corona Rd.	s/o Pine Av.	Commercial/Residential	73.0	47	102	220
36	Chino Corona Rd.	e/o Cucamonga Av.	Residential/Agricultural	72.1	41	89	192
37	Hellman Av.	s/o Pine Av.	Residential	73.4	83	178	384

TABLE 7-11: EXISTING WITH DAYTIME IMPORT/EXPORT HAUL TRUCK TRIP NOISE CONTOURS

¹ Sources: Land Use Maps of the City of Chino, Chino Hills, Ontario, and Eastvale, and aerial imagery.

² The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.

"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-12: DAYTIME IMPORT/EXPORT OFF-SITE TRUCK TRIP-RELATED TRAFFIC NOISE IMPACTS

ID	Road Segment		CN Lai	EL at Adja nd Use (d	acent BA) ¹	Noise- Sensitive Land	Threshold Exceeded? ²
			No Project	With Project	Project Addition	Use?	
29	Pine Av.	e/o Euclid Av.	73.9	75.0	1.1	Yes	No
30	Pine Av.	w/o Chino Corona Rd.	74.5	75.5	1.0	Yes	No
31	Pine Av.	w/o W. Preserve Loop	71.9	73.4	1.5	Yes	Yes
32	Pine Av.	w/o E. Preserve Loop	74.0	75.0	1.0	Yes	No
33	Pine Av.	w/o Hellman Av.	74.0	75.0	1.0	Yes	No
35	Chino Corona Rd.	s/o Pine Av.	67.6	73.0	5.4	Yes	Yes
36	Chino Corona Rd.	e/o Cucamonga Av.	66.4	72.1	5.7	Yes	Yes
37	Hellman Av.	s/o Pine Av.	71.6	73.4	1.8	Yes	Yes

¹ The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use. Values rounded to the nearest one-tenth.

² Significance Criteria (Section 4).



7.5.2 OFF-PEAK HAUL TRUCK OFF-SITE TRAFFIC NOISE IMPACTS

The following analysis presents the potential off-site traffic noise impacts if all truck haul trips occur within the daytime hours of 7:00 a.m. to 7:00 p.m., evening hours of 7:00 p.m. to 10:00 p.m., and nighttime hours of 10:00 p.m. to 7:00 a.m. for analysis purposes using the CNEL metric. Actual off-peak soil import/export haul truck activities are anticipated to occur between the hours of 6:00 p.m. – 2:00 a.m. Table 7-10 previously provided the Existing without Project conditions CNEL noise levels which are expected to range from 66.4 to 74.5 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-13 shows the Existing with off-peak soil import/export truck haul trip conditions will range from 77.8 to 80.2 dBA CNEL.

As shown on Table 7-14 the Project will generate a noise level increase ranging from 4.4 to 13.0 dBA CNEL on the study area roadway segments if activity occurs during the off-peak hours. Based on the significance criteria in Section 4, the Project soil import/export truck trip-related noise level increases are considered *potentially significant* impacts under Existing conditions at the land uses adjacent to roadways conveying Project traffic.

The analysis shows that the unmitigated Project-related traffic noise level increases will be *potentially significant* at existing and future noise-sensitive land uses, if built and occupied at the time of soil import/export haul truck activity adjacent to the following roadway segments, as shown on Exhibit 7-E:

- Pine Av. east of Euclid Av. (Excess Fill Dirt Sites #2 to #5);
- Pine Av. west of Chino Corona Rd. (Excess Fill Dirt Sites #2 to #5);
- Pine Av. west of W. Preserve Loop (Excess Fill Dirt Site #5);
- Pine Av. west of E. Preserve Loop (Excess Fill Dirt Site #5);
- Pine Av. west of Hellman Av. (Excess Fill Dirt Site #5);
- Chino Corona Rd. south of Pine Av. (Excess Fill Dirt Sites #3 & #4);
- Chino Corona Rd. east of Cucamonga Av. (Excess Fill Dirt Site #4);
- Hellman Av. south of Pine Av. (Excess Fill Dirt Site #5).

			Adjacent	CNEL at Nearest	Distance to Contour from Centerline (Feet)		
ID	Road	Segment	Planned (Existing) Land Use ¹	Adjacent Land Use (dBA) ²	70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
29	Pine Av.	e/o Euclid Av.	Comm./Recreation (Residential)	78.7	229	494	1064
30	Pine Av.	w/o Chino Corona Rd.	Commercial/Residential	79.0	237	511	1100
31	Pine Av.	w/o W. Preserve Loop	Residential	77.8	198	427	920
32	Pine Av.	w/o E. Preserve Loop	Residential	78.4	219	472	1017
33	Pine Av.	w/o Hellman Av.	Residential	78.4	219	471	1015
35	Chino Corona Rd.	s/o Pine Av.	Commercial/Residential	80.2	144	310	668
36	Chino Corona Rd.	e/o Cucamonga Av.	Residential/Agricultural	79.4	128	275	593
37	Hellman Av.	s/o Pine Av.	Residential	78.2	173	373	804

TABLE 7-13: EXISTING WITH OFF-PEAK IMPORT/EXPORT HAUL TRUCK TRIP NOISE CONTOURS

¹ Sources: Land Use Maps of the City of Chino, Chino Hills, Ontario, and Eastvale, and aerial imagery.

² The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.

"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-14: OFF-PEAK IMPORT/EXPORT OFF-SITE TRUCK TRIP-RELATED TRAFFIC NOISE IMPACTS

ID	Road	Segment	CNI Lai	EL at Adja nd Use (d	acent BA) ¹	Noise- Sensitive Land	Threshold Exceeded? ²
			No Project	With Project	Project Addition	Use?	
29	Pine Av.	e/o Euclid Av.	73.9	78.7	4.8	Yes	Yes
30	Pine Av.	w/o Chino Corona Rd.	74.5	79.0	4.5	Yes	Yes
31	Pine Av.	w/o W. Preserve Loop	71.9	77.8	5.9	Yes	Yes
32	Pine Av.	w/o E. Preserve Loop	74.0	78.4	4.4	Yes	Yes
33	Pine Av.	w/o Hellman Av.	74.0	78.4	4.4	Yes	Yes
35	Chino Corona Rd.	s/o Pine Av.	67.6	80.2	12.6	Yes	Yes
36	Chino Corona Rd.	e/o Cucamonga Av.	66.4	79.4	13.0	Yes	Yes
37	Hellman Av.	s/o Pine Av.	71.6	78.2	6.6	Yes	Yes

¹ The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use. Values rounded to the nearest one-tenth.

² Significance Criteria (Section 4).





EXHIBIT 7-D: DAYTIME EXCESS FILL DIRT SITE OFF-SITE TRAFFIC NOISE IMPACTS





EXHIBIT 7-E: OFF-PEAK EXCESS FILL DIRT SITE OFF-SITE TRAFFIC NOISE IMPACTS



8 RECEIVER LOCATIONS

To assess the potential for long-term operational and short-term construction noise impacts, the following receiver locations as shown on Exhibit 8-A were identified as representative locations for focused analysis. Additional, off-site open space receiver locations are identified to quantify Project operational and construction-related noise levels for information purposes only. The Project's Biology report will analyze the significance of any potential noise impacts to sensitive wildlife species.

Sensitive receivers are generally defined as locations where people reside or where the presence of unwanted sound could otherwise adversely affect the use of the land. Noise-sensitive land uses are generally considered to include: schools, hospitals, single-family dwellings, mobile home parks, churches, libraries, and recreation areas. Moderately noise-sensitive land uses typically include: multi-family dwellings, hotels, motels, dormitories, out-patient clinics, cemeteries, golf courses, country clubs, athletic/tennis clubs, and equestrian clubs. Land uses that are considered relatively insensitive to noise include business, commercial, and professional developments. Land uses that are typically not affected by noise include: industrial, manufacturing, utilities, agriculture, natural open space, undeveloped land, parking lots, warehousing, liquid and solid waste facilities, salvage yards, and transit terminals.

Sensitive receivers near the Project site are described below. Other sensitive land uses in the Project study area that are located at greater distances than those identified in this noise study will experience lower noise levels than those presented in this report due to the additional attenuation from distance and the shielding of intervening structures.

- R1: Located approximately 3,594 feet west of the Project site, R1 represents existing residential homes east of State Route 71 in the City of Chino Hills. A 24-hour noise level measurement was taken near this location, L1, to describe the existing ambient noise environment.
- R2: Location R2 represents existing park use west of the Project site at approximately 2,938 feet, east of State Route 71 in the City of Chino Hills. A 24-hour noise level measurement was taken near this location, L1, to describe the existing ambient noise environment.
- R3: Located approximately 4,240 feet east of the Project site, and 147 feet north of Excess Fill Dirt Site #2, R3 represents an existing residential home on agricultural land use on the north side of Pine Avenue in the City of Chino. A 24-hour noise level measurement was taken near this location, L3, to describe the existing ambient noise environment.
- R4: Location R4 represents the existing equestrian center located roughly 135 feet south of Excess Fill Dirt Site #2, south of Pine Avenue. A 24-hour noise level measurement was taken near this location, L4, to describe the existing ambient noise environment.
- R5: Located approximately 331 feet southeast of Excess Fill Dirt Site #1, R5 represents existing Prado Regional Park uses. A 24-hour noise level measurement was taken near this location, L4, to describe the existing ambient noise environment.



R6:	Located approximately 487 feet north of Excess Fill Dirt Site #2, R6 represents
	existing residential homes north of Pine Avenue. A 24-hour noise level
	measurement was taken near this location, L5, to describe the existing ambient
	noise environment.

- R7: Location R7 represents the existing women's correctional facility located roughly 653 feet north of Excess Fill Dirt Site #3, west of Chino Corona Road. A 24-hour noise level measurement was taken near this location, L7, to describe the existing ambient noise environment.
- R8: Located approximately 75 feet west of Excess Fill Dirt Site #3, R8 represents existing Prado Regional Park uses. A 24-hour noise level measurement was taken near this location, L6, to describe the existing ambient noise environment.
- R9: Located approximately 88 feet east of Excess Fill Dirt Site #3, R9 represents future, planned residential use east of Chino Corona Road. A 24-hour noise level measurement was taken near this location, L7, to describe the existing ambient noise environment.
- R10: Location R10 represents an existing residential home on agricultural use and future residential development west of Excess Fill Dirt Site #4 at roughly 102 feet, south of Chino Corona Road. A 24-hour noise level measurement was taken near this location, L8, to describe the existing ambient noise environment.
- R11: Located approximately 151 feet north of Excess Fill Dirt Site #4, R11 represents an existing residential home on agricultural use. A 24-hour noise level measurement was taken near this location, L8, to describe the existing ambient noise environment.
- R12: Located approximately 752 feet north of Excess Fill Dirt Site #5, R12 represents existing residential homes west of Hellman Avenue. A 24-hour noise level measurement was taken near this location, L9, to describe the existing ambient noise environment.
- R13: Location R13 represents the existing residential homes located roughly 282 feet east of Excess Fill Dirt Site #5, south of Pine Avenue in the City of Eastvale. A 24hour noise level measurement was taken near this location, L10, to describe the existing ambient noise environment.
- R14: Located approximately 1,405 feet southeast of Excess Fill Dirt Site #5, R14 represents existing and future residential uses east of Hellman Avenue in the City of Eastvale. A 24-hour noise level measurement was taken near this location, L11, to describe the existing ambient noise environment.
- R15 R22: Receiver locations R15 to R22 represent open space receiver locations that are identified for informational purposes only. The Project's Biology report will analyze the significance of any potential noise impacts to sensitive wildlife species.







EXHIBIT 8-A: RECEIVER LOCATIONS

Open Space Receiver Locations

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9 OPERATIONAL IMPACTS

This section analyzes the potential operational noise impacts due to the Project's stationary noise sources on the off-site sensitive receiver locations identified in Section 8. Exhibit 9-A identifies the receiver locations and noise source locations used to assess the Project-related operational noise levels.

9.1 REFERENCE NOISE LEVELS

To estimate the Project operational noise impacts, reference noise level measurements were collected from similar types of activities to represent the noise levels expected with the development of the proposed Project. This section provides a detailed description of the reference noise level measurements shown on Table 10-1 used to estimate the Project operational noise impacts. It is important to note that the following projected noise levels assume the worst-case noise environment with the roof-top air conditioning units, idling trucks, delivery truck activities, backup alarms, as well as loading and unloading of dry goods, and parking lot vehicle movements all operating continuously. These noise level impacts will likely vary throughout the day.

9.1.1 ROOF-TOP AIR CONDITIONING UNITS

To assess the impacts created by the roof-top air conditioning units at the Project buildings, reference noise levels measurements were taken over a four-day total duration at the Santee Walmart on July 27^{th} , 2015. Located at 170 Town Center Parkway in the City of Santee, the noise level measurements describe a mechanical roof-top air conditioning unit on the roof of an existing Walmart store, in addition to background noise levels from additional roof-top units. The reference noise level represents a Lennox SCA120 series 10-ton model packaged air conditioning unit. Using the uniform reference distance of 50 feet, the noise level is 54.4 dBA L₅₀. The operating conditions of the reference noise level measurement reflect peak summer cooling requirements with measured temperatures approaching 96 degrees Fahrenheit (°F) with average daytime temperatures of 82°F. The roof-top air condition units were observed to operate the most during the daytime hours for a total of 39 minutes per hour. The noise attenuation provided by a parapet wall is not reflected in this reference noise level measurement.

9.1.2 TRUCK IDLING, DELIVERIES, BACKUP ALARMS, AND LOADING/UNLOADING

Short-term reference noise level measurements were collected on Wednesday, January 7th, 2015, by Urban Crossroads, Inc. at the Motivational Fulfillment & Logistics Services distribution facility located at 6810 Bickmore Avenue in the City of Chino. The noise level measurements represent the typical weekday dry goods logistics warehouse operation in a single building, of roughly 285,000 square feet, with a loading dock area on the western side of the building façade. Up to ten trucks were observed in the loading dock area including a combination of track trailer semi-trucks, two-axle delivery trucks, and background forklift operations.

The unloading/docking activity noise level measurement was taken over a fifteen-minute period and represents multiple noise sources taken from the center of loading dock activities generating



a reference noise level of 59.8 dBA L_{50} at a uniform reference distance of 50 feet. At this measurement location, the noise sources associated with employees unloading a docked truck container included the squeaking of the truck's shocks when weight was removed from the truck, employees playing music over a radio, as well as a forklift horn and backup alarm. In addition, during the noise level measurement a truck entered the loading dock area and proceeded to reverse and dock in a nearby loading bay, adding truck engine and air brakes noise.

9.1.3 PARKING LOT VEHICLE MOVEMENTS (AUTOS)

To determine the noise levels associated with parking lot vehicle movements, Urban Crossroads collected reference noise level measurements over a 24-hour period on May 17th, 2017 at the parking lot for the Panasonic Avionics Corporation in the City of Lake Forest. The peak hour of activity measured over the 24-hour noise level measurement period occurred between 12:00 p.m. to 1:00 p.m., or the typical lunch hour for employees working in the area. The measured reference noise level at 50 feet from parking lot vehicle movements was measured at 38.5 dBA L₅₀. The parking lot noise levels are mainly due to cars pulling in and out of spaces during peak lunch hour activity and employees talking. Noise associated with parking lot vehicle movements is expected to operate for the entire hour (60 minutes).

	Source Duration From (hh:mm:ss) Source (Feet)		Noise	Hourly	Noise Level (dBA L₅o)	
Noise Source			Source Height (Feet)	Activity (Minutes) ⁴	@ Ref. Distance	@ 50 Feet
Roof-Top Air Conditioning Units ¹	01:00:00	5'	5'	39	74.4	54.4
Truck Unloading/Docking Activity ²	00:15:00	30'	8'	60	64.2	59.8
Parking Lot Vehicle Movements ³	01:00:00	10'	5'	60	49.0	35.0

 TABLE 9-1:
 REFERENCE NOISE LEVEL MEASUREMENTS

¹As measured by Urban Crossroads, Inc. on 7/27/2015 at the Santee Walmart located at 170 Town Center Parkway.

² Reference noise level measurements were collected on 1/7/2015 from the existing operations of the Motivational Fulfillment & Logistics Services distribution facility located at 6810 Bickmore Avenue in the City of Chino.

³ As measured by Urban Crossroads, Inc. on 5/17/2017 at the Panasonic Avionics Corporation parking lot in the City of Lake Forest.

⁴ Duration (minutes within the hour) of noise activity during peak hourly conditions.





EXHIBIT 9-A: OPERATIONAL NOISE SOURCE AND RECEIVER LOCATIONS



9.2 **OPERATIONAL NOISE LEVELS**

Based upon the reference noise levels, it is possible to estimate the Project operational stationary-source noise levels at each of the sensitive receiver locations. The operational noise level calculations shown on Table 9-2 account for the distance attenuation provided due to geometric spreading, when sound from a localized stationary source (i.e., a point source) propagates uniformly outward in a spherical pattern. Hard site conditions are used in the operational noise analysis which result in noise levels that attenuate (or decrease) at a rate of 6 dBA for each doubling of distance from a point source. The basic noise attenuation equation shown below is used to calculate the distance attenuation based on a reference noise level (SPL₁):

$$SPL_2 = SPL_1 - 20log(D_2/D_1)$$

Where SPL_2 is the resulting noise level after attenuation, SPL_1 is the source noise level, D_2 is the distance to the reference sound pressure level (SPL_1), and D_1 is the distance to the receiver location.

Table 9-2 indicates that the noise levels associated with the roof-top air conditioning units, idling trucks, delivery truck activities, backup alarms, as well as loading and unloading of dry goods, and parking lot vehicle movements are expected to range from 20.5 to 24.1 dBA L_{50} at the noise-sensitive off-site receiver locations. Open space receiver locations are shown to experience Project operational noise levels ranging from 35.5 to 35.6 dBA L_{50} . Receiver locations R15 to R22 represent open space receiver locations that are identified for informational purposes only. The Project's Biology report will analyze the significance of any potential noise impacts to sensitive wildlife species. In addition, only open space receiver locations R15 and R16 are analyzed in this section since receiver locations R17 to R22 are located further from the on-site Project operational activities, and as such, would experience operational noise levels less than those identified at R15 and R16. The operational noise level calculation worksheets are included in Appendix 9.1.



_ ·		Project Operational Noise Levels (dBA) ³					
Receiver Location ¹	Noise Source ²	L ₅₀ (30 mins)	L ₂₅ (15 mins)	L ₈ (5 mins)	L₂ (1 min)	L _{max} (<1 min)	
	Roof-Top Air Conditioning Units	14.9	16.6	17.9	18.2	18.7	
54	Truck Unloading/Docking Activity	21.7	24.7	29.3	33.1	37.5	
ĸĭ	Parking Lot Vehicle Movements	0.0	0.0	3.7	9.7	20.6	
	Combined Noise Level:	22.5	25.3	29.6	33.3	37.6	
	Roof-Top Air Conditioning Units	16.6	18.3	19.6	19.9	20.4	
22	Truck Unloading/Docking Activity	23.2	26.2	30.8	34.6	39.0	
κz	Parking Lot Vehicle Movements	0.0	0.5	5.5	11.5	22.4	
	Combined Noise Level:	24.1	26.9	31.1	34.8	39.2	
R3	Roof-Top Air Conditioning Units	12.6	14.3	15.6	15.9	16.4	
	Truck Unloading/Docking Activity	19.7	22.7	27.3	31.1	35.5	
	Parking Lot Vehicle Movements	0.0	0.0	0.0	5.0	15.9	
	Combined Noise Level:	20.5	23.3	27.6	31.2	35.6	
	Roof-Top Air Conditioning Units	27.8	29.5	30.8	31.1	31.6	
D1C	Truck Unloading/Docking Activity	34.8	37.8	42.4	46.2	50.6	
K15	Parking Lot Vehicle Movements	11.9	12.9	17.9	23.9	34.8	
	Combined Noise Level:	35.6	38.4	42.7	46.4	50.8	
	Roof-Top Air Conditioning Units	27.7	29.4	30.7	31.0	31.5	
D16	Truck Unloading/Docking Activity	34.7	37.7	42.3	46.1	50.5	
KT0	Parking Lot Vehicle Movements	2.1	3.1	8.1	14.1	25.0	
	Combined Noise Level:	35.5	38.3	42.6	46.2	50.6	

TABLE 9-2: UNMITIGATED PROJECT OPERATIONAL NOISE LEVELS

¹ See Exhibit 9-A for the receiver and noise source locations.

² Reference noise sources as shown on Table 9-1.

³ Operational noise level calculations are provided in Appendix 9.1.

Note: Receiver locations R4 to R14 are not included in this analysis since they are located further from the on-site Project operational activities, and as such, would experience operational noise levels less than those identified at R3.

9.3 UNMITIGATED OPERATIONAL NOISE LEVEL COMPLIANCE

To demonstrate compliance with local noise regulations, the Project-only operational noise levels are evaluated against exterior noise level threshold based on the City of Chino and City of Chino Hills exterior noise level standards. Table 9-3 shows the operational noise levels associated with Majestic Chino Heritage Project will not exceed the City of Chino and City of Chino Hills Municipal Code daytime and nighttime exterior noise level standards at nearby receiver locations in each jurisdiction, respectively.



			N					
Receiver Location ¹	City	Land Use	L ₅₀ (30 mins)	L ₂₅ (15 mins)	L ₈ (5 mins)	L₂ (1 min)	L _{max} (<1 min)	Threshold Exceeded? ³
Daytime	China		55	60	65	70	75	-
Nighttime	Chino	Residential Standards	50	55	60	65	70	-
Any Time	Chino Hills		65	70	75	80	85	-
R1	Chino Hills	Residential	22.5	25.3	29.6	33.3	37.6	No
R2	Chino Hills	Park	24.1	26.9	31.1	34.8	39.2	No
R3	Chino	Residential	20.5	23.3	27.6	31.2	35.6	No
R15	Open Spa	ce Receiver ⁴	35.6	38.4	42.7	46.4	50.8	-
R16	Open Spa	ce Receiver ⁴	35.5	38.3	42.6	46.2	50.6	-

TABLE 9-3: UNMITIGATED OPERATIONAL NOISE LEVEL COMPLIANCE

¹ See Exhibit 9-A for the receiver and noise source locations.

² Estimated unmitigated Project operational noise levels as shown on Table 9-2.

³ Do the estimated Project operational noise levels meet the operational noise level standards (Table 3-1)?

⁴ Open space receiver locations are identified for informational purposes only. The Project's Biology report will analyze the significance of any potential noise impacts to sensitive wildlife species. Receiver locations R17 to R22 are located further from the on-site Project operational activities, and as such, would experience operational noise levels less than those identified at R15 and R16 for open space receiver locations.



10 CONSTRUCTION IMPACTS

This section analyzes potential impacts resulting from the short-term construction activities associated with the development of the Project. Exhibit 10-A shows the construction activity boundaries at the Project site, and Exhibit 10-B shows the Excess Dirt Fill Sites in relation to the nearby sensitive receiver locations.

10.1 CONSTRUCTION NOISE LEVELS

Noise generated by the Project construction equipment will include a combination of trucks, power tools, concrete mixers, and portable generators that when combined can reach high levels. The number and mix of construction equipment is expected to occur in the following stages:

- Soil Import/Export Process
- Grading
- Building Construction
- Paving
- Architectural Coating

This construction noise analysis was prepared using reference noise level measurements taken by Urban Crossroads, Inc. to describe the typical construction activity noise levels for each stage of Project construction. The construction reference noise level measurements represent a list of typical construction activity noise levels. Noise levels generated by heavy construction equipment can range from approximately 68 dBA to in excess of 80 dBA when measured at 50 feet. Hard site conditions are used in the construction noise analysis which result in noise levels that attenuate (or decrease) at a rate of 6 dBA for each doubling of distance from a point source (i.e. construction equipment). For example, a noise level of 80 dBA measured at 50 feet from the noise source to the receiver would be reduced to 74 dBA at 100 feet from the source to the receiver and would be further reduced to 68 dBA at 200 feet from the source to the receiver. The construction stages used in this analysis are consistent with the data used to support the construction emissions in the *Majestic Chino Heritage Air Quality Impact Analysis* prepared by Urban Crossroads, Inc. (28)

10.2 CONSTRUCTION REFERENCE NOISE LEVELS

To describe the Project construction noise levels, measurements were collected for similar activities at several construction sites. Table 10-1 provides a summary of the construction reference noise level measurements. Since the reference noise levels were collected at varying distances, all construction noise level measurements presented on Table 10-1 have been adjusted to describe a common reference distance of 50 feet.



ID	Noise Source	Duration (h:mm:ss)	Reference Distance From Source (Feet)	Reference Noise Levels @ Reference Distance (dBA L _{eq})	Reference Noise Levels @ 50 Feet (dBA L _{eq}) ⁶
1	Truck Pass-Bys & Dozer Activity ¹	0:01:15	30'	63.6	59.2
2	Dozer Activity ¹	0:01:00	30'	68.6	64.2
3	Construction Vehicle Maintenance Activities ²	0:01:00	30'	71.9	67.5
4	Foundation Trenching ²	0:01:01	30'	72.6	68.2
5	Rough Grading Activities ²	0:05:00	30'	77.9	73.5
6	Framing ³	0:02:00	30'	66.7	62.3
7	Scraper, Water Truck, & Dozer Activity ⁴	0:30:00	30'	79.7	75.3
8	Concrete Mixer Truck Movements ⁵	0:01:00	50'	71.2	71.2
9	Concrete Paver Activities ⁵	0:01:00	30'	70.0	65.6
10	Concrete Mixer Pour & Paving Activities ⁵	0:01:00	30'	70.3	65.9
11	Concrete Mixer Backup Alarms & Air Brakes⁵	0:00:20	50'	71.6	71.6
12	Concrete Mixer Pour Activities ⁵	1:00:00	50'	67.7	67.7

TABLE 10-1:	CONSTRUCTION REFERENCE NOISE LEVELS

¹As measured by Urban Crossroads, Inc. on 10/14/15 at a business park construction site located at the northwest corner of Barranca Parkway and Alton Parkway in the City of Irvine.

² As measured by Urban Crossroads, Inc. on 10/20/15 at a construction site located in Rancho Mission Viejo.

³ As measured by Urban Crossroads, Inc. on 10/20/15 at a residential construction site located in Rancho Mission Viejo.

⁴ As measured by Urban Crossroads, Inc. on 10/30/15 during grading operations at an industrial construction site in the City of Ontario.

⁵ Reference noise level measurements were collected from a nighttime concrete pour at an industrial construction site, located at 27334 San Bernardino Avenue in the City of Redlands, between 1:00 a.m. to 2:00 a.m. on 7/1/15.

⁶ Reference noise levels are calculated at 50 feet using a drop off rate of 6 dBA per doubling of distance (point source).





EXHIBIT 10-A: PROJECT SITE CONSTRUCTION ACTIVITY AND RECEIVER LOCATIONS





EXHIBIT 10-B: EXCESS DIRT FILL SITE CONSTRUCTION ACTIVITY AND RECEIVER LOCATIONS



10.3 CONSTRUCTION NOISE ANALYSIS

Tables 10-2 to 10-6 show the Project construction stages and the reference construction noise levels used for each stage. Table 10-7 provides a summary of the noise levels from each stage of construction at each of the sensitive receiver locations. Based on the reference construction noise levels, the Project-related construction noise levels when the highest reference noise level is operating at the edge of primary construction activity nearest each sensitive receiver location will range from 28.9 to 67.5 dBA L_{eq} at the noise-sensitive receiver locations, as shown on Table 10-7. Open space receiver locations, which are identified for information purposes only, are shown to experience construction noise levels ranging from 34.2 to 83.2 dBA L_{eq} . The Project's Biology report will analyze the significance of any potential noise impacts to sensitive wildlife species.



Reference Construction Activity ¹	Reference Noise Level @ 50 Feet (dBA L _{eq})
Truck Pass-Bys & Dozer Activity	59.2
Dozer Activity	64.2
Rough Grading Activities	73.5
Scraper, Water Truck, & Dozer Activity	75.3
Highest Reference Noise Level at 50 Feet (dBA L _{eq}):	75.3

|--|

Receiver Location	Distance to Closest Fill Site Activity (Feet) ²	Distance Attenuation (dBA L _{eq}) ³	Estimated Noise Barrier Attenuation (dBA L _{eq}) ⁴	Construction Noise Level (dBA L _{eq})
R1	9,193'	-45.3	0.0	30.0
R2	8,342'	-44.4	0.0	30.8
R3	173'	-10.8	0.0	64.5
R4	243'	-13.7	0.0	61.5
R5	351'	-16.9	0.0	58.3
R6	507'	-20.1	0.0	55.1
R7	755'	-23.6	0.0	51.7
R8	140'	-8.9	0.0	66.3
R9	170'	-10.6	0.0	64.6
R10	122'	-7.7	0.0	67.5
R11	171'	-10.7	0.0	64.6
R12	651'	-22.3	0.0	53.0
R13	250'	-14.0	0.0	61.3
R14	1,495'	-29.5	0.0	45.7
R15	5,655'	-41.1	0.0	34.2
R16	2,817'	-35.0	0.0	40.2
R17	30'	4.4	0.0	79.7
R18	120'	-7.6	0.0	67.7
R19	878'	-24.9	0.0	50.4
R20	20'	8.0	0.0	83.2
R21	206'	-12.3	0.0	63.0
R22	169'	-10.6	0.0	64.7

 $^{\rm 1}$ Reference construction noise level measurements taken by Urban Crossroads, Inc.

 $^{\rm 2}$ Distance from the nearest point of construction activity to the nearest receiver.

³ Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.



Reference Construction Activity ¹	Reference Noise Level @ 50 Feet (dBA L _{eq})
Truck Pass-Bys & Dozer Activity	59.2
Dozer Activity	64.2
Rough Grading Activities	73.5
Highest Reference Noise Level at 50 Feet (dBA Leq):	73.5

TABLE 10-3: GRADING ACTIVITY NOISE LEVELS

Receiver Location	Distance to Project Site Construction Activity (Feet) ²	Distance Attenuation (dBA L _{eq}) ³	Estimated Noise Barrier Attenuation (dBA L _{eq}) ⁴	Construction Noise Level (dBA L _{eq})
R1	3,614'	-37.2	0.0	36.3
R2	2,958'	-35.4	0.0	38.0
R3	4,260'	-38.6	0.0	34.9
R15	635'	-22.1	0.0	51.4
R16	744'	-23.5	0.0	50.0

¹ Reference construction noise level measurements taken by Urban Crossroads, Inc.

² Distance from the nearest point of construction activity to the nearest receiver.

³ Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.



Reference Construction Activity ¹	Reference Noise Level @ 50 Feet (dBA L _{eq})
Construction Vehicle Maintenance Activities	67.5
Foundation Trenching	68.2
Framing	62.3
Highest Reference Noise Level at 50 Feet (dBA L_{eq}):	68.2

TABLE 10-4: BUILDING CONSTRUCTION ACTIVITY NOISE LEVELS

Receiver Location	Distance to Project Site Construction Activity (Feet) ²	Distance Attenuation (dBA L _{eq}) ³	Estimated Noise Barrier Attenuation (dBA L _{eq}) ⁴	Construction Noise Level (dBA L _{eq})
R1	3,614'	-37.2	0.0	31.0
R2	2,958'	-35.4	0.0	32.7
R3	4,260'	-38.6	0.0	29.6
R15	635'	-22.1	0.0	46.1
R16	744'	-23.5	0.0	44.7

¹ Reference construction noise level measurements taken by Urban Crossroads, Inc.

² Distance from the nearest point of construction activity to the nearest receiver.

³ Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.



Reference Construction Activity ¹	Reference Noise Level @ 50 Feet (dBA L _{eq})
Concrete Mixer Truck Movements	71.2
Concrete Paver Activities	65.6
Concrete Mixer Pour & Paving Activities	65.9
Concrete Mixer Backup Alarms & Air Brakes	71.6
Concrete Mixer Pour Activities	67.7
Highest Reference Noise Level at 50 Feet (dBA L _{eq}):	71.6

TABLE 10-5: PAVING ACTIVITY NOISE LEVELS

Receiver Location	Distance to Project Site Construction Activity (Feet) ²	Distance Attenuation (dBA L _{eq}) ³	Estimated Noise Barrier Attenuation (dBA L _{eq}) ⁴	Construction Noise Level (dBA L _{eq})
R1	3,614'	-37.2	0.0	34.4
R2	2,958'	-35.4	0.0	36.2
R3	4,260'	-38.6	0.0	33.0
R15	635'	-22.1	0.0	49.5
R16	744'	-23.5	0.0	48.1

¹ Reference construction noise level measurements taken by Urban Crossroads, Inc.

 $^{\rm 2}$ Distance from the nearest point of construction activity to the nearest receiver.

 $^{\rm 3}$ Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.



Reference Construction Activity ¹	Reference Noise Level @ 50 Feet (dBA L _{eq})
Construction Vehicle Maintenance Activities	67.5
Framing	62.3
Highest Reference Noise Level at 50 Feet (dBA L_{eq}):	67.5

TABLE 10-6: ARCHITECTURAL COATING ACTIVITY NOISE LEVELS

Receiver Location	Distance to Project Site Construction Activity (Feet) ²	Distance Attenuation (dBA L _{eq}) ³	Estimated Noise Barrier Attenuation (dBA L _{eq}) ⁴	Construction Noise Level (dBA L _{eq})
R1	3,614'	-37.2	0.0	30.3
R2	2,958'	-35.4	0.0	32.0
R3	4,260'	-38.6	0.0	28.9
R15	635'	-22.1	0.0	45.4
R16	744'	-23.5	0.0	44.0

¹ Reference construction noise level measurements taken by Urban Crossroads, Inc.

 $^{\rm 2}$ Distance from the nearest point of construction activity to the nearest receiver.

³ Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.


		Cons	truction Noise Le	evels by Stage (d	BA L _{eq})	
Receiver Location ¹	Soil Import/Export Process	Grading	Building Construction	Paving	Architectural Coating	Highest Construction Noise Level ²
R1	30.0	36.3	31.0	34.4	30.3	36.3
R2	30.8	38.0	32.7	36.2	32.0	38.0
R3	64.5	34.9	29.6	33.0	28.9	64.5
R4	61.5	_3	_3	_3	_3	61.5
R5	58.3	_3	_3	_3	_3	58.3
R6	55.1	_3	_3	_3	_3	55.1
R7	51.7	_3	_3	_3	_3	51.7
R8	66.3	_3	_3	_3	_3	66.3
R9	64.6	_3	_3	_3	_3	64.6
R10	67.5	_3	_3	_3	_3	67.5
R11	64.6	_3	_3	_3	_3	64.6
R12	53.0	_3	_3	_3	_3	53.0
R13	61.3	_3	_3	_3	_3	61.3
R14	45.7	_3	_3	_3	_3	45.7
R15	34.2	51.4	46.1	49.5	45.4	51.4
R16	40.2	50.0	44.7	48.1	44.0	50.0
R17	79.7	_4	_4	_4	_4	79.7
R18	67.7	_4	_4	_4	_4	67.7
R19	50.4	_4	_4	_4	_4	50.4
R20	83.2	_4	_4	_4	_4	83.2
R21	63.0	_4	_4	_4	_4	63.0
R22	64.7	_4	_4	_4	_4	64.7

TABLE 10-7: UNMITIGATED CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY

¹Noise receiver locations are shown on Exhibit 10-A.

² Estimated construction noise levels based on the highest reference construction activity for each stage.

³ Receiver locations R4 to R14 are located further from the on-site Project construction activities (non-soil import activities), and as such, would experience construction noise levels less than those identified at R3.

⁴ Open space receiver locations are identified for informational purposes only. The Project's Biology report will analyze the significance of any potential noise impacts to sensitive wildlife species. Receiver locations R17 to R22 are located further from the on-site Project construction activities (non-soil import activities), and as such, would experience construction noise levels less than those identified at R15 and R16 for open space receiver locations.



10.4 CONSTRUCTION NOISE THRESHOLDS OF SIGNIFICANCE

To evaluate whether the Project will generate potentially significant short-term noise levels at off-site noise-sensitive receiver locations the City of Chino noise level threshold of 65 dBA L_{eq} is used.

10.4.1 PROJECT SITE CONSTRUCTION NOISE ANALYSIS

The Project-related short-term construction noise levels are expected to range approach 38.0 dBA L_{eq} and will not exceed the 65 dBA L_{eq} City of Chino construction noise level threshold at the nearby sensitive receiver locations. Therefore, based on the results of this analysis, all nearby sensitive receiver locations (R1 to R3) will experience *less than significant* impacts due to Project site construction noise levels, as shown on Table 10-8.

10.4.2 PROJECT NIGHTTIME CONCRETE POUR ACTIVITY ANALYSIS

It is our understanding that nighttime concrete pouring activities may occur as a part of Project construction activities. The paving stage construction noise levels, previously presented on Table 10-5, are based on nighttime concrete pouring activity reference noise level measurements, which are shown to result in Project construction noise levels ranging from 33.0 to 36.2 dBA L_{eq} at the nearby sensitive receiver locations. Therefore, nighttime concrete pouring activity would result in Project construction noise levels that will not exceed the City of Chino 65 dBA L_{eq} exterior noise level standard at nearby sensitive receiver locations.

10.4.3 SOIL IMPORT/EXPORT CONSTRUCTION NOISE ANALYSIS

The short-term construction noise levels associated with soil import/export activity, which could occur during daytime or nighttime hours, are expected to range from 30.0 to 67.5 dBA L_{eq} and will potentially exceed the 65 dBA L_{eq} City of Chino construction noise level threshold at one of the sensitive receiver locations, R10, near Excess Fill Dirt Site #4. Therefore, based on the results of this analysis, sensitive receiver location R10, if R10 represent built and occupied residential use, will experience *potentially significant* impacts due to construction noise levels generated by activities at Excess Fill Dirt Site #4. As such, a construction noise mitigation plan shall be required, as outlined in the Executive Summary, if Excess Fill Dirt Site #4 is used for soil import/export activities. All other receiver locations will experience *less than significant* noise impacts due to construction activities at the Excess Fill Dirt Sites.

10.4.4 CONSTRUCTION NOISE LEVELS AT OPEN SPACE RECEIVER LOCATIONS

As previously stated, open space receiver locations R15 to R22 are identified for information purposes only. The Project's Biology report will analyze the significance of any potential noise impacts to sensitive wildlife species.

On-site Project construction noise levels are anticipated to range from 44.0 to 51.4 dBA L_{eq} at open space receiver locations R15 to R16, which represent the closest open space receiver locations to the Project site. R17 to R22, located at greater distances, would experience lower



on-site Project construction noise levels. Similarly, on-site Project nighttime concrete pour noise levels would range from 48.1 to 49.5 dBA L_{eq} at receiver locations R15 to R16.

The short-term construction noise levels associated with soil import/export activity, which could occur during daytime or nighttime hours, are expected to range from 34.2 to 83.2 dBA L_{eq} at the off-site open space receiver locations.

Receiver Location ¹	Land Use	Highest Unmitigated Construction Noise Levels (dBA Leq) ²	Construction Activity	Threshold (dBA L _{eq}) ³	Threshold Exceeded? ⁴
R1	Residential	36.3	Project Grading	65	No
R2	Park	38.0	Project Grading	n/a	No
R3	Residential	64.5	Dirt Import/Export	65	No
R4	Equestrian Center	61.5	Dirt Import/Export	n/a	No
R5	Park	58.3	Dirt Import/Export	n/a	No
R6	Residential	55.1	Dirt Import/Export	65	No
R7	Institutional	51.7	Dirt Import/Export	n/a	No
R8	Park	66.3	Dirt Import/Export	n/a	No
R9	Residential (Future)	64.6	Dirt Import/Export	65	No
R10	Residential	67.5	Dirt Import/Export	65	Yes
R11	Residential	64.6	Dirt Import/Export	65	No
R12	Residential	53.0	Dirt Import/Export	65	No
R13	Residential	61.3	Dirt Import/Export	65	No
R14	Residential	45.7	Dirt Import/Export	65	No
R15	Open Space Receiver ⁵	51.4	Dirt Import/Export	-	-
R16	Open Space Receiver ⁵	50.0	Dirt Import/Export	-	-
R17	Open Space Receiver ⁵	79.7	Dirt Import/Export	-	-
R18	Open Space Receiver ⁵	67.7	Dirt Import/Export	-	-
R19	Open Space Receiver ⁵	50.4	Dirt Import/Export	-	-
R20	Open Space Receiver ⁵	83.2	Dirt Import/Export	-	-
R21	Open Space Receiver ⁵	63.0	Dirt Import/Export	-	-
R22	Open Space Receiver ⁵	64.7	Dirt Import/Export	-	-

TABLE 10-8: CONSTRUCTION EQUIPMENT NOISE LEVEL COMPLIANCE (DBA LEQ)

¹Noise receiver locations are shown on Exhibits 10-A and 10-B

² Estimated highest construction noise levels, as shown on Table 10-7.

³ Construction noise standard as shown on Table 4-2.

⁴ Do the estimated Project construction noise levels satisfy the construction noise level threshold?

⁵ Open space receiver locations are identified for informational purposes only. The Project's Biology report will analyze the significance of any potential noise impacts to sensitive wildlife species.

"n/a" = No construction noise level threshold is identified for the given use; however, construction noise levels are presented for informational purposes.



10.5 CONSTRUCTION VIBRATION IMPACTS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures and soil type. It is expected that ground-borne vibration from Project construction activities would cause only intermittent, localized intrusion. The proposed Project's construction activities most likely to cause vibration impacts are:

- Heavy Construction Equipment: Although all heavy mobile construction equipment has the potential of causing at least some perceptible vibration while operating close to buildings, the vibration is usually short-term and is not of sufficient magnitude to cause building damage.
- Trucks: Trucks hauling building materials to construction sites can be sources of vibration intrusion if the haul routes pass through residential neighborhoods on streets with bumps or potholes. Repairing the bumps and potholes generally eliminates the problem.

Ground-borne vibration levels resulting from construction activities occurring within the Project site were estimated by data published by the Federal Transit Administration (FTA). Construction activities that would have the potential to generate low levels of ground-borne vibration within the Project site include mobile equipment activities and pile driving, among others. Using the vibration source level of construction equipment provided on Table 6-9 and the construction vibration assessment methodology published by the FTA, it is possible to estimate the Project vibration impacts.

The construction vibration analysis is based on the shortest distance to either Project site construction or Excess Fill Dirt Site soil import/export activities. Based on the analysis, construction vibration velocity levels are expected to approach 0.012 in/sec PPV, and 0.009 in/sec RMS, as shown on Table 10-9. Based on the results of the analysis, the Project construction vibration levels will remain below the City of Chino 0.05 in/sec RMS vibration level standard, the City of Chino Hills 0.2 in/sec PPV standard, and the City of Eastvale 0.0787 in/sec PPV standard at the nearby sensitive receiver locations.

Further, the Project-related construction vibration levels do not represent levels capable of causing building damage to nearby residential homes. The FTA identifies construction vibration levels capable of building damage ranging from 0.12 to 0.5 in/sec PPV. (3) The peak Project-construction vibration levels approaching 0.012 in/sec PPV will remain below the FTA vibration levels for building damage at the residential homes near the Project site. Moreover, the impacts at the site of the closest sensitive receivers are unlikely to be sustained during the entire construction period, but will occur rather only during the times that heavy construction equipment is operating adjacent to the Project site perimeter.

		Shortest		Receiver	PPV Levels	(in/sec) ²		RMS	Threshol	d (in/sec)	
Receiver Location ¹	City	Const. Activity (Feet)	Small Bulldozer	Jack- hammer	Loaded Trucks	Large Bulldozer	Peak Vibration	Velocity Levels (in/sec) ³	PPV	RMS	Threshold Exceeded? ⁴
R1	Chino Hills	3,614'	0.0000	0.0000	0.0000	0.0001	0.0001	-	0.20	-	No
R2	Chino Hills	2,958'	0.0000	0.0000	0.0001	0.0001	0.0001	-	0.20	-	No
R3	Chino	167'	0.0002	0.0020	0.0044	0.0052	0.0052	0.004	-	0.05	No
R4	Chino	155'	0.0002	0.0023	0.0049	0.0058	0.0058	0.004	-	0.05	No
R5	Chino	351'	0.0001	0.0007	0.0014	0.0017	0.0017	0.001	-	0.05	No
R6	Chino	507'	0.0000	0.0004	0.0008	0.0010	0.0010	0.001	-	0.05	No
R7	Chino	673'	0.0000	0.0003	0.0005	0.0006	0.0006	0.000	-	0.05	No
R8	Chino	95'	0.0004	0.0047	0.0103	0.0120	0.0120	0.009	-	0.05	No
R9	Chino	108'	0.0003	0.0039	0.0085	0.0099	0.0099	0.007	-	0.05	No
R10	Chino	122'	0.0003	0.0032	0.0070	0.0083	0.0083	0.006	-	0.05	No
R11	Chino	171'	0.0002	0.0020	0.0042	0.0050	0.0050	0.004	-	0.05	No
R12	Chino	772'	0.0000	0.0002	0.0004	0.0005	0.0005	0.000	-	0.05	No
R11	Eastvale	282'	0.0001	0.0009	0.0020	0.0023	0.0023	-	0.0787	-	No
R12	Eastvale	1,425'	0.0000	0.0001	0.0002	0.0002	0.0002	-	0.0787	-	No

TABLE 10-9: UNMITIGATED CONSTRUCTION EQUIPMENT VIBRATION LEVELS

¹ Receiver locations are shown on Exhibit 10-A.

² Based on the Vibration Source Levels of Construction Equipment included on Table 6-9.

³ Vibration levels in PPV are converted to RMS velocity using a 0.71 conversion factor identified in the Caltrans Transportation and Construction Vibration Guidance Manual, September 2013.

⁴ Does the vibration exceed the maximum acceptable vibration threshold?



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12 CERTIFICATION

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the proposed Majestic Chino Heritage Project. The information contained in this noise study report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 336-5979.

Bill Lawson, P.E., INCE Principal URBAN CROSSROADS, INC. 260 E. Baker Street, Suite 200 Costa Mesa, CA 92626 (949) 336-5979 blawson@urbanxroads.com



EDUCATION

Master of Science in Civil and Environmental Engineering California Polytechnic State University, San Luis Obispo • December, 1993

Bachelor of Science in City and Regional Planning California Polytechnic State University, San Luis Obispo • June, 1992

PROFESSIONAL REGISTRATIONS

PE – Registered Professional Traffic Engineer – TR 2537 • January, 2009 AICP – American Institute of Certified Planners – 013011 • June, 1997–January 1, 2012 PTP – Professional Transportation Planner • May, 2007 – May, 2013 INCE – Institute of Noise Control Engineering • March, 2004

PROFESSIONAL AFFILIATIONS

ASA – Acoustical Society of America ITE – Institute of Transportation Engineers

PROFESSIONAL CERTIFICATIONS

Certified Acoustical Consultant – County of Orange • February, 2011 FHWA-NHI-142051 Highway Traffic Noise Certificate of Training • February, 2013



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APPENDIX 3.1:

CITY OF CHINO MUNICIPAL CODE



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Sections:

9.40.010 - Definitions.

The following words, phrases and terms as used in this chapter shall have the meanings as indicated here:

"Agricultural property" means a parcel of real property which is undeveloped for any use other than agricultural purposes.

"Ambient noise level" means the all-encompassing noise level associated with a given environment, being a composite of sounds from all sources, excluding the alleged offensive noise, at the location and approximate time at which a comparison with the alleged offensive noise is to be made.

"A-weighted sound level" means the total sound level meter with a reference pressure of twenty micro-pascals using the A-weighted network (scale) at slow response. The unit of measurement shall be defined as dBA.

"Commercial property" means a parcel of real property which is developed and used as either in or part or in whole for commercial purposes.

"Cumulative period" means an additive period of time composed of individual time segments which may be continuous or interrupted.

"Decibel (dB)" means a unit which denotes the ratio between two quantities which are proportional to power: the number of decibels corresponding to the ratio of two amounts of power is ten times the logarithm to the base ten of this ratio.

"Director of community development" means the director of community development of the city of Chino or his/her duly authorized deputy.

"Dwelling unit" means a single unit providing complete independent living facilities for one or more persons including permanent provisions for living, sleeping, eating, cooking and sanitation.

"Emergency machinery, vehicle, work or alarm" means any machinery, vehicle, work or alarm used, employed, performed or operated in an effort to protect, provide or restore safety conditions in the community or for the citizenry, or work by private or public utilities when restoring utility service.

"Fixed noise source" means a stationary device which creates sounds while fixed or motionless including but not limited to residential, agricultural, industrial and commercial machinery and equipment, pumps, fans, compressors, air conditioners and refrigeration equipment.

"Grading" means any excavating of filling of earth material or any combination thereof conducted at a site to prepare said site for construction or other improvements thereon.

"Hertz (Hz)" means the unit which describes the frequency of a function periodic in time which is the reciprocal of the period.

"Health care institution" means any hospital, convalescent home or other similar facility excluding residential.

"Impulsive noise" means a noise of short duration usually less than one second and of high intensity, with an abrupt onset and rapid decay.

"Industrial property" means a parcel of real property which is developed and used either in part or in whole for manufacturing purposes.

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"Intruding noise level" means the total sound level, in decibels, created, caused, maintained or originating from an alleged offensive source at a specified location while the alleged offensive source is in operation.

"Licensed" means the issuance of a formal license or permit by the appropriate jurisdictional authority, or where no permits or licenses are issued, the sanctioning of the activity by the jurisdiction as noted in public record.

"Major roadway" means any street, avenue, boulevard or highway used for motor vehicle traffic which is owned or controlled by a public government entity.

"Mobile noise source" means any noise source other than a fixed noise source.

"Person" means a person, firm, association, co-partnership, joint venture, corporation or any entity, public or private in nature.

"Residential property" means a parcel of real property which is developed and used either in part or in whole for residential purposes, other than transient uses such as hotels and motels, and residential care facilities.

"Simple tone noise" means a noise characterized by a predominant frequency or frequencies so that other frequencies cannot be readily distinguished. If measured, simple tone noise shall exist if the one-third octave band sound pressure levels in the band with the tone exceeds the arithmetic average of the sound pressure levels of the two continuous one-third octave bands as follows: 5 dB for frequencies of 500 Hertz (Hz) and above or; by 15 dB for frequencies less than equal to 125 Hz.

"Sound level meter" means an instrument meeting American National Standard Institute's Standard S1.4-1971 or most recent revision thereof for Type 2 sound level meters or an instrument and the associated recording and analyzing equipment which will provide equivalent data.

"Sound pressure level" of a sound, in decibels, means twenty times the logarithm to the base 10 of the ratio of the pressure of the sound to a reference pressure shall be explicitly stated.

"Vibration" means any movement of the earth, ground or other similar surface created by a temporal and spacial oscillation device or equipment located upon, affixed in conjunction with that surface.

(Ord. 95-10 § 1 (part), 1995.)

9.40.020 - Decibel measurement criteria.

Any decibel measurement made pursuant to the provisions of this chapter shall be based on a reference sound pressure of twenty micro-pascals as measured with a sound level meter using the A-weighted network (scale) at slow response.

(Ord. 95-10 § 1 (part), 1995.)

9.40.030 - Designated noise zones.

The properties hereinafter described are assigned to the following noise zones:

Noise Zone I: All single-, double- and multiple-family residential properties.

Noise Zone II: All commercial properties.

Noise Zone III: All manufacturing or industrial properties.

(Ord. 95-10 § 1 (part), 1995.)

9.40.040 - Exterior noise standards.

The following noise standards, unless otherwise specifically indicated, shall apply to all residential property with a designated noise zone:

These criteria are given in terms of allowable noise levels for a given period of time at the residential property boundary. Higher noise levels are permitted during the day (seven a.m. to ten p.m.) than the night (ten p.m. to seven a.m.). The table below shows the acceptable levels at residential land uses during the daytime and nighttime.

City of Chino Exterior Noise Ordinance

Criteria for Residential Properties (Zone 1)

Maximum Time of Exposure	Noise		
Metric	Noise Level Not to Exceed		
		<u>7</u> am—10 pm	10 pm—7 am
30 min/hr	L50	55 dBA	50 dBA
15 min/hr	L25	60 dBA	55 dBA
5 min/hr	L8.3	65 dBA	60 dBA
1 min/hr	L1.7	70 dBA	65 dBA
Any period of time	Lmax	75 dBA	70 dBA

Each of the noise limits specified here shall be reduced by five dBA for impulse or simple tone noises, or for noises consisting of speech or music; provided, however, that if the ambient noise level exceeds the resulting standard, the ambient shall be the standard.

It is unlawful for any person at any location within the incorporated area of the city to create any noise, or to allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person, which causes the noise level when measured on any other property, to exceed:

- A. The noise standard for a cumulative period of more than thirty minutes in any hour; or
- B. The noise standard plus five dBA for a cumulative period of more than fifteen minutes in any hour; or
- C. The noise standard plus ten dBA for a cumulative period of more than five minutes in any hour; or
- D. The noise standard plus fifteen dBA for a cumulative period of more than one minute in any hour; or
- E. The noise standard plus twenty dBA for any period of time.

In the event the ambient noise level exceeds any of the first four noise limit categories above, the cumulative period applicable to said category shall be increased to reflect said ambient noise level. In the event the ambient noise level exceeds the fifth noise category, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level. If the measurement location is on boundary between two different noise zones, the lower noise level standard applicable to the noise zone shall apply.

If the intruding noise source is continuous and cannot be reasonably discontinued or stopped for a time period whereby the ambient noise level can be determined, the measured noise level obtained while the source is in operation shall be compared directly to the allowable noise level standards as specified respective to the measurement location's designated land use and for the time of the day the noise level is measured.

A. The reasonableness of temporarily discontinuing the noise generation by an intruding noise source shall be determined by the director or his/her duly authorized deputy for the purpose of establishing the existing ambient noise level at the measurement location.

(Ord. 95-10 § 1 (part), 1995.)

9.40.050 - Interior noise standards.

The following noise standard, unless otherwise specifically indicated, shall apply to all residential property within all noise zones:

Each of the noise limits specified above shall be reduced by five dBA for impulse or simple tone noises or for noises consisting of speech or music provided, however, if the ambient noise level exceeds the resulting standard, the ambient shall be the standard.

It is unlawful for any person at any location within the incorporated area of the city to create any noise or to allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such a person which causes the noise level when measured within any other residential dwelling unit in any noise zone to exceed:

- A. The noise standard for cumulative period of more than five minutes in any hour; or
- B. The noise standard plus 5 dBA for a cumulative period of more than one minute in any hour; or
- C. The noise standard plus ten dBA for any period of time.

In the event the ambient noise level exceeds any of the first two noise limit categories above, the noise standard applicable to said category shall be increased to reflect the maximum ambient noise level.

If the measurement location is on a boundary between two different noise zones, the lower noise level standard applicable to the noise zone shall apply.

If the intruding noise source is continuous and cannot reasonably be discontinued or stopped for a time period whereby the ambient noise level can be determined; the same procedures specified in <u>Section 9.40.040(E)</u>, shall be deemed proper to enforce the provisions of this section.

(Ord. 95-10 § 1 (part), 1995.)

9.40.060 - Special provisions.

The following activities shall be exempted from the provisions of this chapter:

- A. Activities conducted on public parks, public playgrounds and public or private school grounds including school athletic and school entertainment events that are conducted under the sanction of the school or which a license or permit has been duly issued pursuant to any provision of the city code;
- B. Occasional outdoor gatherings, public dances, show, sporting and entertainment events, provided said events are conducted pursuant to a permit or license issued by the appropriate jurisdiction relative to the staging of

said events. Such permits and licenses may restrict noise;

- C. Any mechanical device, apparatus or equipment used, related to or connected with emergency machinery, vehicle, work or warning alarm or bell, provided the sounding of any bell or alarm on any building or motor vehicle shall terminate its operation within thirty minutes in any hour of its being activated;
- D. Noise sources associated with or vibration created by construction, repair, remodeling or grading of any real property or during authorized seismic surveys, provided said activities do not take place outside the hours for construction as defined in <u>Section 15.44.030</u> of this code, and provided the noise standard of sixty-five dBA plus the limits specified in <u>Section 9.40.040(B)</u> as measured on residential property and any vibration created does not endanger the public health, welfare and safety;
- E. All mechanical devices, apparatus or equipment associated with agriculture operations provided:
 - 1. Operations do not take place between eight p.m. and seven a.m. on weekdays, including Saturday, or at any time Sunday or a Federal holiday, or
 - 2. Such operations and equipment are utilized for the protection of salvage of agricultural crops during periods of potential or actual frost damage or other adverse weather conditions, or
 - 3. Such operations and equipment are associated with agricultural pest control through pesticide application, provided the application is made in accordance with permits issued by or regulations enforced by the California Department of Agriculture,
 - Noise sources associated with the maintenance of real property, provided said activities take place between the hours of seven a.m. to eight p.m. on any day except Sunday, or between the hours of nine a.m. and eight p.m. on Sunday,
 - 5. Any activity to the extent regulation thereof has been preempted by state or federal law.

NOTE: Preemption may include motor vehicle, aircraft in flight, and railroad noise regulations.

(Ord. 2004-23 § 59, 2004; Ord. 95-10 § 1 (part), 1995.)

9.40.070 - Schools, churches, libraries, health care institutions—Special provisions.

It shall be deemed unlawful for any person to create any noise which causes the noise level at any school, hospital or similar health care institution, church or library while the same is in use, to exceed the noise standards specified in <u>Section 9.40.040</u> prescribed for the assigned noise zone level, unreasonably interferes with the use of such institutions, or which unreasonably disturbs or annoys patients in a hospital, convalescent home or other similar health care institutions, provided conspicuous signs are displayed in three separate locations within one-tenth-mile of the institution or facility indicating a quiet zone.

(Ord. 95-10 § 1 (part), 1995.)

9.40.080 - Air conditioning and refrigeration—Special provisions.

Until January 1, 1996, the noise standards enumerated in <u>Section 9.40.040</u> and <u>9.40.050</u> shall be increased five dBA where the alleged intruding noise source is an air conditioning or refrigeration system or associated equipment which was installed prior to the effective date of the ordinance codified in this chapter.

(Ord. 95-10 § 1 (part), 1995.)

9.40.090 - Noise sources generated on publicly owned property.

Notwithstanding any other provision of this code and in addition thereto, it is unlawful for any person to permit or cause any noise, sound, music or program to be emitted from any radio, tape player, tape recorder, record player, television outdoors, or any other mode on or in any publicly owned property, park or place when such noise, sound, music or program is audible to a person of normal hearing sensitivity one hundred feet from said radio, tape player, tape recorder, record player or television.

- A. As used herein, "a person of normal hearing sensitivity" means a person who has a hearing threshold level of between zero decibels and twenty-five decibels HL averaged over the frequencies 500, 1,000 and 2,000 Hertz.
- B. Notwithstanding any other provision of this code, any person violating this section shall be guilty of an infraction and upon conviction thereof, is punishable by a fine not exceeding fifty dollars, for a first violation; a fine not exceeding one hundred dollars for a second violation of this section within one year; a fine not exceeding two hundred fifty dollars for each additional violation of this section within one year. A person who violates the provisions of this section shall be deemed to be guilty of a separate offense for each day, or portion thereof, during which the violation continues or is repeated.
- C. Notwithstanding any other provision of this code, no citation or notice to appear shall be issued or criminal complaint shall be filed for a violation of this section unless the offending party is first given a verbal or written notification of violation by any peace officer, public officer, park ranger or other person charged with enforcing this section and the offending party given an opportunity to correct said violation.
- D. This section shall not apply to broadcasting from any aircraft, vehicle or stationary sound amplifying equipment or to the use of radios, tape players, tape recorders, record players or televisions in the course of an assembly or festival for which a license has been issued or a parade for which a permit has been issued pursuant to or any other activity, assembly or function for which a permit or license has been duly issued pursuant to any provision of the city code.

(Ord. 95-10 § 1 (part), 1995.)

9.40.100 - Noise level measurement.

The location selected for measuring exterior noise levels shall be made within the affected residential unit. The measurements shall be made at a point at least four feet from the wall, ceiling or floor nearest the noise source with windows in an open position depending on the normal seasonal ventilation requirements.

(Ord. 95-10 § 1 (part), 1995.)

9.40.110 - Vibration.

Notwithstanding other sections of this chapter, it is unlawful for any person to create, maintain or cause any ground vibration which is perceptible without instruments at any point on any affected property adjoining the property on which the vibration source is located. For the purpose of this chapter, the perception threshold shall be presumed to be more than 0.05 inches per second RMS vertical velocity.

(Ord. 95-10 § 1 (part), 1995.)

9.40.120 - Proposed developments.

Each department whose duty it is to review and approve new projects or changes to existing projects that result or may result in the creation of noise shall consult with the director prior to any such approval. If at any time the director of community development has reason to believe that a standard, regulation, action, proposed standard, regulation or action of any department respecting noise does not conform to the provisions as specified in this chapter, the director may request such department to consult with them on the advisability of revising such standard or regulation to obtain uniformity.

(Ord. 95-10 § 1 (part), 1995.)

9.40.130 - Variance procedure.

The variance procedure process shall remain as specified in the city's zoning code (Title 20).

(Ord. 95-10 § 1 (part), 1995.)

9.40.140 - Planning commission.

The planning commission shall evaluate all applications for variance from the requirements of this chapter and may grant said variances with respect to time for compliance, subject to such terms, conditions and requirements as it may deem reasonable to achieve maximum compliance with the provisions of this chapter. Said terms, conditions and requirements may include, but shall not be limited to, limitation on noise levels and operating hours. Each such variance shall set forth in detail the approved method of achieving maximum compliance and a time schedule for its accomplishment. In its determinations, the commission shall consider the following:

- A. The magnitude of nuisance caused by the offensive noise;
- B. The uses of property within the area of impingement by the noise;
- C. The time factors related to study, design, financing and construction of remedial work;
- D. The economic factors related to age and useful life of the equipment;
- E. The general public interest, welfare and safety.

Any variance granted by the commission shall be by resolution and shall be transmitted to the director of community development for enforcement. Any violation of the terms of said variance shall be unlawful.

The planning commission may require additional acoustical studies based on the individual circumstances of each case. Such studies must be performed by a person qualified in acoustical engineering with the state of California.

Meetings of the planning commission shall be held at the call of the secretary and at such times and locations as the commission shall determine. All such meetings shall be open to the public.

(Ord. 95-10 § 1 (part), 1995.)

9.40.150 - Appeals.

The appeal procedure process shall remain as specified in the city's zoning code (Title 20).

(Ord. 95-10 § 1 (part), 1995.)

9.40.160 - Prima facie violation.

Any noise exceeding the noise level standard as specified in <u>Section 9.40.040</u> and <u>9.40.050</u> or vibration exceeding the standard as specified in <u>Section 9.40.110</u> of this chapter, shall be deemed to be prima facie evidence of a violation of the provisions of this chapter.

(Ord. 95-10 § 1 (part), 1995.)

9.40.170 - Violations/misdemeanors.

Any persons violating any of the provisions of this chapter shall be deemed guilty of a misdemeanor and upon conviction thereof shall be fined in an amount not to exceed an amount as specified by city council resolution, or be imprisoned in the Jail for a period not to exceed six months or by both such fine and imprisonment. Each day such violation is committed or permitted to continue shall constitute a separate offense and shall be punishable as such.

(Ord. 95-10 § 1 (part), 1995.)

9.40.180 - Violations/additional remedies— Injunctions.

As an additional remedy, the operation or maintenance of any device, instrument, vehicle or machinery in violation of any provisions of this chapter which operation or maintenance causes or creates sound levels or vibration exceeding the allowable standards as specified in this chapter shall be deemed and is hereby declared to be a public nuisance and may be subject to abatement summarily by a restraining order or injunction issued by a court of competent jurisdiction.

Any violation of this chapter is declared to be a public nuisance and may be abated in accordance with law. The expense of this chapter is declared to be public nuisance and may be by resolution of the city council declared to be a lien against the property on which such nuisance is maintained, and such lien shall be made a personal obligation of the property owner.

(Ord. 95-10 § 1 (part), 1995.)

9.40.190 - Manner of enforcement.

The director is directed to enforce the provisions of this chapter and is authorized and may cite at his/her discretion, any person without a warrant who has reasonable cause to believe that such person has committed a misdemeanor in his/her presence.

No person shall interfere with, oppose or resist any authorized person charged with the enforcement of this chapter while such person is engaged in the performance of his/her duty.

Violations of this chapter shall be prosecuted in the same manner as other misdemeanor violations pursuant to <u>Chapter 1.12</u>; provided, however, that in the event of an initial violation of the provisions of this chapter, a written notice shall be given the alleged violator which specifies the time by which the condition shall be corrected or an application for variance shall be received by the event the cause of the violation has been removed, the condition abated or fully corrected within the time period specified in the written notice.

In the event the alleged violated cannot be located in order to serve the notice of intention to prosecute, the notice as required herein shall be deemed to be given upon mailing such notice to registered or certified mail to the alleged violator at his last known address or at the place where the violation occurred in which event the specified time period for abating the violation or applying for a variance shall commence at the date of the day following the mailing of such notice. Subsequent violations of the same offense shall result in the immediate filing of a misdemeanor complaint.

(Ord. 95-10 § 1 (part), 1995.)

9.40.200 - Delay in implementation—Fixed noise sources.

None of the provisions of this chapter shall apply to a fixed sound source during the period commencing the effective date of this chapter and terminating one-hundred eighty days thereafter.

(Ord. 95-10 § 1 (part), 1995.)

APPENDIX 5.1:

STUDY AREA PHOTOS



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L1 East 33, 57' 24.830000", 117, 40' 39.870000"



L1 North 33, 57' 24.780000", 117, 40' 39.790000"



L1 South 33, 57' 24.830000", 117, 40' 39.870000"



L1 West 33, 57' 24.820000", 117, 40' 39.840000"



L2 East 33, 57' 12.770000", 117, 40' 1.120000"



L2 North 33, 57' 12.860000", 117, 40' 1.140000"



L2 South 33, 57' 12.770000", 117, 40' 1.090000"



L2 West 33, 57' 12.760000", 117, 40' 1.120000"



L3 East 33, 57' 17.730000", 117, 38' 42.430000"



L3 North 33, 57' 17.690000", 117, 38' 42.430000"



L3 South 33, 57' 17.700000", 117, 38' 42.430000"



L3 West 33, 57' 17.690000", 117, 38' 42.430000"



L4 East 33, 57' 2.870000", 117, 38' 45.450000"



L4 North 33, 57' 2.850000", 117, 38' 45.450000"



L4 South 33, 57' 2.850000", 117, 38' 45.420000"



L4 West 33, 57' 2.850000", 117, 38' 45.450000"



L5 East 33, 57' 23.610000", 117, 38' 28.530000"



L5 North 33, 57' 23.620000", 117, 38' 28.530000"



L5 South 33, 57' 23.550000", 117, 38' 28.530000"



L5 West 33, 57' 23.610000", 117, 38' 28.580000"



L6 East 33, 56' 27.620000", 117, 38' 28.420000"



L6 North 33, 56' 27.650000", 117, 38' 28.420000"



L6 South 33, 56' 27.660000", 117, 38' 28.420000"



L6 West 33, 56' 27.650000", 117, 38' 28.420000"

L8 East 33, 56' 45.970000", 117, 37' 22.610000"

L8 North 33, 56' 45.950000", 117, 37' 22.640000"

115



L7 South

33, 56' 39.790000", 117, 37' 59.610000"

L7 West

33, 56' 39.830000", 117, 37' 59.610000"









33, 56' 39.770000", 117, 37' 59.640000"

JN:10351 Study Area Photos



L8 South 33, 56' 45.950000", 117, 37' 22.610000"



L8 West 33, 56' 45.940000", 117, 37' 22.670000"



L9 East 33, 57' 5.590000", 117, 36' 53.990000"



L9 North 33, 57' 5.660000", 117, 36' 53.960000"



L9 South 33, 57' 5.630000", 117, 36' 53.990000"



L9 West 33, 57' 5.630000", 117, 36' 53.960000"



L10 East 33, 57' 7.690000", 117, 36' 39.220000"



L10 North 33, 57' 7.710000", 117, 36' 39.220000"



L10 South 33, 57' 7.730000", 117, 36' 39.190000"



L10 West 33, 57' 7.710000", 117, 36' 39.220000"



L11 East 33, 56' 45.940000", 117, 36' 31.250000"



L11 North 33, 56' 45.940000", 117, 36' 31.280000"



L11 South 33, 56' 45.910000", 117, 36' 31.280000"



L11 West 33, 56' 45.910000", 117, 36' 31.250000"

APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

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Adj. L _{eq}	58.3	59.2	59.6	60.8	62.9	61.9	61.9	53.4	53.3	54.8	54.2	51.4	53.1	54.7	55.7	55.4	55.1	55.3	53.5	58.2	56.7	55.0	58.1	56.2		Nichttimo		C U J	0.00	(BA)			
Adj.	10.0	10.0	10.0	10.0	10.0	10.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	5.0	5.0	10.0	10.0	L _{eq} (dBA)	Dautimo	Duyume	0 63	C.CC	Hour CNEL (d		С Д О	0.10
L _{eq}	48.3	49.2	49.6	50.8	52.9	51.9	51.9	53.4	53.3	54.8	54.2	51.4	53.1	54.7	55.7	55.4	55.1	55.3	53.5	53.2	51.7	50.0	48.1	46.2			1001-47	0 2 3	C.2C	24-1			
%661	43.0	44.0	44.0	44.0	48.0	46.0	48.0	46.0	45.0	46.0	46.0	46.0	48.0	50.0	51.0	51.0	51.0	50.0	49.0	49.0	47.0	45.0	44.0	42.0	%667	45.0	51.0	48.3	45.0	49.0	47.0	42.0	48.0
762%	44.0	45.0	45.0	45.0	49.0	47.0	49.0	47.0	46.0	47.0	47.0	47.0	49.0	51.0	52.0	52.0	52.0	51.0	50.0	50.0	48.0	46.0	44.0	43.0	762%	46.0	52.0	49.3	46.0	50.0	48.0	43.0	49.0
%067	45.0	46.0	46.0	47.0	50.0	48.0	49.0	48.0	46.0	48.0	47.0	47.0	50.0	52.0	52.0	53.0	52.0	52.0	50.0	50.0	48.0	47.0	45.0	43.0	%067	46.0	53.0	49.8	47.0	50.0	48.3	43.0	50.0
720%	47.0	48.0	48.0	50.0	52.0	51.0	51.0	51.0	48.0	52.0	50.0	50.0	52.0	53.0	54.0	54.0	54.0	54.0	52.0	52.0	51.0	49.0	47.0	45.0	720%	48.0	54.0	52.0	49.0	52.0	50.7	45.0	52.0
L25%	48.0	49.0	50.0	51.0	53.0	52.0	52.0	52.0	51.0	55.0	52.0	51.0	53.0	55.0	55.0	55.0	55.0	55.0	53.0	53.0	52.0	50.0	48.0	46.0	L25%	51.0	55.0	53.5	50.0	53.0	51.7	46.0	53.0
%87	50.0	51.0	52.0	53.0	54.0	54.0	53.0	54.0	58.0	58.0	56.0	53.0	55.0	56.0	57.0	57.0	56.0	57.0	55.0	55.0	53.0	52.0	50.0	48.0	%8 7	53.0	58.0	56.0	52.0	55.0	53.3	48.0	54.0
L5%	51.0	52.0	52.0	54.0	55.0	55.0	54.0	55.0	60.0	59.0	58.0	54.0	55.0	57.0	57.0	58.0	57.0	57.0	56.0	55.0	54.0	52.0	50.0	48.0	L5%	54.0	60.0	56.9	52.0	55.0	53.7	48.0	55.0
L2%	52.0	54.0	54.0	55.0	57.0	56.0	55.0	57.0	61.0	61.0	63.0	58.0	57.0	59.0	59.0	60.0	60.0	60.0	58.0	57.0	56.0	53.0	51.0	49.0	L2%	57.0	63.0	59.4	53.0	57.0	55.3	49.0	57.0
L1%	53.0	55.0	55.0	56.0	58.0	57.0	56.0	0.03	62.0	63.0	65.0	60.0	58.0	61.0	62.0	61.0	62.0	62.0	59.0	58.0	57.0	54.0	53.0	50.0	L1%	58.0	65.0	61.3	54.0	58.0	56.3	50.0	58.0
L _{min}	42.5	43.1	42.5	43.1	47.5	45.2	47.9	45.9	44.0	46.0	44.8	45.0	46.8	49.8	49.2	50.8	50.5	49.5	47.9	48.5	46.4	44.3	43.3	41.3	L _{min}	44.0	50.8	age:	44.3	48.5	age:	41.3	47.9
L _{max}	63.6	61.1	59.6	60.0	65.9	63.9	61.2	74.2	65.8	71.4	70.6	64.8	64.1	65.7	76.1	67.4	68.7	67.4	65.5	63.3	70.9	60.7	60.3	58.6	L_{max}	64.1	76.1	Aver	60.7	70.9	Aver	58.6	65.9

48.0 44.8

49.0 45.7

50.0 46.6

52.0 48.8

53.0 49.9

54.0 51.7

55.0 52.3

57.0 53.7

58.0 54.8

65.9

46.2 52.9 50.3

Min Max

Night

Energy Average

51.4 55.7

Hour Min Max

Day

meframe

eq.

54.3

50.0 53.2 51.8

Energy Average Win Max

Evening

Energy Average

Average:

Date: Project:	Tuesday, Aķ MCH	oril 02, 2019			Location:	L1 - Located Park, west c	near a Big Lu of the Project	eague Dream site.	is and Fairfie	ld Ranch	Meter:	Piccolo I			A
							Hourly L eq C	IBA Readings	(unadjusted)						
85.0 80.0															
A8b) 75.0															
0.00 ₩ 7 															
ourl 50.0 45.0	E.1	2.(8.(6.	6	4.8 5.8	8.4	7.4	<u> </u>	<u><u></u></u>	T'S 7'S	2'3	S.8	ζ.	0.0
H 40.0 35.0	84	67			TS		s				S S	S			
	0	1 2	M	4 5	9	7 8	6	0 11	12 1	3 14	15 16	17	18 19	20	21
								Hour Be	ginning						
Timeframe	Hour	L eq	L _{max}	L _{min}	L1%	12%	L5%	78%	L25%	150%	%067	195%	%667	L _{eq}	
	0	48.3	63.6	42.5	53.0	52.0	51.0	50.0	48.0	47.0	45.0	44.0	43.0	48.3	
	1	49.2	61.1	43.1	55.0	54.0	52.0	51.0	49.0	48.0	46.0	45.0	44.0	49.2	-
	2	49.6	59.6	42.5	55.0	54.0	52.0	52.0	50.0	48.0	46.0	45.0	44.0	49.6	-
Night	ŝ	50.8	60.0	43.1	56.0	55.0	54.0	53.0	51.0	50.0	47.0	45.0	44.0	50.8	-
	4	52.9	65.9	47.5	58.0	57.0	55.0	54.0	53.0	52.0	50.0	49.0	48.0	52.9	
	S	51.9	63.9	45.2	57.0	56.0	55.0	54.0	52.0	51.0	48.0	47.0	46.0	51.9	
	9	51.9	61.2	47.9	56.0	55.0	54.0	53.0	52.0	51.0	49.0	49.0	48.0	51.9	-
	7	53.4	74.2	45.9	60.0	57.0	55.0	54.0	52.0	51.0	48.0	47.0	46.0	53.4	
	∞	53.3	65.8	44.0	62.0	61.0	60.0	58.0	51.0	48.0	46.0	46.0	45.0	53.3	
	თ	54.8	71.4	46.0	63.0	61.0	59.0	58.0	55.0	52.0	48.0	47.0	46.0	54.8	
	10	54.2	70.6	44.8	65.0	63.0	58.0	56.0	52.0	50.0	47.0	47.0	46.0	54.2	
	11	51.4	64.8	45.0	60.0	58.0	54.0	53.0	51.0	50.0	47.0	47.0	46.0	51.4	
Dav	12	53.1	64.1	46.8	58.0	57.0	55.0	55.0	53.0	52.0	50.0	49.0	48.0	53.1	-
622	13	54.7	65.7	49.8	61.0	59.0	57.0	56.0	55.0	53.0	52.0	51.0	50.0	54.7	
	14	55.7	76.1	49.2	62.0	59.0	57.0	57.0	55.0	54.0	52.0	52.0	51.0	55.7	
	15	55.4	67.4	50.8	61.0	60.0	58.0	57.0	55.0	54.0	53.0	52.0	51.0	55.4	
	16	55.1	68.7	50.5	62.0	60.0	57.0	56.0	55.0	54.0	52.0	52.0	51.0	55.1	
	17	55.3	67.4	49.5	62.0	60.0	57.0	57.0	55.0	54.0	52.0	51.0	50.0	55.3	-
	18	53.5	65.5	47.9	59.0	58.0	56.0	55.0	53.0	52.0	50.0	50.0	49.0	53.5	
	19	53.2	63.3	48.5	58.0	57.0	55.0	55.0	53.0	52.0	50.0	50.0	49.0	53.2	
Evening	20	51.7	70.9	46.4	57.0	56.0	54.0	53.0	52.0	51.0	48.0	48.0	47.0	51.7	
	21	50.0	60.7	44.3	54.0	53.0	52.0	52.0	50.0	49.0	47.0	46.0	45.0	50.0	
Night	22	48.1	60.3	43.3	53.0	51.0	50.0	50.0	48.0	47.0	45.0	44.0	44.0	48.1	
ואוצוור	23	46.2	58.6	413	50.0	49 U	48 U	48 U	46 O	45 O	43 U	43 U	42 U	46.7	

46.2

t.84

23

22

Analyst: R. Saber

JN: 10351

24-Hour Noise Level Measurement Summary

121

53 23.0	Adj. L _{eq}	57.8	60.8	61.6 En 6	0.85 64.0	69.1	67.9	57.2	57.1	58.1	58.6	59.8	56.9	58.7	63.0	61.1	62.2	60.0 56 A	50.7	61.7	56.9	62.1	63.0		Ninhttime		L L J		3A)			
52.1	Adj.	10.0	10.0	10.0	10.0	10.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	5.0	5.0	10.0	10.0	(dBA)	utime	J		2.0	CNEL (dE		2.1	
6'TS 7																								L _{eq}	r Da)	24-Hour		Ü)
<mark>2.92</mark>	L eq	47.8	50.8	51.6 40.6	54.0	59.1	57.9	57.2	57.1	58.1	58.6	59.8	56.9	58.7	63.0	61.1	62.2	60.0 56.4	55.7	56.7	51.9	52.1	53.0		74-Hou	24-11-04	5					
C.SS 61	%6	0.0	2.0	3.0	2.U	8.0	8.0	5.0	3.0	3.0	5.0	5.0	7.0	0.0	2.0	1.0	2.0	1.0	0.0	6.0	6.0	5.0	0.0	%6(3.0	2.0	7.7	6.0	9.0	7.0	0.0	o.u 3.8
₽ <mark>₽.92</mark>	57	4	4	4 <		. 4	4	4	4	4	4	4	4	ъ.	<u>ں</u>	ъ.	<u>ں</u>	<u>о <</u>	4	. 4	4	4	4	57	4	5 D	4	4	4	4	4 <	14
17 60.0	195%	41.0	43.0	44.0	44.0	49.0	49.0	46.0	44.0	44.0	46.0	46.0	48.0	51.0	54.0	52.0	53.0	52.0	50.0	47.0	47.0	45.0	42.0	<i>195%</i>	44.0	54.0	48.8	47.0	50.0	48.0	41.0	44.9
19 <mark>- 19 - 19 - 19 - 19 - 19 - 19 - 19 -</mark>	%	0.	0.	<u>.</u>		. 0.	0.	0.	0.	0.	o.	0.	0.	0.	o.	0.	o.	<u>o</u> c		0.0	0.	0.	0.	%	0.	0.	.7	0.	0.	0.	<u>o</u> c	, .
1.1 6 ئا	067	42	43	44	44	49	49	48	44	45	47	47	49	52	54	23	54	2 2 2	202	47	47	46	42	067	44	54	49	47	20	48	42	45
63.0	150%	44.0	46.0	46.0	50.0	52.0	53.0	52.0	49.0	49.0	51.0	50.0	53.0	55.0	58.0	57.0	58.0	57.0 53.0	52.0	50.0	49.0	48.0	45.0	720%	49.0	58.0	53.5	49.0	52.0	50.3	44.0 E 2 0	47.9
7.82	%	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0 0			0	0	0	%	0	0	4	0	0	0		5 6
eginning	125	46.	48.	48.	49. 52	55.	56.	55.	53.	52.	54.	53.	56.	58.	61.	60.	60.	99. 12	54.	52.	50.	49.	46.	125	52.	61.	56.	50.	54.	52.	46. F <i>c</i>	-96 49.
H 11 59.8	78%	49.0	50.0	50.0	56.0	59.0	59.0	59.0	57.0	58.0	60.0	59.0	60.0	62.0	65.0	64.0	64.0	63.0 57.0	57.0	56.0	54.0	52.0	50.0	%8T	57.0	65.0	60.7	54.0	57.0	55.7	49.0 F0.0	53.0
9.82		_																								_						
ፒ'85 ග	L5%	51.0	51.C	51.0	57.0	60.0	61.C	61.0	59.0	61.C	63.0	62.C	61.C	63.0	67.C	65.0	66.C	64.0 58.0	58.0	57.0	55.0	53.0	52.C	T5%	58.0	67.C	62.5	55.0	58.0	56.7	51.0	54.3
T.72 ∞	12%	54.0	53.0	56.0 EE 0	0.0c	66.0	65.0	65.0	65.0	67.0	66.0	68.0	64.0	66.0	0.69	68.0	69.0	66.0 61 0	0.09	63.0	57.0	55.0	54.0	12%	61.0	69.0	66.2	57.0	63.0	60.0	53.0 66.0	57.4
✓ 2.72																																
ە 22.9	11%	56.0	57.0	59.0	57.0 62.0	70.0	69.0	67.0	69.0	70.0	71.0	72.0	66.0	67.0	71.0	70.0	71.0	68.0 64 0	62.0	70.0	62.0	59.0	56.0	L1%	64.0	72.0	68.8	62.0	70.0	64.7	56.0	60.6
ى ت	L min	39.0	40.7	42.0 40 0	40.0 45,9	46.8	47.7	43.3	42.0	42.8	43.6	43.7	46.1	49.5	50.6	50.1	50.7	48.5 48.0	48.2	44.7	44.9	44.3	39.0	L _{min}	42.0	50.7		44.7	48.2		39.0 47 7	477
0.12		_																									Average:			Average:		Average:
m 49.6	L _{max}	70.2	74.7	79.0	78.0	81.5	78.7	78.7	80.6	81.4	81.0	83.2	77.6	78.7	86.9	81.5	84.2	79.5	77.3	77.9	69.5	77.3	81.4	L _{max}	77.2	86.9		69.5	77.9		69.2 01 E	0.10
9'TS ~	L eq	47.8	50.8	51.6 40.6	54.0	59.1	57.9	57.2	57.1	58.1	58.6	59.8	56.9	58.7	63.0	61.1	62.2	60.0 56.4	55.7	56.7	51.9	52.1	53.0	L _{eq}	56.4	63.0	59.6	51.9	56.7	55.2	47.8 =0.1	54.4
► 8'05																				,	-,											
о 8'/т	Hour	0	H -	0 0	04	υ.	9	7	∞	6	10	11	12	13	14	15	16	17	19	20	21	22	23	Hour	Min	Max	Verage	Min	Max	Verage	Min	Verage
(A8b) p ₉ J γlruoH 8000000000000000000000000000000000000	eframe			liaht	1 ISI								Dav	622						ening)	+421	าเมือ	eframe	VeC	(a)	Energy A	ening	0	Energy A	light	Energy A

Analyst: R. Saber JN: 10351

Meter: Piccolo I

24-Hour Noise Level Measurement Summary

L2 - Located on Mountain Avenue, north of El Prado Road south of the Project site boundary.

Date: Tuesday, April 02, 2019

Project: MCH

Hourly L _{eq} dBA Readings (unadjusted)

C URBAN CROSSROADS

Evening

imeframe

Day

Night

Evening

Night

Energy Average

Average:

122

Day

Timeframe

Night

URRAN	CROSSROADS

	JN: 10351 /st: R. Saber					9.72		22 23		Adj. L _{eq}	66.0	63.7	65.8	68.1	73.2	75.1 75.1	64.4	63.0	61.6	60.9	62.2	62.0	62.1	67.9 62.4	63.9	63.9	62.7	66.6	67.3	04.9	6/.6 57.1	T. 10 L. L		e Nignume	5 61 0		L (abA)		ნ	
	Analy					6.62		21 2		Adj.	10.0	10.0	10.0	10.0	10.0	10.0 10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	5.0	0.0	10.0	т. (dB		раунт	E C C	· · · · · · · · · · · · · · · · · · ·	JOUL CIVE		67.	
					3	·79		20		L eq	56.0	53.7	55.8	58.1	63.2 67 4	65.1 65.1	64.4	63.0	61.6	60.9	62.2	62.0	62.1 C2.0	62.9 62.4	63.9	63.9	62.7	61.6	62.3 52.5	54.Y	57.6 57.4	T./d		t-Hour	1		1-42			
					9			19		\ 0											_	_					0	(ž		2				
					L	. 79		18		6667	43.(44.0	45.0	43.0	47.0	49.0 53.0	51.0	45.0	44.0	45.0	45.0	48.0	48.0	49.0 5 A D	53.0	52.0	51.0	48.0	46.0	40.0	43.0	199%	44.0	54.0	48.8	45.0	40.4	12 0	53.0	45.6
	iccolo I				6.	<mark>89</mark>		17		195%	44.0	45.0	46.0	44.0	48.0	53.0 56.0	55.0	49.0	47.0	47.0	48.0	50.0	50.0	53.U	54.0	54.0	53.0	51.0	49.0	47.0	44.0	44.U 195%	47.0	57.0	51.4	47.0	0.1.C	49.0	56.0	47.1
	Meter: P				6	E9		5 16		%061	45.0	46.0	46.0	45.0	50.0	56.0 58.0	56.0	51.0	49.0	50.0	49.0	51.0	52.0	58.0	55.0	55.0	55.0	54.0	51.0	48.U	45.0	44.U 190%	49.0	58.0	52.9	48.0	54.U	0.10	44.U 58.0	48.3
iry ng.	0				6	789 		14 15		%	0.	0.	o.	0.	0. 0	<u>o</u> o	0.	o.	0.	0.	0.	0.	<u>o</u>	<u>o</u> c		0.	0.	0.	<u>o</u> 0		o. d	0.	0.	0.	9.	0. (o o	2
. Summa n Processi		(pa			T	• 7 9		13		150	47	48	48	50	60	61 62	61	58	57	57	57	57	20 20 20	59 7	1 0 0	60	59	59	00 E			150 150	57	61	58	57	ν ν α	00	4 62	53
irement ze Custon		(unadjuste			0	. <mark></mark>		12	ginning	L25%	53.0	51.0	52.0	57.0	63.0	63.0 64.0	63.0	61.0	60.0	60.0	61.0	61.0	61.0	62.0 62.0	62.0	62.0	62.0	61.0	61.0	0.95	57.0	0.00 125%	60.0	63.0	61.5	59.0	с US Л.Та	510 510	0.1C 64.0	57.3
el Measu e. near Liz		Readings			2			11	Hour Be	78%	59.0	57.0	59.0	62.0	66.0 62.0	67.0 68.0	67.0	66.0	65.0	65.0	66.0	65.0	66.0 55.0	66.0 66.0	65.0	66.0	65.0	64.0	64.0 62.0	07.U	61.0	ьи.u L8%	65.0	67.0	65.7	62.0	04.U 62 3	0.50 0.73	0.7c	62.1
bise Leve	Project site	'ly L _{eq} dBA			(5.03		10		5%	0.0	8.0	0.0	4.0	8.0	0.0	9.0	8.0	7.0	6.0	8.0	6.0	7.0	0.0 2	6.0	7.0	7.0	5.0	6.0	4.U	2.0	1.U 5%	6.0	0.6	7.2	4.0	0.0 10	0.0	0.0	3.4
Hour No ted on Pi	st of the I	Hou						6		7	9	L'N	9	9			9	9	9	9	9	9					6	9					9	θ	9				, _	
24- L3 - Loca	southeas				b .	t9		3 2		L2%	64.0	60.0	63.0	66.0	71.0	71.0 72.0	72.0	71.0	69.0	69.0	71.0	69.0	70.0	70.0	0.07	70.0	70.0	68.0	70.0	0.10	66.0	0.00 12%	69.0	72.0	70.0	67.0 70.0	7 U.V 68 3	0.09	72.0	66.4
	Location:				T .8	59		9		L1%	67.0	63.0	66.0	69.0	73.0	73.0 74.0	73.0	72.0	71.0	70.0	72.0	71.0	72.0	71.0	71.0	74.0	73.0	70.0	72.0	/0.0	68.0	08.U	70.0	74.0	71.8	70.0	U.21	63.0	74.0	69.0
					L.č	59		Б		L _{min}	42.5	43.2	44.4	42.5	46.2	46.7 51.1	46.5	43.1	42.0	42.5	41.8	47.6	47.1	47.9 57.6	51.2	49.3	48.0	46.6	44.5	44.3	43.2	41.5	41.8	52.6		44.3	40.0	11 E	41.J	
					2.	.63		4			_																								Average:		Average.	Avelage		Average:
						τ.82		ŝ		L max	78.5	76.3	79.2	75.9	81.7	91.1 84.2	86.4	85.8	81.1	80.1	80.0	82.9	78.8	T.6/	92.1	83.9	81.2	80.8	82.9	0.87	73.1	18.0 L may	78.8	92.1		0.67	02.7	73 1		
	02, 2019					8.23		2		L _{eq}	56.0	53.7	55.8	58.1	63.2 67 4	65.1 65.1	64.4	63.0	61.6	60.9	62.2	62.0	62.1 C2.0	67.9 62.4	63.9	63.9	62.7	61.6	62.3	טע.ע דד ה	97.6 17.1	т./с	6.09	64.4	62.9	59.9	61.4 61.4	01.4 53 7	65.1	61.0
	lay, April					0.96	; 5 5	0		ur			0	<u> </u>		10.10	~		6	0	1	2	ი -	4 u	י ס	~	8	6	0,			ur ur	Ŀ	ах	Ð	lin	ax a	.9	Xe	
	e: Tuesd t: MCH		20.0				0.0			e Ho					- I	., .		~	01	Г	Ч	Ч				H	1	1	0 0	7		≥ Ho	Σ	Σ	3V Averag	Σ			Σ	zv Average
	Datı Projec		1∞∞ 7)	<≓ζ (9₽)	نور ۱۳۹۹ ۱۳۹۹	⁴ میں مراب	н 4.9			Timefram				Night								Dav	-						Evening		Night	Timefram		۲ay	Ener	Evening	Fnerp		Night	Energ

URBAN crossroads	
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						24-Ho	ur Noise Le	evel Measi	urement Sı	ummary						
Date: Project:	Tuesday, Aƙ MCH	oril 02, 2019			Location:	L4 - Locatec Center, sou	l on Johnson theast of the	Avenue, nea Project site.	ar Prado Park	Equestrian	Meter:	Piccolo I			NL Analysi	:: 10351 :: R. Saber
							Hourly L _{eq} c	IBA Readings	(unadjusted)							
(/																
/32 90.0 90.0 90.0 90.0 90.0																
1 yluoł 2007 (2007) 2007 (20	S'S	8.8	4.8	2.0 2.0	0.5	<mark>6'3</mark>	4.0	7.1	0.5	C.42	8.22	9.43	54.8	7.4 2	0.8 9.9	Z.9
1 40. 35.(לי 	Þ	S	S	5	- 	S S S	S				S		р р р	b
	0	1 2	ŝ	4 5	9	7 8	6	.0 11 Hour Bu	12 1 פמוחחותפ	3 14	15 1(5 17	18 19	20	21 22	23
Timeframe	Hour	L ea	L max	L _{min}	11%	12%	L5%	L8%	-6	150%	%067	195%	%667	Lea	Adj.	Adj. L ea
	0	45.5	57.9	41.0	51.0	50.0	48.0	47.0	46.0	44.0	42.0	42.0	41.0	45.5	10.0	55.5
		48.6	65.6	42.9	53.0	52.0	51.0	50.0	49.0	48.0	45.0	44.0	44.0	48.6	10.0	58.6
	2	48.9	61.6	44.2	55.0	53.0	51.0	50.0	49.0	48.0	46.0	45.0	45.0	48.9	10.0	58.9
Night	ς 4	48.4 52.0	60.1 79 5	41.4	55.0 54.0	53.0 52.0	51.0 50.0	51.0 50.0	49.0 48.0	47.0 47.0	45.0 45.0	45.0	42.0 44 0	48.4 52 0	10.0	58.4 62.0
	ĿЮ	56.1	85.6	43.6	59.0	58.0	55.0	53.0	51.0	49.0	46.0	46.0	45.0	56.1	10.0	66.1
	9	53.0	67.4	47.7	61.0	60.0	56.0	55.0	52.0	51.0	49.0	49.0	48.0	53.0	10.0	63.0
	L 0	52.3	69.7	44.2	61.0	59.0	56.0	54.0	51.0	50.0	48.0	47.0	45.0	52.3	0.0	52.3
	∞ ⊂	49.3 E0.4	67.0 68 0	41.7 41 E	60.0	56.0	52.0	51.0	48.0	45.0	43.0	43.0	42.0	49.3	0.0	49.3 F0.4
	ۍ ر	51.7	00.U 74.7	41.3 41.3	61.0	0.92	0.66	0.26	48.U	40.0	43.U 44.D	42.0	42.0	51.7	0.0	51.7
	11	52.1	71.4	40.6	64.0	60.09	56.0	54.0	49.0	47.0	44.0	43.0	42.0	52.1	0.0	52.1
Dav	12	53.0	71.3	43.0	62.0	58.0	56.0	55.0	52.0	50.0	46.0	45.0	44.0	53.0	0.0	53.0
5	13	54.5	73.1	44.9	62.0	60.0	58.0	57.0	54.0	51.0	48.0	47.0	46.0	54.5	0.0	54.5
	14 15	58.7 55.8	86.5 71 8	46.7	67.0 63 0	62.0 61 0	58.0 59.0	56.0	54.0 56.0	52.0	49.0 50.0	49.0 50.0	48.0	58.7 55.8	0.0	58.7 55.8
	16	54.8	75.2	45.2	62.0	60.09	58.0	57.0	54.0	52.0	49.0	48.0	47.0	54.8	0.0	54.8
	17	54.6	70.9	46.9	64.0	62.0	58.0	57.0	53.0	51.0	49.0	48.0	48.0	54.6	0.0	54.6
	18	52.5	71.9	45.8	63.0	59.0	55.0	54.0	51.0	49.0	47.0	47.0	46.0	52.5	0.0	52.5 -2.5
Evening	20 20	54.7 54.7	84.U 78.6	44.8	58.U 62.0	0.73 61.0	57.0	54.0 54.0	0.1.c	49.0 49.0	48.U 47.0	46.0	46.0	54.7	5.0	59.7
þ	21	48.0	58.4	44.0	54.0	53.0	51.0	50.0	48.0	47.0	45.0	45.0	44.0	48.0	5.0	53.0
Night	22	46.6	60.0	42.3	51.0	50.0	49.0	48.0	47.0	45.0	44.0	43.0	43.0	46.6	10.0	56.6
Timeframe	23 Hour	46.2	59.2	41.4	52.0	50.0	49.0	48.0	46.0	45.0	43.0 190%	43.0 195%	42.0 1 aa%	46.2	10.0	56.2
	Min	- eq 49.3	- max 67.0	40.6	60.0	56.0	52.0	51.0	48.0	45.0	43.0	42.0	42.0		trank ba -	_
Day	Max	58.7	86.5	48.0	67.0	62.0	59.0	58.0	56.0	53.0	50.0	50.0	49.0	24-Hour	Daytime	Nighttime
Energy	Average	54.0	Ave	rage:	62.6	59.6	56.3	54.9	51.7	49.4	46.7	46.0	45.1	53 0	С 2 С 3	002
Evening	Min	48.0	58.4	44.0 AF F	54.0	53.0	51.0	50.0	48.0	47.0	45.0	45.0	44.0			
Energy	Average	53.4	04.0 Ave	rage:	58.0	0.10	54.0	52.3	49.7	49.0	46.7	46.0	45.0	7		(Han
Night	Min	45.5	57.9	41.0	51.0	50.0	48.0	47.0	46.0	44.0	42.0	42.0	41.0			
ואוצוור	Max	56.1	85.6	47.7	61.0	60.0	56.0	55.0	52.0	51.0	49.0	49.0	48.0	_	000	
Energy	Average	50.9	Ave	rage:	54.6	53.1	51.1	50.2	48.6	47.1	44.9	44.4	43.8			
RBAN Rossroads																
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L5_Summary
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10100-10500
U:\UCIObs\

10351 R. Saber				£.,	ÞS	23		Adj. L _{eq}	63.4	62.8	64.0	65.7	69.2 71 1	73.6	62.5	59.4	60.0	59.4	59.4	58.6	6.90 01.7	60.8	60.7	62.2	60.7	65.2 67.0	07.0 63.8	66.0	64.3		Nighttime	С С L	50.3	(BA)			
JN: Analyst:				0.9		1 22		Adj.	10.0	10.0	10.0	10.0	10.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0 2.0	5.0	10.0	10.0	L _{eq} (dBA)	Daytime	L ((00.0	pur CNEL (a		65.5	
	I			0.29		20 2		L _{eq}	53.4	52.8	54.0	55.7	59.2	63.6	62.5	59.4	60.0	59.4	59.4	58.6	61.7 61.7	60.8	60.7	62.2 22 -	60.7	60.2 62.0	58.8	56.0	54.3		4-Hour	c c	ט.ט	24-Hc		-	
	I			2.09		19		6%	3.0	5.0	5.0	1.0	9.0	0.0	0.0	5.0	5.0	5.0	0.0	0.2	0.0	3.0	2.0	2.0	9.0	0.0	0.0	5.0	3.0	6%	5.0 2,0 2,0	8.9 8.9	0 9.0	0.0	۲.7	3.0 0.0	0.1
	I			2.09		18		67	4	45	4(4	49		20	45	4(4(4	4	ىن آر 		5	. 5	4		+ 4	45	4	67	4 6	4	4	50	4	4 U	46
Piccolo I	I			2:29		6 17		767	44.0	46.0	47.0	45.0	50.0	54.0	52.0	48.0	48.0	49.0	48.0	50.0	53.0	54.0	54.0	54.0	52.0	52.0	48.0	46.0	44.0	%56 7	48.0 54.0	51.1	48.0	52.0	50.0	44.0 54.0	47.4
Meter:	I			8.09		15 10		%067	45.0	47.0	47.0	46.0	51.0	55.0	53.0	49.0	50.0	50.0	49.0	51.0	0.26 54 0	55.0	55.0	55.0	53.0	53.0 51.0	49.0	46.0	44.0	%067	49.0 55.0	52.2	49.0	53.0	51.0	44.0 55.0	0.00
mary v Square	I			Z.1 3		14		150%	49.0	49.0	49.0	50.0	55.0	59.0	58.0	55.0	55.0	55.0	55.0	55.0	0.76	58.0	58.0	59.0	57.0	57.0	55.0	52.0	48.0	720%	55.0 59.0	56.7	55.0	57.0	56.3	48.0 Fon	0.20
ent Sum ar Meadov	iusted)			S.92		13	ng	5%	2.0	1.0	2.0	4.0	8.0	ع.0 2.0	1.0	8.0	8.0	9.0	0.0	8.0	9.0	0.0	0.0	1.0	9.0	0.0	0.8	6.0	3.0	:5%	8.0 1 0	9.3	8.0	9.0	8.7	1.0	C ک
easurem venue, nea oject site.	ings (unad)			9'89		.1 .12	ur Beginniı) 5	5	5			- 9 	9	5	5	5	<u> </u>			9	9	9	2		о о 	5	5	[7]	2 U	0	5	5	5	<u>ب</u> م	
Level M whouse A st of the P	_q dBA Reaa			7.62		10	ЮH	%87	57.0	56.(56.(58.(62.0	68.0	66.0	64.(64.(63.(63.(62.0	03.(64.(64.0	63.(65.0	64.(63.0	62.0	59.(57.0	%87	62.(66.(63.8	62.0	64.(63.(56.0	100 FO F
ur Noise on Meado Homes, ea	Hourly L _e			0.09		6		75%	59.0	58.0	58.0	60.0	65.0 65.0	0.co 0.69	68.0	65.0	65.0	65.0	65.0	63.0	65.0	65.0	65.0	67.0	66.0	65.0 66.0	64.0	60.09	59.0	75%	63.0 68.0	65.3	64.0	66.0	65.0	58.0 69.0	61.4
24-Ho 5 - Located partment l	I			4.62		∞		L2%	61.0	60.0	61.0	64.0	68.0	71.0	71.0	67.0	68.0	67.0	67.0	66.0	68.0	67.0	67.0	70.0	68.0	67.0 71.0	67.0 67.0	63.0	63.0	L2%	66.0 71.0	67.7	67.0	71.0	68.3	60.0 71 0	0.11
cation: L	I			9'E9		6 7		11%	62.0	62.0	65.0	67.0	69.0 71 0	73.0	72.0	69.0	70.0	69.0	69.0	68.0	0.10	69.0	69.0	71.0	70.0	69.0 74.0	0.4.0	66.0	65.0	11%	67.0 77 0	69.4	69.0	74.0	70.7	62.0 72.0	66.7
70	I			τ.13		S		nin	6	.5	.5	ت	<u>م</u> د	c. 4:	3	.6	č.	.4	<u>.</u>	<u>م</u> ۲	<u> </u>	5.1.	.4	.2	.9		i ri	1.6	7	nin	.6		.5	3		L	t.
	I			2.62		4		Γ "	42	44	45	43	45	51	48	42	44	44	44	45	40 40	49	49	50	47	48	45	44	42	Γ,	42	Average:	45	48	Average:	42 51	Average:
	I			ζ.2	is I	m		L _{max}	70.4	70.3	74.0	75.6	74.6	04.4 81.1	78.6	77.5	80.0	76.1	76.1	72.0	0.97 79.0	76.4	79.4	80.5	78.0	74.3	74.8	76.9	74.6	L max	72.0		74.3	78.7		70.3	
il 02, 2019	I			8.	75 75	1 2		L _{eq}	53.4	52.8	54.0	55.7	59.2 61.1	01.1 63.6	62.5	59.4	60.0	59.4	59.4	58.6	6.90 61.7	60.8	60.7	62.2	60.7	60.2 62 0	58.8 58.8	56.0	54.3	L _{eq}	58.6 62.5	60.5	58.8	62.0	60.5	52.8 63.6	58.3
esday, Apr CH	I			4.	23	0		Hour	0	1	2	ς γ	4 1	n u	7	∞	б	10	11	12	13 14	15	16	17	18	19	21	22	23	Hour	Min XeM	rage	Min	Max	rage	Uin Velu	IviaA rage
Date: Tu Project: MG		4)	dB/ 465.0 + + 465.0 + −	2000 2000 2000 2000	H(45:0 35:0 35:0 140:0	-		Timeframe				Night								Day						Evening		Nicht	INIBIIL	Timeframe	Day	Energy Ave	Econina	SIIIIBA	Energy Ave	Night	Fnerøv Ave

RBAN	ROSSROADS

						24	Hour Ne	pise Leve	el Measu	rement	Summary							
Date: Project:	Tuesday, Aƙ MCH	oril 02, 2019			Locatio	<i>и:</i> ге - гс	cated in Pr	ado Regioi	nal Park ne	ar campgi	ound areas.	Meter	: Piccolo I				JN: Analyst:	10351 R. Saber
							Hou	rly L _{eq} dBA	Readings (unadjusteo	0							
85.C 80.0																		
Aab)																		
-000 1000 1000 1000 1000 1000 1000 1000																		
יייי 20.0 עון א	1	2 2	7		E			S'A	8.	_	S'		5	•	ļ	•	2	5
H0 45.0 40.0	.44.1	-97 	2.74	5.74	23.3		2.02			23.5	SS	1.42		<mark>5.64</mark>	9.64	22.3	9.74 9.64	3.64
	-	1 2	- m	4 5	_ _		- 8	10	11	12	13 14	15 1	6 17	18	19	20	21 22	23
									Hour Be	ginning								
Timeframe	Hour	L _{eq}	L _{max}	L _{min}	11%	73	7 %	5%	78%	125%	150%	%067	L95%	667	%	L _{eq}	Adj.	Adj. L _{eq}
	0	44.1	54.4	39.7	49.0	48	0	7.0	46.0	44.0	43.0	41.0	41.0	41.	0.	44.1	10.0	54.1
	1	45.2	55.6	41.1	51.0	49	0.	8.0	47.0	45.0	44.0	42.0	42.0	41.	0.	45.2	10.0	55.2
	2	46.3	57.2	41.8	51.0	20	.0	0.6	48.0	46.0	45.0	43.0	42.0	42.	0.	46.3	10.0	56.3
Night	ς γ	47.2	56.6	41.2	52.0	51	0.0	0.0	49.0	48.0	46.0	43.0	42.0	42,	<u>o</u> o	47.2	10.0	57.2
	4 ⊔	47.3 En 6	57.2	44.1	53.0	51	0.0	0.6	49.0 E 2 0	47.0 51.0	46.0	45.0	45.0	44	<u>.</u>	47.3 E0.6	10.0	57.3 60.6
	n u	53.3	71.1	45.9	50.U 62.0	90 60		8.0	55.0	52.0	51.0	40.0 48.0	40.0	46.4	o o	53.3	10.0 10.0	63.3
	7	51.7	73.9	39.4	63.0	57	0.	1.0	50.0	47.0	44.0	40.0	39.0	39.	0.	51.7	0.0	51.7
	∞	50.9	74.5	40.0	63.0	61	0.	5.0	51.0	45.0	42.0	41.0	41.0	41.	0.	50.9	0.0	50.9
	6	57.2	81.9	44.1	67.0	62	<u>ں</u>	8.0	57.0	52.0	49.0	46.0	45.0	45.	0.	57.2	0.0	57.2
	10	57.5	79.8	42.4	0.69	99	о. 1	0.6	56.0	51.0	48.0	45.0	44.0	43	o.	57.5	0.0	57.5
	11	55.8	81.3	41.8	66.0	63	o. 0	0.0	56.0	51.0	48.0	44.0	44.0	43	<u>o</u> (55.8	0.0	55.8
Day	12 5	5.55 7.1.7	/3.9 60.2	45.1 AF 0	61.0	ng G		0./0	50.U	0.22	50.0	47.0	47.0	40		53.5 541	0.0	5.55 5.1
	14	55.5	77.3	46.0	0.10	3 8		7.0	56.0	52.0	50.0	48.0	47.0	46	o o	55.5	0.0	55.5
	15	54.0	68.7	46.0	63.0	61	0.	9.0	57.0	53.0	51.0	48.0	48.0	47.	0.	54.0	0.0	54.0
	16	53.3	72.5	46.7	63.0	60	<u>0</u> .	7.0	55.0	52.0	50.0	48.0	47.0	47.	0.	53.3	0.0	53.3
	17	51.3	68.5 70.4	45.2	61.0	65	0,0	5.0	53.0	50.0	48.0	46.0	46.0	46	<u>o</u> o	51.3	0.0	51.3
	10	49.9 10 6	1.U/	45.3 AA Q	0.62		., u	0.20	0.10	48.0	47.0	46.U	40.0	С 1 ЛЛ		49.9 10 6	0.0	49.9 FA 6
Evening	20	52.3	73.3	43.1	63.0	00	, o	5.0	52.0	49.0	48.0	46.0	45.0	44	o o	52.3	5.0	57.3
	21	47.8	65.0	43.3	53.0	51	0.5	0.0	49.0	47.0	47.0	45.0	45.0	45.	0.	47.8	5.0	52.8
Night	22	46.6	59.0	42.4	51.0	50	.0	9.0	48.0	47.0	45.0	44.0	43.0	43.	0.	46.6	10.0	56.6
INI BILL	23	43.8	50.5	39.4	47.0	46	.0	16.0	45.0	44.0	43.0	41.0	41.0	39.	0.	43.8	10.0	53.8
Timeframe	Hour	L eq	L _{max}	L min	11%	77	7 %	5%	78%	125%	150%	%067	F105%	667	%		L _{eq} (dBA)	
Day	uiM VeM	49.9 г7 г	68.5 81 0	39.4	59.0 69.0	50 96		0.1.0	50.0	45.0 54 0	42.0 52 0	40.0	39.0	95		24-Hour	Daytime	Nighttime
Energy	Average	54.4	AVE	erage:	63.6	09	5 4 2	6.3	54.6	50.6	48.3	45.6	45.1	44	. 9			
	Min	47.8	65.0	43.1	53.0	51	0	0.0	49.0	47.0	47.0	45.0	45.0	44.	o	52.4	53.0	48.3
Evening	Мах	52.3	73.3	44.9	63.0	60	0.5	5.0	52.0	49.0	48.0	46.0	46.0	45.	0.	24-	Hour CNEL (áBA)
Energy	Average	50.3	Ave	erage:	57.7	55	.3	2.3	50.7	48.0	47.3	45.7	45.3	44.	.7			
Night	Min	43.8 53 3	50.5	39.4 45 q	47.0 62 0	46	0.0	(6.0 8 0	45.0 55.0	44.0 52 0	43.0 51.0	41.0	41.0	39. 46	o. c		56.3	
Energy	Average	48.3	AVE	erage:	52.4	51	0	9.9	48.8	47.1	45.9	43.7	43.2	42.	2		, 	

URBAN crossroads	
Ô	

								24-Hour	Noise Le	vel Mea	surement	Summary								
Date: Project:	Tuesday, <i>i</i> MCH	April 02, 20	119			Locatic	on: L7 - L7 -	Located o theast of tl	n Cucamon he Project (ıga Road, n site.	iear Vermon	tes Mulch,	Mete	rr: Piccolo	_			Ana	JN: 103 Iyst: R. S	351 Saber
									lourly L _{eq} d	BA Reading	ıs (unadjuste	d)								
) 85.C 85.C																				
A8b)																				
22.00 22.00 μλ Γ												T '7	6.0	8.						
Hour 50.0 45.0	45.9	43.0	45.3	42°J	6.94	6' 7 5	S'SS	2:9S	53.3	0.42	9'SS	29 85	09 	0.92 09	2.02	4.02	<u>7.52</u>	4 <mark>3</mark> .6	8.44	0.44
35.0	0	-	5	m	4	0	~	∞	0 1	0	12	13 14	15	16 17	18	19	20	21	52	23
										Hour	Beginning									
Timeframe	Hour	L eq		L _{max}	L _{min}	11%		12%	L5%	78%	L25%	720%	%067	1959	%	%667	L _{eq}	Adj	i. A	Adj. L _{eq}
	0	42.9		54.2	39.0	49.0		48.0	46.0	45.0	43.0	41.0	39.0	39.0	C	39.0	42.9	10.	0	52.9
	1	43.0		56.5	40.2	49.0		47.0	45.0	44.0	43.0	42.0	40.0	40.0	0	40.0	43.0	10.	0	53.0
	2	42.3		53.9	39.1	48.0		47.0	44.0	43.0	42.0	42.0	40.0	40.(0	39.0	42.3	10.		52.3
Night	m ∽	45.1		58.8 74 0	39.1	53.0		52.0 55.0	49.0 51.0	48.0	45.0	42.0	40.0	39.(0	39.0 13.0	45.1 49 0	10.	0 0	55.1 50 0
	t ru	51.7		75.6	43.0	58.0		54.0	51.0	50.0	40.0	47.0	44.0	44.0		44.0	49.9 51.7	10.		6.ec 61.7
	9	54.9		81.0	43.1	64.0		59.0	55.0	54.0	50.0	48.0	45.0	44.0		44.0	54.9	10.	0 0	64.9
	2	55.5		79.0	45.4	66.0		60.0	57.0	56.0	53.0	49.0	46.0	46.0	0	45.0	55.5	0.0	0	55.5
	∞	56.2		83.5	39.1	66.0		63.0	54.0	52.0	47.0	45.0	41.0	40.0	0	39.0	56.2	0.0		56.2
	б	53.3		77.7	39.0	65.0		61.0	56.0	53.0	47.0	44.0	41.0	40.0	0	39.0	53.3	0.0		53.3
	10	54.6		77.6 76.7	39.1	66.0		61.0 62.0	56.0	55.0	20.0	46.0	42.0	41.(40.0	54.6	0.0		54.6 E4.0
	17	55.6		74.1	40.8	0.70 66.0		63.0	0.05 61.0	0.4.0 60.0	54.0	49.0	41.0	40.0		41.0	55.6	0.0		55.6
Day	13	58.9		72.7	43.1	69.0		67.0	65.0	63.0	58.0	53.0	47.0	45.0	0	43.0	58.9	0.0		58.9
	14	62.1		79.2	42.6	71.0		69.0	67.0	66.0	62.0	58.0	50.0	48.0	0	45.0	62.1	0.0		62.1
	15	60.9		75.5	43.8	70.0		68.0	66.0	65.0	61.0	57.0	50.0	48.(0	46.0	60.9	0.0		6.09
	16	60.8		75.8	42.7	70.0		68.0	66.0 C1 0	65.0	61.0	57.0	49.0	47.(0	44.0	60.8 10.8	0.0		60.8 7.7 0
	18	50.2		7 1.1 69.7	42.0	0.00 60.0		57.0	54.0	60.0 53.0	48.0	46.0	43.0	44.0		43.0 43.0	50.2	0.0		50.2
	19	50.4		72.1	42.1	60.0		58.0	55.0	53.0	49.0	46.0	44.0	43.0	0	43.0	50.4	5.0		55.4
Evening	50	53.7		78.2 E1.2	41.7	62.0		60.0	56.0 4F.0	53.0	48.0	46.0	43.0	42.0	0	42.0	53.7	0.0 0.0		58.7 48.6
	17	0.04 0.04		2112	8 UV	510			0.70	76.0	0.04	13.0	12.0	100		11.0	8 44 8	÷ Ę		5.1 g
Night	23	44.0		6.00	39.1	49.0		48.0	47.0	46.0	44.0	43.0	40.0	40.0		39.0	44.0	10.		54.0
Timeframe	Hour	L eq		L _{max}	L _{min}	L1%		12%	L5%	78%	125%	150%	%067	762	%	%667		L eq (a	(BA)	
Day	Min	50.2		69.7	39.0	60.0		57.0	54.0	52.0	47.0	44.0	41.0	40.0	0	39.0	24-Hour	Dayti	me Ni	ghttime
L	Max	62.1 55.0		83.5	45.4	/1.0		69.U	6/.0	66.0	62.0	58.0	50.0	48.(46.0				
Energy	Average	5./c		AVer	age:	66.8 17.0	4	63.6	59.9 4 F O	58.5	53.8	50.1 0.7 0	44.8	43.		42.3	55.4	57	0.0	18.9
Evening	Max	43.0 53.7		51.2 78.2	41.3 42.1	47.U 62.0		46.U 60.0	45.U 56.0	44.U 53.0	43.U 49.0	43.U 46.0	42.U 44.0	42.1		42.U 43.0	2	4-Hour CN	IEL (dBA)	
Energy	Average	50.9		Aver	age:	56.3		54.7	52.0	50.0	46.7	45.0	43.0	42.3		42.3				
Night	Min	42.3		53.9	39.0	48.0		47.0	44.0	43.0	42.0	41.0	39.0	39.0	0	39.0 33.0		ц С	-	
Energy	Average	24.2		Avera	45.1 age:	53.3 53.3		51.1	0.cc 48.3	0.4c 47.2	45.0	48.0	41.7	44.		44.U 40.9)	1	

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10351 R. Saber					S.74	23	7	Adi. L	55.7	50.8	54.4	56.7	66.6 7.0	76.4	66.0	64.7	65.1 24 -	61./ 63.6	63.3	62.7	64.8	65.4 22 -	62.5 56 A	56.9	57.9	57.0	0.00	57.5		Nichttime		Г 8 7		h da		
JN: Analyst:				0	.82 4.03	20 L	77	Adi.	10.0	10.0	10.0	10.0	10.0	10.0 10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	5.0	0.0	10.01	L eq (dBA)	Davtime		67.7			66 1	1.22
					0.22		0	۲	45.7	40.8	44.4	46.7	56.6	66.4	66.0	64.7	65.1 64 -	61./ 63.6	63.3	62.7	64.8	65.4 22 -	62.5 56 A	56.9	52.9	52.0	0.0C	47.5	2	24-Hour		61 G				
					6.22			%661	39.0	36.0	36.0	39.0	41.0	44.U 47.0	48.0	41.0	42.0	42.U 30 D	39.0	46.0	46.0	44.0	43.0	41.0	42.0	41.0	0.60	39.0	%667	39.0	48.0	42.7	39.0 17.0	40.7	36.0	47.0
colo I				t	7 [.] 95	17)T	195%	39.0	36.0	39.0	39.0	42.0 45.0	49.0 49.0	48.0	43.0	43.0	44.0 40.0	41.0	47.0	47.0	45.0	44.0	42.0	42.0	41.0	20.0	40.0	195%	40.0	48.0	43.9	41.0 1 2 0 C 1	41.3	36.0	49.0
<i>Meter:</i> Pic				5.5	9	16		%061	40.0	36.0	39.0	39.0	42.0 4E 0	45.U 50.0	49.0	45.0	44.0	45.U	42.0	48.0	48.0	46.0	45.0 43.0	42.0	42.0	41.0	41.U	41.0	%067	42.0	49.0	44.9	41.0 ^ 7 0	42.V 41.3	36.0	50.0
nary ,			5	8.4a		14	, + +	150%	42.0	39.0	39.0	42.0	43.0	48.U 57.0	53.0	49.0	48.0	48.0	48.0	52.0	51.0	51.0	49.0 46.0	44.0	44.0	43.0	45.0	41.0	L50%	44.0	53.0	48.8	43.0	44.0	39.0	57.0
nent Sumr County Road es.	djusted)			<i>L</i> .2	9	- - - - - - - - - - - - - - - - 	ine 10	8	45.0	40.0	41.0	44.0	44.0 E 2 0	52.U 63.0	59.0	51.0	51.0	51.0	52.0	55.0	54.0	57.0	52.0 48.0	47.0	46.0	46.0	40.0	42.0	.25%	47.0	59.0	52.4	45.0 45.0	45.7	40.0	63.0
Measurer Road, near dential hom	teadings (una			<u>9.5</u>	9 9 		Hour Beginr	822 202	48.0	42.0	42.0	48.0	48.0	64.U 71.0	70.0	59.0	61.0	59.0 61.0	62.0	64.0	65.0	69.0	62.0 55.0	55.0	52.0	53.0	0.00	48.0	L8%	55.0	70.0	61.8	52.0 E E O	53.7	42.0	71.0
oise Level chino Corona ing rural resi	irly L _{eq} dBA F			<u>7.1</u>	.9 	(15%	49.0	44.0	44.0	50.0	52.0	73.0	72.0	64.0	66.0	63.U	67.0	68.0	69.0	71.0	67.0 59.0	59.0	54.0	55.0	07.U	48.0	L5%	59.0	72.0	65.9	54.0 62.0	57.0	44.0	73.0
24-Hour N Located on C cent to exist	Ηοι			<mark>7.4</mark> 8		~	5	12%	52.0	48.0	49.0	54.0	58.0	75.0	75.0	71.0	73.0	73.0	73.0	73.0	73.0	74.0	72.0	68.0	58.0	60.0 50.0	0.0	50.0	12%	67.0	75.0	71.9	58.0	62.7	48.0	75.0
L8 - cation: adja			0) [.] 99			-	1%	4.0	0.6	1.0	5.0	3.0	0.6	. 0.7	5.0	0.0	0.0	. 0.9		. 0.7.	7.0	4.0	0.0	4.0	3.0		4.0	1%	0.0	8.0	5.1	0.0	6.3	0.6	7.0
700				0.2	.9		5		3.3 5.9	5.4 4	5.4 5	9.2 5	1.1 6	5.6 7	7.0 7	2.7	1.1	1.1 / / 2.5 7 / 7	8.8	5.2 7	4.8 7	3.6	2.7	2.9	1.4 6	0.7	C.D.C.	9.3 9.3	nin L	5.4 7	7.0		9.3 6	, 10 11	5.4 4	5.6
				9	9:95	4	r		.7 3	.6 3	.5	.5	.7	.0 .0	.9 4	.5		. t	. 4. 	.5	.2 4	0.	4	.4	.6 4	.1	<u>،</u> د			.1 3	.5 4	Average:	.1 A	Average:	.6 3	.0 4.
019					2'9t t'tt	· · ·	1		7 68	55	4 73	7 71	6 84	4 86	68 0	2 93	1 90	ر 87 87	80	7 84	8 91	89	5 87 80	9 81	6 80	0 76		+ /3 5 74	L m	4 80	93	5	0 76 80	3	8 55	4 86
April 02, 2					8.0t	-	4		45.7	40.8	44.4	46.7	56.6	66.4	66.(64.	65.2	61. 63.6	63.5	62.7	64.8	65.4	62.5 5.6	56.9	52.9	52.(20.0	0c 47.1	L eq	56.4	99.0	63.5	52.(55.2	40.8	- 99
Tuesday, MCH					L.St		5	Hour	C	> ←	2	£	4 п	n u	7	∞	б	01 E	12	13	14	15	16	18	19	20	17	23	Hour	Min	Max	Average	Min	Average	Min	Max
Date: Project:		85.0 80.0 75.0	ab) p9.	L 220.0	nuoH	35.0		Timeframe				Night							ĺ	Day						Evening		Night	Timeframe	Dav		Energy.	Evening	Energy	Night	

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Date. Project:	MCH	orii 02, 2019			Location:	and a vacan	t area, east c	of the Project	site.		Meter:	Piccolo I			JN: Analyst:	10351 R. Saber
Ċ	c.						Hourly L _{eq} c	dBA Readings ((unadjusted)							
84) 2007																
orio b b b b b b b b b b b b b b b b b b b						<u>t.</u> 8.	T	6	<mark>کا</mark>	b	8.8					
Hourl	43' 9	43.1	48.5	6.22 9.12	.09	779 79 79	79	.09	79 79 79		9.82	0.52	6'0S	S.42	0.94 6.6	ζ. μ μ
35.		1	m	4 	9	8	- - -	11	12 13	14	15 16	17	18 19	20	21 22	23
								Hour Be	ginning							
Timeframe	Hour	L eq	L _{max}	L _{min}	11%	L2%	L5%	%8T	L25%	150%	%067	195%	%667	L eq	Adj.	Adj. L _{eq}
	0	43.6	54.0	36.9	50.0	50.0	48.0	47.0	44.0	42.0	39.0	39.0	39.0	43.6	10.0	53.6
	1	43.1	58.1	36.2	54.0	51.0	47.0	45.0	41.0	39.0	39.0	39.0	36.0	43.1	10.0	53.1
	2	44.9	63.0	36.2	56.0	54.0	49.0	45.0	42.0	40.0	39.0	38.0	36.0	44.9	10.0	54.9
Night	m '	48.5	63.4	40.3	60.0	58.0	53.0	51.0	46.0	44.0	42.0	41.0	41.0	48.5	10.0	58.5
	4 r	51.6	70.4	42.2	61.0	59.0	55.0	53.0	50.0	48.0	45.0	44.0	43.0	51.6	10.0	61.6
	ۍ د	60.7 60.7	/1.8 78 1	45.4 47.2	64.U	63.0 67.0	65.0 65.0	59.0 64 0	61 D	58.0 58.0	49.0 52 0	48.U 51 D	47.0	50.7 60.7	10.0 10.0	6.20 7.07
	2	62.1	84.8	46.9	71.0	70.0	67.0	66.0	61.0	57.0	51.0	49.0	48.0	62.1	0.0	62.1
	∞	61.8	82.0	46.6	72.0	70.0	67.0	65.0	60.0	57.0	50.0	49.0	47.0	61.8	0.0	61.8
	თ	62.1	81.4	45.4	72.0	70.0	68.0	66.0	60.0	56.0	50.0	48.0	47.0	62.1	0.0	62.1
	10	61.0	81.5	43.0	73.0	70.0	67.0	65.0	57.0	51.0	46.0	45.0	44.0	61.0	0.0	61.0
	11	60.9	80.8	39.3	73.0	70.0	66.0	65.0	58.0	51.0	43.0	42.0	41.0	60.9	0.0	60.9
Dav	12	61.7	79.6	41.8	73.0	71.0	68.0	66.0	58.0	53.0	46.0	45.0	43.0	61.7	0.0	61.7
	13	62.2	78.6	45.1	73.0	71.0	68.0 01 0	66.0 65.0	61.0 -0.0	56.0	50.0	49.0	47.0	62.2	0.0	62.2
	14	61.4 63.6	79.7	45.1	73.0	70.0	67.0	65.0 64.0	59.0	55.0	50.0 10.0	48.0	47.0	61.4	0.0	61.4
	υ Α	03.8 58.6	84.b	43.2 72 7	0.c/	0.1.U	62 D	64.U	0.95 56.0	0.cc	48.U 46.0	47.U	0.04 0.20	03.8 58.6	0.0	03.8 58.6
	17	53.0	68.6	42.0	62.0 62.0	61.0	58.0	57.0	52.0	49.0	45.0	44.0	43.0	53.0	0.0	53.0
	18	53.3	71.8	42.1	65.0	62.0	58.0	56.0	50.0	47.0	44.0	43.0	42.0	53.3	0.0	53.3
	19	50.9	72.0	41.6	60.0	59.0	56.0	54.0	49.0	45.0	43.0	42.0	42.0	50.9	5.0	55.9
Evening	20	54.5 40.0	77.2 64.7	40.9 20.7	67.0 60.0	65.0 FO	60.0 55 0	57.0	47.0 A6.0	44.0	42.0 42.0	42.0	41.0	54.5 40.0	5.0	59.5 54.0
	27	46.6	65.9	39.1	57.0	56.0	53.0	50.0	43.0	41.0	39.0	0.14	39.0	46.6	10.0	56.6
Night	23	44.7	64.0	39.1	55.0	53.0	47.0	46.0	42.0	41.0	39.0	39.0	39.0	44.7	10.0	54.7
Timeframe	Hour	L ea	L _{max}	L min	L1%	12%	L5%	78% 78%	L25%	L50%	%067	195%	%667		L _{ea} (dBA)	
Uav	Min	53.0	68.6	39.3	62.0	61.0	58.0	56.0	50.0	47.0	43.0	42.0	41.0		Dautima	Nichttime
Гау	Max	63.8	89.6	46.9	75.0	71.0	68.0	66.0	61.0	57.0	51.0	49.0	48.0	INOII-+-7	Duyume	ואואוווווב
Energ)	Average	61.1	Ave	rage:	70.9	68.5	65.3	63.5	57.6	53.3	47.4	46.2	44.8	<u> 5</u> 8 7	60 J	с С
Evening	Min	49.0 7 4 F	64.7	39.2 41 C	60.0	59.0	55.0	52.0	46.0	44.0	42.0	41.0	40.0			
Fnerav	Average	14.J	AVP	0.14	07.0 67 3	61.0	57 D	0.7C	49.0	0.04	43.0	42.0	42.0	+7		(Har
LIICI 8	Min	1 5V		36.7	50 D	0.10	0.76	04.5 17 0	0.14	20 D	30.0	4T./	36.0			
Night	Max	4-0.7 60.7	78.1	47.2	0.02	0.00 67.0	47.0 65.0	64.0	61.0	58.0	52.0	51.0	49.0		61.8	
Energy	Average	53.3	Ave	rage:	58.4	56.8	53.1	51.1	47.1	45.1	42.6	42.0	41.0			

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Date: Project:	Tuesday, Ap MCH	oril 02, 2019			Location.	L10 - Locatt Hellman Av homes, eas	ed near the in enue, adjace t of the Proje	itersection o nt to existing ct site.	f Walters Stre g single-family	eet and / residential	Meter:	Piccolo I			JN: Analyst:	10351 R. Saber
(A8b) _{Po} J γlnuoH 88875789875444	6.63	¢2:3	9.69	2.47 2.47	T.87	C.87	Hourly Lea	2.27 δ.2.27	Lunadjusted Δ. Δ. Δ	<i>b</i> .27	ε·92 6·52	S'S2	<u>ρ.</u> ρΓ Γ.ΣΓ	<u>L.T</u> T	6 [.] 79	S'29
Timeframe	Hour	1 2 L ea	- 3 <i>L</i> max	4 5 L _{min}		7 8 L2%		10 11 Hour Be 18%	- 12 13 eginning 125%	3 14 1 <i>L50%</i>	15 16 <i>190%</i>	17 17 195%	18 19 1 <i>99%</i>	20 1	21 22 Adj.	23 23 <i>Adj. L _{ea}</i>
	0,	63.9	86.0	38.7	78.0	75.0	0.69	63.0	49.0	44.0	40.0	39.0	38.0	63.9	10.0	73.9
	1	62.6 65.1	80.8 90.1	38.7 38.7	0.77	/3.0 74.0	63.0 64.0	57.0 57.0	46.0 47.0	42.0 43.0	39.0 39.0	38.0 38.0	38.0 38.0	62.6 65.1	10.0 10.0	75.1
Night	m r	69.69 7.4.7	90.5	41.1	83.0 85.0	81.0	77.0	72.0	57.0	49.0	44.0	43.0	41.0	69.69 74 2	10.0	79.6
	4 U	76.5	91.0	43.4 49.2	84.0	83.0 83.0	82.0 82.0	81.0	78.0	71.0	47.0 57.0	40.U 54.0	44.U 51.0	76.5	10.0	86.5
	9	78.1	91.3	53.3	85.0	84.0	82.0	82.0	79.0	76.0	67.0	63.0	57.0	78.1	10.0	88.1
	۲ X	78.7 77 9	93.1 97 3	51.9 47 5	85.0 86.0	84.0 84.0	83.0 83.0	82.0 82.0	80.0 79.0	74.0	67.0 60.0	63.0 56.0	57.0 51.0	78.7 77 9	0.0	78.7 77 9
	م ر	76.1	92.1	47.6	85.0	84.0	82.0	80.0	76.0	70.0	58.0	54.0	50.0	76.1	0.0	76.1
	10	75.5	92.0	46.1	86.0	84.0	81.0	80.0	74.0	68.0	54.0	52.0	48.0	75.5	0.0	75.5
	11 12	74.4 74.4	92.2 91.7	47.1 47.8	84.0 84.0	82.0 83.0	80.0 80.0	0.97 0.92	74.0 74.0	68.0 68.0	55.0 55.0	53.0 53.0	50.0 50.0	74.4 74.4	0.0	74.4 74.4
Day	13	75.3	94.8	50.4	85.0	83.0	81.0	79.0	75.0	69.0	57.0	55.0	52.0	75.3	0.0	75.3
	14 15	75.4 75.9	90.8 93 5	50.2 49.0	85.0 85.0	83.0 83.0	81.0 81.0	79.0 80.08	75.0 76.0	71.0	58.0 60.0	55.0 57.0	52.0 52.0	75.4 75.9	0.0	75.4 75.9
	16	76.3	94.8	48.7	84.0	83.0	81.0	80.0	77.0	73.0	58.0	55.0	51.0	76.3	0.0	76.3
	17 18	75.5 74 4	90.7 88 1	48.6 46.0	84.0 83.0	83.0 87.0	81.0 80.0	80.0 79.0	76.0 75.0	72.0 69.0	56.0 54.0	53.0 51.0	50.0 48 0	75.5 74 4	0.0	75.5 74.4
	19	72.7	94.6	44.0	82.0	81.0	0.67	77.0	73.0	63.0	48.0	47.0	45.0	72.7	5.0	<i>T.TT</i>
Evening	20	71.7	91.8 00 2	42.7	82.0	80.0	78.0	76.0	71.0	61.0 E o o	47.0	45.0	44.0	71.7 707	5.0	76.7 75.7
	22	67.9	85.9	38.8	0.67	78.0	75.0	73.0	61.0 61.0	50.0	42.0	41.0	40.0	67.9	10.0	6.77
Night	23	67.5	89.1	40.0	80.0	78.0	75.0	72.0	57.0	47.0	42.0	41.0	40.0	67.5	10.0	77.5
Timeframe	Hour	L eq	L _{max}	L _{min}	71%	L2 %	L5%	%87	L25%	720%	%067	<i>1</i> 95%	%667		L _{eq} (dBA)	
Day	Min	74.4	88.1 27 2	46.0	83.0	82.0	80.0	79.0	74.0	68.0	54.0	51.0	48.0	24-Hour	Daytime	Nighttime
Energy	Average	76.0	AVE	C.LC	84.7	83.7 83.7	81.2	0.20	80.U 75.9	0.11	67.7 57.7	03.U 54.8	0.76			
	Min	70.7	88.3	41.6	81.0	80.0	78.0	76.0	68.0	58.0	46.0	44.0	42.0	/4.6	/5.4	/7.6
Evening	Мах	72.7	94.6	44.0	82.0	81.0	79.0	77.0	73.0	63.0	48.0	47.0	45.0	24-	Hour CNEL (IBA)
Energy	Average	71.8	Ave	erage:	81.7	80.3	78.3	76.3	70.7	60.7	47.0	45.3	43.7			
Night	Min Max	62.6 78.1	85.9 91.3	38.7 53.3	77.0 85.0	73.0 84.0	63.0 82.0	57.0 82.0	46.0 79.0	42.0 76.0	39.0 67.0	38.0 63.0	38.0 57.0		79.7	
Energy	Average	72.6	AVE	erage:	81.1	78.8	74.2	70.8	60.7	53.4	46.3	44.8	43.0			

24-Hour Noise Level Measurement Summary

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Date: Project:	Tuesday, A _ł MCH	oril 02, 2019			Location.	L11 - Locat existing res	ed on Chand sidential nei£	ller Street, n ghborhood.	ear a vacant	area and	Meter:	Piccolo I			JN: Analyst:	10351 R. Saber
(A8b) _{P9} J γhuoH ∞∞vv0.0002044	24'T	7.12 2.12	0.92	2.85 7.65	9'T9	8.19 8.19		8729 T.09		0.09	9.09	7.43	8.E9	1	6'9S 8'6S	8'95
		1 2	- M	4	- 9	7 8	- 6	10 11 Hour I	12 Beginning	13 14	15 16	17	18 19	- 20	21 22	23 Adi I
amplami	лон 0	L eq 54.1	L max 79.5	- min 38.8	68.0	63.0	55.0	51.0	46.0	42.0	38.0	38.0	38.0	ь ед 54.1	Ad . 10.0	Ачу. L _{eq} 64.1
		51.2	75.7	35.9	64.0	58.0	52.0	49.0	41.0	39.0	38.0	38.0	38.0	51.2	10.0	61.2
Micht	7 0	56.4	84.1 81 0	38.8	66.0	61.0	55.0	53.0	43.0	40.0	38.0	38.0	38.0	56.4	10.0	66.4
INIBIIL	v 4	59.4	83.8	38.9 40.6	0.00 70.0	66.0	60.U 62.0	61.0 61.0	49.0 55.0	45.U 49.0	40.0 44.0	40.0 43.0	39.0 41.0	59.4	10.0	69.4
	ъ	58.7	83.4	44.3	69.0	65.0	62.0	61.0	57.0	52.0	48.0	47.0	45.0	58.7	10.0	68.7
	9	61.6	82.5	47.0	73.0	70.0	66.0	63.0	59.0	56.0	51.0	50.0	48.0	61.6	10.0	71.6
	~ ∞	61.8 60.4	83.9 82.5	46.5 41.5	/3.0 71.0	0.17 70.0	68.U 67.0	64.0 63.0	56.0	52.0 52.0	50.0 46.0	49.0 44.0	47.0 43.0	61.8 60.4	0.0	61.8 60.4
	o ס	61.7	85.0	41.7	73.0	71.0	67.0	64.0	57.0	52.0	46.0	45.0	43.0	61.7	0.0	61.7
	10	60.1	85.1	41.6	71.0	69.0	65.0	62.0	54.0	50.0	45.0	44.0	42.0	60.1	0.0	60.1
	11	62.8	91.1	39.8	72.0	70.0	66.0	64.0	55.0	49.0	43.0	42.0	40.0	62.8	0.0	62.8
Day	12	62.0 60.4	89.3 81 0	40.6	/3.0	/0.0	60.0 67 0	64.0 64.0	55.0 56.0	50.0	44.0	42.0	41.0	62.0 60.4	0.0	62.0 60.4
	14	60.6	81.3	42.7	71.0	70.0	67.0 67.0	66.0	57.0	52.0	48.0	47.0	45.0	60.6	0.0	60.6
	15	60.6	75.6	43.8	71.0	70.0	68.0	66.0	58.0	52.0	48.0	47.0	45.0	60.6	0.0	60.6
	16	63.1	83.4	44.0	73.0	72.0	0.69	68.0	60.0	54.0	48.0	46.0	45.0	63.1	0.0	63.1
	1/ 18	64.4 63.8	92.2 89.4	43./ 42.8	73.0	72.0	0.69	68.0 68.0	0.10	53.U 52.0	47.U 45.0	46.U 44.0	44.0 43.0	64.4 63.8	0.0	64.4 63.8
	19	62.0	83.6	41.6	72.0	70.0	68.0	67.0	57.0	50.0	44.0	43.0	42.0	62.0	5.0	67.0
Evening	5 2	61.3 F0 0	82.7	40.6	72.0	70.0	68.0	66.0	56.0	49.0	43.0	42.0	41.0	61.3 E0.9	5.0	66.3
	17	0.0C	15 57 0.10	20.00	0.07	68.0	63.0	60.0	51.0	46.0	40.0	39.0	38.0	56.9	0.01	04.0 66 9
Night	23	56.8	79.6	38.8	70.0	68.0	61.0	57.0	47.0	43.0	39.0	38.0	38.0	56.8	10.0	66.8
Timeframe	Hour	L eq	L _{max}	L _{min}	L1%	L2%	L5%	<i>%8</i> 7	125%	720%	%067	762%	%667		L eq (dBA)	
Day	Ai Ai	60.1	75.6	39.8	71.0	69.0	65.0	62.0	54.0	49.0	43.0	42.0	40.0	24-Hour	Daytime	Nighttime
	Miax	64.4 C2 0	92.2	C.04	74.0	7.07	0.69	68.U	0.10	55.U	0.05	49.0	47.0			
LIIEIBY	Average	02.U	01 E	cidge.	71 0	0.07	67.0	1.002	57.5	0.1C	40.4	45.2	43.0	- <u>60.7</u>	61.9	57.7
Evening	Max	62.0	от.0 83.6	41.6	72.0	70.0	07.0 68.0	67.0	57.0	50.0 50.0	44.0	41.0	42.0	24	I-Hour CNEL ((BA)
Energy.	Average	61.1	Ave	erage:	71.7	70.0	67.7	65.7	55.0	48.3	43.0	42.0	40.7			
Night	Min Max	51.2 61.6	75.5 85.0	35.9 47.0	64.0 73.0	58.0 70.0	52.0 66.0	49.0 63.0	41.0 59.0	39.0 56.0	38.0 51.0	38.0 50.0	38.0 48.0		65.4	
Energy	Average	57.7	AVE	erage:	68.4	64.7	59.6	56.9	49.8	45.8	41.8	41.2	40.3	_	, ,)	

24-Hour Noise Level Measurement Summary

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APPENDIX 7.1:

OFF-SITE TRAFFIC NOISE LEVEL CONTOURS

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	FH\	NA-RD-77-108	HIGHW	AY NC	DISE P	REDICT	ION MO	DEL				
Scenar Road Nam Road Segme	io: Existing W ne: Central Av. nt: n/o El Prad	ithout Project lo Rd.				Project Job N	Name: I lumber:	MCH 10351				
SITE	SPECIFIC IN	IPUT DATA				N	IOISE N	/IODE	L INPUT	s		
Highway Data				S	ite Cor	nditions	(Hard =	10, S	oft = 15)			
Average Daily	Traffic (Adt):	29,420 vehicl	es					Autos.	15			
Peak Hour	Percentage:	10%			Me	edium Tri	ucks (2 A	Axles).	15			
Peak H	lour Volume:	2,942 vehicle	s		He	eavy True	cks (3+ A	Axles).	15			
Ve	hicle Speed:	45 mph		V	ehicle	Mix						
Near/Far La	ne Distance:	76 feet		-	Veh	nicleTvpe	,	Dav	Evenina	Niał	nt D	ailv
Site Data							Autos:	66.3%	5 13.5%	20.3	3% 93	.40%
Ba	rrier Height:	0.0 feet			М	ledium Ti	rucks:	77.0%	5.3%	17.6	5% 4	.70%
Barrier Type (0-W	/all, 1-Berm):	0.0				Heavy T	rucks:	86.3%	1.5%	12.2	2% 1	.90%
Centerline Di	st. to Barrier:	60.0 feet		N	oise S	ource E	levation	s (in f	eet)			
Centerline Dist.	to Observer:	60.0 feet				Auto	s: 0.0	000	í			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Truck	s: 2.2	297				
Observer Height ((Above Pad):	5.0 feet			Hear	vy Truck	s: 8.0	004	Grade Adj	iustme	ent: 0.0	J
Pa	ad Elevation:	0.0 feet			ono Fo		Distant	aa (in	fa a 4)			
Roa	ad Elevation:	0.0 feet		Le	ane Eq	Auto		701	ieel)			
	Road Grade:	0.0%			Madiu	AUIO	S: 40.	701				
	Lent View:	-90.0 degre	es		Hoo	III TIUCK	S. 40.	511				
	Right view.	90.0 degre	es		nea	vy muck	3. 40.	550				
FHWA Noise Mod	el Calculation	s										
VehicleType	REMEL	Traffic Flow	Distar	nce	Finite	Road	Fresn	iel 🛛	Barrier Atte	en l	Berm A	.tten
Autos:	68.46	2.55		0.34		-1.20		-4.69	0.0	00	(0.000
Medium Trucks:	79.45	-10.43		0.37		-1.20		-4.88	0.0	00		0.000
Heavy Trucks:	84.25	-14.36		0.37		-1.20		-5.34	0.0	00	(0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier a	attenu	ation)			1		1		
Venicle I ype	Leq Peak Hou	ur Leq Day	/ L	eq Eve	ening	Leq	Night		Ldn		CNEL	74.0
Autos:	70	1.2	07.0		00.7		03.7		70.5			/1.3
Hoow Trucks:	60	1.2	67.6		56.0		60.4		69.6	2		69.5
Vehicle Noise:	74	1.0	72.0		67.9		66.7	,	74.2	2		74.5
Centerline Distan	ce to Noise C	ontour (in feet)		-							
L				70 dE	BA	65	dBA		60 dBA		55 dB/	4
			Ldn:	114	Ļ _	2	46		531		1,144	
		C	NEL:	119)	2	57		553		1,192	

Scenar	rio: Existing Wi	thout Project				Project Nan	ne: MCH			
Road Nan	ne: Central Av.					Job Numb	er: 10351			
Road Segme	ent: s/o El Prad	o Rd.								
SITE	SPECIFIC IN	IPUT DATA				NOIS	E MODE	L INPUT	S	
Highway Data				S	ite Con	ditions (Har	d = 10, S	oft = 15)		
Average Daily	Traffic (Adt):	34,911 vehicle	s				Autos	: 15		
Peak Hour	Percentage:	10%			Med	dium Trucks	(2 Axles)	: 15		
Peak H	-lour Volume:	3,491 vehicles	6		Hea	avy Trucks (3+ Axles)	: 15		
Ve	ehicle Speed:	45 mph		V	ehicle N	<i>lix</i>				
Near/Far La	ane Distance:	78 feet			Vehi	cleType	Day	Evening	Night	Daily
Site Data						Autos	66.39	6 13.5%	20.3%	93.40%
Ba	arrier Height:	0.0 feet			Me	dium Trucks	s: 77.0%	6 5.3%	17.6%	4.70%
Barrier Type (0-V	Vall, 1-Berm):	0.0			h	leavy Truck	s: 86.3%	6 1.5%	12.2%	1.90%
Centerline D	ist. to Barrier:	60.0 feet			laisa Sa	urco Elova	ione (in i	(aat)		
Centerline Dist.	to Observer:	60.0 feet		14	ioise 30	Autoor	0.000	eel)		
Barrier Distance	to Observer:	0.0 feet			Modium	Autos.	0.000			
Observer Height	(Above Pad):	5.0 feet			Hoov	Trucks:	2.257	Grade Ad	iustment	0.0
P	ad Elevation:	0.0 feet			neav,	y muchs.	0.004	endde maj	dournorn.	0.0
Ro	ad Elevation:	0.0 feet		L	ane Equ	ivalent Dis	tance (in	feet)		
	Road Grade:	0.0%				Autos:	45.869			
	Left View:	-90.0 degree	s		Mediun	n Trucks:	45.676			
	Right View:	90.0 degree	s		Heav	y Trucks:	45.695			
FHWA Noise Mod	lel Calculation	s		-						
Vehicle I ype	REMEL	Traffic Flow	Distar	ice	Finite	Road F	resnel	Barrier Att	en Ber	m Atten
Vehicle I ype Autos:	REMEL 68.46	Traffic Flow 3.30	Distar	0.46	Finite	Road Fi -1.20	resnel -4.69	Barrier Atte 0.0	en Ber 100	m Atten 0.000
Vehicle Lype Autos: Medium Trucks:	REMEL 68.46 79.45	Traffic Flow 3.30 -9.69	Distar	0.46 0.49	Finite	Road Fi -1.20 -1.20	resnel -4.69 -4.88	Barrier Atte 0.0 0.0	en Ber 100 100	m Atten 0.000 0.000
Vehicle Type Autos: Medium Trucks: Heavy Trucks:	REMEL 68.46 79.45 84.25	Traffic Flow 3.30 -9.69 -13.62	Distar	0.46 0.49 0.48	Finite	Road Fi -1.20 -1.20 -1.20	resnel -4.69 -4.88 -5.34	Barrier Atte 0.0 0.0 0.0	en Ber 100 100 100	<u>m Atten</u> 0.000 0.000 0.000
Vehicle Lype Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois	REMEL 68.46 79.45 84.25 e Levels (with	Traffic Flow 3.30 -9.69 -13.62 out Topo and	Distar	0.46 0.49 0.48	Finite	Road Fi -1.20 -1.20 -1.20	resnel -4.69 -4.88 -5.34	Barrier Atte 0.0 0.0 0.0	en Ben 100 100 100	<u>m Atten</u> 0.000 0.000 0.000
Vehicle I ype Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois Vehicle Type	REMEL 68.46 79.45 84.25 e Levels (with Leq Peak Hou	Traffic Flow 3.30 -9.69 -13.62 out Topo and Ir Leq Day	Distar barrier a	0.46 0.49 0.48 0.48 0.48	Finite	Road Fi -1.20 -1.20 -1.20 Leq Nigh	resnel -4.69 -4.88 -5.34 t	Barrier Atte 0.0 0.0 0.0 0.0	en Ben 1000 1000 1000 1000	m Atten 0.000 0.000 0.000 VEL
Vehicle I ype Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois Vehicle Type Autos:	REMEL 68.46 79.45 84.25 e Levels (with Leq Peak Hou 71	Traffic Flow 3.30 -9.69 -13.62 out Topo and r Leq Day .0 0	Distar barrier a bas.4	0.46 0.49 0.48 0.48 attenu	Finite Iation) ening 67.5	Road Fill -1.20 -1.20 -1.20 -1.20 Leq Night -1.20	resnel -4.69 -4.88 -5.34 t 64.5	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 71.7	en Ben 000 000 000 000	<u>m Atten</u> 0.000 0.000 0.000 VEL 72.2
Vehicle I ype Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks:	REMEL 68.46 79.45 84.25 e Levels (with Leq Peak Hou 71 69	Traffic Flow 3.30 -9.69 -13.62 out Topo and rr Leq Day .0 1	Distar barrier a [1] Le 58.4 57.1	0.46 0.49 0.48 0.48 attenu	Finite ation) ening 67.5 61.5	Road Fi -1.20 -1.20 -1.20 Leq Nigh	resnel -4.69 -4.88 -5.34 t 64.5 62.0	Barrier Atte 0.0 0.0 0.0 <u>Ldn</u> 71.7 69.4	en Ben 100 100 100 100 100	<u>m Atten</u> 0.000 0.000 0.000 <u>VEL</u> 72.2 69.6
Vehicle Type Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks:	REMEL 68.46 79.45 84.25 e Levels (with Leg Peak Hou 71 69 69	Traffic Flow 3.30 -9.69 -13.62 out Topo and ur Leq Day .0 .0 .9 .0	Distar barrier a 58.4 57.1 58.5	0.46 0.49 0.48 0.48 attenu	Finite ation) ening 67.5 61.5 56.9	Road Fi -1.20 -1.20 -1.20 Leq Nigh	resnel -4.69 -4.88 -5.34 t 64.5 62.0 61.2	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	en Ben 100 100 100 100 100 100 100	<u>m Atten</u> 0.000 0.000 0.000 <u>VEL</u> 72.2 69.6 69.4
Vehicle Type Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	REMEL 68.46 79.45 84.25 Se Levels (with Leg Peak Hot 71 69 69 74	Traffic Flow 3.30 -9.69 -13.62 -000000000000000000000000000000000000	Distar barrier a 68.4 67.1 68.5 72.8	0.46 0.49 0.48 attenu eq Eve	Finite (ening) 67.5 61.5 56.9 68.8	Road Fi -1.20 -1.20 -1.20 Leq Nigh	resnel -4.69 -4.88 -5.34 t 64.5 62.0 61.2 67.6	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	en Ber 1000 100	m Atten 0.000 0.000 0.000 VEL 72.2 69.6 69.4 75.3
Vehicle Iype Autos: Medium Trucks: Heavy Trucks: Vehicle Type Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	REMEL 68.46 79.45 84.25 se Levels (with Leg Peak Hol 71 69 69 74 cce to Noise Ca 74	Traffic Flow 3.30 -9.69 -13.62 -000	Distar barrier a 68.4 67.1 68.5 72.8	0.46 0.49 0.48 attenu	<i>Finite</i> <i>ening</i> 67.5 61.5 56.9 68.8	Road Fi -1.20 -1.20 -1.20 Leq Nigh	resnel -4.69 -4.88 -5.34 t 64.5 62.0 61.2 67.6	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 71.7 69.4 69.3 75.1	en Ber 1000 100	m Atten 0.000 0.000 0.000 VEL 72.2 69.6 69.4 75.3
Vehicle type Autos: Medium Trucks: Heavy Trucks: Vehicle Type Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	REMEL 68.46 79.45 84.25 e Levels (with Leg Peak Hou 71 69 69 74 cce to Noise Co 69	Traffic Flow 3.30 9.69	Distar	0.46 0.49 0.48 attenu eq Eve	Finite ation) ening 67.5 61.5 56.9 68.8 BA	Road Fi -1.20 -1.20 -1.20 Leq Nigh	resnel -4.69 -4.88 -5.34 t 64.5 62.0 61.2 67.6	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	en Ber 1000 100	m Atten 0.000 0.000 0.000 VEL 72.2 69.6 69.4 75.3
Vehicle I ype Autos: Medium Trucks: Heavy Trucks: Vehicle Type Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	REMEL 68.46 79.45 84.25 se Levels (with Leq Peak Hot 71 69 74 ce to Noise Co	Traffic Flow 3.30 -9.69 -13.62 out Topo and Ir Leq Day 0 <td>Distar barrier a 58.4 57.1 58.5 72.8 0 Ldn:</td> <td>0.46 0.49 0.48 attenu eq Eve 70 dl 131</td> <td>Finite ening 67.5 61.5 56.9 68.8 BA 1</td> <td>Road Fi -1.20 -1.20 -1.20 -1.20 -1.20 -65 dBA 281</td> <td>resnel -4.69 -4.88 -5.34 t 64.5 62.0 61.2 67.6</td> <td>Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.</td> <td>en Bern 1000 100</td> <td>m Atten 0.000 0.000 0.000 VEL 72.2 69.6 69.4 75.3 dBA 306</td>	Distar barrier a 58.4 57.1 58.5 72.8 0 Ldn:	0.46 0.49 0.48 attenu eq Eve 70 dl 131	Finite ening 67.5 61.5 56.9 68.8 BA 1	Road Fi -1.20 -1.20 -1.20 -1.20 -1.20 -65 dBA 281	resnel -4.69 -4.88 -5.34 t 64.5 62.0 61.2 67.6	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	en Bern 1000 100	m Atten 0.000 0.000 0.000 VEL 72.2 69.6 69.4 75.3 dBA 306

Thursday, May 02, 2019

	FHV	VA-RD-77-108	HIGHV	WAY N	OISE PI	REDICTI	ION MC	DEL			
Scenar Road Narr Road Segme	rio: Existing Wit ne: El Prado Ro nt: n/o Kimball	thout Project J. Av.				Project Job N	Name: umber:	MCH 10351			
SITE	SPECIFIC IN	PUT DATA				N	IOISE	MODE	L INPUT	s	
Highway Data				5	Site Con	ditions	(Hard =	: 10, Sc	oft = 15)		
Average Daily Peak Hour Peak F	Traffic (Adt): Percentage: Iour Volume:	24,718 vehicle 10% 2,472 vehicles	s		Me He	dium Tru avy Truc	ucks (2 cks (3+	Autos: Axles): Axles):	15 15 15		
Ve Noor/For Lo	enicie Speea:	45 mpn		١	Vehicle I	Mix					
Neal/Fai La	ine Distance.	30 leet			Veh	icleType		Day	Evening	Nigh	nt Daily
Site Data Ba Barrier Type (0-W	rrier Height: /all. 1-Berm):	0.0 feet			M	ہ edium Ti Heavy Ti	Autos: rucks: rucks:	66.3% 77.0% 86.3%	13.5% 5.3% 1.5%	20.3 17.6 12.2	3% 93.40% 3% 4.70% 2% 1.90%
Centerline Di	st. to Barrier:	44.0 feet		-	Voice C	Sures El		o (in fe	2041		
Centerline Dist. Barrier Distance Observer Height	to Observer: to Observer: (Above Pad): ad Elevation:	44.0 feet 0.0 feet 5.0 feet 0.0 feet		,	Mediui Heav	Auto: m Truck: ry Truck:	s: 0. s: 2. s: 8.	000 297 004	Grade Ad	djustme	ent: 0.0
Ro	ad Elevation:	0.0 feet		L	ane Eq	uivalent	t Distan	ce (in i	feet)		
	Road Grade:	0.0%				Autos	s: 40	.460			
	Left View: Right View:	-90.0 degree 90.0 degree	s s		Mediui Heav	m Truck: vy Truck:	s: 40 s: 40	241 262			
FHWA Noise Mod	el Calculation:	s									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fres	nel	Barrier At	ten I	Berm Atten
Autos:	68.46	1.80		1.28	3	-1.20		-4.61	0.	000	0.00
Medium Trucks:	79.45	-11.19		1.31	1	-1.20		-4.87	0.	000	0.00
Heavy Trucks:	84.25	-15.12		1.31	1	-1.20		-5.50	0.	000	0.00
Unmitigated Nois	e Levels (with	out Topo and I	barrier	r atten	uation)						
VehicleType	Leg Peak Hou	r Leg Day		Leg Ev	ening	Leg	Night	1	Ldn		CNEL
Autos:	. 70.	.3 6	7.8		66.9		63.	9	71.	0	71.
Medium Trucks:	68.	.4 6	6.4		60.8		61.	3	68.	7	68.
Heavy Trucks:	69.	.2 6	7.8		56.2		60.	6	68.	7	68.
Vehicle Noise:	74.	.2 7	2.2		68.1		66.	9	74.	.4	74.
Centerline Distan	ce to Noise Co	ontour (in feet)									
				70 a	IBA	65	dBA	6	0 dBA		55 dBA
		L	dn:	86	6	18	86		401		863
		CN	EL:	90	D	19	94		417		899

	FHV	VA-RD-77-108 HI	GHWAY	NOISE PI	REDICTIC	ON MODEL			
Scenar Road Nan	io: Existing Wi	thout Project			Project N	lame: MCH	1		
Road Segme	nt: n/o Walnut	Av.			500 110	mber. 103:	, ,		
SITE	SPECIFIC IN	PUT DATA			NC	DISE MOD	EL INPUT	s	
Highway Data				Site Con	ditions (F	Hard = 10,	Soft = 15)		
Average Daily	Traffic (Adt):	30,254 vehicles				Auto	s: 15		
Peak Hour	Percentage:	10%		Me	dium Truc	cks (2 Axles	;): 15		
Peak H	lour Volume:	3,025 vehicles		He	avy Truck	s (3+ Axles	;): 15		
Ve	hicle Speed:	55 mph		Vehicle	Mix			-	-
Near/Far La	ne Distance:	154 feet		Venicle	icleType	Dav	Evenina	Night Daily	-
Site Data						itos: 66.3	% 13.5%	20.3% 93.409	%
		0.0 ()		M	edium Tru	cks: 77.0	% 5.3%	17.6% 4.70%	%
ва Barrier Type (0-И	Vall, 1-Berm):	0.0 feet		I	Heavy Tru	cks: 86.3	% 1.5%	12.2% 1.90%	%
Centerline Di	ist. to Barrier:	84.0 feet		Noise Se	ource Ele	vations (in	feet)		-
Centerline Dist.	to Observer:	84.0 feet			Autos:	0.000			-
Barrier Distance	to Observer:	0.0 feet		Mediu	m Trucks:	2.297			
Observer Height	(Above Pad):	5.0 feet		Heav	v Trucks:	8.004	Grade Ad	iustment: 0.0	
P	ad Elevation:	0.0 feet							
Ro	ad Elevation:	0.0 feet		Lane Eq	uivalent l	Distance (i	n feet)		
	Road Grade:	0.0%			Autos:	33.941			
	Left View:	-90.0 degrees		Mediu	m Trucks:	33.679			
	Right View:	90.0 degrees		Heav	y Trucks:	33.705			
FHWA Noise Mod	el Calculation:	s							-
VehicleType	REMEL	Traffic Flow	Distance	Finite	Road	Fresnel	Barrier Att	en Berm Atten	1
Autos:	71.78	1.80	2.4	12	-1.20	-4.7	5 0.0	0.00	10
Medium Trucks:	82.40	-11.18	2.4	17	-1.20	-4.8	8 0.0	0.00 0.00	10
Heavy Trucks:	86.40	-15.11	2.4	17	-1.20	-5.2	1 0.0	0.00 0.00	10
Unmitigated Nois	e Levels (with	out Topo and bar	rrier atte	nuation)				-	
VehicleType	Leq Peak Hou	r Leq Day	Leq E	vening	Leq N	light	Ldn	CNEL	
Autos:	74.	.8 72.2	2	71.3		68.3	75.8	5 75.	.9
Medium Trucks:	72.	.5 70.6	6	65.0		65.4	72.8	3 73.	.0
Heavy Trucks:	72.	.5 71.1	1	59.5		63.9	72.0) 72.	.0
Vehicle Noise:	78	.2 76.	1	72.5		71.0	78.5	5 78.	.8
Centerline Distan	ce to Noise Co	ontour (in feet)							_
			70	dBA	65 dl	BA	60 dBA	55 dBA	
		Ldr	n: 3	109	665) -	1,433	3,087	
		CNEL	.: 3	22	695	ō	1,497	3,225	

Thursday, May 02, 2019

	FH\	NA-RD-77-108	HIGHW	AY NO	DISE P	REDICT	ION MO	DEL				
Scenar Road Nam Road Segme	io: Existing W ne: Euclid Av. nt: n/o Riversi	ithout Project de Dr.				Project Job N	Name: I lumber:	MCH 10351				
SITE	SPECIFIC IN	IPUT DATA				N	IOISE N	/IODE	L INPUT	s		
Highway Data				S	ite Cor	nditions	(Hard =	10, S	oft = 15)			
Average Daily	Traffic (Adt):	25,283 vehicl	es					Autos.	15			
Peak Hour	Percentage:	10%			Me	edium Tr	ucks (2 A	Axles).	15			
Peak H	lour Volume:	2,528 vehicle	s		He	avy Tru	cks (3+ A	Axles).	15			
Ve	hicle Speed:	55 mph		V	ehicle	Mix						
Near/Far La	ne Distance:	154 feet		-	Veh	icleTvpe		Dav	Evenina	Nia	ht	Dailv
Site Data							Autos:	66.3%	13.5%	20	3%	93.40%
Ba	rrier Heiaht:	0.0 feet			М	edium T	rucks:	77.0%	5.3%	17.	6%	4.70%
Barrier Type (0-W	/all, 1-Berm):	0.0				Heavy T	rucks:	86.3%	5 1.5%	12	2%	1.90%
Centerline Di	st. to Barrier:	84.0 feet		N	oise S	ource E	levation	s (in f	eet)			
Centerline Dist.	to Observer:	84.0 feet				Auto	s: 0.0	000	,			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Truck	s: 2.2	297				
Observer Height (Above Pad):	5.0 feet			Hear	vy Truck	s: 8.0	004	Grade Ad	justr	ent:	0.0
Pa	ad Elevation:	0.0 feet										
Roa	ad Elevation:	0.0 feet		L	ane Eq	uivalen	t Distand	ce (In	teet)			
	Road Grade:	0.0%				Auto	s: 33.9	941				
	Left View:	-90.0 degre	es		Mediu	m Truck	s: 33.6	679				
	Right View:	90.0 degre	es		Hear	у тиск	s: 33.	705				
FHWA Noise Mod	el Calculation	S										
VehicleType	REMEL	Traffic Flow	Distan	се	Finite	Road	Fresn	iel 🛛	Barrier Att	en	Berm	Atten
Autos:	71.78	1.02		2.42		-1.20		-4.75	0.0	000		0.000
Medium Trucks:	82.40	-11.96		2.47		-1.20		-4.88	0.0	000		0.000
Heavy Trucks:	86.40	-15.89		2.47		-1.20		-5.21	0.0	000		0.000
Unmitigated Nois	e Levels (with	out Topo and	barrier a	ttenu	ation)					1		
VehicleType	Leq Peak Hou	ur Leq Day	/ Le	eq Eve	ening	Leq	Night		Ldn		CN	EL
Autos:	74	.0	71.4		70.6		67.6	5	74.1	(75.2
Medium Trucks:	/1	./	69.8		64.2		64.6		72.0			72.2
Vehicle Noise:	71	.8	70.3		58.8		63.1 70.3	1	71.2	2 7		71.3
Centerline Distan	ce to Noise C	ontour (in fee	F)				70.0					.0.0
Contentine Distant			7	70 dl	BA	65	dBA		60 dBA	1	55 d	BA
			Ldn:	274	1	5	90		1,271		2,73	39
		C	NEL:	286	3	6	16		1,328		2,86	51

	FILL	VA-IND-11-100 11		TINU	JISE PR						
Scenar	io: Existing Wi	thout Project				Project Na	nme: N	ICH			
Road Nam	e: Euclid Av.	,				Job Nun	ber: 1	0351			
Road Segme	nt: n/o Chino A	w.									
SITE	SPECIFIC IN	IPUT DATA				NO	ISE M	ODE	L INPUT	S	
Highway Data				S	ite Con	ditions (H	ard = '	10, So	oft = 15)		
Average Daily	Traffic (Adt):	25,245 vehicles					A	utos:	15		
Peak Hour	Percentage:	10%			Med	dium Truck	is (2 A	xles):	15		
Peak H	lour Volume:	2,525 vehicles			Hea	avy Trucks	(3+ A	xles):	15		
Ve	hicle Speed:	55 mph		V	ehicle N	<i>lix</i>					
Near/Far La	ne Distance:	154 feet			Vehi	cleType	l	Day	Evening	Night	Daily
Site Data						Aut	os: 6	6.3%	13.5%	20.3%	93.40%
Bai	rrier Height	0.0 feet			Me	dium Truc	ks: T	7.0%	5.3%	17.6%	4.70%
Barrier Type (0-W	(all. 1-Berm):	0.0			H	leavy Truc	ks: 8	86.3%	1.5%	12.2%	1.90%
Centerline Di	st. to Barrier:	84.0 feet			laiaa Ca	uree Elev	otiona	(in f	a a 41		
Centerline Dist.	to Observer:	84.0 feet		N	oise so	Autoor	auons	00	eel)		
Barrier Distance	to Observer:	0.0 feet			Madium	Autos.	0.0	00			
Observer Height (Above Pad):	5.0 feet			Hoov	Trucks:	2.2	57 04	Grade Ad	iustment	. 0 0
Pa	ad Elevation:	0.0 feet			neuv,	y macks.	0.0	04			0.0
Roa	ad Elevation:	0.0 feet		L	ane Equ	ivalent D	istanc	e (in	feet)		
1	Road Grade:	0.0%				Autos:	33.9	41			
	Left View:	-90.0 degrees			Mediun	n Trucks:	33.6	79			
	Right View:	90.0 degrees			Heav	y Trucks:	33.7	05			
FHWA Noise Mod	el Calculation	s		-							
VehicleType	REMEL	Traffic Flow	Distanc	e	Finite	Road	Fresne	e/	Barrier Att	en Ber	m Atten
Autos:	71 79	1.02		2 4 2							0.000
	11.70	1.02		2.42		-1.20		4.75	0.0	000	0.000
Medium Trucks:	82.40	-11.97		2.42 2.47		-1.20 -1.20	-	4.75 4.88	0.0 0.0	000 100	0.000
Medium Trucks: Heavy Trucks:	82.40 86.40	-11.97 -15.90		2.42 2.47 2.47		-1.20 -1.20 -1.20		4.75 4.88 5.21	0.0 0.0 0.0	000 000 000	0.000
Medium Trucks: Heavy Trucks: Unmitigated Noise	82.40 86.40 86.40	-11.97 -15.90	arrier at	2.42 2.47 2.47 tenu	uation)	-1.20 -1.20 -1.20	-	4.75 4.88 5.21	0.0 0.0 0.0	000	0.000
Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType	82.40 86.40 e Levels (with Leg Peak Hou	-11.97 -15.90 out Topo and ba	arrier at	2.42 2.47 2.47 tenu 7 Eve	iation) ening	-1.20 -1.20 -1.20 <i>Leq Ni</i> g	ght	4.75 4.88 5.21	0.0 0.0 0.0	000 000 000 <i>CI</i>	0.000 0.000 VEL
Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos:	82.40 86.40 e Levels (with Leg Peak Hou 74	-11.97 -15.90 out Topo and ba r Leq Day .0 71	arrier at Leo	2.42 2.47 2.47 tenu 7 Eve	ening 70.5	-1.20 -1.20 -1.20 <i>Leq Ni</i> g	aht 67.6	4.75 4.88 5.21	0.0 0.0 0.0 <u>Ldn</u> 74.7	000 000 000 <i>CI</i>	0.000 0.000 0.000 VEL 75.2
Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks:	e Levels (with Leq Peak Hou 74	-11.97 -15.90 out Topo and ba r Leq Day .0 71 .7 69	arrier at Leo .4	2.42 2.47 2.47 tenu 7 Eve	<i>ation)</i> ening 70.5 64.2	-1.20 -1.20 -1.20 <i>Leq Ni</i> g	ght 67.6 64.6	4.75 4.88 5.21	0.0 0.0 0.0 <i>Ldn</i> 74.7 72.0	000 000 000 <i>CI</i>	0.000 0.000 0.000 <u>VEL</u> 75.2 72.2
Medium Trucks: Heavy Trucks: Unmitigated Noiss VehicleType Autos: Medium Trucks: Heavy Trucks:	e Levels (with Leq Peak Hou 74 71 71	-11.97 -15.90 out Topo and ba rr Leq Day .0 71 .7 69 .8 70	arrier at Leo .4 .8 .3	2.42 2.47 2.47 tenu 7 Eve	ation) ening 70.5 64.2 58.8	-1.20 -1.20 -1.20 <i>Leq Ni</i> ę	9ht 67.6 64.6 63.1	4.75 4.88 5.21	0.0 0.0 <u>Ldn</u> 74.7 72.0 71.2		0.000 0.000 <u>VEL</u> 75.2 72.2 71.2
Medium Trucks: Heavy Trucks: Unmitigated Noiss VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	e Levels (with Leg Peak Hou 74 71 71 77	-11.97 -15.90 out Topo and ba rr Leq Day .0 71 .7 69 .8 70 .4 75	arrier at Leo 1.4 0.8 0.3 5.3	2.42 2.47 2.47 tenu 7 Eve	ening 70.5 64.2 58.8 71.7	-1.20 -1.20 -1.20 <i>Leq Ni</i> g	9 <i>ht</i> 67.6 64.6 63.1 70.3	4.75 4.88 5.21	0.0 0.0 0.0 74.7 72.0 71.2 77.7		0.000 0.000 <u>VEL</u> 75.2 72.2 71.2 78.0
Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distance	82.40 86.40 e Levels (with Leq Peak Hou 74 71 71 77 77 77 77 77 77 77 77	-11.97 -11.97 -15.90 out Topo and ba <i>rr</i> Leq Day 0.0 71 .7 65 .8 70 .4 75 ontour (in feet)	arrier at Leo .4 0.3 5.3	2.42 2.47 2.47 tenu 7 Eve	ation) ening 70.5 64.2 58.8 71.7	-1.20 -1.20 -1.20 <i>Leq Ni</i> g	<i>pht</i> 67.6 64.6 63.1 70.3	4.75 4.88 5.21	0.0 0.0 0.0 74.7 72.0 71.2 77.7	000 000 000 <i>CI</i>	0.000 0.000 <u>VEL</u> 75.2 72.2 71.2 78.0
Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distance	e Levels (with Leq Peak Hou 74 71 71 77 77 77 77 77 77	-11.97 -15.90 out Topo and bu r <u>Leq Day</u> .0 71 .7 69 .8 70 .4 75 ontour (In feet)	arrier at Lec .4 0.8 0.3 5.3	2.42 2.47 2.47 tenu 7 Eve	ation) ening 70.5 64.2 58.8 71.7 BA	-1.20 -1.20 -1.20 <i>Leq Nig</i> 65 dB	pht 67.6 64.6 63.1 70.3	4.75 4.88 5.21	0.0 0.0 0.0 74.7 72.0 71.2 77.7	000 000 000 CI	0.000 0.000 VEL 75.2 71.2 71.2 78.0 dBA
Medium Trucks: Heavy Trucks: Unmitigated Noiss VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distance	e Levels (with Leq Peak Hou 74 71 71 77 77 77 77 77 77	-11.97 -11.97 -15.90 out Topo and bu r Leq Day 0 71 7 68 8 70 8 70 4 75 ontour (in feet)	arrier at Lec .4 0.3 5.3	2.42 2.47 2.47 tenu 7 Eve 70 dl 274	ening 70.5 64.2 58.8 71.7 BA	-1.20 -1.20 -1.20 <i>Leq Nig</i> 65 dB	2000 67.6 64.6 63.1 70.3	4.75 4.88 5.21	0.0 0.0 0.0 74.1 77.2 77.7 77.7 77.7 70 00 dBA 1,270	000 000 000 7 7 7 7 7 7 7 7 7 7 7 7 7 7	0.000 0.000 VEL 75.2 71.2 78.0 dBA 736

Thursday, May 02, 2019

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	FHV	VA-RD-77-108	HIGH	WAYP	NOISE PI	REDICI	ION MO	DDEL				<u> </u>
Scenario	o: Existing Wi	thout Project				Project	Name:	MCH				
Road Name	e: Euclid Av.					Job N	lumber:	10351				
Road Segmen	nt: n/o Schaefe	er Av.										
SITE S	SPECIFIC IN	IPUT DATA				M	IOISE	MODE	L INP	UTS		-
Highway Data					Site Con	ditions	(Hard :	= 10, Se	oft = 15	5)		
Average Daily	Traffic (Adt):	27,794 vehicle	s					Autos:	15			
Peak Hour	Percentage:	10%			Me	dium Tr	ucks (2	Axles):	15			
Peak He	our Volume:	2,779 vehicles			He	avy Tru	cks (3+	Axles):	15			
Vel	hicle Speed:	55 mph		H	Vehicle	Mix						
Near/Far Lar	ne Distance:	154 feet		ŀ	Veh	icleType	,	Dav	Even	ina N	liaht	Daily
Site Data							Autos:	66.3%	13.	5% 2	20.3%	93.40%
Par	rior Hoight:	0.0 foot			M	edium T	rucks:	77.0%	5.3	3% ·	17.6%	4.70%
Barrier Type (0-Wa	all 1-Berm)	0.0			I	Heavy T	rucks:	86.3%	5 1.5	5% ·	12.2%	1.90%
Centerline Dis	t. to Barrier:	84.0 feet		-	N-/ 0		1	(6	41			
Centerline Dist. t	to Observer:	84.0 feet		H	Noise So	Auto	ievatio	15 (IN 1	eet)			
Barrier Distance t	to Observer:	0.0 feet			Modiu	AUIO	S: U	207				
Observer Height (/	Above Pad):	5.0 feet			Mediu	Truck	s. 2	.297	Grade	Adius	tmont	. 0.0
Pa	d Elevation:	0.0 feet			neav	у писк	s. o	.004	Graue	+ Mujus	unent	0.0
Roa	d Elevation:	0.0 feet			Lane Eq	uivalen	t Distar	nce (in	feet)			
F	Road Grade:	0.0%				Auto	s: 33	.941				
	Left View:	-90.0 degree	s		Mediu	m Truck	s: 33	.679				
	Right View:	90.0 degree	s		Heav	y Truck	s: 33	.705				
FHWA Noise Mode	Calculation	\$										
VehicleType	REMEL	Traffic Flow	Dist	tance	Finite	Road	Fres	nel	Barrie	r Atten	Ber	m Atten
Autos:	71.78	1.43		2.4	2	-1.20		-4.75		0.000)	0.000
Medium Trucks:	82.40	-11.55		2.4	7	-1.20		-4.88		0.000)	0.000
Heavy Trucks:	86.40	-15.48		2.4	7	-1.20		-5.21		0.000)	0.000
Unmitigated Noise	Levels (with	out Topo and I	barrie	r atter	uation)							
VehicleType	Leg Peak Hou	Ir Leg Day		Leg E	vening	Leg	Night		Ldn		C	NEL
Autos:	. 74	.4 7	1.9		71.0	,	68.	0		75.1		75.6
Medium Trucks:	72	.1 7	0.2		64.6		65.	0		72.4		72.6
Heavy Trucks:	72	.2 7	0.7		59.2		63.	5		71.6		71.7
Vehicle Noise:	77	.8 7	5.8		72.1		70.	7		78.1		78.4
Centerline Distance	e to Noise Co	ontour (in feet)										
				70	dBA	65	dBA	(60 dBA		55	dBA
		L	.dn:	29	92	6	29		1,354		2,	917
		CN	IEL:	30	05	6	57		1,414		3,	047

	FH\	VA-RD-77-108 H	IGHWAY	NOISE PI	REDICTIO	N MODE	EL			
Scenai Road Nan Road Segme	io: Existing Wi ne: Euclid Av. nt: n/o Edison	thout Project Av.			Project N Job Nur	ame: M0 nber: 10	CH 351			
SITE	SPECIFIC IN	IPUT DATA			NC	ISE MO	DEL IN	PUTS		
Highway Data				Site Con	ditions (H	lard = 10), Soft =	15)		
Average Daily Peak Hour	Traffic (Adt): Percentage:	29,878 vehicles 10%		Me	dium Truc	Au ks (2 Axi	tos: 1 les): 1	5 5		
Peak H	lour Volume:	2,988 vehicles		He	avy Truck	s (3+ Axi	les): 1	5		
Ve / / -	nicle Speed.	55 mpn		Vehicle	Mix					
Near/Far La	ne Distance:	154 feet		Veh	icleType	Da	ay Eve	ning N	light	Daily
Site Data					Au	tos: 66	6.3% 13	3.5% 2	0.3%	93.40%
Ba	rrier Heiaht:	0.0 feet		M	edium Tru	cks: 77	7.0% §	5.3% 1	7.6%	4.70%
Barrier Type (0-V	/all, 1-Berm):	0.0		1	Heavy Tru	cks: 86	6.3%	1.5% 1	2.2%	1.90%
Centerline Di	st. to Barrier:	84.0 feet		Noise Se	ource Ele	vations ('in feet)			
Centerline Dist.	to Observer:	84.0 feet			Autos:	0.00	0			
Barrier Distance	to Observer:	0.0 feet		Mediu	m Trucks:	2.29	7			
Observer Height	(Above Pad):	5.0 feet		Heav	y Trucks:	8.00	4 Grad	de Adjus	tment:	0.0
P	ad Elevation:	0.0 feet		Lana Fr			(In 6 4)			
Ro	ad Elevation:	0.0 feet		Lane Eq	uivalent L	Istance	(in reet)			
	Road Grade:	0.0%			Autos:	33.94	1			
	Left View:	-90.0 degrees		Mediu	m Trucks:	33.67	9			
	Right View:	90.0 degrees		Heav	y Trucks:	33.70	5			
FHWA Noise Mod	el Calculation	s								
VehicleType	REMEL	Traffic Flow	Distance	Finite	Road	Fresnel	Barri	er Atten	Bern	1 Atten
Autos:	71.78	1.75	2	.42	-1.20	-4	.75	0.000		0.000
Medium Trucks:	82.40	-11.23	2	.47	-1.20	-4	.88	0.000		0.000
Heavy Trucks:	86.40	-15.17	2	.47	-1.20	-5	.21	0.000		0.000
Unmitigated Nois	e Levels (with	out Topo and ba	arrier atte	enuation)						
VehicleType	Leq Peak Hou	ir Leq Day	Leq	Evening	Leq N	ight	Ldn		CN	EL
Autos:	74	.7 72	2.2	71.3		68.3		75.5		75.9
Medium Trucks:	72	.4 70).5	64.9		65.4		72.8		72.9
Heavy Trucks:	72	.5 71	.1	59.5		63.8		71.9		72.0
Vehicle Noise:	78	.1 76	5.1	72.4		71.0		78.4		78.7
Centerline Distan	ce to Noise Co	ontour (in feet)	7	1 dBA	65 1	24	60 45		55 ~	ID A
			10	206	65 GE	5/4	00 dB	-	000	64 64
			111. -1.	200	000		1,42	1	3,00) I 00
		CIVE	L.	320	689		1,484	+	3,15	30

Thursday, May 02, 2019

	FH	WA-RD-77-108	HIGHW	AY NO	DISE PI	REDICTIC	N MODE	EL			
Scenari Road Nam Road Segmer	o: Existing W e: Euclid Av. nt: n/o Eucaly	ithout Project ptus Av.				Project N Job Nui	lame: Mo nber: 10	CH 1351			
SITE	SPECIFIC IN	IPUT DATA				NC	DISE MO	DDEL IN	PUTS		
Highway Data				S	ite Con	ditions (F	lard = 10	0, Soft =	15)		
Average Daily	Traffic (Adt):	27,743 vehicl	es				AL	itos: 1	5		
Peak Hour	Percentage:	10%			Me	dium Truc	ks (2 Ax	les): 1	5		
Peak H	our Volume:	2,774 vehicle	s		He	avy Truck	s (3+ Ax	les): 1	5		
Vel	hicle Speed:	55 mph		V	ehicle	Mix					
Near/Far Lar	ne Distance:	154 feet			Veh	icleType	D	ay Eve	ning Ni	ght	Daily
Site Data						AL	itos: 66	5.3% 13	3.5% 2	0.3%	93.40%
Bar	rier Heiaht:	0.0 feet			M	edium Tru	cks: 71	7.0% 5	5.3% 1	7.6%	4.70%
Barrier Type (0-W	all, 1-Berm):	0.0			ŀ	Heavy Tru	cks: 86	5.3% 1	1.5% 1	2.2%	1.90%
Centerline Dis	st. to Barrier:	84.0 feet		N	oise Sr	ource Fle	vations	(in feet)			
Centerline Dist.	to Observer:	84.0 feet			0.00 0.	Autos:	0.00	0			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Trucks:	2 29	7			
Observer Height (J	Above Pad):	5.0 feet			Heav	v Trucks:	8.00	4 Grad	de Adjust	ment:	0.0
Pa	ad Elevation:	0.0 feet				,			,		
Roa	ad Elevation:	0.0 feet		Li	ane Eq	uivalent L	Distance	(in feet)			
F	Road Grade:	0.0%				Autos:	33.94	1			
	Left View:	-90.0 degre	es		Mediu	m Trucks:	33.67	9			
	Right View:	90.0 degre	es		Heav	y Trucks:	33.70	15			
FHWA Noise Mode	el Calculation	IS									
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresnel	Barri	er Atten	Bern	n Atten
Autos:	71.78	1.43		2.42		-1.20	-4	.75	0.000		0.000
Medium Trucks:	82.40	-11.56		2.47		-1.20	-4	.88	0.000		0.000
Heavy Trucks:	86.40	-15.49		2.47		-1.20	-5	i.21	0.000		0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier	attenu	ation)						
VehicleType	Leq Peak Ho	ur Leq Da	/ L	eq Eve	ening	Leq N	ight	Ldn		CN	EL
Autos:	74	1.4	71.9		71.0		68.0		75.1		75.6
Medium Trucks:	72	2.1	70.2		64.6		65.0		72.4		72.6
Heavy Trucks:	72	2.2	70.7		59.2		63.5		71.6		71.7
Vehicle Noise:	77	7.8	75.8		72.1		70.7		78.1		78.4
Centerline Distance	e to Noise C	ontour (in fee	t)								
				70 dE	BA	65 dl	BA	60 dB	A	55 c	IBA
			Ldn:	291		628	3	1,352	2	2,9	14
		С	NEL:	304		656	6	1,413	3	3,0	44

	FHV	/A-RD-77-108	HIGH	NAY N	OISE PF	REDICTIC	ON MOE	EL			
Scenar Road Nam	io: Existing Wit	hout Project				Project N	lame: N mber: 1	ICH 0351			
Road Segme	nt: n/o Merrill A	w.									
SITE	SPECIFIC IN	PUT DATA				NC	DISE M	ODE		s	
Highway Data				5	Site Con	ditions (l	Hard = 1	10, So	ft = 15)		
Average Daily	Traffic (Adt):	31,921 vehicle	es				A	utos:	15		
Peak Hour	Percentage:	10%			Me	dium Truc	cks (2 A	des):	15		
Peak H	lour Volume:	3,192 vehicles	S		He	avy Truck	is (3+ A	des):	15		
Ve	hicle Speed:	55 mph		1	/ehicle	Mix					
Near/Far La	ne Distance:	154 feet		F	Veh	icleType	Ĺ	Day	Evening	Night	Daily
Site Data						AL	itos: 6	6.3%	13.5%	20.3%	93.40%
Bai	rrier Height	0.0 feet			Me	edium Tru	cks: 7	7.0%	5.3%	17.6%	4.70%
Barrier Type (0-W	/all. 1-Berm):	0.0			ŀ	leavy Tru	cks: 8	6.3%	1.5%	12.2%	1.90%
Centerline Di	st. to Barrier:	84.0 feet		-							
Centerline Dist.	to Observer:	84.0 feet		/	loise Sc	ource Ele	vations	(In fe	et)		
Barrier Distance	to Observer:	0.0 feet				Autos:	0.0	00			
Observer Height (Above Pad):	5.0 feet			Mediur	n Trucks:	2.2	97	Crada Ad	iuotmont	
Pa	ad Elevation:	0.0 feet			Heav	y Trucks:	8.0	J4	Grade Adj	usuneni.	0.0
Roa	ad Elevation:	0.0 feet		L	ane Eq	uivalent l	Distanc	e (in f	eet)		
1	Road Grade:	0.0%				Autos:	33.9	41			
	Left View:	-90.0 degree	es		Mediur	n Trucks:	33.6	79			
	Right View:	90.0 degree	es		Heav	y Trucks:	33.7	05			
FHWA Noise Mod	el Calculations	5									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresne	e/ .	Barrier Att	en Ber	m Atten
Autos:	71.78	2.04		2.42	2	-1.20	-	4.75	0.0	000	0.000
Medium Trucks:	82.40	-10.95		2.47	,	-1.20	-	4.88	0.0	000	0.000
Heavy Trucks:	86.40	-14.88		2.47	,	-1.20	-	5.21	0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier	r atten	uation)						
VehicleType	Leq Peak Hou	r Leq Day	· .	Leq Ev	ening	Leq N	light		Ldn	CI	VEL
Autos:	75.	0	72.5		71.6		68.6		75.7	7	76.2
Medium Trucks:	72.	7	70.8		65.2		65.6		73.0)	73.2
Heavy Trucks:	72.	8	71.3		59.8		64.1		72.2	2	72.3
Vehicle Noise:	78.	4	76.4		72.7		71.3		78.7	7	79.0
Centerline Distant	ce to Noise Co	ntour (in feet)								
				70 d	BA	65 di	BA	6	U dBA	55	dBA 100
		0	Lan:	32	0	689	9		1,485	3,	199
		CI	VEL:	33	4	720	J		1,551	3,	342

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	FHV	VA-RD-77-108 I	HIGH	WAY N	NOISE PI	REDICT	ION MO	DDEL				
Scenar Road Nan Road Segme	rio: Existing Wi ne: Euclid Av. nt: s/o Merrill A	thout Project				Project Job N	Name: lumber:	MCH 10351				
SITE	SPECIFIC IN	PUT DATA				N	IOISE	MODE	L INPUT	ſS		
Highway Data					Site Cor	ditions	(Hard :	= 10, So	oft = 15)			
Average Daily Peak Hour Peak F	Traffic (Adt): Percentage: lour Volume:	30,618 vehicle 10% 3,062 vehicles	s		Me He	dium Tr avy Tru	ucks (2 cks (3+	Autos: Axles): Axles):	15 15 15			
Ve	hicle Speed:	55 mph			Vehicle	Mix						
Near/Far La	ine Distance:	154 feet			Veh	icleType	;	Day	Evening	Nig	ht	Daily
Site Data							Autos:	66.3%	13.5%	20.	3%	93.40%
Ba	rrier Heiaht:	0.0 feet			М	edium T	rucks:	77.0%	5.3%	17.	6%	4.70%
Barrier Type (0-V	Vall, 1-Berm):	0.0			1	Heavy T	rucks:	86.3%	1.5%	12.	2%	1.90%
Centerline Di	ist. to Barrier:	84.0 feet		H	Noise S	ource E	lovatio	ns (in fi	oot)			
Centerline Dist.	to Observer:	84.0 feet		H	10/30 0	Auto	e. 0	000				
Barrier Distance	to Observer:	0.0 feet			Mediu	m Truck	s. 0 s [.] 2	297				
Observer Height	(Above Pad):	5.0 feet			Heat	N Truck	s. 8	004	Grade Ad	diustm	ent:	0.0
P	ad Elevation:	0.0 feet			mour	y maon	0. 0					
Ro	ad Elevation:	0.0 feet		-	Lane Eq	uivalen	t Distai	nce (in	feet)			
	Road Grade:	0.0%				Auto	s: 33	.941				
	Left View: Right View:	-90.0 degree 90.0 degree	s		Mediu Heav	m Truck ∕v Truck	s: 33 s: 33	.679				
EHWA Noiso Mod	ol Calculation											
VehicleType	REMEI	Traffic Flow	Dist	ance	Finite	Road	Fres	nel	Barrier At	tten	Bern	n Atten
Autos:	71.78	1.85		2.4	2	-1.20		-4.75	0.	.000		0.00
Medium Trucks:	82.40	-11.13		2.4	7	-1.20		-4.88	0.	.000		0.00
Heavy Trucks:	86.40	-15.06		2.4	7	-1.20		-5.21	0.	.000		0.00
Unmitigated Nois	e Levels (with	out Topo and L	barrie	r atten	nuation)							
VehicleType	Leq Peak Hou	r Leq Day		Leq E	vening	Leq	Night		Ldn		CN	IEL
Autos:	74	.9 7	2.3		71.4		68	4	75.	.6		76.
Medium Trucks:	72	.5 7	0.6		65.0		65	5	72.	.9		73.
Heavy Trucks:	72	.6 7	1.2		59.6		63	9	72.	.0		72.
Vehicle Noise:	78	.2 7	6.2		72.5		71	.1	78.	.5		78.
Centerline Distan	ce to Noise Co	ontour (in feet)						_				
			L	70 0	dBA	65	dBA	6	60 dBA		55 0	:/BA
		L	.dn:	31	11	6	70		1,444		3,1	12
		CN	EL:	32	25	7	UÜ		1,509		3,2	:50

	FHW	/A-RD-77-108 HIG	HWAY	NOISE PI	REDICTIC	N MODEL			
Scenar Road Narr Road Segme	io: Existing Wit e: Euclid Av. nt: n/o Kimball	hout Project Av.			Project N Job Nui	lame: MCH mber: 1035	1		
SITE	SPECIFIC IN	PUT DATA			NC	DISE MOD	EL INPUTS	5	
Highway Data				Site Con	ditions (F	Hard = 10, S	oft = 15)		
Average Daily	Traffic (Adt):	30,229 vehicles				Autos	: 15		
Peak Hour	Percentage:	10%		Me	dium Truc	ks (2 Axles)	: 15		
Peak H	lour Volume:	3,023 vehicles		He	avy Truck	s (3+ Axles)	: 15		
Ve	hicle Speed:	55 mph	-	Vohiclo	Mix				
Near/Far La	ne Distance:	154 feet	-	Vehicle	icleType	Dav	Evening	Night	Daily
Site Data				VCI	A	itos: 66.39	6 13.5%	20.3%	93.40%
one paid		0.0 ()		Me	edium Tru	cks: 77.0	6 5.3%	17.6%	4.70%
Ban Parriar Tuna (0.14	(all 1 Porm):	0.0 feet		ŀ	leavv Tru	cks: 86.3	6 1.5%	12.2%	1.90%
Centerline Di	st to Barrier:	84.0 feet			,				
Centerline Dist.	to Observer:	84.0 feet	-	Noise So	ource Ele	vations (in	feet)		
Barrier Distance	to Observer:	0.0 feet			Autos:	0.000			
Observer Height	Above Pad):	5.0 feet		Mediui	m Trucks:	2.297			
Pi	ad Elevation:	0.0 feet		Heav	y Trucks:	8.004	Grade Adj	ustment:	0.0
Ro	ad Elevation:	0.0 feet		Lane Eq	uivalent I	Distance (in	feet)		
	Road Grade:	0.0%			Autos:	33.941			
	Left View:	-90.0 degrees		Mediu	m Trucks:	33.679			
	Right View:	90.0 degrees		Heav	y Trucks:	33.705			
FHWA Noise Mod	el Calculations	;							
VehicleType	REMEL	Traffic Flow D	istance	Finite	Road	Fresnel	Barrier Atte	en Bern	n Atten
Autos:	71.78	1.80	2.4	2	-1.20	-4.75	0.0	00	0.000
Medium Trucks:	82.40	-11.18	2.4	7	-1.20	-4.88	0.0	00	0.000
Heavy Trucks:	86.40	-15.12	2.4	7	-1.20	-5.21	0.0	00	0.000
Unmitigated Nois	e Levels (witho	out Topo and barr	rier atter	nuation)					
VehicleType	Leq Peak Hour	r Leq Day	Leq E	vening	Leq N	ight	Ldn	CN	EL
Autos:	74.	8 72.2		71.3		68.3	75.5	j	75.9
Medium Trucks:	72.	5 70.6		65.0		65.4	72.8	j.	73.0
Heavy Trucks:	72.	5 71.1		59.5		63.9	72.0)	72.0
Vehicle Noise:	78.	2 76.1		72.5		71.0	78.5	;	78.8
Centerline Distant	ce to Noise Co	ntour (in feet)	_						
			70	dBA	65 dl	BA	60 dBA	55 0	1BA
		Ldn:	3	09	665	5	1,432	3,0	85
		CNEL:	3	22	694	ļ	1,496	3,2	23

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	FH\	WA-RD-77-108	HIGHW	VAY NO	ISE P	REDICTI	ON MOI	DEL				
Scenario Road Name Road Segmen	 Existing W Euclid Av. n/o Bickmodel 	ithout Project pre Av.				Project Job N	Name: 1 umber: 1	MCH 10351				
SITE S	PECIFIC IN	IPUT DATA				N	OISE N	IODE	L INPUT	s		
Highway Data				Si	te Cor	ditions	(Hard =	10, Se	oft = 15)			
Average Daily T	raffic (Adt):	18,579 vehicl	es					Autos:	15			
Peak Hour F	Percentage:	10%			Me	dium Tru	icks (2 A	xles):	15			
Peak Ho	our Volume:	1,858 vehicle	s		He	avy Truc	:ks (3+ A	xles):	15			
Veh	icle Speed:	55 mph		Ve	hiclo	Mix						
Near/Far Lan	e Distance:	154 feet			Veh	icleTvpe		Dav	Evenina	Niał	nt	Dailv
Site Data						F	utos:	66.3%	13.5%	20.3	3% 9	3.40%
Barr	rier Heiaht:	0.0 feet			М	edium Tr	ucks:	77.0%	5.3%	17.6	5%	4.70%
Barrier Type (0-Wa	all, 1-Berm):	0.0				Heavy Tr	ucks:	86.3%	1.5%	12.2	2%	1.90%
Centerline Dist	t. to Barrier:	84.0 feet		No	nise S	ource Fl	evation	s (in f	eet)			
Centerline Dist. to	o Observer:	84.0 feet		-		Autos	· 00	000				
Barrier Distance to	o Observer:	0.0 feet			Mediu	m Trucks	s. 0.0	97				
Observer Height (A	Above Pad):	5.0 feet			Hear	N Trucks	s 2.2 s 80	04	Grade Ad	ustme	ent: (0.0
Pa	d Elevation:	0.0 feet			mou	y maone	. 0.0					
Road	d Elevation:	0.0 feet		La	ne Eq	uivalent	Distanc	e (in	feet)			
R	oad Grade:	0.0%				Autos	s: 33.9	941				
	Left View:	-90.0 degre	es		Mediu	m Trucks	s: 33.6	679				
	Right View:	90.0 degre	es		Hear	/y Trucks	33.7	705				
FHWA Noise Mode	I Calculation	s										
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresn	el	Barrier Atte	en l	Berm	Atten
Autos:	71.78	-0.32		2.42		-1.20		-4.75	0.0	00		0.000
Medium Trucks:	82.40	-13.30		2.47		-1.20		-4.88	0.0	00		0.000
Heavy Trucks:	86.40	-17.23		2.47		-1.20		-5.21	0.0	00		0.000
Unmitigated Noise	Levels (with	out Topo and	barrier	attenua	ation)							
VehicleType	Leq Peak Ho	ur Leq Da	/ L	Leq Eve	ning	Leq	Night		Ldn		CNE	EL.
Autos:	72	2.7	70.1		69.2		66.2		73.4			73.8
Medium Trucks:	70	.4	68.4		62.8		63.3		70.7			70.9
Heavy Trucks:	70	.4	69.0		57.4		61.8		69.8	}		69.9
Vehicle Noise:	76	5.1	74.0		70.3		68.9		76.4	ł		76.6
Centerline Distance	e to Noise C	ontour (in fee	t)									
				70 dB	BA	65 0	dBA	6	60 dBA		55 dl	BA
			Ldn:	223		48	30		1,035		2,23	0
		С	NEL:	233		50)2		1,081		2,33	0

FHW	/A-RD-77-108	HIGHW	AY NO	ISE PF	REDICTIO	N MOD	EL			
o: Existing Wit e: Archibald A nt: n/o Limonite	hout Project v. e Av.				Project N Job Nu	lame: N mber: 1	ICH 0351			
SPECIFIC IN	PUT DATA				N	DISE M	ODE	INPUT:	S	
			Si	te Con	ditions (l	lard = 1	10, So	ft = 15)		
Traffic (Adt):	25,446 vehicle	s				Α	utos:	15		
Percentage:	10%			Me	dium Truo	ks (2 A)	des):	15		
our Volume:	2,545 vehicles			Hea	avy Truck	s (3+ A)	des):	15		
hicle Speed:	55 mph		Ve	hicle I	Nix					
ne Distance:	154 feet			Vehi	cleTvpe	L	Dav	Evenina	Niaht	Dailv
					A	itos: 6	6.3%	13.5%	20.3%	93.40%
rier Height	0.0 feet			Me	dium Tru	cks: 7	7.0%	5.3%	17.6%	4.70%
all 1-Berm)	0.0			F	leavy Tru	cks: 8	6.3%	1.5%	12.2%	1.90%
t, to Barrier:	84.0 feet									
to Observer:	84.0 feet		NO	oise So	ource Ele	vations	(In fe	et)		
to Observer:	0.0 feet				Autos:	0.0	00			
Above Pad):	5.0 feet			Mediur	n Trucks:	2.2	97	Crada Ad	i u o france a fr	
d Elevation:	0.0 feet			Heav	y Trucks:	8.0	J4	Grade Adj	usunem.	0.0
d Elevation:	0.0 feet		La	ne Equ	uivalent	Distance	e (in f	eet)		
Road Grade:	0.0%				Autos:	33.9	41			
Left View:	-90.0 degree	s		Mediur	n Trucks:	33.6	79			
Right View:	90.0 degree	s		Heav	y Trucks:	33.7	05			
el Calculations	;									
REMEL	Traffic Flow	Distan	се	Finite	Road	Fresne	e/ .	Barrier Att	en Ber	m Atten
71.78	1.05		2.42		-1.20	-	4.75	0.0	000	0.000
82.40	-11.93		2.47		-1.20	-	4.88	0.0	000	0.000
86.40	-15.87		2.47		-1.20	-	5.21	0.0	000	0.000
Levels (witho	out Topo and I	barrier a	ttenua	ation)						
Leq Peak Hou	r Leq Day	Le	eq Eve	ning	Leq N	ight		Ldn	CI	VEL
74.	1 7	1.5		70.6		67.6		74.8	3	75.2
71.	76	9.8		64.2		64.7		72.1		72.3
				59.9		63.1		71.2	2	71.3
71.	8 7	0.4		30.0		00.1				
71.	8 7 4 7	0.4 '5.4		71.7		70.3		77.7	,	78.0
71. 77. re to Noise Co	8 7 4 7 ntour (in feet)	0.4 '5.4		71.7		70.3		77.7	,	78.0
71. 77. re to Noise Co	8 7 4 7 ntour (in feet)	/5.4	70 dB	71.7	65 d	70.3 BA	6	77.7 0 dBA	55	78.0 dBA
71. 77. se to Noise Co	8 7 4 7 ntour (in feet)	.dn:	70 dB 275	71.7	65 d	70.3 BA	6	77.7 0 dBA 1,277	55	78.0 dBA 751
	FHW C: Existing Vitie C: Existing Vitie : Archibald A (4): Fredfic (Adt): Percentage: our Volume: inicle Speed: te Distance: inicle Speed: te Distance: te Distance:	FHWA-RD-77-108 D2: Existing Without Project := Archibald A D2: Existing Without Project := Archibald A stransbald A tt: n/o Limonite Av. SPECIFIC INPUT DATA Traffic (Adt): 25,446 vehicle Percentage: 10% our Volume: 2,545 vehicles icle Speed: 55 mph neb Distance: 154 feet rifer Height: 0.0 feet o Observer: 84.0 feet o Observer: 84.0 feet o Observer: 0.0 feet d Elevation: 0.0 feet d Elevation: 0.0 feet d Elevation: 0.0 degree REMEL Traffic Flow 71.78 1.05 82.40 -11.93 86.40 -15.87 Levels (without Topo and I Leg Peak How Leg Poak J	FHWA-RD-77-108 HIGHW/ FHWA-RD-77-108 HIGHW/ D2: Existing Without Project # #: Archibald Av. # strentbald Av. # <td>FHWA-RD-77-108 HIGHWAY NO D2: Existing Without Project: # #: Archibald Av. Si SPECIFIC INPUT DATA Si Traffic (Adt): 25,446 vehicles Percentage: 10% Dur Volume: 2,545 vehicles Distance: 154 feet rier Height: 0.0 feet all, 1-Berm): 0.0 t. to Barrier: 84.0 feet o Observer: 0.0 feet d Elevation: 0.0 feet d Elevation: 0.0 feet d Elevation: 0.0 feet Left View: 90.0 degrees REMEL Traffic Flow Distance T1.78 1.05 2.42 82.40 -11.93 2.47 86.40 -15.87 2.47 Levels (without Tops and barrier attenuture Leg Eve 71.7 6.98</td> <td>FHWA-RD-77-108 HIGHWAY NOISE PF D:: Existing Without Project :: Archibald Av. D:: Existing Without Project :: Archibald Av. SPECIFIC INPUT DATA Site Com Traffic (Adt): 25,446 vehicles Percentage: 10% Dur Volume: 2,545 vehicles Metage 55 mph vehicle Speed: 55 mph rier Height: 0.0 feet Jal, 1-Berrm): 0.0 t. to Barrier: 84.0 feet o Observer: 90.0 degrees d Elevation: 0.0 feet Macount 0.0 feet Lane Equ Mediur REMEL Traffic Flow Distance Pinite Traffic Flow Distance REMEL Traffic Flow Distance REMEL Traffic Flow Distance Res.40 -11.93 2.47 86.40 -15.87 2.47 Levels (without Top and barrier attenuation) Leg Peak Hour Leg Evening T4.1 71.5 70.6 <!--</td--><td>FHWA-RD-77-108 HIGHWAY NOISE PREDICTIC D2: Existing Without Project Project N 2:: Archibald Average Job Nur stantial Average Site Conditions (Ir stantial Average No stantial Average Medium Truc Percentage: 154 feet vehicle Speed: Stantion: icle Speed: 55 mph vehicle Mix Vehicle Mix vehicle Speed: Stantion: icle Speed: 5.0 feet all, 1-Berm): 0.0 feet all, 1-Berm): 0.0 feet all, 1-Berm): 0.0 feet all of Elevation: 0.0 feet all Clevation: 0.0 feet d Elevation: 0.0 feet Left Weiv: 90.0 degrees REMEL Traffic Flow Distance Fline Road 1.71.78 1.05 2.47 -1.20 86.40 -15.87 2.47 -1.20 86.40 -15.87 2.47 -1.20 1.40 Trop and barrier attenuation)</td><td>FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MOD D2: Existing Without Project Project Name: N b: Archibald Av. Job Number: 1 b: Archibald Av. Job Number: 1 stracting Without Project Project Name: N stracting Vithout Project Site Conditions (Hard = 1 Traffic (Adt): 25,446 vehicles Percentage: 10% our Volume: 2,545 vehicles icle Speed: 55 mph tel Distance: 154 feet vehicleType L Autos:: 0.0 rier Height: 0.0 feet Above Pad): 5.0 feet Observer: 84.0 feet Above Pad): 5.0 feet d Elevation: 0.0 feet d Elevation: 0.0 feet d Elevation: 0.0 feet Left View: 90.0 degrees REMEL Traffic Flow Distance Finite Road TATS 2.47 1.58 2.47 e164 View: 90.0 degrees REMEL</td><td>FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL 20: Existing Without Project Project Name: MCH Job Number: 10351 21: Archibald Av. Job Number: 10351 22: Archibald Av. Job Number: 10351 23: SPECIFIC INPUT DATA NOISE MODDEl SPECIFIC INPUT CATA NOISE MODDEL SPECIFIC INPUT CATA NOISE MODDEL SPECIFIC INPUT CATA Autos: SPECIFIC INPUT CATA Molitam Trucks (71.0% SPECIFIC INPUT CATA Mole Source Elevations (In fe Autos: SPECIFIC INPUT CAS 80.04 I. Beavitorin: 0.0 feet Above Pati): 5.0 feet d Elevation: 0.0 feet Calcula</td><td>FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL 20: Existing Without Project Project Name: MCH Job Number: 10351 21: Archibald Av. Job Number: 10351 22: Existing Without Project Project Name: MCH Job Number: 10351 22: State Conditions (Hard = 10, Soft = 15) Site Conditions (Hard = 10, Soft = 15) 23: Free Reight: Autos: 15 24: Archibald Av. Autos: 15 25: State Conditions (Hard = 10, Soft = 15) Autos: 15 25: State Conditions (Hard = 10, Soft = 15) Autos: 15 25: State Conditions (Hard = 10, Soft = 15) Autos: 15 25: State Conditions (Hard = 10, Soft = 15) Medium Trucks (2 Autes): 15 25: State Conditions (Garde: 55 mph Vehicle Mix 16: Barrier: 84.0 feet Vehicle Mix 11: Barrier: 0.0 Medium Trucks: 77.0% 11: Barrier: 0.0 feet Autos: 66.3% 12: Barrier Att 13.5% 14: Dearrier: 0.0 feet Autos: 0.000 15: Observer: 0.0 feet Autos: 33.491 14: Eft View: 90.0 degrees Heavy Trucks: 33.679 Right View: 90.0 de</td><td>FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL 20: Existing Without Project Project Name: MCH Job Number: 10351 21: Archibald Av. Job Number: 10351 22: Archibald Av. Job Number: 10351 23: SPECIFIC INPUT DATA NOISE MODEL INPUTS Site Conditions (Hard = 10, Soft = 15) France: 15 Fraffic (Adt): 25,446 vehicles Percentage: 10% aur Volume: 2,545 vehicles icle Speed: 55 mph tel Distance: 154 feet Vehicle Mix Vehicle Mix Vehicle Type Day Autos: 66.3% 15.5% 1: Berrier: 0.0 feet Autos: 66.3% 15.5% 1: Clearrier: 84.0 feet Autos: 66.3% 15.5% 0: Observer: 0.0 feet Autos: 80.04 Grade Adjustment: d Elevation: 0.0 feet Autos: 33.941 Left Wiw: 0: Observer: 90.0 degrees Heavy Trucks: 33.705 Heavy Trucks: 33.705 I Eft Wein:</td></td>	FHWA-RD-77-108 HIGHWAY NO D2: Existing Without Project: # #: Archibald Av. Si SPECIFIC INPUT DATA Si Traffic (Adt): 25,446 vehicles Percentage: 10% Dur Volume: 2,545 vehicles Distance: 154 feet rier Height: 0.0 feet all, 1-Berm): 0.0 t. to Barrier: 84.0 feet o Observer: 0.0 feet d Elevation: 0.0 feet d Elevation: 0.0 feet d Elevation: 0.0 feet Left View: 90.0 degrees REMEL Traffic Flow Distance T1.78 1.05 2.42 82.40 -11.93 2.47 86.40 -15.87 2.47 Levels (without Tops and barrier attenuture Leg Eve 71.7 6.98	FHWA-RD-77-108 HIGHWAY NOISE PF D:: Existing Without Project :: Archibald Av. D:: Existing Without Project :: Archibald Av. SPECIFIC INPUT DATA Site Com Traffic (Adt): 25,446 vehicles Percentage: 10% Dur Volume: 2,545 vehicles Metage 55 mph vehicle Speed: 55 mph rier Height: 0.0 feet Jal, 1-Berrm): 0.0 t. to Barrier: 84.0 feet o Observer: 90.0 degrees d Elevation: 0.0 feet Macount 0.0 feet Lane Equ Mediur REMEL Traffic Flow Distance Pinite Traffic Flow Distance REMEL Traffic Flow Distance REMEL Traffic Flow Distance Res.40 -11.93 2.47 86.40 -15.87 2.47 Levels (without Top and barrier attenuation) Leg Peak Hour Leg Evening T4.1 71.5 70.6 </td <td>FHWA-RD-77-108 HIGHWAY NOISE PREDICTIC D2: Existing Without Project Project N 2:: Archibald Average Job Nur stantial Average Site Conditions (Ir stantial Average No stantial Average Medium Truc Percentage: 154 feet vehicle Speed: Stantion: icle Speed: 55 mph vehicle Mix Vehicle Mix vehicle Speed: Stantion: icle Speed: 5.0 feet all, 1-Berm): 0.0 feet all, 1-Berm): 0.0 feet all, 1-Berm): 0.0 feet all of Elevation: 0.0 feet all Clevation: 0.0 feet d Elevation: 0.0 feet Left Weiv: 90.0 degrees REMEL Traffic Flow Distance Fline Road 1.71.78 1.05 2.47 -1.20 86.40 -15.87 2.47 -1.20 86.40 -15.87 2.47 -1.20 1.40 Trop and barrier attenuation)</td> <td>FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MOD D2: Existing Without Project Project Name: N b: Archibald Av. Job Number: 1 b: Archibald Av. Job Number: 1 stracting Without Project Project Name: N stracting Vithout Project Site Conditions (Hard = 1 Traffic (Adt): 25,446 vehicles Percentage: 10% our Volume: 2,545 vehicles icle Speed: 55 mph tel Distance: 154 feet vehicleType L Autos:: 0.0 rier Height: 0.0 feet Above Pad): 5.0 feet Observer: 84.0 feet Above Pad): 5.0 feet d Elevation: 0.0 feet d Elevation: 0.0 feet d Elevation: 0.0 feet Left View: 90.0 degrees REMEL Traffic Flow Distance Finite Road TATS 2.47 1.58 2.47 e164 View: 90.0 degrees REMEL</td> <td>FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL 20: Existing Without Project Project Name: MCH Job Number: 10351 21: Archibald Av. Job Number: 10351 22: Archibald Av. Job Number: 10351 23: SPECIFIC INPUT DATA NOISE MODDEl SPECIFIC INPUT CATA NOISE MODDEL SPECIFIC INPUT CATA NOISE MODDEL SPECIFIC INPUT CATA Autos: SPECIFIC INPUT CATA Molitam Trucks (71.0% SPECIFIC INPUT CATA Mole Source Elevations (In fe Autos: SPECIFIC INPUT CAS 80.04 I. Beavitorin: 0.0 feet Above Pati): 5.0 feet d Elevation: 0.0 feet Calcula</td> <td>FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL 20: Existing Without Project Project Name: MCH Job Number: 10351 21: Archibald Av. Job Number: 10351 22: Existing Without Project Project Name: MCH Job Number: 10351 22: State Conditions (Hard = 10, Soft = 15) Site Conditions (Hard = 10, Soft = 15) 23: Free Reight: Autos: 15 24: Archibald Av. Autos: 15 25: State Conditions (Hard = 10, Soft = 15) Autos: 15 25: State Conditions (Hard = 10, Soft = 15) Autos: 15 25: State Conditions (Hard = 10, Soft = 15) Autos: 15 25: State Conditions (Hard = 10, Soft = 15) Medium Trucks (2 Autes): 15 25: State Conditions (Garde: 55 mph Vehicle Mix 16: Barrier: 84.0 feet Vehicle Mix 11: Barrier: 0.0 Medium Trucks: 77.0% 11: Barrier: 0.0 feet Autos: 66.3% 12: Barrier Att 13.5% 14: Dearrier: 0.0 feet Autos: 0.000 15: Observer: 0.0 feet Autos: 33.491 14: Eft View: 90.0 degrees Heavy Trucks: 33.679 Right View: 90.0 de</td> <td>FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL 20: Existing Without Project Project Name: MCH Job Number: 10351 21: Archibald Av. Job Number: 10351 22: Archibald Av. Job Number: 10351 23: SPECIFIC INPUT DATA NOISE MODEL INPUTS Site Conditions (Hard = 10, Soft = 15) France: 15 Fraffic (Adt): 25,446 vehicles Percentage: 10% aur Volume: 2,545 vehicles icle Speed: 55 mph tel Distance: 154 feet Vehicle Mix Vehicle Mix Vehicle Type Day Autos: 66.3% 15.5% 1: Berrier: 0.0 feet Autos: 66.3% 15.5% 1: Clearrier: 84.0 feet Autos: 66.3% 15.5% 0: Observer: 0.0 feet Autos: 80.04 Grade Adjustment: d Elevation: 0.0 feet Autos: 33.941 Left Wiw: 0: Observer: 90.0 degrees Heavy Trucks: 33.705 Heavy Trucks: 33.705 I Eft Wein:</td>	FHWA-RD-77-108 HIGHWAY NOISE PREDICTIC D2: Existing Without Project Project N 2:: Archibald Average Job Nur stantial Average Site Conditions (Ir stantial Average No stantial Average Medium Truc Percentage: 154 feet vehicle Speed: Stantion: icle Speed: 55 mph vehicle Mix Vehicle Mix vehicle Speed: Stantion: icle Speed: 5.0 feet all, 1-Berm): 0.0 feet all, 1-Berm): 0.0 feet all, 1-Berm): 0.0 feet all of Elevation: 0.0 feet all Clevation: 0.0 feet d Elevation: 0.0 feet Left Weiv: 90.0 degrees REMEL Traffic Flow Distance Fline Road 1.71.78 1.05 2.47 -1.20 86.40 -15.87 2.47 -1.20 86.40 -15.87 2.47 -1.20 1.40 Trop and barrier attenuation)	FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MOD D2: Existing Without Project Project Name: N b: Archibald Av. Job Number: 1 b: Archibald Av. Job Number: 1 stracting Without Project Project Name: N stracting Vithout Project Site Conditions (Hard = 1 Traffic (Adt): 25,446 vehicles Percentage: 10% our Volume: 2,545 vehicles icle Speed: 55 mph tel Distance: 154 feet vehicleType L Autos:: 0.0 rier Height: 0.0 feet Above Pad): 5.0 feet Observer: 84.0 feet Above Pad): 5.0 feet d Elevation: 0.0 feet d Elevation: 0.0 feet d Elevation: 0.0 feet Left View: 90.0 degrees REMEL Traffic Flow Distance Finite Road TATS 2.47 1.58 2.47 e164 View: 90.0 degrees REMEL	FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL 20: Existing Without Project Project Name: MCH Job Number: 10351 21: Archibald Av. Job Number: 10351 22: Archibald Av. Job Number: 10351 23: SPECIFIC INPUT DATA NOISE MODDEl SPECIFIC INPUT CATA NOISE MODDEL SPECIFIC INPUT CATA NOISE MODDEL SPECIFIC INPUT CATA Autos: SPECIFIC INPUT CATA Molitam Trucks (71.0% SPECIFIC INPUT CATA Mole Source Elevations (In fe Autos: SPECIFIC INPUT CAS 80.04 I. Beavitorin: 0.0 feet Above Pati): 5.0 feet d Elevation: 0.0 feet Calcula	FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL 20: Existing Without Project Project Name: MCH Job Number: 10351 21: Archibald Av. Job Number: 10351 22: Existing Without Project Project Name: MCH Job Number: 10351 22: State Conditions (Hard = 10, Soft = 15) Site Conditions (Hard = 10, Soft = 15) 23: Free Reight: Autos: 15 24: Archibald Av. Autos: 15 25: State Conditions (Hard = 10, Soft = 15) Autos: 15 25: State Conditions (Hard = 10, Soft = 15) Autos: 15 25: State Conditions (Hard = 10, Soft = 15) Autos: 15 25: State Conditions (Hard = 10, Soft = 15) Medium Trucks (2 Autes): 15 25: State Conditions (Garde: 55 mph Vehicle Mix 16: Barrier: 84.0 feet Vehicle Mix 11: Barrier: 0.0 Medium Trucks: 77.0% 11: Barrier: 0.0 feet Autos: 66.3% 12: Barrier Att 13.5% 14: Dearrier: 0.0 feet Autos: 0.000 15: Observer: 0.0 feet Autos: 33.491 14: Eft View: 90.0 degrees Heavy Trucks: 33.679 Right View: 90.0 de	FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL 20: Existing Without Project Project Name: MCH Job Number: 10351 21: Archibald Av. Job Number: 10351 22: Archibald Av. Job Number: 10351 23: SPECIFIC INPUT DATA NOISE MODEL INPUTS Site Conditions (Hard = 10, Soft = 15) France: 15 Fraffic (Adt): 25,446 vehicles Percentage: 10% aur Volume: 2,545 vehicles icle Speed: 55 mph tel Distance: 154 feet Vehicle Mix Vehicle Mix Vehicle Type Day Autos: 66.3% 15.5% 1: Berrier: 0.0 feet Autos: 66.3% 15.5% 1: Clearrier: 84.0 feet Autos: 66.3% 15.5% 0: Observer: 0.0 feet Autos: 80.04 Grade Adjustment: d Elevation: 0.0 feet Autos: 33.941 Left Wiw: 0: Observer: 90.0 degrees Heavy Trucks: 33.705 Heavy Trucks: 33.705 I Eft Wein:

Thursday, May 02, 2019

	FHW	/A-RD-77-108 I	HIGHV	VAY N	IOISE PI	REDICTI	ON MC	DEL			
Scenari Road Nam Road Segmer	o: Existing Wit e: Archibald A at: s/o Limonite	hout Project v. e Av.				Project I Job Nu	Vame: Imber:	MCH 10351			
SITE	SPECIFIC IN	PUT DATA				N	DISE	MODE	L INPU	٢S	
Highway Data					Site Con	ditions (Hard =	= 10, Sc	oft = 15)		
Average Daily Peak Hour Peak H	Traffic (Adt): Percentage: our Volume:	24,166 vehicle: 10% 2,417 vehicles	6		Me He	dium Tru avy Truc	cks (2 ks (3+	Autos: Axles): Axles):	15 15 15		
Ve	hicle Speed:	45 mph			Vehicle	Mix					
Near/Far La	ne Distance:	78 feet			Veh	icleType		Day	Evening	Nigh	t Daily
Site Data						A	utos:	66.3%	13.5%	20.3	3% 93.40%
Bar	rier Heiaht:	0.0 feet			M	edium Tri	icks:	77.0%	5.3%	17.6	3% 4.70%
Barrier Type (0-W	all, 1-Berm):	0.0			ŀ	Heavy Tru	icks:	86.3%	1.5%	12.2	2% 1.90%
Centerline Dis	t. to Barrier:	76.0 feet			Noise Si	ource Fle	vatior	ns (in fø	pet)		
Centerline Dist.	to Observer:	76.0 feet		F		Autos	· 0	000	,00		
Barrier Distance	to Observer:	0.0 feet			Modiu	m Trucks	. 0.	207			
Observer Height (Above Pad):	5.0 feet			Heat	n Trucks	. 8	004	Grade A	diustme	ent: 0.0
Pa	d Elevation:	0.0 feet		L	mour	y maona	. 0			-,	
Roa	d Elevation:	0.0 feet		1	Lane Eq	uivalent	Distan	ice (in i	feet)		
I	Road Grade:	0.0%				Autos	65	.422			
	Left View:	-90.0 degree	5		Mediu	m Trucks	: 65	.286			
	Right View:	90.0 degree	5		Heav	ry Trucks	65	.299			
FHWA Noise Mode	el Calculations	5									-
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fres	nel	Barrier A	tten I	Berm Atten
Autos:	68.46	1.70		-1.8	5	-1.20		-4.73	0	.000	0.00
Medium Trucks:	79.45	-11.28		-1.84	4	-1.20		-4.88	0	.000	0.00
Heavy Trucks:	84.25	-15.22		-1.84	4	-1.20		-5.25	0	.000	0.00
Unmitigated Noise	Levels (with	out Topo and L	arrier	r atten	uation)						
VehicleType	Leq Peak Hou	r Leq Day		Leq E	vening	Leq I	light		Ldn		CNEL
Autos:	67.	1 6	4.5		63.6		60.	6	67	.8	68.
Medium Trucks:	65.	1 6	3.2		57.6		58.	0	65	.4	65.
Heavy Trucks:	66.	0 6	4.6		53.0		57.	3	65	.4	65.
Vehicle Noise:	70.	96	8.9		64.9		63.	7	71	.1	71.
Centerline Distance	e to Noise Co	ntour (in feet)									
Centerline Distance	e to Noise Co	ntour (in feet)		70 0	dBA	65 a	BA	6	0 dBA		55 dBA
Centerline Distand	e to Noise Co	ntour (in feet)	dn:	70 d 9	dBA 1	65 a 19	BA 5	6	0 dBA 421		55 dBA 906

	FHV	VA-RD-77-108 HI	GHWAY	NOISE PI	REDICTIC	IN MODE	L			
Scenar	io: Existing Wi	thout Project			Project N	lame: MC	н			
Road Segme	nt: s/o Schleisi	w. man Rd.			JUD IVUI	nber. 10.	301			
SITE	SPECIFIC IN	IPUT DATA			NC	DISE MO	DEL INPL	JTS		
Highway Data				Site Con	ditions (F	lard = 10	, Soft = 15)			
Average Daily	Traffic (Adt):	21,994 vehicles				Au	tos: 15			
Peak Hour	Percentage:	10%		Me	dium Truc	ks (2 Axl	es): 15			
Peak H	lour Volume:	2,199 vehicles		He	avy Truck	s (3+ Axl	es): 15			
Ve	ehicle Speed:	45 mph		Vehicle	Mix					-
Near/Far La	ne Distance:	78 feet		Veh	icleType	Da	y Evenin	g Ni	ight	Daily
Site Data					AL	itos: 66	.3% 13.59	% 2	0.3% !	93.40%
Ba	rrier Height	0.0 feet		M	edium Tru	cks: 77	.0% 5.39	% 1	7.6%	4.70%
Barrier Type (0-V	Vall, 1-Berm):	0.0		I	Heavy Tru	cks: 86	.3% 1.59	% 1	2.2%	1.90%
Centerline Di	ist. to Barrier:	76.0 feet		Noise Se	ource Ele	vations (in feet)			
Centerline Dist.	to Observer:	76.0 feet			Autos:	0.000)			
Barrier Distance	to Observer:	0.0 feet		Mediu	m Trucks:	2.29	,			
Observer Height	(Above Pad):	5.0 feet		Heav	v Trucks:	8.004	Grade	Adjust	ment:	0.0
P	ad Elevation:	0.0 feet					<i></i>	-		
Ro	ad Elevation:	0.0 feet		Lane Eq	uivalent L	Jistance	(in feet)			
	Road Grade:	0.0%			Autos:	65.42	2			
	Left View:	-90.0 degrees		Mediu	m Trucks:	65.28	j			
	Right View:	90.0 degrees		Heav	y Trucks:	65.29	9			
FHWA Noise Mod	lel Calculation	s								
VehicleType	REMEL	Traffic Flow	Distance	Finite	Road	Fresnel	Barrier J	Atten	Berm	Atten
Autos:	68.46	1.29	-1.4	85	-1.20	-4.	73	0.000		0.000
Medium Trucks:	79.45	-11.69	-1.6	84	-1.20	-4.	88	0.000		0.000
Heavy Trucks:	84.25	-15.63	-1.8	84	-1.20	-5.	25	0.000		0.000
Unmitigated Nois	e Levels (with	out Topo and ba	rrier atte	nuation)	_					
VehicleType	Leq Peak Hou	r Leq Day	Leq I	Evening	Leq N	ight	Ldn		CNE	EL
Autos:	66	.7 64	.1	63.2		60.2	6	7.4		67.8
Medium Trucks:	64	.7 62	.8	57.2		57.6	6	5.0		65.2
Heavy Trucks:	65	.6 64	.2	52.6		56.9	6	5.0		65.1
Vehicle Noise:	70	.5 68	.5	64.5		63.3	7	0.7		71.0
Centerline Distan	ce to Noise Co	ontour (in feet)								
			70	dBA	65 dl	BA	60 dBA		55 d	BA
		Ld	n:	85	183	5	395		85	1
		CNE	L:	89	191		412		88	(

Thursday, May 02, 2019

	FH\	VA-RD-77-108	HIGHWA	Y NOI	ISE PI	REDICT	ION MO	DEL				
Scenar Road Nam Road Segme	io: Existing Wi ne: Kimball Av. nt: w/o Mounta	ithout Project ain Av.				Project Job N	Name: lumber:	MCH 10351				
SITE	SPECIFIC IN	IPUT DATA				N	IOISE N	/IODE	L INPUT	s		
Highway Data				Site	e Cor	nditions	(Hard =	10, S	oft = 15)			
Average Daily	Traffic (Adt):	19,433 vehicl	es					Autos.	15			
Peak Hour	Percentage:	10%			Me	edium Tri	ucks (2 A	Axles).	: 15			
Peak H	lour Volume:	1,943 vehicle	s		He	avy Tru	cks (3+ A	Axles).	: 15			
Ve	hicle Speed:	50 mph		Vel	hicle	Mix						
Near/Far La	ne Distance:	36 feet			Veh	icleTvpe	,	Dav	Evenina	Niał	nt l	Dailv
Site Data							Autos:	66.3%	6 13.5%	20.3	3% 9	3.40%
Ba	rrier Heiaht:	0.0 feet			М	edium T	rucks:	77.0%	6 5.3%	17.6	5% ·	4.70%
Barrier Type (0-W	/all, 1-Berm):	0.0			I	Heavy Ti	rucks:	86.3%	6 1.5%	12.2	2%	1.90%
Centerline Di	st. to Barrier:	44.0 feet		No	ise S	ource E	levation	s (in f	eet)			
Centerline Dist.	to Observer:	44.0 feet				Auto	s: 0.0	000	,			
Barrier Distance	to Observer:	0.0 feet		1	Mediu	m Truck	s: 2.1	297				
Observer Height ((Above Pad):	5.0 feet			Heav	vy Truck	s: 8.0	004	Grade Adj	iustme	ent: 0	.0
Pa	ad Elevation:	0.0 feet										
Roa	ad Elevation:	0.0 feet		Lai	ne Eq	uivalen	t Distan	ce (In	teet)			
	Road Grade:	0.0%				Auto	s: 40.4	460				
	Left View:	-90.0 degre	es		viediu	m Truck	s: 40.	241				
	Right View:	90.0 degre	es		Heat	у тиск	s: 40.	262				
FHWA Noise Mod	el Calculation	s										
VehicleType	REMEL	Traffic Flow	Distan	ce .	Finite	Road	Fresr	iel 🛛	Barrier Atte	en l	Berm .	Atten
Autos:	70.20	0.29		1.28		-1.20		-4.61	0.0	00		0.000
Medium Trucks:	81.00	-12.69		1.31		-1.20		-4.87	0.0	00		0.000
Heavy Trucks:	85.38	-16.62		1.31		-1.20		-5.50	0.0	00		0.000
Unmitigated Nois	e Levels (with	out Topo and	barrier a	ttenua	tion)							
VehicleType	Leq Peak Hou	ir Leq Day	/ Le	q Ever	ning	Leq	Night		Ldn		CNE	L
Autos:	70	.6	68.0		67.1		64.1		71.3			71.7
Medium Trucks:	68	.4	66.5		60.9		61.3	5	68.7			68.9
Vehicle Noise:	68 74	.9	67.4 72.1		55.9 68.3		60.2	:)	68.3 74.4	1		68.3 74.7
Centerline Distan	ce to Noise Ci	ontour (in feet)		20.0		07.0					
Contentine Distant		intear (in reer	/	70 dB/	4	65	dBA		60 dBA		55 dE	A
			Ldn:	87		1	87		402		867	
		C	NEL:	90		1	95		420		905	

	FH\	VA-RD-77-108	HIGHWA	Y NO	ISE PREDIC	TION M	ODEL			
Scenar	io: Existing Wi	thout Project			Proje	ct Name	: MCH			
Road Nan	ne: Kimball Av.				Job	Number	: 10351			
Road Segme	nt: w/o Euclid	Av.								
SITE	SPECIFIC IN	IPUT DATA				NOISE	MODE	L INPUTS	s	
Highway Data				Sit	e Conditior	ıs (Hard	= 10, S	oft = 15)		
Average Daily	Traffic (Adt):	22,184 vehicle	s				Autos	: 15		
Peak Hour	Percentage:	10%			Medium	Trucks (2	? Axles)	: 15		
Peak H	lour Volume:	2,218 vehicles	6		Heavy T	rucks (3+	Axles)	: 15		
Ve	hicle Speed:	50 mph		Ve	hicle Mix					
Near/Far La	ne Distance:	36 feet			VehicleTy	pe	Day	Evening	Night	Daily
Site Data						Autos:	66.3%	6 13.5%	20.3%	93.40%
Ba	rrier Height:	0.0 feet			Medium	Trucks:	77.0%	6 5.3%	17.6%	4.70%
Barrier Type (0-V	Vall, 1-Berm):	0.0			Heavy	Trucks:	86.3%	6 1.5%	12.2%	1.90%
Centerline D	ist. to Barrier:	44.0 feet		No	iso Sourco	Elovatio	ne (in t	(oot)		
Centerline Dist.	to Observer:	44.0 feet		140	A	too: (000	eel)		
Barrier Distance	to Observer:	0.0 feet			Au Modium Tru	ius. (2 207			
Observer Height	(Above Pad):	5.0 feet			Hoow Tru	oko: 1	2.237	Grade Adi	iustment:	0.0
P	ad Elevation:	0.0 feet			neavy na	JAG. 1	5.004	,		0.0
Ro	ad Elevation:	0.0 feet		La	ne Equivale	ent Dista	nce (in	feet)		
	Road Grade:	0.0%			Au	tos: 4	0.460			
	Left View:	-90.0 degree	s	1	Medium Tru	cks: 4	0.241			
	Right View:	90.0 degree	s		Heavy Tru	cks: 4	0.262			
FHWA Noise Mod	lel Calculation	s								
VehicleType	REMEL	Traffic Flow	Distan	ce	Finite Road	Fre	snel	Barrier Atte	en Berr	n Atten
Autos:	70.20	0.87		1.28	-1.2	D	-4.61	0.0	000	0.000
Medium Trucks		10.11		1 9 1		0	4 07	0.0	000	0.000
modium maono.	81.00	-12.11		1.31	-1.2	J	-4.07	0.0	000	
Heavy Trucks:	81.00 85.38	-16.05		1.31	-1.2	D	-4.87 -5.50	0.0	000	0.000
Heavy Trucks: Unmitigated Nois	81.00 85.38 e Levels (with	-12.11 -16.05 out Topo and	barrier a	1.31 1.31 ttenua	-1.2 -1.2 ntion)	0	-5.50	0.0	100	0.000
Heavy Trucks: Unmitigated Nois VehicleType	81.00 85.38 e Levels (with Leq Peak Hou	-12.11 -16.05 out Topo and r Leq Day	barrier a	1.31 1.31 ttenua q Ever	-1.2 -1.2 ning Le	o D eq Night	-4.87 -5.50	0.0 0.0	000 C/	0.000
Heavy Trucks: Unmitigated Nois VehicleType Autos:	81.00 85.38 e Levels (with Leq Peak Hou 71	-12.11 -16.05 out Topo and r Leq Day .1 (barrier a Le	1.31 1.31 ttenua q Ever	-1.2 -1.2 ning Le 67.7	0 0 9 <u>9 Night</u> 64	-4.87 -5.50	0.0 0.0 <i>Ldn</i> 71.9	000 CA	0.000 IEL 72.3
Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks:	81.00 85.38 e Levels (with Leq Peak Hou 71 69	-12.11 -16.05 out Topo and ir Leq Day .1 (.0 (barrier a Le 58.6 57.1	1.31 1.31 ttenua q Ever	-1.2 -1.2 hing Le 67.7 61.5	0 0 9 <i>Night</i> 64 61	-4.87 -5.50 .7	0.0 0.0 <i>Ldn</i> 71.9 69.3	000 000 000	0.000 IEL 72.3 69.5
Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks:	81.00 85.38 e Levels (with Leq Peak Hou 71 69 69	-12.11 -16.05 out Topo and a r Leq Day .1 (.0 (.4 (barrier a Le 58.6 57.1 58.0	1.31 ttenua q Ever	-1.2 -1.2 hing Le 67.7 61.5 56.4	0 0 9 64 61 60	-4.87 -5.50 1.7 1.9 0.8	Ldn 71.9 69.3 68.9	000 000 000 000	0.000 IEL 72.3 69.5 68.9
Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	81.00 85.38 e Levels (with Leg Peak Hou 71 69 69 74	-12.11 -16.05 out Topo and . .r Leq Day .1 (.0 (.4 (.7	barrier a Le 58.6 57.1 58.0 72.7	1.31 1.31 ttenua q Ever	-1.2 -1.2 hing Le 67.7 61.5 56.4 68.9	5 0 64 64 61 60 67	-4.87 -5.50 1.7 1.9 0.8 7.5	Ldn 71.9 69.3 68.9 75.0	000 000 000 000 000	0.000 IEL 72.3 69.5 68.9 75.3
Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	81.00 85.38 e Levels (with Leq Peak Hou 71 69 69 74 ce to Noise Co	-12.11 -16.05 out Topo and rr Leq Day .1 (.0 (.4 (.7) ontour (in feet)	barrier a Le 58.6 57.1 58.0 72.7	1.31 1.31 <i>ttenua</i> <i>q Ever</i>	-1.2 -1.2 hing Le 67.7 61.5 56.4 68.9	9 9 64 61 60 67	-4.87 -5.50 1.7 1.9 0.8 7.5	<i>Ldn</i> 71.9 69.3 68.9 75.0	000 000 000 000	0.000 IEL 72.3 69.5 68.9 75.3
Heavy Trucks: VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	81.00 85.38 e Levels (with Leq Peak Hou 71 69 69 74 ce to Noise Co	-12.11 -16.05 out Topo and rr Leq Day .1 (0.0 (4.4 (7.7) ontour (in feet)	barrier a Le 58.6 57.1 58.0 72.7	1.31 1.31 ttenua q Ever	-1.2 -1.2 hing Le 67.7 61.5 56.4 68.9 A 6	9 9 9 64 61 61 60 67 67 5 dBA	-4.87 -5.50 1.7 .9 0.8 '.5	0.0 0.0 71.9 69.3 68.9 75.0 60 dBA	000 C/ 0 0 0 55 (0.000 IEL 72.3 69.5 68.9 75.3
Heavy Trucks: VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	81.00 85.38 e Levels (with Leq Peak Hou 71 69 69 74 ce to Noise Co	-12.11 -16.05 out Topo and . ir Leq Day .1 (in equal to the second secon	barrier a Le 58.6 57.1 58.0 72.7 0 Ldn:	1.31 1.31 <u>ttenua</u> <u>q Ever</u> 70 dB, 95	-1.2 -1.2 hing Le 67.7 61.5 56.4 68.9 A 6	9 9 9 64 61 60 67 5 <i>dBA</i> 204	-4.87 -5.50 1.7 1.9 0.8 7.5	0.0 0.0 71.9 69.3 68.9 75.0 60 dBA 440	000 000 00 0 0 55 0 90	0.000 IEL 72.3 69.5 75.3 75.3 dBA

Thursday, May 02, 2019

	FHV	VA-RD-77-108	HIGH	WAY N	IOISE P	REDICT		DDEL			
Scena Road Nan Road Segme	rio: Existing Wi ne: Kimball Av. ent: e/o Euclid A	thout Project				Project Job N	Name: lumber:	MCH 10351			
SITE	SPECIFIC IN	IPUT DATA				N	IOISE	MODE	L INPUT	s	
Highway Data					Site Cor	nditions	(Hard :	= 10, Se	oft = 15)		
Average Daily Peak Hour Peak F	Traffic (Adt): Percentage: Hour Volume:	17,975 vehicle 10% 1,798 vehicle	es s		Me He	edium Tri eavy Tru	ucks (2 cks (3+	Autos: Axles): Axles):	15 15 15		
Ve	ehicle Speed:	50 mph		-	Vohiclo	Mix					
Near/Far La	ane Distance:	51 feet		-	Venicle	icleType		Dav	Evenina	Night	Daily
Site Data							Autos:	66.3%	13.5%	20.3%	93.40%
Re	wier Height	0.0 feet			М	edium T	rucks:	77.0%	5.3%	17.6%	4.70%
Barrier Type (0-V	Vall, 1-Berm):	0.0 1001				Heavy T	rucks:	86.3%	1.5%	12.2%	1.90%
Centerline D	ist. to Barrier:	49.0 feet		5	Noise S	ource E	levatio	ns (in f	eet)		
Centerline Dist.	to Observer:	49.0 feet				Auto	s: 0	.000	,		
Barrier Distance	to Observer:	0.0 feet			Mediu	m Truck	s: 2	.297			
Observer Height	(Above Pad):	5.0 feet			Hear	v Truck	s: 8	.004	Grade Ad	ljustmen	t: 0.0
P	ad Elevation:	0.0 feet		L						·	
Ro	ad Elevation:	0.0 feet		1	Lane Eq	uivalen	t Distai	nce (in	feet)		
	Road Grade:	0.0%				Auto	s: 42	.140			
	Left View: Right View:	-90.0 degree 90.0 degree	es es		Mediu Hear	m Truck vy Truck	s: 41 s: 41	.929 .950			
FHWA Noise Moo	lel Calculation	s									
VehicleType	REMEL	Traffic Flow	Dist	tance	Finite	Road	Fres	nel	Barrier At	ten Be	rm Atten
Autos:	70.20	-0.04		1.0	1	-1.20		-4.64	0.	000	0.00
Medium Trucks:	81.00	-13.03		1.0	4	-1.20		-4.87	0.	000	0.00
Heavy Trucks:	85.38	-16.96		1.0	4	-1.20		-5.44	0.	000	0.00
Unmitigated Nois	e Levels (with	out Topo and	barrie	r atten	uation)						
VehicleType	Leq Peak Hou	ır Leq Day	,	Leq E	vening	Leq	Night		Ldn	C	NEL
Autos:	70	.0	67.4		66.5		63	5	70.	7	71.
Medium Trucks:	67	.8	65.9		60.3		60	7	68.	1	68.
Heavy Trucks:	68	.3	66.8		55.2		59	6	67.	7	67.
Vehicle Noise:	73	.6	71.5		67.7		66	4	73.	8	74.
Centerline Distan	ce to Noise Co	ontour (in feet)	70 /	dRA	65	dRA		SO dBA	54	5 dBA
			I dn'	, , , , ,	8	1 1	90		408	1 00	880
		0	VEI ·	0	2	1	98		426		918
		Ci	*	5	~		00		720		,10

	FH\	WA-RD-77-108	HIGHW	AY N	OISE PI	REDICTIC	ON MO	DEL			
Scenar Road Nan Road Segme	io: Existing W ne: Kimball Av nt: w/o Rincon	ithout Project n Meadows Av.				Project N Job Nu	lame: mber:	MCH 10351			
SITE	SPECIFIC IN	NPUT DATA				NC	DISE N	NODE	L INPUT	s	
Highway Data				5	Site Con	ditions (l	Hard =	10, S	oft = 15)		
Average Daily	Traffic (Adt):	19,031 vehicle	s					Autos	: 15		
Peak Hour	Percentage:	10%			Me	dium Truc	cks (2 /	(Axles	: 15		
Peak H	lour Volume:	1,903 vehicles	5		He	avy Truck	:s (3+ A	Axles)	: 15		
Ve	hicle Speed:	50 mph			/ohiclo	Mix					-
Near/Far La	ne Distance:	51 feet		-	Veh	icleTvpe		Dav	Evenina	Niah	t Dailv
Site Data				-		AL	itos:	66.39	6 13.5%	20.3	% 93.40%
Ba	rrier Height	0.0 feet			Me	edium Tru	cks:	77.09	6 5.3%	17.6	% 4.70%
Barrier Type (0-W	/all. 1-Berm):	0.0			ŀ	Heavy Tru	cks:	86.3%	6 1.5%	12.2	% 1.90%
Centerline Di	st. to Barrier:	49.0 feet			Noiso Se	ourco Elo	vation	e (in i	(aat)		
Centerline Dist.	to Observer:	49.0 feet		1	10/36 30	Autos:	vauon 0	3 (III I 200	eei)		-
Barrier Distance	to Observer:	0.0 feet			Modiu	m Trucke:	2.0	207			
Observer Height	(Above Pad):	5.0 feet			Hoo	a Trucks.	2	201	Grade Ar	liustma	nt 0.0
P	ad Elevation:	0.0 feet			neav	y mucks.	0.	004	Orade Ad	justino	<i>m.</i> 0.0
Ro	ad Elevation:	0.0 feet		L	Lane Eq	uivalent l	Distan	ce (in	feet)		
	Road Grade:	0.0%				Autos:	42.	140			
	Left View:	-90.0 degree	s		Mediu	m Trucks:	41.	929			
	Right View:	90.0 degree	s		Heav	y Trucks:	41.	950			
FHWA Noise Mod	el Calculation	IS									
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresr	nel	Barrier At	ten E	Berm Atten
Autos:	70.20	0.20		1.01	1	-1.20		-4.64	0.	000	0.000
Medium Trucks:	81.00	-12.78		1.04	1	-1.20		-4.87	0.	000	0.000
Heavy Trucks:	85.38	-16.71		1.04	1	-1.20		-5.44	0.	000	0.000
Unmitigated Nois	e Levels (with	out Topo and	barrier	atten	uation)						
VehicleType	Leq Peak Ho	ur Leq Day	L	.eq Ev	/ening	Leq N	light		Ldn		CNEL
Autos:	70).2	67.6		66.7		63.8	3	70.	9	71.4
Medium Trucks:	68	3.1 (56.1		60.5		61.0)	68.	4	68.6
Heavy Trucks:	68	3.5	57.1		55.5		59.8	3	67.	9	68.0
Vehicle Noise:	73	3.8	71.8		67.9		66.6	6	74.	1	74.3
Centerline Distan	ce to Noise C	ontour (in feet,									
				70 a	1BA	65 d	BA		60 dBA	1	55 dBA
			Ldn:	91	1	197	7		424		914
		CI	IEL:	95	5	205	5		443		954

	FHW	A-RD-77-108	HIGHW.	AY NO	OISE P	REDICTI	ION MO	DEL				
Scenar Road Nan Road Segme	io: Existing Witl ne: Kimball Av. nt: e/o Rincon M	nout Project Neadows Av.				Project Job N	Name: I umber:	MCH 10351				
SITE	SPECIFIC IN	PUT DATA				N	IOISE N	NODE	L INPUT	s		
Highway Data				S	Site Cor	nditions	(Hard =	10, S	oft = 15)			
Average Daily	Traffic (Adt):	18,215 vehicle	s					Autos	: 15			
Peak Hour	Percentage:	10%			Me	edium Tru	ucks (2 A	(xles	: 15			
Peak H	lour Volume:	1,822 vehicles			He	avy Truc	cks (3+ A	(xles	: 15			
Ve	hicle Speed:	50 mph		V	ehicle/	Mix						
Near/Far La	ne Distance:	51 feet		-	Veh	nicleType		Day	Evening	Nig	ht	Daily
Site Data						Ā	Autos:	66.39	6 13.5%	20.	.3%	93.40%
Ba	rrier Heiaht:	0.0 feet			М	edium Ti	rucks:	77.0%	6 5.3%	17.	.6%	4.70%
Barrier Type (0-W	/all, 1-Berm):	0.0				Heavy Tr	rucks:	86.3%	6 1.5%	12	2%	1.90%
Centerline Di	st. to Barrier:	49.0 feet		N	loise S	ource El	evation	s (in i	feet)			
Centerline Dist.	to Observer:	49.0 feet				Autos	s: 0.0	000	,			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Truck	s: 2.2	297				
Observer Height	(Above Pad):	5.0 feet			Hear	v Truck	s: 8.0	004	Grade Ad	iustrr	nent:	0.0
P	ad Elevation:	0.0 feet		-								
Ro	ad Elevation:	0.0 feet		L	ane Eq	uivalent	Distant	ce (in	feet)			
	Road Grade:	0.0%				Autos	s: 42.	140				
	Left View:	-90.0 degree	s		Mediu	m Truck	s: 41.9	929				
	Right View:	90.0 degree	S		Hea	vy Trucks	S: 41.9	950				
FHWA Noise Mod	el Calculations											
VehicleType	REMEL	Traffic Flow	Distar	nce	Finite	Road	Fresn	iel	Barrier Att	en	Berm	Atten
Autos:	70.20	0.01		1.01		-1.20		-4.64	0.0	000		0.000
Medium Trucks:	81.00	-12.97		1.04		-1.20		-4.87	0.0	000		0.000
Heavy Trucks:	85.38	-16.90		1.04		-1.20		-5.44	0.0	000		0.000
Unmitigated Nois	e Levels (witho	ut Topo and I	barrier a	attenu	lation)							
VehicleType	Leq Peak Hour	Leq Day	Le	eq Eve	ening	Leq	Night		Ldn		CN	EL
Autos:	70.0) 6	7.5		66.6		63.6	6	70.7	7		71.2
Medium Trucks:	67.9	96	5.9		60.3		60.8	3	68.2	2		68.4
Heavy Trucks:	68.3	3 6	6.9		55.3		59.6	;	67.7	7		67.8
Vehicle Noise:	73.6	6 7	'1.6		67.7		66.4	ł	73.9	9		74.1
Centerline Distan	ce to Noise Co	ntour (in feet)			-							
				70 dł	BA	65	dBA		60 dBA		55 d	BA
		L	.dn:	89)	19	91		412		88	8
		Ch	IEL:	93		20	00		430		92	6

	FHW	/A-RD-77-108	HIGHW	AY NO	ISE PI	REDICTIO		DEL _			
Scenari	o: Existing Wit	hout Project				Project I	lame: N	ЛСН			
Road Nam	e: Kimball Av.	-				Job Nu	mber: 1	0351			
Road Segmer	nt: e/o Mill Cree	ek Av.									
SITE	SPECIFIC IN	PUT DATA				N	DISE N	IODE		S	
Highway Data				Si	te Con	ditions (Hard =	10, So	ft = 15)		
Average Daily	Traffic (Adt):	16,458 vehicle	es				1	Autos:	15		
Peak Hour	Percentage:	10%			Me	dium Tru	cks (2 A	xles):	15		
Peak H	our Volume:	1,646 vehicles	6		He	avy Truck	(3+ A	xles):	15		
Ve	hicle Speed:	50 mph		Ve	hicle	Mix					
Near/Far La	ne Distance:	51 feet			Veh	icleType		Day	Evening	Night	Daily
Site Data						A	utos:	56.3%	13.5%	20.3%	93.40%
Bai	rier Height	0.0 feet			Me	edium Tru	icks:	77.0%	5.3%	17.6%	4.70%
Barrier Type (0-W	all 1-Berm)	0.0			ŀ	leavy Tru	icks:	36.3%	1.5%	12.2%	1.90%
Centerline Dis	st. to Barrier:	49.0 feet									
Centerline Dist.	to Observer:	49.0 feet		NO	oise So	ource Ele	vations	in te	et)		
Barrier Distance	to Observer:	0.0 feet				Autos.	0.0	00			
Observer Height (Above Pad):	5.0 feet			Mediui	n Trucks.	2.2	97	0		
Pa	d Elevation:	0.0 feet			Heav	y Trucks.	8.0	04	Grade Adj	ustment	: 0.0
Roa	ad Elevation:	0.0 feet		La	ne Eq	uivalent	Distand	e (in f	eet)		
1	Road Grade:	0.0%				Autos.	42.1	40			
	Left View:	-90.0 degree	es		Mediu	n Trucks.	41.9	29			
	Right View:	90.0 degree	es		Heav	y Trucks.	41.9	50			
FHWA Noise Mode	el Calculations	;									
VehicleType	REMEL	Traffic Flow	Distan	ice	Finite	Road	Fresn	el i	Barrier Att	en Ber	m Atten
Autos:	70.20	-0.43		1.01		-1.20		4.64	0.0	000	0.000
Medium Trucks:	81.00	-13.41		1.04		-1.20		4.87	0.0	000	0.000
Heavy Trucks:	85.38	-17.34		1.04		-1.20		5.44	0.0	000	0.000
Unmitigated Noise	e Levels (witho	out Topo and	barrier a	attenua	ation)						
VehicleType	Leq Peak Hou	r Leq Day	Le	eq Eve	ning	Leq N	light		Ldn	C	NEL
Autos:	69.	6 (67.0		66.1		63.1		70.3	3	70.7
Medium Trucks:	67.	4	65.5		59.9		60.3		67.8	3	67.9
		9 (66.4		54.9		59.2		67.3	3	67.4
Heavy Trucks:	67.						00.0		72 /	L	73.7
Heavy Trucks: Vehicle Noise:	67. 73.	2	71.1		67.3		66.0		10.4	r i i i i i i i i i i i i i i i i i i i	
Heavy Trucks: Vehicle Noise: Centerline Distanc	67. 73. ce to Noise Co	2 ntour (in feet)	71.1		67.3		66.0		73.4		
Heavy Trucks: Vehicle Noise: Centerline Distanc	67. 73. ce to Noise Co	2 ntour (in feet,	71.1	70 dB	67.3	65 d	66.0 BA	6	0 dBA	55	dBA
Heavy Trucks: Vehicle Noise: Centerline Distanc	67. 73. ce to Noise Co	2 ntour (in feet,	71.1) Ldn:	70 dB 83	67.3 A	65 d	86.0 BA	6	0 dBA 385	55	<i>dBA</i> 130

Thursday, May 02, 2019

Thursday, May 02, 2019

	FHV	VA-RD-77-108	HIGH	HWAY N	NOISE PR	REDICTIC	N MODE	iL.			
Scenari Road Nam Road Segmer	o: Existing Wi e: Kimball Av. at: e/o Main St	thout Project				Project N Job Nui	lame: M0 nber: 10	CH 351			
SITES	SPECIFIC IN	PUT DATA				NC	DISE MO	DEL IN	IPUTS		
Highway Data					Site Con	ditions (F	lard = 10), Soft =	15)		
Average Daily Peak Hour Peak H	Traffic (Adt): Percentage: our Volume:	15,466 vehicle 10% 1,547 vehicle	es s		Me He	dium Truc avy Truck	Au ks (2 Axi s (3+ Axi	ntos: 1 les): 1 les): 1	5 5 5		
Vel	hicle Speed:	50 mph		F	Vehicle	Mix					
Near/Far Lar	ne Distance:	51 feet		-	Veh	icleType	Di	av Eve	nina N	liaht	Dailv
Site Data					1011	AL	itos: 66	5.3% 1	3.5% 2	20.3%	93.40%
Bar	rier Height:	0.0 feet			Me	edium Tru	cks: 77	.0%	5.3% 1	7.6%	4.70%
Barrier Type (0-W	all, 1-Berm):	0.0			ŀ	leavy Tru	cks: 86	6.3%	1.5% 1	12.2%	1.90%
Centerline Dis	t. to Barrier:	49.0 feet			Noise So	ource Ele	vations (in feet)			
Centerline Dist.	to Observer:	49.0 feet		-		Autos:	0.00	0			
Barrier Distance	to Observer:	0.0 feet			Mediu	n Trucks:	2.29	7			
Observer Height (J	Above Pad):	5.0 feet			Heav	y Trucks:	8.00	4 Gra	de Adjus	tment:	0.0
Pa	d Elevation:	0.0 feet		-	l ono Ea	uivelent l	Diotonoo	(in feet)			
Roa	d Elevation:	0.0 feet		-	Lane Eq		JSIANCE	(III leel)			
ŀ	Road Grade:	0.0%			1 4 m all 1 m	Autos:	42.14	0			
	Right View:	90.0 degree	es es		Heav	y Trucks:	41.92	9 0			
FHWA Noise Mode	Calculation	¢									
VehicleType	REMEL	Traffic Flow	Dis	stance	Finite	Road	Fresnel	Barr	ier Atten	Berr	n Atten
Autos:	70.20	-0.70		1.0	1	-1.20	-4	.64	0.000)	0.000
Medium Trucks:	81.00	-13.68		1.0	4	-1.20	-4	.87	0.000)	0.000
Heavy Trucks:	85.38	-17.61		1.0	4	-1.20	-5	.44	0.000)	0.000
Unmitigated Noise	Levels (with	out Topo and	barri	er atter	nuation)						
VehicleType	Leq Peak Hou	r Leq Day	1	Leq E	vening	Leq N	ight	Ldr	1	CN	IEL
Autos:	69	.3	66.7		65.8		62.8		70.0		70.5
Medium Trucks:	67	.2	65.2		59.6		60.1		67.5		67.7
Heavy Trucks:	67	.6	66.2		54.6		58.9		67.0		67.1
Vehicle Noise:	72	.9	70.9		67.0		65.7		73.2		73.4
Centerline Distance	e to Noise Co	ontour (in feet)								
				70	dBA	65 dl	BA	60 dE	BA	55 0	dBA
			Ldn:	8	0	171		369		79	96
		CI	VEL:	8	13	179)	386		83	31

	FHV	VA-RD-77-108	HIGHW	AY NO	OISE PF	REDICTIO	ON MC	DEL				
Scenar Road Nam Road Segmei	io: Existing Wi ie: Kimball Av. nt: e/o Flight A	thout Project v.				Project I Job Nu	Vame: Imber:	MCH 10351				
SITE	SPECIFIC IN	IPUT DATA				N	OISE	MODE	L INP	UTS		-
Highway Data				S	ite Con	ditions (Hard =	= 10, S	oft = 15)		-
Average Daily Peak Hour Peak H	Traffic (Adt): Percentage: lour Volume:	13,131 vehicle 10% 1,313 vehicles	es S		Me He	dium Tru avy Truci	cks (2 ks (3+	Autos Axles) Axles)	15 15 15			
Noor/Eor Lo	no Distanco:	50 mpn		ν	'ehicle l	Mix						
Neal/Fal La	ne Distance.	51 leet			Vehi	icleType		Day	Eveni	ng N	ight	Daily
Site Data						A	utos:	66.3%	6 13.5	i% 2	0.3%	93.40%
Bai	rrier Height:	0.0 feet			Me	edium Tru	icks:	77.0%	5.3	% 1	7.6%	4.70%
Barrier Type (0-W	all, 1-Berm):	0.0			ŀ	leavy Tru	icks:	86.3%	5 1.5	i% 1	2.2%	1.90%
Centerline Dis	st. to Barrier:	49.0 feet		N	loise Sc	ource Ele	vatior	ıs (in f	eet)			
Centerline Dist.	to Observer:	49.0 feet		-		Autos	· 0	000	,			
Barrier Distance	to Observer:	0.0 feet			Mediur	n Trucks	. 2	297				
Observer Height (Above Pad):	5.0 feet			Heav	v Trucks	. 8	004	Grade	Adiust	ment:	0.0
Pa	ad Elevation:	0.0 feet		_						,		
Roa	ad Elevation:	0.0 feet		L	ane Eq	uivalent	Distar	ice (in	feet)			
	Road Grade:	0.0%				Autos	: 42	.140				
	Left View:	-90.0 degree	s		Mediur	n Trucks	: 41	.929				
	Right View:	90.0 degree	s		Heav	y Trucks	: 41	.950				
FHWA Noise Mod	el Calculation	s										-
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fres	nel	Barrier	Atten	Berr	m Atten
Autos:	70.20	-1.41		1.01		-1.20		-4.64		0.000		0.000
Medium Trucks:	81.00	-14.39		1.04		-1.20		-4.87		0.000		0.000
Heavy Trucks:	85.38	-18.32		1.04		-1.20		-5.44		0.000		0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier	attenu	uation)							
VehicleType	Leg Peak Hou	r Leq Day	L	eq Ev	ening	Leg N	light	1	Ldn		Ch	VEL
Autos:	68	.6	6.0		65.1		62.	1	(69.3		69.7
Medium Trucks:	66	.5	54.5		58.9		59.	4	(6.8		67.0
Heavy Trucks:	66	.9 0	55.5		53.9		58.	2		6.3		66.4
Vehicle Noise:	72	.2	70.2		66.3		65.	0		72.5	-	72.7
Centerline Distant	ce to Noise Co	ontour (in feet)									
		1		70 di	BA	65 a	BA		60 dBA		55	dBA
			Ldn:	71		15	4		331		7	14
		CI	IEL:	74		16	0		346		74	45

	FHW	A-RD-77-108 HI	GHWAY	NOISE F	REDICTIO	N MODEL			
Scenario Road Namo Road Segmen	c: Existing With e: Limonite Av. ht: w/o Archibalo	out Project			Project N Job Nur	ame: MCH nber: 1035	1		
SITE S	SPECIFIC INF	UT DATA			NO	ISE MOD	EL INPUTS	S	-
Highway Data				Site Co.	nditions (H	lard = 10,	Soft = 15)		
Average Daily	Traffic (Adt):	1 vehicles				Auto	s: 15		
Peak Hour	Percentage:	10%		M	edium Truc	ks (2 Axles): 15		
Peak He	our Volume:	0 vehicles		H	eavy Truck	s (3+ Axles): 15		
Vel	nicle Speed:	50 mph		Vehicle	Mix				
Near/Far Lar	ne Distance:	78 feet		Vei	nicleType	Day	Evening	Night	Daily
Site Data					Au	tos: 66.3	% 13.5%	20.3% 9	3.40%
Bar	rier Heiaht:	0.0 feet		٨	ledium Truc	cks: 77.0	% 5.3%	17.6%	4.70%
Barrier Type (0-Wa	all, 1-Berm):	0.0			Heavy True	cks: 86.3	% 1.5%	12.2%	1.90%
Centerline Dis	t. to Barrier:	76.0 feet		Noise S	ource Elev	ations (in	feet)		
Centerline Dist. t	o Observer:	76.0 feet			Autos:	0.000			
Barrier Distance t	o Observer:	0.0 feet		Medii	m Trucks:	2.297			
Observer Height (/	Above Pad):	5.0 feet		Hea	vv Trucks:	8.004	Grade Adj	ustment: (0.0
Pa	d Elevation:	0.0 feet							
Roa	d Elevation:	0.0 feet		Lane Ed	uivalent L	vistance (ii	1 feet)		
F	Road Grade:	0.0%			Autos:	65.422			
	Left View:	-90.0 degrees		Medil	Im Trucks:	65.286			
	Right View:	90.0 degrees		Hea	vy Trucks:	65.299			
FHWA Noise Mode	l Calculations								-
VehicleType	REMEL	Traffic Flow	Distance	e Finite	e Road	Fresnel	Barrier Atte	en Berm	Atten
Autos:	70.20	-42.59	-1	.85	-1.20	-4.73	3 0.0	00	0.000
Medium Trucks:	81.00	-55.57	-1	.84	-1.20	-4.8	3 0.0	00	0.000
Heavy Trucks:	85.38	-59.51	-1	.84	-1.20	-5.2	5 0.0	00	0.000
Unmitigated Noise	Levels (witho	ut Topo and ba	rrier att	enuation)					
VehicleType	Leq Peak Hour	Leq Day	Leq	Evening	Leq Ni	ght	Ldn	CNE	:L
Autos:	24.6	22	.0	21.1		18.1	25.3	5	25.7
Medium Trucks:	22.4	20	.5	14.9)	15.3	22.7		22.9
Heavy Trucks:	22.8	21	.4	9.8	3	14.1	22.2		22.3
Vehicle Noise:	28.1	26	.1	22.3	3	20.9	28.4		28.7
Centerline Distance	e to Noise Cor	ntour (in feet)							
			7	0 dBA	65 dE	BA	60 dBA	55 dE	3A
		Ld	n:	U	0		1	1	
		CNE	L:	U	0		1	1	

	FHV	VA-RD-77-108	HIGH	NAY N	OISE PF	REDICT		DEL			
Scenar	io: Existing Wi	thout Project				Project	Name: I	ИСН			
Road Nam	e: Limonite A	<i>.</i>				Job N	umber: ·	10351			
Road Segme	nt: e/o Archiba	ld Av.									
SITE	SPECIFIC IN	IPUT DATA				Ν	IOISE N	IODE	L INPUT	S	
Highway Data					Site Con	ditions	(Hard =	10, So	oft = 15)		
Average Daily	Traffic (Adt):	18,317 vehicle	es					Autos:	15		
Peak Hour	Percentage:	10%			Mee	dium Tri	ucks (2 A	(xles):	15		
Peak H	lour Volume:	1,832 vehicle	s		Hea	avy Tru	cks (3+ A	(xles):	15		
Ve	hicle Speed:	50 mph		1	Vehicle I	Mix					
Near/Far La	ne Distance:	78 feet			Vehi	icleType		Day	Evening	Night	Daily
Site Data							Autos:	66.3%	13.5%	20.3%	93.40%
Ba	rrier Height	0.0 feet			Me	edium T	rucks:	77.0%	5.3%	17.6%	4.70%
Barrier Type (0-W	(all. 1-Berm):	0.0			F	leavy T	rucks:	86.3%	1.5%	12.2%	1.90%
Centerline Di	st. to Barrier:	76.0 feet		-				. /! #	4)		
Centerline Dist.	to Observer:	76.0 feet		1	voise So	ource El	evation	5 (IN 10	eet)		
Barrier Distance	to Observer:	0.0 feet			14-16-1	Auto.	s: 0.0	000			
Observer Height	Above Pad):	5.0 feet			weatur	n Truck	S: 2.4	297	Grado Ad	iustmont	
P	ad Elevation:	0.0 feet			Heav	у ттиск	S: 8.0	104	Graue Auj	usunem.	0.0
Ro	ad Elevation:	0.0 feet		1	Lane Equ	uivalen	t Distand	ce (in	feet)		
	Road Grade:	0.0%				Auto	s: 65.4	122			
	Left View:	-90.0 degree	es		Mediur	n Truck	s: 65.2	286			
	Right View:	90.0 degree	es		Heav	y Truck	s: 65.2	299			
FHWA Noise Mod	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresn	el	Barrier Att	en Ber	m Atten
Autos:	70.20	0.04		-1.85	5	-1.20		-4.73	0.0	000	0.000
Medium Trucks:	81.00	-12.95		-1.84	1	-1.20		-4.88	0.0	000	0.000
Heavy Trucks:	85.38	-16.88		-1.84	1	-1.20		-5.25	0.0	000	0.000
Unmitigated Nois	e Levels (with	out Topo and	barrier	r atten	uation)						
VehicleType	Leq Peak Hou	ir Leq Day	/ .	Leq Ev	/ening	Leq	Night		Ldn	CI	VEL
Autos:	67	.2	64.6		63.7		60.7		67.9)	68.3
Medium Trucks:	65	.0	63.1		57.5		57.9		65.3	3	65.5
Heavy Trucks:	65	.5	64.0		52.4		56.8		64.9)	64.9
Vehicle Noise:	70	.8	68.7		64.9		63.6		71.0)	71.3
Centerline Distan	ce to Noise Co	ontour (in feet)								
			∟	70 c	iBA	65	dBA	6	60 dBA	55	dBA
			I dn				12		413		89
		-	Lun.	03	9	1	92		413	0	

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	FH\	VA-RD-77-108 HIG	SHWAY I	NOISE PE	REDICTIC	N MOD	EL			
Scena	rio: Existing Wi	thout Project			Project N	lame: M	СН			
Road Nan	ne: Pine Av.				Job Nu	mber: 10)351			
Road Segme	ent: w/o El Prac	lo Rd.								
SITE	SPECIFIC IN	IPUT DATA			NC	DISE MO	DDEL INP	UTS		
Highway Data				Site Con	ditions (I	Hard = 1	0, Soft = 15)		
Average Daily	Traffic (Adt):	25 vehicles				Au	utos: 15			
Peak Hour	Percentage:	10%		Me	dium Truc	:ks (2 Ax	<i>les):</i> 15			
Peak H	Hour Volume:	3 vehicles		He	avy Truck	:s (3+ Ax	<i>les):</i> 15			
Ve	ehicle Speed:	45 mph	-	Vehicle I	Mix					
Near/Far La	ane Distance:	76 feet	-	Veh	icleType	D	ay Evenii	ng Nig	ght	Daily
Site Data					AL	itos: 6	6.3% 13.5	5% 20).3% 9	3.40%
Ba	rrier Height	0.0 feet		Me	edium Tru	cks: 7	7.0% 5.3	17	7.6%	4.70%
Barrier Type (0-V	Vall. 1-Berm):	0.0		ŀ	leavy Tru	cks: 8	6.3% 1.5	i% 12	2.2%	1.90%
Centerline D	ist. to Barrier:	60.0 feet	-	Noiso Se	urco Elo	vations	(in foot)			
Centerline Dist.	to Observer:	60.0 feet	-	NUISE SC	Autos:	0.00				
Barrier Distance	to Observer:	0.0 feet		Modiu	n Trucke:	2.00	17			
Observer Height	(Above Pad):	5.0 feet		Hoan	n Trucks.	8.00	A Grade	Adjustr	nent (10
P	ad Elevation:	0.0 feet		near	y mucho.	0.00	- 0/000	710/000		
Ro	ad Elevation:	0.0 feet		Lane Eq	uivalent l	Distance	(in feet)			
	Road Grade:	0.0%			Autos:	46.70)1			
	Left View:	-90.0 degrees		Mediur	n Trucks:	46.51	1			
	Right View:	90.0 degrees		Heav	y Trucks:	46.53	80			
FHWA Noise Moo	lel Calculation	s								
VehicleType	REMEL	Traffic Flow D	Distance	Finite	Road	Fresne	Barrier	Atten	Berm	Atten
Autos:	68.46	-28.15	0.3	4	-1.20	-4	1.69	0.000		0.000
Medium Trucks:	79.45	-41.14	0.3	7	-1.20	-4	1.88	0.000		0.000
Heavy Trucks:	84.25	-45.07	0.3	7	-1.20	-5	5.34	0.000		0.000
Unmitigated Nois	e Levels (with	out Topo and bar	rier atter	nuation)				-		-
VehicleType	Leq Peak Hou	ır Leq Day	Leq E	vening	Leq N	ïght	Ldn		CNE	L
Autos:	39	.4 36.9)	36.0		33.0	4	40.2		40.6
Medium Trucks:	37	.5 35.6	6	30.0		30.4	:	37.8		38.0
Heavy Trucks:	38	.3 36.9)	25.3		29.7	:	37.8		37.8
Vehicle Noise:	43	.3 41.3	3	37.2		36.0	4	43.5		43.8
Centerline Distan	ce to Noise C	ontour (in feet)								
			70	dBA	65 dl	BA	60 dBA		55 dE	3A
		Ldn	:	1	2		5		10	
		CNEL	£	1	2		5		11	

	FHW	A-RD-77-108 HIG	HWAY	NOISE PI	REDICTIO	N MOD	EL			
Scenar	io: Existing With	nout Project			Project N	ame: M	СН			
Road Nam	e: Pine Av.				Job Nur	nber: 10	0351			
Road Segme	nt: w/o Euclid A	v.								
SITE	SPECIFIC INF	PUT DATA			NO	ISE M	ODEL	INPUTS	5	
Highway Data				Site Con	ditions (H	lard = 1	0, Soft	= 15)		
Average Daily	Traffic (Adt):	7,306 vehicles				A	utos:	15		
Peak Hour	Percentage:	10%		Me	dium Truc	ks (2 Ax	des):	15		
Peak H	lour Volume:	731 vehicles		He	avy Truck	s (3+ Ax	des):	15		
Ve	hicle Speed:	45 mph	-	Vehicle	Mix					
Near/Far La	ne Distance:	76 feet	-	Veh	icleTvpe	D	av E	venina	Niaht	Dailv
Site Data					Au	tos: 6	6.3%	13.5%	20.3%	93,40%
Pa	rrior Hoight:	0.0 foot		M	edium True	cks: 7	7.0%	5.3%	17.6%	4.70%
Barrier Type (0-W	/all 1-Berm)	0.0		1	Heavy True	cks: 8	6.3%	1.5%	12.2%	1.90%
Centerline Di	st. to Barrier:	60.0 feet	-		-					
Centerline Dist.	to Observer:	60.0 feet	-	Noise Se	ource Elev	ations	(in tee	t)		
Barrier Distance	to Observer:	0.0 feet		A 4 - 16 - 1	Autos:	0.00)U			
Observer Height	(Above Pad):	5.0 feet		Mediu	m Trucks:	2.29	97 	and a date		
P	ad Elevation:	0.0 feet		Heav	y Trucks:	8.00)4 G	irade Adj	ustment	: 0.0
Ro	ad Elevation:	0.0 feet	E F	Lane Eq	uivalent D	istance	e (in fe	et)		
	Road Grade:	0.0%			Autos:	46.70)1			
	Left View:	-90.0 degrees		Mediu	m Trucks:	46.5	11			
	Right View:	90.0 degrees		Heav	y Trucks:	46.53	30			
FHWA Noise Mod	el Calculations									
VehicleType	REMEL	Traffic Flow D	istance	Finite	Road	Fresne	I Bi	arrier Atte	en Bei	m Atten
Autos:	68.46	-3.50	0.3	14	-1.20	-4	4.69	0.0	00	0.000
Medium Trucks:	79.45	-16.48	0.3	7	-1.20	-4	4.88	0.0	00	0.000
Heavy Trucks:	84.25	-20.41	0.3	7	-1.20	-{	5.34	0.0	00	0.000
Unmitigated Nois	e Levels (witho	ut Topo and barr	rier atter	nuation)						
VehicleType	Leq Peak Hour	Leq Day	Leq E	vening	Leq Ni	ght	L	.dn	C	NEL
Autos:	64.1	1 61.5		60.6		57.6		64.8		65.2
Medium Trucks:	62.1	1 60.2		54.6		55.1		62.5		62.6
Heavy Trucks:	63.0) 61.6		50.0		54.3		62.4		62.5
Vehicle Noise:	67.9	65.9		61.9		60.7		68.2		68.4
Centerline Distan	ce to Noise Co	ntour (in feet)								
			70	dBA	65 dE	BA	60	dBA	55	dBA
		Ldn:	: 4	15	97		2	10	4	52
		CNEL:	- 4	+7	101		2	19	4	71

Thursday, May 02, 2019

	FH\	NA-RD-77-108	HIGHWA	AY NO	ISE P	REDICTI	ION MO	DEL				
Scenar Road Nan Road Segme	Scenario: Existing Without Project Road Name: Pine Av. Road Segment: e/o Euclid Av. SITE SPECIFIC INPUT DATA					Project Job N	Name: umber:	MCH 10351				
SITE	SPECIFIC IN	IPUT DATA				N	IOISE N	/IODE	L INPUT	s		
Highway Data				Si	te Cor	nditions	(Hard =	10, S	oft = 15)			
Average Daily	Traffic (Adt):	25,747 vehicl	es					Autos.	15			
Peak Hour	Percentage:	10%			Me	edium Tru	ucks (2 A	Axles).	: 15			
Peak H	lour Volume:	2,575 vehicle	s		He	eavy Truc	cks (3+ A	Axles).	15			
Ve	hicle Speed:	45 mph		Ve	hicle	Mix						
Near/Far La	ne Distance:	76 feet		-	Veh	icleType		Day	Evening	Nigl	ht D	aily
Site Data						A	Autos:	66.3%	6 13.5%	20.3	3% 93	.40%
Ba	rrier Height:	0.0 feet			М	edium Ti	rucks:	77.0%	6 5.3%	17.	6% 4	.70%
Barrier Type (0-W	/all, 1-Berm):	0.0				Heavy Ti	rucks:	86.3%	6 1.5%	12.	2% 1	.90%
Centerline Di	st. to Barrier:	60.0 feet		N	oise S	ource El	levation	s (in f	eet)			
Centerline Dist.	to Observer:	60.0 feet				Autos	s: 0.0	000	,			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Truck	s: 2.1	297				
Observer Height	(Above Pad):	5.0 feet			Hear	vy Truck	s: 8.0	004	Grade Adj	iustm	ent: 0.0	C
P	ad Elevation:	0.0 feet			no Fo	wiwalani	Distan	aa (in	fact			
Ro	ad Elevation:	0.0 feet		La	ine Eq	uivaiem	Distant	ce (In 704	teet)			
	Road Grade:	0.0%			Madiu	Autos	S: 40.	701				
	Lent View:	-90.0 degre	es		Hoa	N Truck	5. 40. e [.] 46.	511				
	Night view.	90.0 degre	55		mea	ry muon	3. 40.	550				
FHWA Noise Mod	el Calculation	S										
VehicleType	REMEL	Traffic Flow	Distan	ce	Finite	Road	Fresr	iel	Barrier Atte	en	Berm A	tten
Autos:	68.46	1.97		0.34		-1.20		-4.69	0.0	000	(J.000
Medium Trucks:	79.45	-11.01		0.37		-1.20		-4.88	0.0	000	(J.000
Heavy Trucks:	84.25	-14.94		0.37		-1.20		-5.34	0.0	000	(J.000
Unmitigated Nois	e Levels (with	out Topo and	barrier a	ttenu	ation)			1		1	01151	
Venicie i ype	Leq Peak Hot	ur Leq Day	/ L6	eq Eve	ening	Leq	Night		Lan		CNEL	70.7
Autos. Modium Trucks:	67	1.0	65 7		60.1		60 F		70.3))		69.1
Heavy Trucks:	69	.0	67.0		55.5		59.5	, 1	67.0	2		68.0
Vehicle Noise:	73	3.4	71.4		67.4		66.2	2	73.6	, }		73.9
Centerline Distan	ce to Noise C	ontour (in feet)									
				70 dE	BA	65	dBA		60 dBA		55 dBA	1
			Ldn:	105		22	26		486		1,047	
		C	VEL:	109		23	35		506		1,091	

	FH	VA-RD-77-108 F	IIGHW	AY NC	DISE PF	REDICTIO		EL _			
Scenar	rio: Existing W	thout Project				Project N	ame: N	ICH			
Road Nan	ne: Pine Av.					Job Nur	nber: 1	0351			
Road Segme	nt: w/o Chino	Corona Rd.									
SITE	SPECIFIC IN	IPUT DATA				NO	ISE M	ODE	L INPUTS	5	
Highway Data				Si	te Con	ditions (H	ard = 1	10, Sc	oft = 15)		
Average Daily	Traffic (Adt):	29,771 vehicles	5				A	utos:	15		
Peak Hour	Percentage:	10%			Me	dium Truc	(2 A	xles):	15		
Peak H	lour Volume:	2,977 vehicles			Hea	avy Trucks	: (3+ A	xles):	15		
Ve	ehicle Speed:	45 mph		Ve	hicle I	Mix					
Near/Far La	ne Distance:	76 feet			Vehi	icleType	L	Day	Evening	Night	Daily
Site Data						Au	os: 6	6.3%	13.5%	20.3%	93.40%
Ba	rrier Height	0.0 feet			Me	edium Truc	ks: 7	7.0%	5.3%	17.6%	4.70%
Barrier Type (0-V	Vall. 1-Berm):	0.0			F	leavy Truc	ks: 8	86.3%	1.5%	12.2%	1.90%
Centerline Di	ist. to Barrier:	60.0 feet					- 41	1	- 41		
Centerline Dist.	to Observer:	60.0 feet		N	oise so	ource Elev	ations		et)		
Barrier Distance	to Observer:	0.0 feet			1 de	Autos:	0.0	00			
Observer Height	(Above Pad):	5.0 feet			Wealur	n Trucks:	2.2	97	Grada Adi	ustmont	. 0 0
P	ad Elevation:	0.0 feet			neav	y mucks.	0.0	04	Grade Adj	usunoni	. 0.0
Ro	ad Elevation:	0.0 feet		Lá	ane Equ	uivalent D	istanc	e (in :	feet)		
	Road Grade:	0.0%				Autos:	46.7	01			
	Left View:	-90.0 degrees	5		Mediur	n Trucks:	46.5	11			
	Right View:	90.0 degrees	5		Heav	y Trucks:	46.5	30			
FHWA Noise Mod	lel Calculation	s									
VehicleType	REMEL	Traffic Flow	Distar	ce	Finite	Road	Fresne	el	Barrier Atte	en Ber	m Atten
Autos:	68.46	2.60		0.34		-1.20	-	4.69	0.0	00	0.000
Medium Trucks:	79.45	-10.38		0.37		-1.20	-	4.88	0.0	00	0.000
Heavy Trucks:	84.25	-14.31		0.37		-1.20	-	5.34	0.0	00	0.000
Unmitigated Nois	e Levels (with	out Topo and b	arrier a	ttenu	ation)						
VehicleType	Leq Peak Hou	ır Leq Day	Le	eq Eve	ning	Leq Ni	ght		Ldn	CI	NEL
Autos:	70	.2 6	7.6		66.7		63.7		70.9		71.3
Modium Trucks	68	.2 6	6.3		60.7		61.2		68.6		68.7
weaturn mucks.			77		56.1		60.4		68.5		68.6
Heavy Trucks:	69	.1 6									74 6
Heavy Trucks: Vehicle Noise:	69 74	.1 6	2.0		68.0		66.8		74.3		74.
Heavy Trucks: Vehicle Noise: Centerline Distan	69 74 ce to Noise Ce	.1 6 .0 7 ontour (in feet)	2.0		68.0		66.8		74.3		74.
Heavy Trucks: Vehicle Noise: Centerline Distan	69 74 ce to Noise Co	.1 6 .0 7 ontour (in feet)	2.0	70 dE	68.0 84	65 dE	66.8 A	e	74.3	55	dBA
Heavy Trucks: Vehicle Noise: Centerline Distan	69 74 ce to Noise Ce	.1 6 .0 7 ontour (in feet)	2.0	70 dE 115	68.0 84	65 dE 248	66.8 A	e	74.3	55	dBA 153

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					-				_	_
	FHV	VA-RD-77-108 F	IIGHWAY	NOIS	E PREDIC		DDEL			
Scenar	io: Existing Wi	thout Project			Projec	t Name:	MCH			
Road Nam	e: Pine Av.				Job I	Number.	10351			
Road Segme	nt: w/oW.Pre	serve Loop								
SITE	SPECIFIC IN	PUT DATA				NOISE	MODE	L INPUT	s	
Highway Data				Site	Conditions	s (Hard	= 10, Se	oft = 15)		
Average Daily	Traffic (Adt):	16,445 vehicles	5				Autos:	15		
Peak Hour	Percentage:	10%			Medium T	rucks (2	Axles):	15		
Peak H	lour Volume:	1,645 vehicles			Heavy Tru	ıcks (3+	Axles):	15		
Ve	hicle Speed:	45 mph		Vahi	iele Mix					
Near/Far La	ne Distance:	76 feet		vern	VehicleTvn	0	Dav	Evenina	Night	Daily
Site Data					venicieryp	Autos:	66.3%	13.5%	20.3%	03.40%
0.10 2010					Medium	Trucks:	77.0%	5.3%	17.6%	4 70%
Bai Deurieu Teure (0.14	rrier Height:	0.0 feet			Heavy	Trucks:	86.3%	1.5%	12.2%	1 90%
Contorlino Di	all, 1-Delli).	0.0								
Contorlino Dist	to Obsonvor:	60.0 feet		Nois	e Source E	Elevatio	ns (in f	eet)		
Barrier Distance	to Observer:	00.0 feet			Auto	os: C	.000			
Observer Height	(Above Pad):	5.0 feet		M	edium Truc	ks: 2	.297			
Discriver mengine (ad Elevation:	0.0 feet		ŀ	Heavy Truci	ks: 8	.004	Grade Ad	justmen	t: 0.0
Ro	ad Elevation:	0.0 feet		Lane	e Equivaler	nt Dista	nce (in	feet)		
1101	Road Grade:	0.0%			Auto	os: 46	5.701	,		
	Left View:	-90.0 degrees		M	edium Truc	ks: 46	5.511			
	Right View:	90.0 degrees		ŀ	Heavy Truc	ks: 46	5.530			
	0	, in the second s								
FHWA Noise Mod	el Calculation	s	B : 1			-				
Venicle I ype	REMEL	Traffic Flow	Distance		Inite Road	Fres	inel	Barrier Att	en Be	rm Atten
Autos:	08.40	0.03	0	.34	-1.20		-4.09	0.0	000	0.000
Medium Trucks:	79.45	-12.96	U	.37	-1.20		-4.88	0.0	000	0.000
Heavy Trucks:	84.25	-16.89	U	.37	-1.20		-5.34	0.0	000	0.000
Unmitigated Nois	e Levels (with	out Topo and b	arrier att	enuati	on)					
VehicleType	Leq Peak Hou	r Leq Day	Leq	Evenir	ng Leo	n Night		Ldn	C	NEL
Autos:	67	.6 6	5.1	6	64.2	61	.2	68.3	3	68.8
Medium Trucks:	65	.7 63	3.7	5	58.1	58	.6	66.	0	66.2
Heavy Trucks:	66	.5 6	5.1	ę	53.5	57	.8	65.	9	66.0
Vehicle Noise:	71	.5 6	9.4	6	65.4	64	.2	71.	7	71.9
Centerline Distant	ce to Noise Co	ontour (in feet)								
		-	7	0 dBA	65	ō dBA	(60 dBA	55	5 dBA
		L	dn:	78 167 360 7				776		
		CNI	EL:	81		174		376	;	809

	FH\	VA-RD-77-108	HIGHW	AY NO	DISE PF	REDICTIO	ON MC	DEL				
Scenari Road Nam Road Segmer	o: Existing Wi e: Pine Av. nt: w/o E. Pres	thout Project		Project Name: MCH Job Number: 10351								
SITE	SPECIFIC IN					N	DISE	MODE		TS		
Highway Data	or con to m	01 5/11/1		s	ite Con	ditions (Hard =	: 10, S	oft = 15)			
Average Daily	Traffic (Adt):	26.664 vehicle	s					Autos:	15		-	
Peak Hour	Percentage:	10%	-		Me	dium Tru	cks (2	Axles):	15			
Peak H	our Volume:	2,666 vehicles			He	avy Trucl	ks (3+	Axles):	15			
Ve	hicle Speed:	45 mph		14	ahiala I	Mise						
Near/Far La	ne Distance:	76 feet		V	Voh	icleType		Dav	Evening	n Mi	aht	Daily
Site Data				-	VCIII	all citerype	utos.	66 3%	13.59	6 20	0.3%	03.40%
Data Data	ula u Haladati	0.0.4			Me	adium Tri	icks:	77.0%	5.3%	6 10	7.6%	4.70%
Barrier Turne (0.14)	rier Height:	0.0 feet			F	leavy Tri	icks:	86.3%	1.5%	6 13	2.2%	1.90%
Centerline Dis	dii, I-Dellii).	0.0 60.0 feet				,						
Centerline Dist	to Observer:	60.0 feet		N	oise So	ource Ele	vatior	ns (in f	eet)			
Barrier Distance	to Observer:	0.0 feet				Autos.	: 0	000				
Observer Height (Above Pad):	5.0 feet			Medium Trucks: 2.297							
Pa	ad Elevation:	0.0 feet			Heavy Trucks: 8.004 Grade Adjustment. 0.0							
Roa	ad Elevation:	0.0 feet		L	Lane Equivalent Distance (in feet)							
I	Road Grade:	0.0%			Autos: 46.701							
	Left View:	-90.0 degree	s		Medium Trucks: 46.511							
	Right View:	90.0 degree	S		Heav	y Trucks.	46	.530				
FHWA Noise Mode	el Calculation	s									-	
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fres	nel	Barrier A	Atten	Berr	n Atten
Autos:	68.46	2.13		0.34		-1.20		-4.69	(0.000		0.000
Medium Trucks:	79.45	-10.86		0.37		-1.20		-4.88	(0.000		0.000
Heavy Trucks:	84.25	-14.79		0.37		-1.20		-5.34	(0.000		0.000
Unmitigated Noise	e Levels (with	out Topo and I	barrier	attenu	ation)							
VehicleType	Leq Peak Hou	ır Leq Day	L	eq Ev	ening	Leq N	light		Ldn		CN	IEL
Autos:	69	.7 6	67.2		66.3		63.	3	70	0.4		70.9
Medium Trucks:	67	.8 6	65.8		60.2		60.	7	68	3.1		68.3
Heavy Trucks:	68	.6 6	57.2		55.6		59.	9	68	3.0		68.1
Vehicle Noise:	73	.6 7	1.5		67.5		66.	3	73	3.8		74.0
Centerline Distant	ce to Noise Co	ontour (in feet)		70 -	04	05 -	04		0.104	-		-10.4
			day	10 0	5A 7	65 d	BA	1	A07		25 (3BA
			_un: IEI ·	107 231			497 519		1,0	17		
		Ch	1LL.	114	-	24			510		1,1	17

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	FH	WA-RD-77-108	HIGH	NAY NO	ISE P	REDICTI	ON MOI	DEL				
Scenario Road Name Road Segmen	 Existing W Pine Av. w/o Hellma 	ithout Project an Av.				Project Job Ni	Name: 1 umber: 1	MCH 10351				
SITE S	PECIFIC IN	IPUT DATA				N	OISE N	IODE	L INPUT	s		
Highway Data				Si	te Cor	nditions	(Hard =	10, S	oft = 15)			
Average Daily 7	raffic (Adt):	26,513 vehicl	es					Autos:	15			
Peak Hour F	Percentage:	10%			Me	edium Tru	icks (2 A	xles):	15			
Peak Ho	our Volume:	2,651 vehicle	s		He	avy Truc	:ks (3+ A	xles):	15			
Veh	icle Speed:	45 mph		Ve	hicle	Mix						
Near/Far Lan	e Distance:	76 feet			Veh	nicleTvpe		Dav	Evening	Niał	nt	Dailv
Site Data						A	utos:	66.3%	5 13.5%	20.3	3% 9	93.40%
Bari	rier Heiaht:	0.0 feet			М	edium Tr	ucks:	77.0%	5.3%	17.6	5%	4.70%
Barrier Type (0-Wa	all, 1-Berm):	0.0				Heavy Tr	ucks:	86.3%	5 1.5%	12.3	2%	1.90%
Centerline Dis	t. to Barrier:	60.0 feet		N	nise S	ource El	evation	s (in f	eet)			
Centerline Dist. to	o Observer:	60.0 feet				Autos	· 00	000	000			
Barrier Distance to	o Observer:	0.0 feet			Mediu	m Trucks	. 22	97				
Observer Height (A	Above Pad):	5.0 feet			Hear	v Trucks	. 8.0	04	Grade Ad	iustm	ent: (0.0
Pa	d Elevation:	0.0 feet							,			
Roa	d Elevation:	0.0 feet		Lá	ine Eq	uivalent	Distanc	e (in	feet)			
R	oad Grade:	0.0%				Autos	3: 46.7	01				
	Left View:	-90.0 degre	es		Mediu	m Trucks	s: 46.5	511				
	Right View:	90.0 degre	es		Hea	vy Trucks	8: 46.5	530				
FHWA Noise Mode	I Calculation	IS										
VehicleType	REMEL	Traffic Flow	Dist	ance	Finite	Road	Fresn	el	Barrier Atte	en l	Berm	Atten
Autos:	68.46	2.10		0.34		-1.20		-4.69	0.0	00		0.000
Medium Trucks:	79.45	-10.88		0.37		-1.20		-4.88	0.0	00		0.000
Heavy Trucks:	84.25	-14.82		0.37		-1.20		-5.34	0.0	00		0.000
Unmitigated Noise	Levels (with	out Topo and	barrie	r attenua	ation)							
VehicleType	Leq Peak Ho	ur Leq Da	/	Leq Eve	ning	Leq I	Night		Ldn		CNE	EL
Autos:	69	9.7	67.1		66.2		63.2		70.4	Ļ		70.8
Medium Trucks:	67	7.7	65.8		60.2		60.6		68.1			68.2
Heavy Trucks:	68	3.6	67.2		55.6		59.9		68.0)		68.1
Vehicle Noise:	73	3.5	71.5		67.5		66.3		73.8	5		74.0
Centerline Distance	e to Noise C	ontour (in fee	t)					-		-		
			L	70 dE	BA	65 0	dBA	1	50 dBA	1	55 di	BA
		~	Ldn:	107		23	50		495		1,06	57
		C	NEL:	111		24	10		516		1,11	2

Scenar	io: Existing Wi	thout Project				Project N	lame: N	лсн			
Road Nam	e: Schleismar	Rd.				Job Nu	mber: 1	0351			
Road Segme	nt: w/o Archiba	ild Av.									
SITE	SPECIFIC IN	IPUT DATA				NC	DISE N	IODE	L INPUT	S	
Highway Data					Site Con	ditions (l	lard =	10, So	oft = 15)		
Average Daily	Traffic (Adt):	28,660 vehicle	6				A	Autos:	15		
Peak Hour	Percentage:	10%			Mee	dium Truc	ks (2 A	xles):	15		
Peak H	lour Volume:	2,866 vehicles			Hea	avy Truck	s (3+ A	xles):	15		
Ve	hicle Speed:	45 mph			Vehicle I	Nix					
Near/Far La	ne Distance:	78 feet		F	Vehi	cleType	1	Day	Evening	Night	Daily
Site Data						AL	itos: (56.3%	13.5%	20.3%	93.40%
Bai	rrier Height	0.0 feet			Me	edium Tru	cks:	77.0%	5.3%	17.6%	4.70%
Barrier Type (0-W	/all. 1-Berm):	0.0			F	leavy Tru	cks: 1	36.3%	1.5%	12.2%	1.90%
Centerline Di	st. to Barrier:	76.0 feet		H	N- / 0-				4)		
Centerline Dist.	to Observer:	76.0 feet		Ľ	NUISE 30	Autor	vauons	00	eel)		
Barrier Distance	to Observer:	0.0 feet			Madium	Autos:	0.0	00			
Observer Height (Above Pad):	5.0 feet			Mealur	n Trucks:	2.2	97	Grado Ad	iustmont	0.0
Pa	ad Elevation:	0.0 feet			neav	y mucks.	0.0	04	Orade Haj	usunom.	0.0
Roa	ad Elevation:	0.0 feet		1	Lane Equ	uivalent l	Distanc	e (in	feet)		
1	Road Grade:	0.0%				Autos:	65.4	22			
	Left View:	-90.0 degree	6		Mediur	n Trucks:	65.2	86			
	Right View:	90.0 degree	5		Heav	y Trucks:	65.2	99			
FHWA Noise Mod	el Calculation	s									
FHWA Noise Mod VehicleType	el Calculation REMEL	s Traffic Flow	Distan	ice	Finite	Road	Fresn	el	Barrier Att	en Ber	m Atten
FHWA Noise Mod VehicleType Autos:	el Calculation REMEL 68.46	s Traffic Flow 2.44	Distan	ice -1.8	Finite	Road -1.20	Fresn	el -4.73	Barrier Atte 0.0	en Ber	<i>m Atten</i> 0.000
FHWA Noise Mod VehicleType Autos: Medium Trucks:	el Calculation REMEL 68.46 79.45	s Traffic Flow 2.44 -10.54	Distan	-1.8 -1.8	Finite 5	Road -1.20 -1.20	Fresn	el -4.73 -4.88	Barrier Atte 0.0 0.0	en Ben 100	<i>m Atten</i> 0.000 0.000
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks:	el Calculation REMEL 68.46 79.45 84.25	s Traffic Flow 2.44 -10.54 -14.48	Distan	-1.8 -1.8 -1.8	Finite 5 4 4	Road -1.20 -1.20 -1.20	Fresn	el -4.73 -4.88 -5.25	Barrier Atte 0.0 0.0 0.0	en Ber 100 100	<i>m Atten</i> 0.000 0.000 0.000
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise	el Calculation REMEL 68.46 79.45 84.25 e Levels (with	s Traffic Flow 2.44 -10.54 -14.48 out Topo and B	Distan	-1.8 -1.8 -1.8 -1.8	Finite 5 4 4 4 uuation)	Road -1.20 -1.20 -1.20	Fresn	el -4.73 -4.88 -5.25	Barrier Atte 0.0 0.0 0.0	en Ben 100 100	m Atten 0.000 0.000 0.000
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType	el Calculation REMEL 68.46 79.45 84.25 e Levels (with Leq Peak Hou	s Traffic Flow 2.44 -10.54 -14.48 out Topo and B r Leq Day	Distan arrier a	-1.8 -1.8 -1.8 -1.8 tten	Finite 5 4 4 vening	Road -1.20 -1.20 -1.20 Leq N	Fresn	el -4.73 -4.88 -5.25	Barrier Atte 0.0 0.0 0.0 0.0	en Ben 000 000 000 Cl	<u>m Atten</u> 0.000 0.000 0.000
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noiss VehicleType Autos:	el Calculation REMEL 68.46 79.45 84.25 e Levels (with Leq Peak Hou 67	s Traffic Flow 2.44 -10.54 -14.48 out Topo and B rr Leq Day .8 6	Distan	-1.8 -1.8 -1.8 -1.8 -1.8 -1.8	Finite 5 4 4 4 uuation) 64.4	Road -1.20 -1.20 -1.20 Leq N	Fresn ight 61.4	el -4.73 -4.88 -5.25	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	en Ben 100 100 100 100 100 100	<u>m Atten</u> 0.000 0.000 0.000 <u>VEL</u> 69.0
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noiss VehicleType Autos: Medium Trucks:	el Calculation REMEL 68.46 79.45 84.25 e Levels (with Leq Peak Hou 67 65	s Traffic Flow 2.44 -10.54 -14.48 out Topo and B r Leq Day .8 6 .9 6	Distan	-1.8 -1.8 -1.8 -1.8 tten eq E	Finite 5 4 4 4 5 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	Road -1.20 -1.20 -1.20 Leq N	Fresh	el -4.73 -4.88 -5.25	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	en Ben 000 000 000 000 C/	<u>m Atten</u> 0.000 0.000 0.000 <u>VEL</u> 69.0 66.4
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitgated Noise VehicleType Autos: Medium Trucks: Heavy Trucks:	el Calculation REMEL 68.46 79.45 84.25 e Levels (with Leq Peak Hou 67 65 66	s Traffic Flow 2.44 -10.54 -14.48 out Topo and B out Leq Day .8 6 .9 6 .7 6	Distan	-1.8 -1.8 -1.8 -1.8 -1.8 -1.8	Finite 5 4 4 4 5 4 5 4 4 5 8.3 5 3.7	Road -1.20 -1.20 -1.20 Leq N	Fresn ight 61.4 58.8 58.1	el -4.73 -4.88 -5.25	Barrier Atte 0.0 0.0 0.0 0.0 <i>Ldn</i> 68.6 66.2 66.1	en Bern 1000 1000 1000 1000 1000 1000	<u>m Atten</u> 0.000 0.000 0.000 <u>VEL</u> 69.0 66.4 66.2
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: VehicleType Autos: Heavy Trucks: Heavy Trucks: Vehicle Noise	el Calculation <u>REMEL</u> 68.46 79.45 84.25 e Levels (with Leq Peak Hoo 67 65 66 71	s Traffic Flow 2.44 -10.54 -14.48 out Topo and L mr Leg Day 8 6 .9 6 .7 6 .7 6	Distan arrier a 5.3 3.9 5.3 9.7	-1.8 -1.8 -1.8 -1.8 -1.8 -1.8	Finite 5 4 4 5 5 4 4 5 5 5 5 5 3.7 6 5.6	Road -1.20 -1.20 -1.20 Leq N	Fresn ight 61.4 58.8 58.1 64.4	el -4.73 -4.88 -5.25	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	en Bern 000 000 000 C/	m Atten 0.000 0.000 0.000 VEL 69.0 66.4 66.2 72.2
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: VehicleType Autos: Medium Trucks: Vehicle Noise: Centerline Distant	el Calculation <u>REMEL</u> 68.46 79.45 84.25 e Levels (with Leq Peak Hou 67 65 66 71 ce to Noise Co	s Traffic Flow 2.44 -10.54 -14.48 out Topo and I rr Leg Day .8 6 .9 6 .7 6 .7 6 ontour (in feet)	Distan	-1.8 -1.8 -1.8 -1.8 -1.8 -1.8	Finite 5 4 4 4 4 64.4 58.3 53.7 65.6	Road -1.20 -1.20 -1.20 -1.20	Fresn ight 61.4 58.8 58.1 64.4	el -4.73 -4.88 -5.25	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 68.6 66.2 66.1 71.9	en Ber 100 100 100 100 100 100 100 10	m Atten 0.000 0.000 0.000 VEL 69.0 66.4 66.2 72.2
FHWA Noise Mod VehicleType Autos: Heavy Trucks: UenicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distance	el Calculation <u>REMEL</u> 68.46 79.45 84.25 e Levels (with Leq Peak Hou 67 65 66 71 71 ce to Noise Co	s Traffic Flow 2.44 -10.54 -14.48 out Topo and I ir Leg Day 8 6 9 6 7 6 7 6 0 0 0 0 0 0 0 0 0 0 0 0 0	Distan	-1.8 -1.8 -1.8 -1.8 -1.8 -1.8 -1.8 -1.8	Finite 5 4 4 4 4 64.4 58.3 53.7 65.6 dBA	Road -1.20 -1.20 -1.20 Leq N	Fresh ight 61.4 58.8 58.1 64.4 BA	el -4.73 -4.88 -5.25	Barrier Att 0.0 0.0 0.0 0.0 0.0 0.0 0.0 68.0 66.2 66.1 71.5 50 dBA	en Ben 1000 1000 1000 1000 1000 1000 1000 10	m Atten 0.000 0.000 0.000 VEL 69.0 66.4 66.2 72.2 dBA
FHWA Noise Modi VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks: Vehicle Noise Centerline Distance	el Calculation <u>REMEL</u> 68.46 79.45 84.25 e Levels (with Leq Peak Hou 67 65 66 71 Ce to Noise Co	s Traffic Flow 2.44 -10.54 -14.48 out Topo and I Irr Leg Day 6.9 6.9 6.9 6.9 6.9 7 6 6 9 6 0 7 6 6 0 1 6 1 1 1 1 1 1 1 1 1 1 1 1 1	Distan	-1.8 -1.8 -1.8 -1.8 -1.8 -1.8 -1.8 -1.8	Finite 5 4 4 wening 64.4 53.7 65.6 dBA 02	Road -1.20 -1.20 -1.20 Leq N 65 da 215	Fresh ight 61.4 58.8 58.1 64.4 BA	el -4.73 -4.88 -5.25	Barrier Attu 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 66.2 66.2	en Ben 1000 1000 1000 1000 1000 1000 1,1	m Atten 0.000 0.000 0.000 VEL 69.0 66.4 66.2 72.2 72.2 dBA

Thursday, May 02, 2019

	FH\	VA-RD-77-108 H	IGHWAY	NOISE P	REDICTION M	IODEL						
Scenar	io: Existing Wi	ith Project			Project Nam	e: MCH						
Road Narr	ne: Central Av.				Job Numbe	r: 10351						
Road Segme	nt: n/o El Prad	o Rd.										
SITE	SPECIFIC IN	IPUT DATA			NOIS	e mode	L INPUT	5				
Highway Data				Site Cor	nditions (Hard	l = 10, S	oft = 15)					
Average Daily	Traffic (Adt):	29,772 vehicles				Autos:	15					
Peak Hour	Percentage:	10%		Me	edium Trucks (2 Axles):	15					
Peak H	lour Volume:	2,977 vehicles		He	avy Trucks (3	+ Axles):	15					
Ve	hicle Speed:	45 mph		Vehicle	Mix							
Near/Far La	ne Distance:	76 feet		Veh	nicleType	Dav	Evenina	Night	Dailv			
Site Data					Autos.	66.2%	13.5%	20.3%	93.48%			
Ba	rrier Height:	0.0 feet		М	edium Trucks.	77.1%	5.3%	17.6%	4.64%			
Barrier Type (0-W	Vall. 1-Berm):	0.0			Heavy Trucks	86.3%	5 1.5%	12.2%	1.88%			
Centerline Di	st. to Barrier:	60.0 feet		Noine C	ouroo Elovoti	ono (in f	0.04)					
Centerline Dist.	to Observer:	60.0 feet		Noise 3	Autoor	0.000	eel)					
Barrier Distance	to Observer:	0.0 feet		Modiu	Autos.	0.000						
Observer Height	(Above Pad):	5.0 feet		Heavy Trucks: 8.004 Grade Adjustment: 0.0								
P	ad Elevation:	0.0 feet		Heavy Hucks. 8.004 Grade Adjustment. 0.0								
Ro	ad Elevation:	0.0 feet		Lane Equivalent Distance (in feet)								
	Road Grade:	0.0%			Autos: 4	46.701						
	Left View:	-90.0 degrees		Mediu	m Trucks: 4	6.511						
	Right View:	90.0 degrees		Hear	vy Trucks:	46.530						
FHWA Noise Mod	el Calculation	s										
VehicleType	REMEL	Traffic Flow	Distance	Finite	Road Fre	esnel	Barrier Att	en Ber	rm Atten			
Autos:	68.46	2.61	0	.34	-1.20	-4.69	0.0	000	0.000			
Medium Trucks:	79.45	-10.43	0	.37	-1.20	-4.88	0.0	000	0.000			
Heavy Trucks:	84.25	-14.36	0	.37	-1.20	-5.34	0.0	000	0.000			
Unmitigated Nois	e Levels (with	out Topo and b	arrier atte	enuation)								
VehicleType	Leq Peak Hou	Ir Leq Day	Leq	Evening	Leq Night		Ldn	C	NEL			
Autos:	70	.2 67	7.6	66.7	6	3.7	70.9	9	71.3			
Medium Trucks:	68	.2 66	6.3	60.7	6	1.1	68.5	5	68.7			
Heavy Trucks:	69	.1 67	7.6	56.0	6	0.4	68.5	5	68.5			
Vehicle Noise:	74	.0 72	2.0	68.0	6	6.8	74.2	2	74.5			
Centerline Distan	ce to Noise C	ontour (in feet)										
			7	0 dBA	65 dBA		60 dBA	55	dBA			
		Lo	in:	115 247 533 1,148					148			
		CNE	EL:	120	258		556	1,	197			

	FH\	NA-RD-77-108	HIGHW	VAY N	OISE PR	EDICTI	ON MC	DDEL				
Scenar	io: Existing W	ith Project				Project	Name:	MCH				
Road Nam	e: Central Av.					Job N	umber:	10351				
Road Segme	nt: s/o El Prad	o Rd.										
SITE	SPECIFIC IN	IPUT DATA				N	OISE	MODE	L INPU	ſS		
Highway Data				S	Site Con	ditions	(Hard =	= 10, S	oft = 15)			
Average Daily	Traffic (Adt):	35,873 vehicle	es					Autos:	15			
Peak Hour	Percentage:	10%			Med	dium Tru	icks (2	Axles).	15			
Peak H	lour Volume:	3,587 vehicles	6		Hea	avy Truc	:ks (3+	Axles).	15			
Ve	hicle Speed:	45 mph		v	ehicle I	Nix						
Near/Far La	ne Distance:	78 feet		-	Vehi	cleType		Day	Evening	Nig	ht	Daily
Site Data						A	utos:	66.2%	5 13.5%	20.	3%	93.00%
Ba	rrier Height:	0.0 feet			Me	dium Tr	ucks:	77.1%	5.3%	17.	6%	4.81%
Barrier Type (0-W	/all, 1-Berm):	0.0			h	leavy Tr	ucks:	86.3%	i 1.5%	12.	2%	2.18%
Centerline Di	st. to Barrier:	60.0 feet			loiso So	urco El	ovatio	ne (in f	oot)			
Centerline Dist.	to Observer:	60.0 feet		-	10/36 30	Autor		000	eelj			
Barrier Distance	to Observer:	0.0 feet			Modium	n Trucks	. 0	207				
Observer Height	Above Pad):	5.0 feet			Heav	v Trucks	. 2	004	Grade A	diustm	ent:	0.0
Pi	ad Elevation:	0.0 feet			Lene Freiheitert Distance (in fest)							
Ro	ad Elevation:	0.0 feet		L	ane Equ	iivalent	Distar	nce (in	feet)			
	Road Grade:	0.0%				Autos	: 45	.869				
	Left View:	-90.0 degree	es		Mediun	n Trucks	s: 45	.676				
	Right View:	90.0 degree	es		Heav	y Trucks	:: 45	.695				
FHWA Noise Mod	el Calculation	s										
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fres	nel	Barrier A	tten	Berm	Atten
Autos:	68.46	3.40		0.46		-1.20		-4.69	0	.000		0.000
Medium Trucks:	79.45	-9.47		0.49		-1.20		-4.88	0	.000		0.000
Heavy Trucks:	84.25	-12.90		0.48		-1.20		-5.34	0	.000		0.000
Unmitigated Nois	e Levels (with	out Topo and	barrier	attenu	uation)							
VehicleType	Leq Peak Hou	ır Leq Day	' L	Leq Ev	ening	Leq I	Night		Ldn		CN	EL
Autos:	71	.1	68.5		67.6		64.	6	71	.8		72.2
Medium Trucks:	69	.3	67.3		61.7		62.	2	69	.6		69.8
Heavy Trucks:	70	.6	69.2		57.6		62.	0	70	.1		70.1
Vehicle Noise:	75	.2	73.2		69.0		67.	9	75	.4		75.6
Centerline Distant	ce to Noise C	ontour (in feet)									
				70 d	BA	65 0	BA	-	60 dBA		55 a	BA
			Ldn:	13	7	29	95		635		1,36	58
		CI	VEL:	14:	2	30)7		661		1,4	24

Thursday, May 02, 2019

	FH\	NA-RD-77-108	HIGHW	AY NO	DISE P	REDICTI	ION MO	DEL				
Scenar Road Nam Road Segmei	io: Existing W ne: El Prado R nt: n/o Kimbal	ith Project d. I Av.				Project Job N	Name: I umber:	MCH 10351				
SITE	SPECIFIC IN	IPUT DATA				N	IOISE N	/IODE	L INPUTS	5		
Highway Data				S	ite Cor	nditions	(Hard =	10, S	oft = 15)			
Average Daily	Traffic (Adt):	26,099 vehicl	es					Autos.	15			
Peak Hour	Percentage:	10%			Me	edium Tru	ucks (2 A	(xles)	: 15			
Peak H	lour Volume:	2,610 vehicle	s		He	eavy Truc	cks (3+ A	(xles)	: 15			
Ve	hicle Speed:	45 mph		V	ehicle	Mix						
Near/Far La	ne Distance:	36 feet		-	Veh	nicleTvpe		Dav	Evenina	Niah	Dailv	
Site Data						A	Autos:	66.29	6 13.5%	20.3	% 93.12%	
Bai	rrier Height:	0.0 feet			М	edium Ti	rucks:	77.1%	6 5.3%	17.6	% 4.71%	
Barrier Type (0-W	/all, 1-Berm):	0.0				Heavy Ti	rucks:	86.3%	6 1.5%	12.2	% 2.17%	
Centerline Dis	st. to Barrier:	44.0 feet		N	oise S	ource El	levation	s (in f	eet)			
Centerline Dist.	to Observer:	44.0 feet				Autos	s: 0.0	000				
Barrier Distance	to Observer:	0.0 feet			Mediu	m Truck	s: 2.2	297				
Observer Height ('Above Pad):	5.0 feet			Hear	vy Trucks	s: 8.0	004	Grade Adj	ustme	nt: 0.0	
Pa	ad Elevation:	0.0 feet			Lane Equivalent Distance (in feet)							
Roa	ad Elevation:	0.0 feet		La	ane Eq	uivaiem	Distant	ce (In	reet)			
	Road Grade:	0.0%			A 4 15	Autos	S: 40.4	460				
	Left View:	-90.0 degre	es		Mediu	m Truck	s: 40.2	241				
	Right view:	90.0 degre	es		пеа	y muck	5. 40.4	202				
FHWA Noise Mode	el Calculation	s										
VehicleType	REMEL	Traffic Flow	Distan	се	Finite	Road	Fresn	el	Barrier Atte	en B	lerm Atten	
Autos:	68.46	2.02		1.28		-1.20		-4.61	0.0	00	0.000	
Medium Trucks:	79.45	-10.94		1.31		-1.20		-4.87	0.0	00	0.000	
Heavy Trucks:	84.25	-14.31		1.31		-1.20		-5.50	0.0	00	0.000	
Unmitigated Noise	e Levels (with	out Topo and	barrier a	ttenu	ation)			1				
Vehicle I ype	Leq Peak Hou	ur Leq Day	/ Le	eq Eve	ening	Leq	Night		Ldn		CNEL	
Autos:	70	1.6	68.0		67.1		64.1		/1.3		/1./	
Medium Trucks:	08		00.7 69.6		57.0		61.5		68.9		69.1 60.5	
Vehicle Noise:	74	1.0	72.6		68.4		67.3		74.8		75.0	
Centerline Distan	ce to Noise C	ontour (in fee	•)									
			/	70 dE	BA	65	dBA		60 dBA	1	55 dBA	
			Ldn:	92 197			425		916			
		C	NEL:	95		20	06		443		954	

Scenar	io: Existing Wi	th Project				Project N	ame: N	ЮН				
Road Nam	e: Euclid Av.					Job Nur	nber: 1	0351				
Road Segme	nt: n/o Walnut	Av.										
SITE	SPECIFIC IN	IPUT DATA				NC	ISE M	ODE		S		
Highway Data				s	Site Con	ditions (H	lard = 1	10, So	oft = 15)			
Average Daily	Traffic (Adt):	30,863 vehicles	j.				A	utos:	15			
Peak Hour	Percentage:	10%			Med	dium Truc	ks (2 A	(les):	15			
Peak H	lour Volume:	3,086 vehicles			Hea	avy Truck	s (3+ A	des):	15			
Ve	hicle Speed:	55 mph		v	/ehicle N	Nix						
Near/Far La	ne Distance:	154 feet		F	Vehi	cleType	Ĺ	Day	Evening	Night	Daily	
Site Data						Au	tos: 6	6.2%	13.5%	20.3%	92.47%	
Bai	rrier Height	0.0 feet			Me	dium Tru	cks: 7	7.1%	5.3%	17.6%	5.05%	
Barrier Type (0-W	/all. 1-Berm):	0.0			h	leavy Tru	cks: 8	6.3%	1.5%	12.2%	2.48%	
Centerline Di	st. to Barrier:	84.0 feet			laiaa Ca	uree Ele	<i>cotion</i>	lin fi	0.041			
Centerline Dist.	to Observer:	84.0 feet		~	voise so	urce Ele	auons	(111 10	eel)			
Barrier Distance	to Observer:	0.0 feet			Madium	Autos.	0.0	00				
Observer Height ((Above Pad):	5.0 feet			Hoove	Trucks.	2.2	97	Grada Ad	iustmont	0.0	
Pa	ad Elevation:	0.0 feet			neav	y mucks.	0.0	04	Grade Adj	usunoni	0.0	
Roa	ad Elevation:	0.0 feet		L	ane Equ	ivalent L	Distanc	e (in	feet)			
	Road Grade:	0.0%				Autos:	33.9	41				
	Left View:	-90.0 degrees	;		Mediun	n Trucks:	33.6	79				
	Right View:	90.0 degrees	;		Heav	y Trucks:	33.7	05				
FHWA Noise Mod	el Calculation	s										
VehicleType	REMEL	T (7 5)	Distan								m Atton	
	INCIVILL	I rattic Flow	Distan	ce	Finite	Road	Fresne	2/	Barrier Att	en Ber	III Allell	
Autos:	71.78	1 raffic Flow 1.85	Distan	2.42	Finite	Road -1.20	Fresne -	4.75	Barrier Att 0.0	en Ber 100	0.000	
Autos: Medium Trucks:	71.78 82.40	1.85 -10.78	Distan	2.42 2.47	Finite	Road -1.20 -1.20	Fresne -	4.75 4.88	Barrier Att 0.0 0.0	en Ber 100 100	0.000	
Autos: Medium Trucks: Heavy Trucks:	71.78 82.40 86.40	1.85 -10.78 -13.87	Distan	2.42 2.47 2.47 2.47	Finite	Road -1.20 -1.20 -1.20	Fresne - -	4.75 4.88 5.21	Barrier Att 0.0 0.0 0.0	en Ber 100 100 100	0.000 0.000 0.000	
Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois	71.78 82.40 86.40	1.85 -10.78 -13.87 out Topo and b	arrier a	2.42 2.47 2.47 2.47	Finite	Road -1.20 -1.20 -1.20	Fresne - -	4.75 4.88 5.21	Barrier Att 0.0 0.0 0.0	en Ber 100 100 100	0.000 0.000 0.000	
Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType	71.78 82.40 86.40 • Levels (with Leq Peak Hou	1.85 -10.78 -13.87 out Topo and b r Leq Day	arrier a	2.42 2.47 2.47 2.47 ttenu	Finite	Road -1.20 -1.20 -1.20 <i>Leq N</i>	Fresne - - ight	4.75 4.88 5.21	Barrier Att 0.0 0.0 0.0 0.0	en Ber 1000 1000 1000 Cl	0.000 0.000 0.000 0.000	
Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos:	71.78 82.40 86.40 e Levels (with Leg Peak Hou 74	Traffic Flow 1.85 -10.78 -13.87 out Topo and b r Leq Day .8 72	arrier a	2.42 2.47 2.47 2.47 attenu eq Ev	Finite wation) rening 71.4	Road -1.20 -1.20 -1.20 <i>Leq N</i>	Fresne - - - - - - - - - - - - - - - - - - -	4.75 4.88 5.21	Barrier Att 0.0 0.0 0.0 0.0 0.0 75.0	en Ber 000 000 000 000	0.000 0.000 0.000 0.000 VEL 76.0	
Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks:	71.78 82.40 86.40 e Levels (with Leq Peak Hou 74 72	Itaffic Flow 1.85 -10.78 -13.87 <th -13<="" td=""><td>arrier a</td><td>2.42 2.47 2.47 2.47 ttenu</td><td>Finite uation) rening 71.4 65.4</td><td>Road -1.20 -1.20 -1.20 <i>Leq N</i></td><td>Fresne - - - - - - - - - - - - - - - - - - -</td><td>4.75 4.88 5.21</td><td>Barrier Att 0.0 0.0 0.0 <u>Ldn</u> 75.6 73.2</td><td>en Ber 100 100 100 100 100 100 100 10</td><td>0.000 0.000 0.000 0.000 <u>VEL</u> 76.0 73.4</td></th>	<td>arrier a</td> <td>2.42 2.47 2.47 2.47 ttenu</td> <td>Finite uation) rening 71.4 65.4</td> <td>Road -1.20 -1.20 -1.20 <i>Leq N</i></td> <td>Fresne - - - - - - - - - - - - - - - - - - -</td> <td>4.75 4.88 5.21</td> <td>Barrier Att 0.0 0.0 0.0 <u>Ldn</u> 75.6 73.2</td> <td>en Ber 100 100 100 100 100 100 100 10</td> <td>0.000 0.000 0.000 0.000 <u>VEL</u> 76.0 73.4</td>	arrier a	2.42 2.47 2.47 2.47 ttenu	Finite uation) rening 71.4 65.4	Road -1.20 -1.20 -1.20 <i>Leq N</i>	Fresne - - - - - - - - - - - - - - - - - - -	4.75 4.88 5.21	Barrier Att 0.0 0.0 0.0 <u>Ldn</u> 75.6 73.2	en Ber 100 100 100 100 100 100 100 10	0.000 0.000 0.000 0.000 <u>VEL</u> 76.0 73.4
Autos: Medium Trucks: Heavy Trucks: Unmitigated Noiss VehicleType Autos: Medium Trucks: Heavy Trucks:	71.78 82.40 86.40 e Levels (with Leq Peak Hou 74 72 73	Itaffic Flow 1.85 -10.78 -13.87 -13.87 -10.78 -13.87 <th -13<="" td=""><td>arrier a 2.3 1.0 2.4</td><td>2.42 2.47 2.47 2.47 ttenu</td><td>Finite uation) rening 71.4 65.4 60.8</td><td>Road -1.20 -1.20 -1.20 <i>Leq N</i></td><td>Fresne </td><td>4.75 4.88 5.21</td><td>Barrier Att 0.0 0.0 0.0 <u>Ldn</u> 75.6 73.2 73.2</td><td>en Ber 100 100 100 100 100 100 100 100 100</td><td>0.000 0.000 0.000 <u>VEL</u> 76.0 73.4 73.3</td></th>	<td>arrier a 2.3 1.0 2.4</td> <td>2.42 2.47 2.47 2.47 ttenu</td> <td>Finite uation) rening 71.4 65.4 60.8</td> <td>Road -1.20 -1.20 -1.20 <i>Leq N</i></td> <td>Fresne </td> <td>4.75 4.88 5.21</td> <td>Barrier Att 0.0 0.0 0.0 <u>Ldn</u> 75.6 73.2 73.2</td> <td>en Ber 100 100 100 100 100 100 100 100 100</td> <td>0.000 0.000 0.000 <u>VEL</u> 76.0 73.4 73.3</td>	arrier a 2.3 1.0 2.4	2.42 2.47 2.47 2.47 ttenu	Finite uation) rening 71.4 65.4 60.8	Road -1.20 -1.20 -1.20 <i>Leq N</i>	Fresne 	4.75 4.88 5.21	Barrier Att 0.0 0.0 0.0 <u>Ldn</u> 75.6 73.2 73.2	en Ber 100 100 100 100 100 100 100 100 100	0.000 0.000 0.000 <u>VEL</u> 76.0 73.4 73.3
Autos: Medium Trucks: Heavy Trucks: VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	71.78 82.40 86.40 e Levels (with Leg Peak Hou 74 72 73 78	Inatric Flow 1.85 -10.78 -10.78 -10.78 -13.87 out Topo and b r r Leq Day .8 72 .9 7 .8 72 .7 7	arrier a 2.3 1.0 2.4	2.42 2.47 2.47 <i>ttenu</i> eq Ev	Finite vation) rening 71.4 65.4 60.8 72.6	Road -1.20 -1.20 -1.20 <i>Leg N</i>	Freshe 	4.75 4.88 5.21	Barrier Att 0.0 0.0 0.0 0.0 0.0 75.0 73.2 73.2 73.2 78.9	en Ber 000 000 000 CI 3 2 2 0	VEL 76.0 73.4 79.2	
Autos: Medium Trucks: Heavy Trucks: Venitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distant	71.78 82.40 86.40 e Levels (with Leq Peak Hou 74 72 73 78 2e to Noise Co	Trainic How 1.85 -10.78 -13.87 out Topo and b ir Leq Day .8 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7	arrier a Le 2.3 1.0 2.4 3.7	2.42 2.47 2.47 ttenu eq Ev	Finite (uation) rening 71.4 65.4 60.8 72.6	Road -1.20 -1.20 -1.20 Leq N	Freshe 	4.75 4.88 5.21	Barrier Att 0.0 0.0 0.0 0.0 75.6 73.2 73.2 78.5	en Ber 1000 1000 1000 1000 1000 1000 1000 10	VEL 76.0 79.2 79.2	
Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks: Vehicle Noise: Centerline Distance	71.78 82.40 86.40 e Levels (with Leq Peak Hou 74 72 73 78 78 78	Traine How 1.85 -10.78 -13.87 out Topo and b rr Leq Day .8 72 .9 77 .7 74 ontour (in feet) 100	arrier a 2.3 1.0 2.4 3.7	2.42 2.47 2.47 attenu eq Ev	Finite vation) vening 71.4 65.4 60.8 72.6	Road -1.20 -1.20 -1.20 -1.20 Leq N	ight 68.4 65.8 65.1 71.4	4.75 4.88 5.21	Barrier Att 0.0 0.0 0.0 0.0 75.6 73.2 73.2 78.5 60 dBA	en Ber 1000 100	0.000 0.000 0.000 0.000 76.0 73.4 73.3 79.2 dBA	
Autos: Medium Trucks: Heavy Trucks: VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distance	71.78 82.40 86.40 e Levels (with Leq Peak Hou 74 72 73 78 78 2e to Noise Co	Trainic How 1.85 -10.78 -10.78 -13.87 -13.87 out Topo and b	arrier a 2.3 1.0 2.4 3.7	2.42 2.47 2.47 <u>eq Ev</u> 70 d	Finite vation) rening 71.4 65.4 60.8 72.6 BA 0	Road -1.20 -1.20 -1.20 -1.20 <i>Leq N</i> <u>65 d</u> 711	Freshe 	4.75 4.88 5.21	Barrier Att 0.0 0.0 0.0 0.0 75.0 73.2 78.5 78.5 78.5 78.5 78.5	en Ber 1000 100	0.000 0.000 0.000 VEL 76.0 73.4 73.3 79.2 dBA 299	

Thursday, May 02, 2019

	FHV	NA-RD-77-108	HIGHV	VAYN	NOISE PI	REDICTIO	ON MO	DEL			
Scenar	io: Existing Wi	ith Project				Project I	Name:	MCH			
Road Nam	ne: Euclid Av.					Job Nu	imber:	10351			
Road Segme	nt: n/o Riversio	de Dr.									
SITE	SPECIFIC IN	IPUT DATA				N	OISE	MODE	l input	S	
Highway Data					Site Con	ditions (Hard =	= 10, So	oft = 15)		
Average Daily	Traffic (Adt):	25,924 vehicle	s					Autos:	15		
Peak Hour	Percentage:	10%			Me	dium Tru	cks (2	Axles):	15		
Peak H	lour Volume:	2,592 vehicles			He	avy Truci	ks (3+	Axles):	15		
Ve	hicle Speed:	55 mph		F	Vehicle	Mix					-
Near/Far La	ne Distance:	154 feet			Veh	icleType		Day	Evening	Nigh	t Daily
Site Data						A	utos:	66.2%	13.5%	20.3	92.30
Ba	rrier Height:	0.0 feet			M	edium Tru	ucks:	77.1%	5.3%	17.6	5.11°
Barrier Type (0-W	/all, 1-Berm):	0.0			ŀ	Heavy Tru	ucks:	86.3%	1.5%	12.2	% 2.59
Centerline Di	st. to Barrier:	84.0 feet		t.	Noise So	ource Ele	vatio	ns (in fe	eet)		
Centerline Dist.	to Observer:	84.0 feet		Ē		Autos	: 0	.000			-
Barrier Distance	to Observer:	0.0 feet			Mediu	m Trucks	: 2	297			
Observer Height ((Above Pad):	5.0 feet			Heav	v Trucks	: 8	.004	Grade Ad	djustme	ent: 0.0
Pa	ad Elevation:	0.0 feet									
Roa	ad Elevation:	0.0 feet		Ľ	Lane Eq	uivalent	Distar	ice (in	teet)		
	Road Grade:	0.0%				Autos.	: 33	.941			
	Left View:	-90.0 degree	S		Mediu	m Trucks	: 33	.679			
	Right View:	90.0 degree	s		Heav	y Trucks	: 33	.705			
FHWA Noise Mod	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fres	nel	Barrier At	ten E	3erm Atten
Autos:	71.78	1.08		2.4	2	-1.20		-4.75	0.	000	0.00
Medium Trucks:	82.40	-11.49		2.4	7	-1.20		-4.88	0.	000	0.00
Heavy Trucks:	86.40	-14.44		2.4	7	-1.20		-5.21	0.	000	0.00
Unmitigated Nois	e Levels (with	out Topo and I	barrier	atten	nuation)						
VehicleType	Leq Peak Hou	ir Leq Day	1	Leq E	vening	Leq N	light		Ldn		CNEL
Autos:	74	.1 7	1.5		70.6		67.	6	74.	8	75.
Medium Trucks:	72	.2 7	0.3		64.7		65.	1	72.	5	72.
Heavy Trucks:	73	.2 /	1.8		60.2		64.	5	72.	6	72.
Vehicle Noise:	78	.0 /	6.0		/1.9		70.	/	78.	2	78.
Centerline Distan	ce to Noise Co	ontour (in feet)		70	-10.4	05 -	04		0.404	-	<i></i>
		,	dn.	700	UBA	0 00	DA 0		1 276	_	2065
			.un: El ·	290 039 1,370 2 309 665 1.434 3				2,900			
		CN	LL.	30	03	00	5		1,404		3,000

	FHW.	A-RD-77-108 HIG	HWAYN	IOISE PI	REDICTIO	N MOD	DEL			
Scenar Road Nam Road Segme	io: Existing With e: Euclid Av. nt: n/o Chino Av	Project			Project N Job Nur	ame: N nber: 1	1CH 0351			
SITE	SPECIFIC INF	PUT DATA			NC	ISE M	ODEL	INPUTS	S	
Highway Data				Site Con	ditions (H	lard = 1	10, Sof	t = 15)		
Average Daily Peak Hour Peak H	Traffic (Adt): 2 Percentage: lour Volume: 2	5,994 vehicles 10% 2,599 vehicles		Me He	dium Truc avy Truck	A ks (2 A s (3+ A	utos: xles): xles):	15 15 15		
Noor/Eor Lo	no Distanco:	154 foot		Vehicle I	Mix					
Neal/I al La	ne Distance.	134 1661		Veh	icleType	Ĺ	Day	Evening	Night	Daily
Site Data					Au	tos: 6	6.2%	13.5%	20.3%	92.33%
Ba	rrier Height:	0.0 feet		Me	edium Tru	cks: 7	7.1%	5.3%	17.6%	5.09%
Barrier Type (0-W	/all, 1-Berm):	0.0		ŀ	leavy Tru	cks: 8	36.3%	1.5%	12.2%	2.58%
Centerline Di	st. to Barrier:	84.0 feet		Noise So	ource Ele	vations	(in fee	et)		
Centerline Dist.	to Observer:	84.0 feet	F		Autos:	0.0	00	1		
Barrier Distance	to Observer:	0.0 feet		Mediu	m Trucks:	2.2	97			
Observer Height (Above Pad):	5.0 feet		Heav	v Trucks:	8.0	04 (Grade Adj	ustmen	t: 0.0
Pa	ad Elevation:	0.0 feet	F							
Roi	ad Elevation:	0.0 feet	4	Lane Eq	uivalent L	Jistanc	e (in fe	eet)		
	Road Grade:	0.0%			Autos:	33.9	41			
	Left View: Right View:	-90.0 degrees 90.0 degrees		Mediui Heav	m Trucks: ry Trucks:	33.6 33.7	79 05			
EHWA Noise Mod	ol Calculations									
VehicleType	REMEL	Traffic Flow D	istance	Finite	Road	Fresne	el E	Barrier Atte	en Be	rm Atten
Autos:	71.78	1.09	2.4	2	-1.20		4.75	0.0	00	0.000
Medium Trucks:	82.40	-11.49	2.4	7	-1.20	-	4.88	0.0	00	0.000
Heavy Trucks:	86.40	-14.44	2.4	7	-1.20	-	5.21	0.0	00	0.000
Unmitigated Nois	e Levels (witho	ut Topo and barr	rier atter	nuation)						
VehicleType	Leq Peak Hour	Leq Day	Leq E	vening	Leq N	ight	1	Ldn	C	NEL
Autos:	74.1	71.5		70.6		67.6		74.8		75.2
Medium Trucks:	72.2	70.3		64.7		65.1		72.5	;	72.7
Heavy Trucks:	73.2	71.8		60.2		64.5		72.6	i	72.7
Vehicle Noise:	78.0	76.0		71.9		70.7		78.2		78.5
Centerline Distan	ce to Noise Cor	ntour (in feet)								
			70 (dBA	65 dE	ЗA	60) dBA	- 55	ō dBA
		Ldn:	29	97	639		1	,377	2	,966
		CNEL:	30	99	666		1	,434	3	,090

Thursday, May 02, 2019

	FH	WA-RD-77-108	HIGHW	AY NO	ISE PI	REDICTIC	N MOD	EL			
Scenario Road Name Road Segmen	 Existing W Euclid Av. n/o Schaef 	ith Project er Av.				Project N Job Nui	lame: N mber: 1	ICH 0351			
SITE S	PECIFIC IN	NPUT DATA				NC	DISE M	ODEL	INPUTS	5	
Highway Data				Sit	e Con	ditions (F	lard = 1	10, So	ft = 15)		
Average Daily T	raffic (Adt):	28,582 vehicl	es				A	utos:	15		
Peak Hour F	Percentage:	10%			Me	dium Truc	ks (2 A	kles):	15		
Peak Ho	our Volume:	2,858 vehicle	s		He	avy Truck	s (3+ A	kles):	15		
Veh	icle Speed:	55 mph		Ve	hicle	Mix					
Near/Far Lan	e Distance:	154 feet			Veh	icleTvpe	[Dav	Evenina	Niaht	Dailv
Site Data						AL	itos: 6	6.2%	13.5%	20.39	6 92.44%
Barr	rier Heiaht:	0.0 feet			M	edium Tru	cks: 7	7.1%	5.3%	17.6%	6 5.05%
Barrier Type (0-Wa	all, 1-Berm):	0.0			F	Heavy Tru	cks: 8	6.3%	1.5%	12.29	6 2.52%
Centerline Dist	t. to Barrier:	84.0 feet		No	iso Si	ource Ele	vations	(in fo	of)		
Centerline Dist. to	o Observer:	84.0 feet		/10	130 00	Autos:	0.0	00			
Barrier Distance to	o Observer:	0.0 feet			Modiu	m Trucke:	2.2	97			
Observer Height (A	Above Pad):	5.0 feet			Heat	n Trucks:	8.0	n4 (Grade Adi	ustmer	t: 0.0
Pa	d Elevation:	0.0 feet			mour	y maono.	0.0				
Road	d Elevation:	0.0 feet		La	ne Eq	uivalent L	Distanc	e (in fe	eet)		
R	load Grade:	0.0%				Autos:	33.9	41			
	Left View:	-90.0 degre	es		Mediu	m Trucks:	33.6	79			
	Right View:	90.0 degre	es		Heav	/y Trucks:	33.7	05			
FHWA Noise Mode	I Calculation	IS									
VehicleType	REMEL	Traffic Flow	Distan	се	Finite	Road	Fresne	el E	Barrier Atte	en Be	erm Atten
Autos:	71.78	1.51		2.42		-1.20	-	4.75	0.0	00	0.000
Medium Trucks:	82.40	-11.12		2.47		-1.20	-	4.88	0.0	00	0.000
Heavy Trucks:	86.40	-14.14		2.47		-1.20	-	5.21	0.0	00	0.000
Unmitigated Noise	Levels (with	out Topo and	barrier a	ttenua	tion)						
VehicleType	Leq Peak Ho	ur Leq Day	ν Le	eq Evel	ning	Leq N	ight		Ldn	(ONEL
Autos:	74	1.5	71.9		71.0		68.0		75.2		75.6
Medium Trucks:	72	2.6	70.6		65.0		65.5		72.9		73.1
Heavy Trucks:	73	3.5	72.1		60.5		64.8		72.9		73.0
Vehicle Noise:	78	3.4	76.4		72.3		71.1		78.6		78.9
Centerline Distance	e to Noise C	ontour (in feet)								
				70 dB.	A	65 dl	BA	60) dBA	5	5 dBA
			Ldn:	314		677	,	1	,458	3	142
		C	VEL:	327		705	5	1	,520	3	3,274

FHV	VA-RD-77-108	HIGHW	AY NC	DISE PF	REDICTIO	ON MOD	EL				
o: Existing Wi	th Project				Project I	lame: N	ICH				
nt: n/o Edison	Av.				300 744	mber. I	0001				
SPECIFIC IN	PUT DATA				N	DISE M	ODEI		S		
			Si	ite Con	ditions (Hard = 1	0, So	ft = 15)			
Traffic (Adt):	30,668 vehicle	s				A	utos:	15			
Percentage:	10%			Me	dium Tru	cks (2 A	des):	15			
our Volume:	3,067 vehicles	5		He	avy Truck	(3+ A	des):	15			
hicle Speed:	55 mph		Ve	ehicle l	Mix						
ne Distance:	154 feet		-	Veh	icleTvpe	[Dav	Evenina	Niaht	Dailv	
				-	A	utos: 6	6.2%	13.5%	20.3%	92.50%	
rier Height:	0.0 feet			Me	edium Tru	icks: 7	7.1%	5.3%	17.6%	5.02%	
all. 1-Berm):	0.0			ŀ	leavy Tru	icks: 8	6.3%	1.5%	12.2%	2.47%	
st. to Barrier:	84.0 feet						() fo	- 41			
to Observer:	84.0 feet		N	oise Sc	burce Ele	vations	(in te	et)			
to Observer:	0.0 feet				Autos.	0.0	00				
Above Pad):	5.0 feet			Mediur	m Trucks.	2.2	97	Crada Ad			
ad Elevation:	0.0 feet			Heav	y Trucks.	8.0	J4	Graue Auj	usuneni	. 0.0	
ad Elevation:	0.0 feet		Lá	ane Eq	uivalent	Distanc	e (in f	eet)			
Road Grade:	0.0%				Autos.	33.9	41				
Left View:	-90.0 degree	s		Mediur	m Trucks.	33.6	79				
Right View:	90.0 degree	s		Heav	y Trucks.	33.7	05				
el Calculation:	s										
REMEL	Traffic Flow	Distan	ice	Finite	Road	Fresne	el I	Barrier Att	en Ber	m Atten	
71.78	1.82		2.42		-1.20	-	4.75	0.0	000	0.000	
82.40	-10.83		2.47		-1.20	-	4.88	0.0	000	0.000	
86.40	-13.91		2.47		-1.20	-	5.21	0.0	000	0.000	
e Levels (with	out Topo and	barrier a	ttenu	ation)							
Leq Peak Hou	r Leq Day	Le	eq Eve	ening	Leq N	light		Ldn	CI	NEL	
74.	.8	72.2		71.3		68.3		75.5	5	76.0	
72.	.8	70.9		65.3		65.8		73.2	2	73.4	
		72.3		60.7		65.1		73.2	2	73.2	
73.	.8									70.4	
73. 78	.7	76.6		72.6		71.4		78.9)	79.1	
73. 78. ce to Noise Co	8 .7 ontour (in feet,	76.6		72.6		71.4		78.9)	79.1	
73. 78. ce to Noise Co	8 .7 ontour (in feet,	76.6	70 dE	72.6 BA	65 d	71.4 BA	6	78.9 0 dBA	55	dBA	
73. 78 ce to Noise Co	8 7 ontour (in feet,	76.6	70 dE 328	72.6 3A	65 d 70	71.4 BA 7	6	78.9 0 dBA 1,523	55	/9.1 dBA 281	
	FHV Fift Fift	FHWA-RD-77-108 c: Existing With Project c: Existing With Project e: Euclid Av. strain of Edison Av. SPECIFIC INPUT DATA Traffic (Ad): 30,668 vehicle Percentage: 10% our Volume: 3,067 vehicles ichel Spead: 55 mph ne Distance: 154 feet rior Height: 0.0 all, 1-Berm): 0.0 th to Barrier: 84.0 feet to Observer: 84.0 feet do Deserver: 0.0 feet dd Elevation: 0.0 feet dd Elevation: 0.0 degree el Calculations 71.78 REMEL Traffic Flow 71.78 1.82 82.40 -10.83 86.40 -10.83 74.8 72.8	FHWA-RD-77-108 HIGHW FHWA-RD-77-108 HIGHW c: Exidid Av. stating With Project c: Exidid Av. SPECIFIC INPUT DATA Traffic (Adt): 30,668 vehicles Percentage: 10% our Volume: 3,067 vehicles biological for the program in Height: 30,668 vehicles our Volume: 3,067 vehicles trior Height: 0.0 feet 10.0 feet Al, 0.6 feet to Observer: 84.0 feet do Cleveres Right View: -90.0 degrees Right View: -90.0 degrees Al Calculations REMEL Taffic Flow Distar T1.78 1.82.40 Calculations REMEL Taffic Flow Distar T1.78 1.82.40 T1.83 Taffic Flow Distar <td cols<="" td=""><td>FHWA-RD-77-108 HIGHWAY NO co: Existing With Project c: Existing With Project c: Existing With Project c: Left Addition specific INPUT DATA Si Specific INPUT DATA Si Traffic (Ad): 30,668 vehicles Percentage: 10% our Volume: 3,067 vehicles Percentage: 10% our Volume: 3,067 vehicles rier Height: 0.0 feet all, 1-Berm): 0.0 it. to Barrier: 84.0 feet No Observer: 84.0 feet Above Pad): 5.0 feet di Elevation: 0.0 feet di Elevation: 0.0 degrees right View: -90.0 degrees right View: 90.0 degrees right View: 90.0 degrees right View: 18.2 2.42 82.40 -10.83 2.47 82.40 -10.83 2.47 82.40 -10.83 2.47</td><td>FHWA-RD-77-108 HIGHWAY NOISE PI FHWA-RD-77-108 HIGHWAY NOISE PI c: Existing With Project e: e: Euclid Av. Site Con SPECIFIC INPUT DATA Site Con Traffic (Adt): 30,668 vehicles Percentage: 10% our Volume: 3,067 vehicles he Distance: 154 feet Vehicles nicl Ryster 0.0 feet All, 1-Berm): 0.0 nic b Observer: 84.0 feet Above Pad): 5.0 feet Heaution: 0.0 feet Beaution: 0.0 feet Beaution: 0.0 feet Heaution: 0.0 feet Heaution: 1.82 2.42 82.40 82.40 -10.83 2.47 Evention: 1.42 84.0 -13.91 2.47 Stevening <!--</td--><td>FHWA-RD-77-108 HIGHWAY NOISE PREDICITIO CE: Exilid AV. 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Job Number: 10351 st:: no Edison Av. Site Conditions (Hard = 10, So Traffic (Adt): Site Conditions (Hard = 10, So Site Conditions (Hard = 10, So Webules SPECIFIC INPUT DATA NOISE MODEL SPECIFIC INPUT DATA NOISE MODEL Ste Conditions (Hard = 10, So Traffic (Adt): 30,668 vehicles Percentage: 10% our Volume: 3,067 vehicles heid Speade: 55 mph Heavy Trucks (34 Ades): Heavy Trucks (34 Ades): hield Speade: 55 mph Heavy Trucks: 66.2% Medium Trucks: 77.1% All -Berni): 0.0 feet Marks of Doberver: 84.0 feet Noise Source Elevations (in ff Autos: Nob Observer: 90.0 degrees Wight View: 90.0 degrees Webicleard Trucks: 33.705 Velaciations Frinte Road REMEL Traffic Flow Distance Finite Road Yift</td><td>FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL Der Existing With Project Project Name: MCH Der Exuelid Av. Job Number: 10351 SPECIFIC INPUT DATA NOISE MODEL INPUT Stream Autos: 15 Percentage: 10% OWNER: 3.067 vehicles Percentage: 10% Our Volume: 3.067 vehicles Distance: 55 mph Vehicle Type Day Evening Autos: 66.2% 1.5% Medium Trucks: 2.440s: 1.5% Vehicle Type Day Evening Autos: 0.00 feet Medium Trucks: 7.1% 5.3% It a Barrier: 84.0 feet Moise Source: 8.004 Grade Adj Above Pad): 5.0 feet Heavy Trucks: 8.004 Grade Adj Above Pad): 5.0 feet Heavy Trucks: 3.361 Above Pad): 5.0 feet Heavy Trucks: 3.370 Rode Grade: 0.0% Medium Trucks: 3.370 I cal</td><td>FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL Description Project Name: NCH c::::::::::::::::::::::::::::::::::::</td></td></td>	<td>FHWA-RD-77-108 HIGHWAY NO co: Existing With Project c: Existing With Project c: Existing With Project c: Left Addition specific INPUT DATA Si Specific INPUT DATA Si Traffic (Ad): 30,668 vehicles Percentage: 10% our Volume: 3,067 vehicles Percentage: 10% our Volume: 3,067 vehicles rier Height: 0.0 feet all, 1-Berm): 0.0 it. to Barrier: 84.0 feet No Observer: 84.0 feet Above Pad): 5.0 feet di Elevation: 0.0 feet di Elevation: 0.0 degrees right View: -90.0 degrees right View: 90.0 degrees right View: 90.0 degrees right View: 18.2 2.42 82.40 -10.83 2.47 82.40 -10.83 2.47 82.40 -10.83 2.47</td> <td>FHWA-RD-77-108 HIGHWAY NOISE PI FHWA-RD-77-108 HIGHWAY NOISE PI c: Existing With Project e: e: Euclid Av. 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Job Number: 10351 SPECIFIC INPUT DATA NOISE MODEL INPUT Stream Autos: 15 Percentage: 10% OWNER: 3.067 vehicles Percentage: 10% Our Volume: 3.067 vehicles Distance: 55 mph Vehicle Type Day Evening Autos: 66.2% 1.5% Medium Trucks: 2.440s: 1.5% Vehicle Type Day Evening Autos: 0.00 feet Medium Trucks: 7.1% 5.3% It a Barrier: 84.0 feet Moise Source: 8.004 Grade Adj Above Pad): 5.0 feet Heavy Trucks: 8.004 Grade Adj Above Pad): 5.0 feet Heavy Trucks: 3.361 Above Pad): 5.0 feet Heavy Trucks: 3.370 Rode Grade: 0.0% Medium Trucks: 3.370 I cal</td><td>FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL Description Project Name: NCH c::::::::::::::::::::::::::::::::::::</td></td>	FHWA-RD-77-108 HIGHWAY NO co: Existing With Project c: Existing With Project c: Existing With Project c: Left Addition specific INPUT DATA Si Specific INPUT DATA Si Traffic (Ad): 30,668 vehicles Percentage: 10% our Volume: 3,067 vehicles Percentage: 10% our Volume: 3,067 vehicles rier Height: 0.0 feet all, 1-Berm): 0.0 it. to Barrier: 84.0 feet No Observer: 84.0 feet Above Pad): 5.0 feet di Elevation: 0.0 feet di Elevation: 0.0 degrees right View: -90.0 degrees right View: 90.0 degrees right View: 90.0 degrees right View: 18.2 2.42 82.40 -10.83 2.47 82.40 -10.83 2.47 82.40 -10.83 2.47	FHWA-RD-77-108 HIGHWAY NOISE PI FHWA-RD-77-108 HIGHWAY NOISE PI c: Existing With Project e: e: Euclid Av. Site Con SPECIFIC INPUT DATA Site Con Traffic (Adt): 30,668 vehicles Percentage: 10% our Volume: 3,067 vehicles he Distance: 154 feet Vehicles nicl Ryster 0.0 feet All, 1-Berm): 0.0 nic b Observer: 84.0 feet Above Pad): 5.0 feet Heaution: 0.0 feet Beaution: 0.0 feet Beaution: 0.0 feet Heaution: 0.0 feet Heaution: 1.82 2.42 82.40 82.40 -10.83 2.47 Evention: 1.42 84.0 -13.91 2.47 Stevening </td <td>FHWA-RD-77-108 HIGHWAY NOISE PREDICITIO CE: Exilid AV. 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Job Number: 10351 st:: no Edison Av. Site Conditions (Hard = 10, So Traffic (Adt): Site Conditions (Hard = 10, So Site Conditions (Hard = 10, So Webules SPECIFIC INPUT DATA NOISE MODEL SPECIFIC INPUT DATA NOISE MODEL Ste Conditions (Hard = 10, So Traffic (Adt): 30,668 vehicles Percentage: 10% our Volume: 3,067 vehicles heid Speade: 55 mph Heavy Trucks (34 Ades): Heavy Trucks (34 Ades): hield Speade: 55 mph Heavy Trucks: 66.2% Medium Trucks: 77.1% All -Berni): 0.0 feet Marks of Doberver: 84.0 feet Noise Source Elevations (in ff Autos: Nob Observer: 90.0 degrees Wight View: 90.0 degrees Webicleard Trucks: 33.705 Velaciations Frinte Road REMEL Traffic Flow Distance Finite Road Yift</td> <td>FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL Der Existing With Project Project Name: MCH Der Exuelid Av. Job Number: 10351 SPECIFIC INPUT DATA NOISE MODEL INPUT Stream Autos: 15 Percentage: 10% OWNER: 3.067 vehicles Percentage: 10% Our Volume: 3.067 vehicles Distance: 55 mph Vehicle Type Day Evening Autos: 66.2% 1.5% Medium Trucks: 2.440s: 1.5% Vehicle Type Day Evening Autos: 0.00 feet Medium Trucks: 7.1% 5.3% It a Barrier: 84.0 feet Moise Source: 8.004 Grade Adj Above Pad): 5.0 feet Heavy Trucks: 8.004 Grade Adj Above Pad): 5.0 feet Heavy Trucks: 3.361 Above Pad): 5.0 feet Heavy Trucks: 3.370 Rode Grade: 0.0% Medium Trucks: 3.370 I cal</td> <td>FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL Description Project Name: NCH c::::::::::::::::::::::::::::::::::::</td>	FHWA-RD-77-108 HIGHWAY NOISE PREDICITIO CE: Exilid AV. 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Job Number: 10351 st:: no Edison Av. Site Conditions (Hard = 10, So Traffic (Adt): Site Conditions (Hard = 10, So Site Conditions (Hard = 10, So Webules SPECIFIC INPUT DATA NOISE MODEL SPECIFIC INPUT DATA NOISE MODEL Ste Conditions (Hard = 10, So Traffic (Adt): 30,668 vehicles Percentage: 10% our Volume: 3,067 vehicles heid Speade: 55 mph Heavy Trucks (34 Ades): Heavy Trucks (34 Ades): hield Speade: 55 mph Heavy Trucks: 66.2% Medium Trucks: 77.1% All -Berni): 0.0 feet Marks of Doberver: 84.0 feet Noise Source Elevations (in ff Autos: Nob Observer: 90.0 degrees Wight View: 90.0 degrees Webicleard Trucks: 33.705 Velaciations Frinte Road REMEL Traffic Flow Distance Finite Road Yift	FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL Der Existing With Project Project Name: MCH Der Exuelid Av. Job Number: 10351 SPECIFIC INPUT DATA NOISE MODEL INPUT Stream Autos: 15 Percentage: 10% OWNER: 3.067 vehicles Percentage: 10% Our Volume: 3.067 vehicles Distance: 55 mph Vehicle Type Day Evening Autos: 66.2% 1.5% Medium Trucks: 2.440s: 1.5% Vehicle Type Day Evening Autos: 0.00 feet Medium Trucks: 7.1% 5.3% It a Barrier: 84.0 feet Moise Source: 8.004 Grade Adj Above Pad): 5.0 feet Heavy Trucks: 8.004 Grade Adj Above Pad): 5.0 feet Heavy Trucks: 3.361 Above Pad): 5.0 feet Heavy Trucks: 3.370 Rode Grade: 0.0% Medium Trucks: 3.370 I cal	FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL Description Project Name: NCH c::::::::::::::::::::::::::::::::::::

Thursday, May 02, 2019

	EHM	A-PD-77-109		/AV N								
	FUA	A-KD-77-100 F	IIGHW			CEDIC I		JDEL				
Scenar	io: Existing Wi	th Project				Project	Name:	MCH				
Road Nan	10: Euclid AV.	tuo Au				JOD N	umber:	10351				
Road Seyme	m. n/o Eucalyp	ius Av.										
SITE	SPECIFIC IN	PUT DATA				N	IOISE	MODE	L INPUT	ſS		
Highway Data					Site Con	ditions	(Hard :	= 10, Se	oft = 15)			
Average Daily	Traffic (Adt):	28,639 vehicles	;					Autos:	15			
Peak Hour	Percentage:	10%			Me	dium Tri	ucks (2	Axles):	15			
Peak H	lour Volume:	2,864 vehicles			He	avy Tru	cks (3+	Axles):	15			
Ve	hicle Speed:	55 mph		F	Vehicle	Mix						
Near/Far La	ne Distance:	154 feet		F	Veh	icleType		Day	Evening	Nig	ht	Daily
Site Data							Autos:	66.2%	13.5%	20.	.3%	92.46%
Ba	rrier Height:	0.0 feet			M	edium T	rucks:	77.1%	5.3%	17.	.6%	5.03%
Barrier Type (0-V	Vall, 1-Berm):	0.0			ŀ	leavy T	rucks:	86.3%	1.5%	12.	.2%	2.51%
Centerline Di	ist. to Barrier:	84.0 feet			Noise So	ource E	levatio	ns (in f	eet)			
Centerline Dist.	to Observer:	84.0 feet		F		Auto	s' 0	000				-
Barrier Distance	to Observer:	0.0 feet			Mediu	m Truck	s. 0 s [.] 2	297				
Observer Height	(Above Pad):	5.0 feet			Heat	v Truck	s. 2	004	Grade A	diustr	nent:	0.0
P	ad Elevation:	0.0 feet			mour	<i>y m</i> aona	5. 0			.,		
Ro	ad Elevation:	0.0 feet		1	Lane Eq	uivalen	t Distar	nce (in	feet)			
	Road Grade:	0.0%				Auto	s: 33	.941				
	Left View:	-90.0 degrees	5		Mediu	m Truck	s: 33	.679				
	Right View:	90.0 degrees	5		Heav	ry Truck	s: 33	.705				
FHWA Noise Mod	el Calculation:	s										
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fres	nel	Barrier A	tten	Bern	n Atten
Autos:	71.78	1.52		2.4	2	-1.20		-4.75	0.	.000		0.00
Medium Trucks:	82.40	-11.12		2.4	7	-1.20		-4.88	0.	.000		0.00
Heavy Trucks:	86.40	-14.15		2.4	7	-1.20		-5.21	0.	.000		0.00
Unmitigated Nois	e Levels (with	out Topo and b	arrier	atten	uation)							-
VehicleType	Leq Peak Hou	r Leq Day	L	.eq E	vening	Leq	Night		Ldn		CN	EL
Autos:	74.	5 7	1.9		71.0		68.	0	75	.2		75.
Medium Trucks:	72.	.6 7	0.6		65.0		65.	5	72	.9		73.
Heavy Trucks:	73.	5 7	2.1		60.5		64.	8	72	.9		73.
Vehicle Noise:	78	.4 7	6.4		72.3		71.	1	78	.6		78.
Centerline Distan	ce to Noise Co	ontour (in feet)						1				
			. ட	70 0	3BA	65	авА	(SU aBA		55 0	IBA
		L	an:	31	14	6	//		1,459		3,1	43
		CN	=L:	32	27	7	05		1,520		3,2	/5

	FHV	VA-RD-77-108 HIG	SHWAY N	NOISE PF	REDICTIO	N MODEL			
Scenar Road Narr Road Segme	io: Existing Wi ne: Euclid Av. nt: n/o Merrill A	th Project			Project N Job Nur	ame: MCH nber: 1035	1		
SITE	SPECIFIC IN	PUT DATA			NO	ISE MOD	EL INPUT	5	
Highway Data				Site Con	ditions (H	lard = 10, S	oft = 15)		
Average Daily	Traffic (Adt):	32,894 vehicles				Autos	: 15		
Peak Hour	Percentage:	10%		Me	dium Truc	ks (2 Axles)	: 15		
Peak H	lour Volume:	3,289 vehicles		He	avy Truck	s (3+ Axles)	: 15		
Ve	hicle Speed:	55 mph	-	Vehicle I	Mix				
Near/Far La	ne Distance:	154 feet	-	Venicie i	icleTvne	Dav	Evening	Night	Daily
Site Data				1011	Au	tos: 66.2	% 13.5%	20.3%	92.60%
Pa	rrior Hoight:	0.0 foot		Me	edium True	cks: 77.19	6 5.3%	17.6%	4.98%
Barrier Tyne (0-M	/all_1_Borm)	0.0 1001		F	leavy True	cks: 86.39	6 1.5%	12.2%	2.42%
Centerline Di	st. to Barrier:	84.0 feet	-		-				
Centerline Dist.	to Observer:	84.0 feet	-	Noise Sc	ource Elev	vations (in	teet)		
Barrier Distance	to Observer:	0.0 feet			Autos:	0.000			
Observer Height	(Above Pad):	5.0 feet		Mediur	n Trucks:	2.297	Out de Ad		
P	ad Elevation:	0.0 feet		Heav	y Trucks:	8.004	Grade Adj	ustment:	0.0
Ro	ad Elevation:	0.0 feet		Lane Eq	uivalent D	Distance (in	feet)		
	Road Grade:	0.0%			Autos:	33.941			
	Left View:	-90.0 degrees		Mediur	n Trucks:	33.679			
	Right View:	90.0 degrees		Heav	y Trucks:	33.705			
FHWA Noise Mod	el Calculation	s							
VehicleType	REMEL	Traffic Flow D	Distance	Finite	Road	Fresnel	Barrier Att	en Ber	m Atten
Autos:	71.78	2.13	2.4	2	-1.20	-4.75	0.0	000	0.000
Medium Trucks:	82.40	-10.57	2.4	7	-1.20	-4.88	0.0	000	0.000
Heavy Trucks:	86.40	-13.69	2.4	7	-1.20	-5.21	0.0	000	0.000
Unmitigated Nois	e Levels (with	out Topo and ban	rier atter	nuation)					
VehicleType	Leq Peak Hou	r Leq Day	Leq E	vening	Leq Ni	ight	Ldn	CI	VEL
Autos:	75.	.1 72.5	5	71.7		68.7	75.8	3	76.3
Medium Trucks:	73.	.1 71.2	2	65.6		66.0	73.4	ł	73.6
Heavy Trucks:	74.	.0 72.5	5	61.0		65.3	73.4	ł	73.5
Vehicle Noise:	78	.9 76.9)	72.9		71.7	79.1		79.4
Centerline Distan	ce to Noise Co	ontour (in feet)							
			70	dBA	65 dE	BA	60 dBA	55	dBA
		Ldn	: 34	42	737	,	1,588	3,4	421
		CNEL	: 3	57	768	6	1,655	3,5	566

Thursday, May 02, 2019

	FH	WA-RD-77-108	HIGHW	VAY NO	ISE P	REDICTI	ON MOI	DEL			
Scenario Road Name Road Segmen	 Existing W Euclid Av. s/o Merrill 	ith Project Av.				Project Job Ni	Name: I umber: '	MCH 10351			
SITE S	PECIFIC IN	NPUT DATA				N	OISE N	IODE	L INPUTS	5	
Highway Data				Si	te Cor	ditions	(Hard =	10, S	oft = 15)		
Average Daily 1	raffic (Adt):	31,662 vehicl	es					Autos:	15		
Peak Hour F	Percentage:	10%			Me	dium Tru	icks (2 A	xles):	15		
Peak Ho	our Volume:	3,166 vehicle	s		He	avy Truc	ks (3+ A	xles):	15		
Veh	icle Speed:	55 mph		Ve	hiclo	Mix					
Near/Far Lan	e Distance:	154 feet			Veh	icleTvpe		Dav	Evenina	Niah	Dailv
Site Data						A	utos:	66.2%	5 13.5%	20.3	% 92.58%
Barr	rier Heiaht:	0.0 feet			М	edium Tr	ucks:	77.1%	5.3%	17.6	% 4.98%
Barrier Type (0-Wa	all, 1-Berm):	0.0			1	Heavy Tr	ucks:	86.3%	5 1.5%	12.2	% 2.44%
Centerline Dis	t. to Barrier:	84.0 feet		No	oise Se	ource El	evation	s (in f	eet)		
Centerline Dist. to	o Observer:	84.0 feet				Autos	. 00	000			
Barrier Distance to	o Observer:	0.0 feet			Mediu	m Trucks	: 2.2	97			
Observer Height (A	Above Pad):	5.0 feet			Heav	/v Trucks	: 8.0	004	Grade Adj	ustme	nt: 0.0
Pa	d Elevation:	0.0 feet									
Roa	d Elevation:	0.0 feet		La	ine Eq	uivalent	Distanc	ce (in	feet)		
R	load Grade:	0.0%				Autos	: 33.9	941			
	Left View:	-90.0 degre	es		Mediu	m Trucks	:: 33.6	579			
	Right View:	90.0 degre	es		Heav	/y Trucks	:: 33.7	705			
FHWA Noise Mode	I Calculation	IS									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresn	el	Barrier Atte	en B	erm Atten
Autos:	71.78	1.96		2.42		-1.20		-4.75	0.0	00	0.000
Medium Trucks:	82.40	-10.73		2.47		-1.20		-4.88	0.0	00	0.000
Heavy Trucks:	86.40	-13.83		2.47		-1.20		-5.21	0.0	00	0.000
Unmitigated Noise	Levels (with	out Topo and	barrier	attenua	ation)						
VehicleType	Leq Peak Ho	ur Leq Da	/ L	leq Eve	ning	Leq I	Vight		Ldn		CNEL
Autos:	75	5.0	72.4		71.5		68.5		75.7		76.1
Medium Trucks:	72	2.9	71.0		65.4		65.9		73.3		73.5
Heavy Trucks:	73	3.8	72.4		60.8		65.2		73.2		73.3
Vehicle Noise:	78	3.8	76.8		72.7		71.5		79.0		79.3
Centerline Distance	e to Noise C	ontour (in fee	t)								
			∟	70 dB	8A	65 0	1BA	1	50 dBA	1	55 dBA
			Ldn:	334		71	9		1,550		3,339
		С	NEL:	348		75	0		1,615		3,480

	FHV	VA-RD-77-108	HIGHW	AY NO	OISE PF	REDICTIO		DEL			
Scenari	io: Existing Wi	th Project				Project I	lame: N	ИСН			
Road Nam	e: Euclid Av.	-				Job Nu	mber: 1	0351			
Road Segmer	<i>nt:</i> n/o Kimball	Av.									
SITE	SPECIFIC IN	IPUT DATA				N	DISE N	10DE		s	
Highway Data				S	ite Con	ditions (Hard =	10, So	oft = 15)		
Average Daily	Traffic (Adt):	31,272 vehicle	es				1	Autos:	15		
Peak Hour	Percentage:	10%			Mee	dium Tru	cks (2 A	xles):	15		
Peak H	lour Volume:	3,127 vehicles	6		Hea	avy Trucl	(3+ A	xles):	15		
Vei	hicle Speed:	55 mph		v	ehicle l	Mix					
Near/Far Lai	ne Distance:	154 feet		Ē	Vehi	icleType		Day	Evening	Night	Daily
Site Data						A	utos:	66.2%	13.5%	20.3%	92.57%
Bar	rrier Height	0.0 feet			Me	edium Tru	icks:	77.1%	5.3%	17.6%	4.98%
Barrier Type (0-W	all. 1-Berm):	0.0			F	leavy Tru	icks:	86.3%	1.5%	12.2%	2.45%
Centerline Dis	st. to Barrier:	84.0 feet							41		
Centerline Dist.	to Observer:	84.0 feet		N	ioise so	ource Ele	vations		eet)		
Barrier Distance	to Observer:	0.0 feet				Autos.	0.0	000			
Observer Height (.	Above Pad):	5.0 feet			wealur	n Trucks.	2.2	97	Grado Ad	iustmont	
Pa	ad Elevation:	0.0 feet			neav	y mucks.	0.0	/04	Grade Adj	usunoni	0.0
Roa	ad Elevation:	0.0 feet		L	ane Equ	uivalent	Distand	e (in	feet)		
F	Road Grade:	0.0%				Autos.	33.9	941			
	Left View:	-90.0 degree	es		Mediur	n Trucks.	33.6	679			
	Right View:	90.0 degree	es		Heav	y Trucks.	33.7	705			
FHWA Noise Mode	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Distan	ice	Finite	Road	Fresn	el	Barrier Att	en Ber	m Atten
Autos:	71.78	1.91		2.42		-1.20		4.75	0.0	000	0.000
Medium Trucks:	82.40	-10.79		2.47		-1.20		-4.88	0.0	000	0.000
Heavy Trucks:	86.40	-13.87		2.47		-1.20		-5.21	0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier a	ttenu	uation)						
VehicleType	Leq Peak Hou	r Leq Day	Le	eq Ev	ening	Leq N	light		Ldn	CI	VEL
Autos:	74	.9	72.3		71.4		68.4		75.6	6	76.0
Medium Trucks:	72	.9	71.0		65.4		65.8		73.2	2	73.4
Heavy Trucks:	73	.8	72.4		60.8		65.1		73.2	2	73.3
Vehicle Noise:	78	.7	76.7		72.7		71.5		78.9	9	79.2
Oranta dina Distant	ne to Noise Co	ontour (in feet)								
Centerline Distance				70 -1	o .	05 -		6	SO dRA	55	dBA
Centerline Distanc				70 al	BA	65 a	DA	,	JO UDA	55	
Centerline Distanc			Ldn:	33	ВА 1	71	БА 1		1,538	3,	313

Thursday, May 02, 2019

Fł	IWA-RD-77-108	HIGHWA						
Scenario: Existing V Road Name: Euclid Av Road Segment: n/o Bickm	Vith Project lore Av.			Project Na Job Nun	ame: MC nber: 103	H 51		
SITE SPECIFIC	NPUT DATA			NO	ISE MOI	DEL INPU	rs	
Highway Data			Site Co	nditions (H	ard = 10,	Soft = 15)		
Average Daily Traffic (Adt): Peak Hour Percentage:	19,643 vehicle 10%	!S	м	edium Trucl	Auto ks (2 Axle	os: 15 s): 15		
Peak Hour Volume:	1.964 vehicles	;	н	eavy Trucks	; (3+ Axle	s): 15		
Vehicle Speed:	55 mph					-,		
Near/Far Lane Distance:	154 feet		Vehicle	Mix hicloTypo	Dou	(Evoning	Night	Daily
Site Data			ve	Ain	Daj	2% 13.5%	20.3%	92 30%
				Aedium Truc	ks: 77	1% 5.3%	17.6%	5 06%
Barrier Height:	0.0 feet			Heavy Truc	ks: 86.	3% 1.5%	12.2%	2.65%
Centerline Dist to Barrier	0.0 84.0 feet							
Centerline Dist. to Observer:	84.0 feet		Noise S	Source Elev	ations (ii	n feet)		
Barrier Distance to Observer:	0.0 feet			Autos:	0.000			
Observer Height (Above Pad):	5.0 feet		Medi	um Trucks:	2.297			
Pad Elevation:	0.0 feet		Hea	wy Trucks:	8.004	Grade A	djustmen	t: 0.0
Road Elevation:	0.0 feet		Lane E	quivalent D	istance (in feet)		
Road Grade:	0.0%			Autos:	33.941			
Left View:	-90.0 degree	s	Medi	um Trucks:	33.679			
Right View:	90.0 degree	s	Hea	wy Trucks:	33.705			
FHWA Noise Model Calculatio	ns							
VehicleType REMEL	Traffic Flow	Distan	ce Finit	e Road	Fresnel	Barrier A	tten Be	rm Atten
Autos: 71.7	8 -0.12		2.42	-1.20	-4.7	75 0	.000	0.00
Medium Trucks: 82.4	0 -12.74		2.47	-1.20	-4.8	38 0	.000	0.00
Heavy Trucks: 86.4	0 -15.55		2.47	-1.20	-5.2	21 0	.000	0.00
Unmitigated Noise Levels (with	hout Topo and	barrier a	ttenuation					
VehicleType Leq Peak H	our Leq Day	Le	q Evening	Leq Ni	ght	Ldn	C	NEL
Autos:	2.9	70.3	69.4	1	66.4	73	.6	74.
Medium Trucks: 7	0.9	69.0	63.4	1	63.9	71	.3	71.
Heavy Trucks: 7	2.1	70.7	59.	1	63.4	71	.5	71.
Vehicle Noise:	6.8	74.8	70.	7	69.5	77	.0	77.
Centerline Distance to Noise	Contour (in feet)							
			70 dBA	65 dB	A	60 dBA	55	5 dBA
		_dn:	247	532		1,146	2	,470

	FHV	VA-RD-77-108	HIGHW	AY N	OISE PF	REDICTI	ON MC	DEL				
Scenar	io: Existing Wi	th Project				Project I	Name:	мсн				
Road Nam	e: Archibald A	<i>v</i> .				Job NL	imber:	10351				
Road Segme	nt: n/o Limonit	e Av.										
SITE	SPECIFIC IN	IPUT DATA				N	OISE	NODE	L INPU	тs		
Highway Data				5	Site Con	ditions ('Hard =	: 10, S	oft = 15)			
Average Daily	Traffic (Adt):	25,613 vehicle	s					Autos:	15			
Peak Hour	Percentage:	10%			Mee	dium Tru	cks (2 .	Axles):	15			
Peak H	lour Volume:	2,561 vehicles			Hea	avy Truc	ks (3+ .	Axles):	15			
Ve	hicle Speed:	55 mph		1	/ehicle I	Nix						
Near/Far La	ne Distance:	154 feet		-	Vehi	cleTvpe		Dav	Evening	Nig	ht	Dailv
Site Data						A	utos:	66.2%	5 13.5%	20	.3%	93.45%
Ba	rrier Height	0.0 feet			Me	edium Tri	ucks:	77.1%	5.3%	17	.6%	4.66%
Barrier Type (0-W	/all, 1-Berm):	0.0			F	leavy Tri	ucks:	86.3%	5 1.5%	12	.2%	1.89%
Centerline Di	st. to Barrier:	84.0 feet		,	Voise So	urce Ele	vation	s (in f	eet)			
Centerline Dist.	to Observer:	84.0 feet		-		Autos	· 0	000	001/			-
Barrier Distance	to Observer:	0.0 feet			Mediur	n Trucks	. 2	297				
Observer Height	Above Pad):	5.0 feet			Heav	v Trucks	. 8	004	Grade A	diustn	nent:	0.0
Pi	ad Elevation:	0.0 feet				,			-			
Roi	ad Elevation:	0.0 feet		L	.ane Equ	uivalent	Distan	ce (in	feet)			
	Road Grade:	0.0%				Autos	: 33	941				
	Left View:	-90.0 degree	s		Mediur	n Trucks	: 33	679				
	Right View:	90.0 degree	s		Heav	y Trucks	: 33	705				
FHWA Noise Mod	el Calculation	s										
VehicleType	REMEL	Traffic Flow	Distar	nce	Finite	Road	Fres	nel	Barrier A	tten	Berr	n Atten
Autos:	71.78	1.08		2.42	2	-1.20		-4.75	0	.000		0.000
Medium Trucks:	82.40	-11.94		2.47	,	-1.20		-4.88	0	.000		0.000
Heavy Trucks:	86.40	-15.87		2.47	,	-1.20		-5.21	0	.000		0.000
Unmitigated Nois	e Levels (with	out Topo and I	oarrier a	atten	uation)							
VehicleType	Leq Peak Hou	r Leq Day	L	eq Ev	rening	Leq I	Vight		Ldn		C٨	IEL
Autos:	74	.1 7	1.5		70.6		67.	5	74	.8		75.2
Medium Trucks:	71	.7 6	9.8		64.2		64.	7	72	.1		72.3
Heavy Trucks:	71	.8 7	0.4		58.8		63.	1	71	.2		71.3
Vehicle Noise:	77	.5 7	5.4		71.7		70.	3	77	.7		78.0
Centerline Distant	ce to Noise Co	ontour (in feet)										
				70 a	IBA	65 c	IBA	0	60 dBA		55	dBA
		L	.dn:	27	6	59	4		1,279		2,7	'56
		CN	EL:	28	8	62	0		1,336		2,8	179

Thursday, May 02, 2019

	FH	WA-RD-77-108	BHIGHW	AY NO	ISE P	REDICT	ION MO	DEL			
Scenar Road Nam Road Segme	io: Existing W ne: Archibald A nt: s/o Limonit	ith Project Av. te Av.				Project Job N	Name: I lumber:	MCH 10351			
SITE	SPECIFIC IN	NPUT DATA				N	IOISE N	/IODE	L INPUTS	5	
Highway Data				Sit	te Cor	nditions	(Hard =	10, S	oft = 15)		
Average Daily	Traffic (Adt):	24,896 vehicl	es					Autos.	15		
Peak Hour	Percentage:	10%			Me	edium Tr	ucks (2 A	(xles)	: 15		
Peak H	lour Volume:	2,490 vehicle	s		He	avy Tru	cks (3+ A	(xles)	: 15		
Ve	hicle Speed:	45 mph		Ve	hicle	Mix					
Near/Far La	ne Distance:	78 feet			Veh	nicleTvpe		Dav	Evenina	Niaht	Dailv
Site Data							Autos:	66.2%	6 13.5%	20.39	6 93.37%
Ba	rrier Heiaht:	0.0 feet			М	edium T	rucks:	77.1%	6 5.3%	17.6%	6 4.65%
Barrier Type (0-W	/all, 1-Berm):	0.0				Heavy T	rucks:	86.3%	6 1.5%	12.29	6 1.98%
Centerline Di	st. to Barrier:	76.0 feet		No	oise S	ource E	levation	s (in f	eet)		
Centerline Dist.	to Observer:	76.0 feet				Auto	s: 0.0	000	í		
Barrier Distance	to Observer:	0.0 feet		1	Mediu	m Truck	s: 2.2	297			
Observer Height ((Above Pad):	5.0 feet			Hear	vy Truck	s: 8.0	004	Grade Adj	ustmer	nt: 0.0
Pa	ad Elevation:	0.0 feet		10	no Fo	wiwelen	4 Distan	no (in	fa a 4)		
Roa	ad Elevation:	0.0 feet		La	ne Eq	uivaien	t Distant	ce (In	reet)		
	Road Grade:	0.0%			Madiu	AUTO	S: 05.4	+22			
	Left View:	-90.0 degre	es		Mediu Hoo	m Truck	S: 65.	286			
	Night view.	90.0 degre	es		nca	ry much	3. 00.	200			
FHWA Noise Mod	el Calculation	is									
VehicleType	REMEL	Traffic Flow	Distar	ce	Finite	Road	Fresn	el	Barrier Atte	en Be	erm Atten
Autos:	68.46	1.83		-1.85		-1.20		-4.73	0.0	00	0.000
Medium Trucks:	79.45	-11.20		-1.84		-1.20		-4.88	0.0	00	0.000
Heavy Trucks:	84.25	-14.92		-1.84		-1.20		-5.25	0.0	00	0.000
Unmitigated Nois	e Levels (with	nout Topo and	barrier a	ttenua	ation)						
VehicleType	Leq Peak Ho	ur Leq Da	y Le	eq Ever	ning	Leq	Night		Ldn	(CNEL
Autos:	67	7.2	64.7		63.8		60.8		67.9		68.4
Medium Trucks:	65	5.2	63.3		57.7		58.1		65.5		65.7
Vehicle Noise	71	1.1	69.1		53.3 65.0		57.b		65.7 71.3		65.8 71.6
Centerline Distan	ce to Noise C	ontour (in fee	f)		00.0		00.0		71.0		11.0
Contentine Distant	00 10 110136 0	Sinour Inniee	<i>y</i>	70 dB,	A	65	dBA		60 dBA	5	5 dBA
			Ldn:	93		2	00		431		929
		С	NEL:	97		2	09		449		968

Scenar	io: Existing Wi	th Project				Project Na	ame: M	СН			
Road Nam	e: Archibald A	w.				Job Nun	nber: 10	351			
Road Segme	nt: s/o Schleisi	man Rd.									
SITE	SPECIFIC IN	IPUT DATA				NO	ISE MO	DDE	L INPUT	S	
Highway Data				Sit	te Cond	litions (H	ard = 1	0, So	oft = 15)		
Average Daily	Traffic (Adt):	22,146 vehicles					AL	itos:	15		
Peak Hour	Percentage:	10%			Med	lium Trucl	(2 Ax	les):	15		
Peak H	lour Volume:	2,215 vehicles			Hea	vy Trucks	: (3+ Ax	les):	15		
Ve	hicle Speed:	45 mph		Ve	hicle N	lix					
Near/Far La	ne Distance:	78 feet			Vehic	cleType	D	ay	Evening	Night	Daily
Site Data						Au	os: 66	5.2%	13.5%	20.3%	93.34%
Ba	rrier Height	0.0 feet			Me	dium Truc	ks: 7	7.1%	5.3%	17.6%	4.71%
Barrier Type (0-W	/all. 1-Berm):	0.0			Н	eavy Truc	ks: 86	5.3%	1.5%	12.2%	1.95%
Centerline Di	st. to Barrier:	76.0 feet		No	vian Ca	uree Elev	otiono	(in 6	0.041		
Centerline Dist.	to Observer:	76.0 feet		NC	lise 30	ance Elev	auons	0	eel)		
Barrier Distance	to Observer:	0.0 feet				Autos:	0.00	0			
Observer Height	Above Pad):	5.0 feet			Mealun	Trucks:	2.29	4	Grado Ad	ustmont	0.0
P	ad Elevation:	0.0 feet			neavy	TTUCKS.	0.00	4	Orade Haj	usunom.	0.0
Ro	ad Elevation:	0.0 feet		La	ne Equ	ivalent D	istance	(in	feet)		
	Road Grade:	0.0%				Autos:	65.42	2			
	Left View:	-90.0 degrees			Medium	n Trucks:	65.28	6			
	Right View:	90.0 degrees			Heavy	/ Trucks:	65.29	19			
FHWA Noise Mod	el Calculation	c									
		3									
VehicleType	REMEL	Traffic Flow	Distanc	e	Finite I	Road	Fresne	1	Barrier Att	en Ber	m Atten
VehicleType Autos:	REMEL 68.46	Traffic Flow 1.32	Distand -	e 1.85	Finite I	Road -1.20	Fresnei -4	l 1.73	Barrier Atte 0.0	en Ber	<i>m Atten</i> 0.000
VehicleType Autos: Medium Trucks:	REMEL 68.46 79.45	Traffic Flow 1.32 -11.66	Distanc - -	xe 1.85 1.84	Finite I	Road -1.20 -1.20	Fresnei -4 -4	1.73 1.88	Barrier Atte 0.0 0.0	en Ber 00 00	m Atten 0.000 0.000
VehicleType Autos: Medium Trucks: Heavy Trucks:	REMEL 68.46 79.45 84.25	Traffic Flow 1.32 -11.66 -15.48	Distanc - -	xe 1.85 1.84 1.84	Finite I	-1.20 -1.20 -1.20	Fresnei -4 -4 -5	1.73 1.88 5.25	Barrier Atte 0.0 0.0 0.0	en Ben 00 00 00	m Atten 0.000 0.000 0.000
VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois	REMEL 68.46 79.45 84.25 2 Levels (with	Traffic Flow 1.32 -11.66 -15.48 out Topo and ba	Distand - - - - - -	e 1.85 1.84 1.84 tenua	Finite I	Road -1.20 -1.20 -1.20	Fresnei -4 -4 -5	1.73 1.88 5.25	Barrier Atte 0.0 0.0 0.0	en Ben 00 00 00	m Atten 0.000 0.000 0.000
VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType	REMEL 68.46 79.45 84.25 2 Levels (with Leq Peak Hou	Traffic Flow 1.32 -11.66 -15.48 out Topo and ba -15.48 r Leq Day	Distand - - arrier at Leo	e 1.85 1.84 1.84 tenua g Eve	Finite F ation) ning	Road -1.20 -1.20 -1.20 Leq Ni	Fresnel -4 -4 -5 ght	1.73 1.88 5.25	Barrier Atte 0.0 0.0 0.0 Ldn	en Bern 00 00 00 00 <i>CI</i>	<u>m Atten</u> 0.000 0.000 0.000
VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos:	REMEL 68.46 79.45 84.25 e Levels (with Leq Peak Hou 66	Traffic Flow 1.32 -11.66 -15.48 out Topo and ba rr Leq Day .7 64	Distand - - arrier at Leo .1	e 1.85 1.84 1.84 1.84 tenua 7 Eve	Finite I ation) ning 63.3	Road -1.20 -1.20 -1.20 Leq Nig	Fresnel -4 -4 -5 ght 60.3	1.73 1.88 5.25	Barrier Atti 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	en Ber 00 00 00 00 <i>CI</i>	<u>m Atten</u> 0.000 0.000 0.000 <u>VEL</u> 67.9
VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noiss VehicleType Autos: Medium Trucks:	REMEL 68.46 79.45 84.25 e Levels (with Leq Peak Hou 66 64	Traffic Flow 1.32 -11.66 -15.48 out Topo and base Image: Topo and base r Leq Day .7 64 .8 62	Distanc - - arrier at Leo .1 .8	e 1.85 1.84 1.84 1.84 <i>tenua</i>	Finite F ation) ning 63.3 57.2	Road -1.20 -1.20 -1.20 Leq Ni	Fresnel -4 -4 -5 ght 60.3 57.7	1.73 1.88 5.25	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	en Ber 00 00 00 00 <i>CI</i>	<u>m Atten</u> 0.000 0.000 0.000 <u>VEL</u> 67.9 65.3
VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noiss VehicleType Autos: Medium Trucks: Heavy Trucks:	REMEL 68.46 79.45 84.25 84.25 9 9 9 9 9 1000000000000000000000000000000000000	Traffic Flow 1.32 -11.66 -15.48 out Topo and base Image: Traffic Flow r Leq Day .7 64 .8 62 .7 64	Distanc - - arrier at Lec .1 .8 .3	e 1.85 1.84 1.84 1.84 tenua g Eve	Finite I ation) ning 63.3 57.2 52.7	Road -1.20 -1.20 -1.20 <i>Leq Ni</i>	Fresnei -4 -5 ght 60.3 57.7 57.0	1.73 1.88 5.25	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	en Ben 000 000 000 C/	<u>m Atten</u> 0.000 0.000 0.000 <u>VEL</u> 67.9 65.2
VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noiss VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	REMEL 68.46 79.45 84.25 e Levels (with 66 64 65 70 70	Traffic Flow 1.32 -11.66 -15.48 out Topo and ba 1.12 r Leq Day .7 64 .6 68	Distanc - - - - - - - - - - - - - - - - - - -	ne 1.85 1.84 1.84 tenua g Eve	Finite I ation) ning 63.3 57.2 52.7 64.5	Road -1.20 -1.20 -1.20 Leq Nig	Fresnel -4 -4 -5 -4 -5 -5 -4 -4 -5 -5 -5 -5 -5 -5 -5 -5 -5 -5 -5 -5 -5	1.73 1.88 5.25	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	en Ber 00 00 00 00 <i>CI</i>	<u>m Atten</u> 0.000 0.000 0.000 <u>VEL</u> 67.9 65.2 65.2 71.1
VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noiss VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distant	REMEL 68.46 79.45 84.25 e Levels (with Leq Peak Hou 66 64 65 70 70	Treffic Flow 1.32 -11.66 -15.48 out Topo and be 1.32 r Leg Day .7 64 .6 68 ontour (in feet) 1.68	Distance - - - - - - - - - - - - - - - - - - -	ne 1.85 1.84 1.84 tenua g Eve	Finite F ning 63.3 57.2 52.7 64.5	Road -1.20 -1.20 -1.20 Leq Ni	Fresnel -4 -4 -5 60.3 57.7 57.0 63.3	1.73 1.88 5.25	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	en Ber 00 00 00 00 <i>CI</i>	m Atten 0.000 0.000 VEL 67.9 65.2 71.1
VehicleType Autos: Medium Trucks: Heavy Trucks: VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distant	REMEL 68.46 79.45 84.25 84.25 94.25 <th< td=""><td>Traffic Flow 1.32 -11.66 -15.48 out Topo and ba r Image: Image of the state of the</td><td>Distance - - - - - - - - - - - - - - - - - - -</td><td>ne 1.85 1.84 1.84 tenua g Eve</td><td>Finite F ation) ning 63.3 57.2 52.7 64.5</td><td>Road -1.20 -1.20 -1.20 -1.20 <i>Leq Ni</i></td><td>Fresnel -4 -4 -5 60.3 57.7 57.0 63.3 A</td><td>1.73 1.88 5.25</td><td>Barrier Att 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0</td><td>en Ben 00 00 00 00 00 00 00 55</td><td>m Atten 0.000 0.000 0.000 VEL 67.5 65.2 71.4 dBA</td></th<>	Traffic Flow 1.32 -11.66 -15.48 out Topo and ba r Image: Image of the state of the	Distance - - - - - - - - - - - - - - - - - - -	ne 1.85 1.84 1.84 tenua g Eve	Finite F ation) ning 63.3 57.2 52.7 64.5	Road -1.20 -1.20 -1.20 -1.20 <i>Leq Ni</i>	Fresnel -4 -4 -5 60.3 57.7 57.0 63.3 A	1.73 1.88 5.25	Barrier Att 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	en Ben 00 00 00 00 00 00 00 55	m Atten 0.000 0.000 0.000 VEL 67.5 65.2 71.4 dBA
VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distant	REMEL 68.46 79.45 84.25 e Levels (with Leg Peak Hou 66 64 65 70 2e to Noise Co	Traffic Flow 1.32 -11.66 -15.48 out Topo and be r Leq Day .7 64 .6 68 ontour (In feet) La	Distance - - - - - - - - - - - - - - - - - - -	ne 1.85 1.84 1.84 <i>tenua</i> 7 Eve 70 dB	Finite I ation) ning 63.3 57.2 52.7 64.5	Road -1.20 -1.20 -1.20 -1.20 <i>Leq Ni</i> 65 <i>dE</i> 185	Fresnel -4 -4 -5 60.3 57.7 57.0 63.3 A	1.73 1.88 5.25	Barrier Att 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	en Ben 00 00 00 00 00 00 00 00 00 00 00 00 00	m Atten 0.000 0.000 0.000 VEL 67.9 65.2 71.1 dBA 59

Thursday, May 02, 2019

	FHV	A-RD-77-108	HIGHV	VAY N	OISE PI	REDICTI	ON MC	DEL				
Scenar Road Narr Road Segme	io: Existing Withe: Kimball Av. nt: w/o Mounta	th Project in Av.				Project Job N	Name: umber:	MCH 10351				
SITE	SPECIFIC IN	PUT DATA				N	OISE	MODE	L INPU	TS		
Highway Data				5	Site Con	ditions	(Hard =	: 10, So	oft = 15)		_	
Average Daily Peak Hour Peak F	Traffic (Adt): Percentage: lour Volume:	20,629 vehicle 10% 2,063 vehicles	is S		Me He	dium Tru avy Truc	ıcks (2 . :ks (3+ .	Autos: Axles): Axles):	15 15 15			
Ve	hicle Speed:	50 mph		1	/ehicle	Mix						
Near/Far La	ne Distance:	36 feet			Veh	icleType		Day	Evening	Ni	ght	Daily
Site Data						A	lutos:	66.2%	13.5%	5 20	0.3%	92.99%
Ba	rrier Heiaht:	0.0 feet			M	edium Tr	ucks:	77.1%	5.3%	5 1	7.6%	4.76%
Barrier Type (0-W	Vall, 1-Berm):	0.0			ŀ	leavy Tr	ucks:	86.3%	1.5%	5 13	2.2%	2.26%
Centerline Di	ist. to Barrier:	44.0 feet			Voise Sr	ource Fl	evation	is (in fi	ef)			
Centerline Dist.	to Observer:	44.0 feet		Ė		Autos	. 0	000	500			
Barrier Distance	to Observer:	0.0 feet			Mediu	n Trucks	,. 0. . 2	297				
Observer Height	(Above Pad):	5.0 feet			Heat	v Trucks	. 2.	004	Grade A	diust	ment	0.0
P	ad Elevation:	0.0 feet			mour	<i>y m</i> aona	. 0.			-,		
Ro	ad Elevation:	0.0 feet		L	.ane Eq	uivalent	Distan	ce (in	feet)			
	Road Grade:	0.0%				Autos	s: 40	.460				
	Left View: Right View:	-90.0 degree 90.0 degree	is is		Mediu Heav	n Trucks y Trucks	s: 40. s: 40.	.241 .262				
FHWA Noise Mod	el Calculation	5										
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresi	nel	Barrier A	tten	Ber	m Atten
Autos:	70.20	0.53		1.28	3	-1.20		-4.61	C	.000		0.00
Medium Trucks:	81.00	-12.38		1.31		-1.20		-4.87	C	.000		0.00
Heavy Trucks:	85.38	-15.62		1.31		-1.20		-5.50	C	.000		0.00
Unmitigated Nois	e Levels (with	out Topo and	barrier	atten	uation)							
VehicleType	Leq Peak Hou	r Leq Day	1	Leq Ev	rening	Leq	Night		Ldn		CI	VEL
Autos:	70.	.8 6	58.2		67.3		64.3	3	71	.5		71.
Medium Trucks:	68.	.7 6	6.8		61.2		61.	7	69	.1		69.
Heavy Trucks:	69.	.9 (58.4		56.9		61.3	2	69	.3		69.
Vehicle Noise:	74.	.7	72.7		68.6		67.4	4	74	.9		75.
Centerline Distan	ce to Noise Co	ontour (in feet)										
				70 d	IBA	65 (dBA	6	60 dBA		55	dBA
			Ldn:	93	3	20	00		432		9	30
		CN	IEL:	97	(20)9		450		9	69

	FHV	VA-RD-77-108 HIG	HWAY	NOISE PI	REDICTIC	N MODEL			
Scenar Road Narr Road Segme	io: Existing Wi ne: Kimball Av. nt: w/o Euclid /	th Project Av.			Project N Job Nu	lame: MCF mber: 1035	1 51		
SITE	SPECIFIC IN	IPUT DATA			NC	DISE MOD	EL INPUT	s	
Highway Data				Site Con	ditions (I	Hard = 10,	Soft = 15)		
Average Daily	Traffic (Adt):	22,245 vehicles				Auto	s: 15		
Peak Hour	Percentage:	10%		Me	dium Truc	cks (2 Axles	;): 15		
Peak H	lour Volume:	2,224 vehicles		He	avy Truck	is (3+ Axles	<i>:):</i> 15		
Ve	hicle Speed:	50 mph	ŀ	Vehicle	Mix				
Near/Far La	ne Distance:	36 feet	ŀ	Veh	icleType	Day	Evening	Night	Daily
Site Data					AL	itos: 66.2	% 13.5%	20.3%	93.24%
Ba	rrier Height:	0.0 feet		Me	edium Tru	cks: 77.1	% 5.3%	17.6%	4.76%
Barrier Type (0-W	/all, 1-Berm):	0.0		ŀ	leavy Tru	cks: 86.3	% 1.5%	12.2%	2.00%
Centerline Di	st. to Barrier:	44.0 feet	-	Noise So	ource Ele	vations (in	feet)		
Centerline Dist.	to Observer:	44.0 feet	ŀ		Autos:	0.000	,		-
Barrier Distance	to Observer:	0.0 feet		Mediu	m Trucks:	2.297			
Observer Height	(Above Pad):	5.0 feet		Heav	y Trucks:	8.004	Grade Ad	ljustment	.: 0.0
Pi	ad Elevation:	0.0 feet	-	Long Er	uiualant l	Diotonoo (i	n faat)		
Roi	ad Elevation:	0.0 feet	ŀ	Lane Eq	uivalent i	Jistance (II	n leel)		
	Road Grade:	0.0%		Modiu	Autos:	40.460			
	Right View:	90.0 degrees		Heav	y Trucks:	40.241			
FHWA Noise Mod	el Calculation	s							
VehicleType	REMEL	Traffic Flow D	istance	Finite	Road	Fresnel	Barrier At	ten Ber	m Atten
Autos:	70.20	0.87	1.2	18	-1.20	-4.6	1 0.0	000	0.000
Medium Trucks:	81.00	-12.05	1.3	1	-1.20	-4.8	7 0.0	000	0.000
Heavy Trucks:	85.38	-15.81	1.3	1	-1.20	-5.5	0 0.0	000	0.000
Unmitigated Nois	e Levels (with	out Topo and barr	rier atter	nuation)				-	-
VehicleType	Leq Peak Hou	ır Leq Day	Leq E	vening	Leq N	light	Ldn	C	NEL
Autos:	71	.2 68.6		67.7		64.7	71.	9	72.3
Medium Trucks:	69	.1 67.1		61.5		62.0	69.4	4	69.6
Heavy Trucks:	69	.7 68.2		56.7		61.0	69.	1	69.2
Vehicle Noise:	74	.8 72.8		68.9		67.6	75.	1	75.3
Centerline Distan	ce to Noise Co	ontour (in feet)							
			70	dBA	65 d	BA	60 dBA	55	dBA
		Ldn:		96	207	-	445	g	159
		CNEL:	1	UU	218	0	464	1,	UUU

Thursday, May 02, 2019

	FH\	NA-RD-77-108	HIGHWA	AY NO	DISE P	REDICTI	ION MO	DEL			
Scenar Road Nam Road Segme	io: Existing Wi ne: Kimball Av. nt: e/o Euclid /	ith Project Av.				Project Job N	Name: I umber:	MCH 10351			
SITE	SPECIFIC IN	IPUT DATA				N	IOISE N	/IODE	L INPUT	s	
Highway Data				S	ite Cor	nditions	(Hard =	10, S	oft = 15)		
Average Daily	Traffic (Adt):	18,063 vehicl	es					Autos.	15		
Peak Hour	Percentage:	10%			Me	edium Tru	ucks (2 A	(xles)	: 15		
Peak H	lour Volume:	1,806 vehicle	s		He	eavy Truc	cks (3+ A	(xles)	: 15		
Ve	hicle Speed:	50 mph		V	ehicle	Mix					
Near/Far La	ne Distance:	51 feet		-	Veh	nicleTvpe		Dav	Evenina	Niah	t Dailv
Site Data						A	Autos:	66.2%	6 13.5%	20.3	% 93.44%
Ba	rrier Heiaht:	0.0 feet			М	ledium Tr	rucks:	77.1%	6 5.3%	17.6	% 4.67%
Barrier Type (0-W	/all, 1-Berm):	0.0				Heavy Ti	rucks:	86.3%	6 1.5%	12.2	.% 1.89%
Centerline Di	st. to Barrier:	49.0 feet		N	oise S	ource El	levation	s (in f	eet)		
Centerline Dist.	to Observer:	49.0 feet				Autos	s: 0.0	000			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Truck	s: 2.2	297			
Observer Height ('Above Pad):	5.0 feet			Hear	vy Trucks	s: 8.0	004	Grade Adj	iustme	ent: 0.0
Pa	ad Elevation:	0.0 feet					Distant	//	6		
Roa	ad Elevation:	0.0 feet		La	ane Eq	uivaiem	Distant	ce (In	teet)		
	Road Grade:	0.0%			A 4 15	Autos	s: 42.	140			
	Left View:	-90.0 degre	es		Mediu	m Truck	S: 41.9	929			
	Right view:	90.0 degre	es		пеа	vy muck:	5. 41.5	950			
FHWA Noise Mod	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Distan	се	Finite	Road	Fresn	el	Barrier Atte	en E	Berm Atten
Autos:	70.20	-0.02		1.01		-1.20		-4.64	0.0	00	0.000
Medium Trucks:	81.00	-13.03		1.04		-1.20		-4.87	0.0	00	0.000
Heavy Trucks:	85.38	-16.96		1.04		-1.20		-5.44	0.0	00	0.000
Unmitigated Nois	e Levels (with	out Topo and	barrier a	ttenu	ation)						
Vehicle I ype	Leq Peak Hou	ur Leq Day	Le	eq Eve	ening	Leq	Night		Ldn		CNEL
Autos:	70	1.0	67.4 05.0		66.5		63.5		/0./		/1.1
Medium Trucks:	67	.8	00.9 66.9		60.3 EE 0		60.7 E0.6		68.1	,	08.3
Vehicle Noise:	73	1.5	71.5		67.7	,	66.4		73.8	3	74.1
Centerline Distant	ce to Noise C	ontour (in feel)								
1				70 dE	BA	65	dBA		60 dBA		55 dBA
			Ldn:	88		19	90		409		881
		Ci	NEL:	92		19	98		427		920

	FH\	VA-RD-77-108	HIGHWA	NY NC	DISE PREDI	CTION M	ODEL			
Scenar	io: Existing Wi	th Project			Proje	ect Name	: MCH			
Road Nan	ne: Kimball Av.				Job	Number	: 10351			
Road Segme	nt: w/o Rincon	Meadows Av.								
SITE	SPECIFIC IN	PUT DATA				NOISE	MODE		S	
Highway Data				Si	te Conditio	ns (Hard	= 10, S	oft = 15)		
Average Daily	Traffic (Adt):	19,120 vehicle	es				Autos	15		
Peak Hour	Percentage:	10%			Medium	Trucks (2	Axles)	15		
Peak H	lour Volume:	1,912 vehicles	6		Heavy T	rucks (3+	Axles)	15		
Ve	hicle Speed:	50 mph		Ve	ehicle Mix					
Near/Far La	ne Distance:	51 feet			VehicleTy	pe	Day	Evening	Night	Daily
Site Data						Autos:	66.2%	5 13.5%	20.3%	93.44%
Ba	rrier Height:	0.0 feet			Medium	Trucks:	77.19	5.3%	17.6%	4.67%
Barrier Type (0-V	Vall. 1-Berm):	0.0			Heavy	Trucks:	86.3%	i 1.5%	12.2%	1.89%
Centerline D	ist. to Barrier:	49.0 feet		N	oiso Source	Elovatio	ne (in t	oot)		
Centerline Dist.	to Observer:	49.0 feet		744	Dise Source	Lievalio	000	eel)		
Barrier Distance	to Observer:	0.0 feet			AL Madium Tru	aka	207			
Observer Height	(Above Pad):	5.0 feet			Hoose Tr	cks. i	2.297	Grada Ad	iustmont	0.0
P	ad Elevation:	0.0 feet			neavy IIu	CKS. 0	5.004	Grade Adj	usunom.	0.0
Ro	ad Elevation:	0.0 feet		Lá	ane Equival	ent Dista	nce (in	feet)		
	Road Grade:	0.0%			AL	tos: 4	2.140			
	Left View:	-90.0 degree	es		Medium Tru	cks: 4	1.929			
	Right View:	90.0 degree	es		Heavy Tru	cks: 4	1.950			
FHWA Noise Mod	lel Calculation	s								
VehicleType	REMEL	Traffic Flow	Distan	ce	Finite Road	Fre	snel	Barrier Att	en Ber	m Atten
Autos:	70.20	0.22		1.01	-1.2	0	-4.64	0.0	000	0.000
Medium Trucks:	91.00	-12.78		1.04	-1.2	0	-4.87	0.0	000	0.000
	01.00									0.000
Heavy Trucks:	85.38	-16.71		1.04	-1.2	0	-5.44	0.0	000	0.000
Heavy Trucks: Unmitigated Nois	85.38 e Levels (with	-16.71 out Topo and	barrier a	1.04 ttenu	-1.2 ation)	0	-5.44	0.0	000	0.000
Heavy Trucks: Unmitigated Nois VehicleType	85.38 e Levels (with Leq Peak Hou	-16.71 out Topo and r Leq Day	barrier a	1.04 ttenu q Eve	-1.2 ation) ening Lo	0 eq Night	-5.44	0.0 Ldn	000 CI	VEL
Heavy Trucks: Unmitigated Nois VehicleType Autos:	e Levels (with Leq Peak Hou 70	-16.71 out Topo and r Leq Day .2	barrier a Le	1.04 t tenu q Eve	-1.2 ation) ening Lo 66.8	0 eq Night 63	-5.44	0.0 Ldn 70.9	000 Cr	0.000 VEL 71.4
Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks:	85.38 e Levels (with Leq Peak Hol 70 68	-16.71 out Topo and r Leq Day .2 .1	barrier a Le 67.7 66.1	1.04 ttenua q Eve	-1.2 ation) ening Lo 66.8 60.5	0 eq Night 63 61	-5.44 .8 .0	0.0 Ldn 70.9 68.4	000 Cr	0.000 <u>VEL</u> 71.4 68.6
Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks:	81.00 85.38 e Levels (with Leq Peak Hou 70 68 68	-16.71 out Topo and r Leq Day .2 .1 .5	barrier a Le 67.7 66.1 67.1	1.04 ttenu q Eve	-1.2 ation) ening Lo 66.8 60.5 55.5	0 eq Night 63 61 59	-5.44 .8 .0 .8	0.0 Ldn 70.9 68.4 67.9	000 <i>CI</i>	VEL 71.4 68.6 68.0
Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	81.00 85.38 <i>e Levels (with</i> Leg Peak Hou 70 68 68 73	-16.71 out Topo and r Leq Day .2 .1 .5 .8	barrier a 67.7 66.1 67.1 71.8	1.04 ttenua q Eve	-1.2 ation) aning Lo 66.8 60.5 55.5 67.9	0 eq Night 63 61 59 60	-5.44 3.8 .0 3.8 3.6	0.0 <i>Ldn</i> 70.9 68.4 67.9 74.1	000 <i>CI</i>	VEL 71.4 68.0 74.3
Heavy Trucks: Unnitigated Noiss VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	e Levels (with Leq Peak Hou 70 68 68 73 ce to Noise Co	-16.71 out Topo and Ir Leq Day 2 1 5 8 ontour (in feet	barrier a Le 67.7 66.1 67.1 71.8	1.04 ttenua q Eve	-1.2 ation) ening Lu 66.8 60.5 55.5 67.9	0 eq Night 63 61 59 66	-5.44 .8 .0 .8	0.0 <i>Ldn</i> 70.9 68.4 67.9 74.1	000 <i>CI</i>	VEL 71.4 68.6 68.0 74.3
Heavy Trucks: Unmitigated Noiss VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	e Levels (with Leq Peak Hou 70 68 68 73 ce to Noise Co	-16.71 out Topo and r Leq Day 2 .1 .5 .8 ontour (in feet	barrier a 57.7 66.1 67.1 71.8	1.04 ttenua q Eve	-1.2 ation) ening Lu 66.8 60.5 55.5 67.9 3A 0	0 eq Night 63 61 59 66 66	-5.44	0.0 <u>Ldn</u> 70.9 68.4 67.9 74.1 60 dBA	000 <i>CI</i> 0 55	VEL 71.4 68.6 68.0 74.3 dBA
Heavy Trucks: Unmitigated Nois Vehicle Type Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	e Levels (with Leq Peak Hou 70 68 68 73 ce to Noise Co	-16.71 out Topo and r Leq Day 2 .1 .5 .8 ontour (in feet	barrier a 57.7 66.1 67.1 71.8 0 Ldn:	1.04 <i>ttenu</i> <i>q Eve</i> 70 <i>dE</i> 92	-1.2 ation) ening Lu 66.8 60.5 55.5 67.9 3A	0 eq Night 63 61 59 66 66 66 66 65 68 48 49 197	-5.44	0.0 Ldn 70.9 68.4 67.9 74.1 60 dBA 425	000 C/ 0 1 55 9	0.000 VEL 71.4 68.0 68.0 74.3 dBA 15

Thursday, May 02, 2019

			_	_			_	_	_	_	_	_
	FHV	VA-RD-77-108 I	IIGH	WAY N	IOISE PI	REDICT	ION MC	DEL				
Scenari	io: Existing Wi	th Project				Project	Name:	MCH				
Road Nam	e: Kimball Av.					Job N	umber:	10351				
Road Segmer	nt: e/o Rincon	Meadows Av.										
SITE	SPECIFIC IN	IPUT DATA				N	IOISE	MODE	L INP	UTS		
Highway Data					Site Con	ditions	(Hard =	= 10, So	oft = 15	i)		
Average Daily	Traffic (Adt):	18,304 vehicles	3					Autos:	15			
Peak Hour	Percentage:	10%			Me	dium Tru	ucks (2	Axles):	15			
Peak H	our Volume:	1,830 vehicles			He	avy Truc	cks (3+	Axles):	15			
Ve	hicle Speed:	50 mph		-	Vohiclo	Mix						
Near/Far La	ne Distance:	51 feet		-	Veh	icleTvpe		Dav	Eveni	na N	iaht	Dailv
Site Data							Autos:	66.2%	13.5	5% 2	0.3%	93.44%
Pa	rior Hoight:	0.0 foot			M	edium Ti	rucks:	77.1%	5.3	3% 1	7.6%	4.67%
Barrier Type (0-W	all 1-Berm):	0.0 1001			ŀ	leavy Tr	rucks:	86.3%	1.5	5% 1	2.2%	1.89%
Centerline Dis	st. to Barrier:	49.0 feet		H								
Centerline Dist.	to Observer:	49.0 feet		Ľ	Noise So	burce El	evatio	ns (in te	eet)			
Barrier Distance	to Observer:	0.0 feet				Autos	s: 0	.000				
Observer Height (Above Pad):	5.0 feet			Mediu	n Truck	s: 2	.297	Crada	Adiuo	Imont	0.0
Pa	ad Elevation:	0.0 feet			Heav	у тиск	s: 8	.004	Grade	Aujus	ment.	0.0
Roa	ad Elevation:	0.0 feet		1	Lane Eq	uivalent	t Distar	nce (in	feet)			
I	Road Grade:	0.0%		Γ		Autos	s: 42	.140				
	Left View:	-90.0 degrees	6		Mediu	n Truck	s: 41	.929				
	Right View:	90.0 degrees	3		Heav	y Trucks	s: 41	.950				
FHWA Noise Mode	el Calculation	\$										
VehicleType	REMEL	Traffic Flow	Dist	ance	Finite	Road	Fres	nel	Barrier	Atten	Ber	m Atten
Autos:	70.20	0.04		1.0	1	-1.20		-4.64		0.000		0.000
Medium Trucks:	81.00	-12.97		1.04	4	-1.20		-4.87		0.000		0.000
Heavy Trucks:	85.38	-16.90		1.04	4	-1.20		-5.44		0.000		0.000
Unmitigated Noise	e Levels (with	out Topo and b	arrie	r atten	uation)							
VehicleType	Leq Peak Hou	Ir Leq Day		Leg E	vening	Leq	Night		Ldn		CI	VEL
Autos:	70	.1 6	7.5		66.6		63.	6		70.8	-	71.2
Medium Trucks:	67	.9 6	5.9		60.3		60.	8		68.2		68.4
Heavy Trucks:	68	.3 6	6.9		55.3		59.	6		67.7		67.8
Vehicle Noise:	73	.6 7	1.6		67.8		66.	4		73.9		74.2
Centerline Distance	ce to Noise Co	ontour (in feet)										
			L	70 0	dBA	65	dBA	e	60 dBA		55	dBA
		L	dn:	8	9	19	92		413		8	89
		CN	EL:	9	3	20	00		431		9	28

	FH	WA-RD-77-108	HIGHW	AY N	OISE PF	REDICTIC		DEL			
Scenari	o: Existing W	ith Project				Project N	lame: I	ИСН			
Road Nam	e: Kimball Av	1				Job Nu	mber: ·	10351			
Road Segmer	nt: e/o Mill Cre	eek Av.									
SITE	SPECIFIC II	NPUT DATA				NC	DISE N	IODE		s	
Highway Data				5	Site Con	ditions (l	Hard =	10, S	oft = 15)		
Average Daily	Traffic (Adt):	16,545 vehicl	es					Autos.	15		
Peak Hour	Percentage:	10%			Me	dium Truc	cks (2 A	(xles)	15		
Peak H	our Volume:	1,654 vehicle	s		He	avy Truck	:s (3+ A	(xles)	15		
Vei	hicle Speed:	50 mph		1	/ehicle	Mix					
Near/Far Lar	ne Distance:	51 feet		-	Veh	icleTvpe		Dav	Evenina	Niaht	Dailv
Site Data				-		AL	itos:	66.29	5 13.5%	20.39	% 93.44%
Bar	rier Heiaht:	0.0 feet			Me	edium Tru	cks:	77.19	5.3%	17.69	% 4.67%
Barrier Type (0-W	all. 1-Berm):	0.0			F	leavy Tru	cks:	86.3%	5 1.5%	12.2	% 1.89%
Centerline Dis	st. to Barrier:	49.0 feet			Voise Sr	urce Ele	vation	s (in f	oot)		
Centerline Dist.	to Observer:	49.0 feet		-	10/30 00	Autos:	0.0	000			
Barrier Distance	to Observer:	0.0 feet			Modiur	n Trucke	2.0	007			
Observer Height (Above Pad):	5.0 feet			Heav	v Trucks:	8.0	04	Grade Ad	iustme	nt: 0.0
Pa	ad Elevation:	0.0 feet			neav	y mucho.	0.0	704	0/440 / 14	dournor	. 0.0
Roa	ad Elevation:	0.0 feet		L	ane Eq	uivalent l	Distand	ce (in	feet)		
F	Road Grade:	0.0%				Autos:	42.1	140			
	Left View:	-90.0 degre	es		Mediur	n Trucks:	41.9	929			
	Right View:	90.0 degre	es		Heav	y Trucks:	41.9	950			
FHWA Noise Mode	el Calculatior	IS									
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresn	el	Barrier Att	en B	erm Atten
Autos:	70.20	-0.40		1.01	1	-1.20		-4.64	0.0	000	0.000
Medium Trucks:	81.00	-13.41		1.04	Ļ	-1.20		-4.87	0.0)00	0.000
Heavy Trucks:	85.38	-17.34		1.04	Ļ	-1.20		-5.44	0.0)00	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier	atten	uation)						
VehicleType	Leq Peak Ho	ur Leq Daj	/ L	.eq Ev	rening	Leq N	light		Ldn		CNEL
Autos:	69	9.6	67.0		66.1		63.1		70.3	3	70.7
Medium Trucks:	67	7.4	65.5		59.9		60.3		67.8	3	67.9
Heavy Trucks:	67	7.9	66.4		54.9		59.2		67.3	3	67.4
Vehicle Noise:	73	3.2	71.1		67.3		66.0		73.4	4	73.7
Centerline Distance	ce to Noise C	ontour (in fee)							-	
				70 a	IBA	65 d	BA		60 dBA	5	i5 dBA
			Ldn:	83	3	179	9		386		831
		С	NEL:	87	7	187	7		402		867

	FHV	VA-RD-77-108	HIGHW	AY NO	DISE P	REDICT	ION MO	DEL			
Scenar Road Nam Road Segme	io: Existing Wi ne: Kimball Av. nt: e/o Main St	ith Project t.				Project Job N	Name: I umber:	MCH 10351			
SITE	SPECIFIC IN	IPUT DATA				N	IOISE N	/IODE	L INPUT	s	
Highway Data				S	ite Cor	nditions	(Hard =	10, S	oft = 15)		
Average Daily	Traffic (Adt):	15,552 vehicl	es					Autos.	15		
Peak Hour	Percentage:	10%			Me	edium Tri	ucks (2 A	(xles)	: 15		
Peak H	lour Volume:	1,555 vehicle	s		He	avy Tru	cks (3+ A	(xles)	: 15		
Ve	hicle Speed:	50 mph		V	ehicle	Mix					
Near/Far La	ne Distance:	51 feet		-	Veh	nicleTvpe		Dav	Evenina	Niał	t Dailv
Site Data							Autos:	66.29	6 13.5%	20.3	93.44%
Ba	rrier Height:	0.0 feet			М	edium T	rucks:	77.1%	6 5.3%	17.6	6% 4.67%
Barrier Type (0-W	/all, 1-Berm):	0.0				Heavy Ti	rucks:	86.3%	6 1.5%	12.2	2% 1.89%
Centerline Di	st. to Barrier:	49.0 feet		N	oise S	ource E	levation	s (in f	eet)		
Centerline Dist.	to Observer:	49.0 feet				Auto	s: 0.0	000	,		
Barrier Distance	to Observer:	0.0 feet			Mediu	m Truck	s: 2.2	297			
Observer Height ((Above Pad):	5.0 feet			Hear	vy Truck	s: 8.0	004	Grade Adj	iustme	ent: 0.0
Pa	ad Elevation:	0.0 feet					Distant	//	6		
Roa	ad Elevation:	0.0 feet		La	ane Eq	uivaien	Distant	ce (In	reet)		
	Road Grade:	0.0%			1 d = - 11 -	Auto	s: 42.	140			
	Left View:	-90.0 degre	es		Mediu	m Truck	S: 41.9	929			
	Right view:	90.0 degre	es		пеа	y muck	5. 41.5	920			
FHWA Noise Mod	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Distar	се	Finite	Road	Fresn	el	Barrier Atte	en l	Berm Atten
Autos:	70.20	-0.67		1.01		-1.20		-4.64	0.0	00	0.000
Medium Trucks:	81.00	-13.68		1.04		-1.20		-4.87	0.0	00	0.000
Heavy Trucks:	85.38	-17.61		1.04		-1.20		-5.44	0.0	00	0.000
Unmitigated Nois	e Levels (with	out Topo and	barrier a	ttenu	ation)						
VehicleType	Leq Peak Hou	ir Leq Day	Le Le	eq Eve	ening	Leq	Night		Ldn		CNEL
Autos:	69	.3	66.8		65.9		62.9		70.1		70.5
Medium Trucks:	67	.2	65.2		59.6		60.1		67.5		67.7
Vehicle Noise:	72	.0	70.9		54.6 67.1		58.9 65.7		73.2	,	73.4
Centerline Distan	ce to Noise Co	ontour (in feet)								
			,	70 dE	BA	65	dBA		60 dBA		55 dBA
			Ldn:	80		1	72		370		797
		C	VEL:	83		1	79		386		832

Scenar	io: Existing Wi	th Project				Project N	ame: M	СН			
Road Nam	e: Kimball Av.					Job Nur	nber: 10	351			
Road Segme	nt: e/o Flight A	v.									
SITE	SPECIFIC IN	IPUT DATA				NC	ISE MO	DDE	L INPUTS	S	
Highway Data				S	Site Cond	litions (H	lard = 10), So	oft = 15)		
Average Daily	Traffic (Adt):	13,143 vehicle	s				AL	itos:	15		
Peak Hour	Percentage:	10%			Med	lium Truc	ks (2 Ax	les):	15		
Peak H	lour Volume:	1,314 vehicles	\$		Hea	vy Truck	s (3+ Ax	les):	15		
Ve	hicle Speed:	50 mph		V	Vehicle N	lix					
Near/Far La	ne Distance:	51 feet			Vehi	leType	D	ay	Evening	Night	Daily
Site Data						Au	tos: 66	6.2%	13.5%	20.3%	93.41%
Ba	rrier Heiaht:	0.0 feet			Me	dium Tru	cks: 71	7.1%	5.3%	17.6%	4.69%
Barrier Type (0-W	/all. 1-Berm):	0.0			н	eavy Tru	cks: 86	6.3%	1.5%	12.2%	1.90%
Centerline Di	st. to Barrier:	49.0 feet			Naina Co	uree Ele	ationa	(in 6	a (1		
Centerline Dist.	to Observer:	49.0 feet		~	voise 30	Autoor		0	el)		
Barrier Distance	to Observer:	0.0 feet			Modium	Autos.	2.20	7			
Observer Height ((Above Pad):	5.0 feet			Hoove	Trucks.	2.23	, л	Grade Adi	ustment	0.0
Pa	ad Elevation:	0.0 feet			Tieavj	r mucha.	0.00	4	0/000/10	uoumonn	0.0
Ro	ad Elevation:	0.0 feet		L	Lane Equ	ivalent L	Distance	(in	feet)		
	Road Grade:	0.0%				Autos:	42.14	0			
	Left View:	-90.0 degree	s		Mediun	n Trucks:	41.92	9			
	Right View:	90.0 degree	s		Heavy	/ Trucks:	41.95	0			
FHWA Noise Mod	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Distan	ce	Finite I	Road	Fresnel		Barrier Atte	en Ber	m Atten
Autos:											
	70.20	-1.40		1.01	1	-1.20	-4	.64	0.0	00	0.000
Medium Trucks:	70.20 81.00	-1.40 -14.40		1.01 1.04	1 1	-1.20 -1.20	-4 -4	.64 .87	0.0 0.0	00	0.000
Medium Trucks: Heavy Trucks:	70.20 81.00 85.38	-1.40 -14.40 -18.32		1.01 1.04 1.04	1 1 1	-1.20 -1.20 -1.20	-4 -4 -5	.64 .87 .44	0.0 0.0 0.0	00 00 00	0.000 0.000 0.000
Medium Trucks: Heavy Trucks: Unmitigated Noise	70.20 81.00 85.38 e Levels (with	-1.40 -14.40 -18.32 out Topo and	barrier a	1.01 1.04 1.04	1 1 1 <i>uation)</i>	-1.20 -1.20 -1.20	-4 -4 -5	.64 .87 .44	0.0 0.0 0.0	00 00 00	0.000
Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType	70.20 81.00 85.38 e Levels (with Leq Peak Hou	-1.40 -14.40 -18.32 out Topo and r Leq Day	barrier a	1.01 1.04 1.04 <i>tteni</i> eq Ev	1 1 1 <i>uation)</i> /ening	-1.20 -1.20 -1.20 <i>Leq N</i>	-4 -4 -5	.64 .87 .44	0.0 0.0 0.0	00 00 00 <i>CI</i>	0.000 0.000 0.000 VEL
Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos:	70.20 81.00 85.38 e Levels (with Leg Peak Hou 68	-1.40 -14.40 -18.32 out Topo and ir Leq Day .6	barrier a	1.01 1.04 1.04 <i>attenu</i> eq Ev	1 4 4 <i>vening</i> 65.1	-1.20 -1.20 -1.20 <i>Leq N</i>	-4 -4 -5 <u>ght</u> 62.1	.64 .87 .44	0.0 0.0 0.0 <i>Ldn</i> 69.3	00 00 00 <i>CI</i>	0.000 0.000 0.000 <u>VEL</u> 69.7
Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks:	70.20 81.00 85.38 e Levels (with Leq Peak Hou 68 68	-1.40 -14.40 -18.32 out Topo and ir Leq Day .6 .4	barrier a Le 56.0 54.5	1.01 1.04 1.04 <i>attenu</i> eq Ev	1 4 4 <i>vening</i> 65.1 58.9	-1.20 -1.20 -1.20 <i>Leq N</i>	-4 -4 -5 <u>ight</u> 62.1 59.4	.64 .87 .44	0.0 0.0 0.0 <i>Ldn</i> 69.3 66.8	00 00 00 <i>CI</i>	0.000 0.000 0.000 <u>VEL</u> 69.7 67.0
Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks:	70.20 81.00 85.38 e Levels (with Leq Peak Hou 68 66 66	-1.40 -14.40 -18.32 out Topo and ir Leq Day 6 .4 .9	barrier a 66.0 64.5 65.5	1.01 1.04 1.04 attent eq Ev	1 4 4 <i>vening</i> 65.1 58.9 53.9	-1.20 -1.20 -1.20 <i>Leq N</i>	-4 -4 -5 62.1 59.4 58.2	.64 .87 .44	0.0 0.0 0.0 <i>Ldn</i> 69.3 66.8 66.3	00 00 00 <i>CI</i>	0.000 0.000 0.000 <u>VEL</u> 69.7 67.0 66.4
Medium Trucks: Heavy Trucks: Unmitigated Noiss VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	70.20 81.00 85.38 e Levels (with Leq Peak Hou 68 66 66 72	-1.40 -14.40 -18.32 out Topo and ir Leq Day .6 .4 .9 .2	barrier a 66.0 64.5 65.5 70.2	1.01 1.04 1.04 attenu eq Ev	1 4 4 <i>vening</i> 65.1 58.9 53.9 66.3	-1.20 -1.20 -1.20 <i>Leq N</i>	-4 -4 -5 62.1 59.4 58.2 65.0	.64 .87 .44	0.0 0.0 0.0 69.3 66.8 66.3 72.5	00 00 00 <i>CI</i>	0.000 0.000 VEL 69.7 67.0 66.4 72.7
Medium Trucks: Heavy Trucks: Unmitigated Noiss VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distant	70.20 81.00 85.38 e Levels (with Leg Peak Hou 68 66 66 66 72 72 ce to Noise Ca	-1.40 -14.40 -18.32 out Topo and rr Leq Day 6. .9 .9 .0 .0 .2	barrier a Le 36.0 34.5 35.5 70.2	1.01 1.04 1.04 attenu eq Ev	uation) (ening 65.1 58.9 53.9 66.3	-1.20 -1.20 -1.20 <i>Leq N</i>	-4 -4 -5 62.1 59.4 58.2 65.0	.64 .87 .44	0.0 0.0 0.0 69.3 66.8 66.3 72.5	00 00 00 <i>CI</i>	0.000 0.000 VEL 69.7 67.0 66.4 72.7
Medium Trucks: Heavy Trucks: Unmitigated Noiss VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distant	70.20 81.00 85.38 e Levels (with Leq Peak Hou 68 66 66 66 72 72 ce to Noise Co	-1.40 -14.40 -18.32 out Topo and rr Leq Day 6.6 .4 .9 .2 ontour (in feet)	<i>barrier a</i> 66.0 64.5 65.5 70.2	1.01 1.04 1.04 1.04 1.04 1.04	1 4 4 4 65.1 58.9 53.9 66.3 //////////////////////////////////	-1.20 -1.20 -1.20 <i>Leq N</i>	-4 -4 -5 62.1 59.4 58.2 65.0	.64 .87 .44	0.0 0.0 0.0 69.3 66.8 66.3 72.5 50 dBA	00 00 00 <i>CI</i>	0.000 0.000 0.000 VEL 69.7 67.0 66.4 72.7 dBA
Medium Trucks: Heavy Trucks: Unmitgated Nois VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distant	70.20 81.00 85.38 e Levels (with Leq Peak Hou 68 66 66 66 72 ce to Noise Co	-1.40 -14.40 -18.32 out Topo and ir Leq Day 6.6 .9 .2 ontour (in feet,	barrier a 66.0 64.5 65.5 70.2 1 Ldn:	1.01 1.04 1.04 0 0 0 0 0 0 0 70 71	1 4 4 65.1 58.9 53.9 66.3 <i>IBA</i>	-1.20 -1.20 -1.20 <i>Leq N</i> <u>65 db</u>	-4 -4 -5 62.1 59.4 58.2 65.0 3A	64 87 644	0.0 0.0 0.0 69.3 66.8 66.3 72.5 60 dBA 331	00 00 00 <i>CI</i>	0.000 0.000 0.000 VEL 69.7 67.0 66.4 72.7 dBA 14

Thursday, May 02, 2019

	FHV	VA-RD-77-108 H	IGHWA	/ N(DISE PI	REDICT		DDEL			
Scenai Road Nan Road Segme	rio: Existing Wi ne: Limonite Av ent: w/o Archiba	th Project '. Id Av.				Project Job N	Name: lumber:	MCH 10351			
SITE	SPECIFIC IN	PUT DATA		T		I	IOISE	MODE	L INPUT	s	
Highway Data				S	ite Cor	ditions	(Hard :	= 10, S	oft = 15)		
Average Daily Peak Hour Peak F	Traffic (Adt): Percentage: Iour Volume:	1 vehicles 10% 0 vehicles	5		Me He	dium Tr avy Tru	ucks (2 cks (3+	Autos: Axles): Axles):	15 15 15		
Ve Near/Far La	ehicle Speed: ane Distance:	50 mph 78 feet		v	ehicle Veh	Mix icleType	,	Day	Evening	Night	Daily
Site Data							Autos:	66.2%	13.5%	20.3%	93.419
Ba Barrier Type (0-V	rrier Height: Vall, 1-Berm):	0.0 feet 0.0			M	edium T Heavy T	rucks: rucks:	77.1% 86.3%	5.3% 1.5%	17.6% 12.2%	4.69% 1.90%
Centerline D	ist. to Barrier:	76.0 feet		N	loise S	ource E	levatio	ns (in f	eet)		
Centerline Dist. Barrier Distance Observer Height	to Observer: to Observer: (Above Pad):	76.0 feet 0.0 feet 5.0 feet			Mediu Heav	Auto m Truck /y Truck	s: 0 s: 2 s: 8	.000 .297 .004	Grade Ad	ljustmen	t: 0.0
Ro	ad Elevation:	0.0 feet		L	ane Eq	uivalen	t Distar	nce (in	feet)		
	Road Grade: Left View: Right View:	0.0% -90.0 degrees 90.0 degrees	5		Mediu Heav	Auto m Truck /y Truck	s: 65 s: 65 s: 65	.422 .286 .299			
FHWA Noise Mod	lel Calculation	s		-							
VehicleType	REMEL	Traffic Flow	Distance	е	Finite	Road	Fres	nel	Barrier At	ten Be	rm Atten
Autos: Medium Trucks: Heavy Trucks:	70.20 81.00 85.38	-42.59 -55.58 -59.51	-1 -1 -1	.85 .84 .84		-1.20 -1.20 -1.20		-4.73 -4.88 -5.25	0. 0. 0.	000 000 000	0.00 0.00 0.00
I Inmitiaated Nois	a Lovals (with	out Topo and h	arrior att	oni	ustion)						
VehicleType	Lea Peak Hou	r Lea Dav	/ eo	Fve	enina	l ea	Niaht		l dn	C	NEI
Autos:	24	6 2	2.0		21.1	4	18.	1	25.	3	25.
Medium Trucks:	22	4 2	0.5		14.9		15.	3	22.	7	22.
Heavy Trucks:	22	.8 2	1.4		9.8		14.	1	22.	2	22.
Vehicle Noise:	28	.1 2	6.1		22.3		20.	9	28.	4	28.
Centerline Distan	ce to Noise Co	ontour (in feet)									
			7	'0 dl	BA	65	dBA		60 dBA	55	i dBA
		L	dn:	0			0		1		1
		CN	EL:	0			0		1		1

	FH	WA-RD-77-108	HIGHWA	Y NOI	SE PF	REDICTIO	ом мо	DEL				
Scenar Road Nam Road Segme	io: Existing W e: Limonite A nt: e/o Archiba	ith Project v. ald Av.				Project I Job Nu	Name: Imber:	MCH 10351				
SITE	SPECIFIC II	NPUT DATA				N	OISE I	NODE	L INPUT	'S		
Highway Data				Site	e Con	ditions ('Hard =	10, S	oft = 15)			
Average Daily	Traffic (Adt):	18,897 vehicle	s					Autos.	: 15			
Peak Hour	Percentage:	10%			Me	dium Tru	cks (2 /	Axles)	: 15			
Peak H	lour Volume:	1,890 vehicles			Hea	avy Truci	ks (3+ /	Axles)	: 15			
Ve	hicle Speed:	50 mph		Vo	hiclo I	Mix						
Near/Far La	ne Distance:	78 feet		vei	Vohi	icleTvne		Dav	Evening	Nio	ht	Daily
Site Data				_	VCIII	A	utos:	66.2%	6 13.5%	20	3%	93.31%
Ba	wier Height	0.0 (act			Me	edium Tru	ucks:	77.19	6 10.070 6 5.3%	17	.6%	4.68%
Barrier Type (0-M	/all 1-Berm):	0.0 1001			F	leavy Tru	ucks:	86.3%	6 1.5%	12	.2%	2.02%
Centerline Di	st to Barrier	76.0 feet		-		,						
Centerline Dist.	to Observer:	76.0 feet		No	ise So	ource Ele	evation	s (in f	'eet)			
Barrier Distance	to Observer:	0.0 feet				Autos	: 0.	000				
Observer Height	Above Pad)	5.0 feet		/	Mediur	n Trucks	: 2.	297				
P	ad Elevation:	0.0 feet			Heav	y Trucks	: 8.	004	Grade Ad	djustn	ient:	0.0
Ro	ad Elevation:	0.0 feet		Lai	ne Equ	uivalent	Distan	ce (in	feet)			
, 10,	Road Grade:	0.0%				Autos	: 65	422	,			
	Left View:	-90.0 dearee	s	/	Mediur	n Trucks	: 65.	286				
	Right View:	90.0 degree	s		Heav	y Trucks	: 65.	299				
FHWA Noise Mod	el Calculatior	IS										
VehicleType	REMEL	Traffic Flow	Distan	e	Finite	Road	Fresr	nel	Barrier At	ten	Berm	n Atten
Autos:	70.20	0.17	-	1.85		-1.20		-4.73	0.	000	-	0.000
Medium Trucks:	81.00	-12.83	-	1.84		-1.20		-4.88	0.	000		0.000
Heavy Trucks:	85.38	-16.49	-	1.84		-1.20		-5.25	0.	000		0.000
Unmitigated Nois	e Levels (with	out Topo and I	barrier a	tenua	tion)							-
VehicleType	Leq Peak Ho	ur Leq Day	Le	q Ever	ning	Leq N	light		Ldn		CN	EL
Autos:	67	7.3 6	64.7		63.8		60.8	3	68.	0		68.5
Medium Trucks:	65	5.1 6	33.2		57.6		58.0)	65.	5		65.6
Heavy Trucks:	65	5.9 6	64.4		52.8		57.2	2	65.	3		65.3
Vehicle Noise:	71	1.0 6	68.9		65.0		63.8	3	71.	.2		71.5
Centerline Distan	ce to Noise C	ontour (in feet)										
				70 dB/	4	65 a	IBA		60 dBA		55 a	<i>IBA</i>
		l	dn:	92		19	7		425		91	5
		CN	IEL:	95		20	6		443		95	5

Scenario: Existing With Project Project Name: MCH Road Name: Pine Av. Job Number: 10351 Road Segment: wio El Prado Rd. Site Conditions (Hard = 10, Soft = 15) Average Daily Traffic (Adt): 25 vehicles Autos: 15 Peak Hour Percentage: 10% Medium Trucks (2 Axles): 15 Peak Hour Volume: 3 vehicles Autos: 15 Vehicle Speed: 45 mph Heavy Trucks (3+ Axles): 15 Ste Data Autos: 66 2% 13.5% 20.3% Barrier Height: 0.0 feet Heavy Trucks: 86.3% 1.5% 12.2% Barrier Type (0-Wall, 1-Barm): 0.0 feet Autos:: 0.00 Barrier Distance to Observer: 0.0 feet Autos:: 0.00 Barrier Distance to Observer: 0.0 feet Autos:: 0.00
SITE SPECIFIC INPUT DATA NOISE MODEL INPUTS Highway Data Site Conditions (Hard = 10, Soft = 15) Average Daily Traffic (Adt): 25 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 3 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 76 feet Site Data Autos:: Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Diserver: 0.0 feet Barrier Distance to Observer: 0.0 feet Barrier Distance to Observer: 0.0 feet Barrier Distance to Observer: 0.0 feet Barrier bitst to Marene: 60.0 feet Barrier Distance to Observer: 0.0 feet
Site Conditions (Hard = 10, Soft = 15) Average Daily Traffic (Adt): 25 vehicles Autos: 15 Peak Hour Percentage: 10% Medium Trucks (2 Aktes): 15 Peak Hour Volume: 3 vehicles Heavy Trucks (3 + Aktes): 15 Vehicle Speed: 45 mph Vehicle Mix Vehicle Mix Site Data Autos: 66.2% 13.5% 20.3% 93.41 Barrier Type (0-Wall, 1-Berm): 0.0 feet Heavy Trucks: 86.3% 1.5% 12.2% 1.90 Centerline Dist to Observer: 0.0 feet Autos: 0.00 Heavy Trucks: 0.00 Barrier Distance to Observer: 0.0 feet Autos: 0.00 Moise Source Elevations (in feet) Observer: 0.0 feet Medium Trucks: 2.297 Xetos: 0.00
Average Daily Traffic (Adt): 25 vehicles Autos:: 15 Peak Hour Volume: 3 vehicles Medium Trucks (2 Axles): 15 Vehicle Speed: 45 mph Heavy Trucks (3 + Axles): 15 Near/Far Lane Distance: 76 feet Vehicle Type Day Evening Night Daily Site Data Autos: 66.2% 13.5% 20.3% 93.41 Barrier Height: 0.0 feet Medium Trucks: 77.1% 5.3% 17.6% 4.69 Barrier Type (0-Wall, 1-Berm): 0.0 feet Heavy Trucks: 86.3% 1.5% 12.2% 1.90 Centerline Dist. to Observer: 0.0 feet Autos:: 0.00 Heavy Trucks: 2.297
Peak Hour Percentage: 10% Medium Trucks (2 Axles): 15 Peak Hour Volume: 3 vehicles Heavy Trucks (3 + Axles): 15 Vehicle Speed: 45 mph Vehicle Mix Vehicle Mix Near/Far Lane Distance: 76 feet Vehicle Type Day Evening Night Daily Site Data Autos: 66.2% 13.5% 20.3% 93.41 Barrier Height: 0.0 feet Medium Trucks: 77.1% 5.3% 17.6% 4.69 Barrier Type (0-Wall, 1-Berm): 0.0 feet Medium Trucks: 60.3% 1.5% 12.2% 1.90 Centerline Dist. to Barrier: 60.0 feet Autos: 0.00 Noise Source Elevations (in feet) Barrier Distance to Observer: 0.0 feet Autos: 0.00 Heavy Trucks: 2.297 Xeiter Xeiter
Peak Hour Volume: 3 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 76 feet Site Data Autos: Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Barrier Distance to Observer: 0.0 feet
Vehicle Speed: 45 mph Near/Far Lane Distance: 76 feet Site Data Autos: 66 2% 13.5% 20.3% 93.41 Barrier Height: 0.0 feet Medium Trucks: 77.1% 5.3% 17.6% 4.90 Barrier Type (0-Wall, 1-Berm): 0.0 1.5% 12.2% 1.90 Centerline Dist to Diserver: 60.0 feet Noise Source Elevations (in feet) 0.000 Barrier Distance to Observer: 0.0 feet Autos: 0.000
Near/Far Lane Distance: 76 feet Vehicle Type Day Evening Night Daily Site Data Autos: 66.2% 13.5% 20.3% 93.41 Barrier Height: 0.0 feet Medium Trucks: 77.1% 5.3% 17.6% 4.69 Barrier Type (0-Wall, 1-Berri): 0.0 feet Heavy Trucks: 86.3% 1.5% 12.2% 1.90 Centerline Dist. to Barrier: 60.0 feet Autos: 0.00 Heavy Trucks: 86.3% 1.5% 12.2% 1.90 Barrier Distance to Observer: 60.0 feet Autos: 0.000 Heavy Trucks: 2.297
Site Data Autos: 66.2% 13.5% 20.3% 93.41 Barrier Height: 0.0 feet Medium Trucks: 77.1% 5.3% 17.5% 4.69 Barrier Type (0-Wall, 1-Berm): 0.0 1.5% 1.5% 1.5% 1.90 Centerline Dist. to Barrier: 60.0 feet Noise Source Elevations (in feet) 1.90 Barrier Distance to Observer: 0.0 feet Autos: 0.00 0.00 Barrier Distance to Observer: 0.0 feet Autos: 0.00 0.00 Barrier Distance to Observer: 0.0 feet Autos: 2.297 0.00
Barrier Height: 0.0 feet Medium Trucks: 77.1% 5.3% 17.6% 4.69 Barrier Type (0-Wall, 1-Berm): 0.0 1.5% 1.2.2% 1.90 Centerline Dist. to Barrier: 60.0 feet Noise Source Elevations (in feet) 1.5% 1.2.2% 1.90 Barrier Distance to Observer: 60.0 feet Autos: 0.000 Medium Trucks: 2.297
Barrier Type (0-Wall, 1-Berm): 0.0 Heavy Trucks: 86.3% 1.5% 12.2% 1.90 Centerline Dist to Distriver: 60.0 feet Noise Source Elevations (in feet) Image: Control in the source source and the source
Centerline Dist. to Barrier: 60.0 feet Noise Source Elevations (in feet) Centerline Dist. to Observer: 60.0 feet Autos: 0.000 Barrier Distance to Observer: 0.0 feet Medium Trucks: 2.297
Centerline Dist. to Observer: 60.0 feet Autos: 0.000 Barrier Distance to Observer: 0.0 feet Medium Trucks: 2.297
Barrier Distance to Observer: 0.0 feet Medium Trucks: 2.297
Observes Usinkt (Above Deal) 5.0 C /
Observer Height (Above Pad): 5.0 teet Heavy Trucks: 8.004 Grade Adjustment: 0.0
Pad Elevation: 0.0 feet
Road Elevation: 0.0 feet Lane Equivalent Distance (in feet)
Road Grade: 0.0% Autos: 46.701
Left View: -90.0 degrees Medium Trucks: 46.511
Right view: 90.0 degrees neavy Trucks. 46.530
FHWA Noise Model Calculations
VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berm Atten
Autos: 68.46 -28.15 0.34 -1.20 -4.69 0.000 0.00
Medium Trucks: 79.45 -41.14 0.37 -1.20 -4.88 0.000 0.00
Heavy Trucks: 84.25 -45.07 0.37 -1.20 -5.34 0.000 0.0
Unmitigated Noise Levels (without Topo and barrier attenuation)
VehicleType Leq Peak Hour Leq Day Leq Evening Leq Night Ldn CNEL
Autos: 39.5 36.9 36.0 33.0 40.2 40
Medium Trucks: 37.5 35.6 30.0 30.4 37.8 38
Heavy Trucks: 38.3 36.9 25.3 29.7 37.8 37
Verificie Noise. 43.5 41.5 57.2 50.0 45.5 43
Centerline Distance to Noise Contour (in feet)
1000A 0500A 0000A 5500A
CNEL: 1 2 5 11

Scenario:	Existing Wit	h Project				Project	Vame: M	СН			
Road Name:	Pine Av.	,				Job NL	mber: 10	0351			
Road Segment:	w/o Euclid A	۹v.									
SITE SF	PECIFIC IN	PUT DATA				N	OISE M	ODEL	INPUT	6	
Highway Data				5	Site Con	ditions (Hard = 1	0, Sof	t = 15)		
Average Daily Tra	affic (Adt):	7,979 vehicle	es				A	utos:	15		
Peak Hour Pe	ercentage:	10%			Mee	dium Tru	cks (2 Ax	des):	15		
Peak Hou	ır Volume:	798 vehicles	s		Hea	avy Truc	ks (3+ Ax	des):	15		
Vehic	cle Speed:	45 mph		1	Vehicle I	Nix					
Near/Far Lane	Distance:	76 feet		F	Vehi	cleType	D	Day I	Evening	Night	Daily
Site Data						A	utos: 6	6.2%	13.5%	20.3%	92.41%
Barrie	er Heiaht:	0.0 feet			Me	edium Tri	icks: 7	7.1%	5.3%	17.6%	4.95%
Barrier Type (0-Wall	. 1-Berm):	0.0			F	leavy Tri	ucks: 8	6.3%	1.5%	12.2%	2.64%
Centerline Dist.	to Barrier:	60.0 feet			Naina Ca	uree Ek	votiono	lin for	41		
Centerline Dist. to	Observer:	60.0 feet		1	voise su	Autor	vauons		:0		
Barrier Distance to	Observer:	0.0 feet			14-16-1	Autos	. 0.00	JU 77			
Observer Height (Ab	ove Pad):	5.0 feet			weatur	n Trucks	. 2.28	97 DA (Prodo Adi	ustmont.	0.0
Pad	Elevation:	0.0 feet			Heav	y Trucks	. 8.00	J4 (siaue Auj	usunem.	0.0
Road	Elevation:	0.0 feet		L	Lane Equ	uivalent	Distance	e (in fe	et)		
Ro	ad Grade:	0.0%				Autos	: 46.70	01			
	Left View:	-90.0 degree	es		Mediur	n Trucks	46.5	11			
R	light View:	90.0 degree	es		Heav	y Trucks	46.53	30			
FHWA Noise Model	Calculations	5									
VehicleType	REMEL	Traffic Flow	Dist	ance	Finite	Road	Fresne	l E	arrier Atte	en Berr	n Atten
Autos:	68.46	-3.16		0.34	1	-1.20	-4	4.69	0.0	00	0.000
Medium Trucks:	79.45	-15.87		0.37	7	-1.20	-4	4.88	0.0	00	0.000
Heavy Trucks:	84.25	-18.60		0.37	7	-1.20	-{	5.34	0.0	00	0.000
Unmitigated Noise L	evels (with	out Topo and	barrie	r atten	uation)						
VehicleType Le	eq Peak Hou	r Leq Day	,	Leq Ev	/ening	Leq I	light	1	dn	CN	IEL
Autos:	64.	4	61.9		61.0		58.0		65.1		65.6
Medium Trucks:	62.	7	60.8		55.2		55.7		63.1		63.3
Heavy Trucks:	64.	8	63.4		51.8		56.1		64.2		64.3
Vehicle Noise:	68.	9	66.9		62.4		61.5		69.0		69.3
	to Noise Co	ntour (in feet)								
Centerline Distance				70 0		65.0		60) dRA	55	dRA
Centerline Distance			ட	70 0	IDA .	00 0	DA	00	UDA -		
Centerline Distance			Ldn:	51	1	11	1	2	239	5	15

Thursday, May 02, 2019

	FHV	VA-RD-77-108 F	IIGHWA	NY N	IOISE P	REDICT		DDEL				
Scenar	rio: Existing Wi	th Project				Project	Name:	MCH				
Road Nan	ne: Pine Av.					Job N	lumber:	10351				
Road Segme	ent: e/o Euclid A	Av.										
SITE	SPECIFIC IN	PUT DATA				M	IOISE	MODE	L INP	JTS		
Highway Data				÷	Site Cor	ditions	(Hard :	= 10, S	oft = 15)		
Average Daily	Traffic (Adt):	26,758 vehicles	5					Autos:	15			
Peak Hour	Percentage:	10%			Me	dium Tr	ucks (2	Axles):	15			
Peak I	lour Volume:	2,676 vehicles			He	avy Tru	cks (3+	Axles):	15			
Ve	ehicle Speed:	45 mph			Vehicle	Mix						
Near/Far La	ane Distance:	76 feet		H	Veh	icleType	.	Dav	Evenir	na N	liaht	Daily
Site Data				-	1011		Autos:	66.2%	5 13.5	% 2	0.3%	93.34%
Be	wier Height	0.0 feet			М	edium T	rucks:	77.1%	5.3	% 1	7.6%	4.65%
Parriar Type (0.1/	Vall 1 Porm):	0.0 1001				leavv T	rucks:	86.3%	5 1.5	% 1	2.2%	2.019
Centerline D	ist to Barrier:	60.0 feet				,						
Centerline Dist.	to Observer:	60.0 feet		1	Noise S	ource E	levatio	ns (in f	eet)			
Barrier Distance	to Observer:	0.0 feet				Auto	s: 0	.000				
Observer Height	(Above Pad):	5.0 feet			Mediu	m Iruck	's: 2	.297	0	A		
P	ad Elevation:	0.0 feet			Heav	y Truck	s: 8	.004	Grade	Adjusi	ment:	0.0
Ro	ad Elevation:	0.0 feet		1	Lane Eq	uivalen	t Distar	nce (in	feet)			
	Road Grade:	0.0%				Auto	s: 46	.701				
	Left View:	-90.0 degrees			Mediu	m Truck	s: 46	.511				
	Right View:	90.0 degrees	;		Heav	y Truck	s: 46	.530				
FHWA Noise Moo	lel Calculation	s										
VehicleType	REMEL	Traffic Flow	Distan	се	Finite	Road	Fres	nel	Barrier	Atten	Ber	m Atten
Autos:	68.46	2.14		0.34	4	-1.20		-4.69		0.000		0.00
Medium Trucks:	79.45	-10.89		0.3	7	-1.20		-4.88		0.000		0.00
Heavy Trucks:	84.25	-14.54		0.3	7	-1.20		-5.34		0.000		0.00
Unmitigated Nois	e Levels (with	out Topo and b	arrier a	tten	uation)					-		
VehicleType	Leq Peak Hou	r Leq Day	Le	q Ei	vening	Leq	Night		Ldn		CI	VEL
Autos:	69	.7 6	7.2		66.3		63.	3	7	0.4		70.
Medium Trucks:	67	.7 6	5.8		60.2		60.	6	6	38.1		68.
Heavy Trucks:	68	.9 6	7.4		55.9		60.	2	6	38.3		68.
Vehicle Noise:	73	.6 7	1.6		67.5		66.	.4	1	'3.8		74.
Centerline Distan	ce to Noise Co	ontour (in feet)										
				70 0	dBA	65	dBA		60 dBA		55	dBA
		L	dn:	10	08	2	33		502		1,0	082
		CN	EL:	11	13	2	43		523		1,	127

	FH\	VA-RD-77-108 HI	IGHWAY	NOISE PI	REDICTION	MODEL			
Scenar	io: Existing Wi	th Project			Project Na	me: MCH			
Road Nam	e: Pine Av.				Job Num	ber: 10351			
Road Segme	nt: w/o Chino (Corona Rd.							
SITE	SPECIFIC IN	IPUT DATA			NOI	SE MODE	L INPUT	s	
Highway Data				Site Con	ditions (Ha	ard = 10, S	oft = 15)		
Average Daily	Traffic (Adt):	30,785 vehicles				Autos	: 15		
Peak Hour	Percentage:	10%		Me	dium Truck	s (2 Axles)	: 15		
Peak H	lour Volume:	3,079 vehicles		He	avy Trucks	(3+ Axles)	: 15		
Ve	hicle Speed:	45 mph		Vehicle	Mix				
Near/Far La	ne Distance:	76 feet		Veh	icleType	Day	Evening	Night	Daily
Site Data					Auto	os: 66.2%	6 13.5%	20.3%	93.35%
Bai	rrier Height	0.0 feet		M	edium Truci	ks: 77.19	6 5.3%	17.6%	4.65%
Barrier Type (0-W	all, 1-Berm):	0.0		1	Heavy Truc	ks: 86.3%	6 1.5%	12.2%	1.99%
Centerline Dis	st. to Barrier:	60.0 feet		Noise Se	ource Eleva	ations (in i	eet)		
Centerline Dist.	to Observer:	60.0 feet			Autos:	0.000	000		-
Barrier Distance	to Observer:	0.0 feet		Mediu	m Trucks:	2.297			
Observer Height (Above Pad):	5.0 feet		Heav	v Trucks:	8.004	Grade Ad	ljustment	t: 0.0
Pa	ad Elevation:	0.0 feet						,	
Roa	ad Elevation:	0.0 feet		Lane Eq	uivalent Di	stance (in	feet)		
	Road Grade:	0.0%			Autos:	46.701			
	Left View:	-90.0 degrees		Mediu	m Trucks:	46.511			
	Right View:	90.0 degrees		Heav	y Trucks:	46.530			
FHWA Noise Mod	el Calculation	s							
VehicleType	REMEL	Traffic Flow	Distance	Finite	Road	Fresnel	Barrier At	en Be	rm Atten
Autos:	68.46	2.75	0.	34	-1.20	-4.69	0.0	000	0.000
Medium Trucks:	79.45	-10.28	0.	37	-1.20	-4.88	0.0	000	0.000
Heavy Trucks:	84.25	-13.96	0.	37	-1.20	-5.34	0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and ba	nrrier atte	enuation)					-
VehicleType	Leq Peak Hou	r Leq Day	Leq	Evening	Leq Nig	ıht	Ldn	С	NEL
Autos:	70	.3 67	.8	66.9		63.9	71.	1	71.5
Medium Trucks:	68	.3 66	.4	60.8		61.3	68.	7	68.9
Heavy Trucks:	69	.5 68	.0	56.4		60.8	68.	3	68.9
Vehicle Noise:	74	.2 72	.2	68.1		67.0	74.	4	74.7
Centerline Distant	ce to Noise Co	ontour (in feet)							
			70) dBA	65 dB/	4	60 dBA	55	i dBA
		Ld	In:	119	256		551	1,	,187
		CNE	L:	124	266		574	1,	,237

Thursday, May 02, 2019

	FH	WA-RD-77-10	B HIGHW	AY NO	DISE P	REDICTI	ON MO	DEL			
Scenar Road Nam Road Segme	io: Existing W ne: Pine Av. nt: w/o W. Pre	lith Project eserve Loop				Project Job N	Name: I umber:	MCH 10351			
SITE	SPECIFIC I	NPUT DATA				N	OISE N	/IODE	L INPUTS	5	
Highway Data				S	ite Cor	nditions	(Hard =	10, S	oft = 15)		
Average Daily	Traffic (Adt):	17,411 vehic	les					Autos.	15		
Peak Hour	Percentage:	10%			Me	edium Tru	ıcks (2 A	(xles)	15		
Peak H	lour Volume:	1,741 vehicle	es		He	eavy Truc	cks (3+ A	(xles)	15		
Ve	hicle Speed:	45 mph		V	ehicle	Mix					
Near/Far La	ne Distance:	76 feet		-	Veh	nicleTvpe		Dav	Evenina	Niaht	Dailv
Site Data						A	Autos:	66.29	13.5%	20.39	6 93.29%
Ba	rrier Heiaht:	0.0 feet			М	edium Ti	ucks:	77.1%	5.3%	17.6%	6 4.64%
Barrier Type (0-W	/all, 1-Berm):	0.0				Heavy Ti	ucks:	86.3%	5 1.5%	12.29	6 2.07%
Centerline Di	st. to Barrier:	60.0 feet		N	oise S	ource El	evation	s (in f	eet)		
Centerline Dist.	to Observer:	60.0 feet				Auto	s [.] 0 (000			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Truck	s: 2.2	297			
Observer Height ((Above Pad):	5.0 feet			Hear	v Truck	s: 8.0	004	Grade Adj	ustmer	t: 0.0
Pa	ad Elevation:	0.0 feet		-					,		
Roa	ad Elevation:	0.0 feet		L	ane Eq	uivalent	Distanc	ce (in	feet)		
	Road Grade:	0.0%				Autos	s: 46.1	701			
	Left View:	-90.0 degre	es		Mediu	m Truck	s: 46.	511			
	Right View:	90.0 degre	es		Hear	vy Trucks	s: 46.	530			
FHWA Noise Mod	el Calculation	าร									
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresn	el	Barrier Atte	en Be	erm Atten
Autos:	68.46	0.27		0.34		-1.20		-4.69	0.0	00	0.000
Medium Trucks:	79.45	-12.77		0.37		-1.20		-4.88	0.0	00	0.000
Heavy Trucks:	84.25	-16.27		0.37		-1.20		-5.34	0.0	00	0.000
Unmitigated Nois	e Levels (with	nout Topo and	l barrier	attenu	ation)						
VehicleType	Leq Peak Ho	ur Leq Da	y L	eq Eve	ening	Leq	Night		Ldn	0	ONEL
Autos:	67	7.9	65.3		64.4		61.4		68.6		69.0
Medium Trucks:	65	5.8	63.9		58.3		58.8		66.2		66.4
Heavy Trucks:	67	7.1	65.7		54.1		58.5		66.6		66.6
Vehicle Noise:	71	1.8	69.8		65.7		64.5		72.0		72.3
Centerline Distant	ce to Noise C	ontour (in fee	t)	70.0		05	10.4			-	
			L day	70 dE	5A	65	aBA 76		270	5	0 aBA
		~	LUN:	82 95		1.	22		305		01/ 951
		C	IVEL:	85		10	55		390		001

Scenar	io: Existing Wi	th Project				Project N	ame: M	СН			
Road Nan	e: Pine Av.	-				Job Nur	nber: 10	351			
Road Segme	nt: w/o E. Pres	erve Loop									
SITE	SPECIFIC IN	PUT DATA				NO	ISE MO	DDE		S	
Highway Data				3	Site Con	ditions (H	ard = 1	0, Sc	oft = 15)		
Average Daily	Traffic (Adt):	27,639 vehicle	s				AL	itos:	15		
Peak Hour	Percentage:	10%			Med	dium Truc	ıs (2 Ax	les):	15		
Peak H	lour Volume:	2,764 vehicles	6		Hea	avy Trucks	: (3+ Ax	les):	15		
Ve	hicle Speed:	45 mph		1	Vehicle N	<i>lix</i>					
Near/Far La	ne Distance:	76 feet			Vehi	cleType	D	ay	Evening	Night	Daily
Site Data						Au	os: 66	5.2%	13.5%	20.3%	93.34%
Ba	rrier Height:	0.0 feet			Me	dium Truc	ks: 7	7.1%	5.3%	17.6%	4.66%
Barrier Type (0-W	/all. 1-Berm):	0.0			h	leavy Truc	ks: 86	5.3%	1.5%	12.2%	2.01%
Centerline Di	st. to Barrier:	60.0 feet			Noiso Sa		ations	(in fe	not)		
Centerline Dist.	to Observer:	60.0 feet		-	10/36 30	Autoor	0.00	0	el)		
Barrier Distance	to Observer:	0.0 feet			Modium	Autos.	0.00	7			
Observer Height	(Above Pad):	5.0 feet			Hear	Trucks.	2.28	4	Grade Ad	iustmont	
P	ad Elevation:	0.0 feet			neav	y mucks.	0.00	4	Orade Haj	usunoni	0.0
Ro	ad Elevation:	0.0 feet		1	Lane Equ	ivalent D	istance	(in	feet)		
	Road Grade:	0.0%				Autos:	46.70	1			
	Left View:	-90.0 degree	s		Mediun	n Trucks:	46.51	1			
	Right View:	90.0 degree	s		Heav	y Trucks:	46.53	0			
	-10-1	s									
FHWA Noise Mod	el Calculation										
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresnel	1	Barrier Att	en Ber	m Atten
VehicleType Autos:	REMEL 68.46	Traffic Flow 2.28	Dista	nce 0.34	Finite	Road -1.20	Fresnei -4	1.69	Barrier Atte 0.0	en Ber 100	<i>m Atten</i> 0.000
VehicleType Autos: Medium Trucks:	REMEL 68.46 79.45	Traffic Flow 2.28 -10.74	Dista	nce 0.34 0.37	Finite 4 7	Road -1.20 -1.20	Fresnel -4 -4	1.69 1.88	Barrier Atte 0.0 0.0	en Ber 100 100	m Atten 0.000 0.000
VehicleType Autos: Medium Trucks: Heavy Trucks:	REMEL 68.46 79.45 84.25	Traffic Flow 2.28 -10.74 -14.40	Dista	0.34 0.37 0.37	Finite 4 7 7	Road -1.20 -1.20 -1.20	Fresnei -4 -4 -5	1.69 1.88 5.34	Barrier Atte 0.0 0.0 0.0	en Ber 100 100 100	<u>m Atten</u> 0.000 0.000 0.000
HWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois	REMEL 68.46 79.45 84.25 e Levels (with	<i>Traffic Flow</i> 2.28 -10.74 -14.40 <i>out Topo and</i>	Dista barrier	nce 0.34 0.37 0.37 atten	Finite 4 7 7 wation)	Road -1.20 -1.20 -1.20	Fresnei -4 -4 -5	1.69 1.88 5.34	<u>Barrier Att</u> 0.0 0.0 0.0	en Ber 100 100 100	m Atten 0.000 0.000 0.000
HWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType	REMEL 68.46 79.45 84.25 e Levels (with Leq Peak Hou	Traffic Flow 2.28 -10.74 -14.40 out Topo and ir Leq Day	Dista barrier	nce 0.34 0.37 0.37 atten .eq Ev	Finite 4 7 7 uation) vening	Road -1.20 -1.20 -1.20 <i>Leq Ni</i>	Fresnel -4 -4 -5 ght	1.69 1.88 5.34	Barrier Atte 0.0 0.0 0.0 0.0	en Ber 100 100 100 100 <i>Cl</i>	<u>m Atten</u> 0.000 0.000 0.000 VEL
VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos:	REMEL 68.46 79.45 84.25 e Levels (with Leq Peak Hou 69	Traffic Flow 2.28 -10.74 -14.40 out Topo and r Leq Day 9	Dista	nce 0.34 0.37 0.37 atten .eq Ev	Finite 4 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	Road -1.20 -1.20 -1.20 <i>Leq Ni</i>	Fresnel -4 -4 -5 ght 63.4	1.69 1.88 5.34	Barrier Atti 0.0 0.0 0.0 0.0 0.0 1.0 Ldn 70.6	en Ber 100 100 100 100 100 <i>Cl</i>	<u>m Atten</u> 0.000 0.000 0.000 <u>0.000</u> <u>NEL</u> 71.0
HWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks:	el Carculation <u>REMEL</u> 68.46 79.45 84.25 e Levels (with Leq Peak Hou 69 67	Traffic Flow 2.28 -10.74 -14.40 out Topo and rr Leq Day 9 .9 .9	Dista barrier L 57.3 56.0	nce 0.34 0.37 0.37 atten .eq Ev	Finite 4 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	Road -1.20 -1.20 -1.20 <i>Leq Ni</i>	Fresnel -4 -4 -5 ght 63.4 60.8	1.69 1.88 5.34	Barrier Atti 0.0 0.0 0.0 0.0 Ldn 70.6 68.2	en Ber 000 000 000 000 C/	<u>m Atten</u> 0.000 0.000 0.000 VEL 71.0 68.4
HWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: VehicleType Autos: Medium Trucks: Heavy Trucks:	e Carculation REMEL 68.46 79.45 84.25 e Levels (with Leq Peak Hou 69 67 69	Traffic Flow 2.28 -10.74 -14.40 out Topo and r Leq Day .9 .0	Dista barrier 57.3 56.0 57.6	nce 0.34 0.37 0.37 atten .eq Ev	Finite 4 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	Road -1.20 -1.20 -1.20 Leq Ni	Fresnei -4 -4 -5 ght 63.4 60.8 60.3	1.69 1.88 5.34	Barrier Atti 0.0 0.0 0.0 Ldn 70.6 68.2 68.4	en Ber 000 000 000 000 CI 3 2 4	<u>m Atten</u> 0.000 0.000 0.000 <u>VEL</u> 71.0 68.4 68.5
HWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	er Carculation REMEL 68.46 79.45 84.25 e Levels (with Leg Peak Hou 69 67 69 73	Traffic Flow 2.28 -10.74 -14.40 Out Topo and r Leq Day .9 .0 .8	Dista barrier 57.3 56.0 57.6 71.8	nce 0.34 0.37 0.37 atten .eq Ev	Finite 4 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	Road -1.20 -1.20 -1.20 <i>Leq Ni</i>	Fresnel -4 -4 -5 63.4 60.8 60.3 66.5	1.69 1.88 5.34	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	en Ber 1000 100	m Atten 0.000 0.000 0.000 VEL 71.0 68.4 68.5 74.3
HWA Noise Mod VehicleType Autos: Medium Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	er Carculation <u>REMEL</u> 68.46 79.45 84.25 e Levels (with Leg Peak Hou 69 67 69 73 Ce to Noise Co	Traffic Flow 2.28 -10.74 -14.40 Out Topo and r Leq Day .9 .0 .0 .8 ontour (in feet, 100 of 100	Dista barrier 57.3 56.0 57.6 71.8	nce 0.34 0.37 0.37 atten .eq Ev	Finite 4 7 7 wation) 66.4 60.4 56.0 67.7	Road -1.20 -1.20 -1.20 Leq Ni	Fresnel -4 -4 -5 0 0 1 6 3.4 6 0.8 6 0.3 6 6.5	1.69 1.88 5.34	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 68.2 68.4 74.0	en Ber 000 000 000 Cl 3 2 4 0	m Atten 0.000 0.000 0.000 VEL 71.0 68.4 68.5 74.3
HTWA Noise Moo Vehicle Type Autos: Medium Trucks: Heavy Trucks: Unnitigated Nois Vehicle Type Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	et Calculation REMEL 68.46 79.45 84.25 e Levels (with Leq Peak Hou 69 67 69 73 ce to Noise Co	Traffic Flow 2.28 -10.74 -14.40 out Topo and Ir Leq Day .9 .0 .8 .0 ontour (in feet) .0	Dista barrier 57.3 56.0 57.6 71.8	nce 0.34 0.37 0.37 atten .eq Ev	Finite 4 4 7 7 wation) 66.4 60.4 56.0 67.7	Road -1.20 -1.20 -1.20 Leq Ni 65 dE	Fresnel -4 -4 -5 63.4 60.8 60.3 66.5 A	1.69 1.88 5.34	Barrier Atti 0.0 0.0 0.0 0.0 0.0 0.0 0 0 dBA	en Ber 1000 100	m Atten 0.000 0.000 0.000 VEL 71.0 68.4 68.5 74.3 dBA
HTWA Noise Woo VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Heavy Trucks: Vehicle Noise: Centerline Distan	er Cacutation REMEL 68.46 79.45 84.25 e Levels (with Leq Peak Hou 69 67 69 73 ce to Noise Co	Traffic Flow 2.28 -10.74 -14.40 out Topo and r .9 .0 <td>Dista</td> <td>nce 0.34 0.37 0.37 atten .eq Ev 70 c 11</td> <td>Finite 4 7 vening 66.4 60.4 56.0 67.7 dBA 1</td> <td>Road -1.20 -1.20 -1.20 Leq Ni 65 dE 238</td> <td>Fresnel -4 -4 -4 -5 63.4 60.8 60.3 66.5 A</td> <td>1.69 1.88 5.34</td> <td>Barrier Atti 0.0 0.0 0.0 0.0 0.0 70.6 68.2 68.4 74.0 74.0 74.0 74.0 7513</td> <td>en Ber 1000 100</td> <td>m Atten 0.000 0.000 0.000 VEL 71.0 68.4 68.5 74.3 74.3 0BA</td>	Dista	nce 0.34 0.37 0.37 atten .eq Ev 70 c 11	Finite 4 7 vening 66.4 60.4 56.0 67.7 dBA 1	Road -1.20 -1.20 -1.20 Leq Ni 65 dE 238	Fresnel -4 -4 -4 -5 63.4 60.8 60.3 66.5 A	1.69 1.88 5.34	Barrier Atti 0.0 0.0 0.0 0.0 0.0 70.6 68.2 68.4 74.0 74.0 74.0 74.0 7513	en Ber 1000 100	m Atten 0.000 0.000 0.000 VEL 71.0 68.4 68.5 74.3 74.3 0BA

Thursday, May 02, 2019

	FHV	A-RD-77-108	HIGH	IWAY I	NOISE P	REDICT	ION M	DDEL				
Scenar Road Nan Road Segme	rio: Existing Wit ne: Pine Av. nt: w/o Hellmar	th Project n Av.				Project Job N	t Name: lumber:	MCH 10351				
SITE	SPECIFIC IN	PUT DATA				P	OISE	MODE	L INP	UTS		
Highway Data					Site Cor	nditions	(Hard	= 10, S	oft = 15)		
Average Daily Peak Hour Peak H	Traffic (Adt): Percentage: dour Volume:	27,488 vehicle 10% 2,749 vehicles	s	_	Me He	edium Tr eavy Tru	ucks (2 cks (3+	Autos: Axles): Axles):	15 15 15			
Near/Far La	ne Distance:	76 feet			Vehicle	Mix						
	no biotanoo.	10 1000			Veh	iicle I ype	9	Day	Evenii	ng N	light	Daily
Barrier Type (0-W	rrier Height: Vall, 1-Berm):	0.0 feet 0.0			М	, edium T Heavy T	Autos: rucks: rucks:	66.2% 77.1% 86.3%	5.3 5.3 5.3	0% 2 1% 1 1% 1	20.3% 17.6% 12.2%	93.349 4.669 2.019
Centerline Di	ist. to Barrier:	60.0 feet		ŀ	Noise S	ource E	lovatio	ns (in f	oot)			
Centerline Dist. Barrier Distance Observer Height	to Observer: to Observer: (Above Pad):	60.0 feet 0.0 feet 5.0 feet		-	Mediu Hear	Auto m Truck vy Truck	is: 0 is: 2 is: 8	.000 .297 .004	Grade	Adjus	tment	: 0.0
Po	ad Elevation:	0.0 feet		ŀ	Lane Eo	uivalen	t Dista	nce (in	feet)			
	Road Grade: Left View: Right View:	0.0% -90.0 degree 90.0 degree	s		Mediu Hear	Auto m Truck vy Truck	is: 46 is: 46 is: 46	6.701 6.511 6.530				
FHWA Noise Mod	el Calculation	s										
VehicleType	REMEL	Traffic Flow	Dis	stance	Finite	Road	Fres	nel	Barrier	Atten	Ber	m Atten
Autos: Medium Trucks: Heavy Trucks:	68.46 79.45 84.25	2.25 -10.77 -14.42		0.3 0.3 0.3	4 7 7	-1.20 -1.20 -1.20		-4.69 -4.88 -5.34		0.000)))	0.00 0.00 0.00
Unmitigated Nois	e Levels (with	out Topo and I	barri	er attei	nuation)							
VehicleType	Leg Peak Hou	r Leq Day		Leg E	vening	Leq	Night		Ldn		CI	NEL
Autos:	. 69.	.9 6	7.3	,	66.4	,	63	.4		70.6		71.
Medium Trucks:	67.	.9 6	5.9		60.3		60	.8	(68.2		68.
Heavy Trucks:	69.	.0 6	7.6		56.0		60	.3	(68.4		68.
Vehicle Noise:	73.	.7 7	'1.8		67.7		66	.5	1	74.0		74.
Centerline Distan	ce to Noise Co	ontour (in feet)										
2		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	T	70	dBA	65	dBA		60 dBA		55	dBA
		L	.dn:	1	10	2	37		512		1,	102
		CA	EL:	1	15	2	47		533		1,	148

	FH	WA-RD-77-108	HIGHW	AY NO	DISE PF	REDICTIO	ON MO	DEL				
Scenar Road Nan Road Segme	Scenario: Existing With Project Road Name: Schleisman Rd. Road Segment: w/o Archibald Av.					Project N Job Nu	lame: mber:	MCH 10351				
SITE	SPECIFIC IN	IPUT DATA				N	DISE N	NODE	L INPU	TS		
Highway Data				S	ite Con	ditions (l	Hard =	10, S	oft = 15)			
Average Daily Peak Hour Peak F	Traffic (Adt): Percentage: lour Volume:	29,565 vehicle 10% 2,956 vehicles	es 6		Me He	dium Truc avy Truck	cks (2 / (s (3+ /	Autos: Axles): Axles):	15 15 15			
Ve	hicle Speed:	45 mph		V	ehicle l	Mix				-		
Near/Far La	ne Distance:	78 feet			Vehi	icleType		Day	Evening	1 Ni	ight	Daily
Site Data						Au	itos:	66.2%	5 13.5%	o 20	0.3%	93.33%
Ba	rrier Heiaht:	0.0 feet			Me	edium Tru	icks:	77.1%	5.3%	6 1)	7.6%	4.67%
Barrier Type (0-V	/all, 1-Berm):	0.0			ŀ	leavy Tru	icks:	86.3%	5 1.5%	i 12	2.2%	2.00%
Centerline Di	st. to Barrier:	76.0 feet		N	loise Sc	ource Ele	vation	s (in f	eet)			
Centerline Dist.	to Observer:	76.0 feet				Autos:	0.0	000	,			
Barrier Distance	to Observer:	0.0 feet			Mediur	n Trucks:	2.3	297				
Observer Height	Observer Height (Above Pad): 5.0 feet					Heavy Trucks: 8.004 Grade Adjustment: 0.0						
P	ad Elevation:	0.0 feet		_								
Ro	ad Elevation:	0.0 feet		L	ane Eq	uivalent	Distan	ce (in	feet)			
	Road Grade:	0.0%				Autos:	65.	422				
	Left View:	-90.0 degree	es		Mediur	n Trucks:	65.	286				
	Right View:	90.0 degree	es		Heav	y Trucks:	65.	299				
FHWA Noise Mod	el Calculation	IS										
VehicleType	REMEL	Traffic Flow	Distar	nce	Finite	Road	Fresr	nel	Barrier A	tten	Bern	n Atten
Autos:	68.46	2.57		-1.85		-1.20		-4.73	C	0.000		0.000
Medium Trucks:	79.45	-10.44		-1.84		-1.20		-4.88	C	0.000		0.000
Heavy Trucks:	84.25	-14.11		-1.84		-1.20		-5.25	C	0.000		0.000
Unmitigated Nois	e Levels (with	out Topo and	barrier a	attenu	ation)							
VehicleType	Leg Peak Ho	ur Leq Day	' L	eq Eve	ening	Leq N	light		Ldn		CN	IEL
Autos:	68	3.0	65.4		64.5		61.5	5	68	5.7		69.1
Medium Trucks:	66	6.0	64.0		58.4		58.9)	66	i.3		66.5
Heavy Trucks:	67	.1 (65.7		54.1		58.4	Ļ	66	i.5		66.6
Vehicle Noise:	71	.9	69.9		65.8		64.6	6	72	2.1		72.3
Centerline Distan	ce to Noise C	ontour (in feet,)									
				70 dl	BA	65 d	BA		60 dBA		55 0	:/BA
			Ldn:	105	5	22	5		485		1,0	45
		CI	VEL:	109	9	23	5		505		1,0	89

Thursday, May 02, 2019

	FH\	VA-RD-77-108	HIGHWA	Y NO	ISE P	REDICT	ION MO	DEL				
Scenar Road Nam Road Segme	io: OY Withou ne: Central Av. nt: n/o El Prad	t Project o Rd.				Project Job N	Name: lumber:	MCH 10351				
SITE	SPECIFIC IN	IPUT DATA				N	IOISE N	/IODE		s		
Highway Data				Si	te Cor	nditions	(Hard =	10, S	oft = 15)			
Average Daily	Traffic (Adt):	31,600 vehicl	es					Autos.	15			
Peak Hour	Percentage:	10%			Me	edium Tri	ucks (2 A	Axles).	15			
Peak H	lour Volume:	3,160 vehicle	s		He	eavy True	cks (3+ A	Axles).	15			
Ve	hicle Speed:	45 mph		Ve	hicle	Mix						
Near/Far La	ne Distance:	76 feet			Veh	icleType	,	Day	Evening	Nig	ht	Daily
Site Data							Autos:	66.3%	5 13.5%	20.	3% 9	93.40%
Ba	rrier Heiaht:	0.0 feet			Μ	edium T	rucks:	77.0%	5.3%	17.	6%	4.70%
Barrier Type (0-W	/all, 1-Berm):	0.0				Heavy Ti	rucks:	86.3%	5 1.5%	12.	2%	1.90%
Centerline Di	st. to Barrier:	60.0 feet		No	oise S	ource E	levation	s (in f	eet)			
Centerline Dist.	to Observer:	60.0 feet				Auto	s: 0.0	000	,			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Truck	s: 2.1	297				
Observer Height ((Above Pad):	5.0 feet			Hear	vy Truck	s: 8.0	004	Grade Ad	iustm	ent:	0.0
Pa	ad Elevation:	0.0 feet					Distant	//	6			
Roa	ad Elevation:	0.0 feet		Lä	ine Eq	uivaien	Distant	ce (In 704	reet)			
	Road Grade:	0.0%			1 4 m - 10 -	Auto	S: 46.	701				
	Left View:	-90.0 degre	es		Mediu	m Truck	S: 46.	511				
	Right view.	90.0 degre	es		nea	ly much	3. 40.	550				
FHWA Noise Mod	el Calculation	s										
VehicleType	REMEL	Traffic Flow	Distan	се	Finite	Road	Fresr	iel	Barrier Att	en	Berm	Atten
Autos:	68.46	2.86		0.34		-1.20		-4.69	0.0	000		0.000
Medium Trucks:	79.45	-10.12		0.37		-1.20		-4.88	0.0	000		0.000
Heavy Trucks:	84.25	-14.05		0.37		-1.20		-5.34	0.0	000		0.000
Unmitigated Nois	e Levels (with	out Topo and	barrier a	ttenua	ation)			1				
Vehicle I ype	Leq Peak Hou	Ir Leq Day	Le	q Eve	ening	Leq	Night		Ldn		CN	EL
Autos:	70	.5	67.9		67.0		64.0)	/1.2	<u> </u>		/1.6
Medium Trucks:	60	.5	00.0 67.0		61.U		60.7		08.0	5		69.0
Vehicle Noise:	74	.4	72.3		68.3		67.0)	74.5	5		74.8
Centerline Distan	ce to Noise C	ontour (in feet)		50.0		07.0			-		. 1.0
Contonine Distant		inteal (in feet	,	70 dB	BA	65	dBA		60 dBA		55 d	BA
			Ldn:	120		2	59		557		1,20	00
		C	NEL:	125		2	69		580		1,25	51

Scenar	io: OY Without	Project				Project Na	me: MCH			
Road Nan	ne: Central Av.	-				Job Num	ber: 1035	1		
Road Segme	nt: s/o El Prad	o Rd.								
SITE	SPECIFIC IN	IPUT DATA				NO	SE MOD	EL INPUT	s	
Highway Data				s	lite Con	ditions (Ha	rd = 10, S	oft = 15)		
Average Daily	Traffic (Adt):	37,909 vehicle	s				Autos	: 15		
Peak Hour	Percentage:	10%			Med	lium Truck	s (2 Axles)	: 15		
Peak H	lour Volume:	3,791 vehicles			Hea	avy Trucks	(3+ Axles)	: 15		
Ve	hicle Speed:	45 mph		V	ehicle N	lix				
Near/Far La	ne Distance:	78 feet			Vehi	cleType	Day	Evening	Night	Daily
Site Data						Auto	s: 66.39	6 13.5%	20.3%	93.40%
Ba	rrier Height	0.0 feet			Me	dium Truck	s: 77.09	% 5.3%	17.6%	4.70%
Barrier Type (0-W	Vall. 1-Berm):	0.0			h	leavy Truck	s: 86.39	6 1.5%	12.2%	1.90%
Centerline Di	ist. to Barrier:	60.0 feet					<i>tione (In</i>	64)		
Centerline Dist.	to Observer:	60.0 feet		N	ioise So	urce Eleva	uons (in	reet)		
Barrier Distance	to Observer:	0.0 feet			1 4 m all 1 m	Autos:	0.000			
Observer Height	(Above Pad):	5.0 feet			wealun	1 Trucks:	2.297	Grado Ad	iustmont	0.0
P	ad Elevation:	0.0 feet			neav	/ TTUCKS.	0.004	Orade Haj	usunoni.	0.0
Ro	ad Elevation:	0.0 feet		L	ane Equ	ivalent Di	stance (in	feet)		
	Road Grade:	0.0%				Autos:	45.869			
	Left View:	-90.0 degree	s		Mediun	n Trucks:	45.676			
	Right View:	90.0 degree	s		Heav	/ Trucks:	45.695			
FHWA Noise Mod	el Calculation	s								
VehicleType	REMEL	Traffic Flow	Distar	ice	Finite	Deed (Dorrior AH		m Allon
						Road	-resnel	Damer All	en Ben	III Allell
Autos:	68.46	3.65		0.46		-1.20	-resnel -4.69	Damer Aut	en Ber. 100	0.000
Autos: Medium Trucks:	68.46 79.45	3.65 -9.33		0.46 0.49		-1.20 -1.20	-resnel -4.69 -4.88	0.0 0.0	en Ber. 100 100	0.000 0.000
Autos: Medium Trucks: Heavy Trucks:	68.46 79.45 84.25	3.65 -9.33 -13.26		0.46 0.49 0.48		-1.20 -1.20 -1.20	-resnel -4.69 -4.88 -5.34	0.0 0.0 0.0	en Ber 000 100 100	0.000 0.000 0.000
Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois	68.46 79.45 84.25 e Levels (with	3.65 -9.33 -13.26 out Topo and I	barrier a	0.46 0.49 0.48	uation)	-1.20 -1.20 -1.20	-resnel -4.69 -4.88 -5.34	0.0 0.0 0.0	en Ber 000 000 000	0.000 0.000 0.000
Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType	68.46 79.45 84.25 e Levels (with Leq Peak Hou	3.65 -9.33 -13.26 out Topo and I r Leq Day	barrier a	0.46 0.49 0.48 attenu eq Ev	uation) ening	-1.20 -1.20 -1.20 -1.20 <i>Leq Nig</i>	-resnel -4.69 -4.88 -5.34 ht	0.0 0.0 0.0 Ldn	en Ben 000 000 000 000 000	0.000 0.000 0.000 0.000
Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos:	68.46 79.45 84.25 e Levels (with Leg Peak Hou 71	3.65 -9.33 -13.26 out Topo and I r Leq Day .4 6	barrier a	0.46 0.49 0.48 attenu eq Ev	uation) ening 67.9	-1.20 -1.20 -1.20 -1.20 <i>Leq Nig</i>	-resnel -4.69 -4.88 -5.34 ht 64.9	Barner Att 0.0 <td>en Ben 000 000 000 Ch</td> <td>0.000 0.000 0.000 0.000 <u>VEL</u> 72.5</td>	en Ben 000 000 000 Ch	0.000 0.000 0.000 0.000 <u>VEL</u> 72.5
Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks:	68.46 79.45 84.25 <u>e Levels (with</u> Leq Peak Hou 71 69	3.65 -9.33 -13.26 out Topo and I rr Leq Day .4 6 .4 6	barrier a Le 88.8	0.46 0.49 0.48 attenu eq Ev	uation) ening 67.9 61.9	-1.20 -1.20 -1.20 -1.20 <i>Leq Nig</i>	-resnel -4.69 -4.88 -5.34 ht 64.9 62.3	Ldn 72.1 69.7	en Ben 000 000 000 Ch	0.000 0.000 0.000 0.000 <u>VEL</u> 72.5 69.9
Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks:	68.46 79.45 84.25 <u>e Levels (with</u> Leq Peak Hou 71 69 70	3.65 -9.33 -13.26 Dut Topo and I rr Leq Day 4 6 .4 6 .3 6	barrier a 68.8 67.5 68.8	0.46 0.49 0.48 attenu eq Ev	uation) ening 67.9 61.9 57.3	-1.20 -1.20 -1.20 -1.20 <i>Leq Nig</i>	resnel -4.69 -4.88 -5.34 ht 64.9 62.3 61.6	Ldn 72.1 69.7 69.7	en Ber 000 000 000 Cl	0.000 0.000 0.000 VEL 72.5 69.9 69.8
Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise	68.46 79.45 84.25 e Levels (with Leq Peak Hou 71 69 70 75	3.65 -9.33 -13.26 out Topo and I rr Leq Day 4 6 .3 6 .2 7	barrier a 58.8 57.5 58.8 73.2	0.46 0.49 0.48 attenu eq Ev	ening 67.9 61.9 57.3 69.2	-1.20 -1.20 -1.20 -1.20	resnel -4.69 -4.88 -5.34 ht 64.9 62.3 61.6 68.0	Ldn 72.1 69.7 75.4	en Ber 000 000 000 000 000	VEL 72.5 69.5 75.7
Autos: Medium Trucks: Heavy Trucks: VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	68.46 79.45 84.25 e Levels (with Leq Peak Hou 71 69 70 75 ce to Noise Co	3.65 -9.33 -13.26 out Topo and I rr Leq Day 4.4 6.3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	barrier a Le 88.8 67.5 88.8 73.2	0.46 0.49 0.48 attenu eq Ev	<i>lation)</i> ening 67.9 61.9 57.3 69.2	-1.20 -1.20 -1.20 -1.20 <i>Leq Nig</i>	resnel -4.69 -4.88 -5.34 ht 64.9 62.3 61.6 68.0	Ldn 72.1 69.7 75.4	en Ber. 000 000 000 C/ , , ,	VEL 72.5 69.5 75.7
Autos: Medium Trucks: Heavy Trucks: VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	68.46 79.45 84.25 e Levels (with Leq Peak Hou 71 69 70 75 ce to Noise Co	3.65 -9.33 -13.26 out Topo and I ir Leq Day 4.4 6 .3 6 .2 7 ontour (in feet)	barrier a Le 88.8 77.5 88.8 73.2	0.46 0.49 0.48 attenu eq Ev	<i>uation)</i> ening 67.9 61.9 57.3 69.2 BA	-1.20 -1.20 -1.20 -1.20 <i>Leq Nig</i> 65 dB/	-4.69 -4.88 -5.34 ht 64.9 62.3 61.6 68.0	Ldn 72.1 69.7 75.4 60 dBA	en Ber 1000 100	VEL 72.5 69.5 75.7
Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks: Vehicle Noise: Centerline Distan	68.46 79.45 84.25 e Levels (with Leq Peak Hou 71 69 70 70 75 ce to Noise Co	3.65 -9.33 -13.26 out Topo and I rr Leq Day 4 6 .3 6 .2 7 ontour (in feet)	barrier a k8.8 67.5 88.8 73.2 	0.46 0.49 0.48 attenu eq Ev	<i>uation)</i> ening 67.9 61.9 57.3 69.2 <i>BA</i> 8	-1.20 -1.20 -1.20 -1.20 Leq Nig	-4.69 -4.88 -5.34 ht 64.9 62.3 61.6 68.0	Ldn 72.1 69.7 60 dBA 640	en Ber 1000 100	VEL 72.5 69.9 69.8 75.7 dBA

Thursday, May 02, 2019

	FHV	VA-RD-77-108	HIGH	WAY I	NOISE PI	REDICTIC	ON MC	DEL				
Scenar	io: OY Withou	t Project				Project N	lame:	MCH				
Road Nam	ie: El Prado Re	d.				Job Nu	mber:	10351				
Road Segme	nt: n/o Kimball	Av.										
SITE	SPECIFIC IN	IPUT DATA				NO	DISE	MODE	L INPUT	ſS		
Highway Data					Site Con	ditions (I	Hard =	= 10, So	oft = 15)			
Average Daily	Traffic (Adt):	27,269 vehicle	s					Autos:	15			
Peak Hour	Percentage:	10%			Me	dium Truc	cks (2	Axles):	15			
Peak H	lour Volume:	2,727 vehicles			He	avy Truck	(3+	Axles):	15			
Ve	hicle Speed:	45 mph		-	Vehicle	Mix						
Near/Far La	ne Distance:	36 feet		-	Veh	icleType		Day	Evening	Nig	tht	Daily
Site Data						AL	itos:	66.3%	13.5%	20	.3%	93.40%
Ba	rrier Height:	0.0 feet			M	edium Tru	icks:	77.0%	5.3%	17	.6%	4.70%
Barrier Type (0-W	/all, 1-Berm):	0.0			ŀ	Heavy Tru	icks:	86.3%	1.5%	12	2%	1.90%
Centerline Di	st. to Barrier:	44.0 feet		F	Noise So	ource Ele	vatior	ns (in fe	eet)			-
Centerline Dist.	to Observer:	44.0 feet				Autos:	0	.000	,			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Trucks:	2	.297				
Observer Height ((Above Pad):	5.0 feet			Heav	v Trucks:	8	.004	Grade A	djustn	nent:	0.0
Pa	ad Elevation:	0.0 feet		Ļ								
Roa	ad Elevation:	0.0 feet		Ļ	Lane Eq	uivalent	Distar	ice (in	teet)			
	Road Grade:	0.0%				Autos:	40	.460				
	Left View:	-90.0 degree	S		Mediu	m Trucks:	40	.241				
	Right View:	90.0 degree	S		Heav	y Trucks:	40	.262				
FHWA Noise Mod	el Calculation	s										
VehicleType	REMEL	Traffic Flow	Dist	tance	Finite	Road	Fres	nel	Barrier A	tten	Berr	m Atten
Autos:	68.46	2.22		1.2	8	-1.20		-4.61	0.	.000		0.00
Medium Trucks:	79.45	-10.76		1.3	1	-1.20		-4.87	0.	.000		0.000
Heavy Trucks:	84.25	-14.69		1.3	1	-1.20		-5.50	0.	.000		0.00
Unmitigated Nois	e Levels (with	out Topo and I	barrie	r atter	nuation)							
VehicleType	Leq Peak Hou	ır Leq Day		Leq E	vening	Leq N	light		Ldn		CI	JEL
Autos:	70	.8 6	8.2		67.3		64.	3	71	.5		71.9
Medium Trucks:	68	.8 6	6.9		61.3		61.	7	69	.1		69.3
Heavy Trucks:	69	.7 6	8.2		56.7		61.	0	69	.1		69.
Vehicle Noise:	74	.6 7	2.6		68.6		67.	3	74	.8		75.
Centerline Distan	ce to Noise Co	ontour (in feet)		70	-10.4	05 4	0.4		0.404	_		104
			da	70	aBA	65 d	BA		ADD aBA		- 25	0BA 24
			an:	5	12 De	198	5		428		93	21
		CA	EL:	5	70	20	r		440		91	50

		A-ND-77-100 MIG		NOISE PI	REDICTIC		JEL			
Scenari Road Nam Road Sogmor	o: OY Without e: Euclid Av.	Project			Project N Job Nu	lame: N mber: 1	MCH 10351			
Road Segmen	n. 11/0 wainut /	w.								
SITE S	SPECIFIC INF	PUT DATA		0111 0	NO	DISE N	IODEL		5	
Highway Data				Site Con	ditions (I	Hard =	10, 50	ft = 15)		
Average Daily	Traffic (Adt): 3	34,918 vehicles					Autos:	15		
Peak Hour	Percentage:	10%		Me	dium Truo	cks (2 A	xles):	15		
Peak H	our Volume:	3,492 vehicles		He	avy Truck	(3+ A	xles):	15		
Vel	hicle Speed:	55 mph		Vehicle I	Mix					
Near/Far Lar	ne Distance:	154 feet		Veh	icleType		Day	Evening	Night	Daily
Site Data					A	utos:	66.3%	13.5%	20.3%	93.40%
Bar	rier Height	0.0 feet		Me	edium Tru	icks:	77.0%	5.3%	17.6%	4.70%
Barrier Type (0-W	all, 1-Berm):	0.0		ŀ	Heavy Tru	icks:	86.3%	1.5%	12.2%	1.90%
Centerline Dis	st. to Barrier:	84.0 feet		Noise So	ource Ele	vations	s (in fe	et)		
Centerline Dist. t	to Observer:	84.0 feet			Autos:	0.0	000	.,		
Barrier Distance t	to Observer:	0.0 feet		Mediu	m Trucks:	2.2	97			
Observer Height (Above Pad):	5.0 feet		Heav	v Trucks:	8.0	04	Grade Adj	ustmen	t: 0.0
Pa	ad Elevation:	0.0 feet	_							
Roa	ad Elevation:	0.0 feet	_	Lane Eq	uivalent	Distand	e (in f	eet)		
F	Road Grade:	0.0%			Autos:	33.9	941			
	Left View:	-90.0 degrees		Mediui	m Trucks:	33.6	679			
	Right View:	90.0 degrees		Heav	y Trucks:	33.7	'05			
FHWA Noise Mode	el Calculations									
VehicleType	REMEL	Traffic Flow D	listance	Finite	Road	Fresn	el I	Barrier Atte	en Be	rm Atten
Autos:	71.78	2.42	2.4	2	-1.20		-4.75	0.0	00	0.000
Medium Trucks:	82.40	-10.56	2.4	7	-1.20		-4.88	0.0	00	0.000
Heavy Trucks:	86.40	-14.49	2.4	7	-1.20		-5.21	0.0	00	0.000
Unmitigated Noise	e Levels (witho	ut Topo and barr	rier atter	nuation)	_					
VehicleType	Leq Peak Hour	Leq Day	Leq E	vening	Leq N	light		Ldn	C	NEL
Autos:	75.4	4 72.8		72.0		69.0		76.1		76.6
Medium Trucks:	73.1	1 71.2		65.6		66.0		73.4		73.6
Heavy Trucks:	73.2	2 71.7	,	60.2		64.5		72.6	i	72.7
Vehicle Noise:	78.8	3 76.8	5	73.1		71.7		79.1		79.4
Centerline Distanc	e to Noise Co	ntour (in feet)	70	10.4	05.1					
			70	аВА	65 d	ВА	6	U dBA	55	aBA
		Ldn:	: 34	40	73	2	1	1,577	3	,397
		CNEL:	: 3	55	764	4	1	1,647	3	,548

Thursday, May 02, 2019

	FH\	WA-RD-77-108	BHIGHW	AY NO	ISE P	REDICTI	ON MOI	DEL				
Scenario Road Name Road Segmen	 DY Withou Euclid Av. n/o Riversi 	it Project de Dr.				Project Job Ni	Name: I umber: '	MCH 10351				
SITE S	PECIFIC IN	NPUT DATA				N	OISE N	IODE	L INPUT	s		
Highway Data				Si	te Cor	nditions	(Hard =	10, S	oft = 15)			
Average Daily 1	raffic (Adt):	29,681 vehicl	es					Autos:	15			
Peak Hour F	Percentage:	10%			Me	edium Tru	ıcks (2 A	xles):	15			
Peak Ho	our Volume:	2,968 vehicle	s		He	eavy Truc	:ks (3+ A	(xles)	15			
Veh	icle Speed:	55 mph		Ve	hicle	Mix						
Near/Far Lan	e Distance:	154 feet			Veh	nicleTvpe		Dav	Evening	Niał	nt .	Dailv
Site Data						A	utos:	66.3%	5 13.5%	20.3	3% 9	3.40%
Bari	rier Heiaht:	0.0 feet			М	edium Tr	ucks:	77.0%	5.3%	17.6	5%	4.70%
Barrier Type (0-Wa	all, 1-Berm):	0.0			1	Heavy Tr	ucks:	86.3%	5 1.5%	12.2	2%	1.90%
Centerline Dis	t. to Barrier:	84.0 feet		No	oise Se	ource El	evation	s (in f	eet)			
Centerline Dist. to	o Observer:	84.0 feet				Autos	x 0.0	000				
Barrier Distance to	o Observer:	0.0 feet			Mediu	m Trucks	: 22	97				
Observer Height (A	Above Pad):	5.0 feet			Heav	v Trucks	s: 8.0	004	Grade Adj	iustme	ent: 0	.0
Pa	d Elevation:	0.0 feet		-								
Roa	d Elevation:	0.0 feet		La	ne Eq	uivalent	Distanc	ce (in	feet)			
F	Road Grade:	0.0%				Autos	33.9	941				
	Left View:	-90.0 degre	es		Mediu	m Trucks	s: 33.6	579				
	Right View:	90.0 degre	es		Heav	vy Trucks	33.1	/05				
FHWA Noise Mode	I Calculation	IS										
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresn	el	Barrier Atte	en l	Berm	Atten
Autos:	71.78	1.72		2.42		-1.20		-4.75	0.0	00		0.000
Medium Trucks:	82.40	-11.26		2.47		-1.20		-4.88	0.0	00		0.000
Heavy Trucks:	86.40	-15.20		2.47		-1.20		-5.21	0.0	00		0.000
Unmitigated Noise	Levels (with	out Topo and	barrier	attenua	ation)							
VehicleType	Leq Peak Ho	ur Leq Da	y L	.eq Eve	ning	Leq I	Night		Ldn		CNE	L
Autos:	74	1.7	72.1		71.3		68.3		75.4	Ļ		75.9
Medium Trucks:	72	2.4	70.5		64.9		65.3		72.7	,		72.9
Heavy Trucks:	72	2.5	71.0		59.5		63.8		71.9)		71.9
Vehicle Noise:	78	3.1	76.0		72.4		71.0		78.4			78.7
Centerline Distance	e to Noise C	ontour (in fee	t)									
			L	70 dB	A	65 0	dBA	1	60 dBA		55 dE	3A
		-	Ldn:	305		65	57		1,415		3,04	8
		С	NEL:	318		68	36		1,478		3,18	4

	FHV	/A-RD-77-108	HIGHWA	AY NO	OISE PF	REDICTIO		DEL			
Scenari	o: OY Without	Project				Project I	lame: N	ИСН			
Road Nam	e: Euclid Av.					Job Nu	mber: 1	0351			
Road Segmer	nt: n/o Chino A	ν.									
SITE	SPECIFIC IN	PUT DATA				N	DISE N	IODE	L INPUT	s	
Highway Data				S	ite Con	ditions (Hard =	10, So	oft = 15)		
Average Daily	Traffic (Adt):	29,908 vehicle	s				1	Autos:	15		
Peak Hour	Percentage:	10%			Mee	dium Tru	cks (2 A	xles):	15		
Peak H	our Volume:	2,991 vehicles			Hea	avy Truck	(3+ A	xles):	15		
Vei	hicle Speed:	55 mph		v	ehicle l	Nix					
Near/Far Lai	ne Distance:	154 feet		-	Vehi	cleTvpe		Dav	Evenina	Niaht	Dailv
Site Data						A	utos:	66.3%	13.5%	20.3%	93.40%
Bar	rior Hoight	0.0 feet			Me	dium Tru	icks:	77.0%	5.3%	17.6%	4.70%
Barrier Type (0-W	all 1-Rerm)	0.0			F	leavy Tru	icks:	86.3%	1.5%	12.2%	1.90%
Centerline Dis	at, to Barrier:	84.0 feet		-							
Centerline Dist.	to Observer:	84.0 feet		N	loise Sc	ource Ele	vations	s (in fe	eet)		
Barrier Distance	to Observer:	0.0 feet				Autos.	0.0	000			
Observer Height (.	Above Pad):	5.0 feet			Mediur	n Trucks.	2.2	97	Grado Ad	iustmont	
Pa	d Elevation:	0.0 feet			Heav	y Trucks.	8.0	104	Graue Au	usuneni	0.0
Roa	d Elevation:	0.0 feet		L	ane Equ	uivalent	Distand	e (in :	feet)		
ŀ	Road Grade:	0.0%				Autos.	33.9	941			
	Left View:	-90.0 degree	S		Mediur	n Trucks.	33.6	679			
	Right View:	90.0 degree	5		Heav	y Trucks.	33.7	705			
FHWA Noise Mode	el Calculations	5									
VehicleType	REMEL	Traffic Flow	Distan	се	Finite	Road	Fresn	el	Barrier Att	en Ber	m Atten
Autos:	71.78	1.75		2.42		-1.20		-4.75	0.0	000	0.000
Medium Trucks:	82.40	-11.23		2.47		-1.20		4.88	0.0	000	0.000
Heavy Trucks:	86.40	-15.16		2.47		-1.20		-5.21	0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and L	arrier a	ttenu	uation)						
VehicleType	Leq Peak Hou	r Leq Day	Le	eq Ev	ening	Leq N	light		Ldn	CI	VEL
Autos:	74.	8 7	2.2		71.3		68.3		75.5	5	75.9
Medium Trucks:	72.	4 7	0.5		64.9		65.4		72.8	3	73.0
Heavy Trucks:	72.	5 7	1.1		59.5		63.8		71.9	9	72.0
Vehicle Noise:	78.	1 7	6.1		72.4		71.0		78.4	1	78.7
Oranta dina Distant	e to Noise Co	ntour (in feet)									
Centerline Distance				70 -1	04	CE d	DA	F F	O dRA	55	dBA
Centerline Distanc				70 al	BA	05 U	DA	, c	IC UDA	00	abri
Centerline Distanc		L	.dn:	306	ВА 6	66	0		1,422	3,	063

Thursday, May 02, 2019

	FHV	VA-RD-77-108 H	IGHW	AY N	IOISE PI	REDICT	ION MO	DDEL				
Scenar Road Nar Road Segme	io: OY Without ne: Euclid Av. nt: n/o Schaefe	t Project er Av.				Project Job N	Name: lumber:	MCH 10351				
SITE	SPECIFIC IN	IPUT DATA				Ν	IOISE	MODE	L INP	UTS		
Highway Data				4	Site Con	ditions	(Hard :	= 10, S	oft = 15)		
Average Daily Peak Hour	Traffic (Adt): Percentage:	32,723 vehicles 10%			Me	dium Tr	ucks (2	Autos: Axles):	15 15			
Peak H	lour Volume:	3,272 vehicles			He	avy Tru	cks (3+	Axles):	15			
Ve	hicle Speed:	55 mph			Vehicle	Mix						
Near/Far La	ne Distance:	154 feet			Veh	icleType	;	Day	Evenii	ng N	light	Daily
Site Data							Autos:	66.3%	5 13.5	5% 2	20.3%	93.40%
Ba	rrier Height	0.0 feet			M	edium T	rucks:	77.0%	5.3	1%	7.6%	4.70%
Barrier Type (0-N	/all, 1-Berm):	0.0			ŀ	leavy T	rucks:	86.3%	5 1.5	5% 1	12.2%	1.90%
Centerline Di	st. to Barrier:	84.0 feet			Noise So	ource E	levatio	ns (in f	eet)			
Centerline Dist.	to Observer:	84.0 feet		H		Auto	s' 0	000	001/			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Truck	s. 2	297				
Observer Height	(Above Pad):	5.0 feet			Hoo	n Truck	о. 2 с я	004	Grade	Adius	tment	.00
P	ad Elevation:	0.0 feet		L	near	y much	3. 0	.004	0/440	7 tajao	anom	. 0.0
Ro	ad Elevation:	0.0 feet		1	Lane Eq	uivalen	t Distaı	nce (in	feet)			
	Road Grade:	0.0%				Auto	s: 33	1.941				
	Left View:	-90.0 degrees			Mediu	m Truck	s: 33	679				
	Right View:	90.0 degrees			Heav	y Truck	s: 33	8.705				
FHWA Noise Mod	el Calculation	s		_								
VehicleType	REMEL	Traffic Flow	Distar	се	Finite	Road	Fres	inel	Barrier	Atten	Ber	m Atten
Autos:	71.78	2.14		2.42	2	-1.20		-4.75		0.000)	0.00
Medium Trucks:	82.40	-10.84		2.4	7	-1.20		-4.88		0.000)	0.00
Heavy Trucks:	86.40	-14.77		2.4	7	-1.20		-5.21		0.000)	0.00
Unmitigated Nois	e Levels (with	out Topo and b	arrier a	atten	uation)							
VehicleType	Leq Peak Hou	ir Leq Day	Le	eq Ei	vening	Leq	Night		Ldn		C	NEL
Autos:	75	.1 72	2.6		71.7		68	.7	1	75.9		76.3
Medium Trucks:	72	.8 70).9		65.3		65	.7	1	73.2		73.3
Heavy Trucks:	72	.9 7'	.5		59.9		64	.2		72.3		72.4
Vehicle Noise:	78	.5 76	6.5		72.8		71	.4		78.8		79.
Centerline Distan	ce to Noise Co	ontour (in feet)										
				70 0	dBA	65	dBA	1	60 dBA		55	dBA
		Le	dn:	32	25	7	01		1,510		3,	253
		CNE	L:	34	10	7	32		1,577		3,	398

	FH\	VA-RD-77-108	HIGH	NAY N	OISE PF	REDICTI	ON MC	DEL			
Scenar	io: OY Withou	t Project				Project	Name:	MCH			
Road Nam	e: Euclid Av.					Job Ni	umber:	10351			
Road Segme	nt: n/o Edison	Av.									
SITE	SPECIFIC IN	IPUT DATA				N	OISE	MODE	L INPUT	'S	
Highway Data				5	Site Con	ditions ((Hard =	: 10, S	oft = 15)		
Average Daily	Traffic (Adt):	35,053 vehicle	es					Autos:	15		
Peak Hour	Percentage:	10%			Mee	dium Tru	cks (2	Axles):	15		
Peak H	lour Volume:	3,505 vehicles	S		Hea	avy Truc	ks (3+ .	Axles):	15		
Ve	hicle Speed:	55 mph		1	Vehicle I	Nix					
Near/Far La	ne Distance:	154 feet		F	Vehi	cleType		Day	Evening	Night	Daily
Site Data						A	utos:	66.3%	13.5%	20.3%	6 93.40%
Ba	rrier Height	0.0 feet			Me	dium Tr	ucks:	77.0%	5.3%	17.6%	6 4.70%
Barrier Type (0-W	/all, 1-Berm):	0.0			F	leavy Tr	ucks:	86.3%	5 1.5%	12.2%	5 1.90%
Centerline Dis	st. to Barrier:	84.0 feet			Noise Sc	urce Ek	avation	ne (in f	oot)		
Centerline Dist.	to Observer:	84.0 feet		-	10/30 00	Autos	. 0	000			
Barrier Distance	to Observer:	0.0 feet			Modiur	n Trucks	. 0.	207			
Observer Height (Above Pad):	5.0 feet			Hoov	v Trucks	. 2.	004	Grade Ar	liustmon	t· 0.0
Pa	ad Elevation:	0.0 feet			neuv	y mucho	. 0.	004	0/440/10	juounon	0.0
Roa	ad Elevation:	0.0 feet		L	Lane Equ	uivalent	Distan	ce (in	feet)		
	Road Grade:	0.0%				Autos	: 33	.941			
	Left View:	-90.0 degree	es		Mediur	n Trucks	: 33	.679			
	Right View:	90.0 degree	es		Heav	y Trucks	: 33	.705			
FHWA Noise Mod	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Dist	ance	Finite	Road	Fres	nel	Barrier At	ten Be	rm Atten
Autos:	71.78	2.44		2.42	2	-1.20		-4.75	0.	000	0.000
Medium Trucks:	82.40	-10.54		2.47	7	-1.20		-4.88	0.	000	0.000
Heavy Trucks:	86.40	-14.47		2.47	7	-1.20		-5.21	0.	000	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrie	r atten	uation)						
VehicleType	Leq Peak Hou	ır Leq Day	'	Leq Ev	/ening	Leq I	Vight		Ldn	C	NEL
Autos:	75	.4	72.9		72.0		69.	0	76.	2	76.6
Medium Trucks:	73	.1	71.2		65.6		66.	0	73.	5	73.6
Heavy Trucks:	73	.2	71.8		60.2		64.	5	72.	.6	72.7
Vehicle Noise:	78	.8	76.8		73.1		71.	7	79.	1	79.4
Centerline Distant	ce to Noise Co	ontour (in feet)								
				70 a	1BA	65 c	1BA	(60 dBA	55	5 dBA
			Ldn:	34	1	73	4		1,581	3	,405
		CI	VEL:	35	6	76	6		1,651	3	,557

Thursday, May 02, 2019

	FHW	/A-RD-77-108 HI	GHWAY	NOISE P	REDICTIO	N MODEI	-	
Scenario Road Name Road Segmen	 DY Without Euclid Av. n/o Eucalyp 	Project tus Av.			Project Na Job Nurr	ame: MC nber: 103	H 51	
SITE S	PECIFIC IN	PUT DATA			NO	ISE MO	DEL INPUT	S
Highway Data				Site Cor	nditions (H	ard = 10,	Soft = 15)	
Average Daily T	raffic (Adt):	32,935 vehicles				Aut	os: 15	
Peak Hour F	Percentage:	10%		Me	edium Truck	s (2 Axle	s): 15	
Peak Ho	our Volume:	3,294 vehicles		He	eavy Trucks	(3+ Axle	s): 15	
Veh	icle Speed:	55 mph		Vehicle	Mix			
Near/Far Lan	e Distance:	154 feet		Veh	nicleType	Da	/ Evenina	Night Daily
Site Data					Aut	os: 66.	3% 13.5%	20.3% 93.40%
Barr	rior Hoiaht:	0.0 feet		M	ledium Truc	ks: 77.	0% 5.3%	17.6% 4.70%
Barrier Type (0-Wa	all 1-Berm):	0.0			Heavy Truc	ks: 86.	3% 1.5%	12.2% 1.90%
Centerline Dist	t. to Barrier:	84.0 feet		Noise O			- (1)	
Centerline Dist. to	o Observer:	84.0 feet		Noise S	ource Elev	ations (II	1 teet)	
Barrier Distance to	o Observer:	0.0 feet		1 4 m - 15 m	Autos:	0.000		
Observer Height (A	bove Pad):	5.0 feet		Wealu	m Trucks:	2.297	Grada Ad	iustmont: 0.0
Pa	d Elevation:	0.0 feet		неа	vy Trucks:	8.004	Grade Au	usiment. 0.0
Road	d Elevation:	0.0 feet		Lane Eq	uivalent D	istance (in feet)	
R	oad Grade:	0.0%			Autos:	33.941		
	Left View:	-90.0 degrees		Mediu	m Trucks:	33.679		
	Right View:	90.0 degrees		Hea	vy Trucks:	33.705		
FHWA Noise Mode	I Calculations	5						
VehicleType	REMEL	Traffic Flow	Distance	Finite	Road	Fresnel	Barrier Att	en Berm Atten
Autos:	71.78	2.17	2.	42	-1.20	-4.1	75 0.0	000 0.000
Medium Trucks:	82.40	-10.81	2.	47	-1.20	-4.8	38 0.0	000 0.000
Heavy Trucks:	86.40	-14.74	2.	47	-1.20	-5.2	21 0.0	000 0.000
Unmitigated Noise	Levels (witho	out Topo and ba	rrier atte	enuation)				
VehicleType	Leq Peak Hou	r Leq Day	Leq	Evening	Leq Nig	ght	Ldn	CNEL
Autos:	75.	2 72.	.6	71.7		68.7	75.9	9 76.3
Medium Trucks:	72.	9 70.	9	65.3		65.8	73.2	2 73.4
Heavy Trucks:	72.	9 71.	.5	59.9		64.2	72.3	3 72.4
Vehicle Noise:	78.	6 76.	.5	72.8		71.4	78.8	3 79.1
Centerline Distance	e to Noise Co	ntour (in feet)						
			70) dBA	65 dB	A	60 dBA	55 dBA
		Ldi	n: :	527	704		1,516	3,267
		CNEI	L: (541	735		1,584	3,412

	FHV	VA-RD-77-108	HIGHV	VAY	IOISE PI	REDICTIC	N MOD				
Scenar	io: OY Without	Project				Project N	lame: M	СН			
Road Nam	ne: Euclid Av.	-				Job Nu	mber: 10	351			
Road Segme	nt: n/o Merrill A	Av.									
SITE	SPECIFIC IN	IPUT DATA				NC	DISE M	DDE		S	
Highway Data					Site Con	ditions (I	lard = 1	0, So	ft = 15)		
Average Daily	Traffic (Adt):	36,593 vehicle	es				A	itos:	15		
Peak Hour	Percentage:	10%			Me	dium Truc	ks (2 Ax	les):	15		
Peak H	lour Volume:	3,659 vehicle	s		He	avy Truck	s (3+ Ax	les):	15		
Ve	hicle Speed:	55 mph			Vehicle	Mix					
Near/Far La	ne Distance:	154 feet			Veh	icleType	D	ay	Evening	Night	Daily
Site Data						AL	itos: 6	5.3%	13.5%	20.3%	93.40%
Ba	rrier Height	0.0 feet			Me	edium Tru	cks: 7	7.0%	5.3%	17.6%	4.70%
Barrier Type (0-W	/all. 1-Berm):	0.0			ŀ	leavy Tru	cks: 8	5.3%	1.5%	12.2%	1.90%
Centerline Di	st. to Barrier:	84.0 feet		H	Noice Cr	uree Ele	votiono	(in fe	a4)		
Centerline Dist.	to Observer:	84.0 feet		Ľ	NOISe St	Autor	vauons		el)		
Barrier Distance	to Observer:	0.0 feet			14-16-1	Autos:	0.00	0			
Observer Height	(Above Pad):	5.0 feet			ivieaiui	TI Trucks:	2.28	4	Grada Ad	iustmont	
P	ad Elevation:	0.0 feet			Heav	y Trucks:	8.00	4	Grade Auj	usuneni	0.0
Ro	ad Elevation:	0.0 feet		1	Lane Eq	uivalent l	Distance	(in f	eet)		
	Road Grade:	0.0%				Autos:	33.94	1			
	Left View:	-90.0 degree	es		Mediu	m Trucks:	33.67	'9			
	Right View:	90.0 degree	es		Heav	y Trucks:	33.70	15			
FHWA Noise Mod	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresne		Barrier Att	en Ber	m Atten
Autos:	71.78	2.63		2.4	2	-1.20	-4	1.75	0.0	000	0.000
Medium Trucks:	82.40	-10.35		2.4	7	-1.20	-4	1.88	0.0	000	0.000
Heavy Trucks:	86.40	-14.29		2.4	7	-1.20	-8	5.21	0.0	000	0.000
Unmitigated Nois	e Levels (with	out Topo and	barrier	atten	nuation)						
VehicleType	Leq Peak Hou	ir Leq Day	/ 1	Leq E	vening	Leq N	ight		Ldn	CI	VEL
Autos:	75.	.6	73.1		72.2		69.2		76.3	3	76.8
Medium Trucks:	73.	.3	71.4		65.8		66.2		73.6	6	73.8
Heavy Trucks:	73.	.4	71.9		60.4		64.7		72.8	3	72.9
Vehicle Noise:	79	.0	77.0		73.3		71.9		79.3	3	79.6
		ntour (in foot)								
Centerline Distan	ce to Noise Co	intour (in reet	<u> </u>								
Centerline Distan	ce to Noise Co	mour (mileer	L	70 d	dBA	65 di	BA	6	0 dBA	55	dBA
Centerline Distan	ce to Noise Co	intour (in reet	Ldn:	70 d 35	dBA 50	65 di 755	BA 5	6	0 dBA 1,627	55 3,	<i>dBA</i> 504

Thursday, May 02, 2019

	FHV	A-RD-77-108	HIGH	WAY I	NOISE PI	REDICT	ION MO	DDEL				
Scenar Road Narr Road Segme	rio: OY Without ne: Euclid Av. nt: s/o Merrill A	Project			Project Name: MCH Job Number: 10351							
SITE	SPECIFIC IN	PUT DATA				N	IOISE	MODE	L INPUT	S		
Highway Data					Site Cor	nditions	(Hard :	= 10, Se	oft = 15)			
Average Daily Peak Hour Peak H	Traffic (Adt): Percentage: lour Volume:	34,987 vehicle 10% 3,499 vehicles	s		Me He	dium Tr avy Tru	ucks (2 cks (3+	Autos: Axles): Axles):	15 15 15			
Ve	hicle Speed:	55 mph		F	Vehicle	Mix					-	
Near/Far La	ne Distance:	154 feet		F	Veh	icleType	,	Day	Evening	Nigh	t Daily	
Site Data							Autos:	66.3%	13.5%	20.3	93.40%	
Pa	rrior Hoight:	0.0 foot			М	edium T	rucks:	77.0%	5.3%	17.6	5% 4.70%	
Barrier Type (0-W	Vall, 1-Berm):	0.0			1	Heavy T	rucks:	86.3%	1.5%	12.2	% 1.90%	
Centerline Di	ist. to Barrier:	84.0 feet		F	Noise S	ource E	levatio	ns (in f	eet)			
Centerline Dist.	to Observer:	84.0 feet		F		Auto	s [.] 0	000			-	
Barrier Distance	to Observer:	0.0 feet			Mediu	m Truck	s: 2	297				
Observer Height	(Above Pad):	5.0 feet			Heat	N Truck	s 8	004	Grade Ad	liustme	ent: 0.0	
P	ad Elevation:	0.0 feet		L	mour	.y 11401	0. 0			.,		
Ro	ad Elevation:	0.0 feet			Lane Eq	uivalen	t Distai	nce (in	feet)			
	Road Grade:	0.0%				Auto	s: 33	.941				
	Left View:	-90.0 degree	s		Mediu	m Truck	s: 33	.679				
	Right View:	90.0 degree	s		Heav	/y Truck	s: 33	.705				
FHWA Noise Mod	el Calculation:	S										
VehicleType	REMEL	Traffic Flow	Dis	stance	Finite	Road	Fres	nel	Barrier At	ten E	3erm Atten	
Autos:	71.78	2.43		2.4	2	-1.20		-4.75	0.	000	0.00	
Medium Trucks:	82.40	-10.55		2.4	7	-1.20		-4.88	0.	000	0.00	
Heavy Trucks:	86.40	-14.48		2.4	7	-1.20		-5.21	0.	000	0.00	
Unmitigated Nois	e Levels (with	out Topo and I	barrie	er atter	nuation)							
VehicleType	Leq Peak Hou	r Leq Day		Leq E	vening	Leq	Night		Ldn		CNEL	
Autos:	75.	.4 7	2.9		72.0		69	0	76.	1	76.	
Medium Trucks:	73.	.1 7	1.2		65.6		66	0	73.	4	73.	
Heavy Trucks:	73.	2 7	'1.7		60.2		64	5	72.	6	72.	
Vehicle Noise:	78	.8 7	6.8		73.1		71	7	79.	.1	79.	
Centerline Distan	ce to Noise Co	ontour (in feet)										
			ĻL	70	dBA	65	dBA	0	50 dBA		55 dBA	
		L	.dn:	3	40	7	33		1,579		3,401	
		CN	IEL:	3	55	7	65		1,649		3,553	

	FHV	VA-RD-77-108	HIGHW	AY NO	DISE PF	REDICTI		DEL				
Scenar	io: OY Without	Project				Project I	Name:	MCH				
Road Nam	e: Euclid Av.	,				Job NL	umber:	10351				
Road Segme	nt: n/o Kimball	Av.										
SITE	SPECIFIC IN	PUT DATA				N	OISE	MODE	L INPU	TS		
Highway Data				S	ite Con	ditions ((Hard =	= 10, S	oft = 15)			
Average Daily	Traffic (Adt):	34,574 vehicle	s					Autos:	15			
Peak Hour	Percentage:	10%			Mee	dium Tru	icks (2	Axles).	15			
Peak H	lour Volume:	3,457 vehicles			Hea	avy Truc	ks (3+	Axles).	15			
Ve	hicle Speed:	55 mph		V	ehicle I	Nix						
Near/Far La	ne Distance:	154 feet		Ē	Vehi	cleType		Day	Evening	Nig	ght	Daily
Site Data						A	utos:	66.3%	6 13.5%	6 20).3%	93.40%
Ba	rrier Height	0.0 feet			Me	edium Tri	ucks:	77.0%	5.3%	6 17	6%	4.70%
Barrier Type (0-W	/all, 1-Berm):	0.0			H	leavy Tri	ucks:	86.3%	5 1.5%	i 12	2.2%	1.90%
Centerline Di	st. to Barrier:	84.0 feet		N	oise So	urce Ele	evatio	ns (in f	eet)			
Centerline Dist.	to Observer:	84.0 feet				Autos	: 0	.000	,			
Barrier Distance	to Observer:	0.0 feet			Mediur	n Trucks	: 2	.297				
Observer Height	Above Pad):	5.0 feet			Heav	y Trucks	: 8	.004	Grade A	djustr	ment:	0.0
Pa	ad Elevation:	0.0 feet					Distas		6			
Roi	ad Elevation:	0.0 feet		L	ane Equ	livalent	Distar	ice (in	teet)			
	Road Grade:	0.0%				Autos	: 33	.941				
	Left View:	-90.0 degree	s		Mediur	n Trucks	: 33	.679				
	Right View:	90.0 degree	S		Heav	y Trucks	: 33	.705				
FHWA Noise Mod	el Calculation	S									-	
VehicleType	REMEL	Traffic Flow	Distar	nce	Finite	Road	Fres	nel	Barrier A	tten	Berr	n Atten
Autos:	71.78	2.38		2.42		-1.20		-4.75	0	0.000		0.000
Medium Trucks:	82.40	-10.60		2.47		-1.20		-4.88	0	0.000		0.000
Heavy Trucks:	86.40	-14.53		2.47		-1.20		-5.21	0	0.000		0.000
Unmitigated Noise	e Levels (with	out Topo and I	barrier a	attenu	ation)							
VehicleType	Leq Peak Hou	r Leq Day	L	eq Eve	ening	Leq I	Vight		Ldn		C٨	IEL
Autos:	75	.4 7	2.8		71.9		68.	9	76	i.1		76.5
Medium Trucks:	73	.1 7	71.1		65.5		66.	0	73	.4		73.6
Heavy Trucks:	73	.1 7	1.7		60.1		64.	4	72	.5		72.6
Vehicle Noise:	78	.8 7	76.7		73.0		71.	6	79).1		79.3
Centerline Distan	ce to Noise Co	ontour (in feet)										
				70 dl	BA	65 c	1BA		60 dBA		55 (dBA
			dn:	337	r	72	27		1,566		3,3	74
		CA	IEL:	352	<u>'</u>	75	9		1,636		3,5	25

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	FH	WA-RD-77-108	HIGH	NAY NO	ISE P	REDICTIC	N MOD	EL			
Scenario Road Name Road Segmen	 DY Withou Euclid Av. n/o Bickmodel 	it Project pre Av.				Project N Job Nui	lame: M nber: 10	ICH 0351			
SITE S	PECIFIC IN	NPUT DATA				NC	DISE M	ODEL	INPUTS	5	
Highway Data				Si	te Cor	ditions (F	lard = 1	0, Soft	= 15)		
Average Daily 1	raffic (Adt):	22,353 vehicl	es				A	utos:	15		
Peak Hour F	Percentage:	10%			Me	dium Truc	ks (2 Ax	des):	15		
Peak Ho	our Volume:	2,235 vehicle	s		He	avy Truck	s (3+ Ax	des):	15		
Veh	icle Speed:	55 mph		Ve	hicle	Mix					
Near/Far Lan	e Distance:	154 feet			Veh	icleType	D	av F	venina	Niaht	Dailv
Site Data						AL	itos: 6	6.3%	13.5%	20.3%	93.40%
Barr	rier Heiaht:	0.0 feet			М	edium Tru	cks: 7	7.0%	5.3%	17.6%	4.70%
Barrier Type (0-Wa	all, 1-Berm):	0.0			1	Heavy Tru	cks: 8	6.3%	1.5%	12.2%	1.90%
Centerline Dis	t. to Barrier:	84.0 feet		N	nise Si	ource Ele	vations	(in fee	<i>t</i>)		
Centerline Dist. to	o Observer:	84.0 feet				Autos:	0.00	0	9		
Barrier Distance to	o Observer:	0.0 feet			Mediu	m Trucks:	2.20	97			
Observer Height (A	Above Pad):	5.0 feet			Heav	v Trucks:	8.00)4 G	rade Adj	ustment	: 0.0
Pa	d Elevation:	0.0 feet									
Roa	d Elevation:	0.0 feet		Lá	ne Eq	uivalent L	Distance	e (in fee	et)		
R	Road Grade:	0.0%				Autos:	33.94	41			
	Left View:	-90.0 degre	es		Mediu	m Trucks:	33.67	79			
	Right View:	90.0 degre	es		Heat	ly Trucks:	33.70	J5			
FHWA Noise Mode	I Calculation	IS									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresne	I Ba	arrier Atte	en Bei	rm Atten
Autos:	71.78	0.49		2.42		-1.20	-4	4.75	0.0	00	0.000
Medium Trucks:	82.40	-12.49		2.47		-1.20	-4	4.88	0.0	00	0.000
Heavy Trucks:	86.40	-16.43		2.47		-1.20	-8	5.21	0.0	00	0.000
Unmitigated Noise	Levels (with	out Topo and	barrier	r attenua	ation)						
VehicleType	Leq Peak Ho	ur Leq Da	/ .	Leq Eve	ning	Leq N	ight	L	dn	С	NEL
Autos:	73	3.5	70.9		70.0		67.0		74.2		74.6
Medium Trucks:	71	.2	69.3		63.7		64.1		71.5		71.7
Heavy Trucks:	71	.2	69.8		58.2		62.6		70.7		70.7
Vehicle Noise:	76	3.9	74.8		71.1		69.7		77.2		77.4
Centerline Distance	e to Noise C	ontour (in fee	t)								
				70 dE	A	65 dl	BA	60	dBA	55	dBA
			Ldn:	252		544	Ļ	1,	171	2	523
		С	NEL:	264		568	3	1,2	223	2	635

	FHV	VA-RD-77-108 H	IGHWA	Y NO	OISE PF	REDICTIO	ом ис	DEL			
Scenar	io: OY Without	Project				Project I	Vame:	мсн			
Road Nam	e: Archibald A	v.				Job Nu	mber:	10351			
Road Segme	nt: n/o Limonite	e Av.									
SITE	SPECIFIC IN	PUT DATA				N	DISE N	/ODE		s	
Highway Data				S	ite Con	ditions (Hard =	10, So	oft = 15)		
Average Daily	Traffic (Adt):	29,340 vehicles						Autos:	15		
Peak Hour	Percentage:	10%			Me	dium Tru	cks (2 A	Axles):	15		
Peak H	lour Volume:	2,934 vehicles			He	avy Truci	ks (3+ A	Axles):	15		
Ve	hicle Speed:	55 mph		v	ehicle l	Nix					
Near/Far La	ne Distance:	154 feet		F	Veh	cleTvpe		Dav	Evenina	Niaht	Dailv
Site Data			-			A	utos:	66.3%	13.5%	20.3%	93.40%
Pa	rrior Hoight	0.0 foot		-	Me	edium Tra	icks:	77.0%	5.3%	17.6%	4.70%
Barrier Type (0-W	all 1-Borm)	0.0 1001			F	leavy Tru	icks:	86.3%	1.5%	12.2%	1.90%
Centerline Di	all, 1-berrin). st to Barrier:	84.0 feet				,					
Centerline Dist.	to Observer:	84.0 feet		Ν	loise Sc	ource Ele	evation	s (in f	eet)		
Barrier Distance	to Observer:	0.0 feet				Autos	: 0.0	000			
Observer Height (Above Pad):	5.0 feet			Mediur	n Trucks	: 2.:	297			
Pi	ad Elevation:	0.0 feet			Heav	y Trucks	: 8.0	004	Grade Ad	justment.	0.0
Ro	ad Elevation:	0.0 feet		L	ane Eq	uivalent	Distan	ce (in	feet)		
	Road Grade:	0.0%				Autos	: 33.	941	1		
	Left View:	-90.0 degrees			Mediur	n Trucks	33.	679			
	Right View:	90.0 degrees			Heav	y Trucks	33.	705			
FHWA Noise Mod	el Calculation:	s		_							
VehicleType	REMEL	Traffic Flow	Distanc	æ	Finite	Road	Fresr	nel	Barrier Att	en Ber	m Atten
Autos:	71.78	1.67		2.42		-1.20		-4.75	0.0	000	0.000
Medium Trucks:	82.40	-11.31	:	2.47		-1.20		-4.88	0.0	000	0.000
Heavy Trucks:	86.40	-15.25	:	2.47		-1.20		-5.21	0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and ba	arrier at	tenu	uation)						
VehicleType	Leq Peak Hou	r Leq Day	Leo	g Ev	ening	Leq N	light		Ldn	CI	VEL
Autos:	74.	.7 72	.1		71.2		68.2	2	75.4	1	75.8
Medium Trucks:	72	.4 70	1.4		64.8		65.3	3	72.7	7	72.9
Heavy Trucks:	72	.4 71	.0		59.4		63.7	'	71.8	3	71.9
Vehicle Noise:	78	.1 76	i.0		72.3		70.9)	78.3	3	78.6
Centerline Distant	ce to Noise Co	ontour (in feet)		-							
				70 di	BA	65 a	BA	6	60 dBA	55	dBA
		Lo	in:	302	2	65	2		1,404	3,	024
		CNE	L:	316	6	68	1		1,466	3,	159
Unmitigated Noiss VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distanc	e Levels (with Leq Peak Hou 74. 72 72 78 78 78	out Topo and be r Leg Day 7 7 7 2 4 7 7 4 7 0 4 7 1 7 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Arrier at Led 1 4 0 0	70 di 302	<i>iation)</i> ening 71.2 64.8 59.4 72.3 <i>BA</i> 2 5	Leq N 65 a 65 a	light 68.2 65.3 63.7 70.9 BA 2 1	2	Ldn 75.4 72.7 71.8 78.3 60 dBA 1,404 1,466	Cl 4 7 3 3 3 3 3 3, 3, 3, 3,	<i>dBA</i> 024 159

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	FHV	VA-RD-77-108 I	IIGHW/	AY N	IOISE PI	REDICTI	ON MO	DDEL			
Scenari Road Nam Road Segmer	o: OY Withou e: Archibald A nt: s/o Limonit	t Project .v. e Av.		Project Name: MCH Job Number: 10351							
SITE	SPECIFIC IN	IPUT DATA				N	OISE	MODE	L INPU	٢S	
Highway Data				5	Site Con	ditions	Hard	= 10, S	oft = 15)		
Average Daily Peak Hour	Traffic (Adt): Percentage:	27,324 vehicle 10%	3		Me	dium Tru	cks (2	Autos: Axles):	15 15		
reak n	our voiume.	2,732 verticies			110	avy muc	ns (3+	AXIES).	15		
Ve Near/Far I a	nicie Speea: ne Distance:	45 mpn 78 feet		۱	Vehicle	Mix			1		
Site Date				_	Ven	icie i ype	14001	Day	Evening	Nign	t Daily
Sile Dala						A odium Tr	ulos.	77.0%	5 13.3%	17.6	% 93.40%
Bar Barrier Type (0-W	rier Height:	0.0 feet			ŀ	Heavy Tr	ucks:	86.3%	5 0.5% 5 1.5%	12.2	% 1.90%
Centerline Dis	st. to Barrier:	76.0 feet		-	N-/ 0				4)		
Centerline Dist.	to Observer:	76.0 feet			voise so	ource El	evatio	ns (in t	eet)		
Barrier Distance	to Observer:	0.0 feet			14-16-1	Autos	: u	.000			
Observer Height (Above Pad):	5.0 feet			Hear	Trucks	. 2		Grada A	divotma	nt: 0.0
Pa	ad Elevation:	0.0 feet			neav	y mucks	. 0	.004	Graue A	ujusune	<i>m.</i> 0.0
Roa	ad Elevation:	0.0 feet		L	Lane Eq	uivalent	Dista	nce (in	feet)		
I	Road Grade:	0.0%				Autos	: 65	6.422			
	Left View:	-90.0 degree	6		Mediu	m Trucks	: 65	5.286			
	Right View:	90.0 degree	6		Heav	ry Trucks	: 65	6.299			
FHWA Noise Mode	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Distan	се	Finite	Road	Fres	nel	Barrier A	tten E	Berm Atten
Autos:	68.46	2.23		-1.85	5	-1.20		-4.73	0	.000	0.00
Medium Trucks:	79.45	-10.75		-1.84	4	-1.20		-4.88	0	.000	0.00
Heavy Trucks:	84.25	-14.68		-1.84	4	-1.20		-5.25	0	.000	0.00
Unmitigated Noise	e Levels (with	out Topo and L	arrier a	tten	uation)						
VehicleType	Leq Peak Hou	ır Leq Day	Le	eq Ev	/ening	Leq I	Vight		Ldn		CNEL
Autos:	67	.6 6	5.1		64.2		61	.2	68	.4	68.
Medium Trucks:	65	.7 6	3.7		58.1		58	.6	66	.0	66.
Heavy Trucks:	66	.5 6	5.1		53.5		57	.8	65	.9	66.
Vehicle Noise:	71	.5 6	9.4		65.4		64	.2	71	.7	72.
		ontour (in foot)									
Centerline Distance	e to Noise Co	mour (mileer)									
Centerline Distance	e to Noise Co	nitour (in leet)		70 a	'BA	65 0	<i>iBA</i>		60 dBA		55 dBA
Centerline Distance	ce to Noise Co	L	dn:	70 a 98	1BA 8	65 d 21	IBA 2	1	60 dBA 457		984

	FH\	VA-RD-77-108	HIGHWA	AY NC	ISE PF	REDICTIO	ON MC	DEL				
Scenar	io: OY Withou	t Project				Project I	Name:	MCH				
Road Nam	e: Archibald A	w.				Job Nu	imber:	10351				
Road Segme	nt: s/o Schleis	man Rd.										
SITE	SPECIFIC IN	IPUT DATA				N	OISE	MODE	L INP	UTS		
Highway Data				Si	te Con	ditions ('Hard =	= 10, S	oft = 15	<i>i)</i>		
Average Daily	Traffic (Adt):	24,024 vehicle	s					Autos:	15			
Peak Hour	Percentage:	10%			Me	dium Tru	cks (2	Axles).	15			
Peak H	lour Volume:	2,402 vehicles			He	avy Truci	ks (3+	Axles).	15			
Ve	hicle Speed:	45 mph		Ve	hicle l	Mix						
Near/Far La	ne Distance:	78 feet			Veh	icleTvpe		Dav	Eveni	na N	iaht	Dailv
Site Data						A	utos:	66.3%	6 13.5	5% 2	0.3%	93.40%
Ba	rrier Height:	0.0 feet			Me	edium Tru	ucks:	77.0%	5.3	3% 1	7.6%	4.70%
Barrier Type (0-W	all. 1-Berm):	0.0			ŀ	leavy Tru	ucks:	86.3%	5 1.5	5% 1	2.2%	1.90%
Centerline Dis	st. to Barrier:	76.0 feet		N	nico Sc	urco Ek	watio	ne (in f	ioof)			
Centerline Dist.	to Observer:	76.0 feet		740	JI3E 30		· 0	000	eei)			
Barrier Distance	to Observer:	0.0 feet			Modiur	n Trucks	. 0	207				
Observer Height (Above Pad):	5.0 feet			Hoav	v Trucks	. 2. . g	004	Grade	Adius	tment [.]	0.0
Pa	ad Elevation:	0.0 feet			neuv	y mucho	. 0	.004	0/440	7 lajuol	amont.	0.0
Roa	ad Elevation:	0.0 feet		Lé	ne Eq	uivalent	Distar	ice (in	feet)			
1	Road Grade:	0.0%				Autos	: 65	.422				
	Left View:	-90.0 degree	s		Mediur	n Trucks	: 65	.286				
	Right View:	90.0 degree	s		Heav	y Trucks	: 65	.299				
FHWA Noise Mod	el Calculation	s										
VehicleType	REMEL	Traffic Flow	Distan	се	Finite	Road	Fres	nel	Barrier	Atten	Beri	m Atten
Autos:	68.46	1.67		1.85		-1.20		-4.73		0.000	1	0.000
Medium Trucks:	79.45	-11.31		1.84		-1.20		-4.88		0.000)	0.000
Heavy Trucks:	84.25	-15.24		1.84		-1.20		-5.25		0.000	1	0.000
Unmitigated Noise	e Levels (with	out Topo and L	oarrier a	ttenu	ation)							
VehicleType	Leq Peak Hou	Ir Leq Day	Le	q Eve	ning	Leq N	Vight		Ldn		CI	VEL
Autos:	67	.1 6	4.5		63.6		60.	6		67.8	-	68.2
Medium Trucks:	65	.1 6	3.2		57.6		58.	0		65.4		65.6
Heavy Trucks:	66	.0 6	4.5		53.0		57.	3		65.4		65.4
Vehicle Noise:	70	.9 6	8.9		64.9		63.	7		71.1		71.4
Centerline Distant	ce to Noise Co	ontour (in feet)								-		-
				70 dE	BA	65 a	IBA		60 dBA		55	dBA
		L	dn:	90		19	5		419		9	03
		CN	EL:	94		20	3		437		9	41

Thursday, May 02, 2019

	FH	WA-RD-77-108	BHIGHW	AY NO	ISE P	REDICTI	ON MOD	DEL			
Scenario Road Name Road Segmen	 b: OY Withou c: Kimball Av t: w/o Mounta 	it Project ain Av.				Project I Job Nu	Vame: N Imber: 1	ИСН 0351			
SITE S	PECIFIC IN	NPUT DATA				N	OISE M	IODE	L INPUTS	5	
Highway Data				Si	te Cor	nditions (Hard =	10, Sc	oft = 15)		
Average Daily T	raffic (Adt):	21,661 vehicl	es				A	lutos:	15		
Peak Hour F	Percentage:	10%			Me	edium Tru	cks (2 A	xles):	15		
Peak Ho	our Volume:	2,166 vehicle	s		He	avy Truc	ks (3+ A	xles):	15		
Veh	icle Speed:	50 mph		Ve	hiclo	Mix					
Near/Far Lan	e Distance:	36 feet			Veh	nicleType	1	Dav	Evenina	Niaht	Dailv
Site Data						A	utos: 6	36.3%	13.5%	20.3	% 93.40%
Barr	rier Heiaht:	0.0 feet			М	edium Tru	ucks: 7	77.0%	5.3%	17.6	% 4.70%
Barrier Type (0-Wa	all, 1-Berm):	0.0				Heavy Tri	ucks: 8	36.3%	1.5%	12.2	% 1.90%
Centerline Dist	t. to Barrier:	44.0 feet		No	oise S	ource Ele	vations	: (in fe	et)		
Centerline Dist. to	o Observer:	44.0 feet				Autos	· 0.0	00			-
Barrier Distance to	o Observer:	0.0 feet			Mediu	m Trucks	2.2	97			
Observer Height (A	Above Pad):	5.0 feet			Hea	v Trucks	: 8.0	04	Grade Adj	ustme	nt: 0.0
Pa	d Elevation:	0.0 feet		-							
Road	d Elevation:	0.0 feet		La	ine Eq	uivalent	Distanc	e (in i	leet)		
R	oad Grade:	0.0%				Autos	: 40.4	60			
	Left View:	-90.0 degre	es		Mediu	m Trucks	: 40.2	41			
	Right View:	90.0 degre	es		Hea	vy Trucks	: 40.2	62			
FHWA Noise Mode	I Calculation	IS									
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresne	el	Barrier Atte	en B	erm Atten
Autos:	70.20	0.77		1.28		-1.20	-	4.61	0.0	00	0.000
Medium Trucks:	81.00	-12.22		1.31		-1.20	-	4.87	0.0	00	0.000
Heavy Trucks:	85.38	-16.15		1.31		-1.20	-	5.50	0.0	00	0.000
Unmitigated Noise	Levels (with	out Topo and	barrier	attenua	ation)						
VehicleType	Leq Peak Ho	ur Leq Da	y L	.eq Eve	ning	Leq I	light		Ldn		CNEL
Autos:	71	.0	68.5		67.6		64.6		71.8		72.2
Medium Trucks:	68	3.9	67.0		61.4		61.8		69.2		69.4
Heavy Trucks:	69	9.3	67.9		56.3		60.7		68.8		68.8
Vehicle Noise:	74	1.6	72.6		68.8		67.4		74.9		75.2
Centerline Distance	e to Noise C	ontour (in fee	t)								
			🖵	70 dB	BA	65 0	IBA	6	i0 dBA	5	5 dBA
			Ldn:	93		20	1		433		932
		С	NEL:	97		21	U		451		973

Scenar	io: OY Withou	t Project				Project N	ame: M	СН			
Road Nam	e: Kimball Av.					Job Nu	nber: 10	351			
Road Segme	nt: w/o Euclid	Av.									
SITE	SPECIFIC IN	IPUT DATA				NC	ISE M	DDE	L INPUTS	6	
Highway Data				S	Site Con	ditions (F	lard = 1	0, Sc	oft = 15)		
Average Daily	Traffic (Adt):	24,434 vehicle	s				Au	itos:	15		
Peak Hour	Percentage:	10%			Med	lium Truc	ks (2 Ax	les):	15		
Peak H	lour Volume:	2,443 vehicles	;		Hea	avy Truck	s (3+ Ax	les):	15		
Ve	hicle Speed:	50 mph		V	/ehicle N	lix					
Near/Far La	ne Distance:	36 feet		F	Vehi	cleTvpe	D	av	Evenina	Niaht	Dailv
Site Data						AL	tos: 6	5.3%	13.5%	20.3%	93.40%
Pa	rrior Hoight:	0.0 foot			Me	dium Tru	cks: 7	7.0%	5.3%	17.6%	4.70%
Barrier Type (0-W	/all 1-Berm)	0.0			h	leavy Tru	cks: 8	5.3%	1.5%	12.2%	1.90%
Centerline Di	st. to Barrier:	44.0 feet		-							
Centerline Dist.	to Observer:	44.0 feet		^	voise So	urce Ele	ations	(in te	eet)		
Barrier Distance	to Observer:	0.0 feet				Autos:	0.00	0			
Observer Height ((Above Pad):	5.0 feet			Mediun	1 I rucks:	2.29		Crada Adi	instrant	
Pa	ad Elevation:	0.0 feet			Heav	/ Trucks:	8.00	4	Grade Adj	usunem.	0.0
Roa	ad Elevation:	0.0 feet		L	ane Equ	ivalent I	Distance	(in	feet)		
	Road Grade:	0.0%				Autos:	40.46	i0			
	Left View:	-90.0 degree	s		Mediun	n Trucks:	40.24	1			
	Right View:	90.0 degree	S		Heav	/ Trucks:	40.26	2			
	-10-1	e									
FHWA Noise Mode	el Calculation	3						_			
FHWA Noise Mod VehicleType	REMEL	Traffic Flow	Distar	се	Finite	Road	Fresne		Barrier Atte	en Ber	m Atten
FHWA Noise Mod VehicleType Autos:	REMEL 70.20	Traffic Flow 1.29	Distar	nce 1.28	Finite 3	Road -1.20	Fresne	1.61	Barrier Atte 0.0	en Ber 00	<i>m Atten</i> 0.000
FHWA Noise Mod VehicleType Autos: Medium Trucks:	REMEL 70.20 81.00	<i>Traffic Flow</i> 1.29 -11.69	Distar	nce 1.28 1.31	Finite	Road -1.20 -1.20	Fresne -4 -4	1.61 1.87	Barrier Atte 0.0 0.0	en Ber 00 00	m Atten 0.000 0.000
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks:	REMEL 70.20 81.00 85.38	Traffic Flow 1.29 -11.69 -15.63	Distar	1.28 1.31 1.31	Finite	Road -1.20 -1.20 -1.20	Fresne -4 -4 -5	1.61 1.87 5.50	Barrier Atte 0.0 0.0 0.0	en Ben 00 00 00	<u>m Atten</u> 0.000 0.000 0.000
FHWA Noise Mode VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise	REMEL 70.20 81.00 85.38 e Levels (with	Traffic Flow 1.29 -11.69 -15.63 out Topo and I	Distar barrier a	1.28 1.31 1.31 1.31	Finite	Road -1.20 -1.20 -1.20	Fresne -4 -4 -5	4.61 4.87 5.50	Barrier Atte 0.0 0.0 0.0	en Ben 100 100 100	m Atten 0.000 0.000 0.000
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType	REMEL 70.20 81.00 85.38 e Levels (with Leq Peak Hou	Traffic Flow 1.29 -11.69 -15.63 out Topo and I ir Leq Day	Distar barrier a	1.28 1.31 1.31 1.31 attent eq Ev	Finite	Road -1.20 -1.20 -1.20 <i>Leq N</i>	Fresne -4 -5 ight	1.61 1.87 5.50	Barrier Atte 0.0 0.0 0.0 0.0	en Ben 00 00 00 00	m Atten 0.000 0.000 0.000
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos:	REMEL 70.20 81.00 85.38 e Levels (with Leq Peak Hou 71	Traffic Flow 1.29 -11.69 -15.63 out Topo and I Ir Leq Day .6 6	Distar barrier a 29.0	1.28 1.31 1.31 1.31 attenu eq Ev	Finite auation) vening 68.1	Road -1.20 -1.20 -1.20 <i>Leq N</i>	Fresne -4 -4 -5 -5 -5 -5	9.61 9.87 5.50	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 72.3	en Ben 100 100 100 100 100	<u>m Atten</u> 0.000 0.000 0.000 VEL 72.7
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks:	e Carculation <u>REMEL</u> 70.20 81.00 85.38 e Levels (with Leq Peak Hot 71 69	Traffic Flow 1.29 -11.69 -15.63 out Topo and I Ir Leq Day .6 6 .4 6	Distar barrier a 0.0 0.0 0.7.5	1.28 1.31 1.31 attenu eq Ev	Finite uation) rening 68.1 61.9	Road -1.20 -1.20 -1.20 <i>Leq N</i>	Fresne. -4 -4 -4 -5 -4 -4 -4 -4 -4 -5 -4 -4 -4 -4 -4 -4 -4 -4 -4 -4 -4 -4 -4	1.61 1.87 5.50	Barrier Atte 0.0 0.0 0.0 0.0 <i>Ldn</i> 72.3 69.7	en Ber 00 00 00 00 CI	<u>m Atten</u> 0.000 0.000 0.000 <u>VEL</u> 72.7 69.9
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks:	e Carculation REMEL 70.20 81.00 85.38 e Levels (with Leq Peak Hou 71 69 69	Traffic Flow 1.29 -11.69 -15.63 out Topo and I I I Leq Day .6 6 .4 6 .9 6	Distar barrier a 09.0 37.5 38.4	1.28 1.31 1.31 attent eq Ev	Finite uation) rening 68.1 61.9 56.8	Road -1.20 -1.20 -1.20 <i>Leq N</i>	Fresne -4 -4 -5 -4 -5 -5 -4 -5 -5 -5 -5 -5 -4 -5 -5 -4 -5 -4 -5 -5 -4 -5 -5 -4 -5 -5 -5 -5 -5 -5 -5 -5 -5 -5 -5 -5 -5	9.61 9.87 5.50	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 1.0 0.0 72.3 69.7 69.3	en Ben 00 00 00 00 C/	<u>m Atten</u> 0.000 0.000 0.000 <u>VEL</u> 72.7 69.9 69.3
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	er Carculation REMEL 70.20 81.00 85.38 e Levels (with Leg Peak Hou 71 69 69 75	Traffic Flow 1.29 -11.69 -15.63 out Topo and L ur Leq Day .6 6 .4 6 .9 6 .2 7	Distar barrier a 59.0 57.5 58.4 73.1	1.28 1.31 1.31 1.31 attenu eq Ev	Finite uation) rening 68.1 61.9 56.8 69.3	Road -1.20 -1.20 -1.20 <i>Leq N</i>	Fresne. -4 -4 -5 -4 -5 -4 -5 -5 -4 -5 -5 -4 -5 -5 -4 -5 -4 -5 -5 -4 -5 -5 -4 -5 -4 -5 -5 -5 -6 -5 -5 -6 -6 -6 -5 -6 -6 -5 -5 -6 -6 -5 -5 -6 -5 -6 -6 -6 -6 -6 -6 -6 -5 -5 -6 -6 -6 -6 -6 -6 -6 -6 -6 -6 -6 -6 -6	1.61 1.87 5.50	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 72.3 69.7 69.3 75.4	en Ben 00 00 00 00 00 <i>CI</i>	m Atten 0.000 0.000 0.000 VEL 72.7 69.9 69.3 75.7
FHWA Noise Mod VehicleType Autos: Medium Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distance	REMEL 70.20 81.00 85.38 e Levels (with Leg Peak Hou 71 69 69 75 ce to Noise Ca	Traffic Flow 1.29 -11.69 -15.63 out Topo and I I II III Leq Day 6 6 .6 6 6 6 .9 6 6 6 .9 6 6 6 .9 6 6 7 ontour (in feet) 7 7 7	Distar barrier a 09.0 67.5 68.4 73.1	nce 1.28 1.31 1.31 attenu eq Ev	Finite uation) rening 68.1 61.9 56.8 69.3	Road -1.20 -1.20 -1.20 Leq N	Fresne. -4 -4 -5 -4 -5 -4 -4 -5 -4 -5 -6 -4 -5 -6 -4 -5 -6 -4 -5 -6 -4 -5 -6 -4 -6 -6 -6 -6 -6 -6 -6 -6 -6 -6 -6 -6 -6	1.61 1.87 5.50	Barrier Atte 0.0 0.0 0.0 0.0 0.0 72.3 69.7 69.3 75.4	en Ber 00 00 00 00 CI	m Atten 0.000 0.000 0.000 VEL 72.7 69.5 69.3 75.7
FHWA Noise Mod/ VehicleType Autos: Medium Trucks: Heavy Trucks: VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distance	et Calculation REMEL 70.20 81.00 85.38 e Levels (with Leg Peak Hou 71 69 69 75 cce to Noise Co	Traffic Flow 1.29 -11.69 -15.63 out Topo and I I Ir Leq Day .6 6 .9 6 .2 7 ontour (in feet) 7	Distar barrier a 59.0 57.5 58.4 73.1	1.28 1.31 1.31 attenu eq Ev	Finite auation) rening 68.1 61.9 56.8 69.3 IBA	Road -1.20 -1.20 -1.20 Leq N	Fresne. -4 -4 -5 -4 -4 -5 -4 -4 -5 -5 -1 -5 -1 -6 -5 -1 -6 -2 -6 -2 -2 -2 -2 -2 -2 -2 -2 -2 -2 -2 -2 -2	1.61 1.87 5.50	Barrier Atte 0.0 0.0 0.0 0.0 1.0 72.3 69.7 69.3 75.4 60 dBA	en Ber 00 00 00 C/	m Atten 0.000 0.000 0.000 VEL 72.7 69.9 69.3 75.7 dBA
FHWA Noise Mod Vehicle Type Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise Vehicle Type Autos: Heavy Trucks: Vehicle Noise: Centerline Distance	el Carcutatóm <u>REMEL</u> 70.20 81.00 85.38 e Levels (with Leg Peak Hou 71 69 69 75 ce to Noise Ca	Traffic Flow 1.29 -11.69 -15.63 out Topo and I I II III III IIII IIII IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Distar barrier a 59.0 57.5 58.4 73.1 73.1	1.28 1.31 1.31 attenu eq Ev 70 d 10	Finite auation) rening 68.1 61.9 56.8 69.3 //BA 1	Road -1.20 -1.20 -1.20 Leq N 65 dL 218	Fresne. -4 -4 -5 -4 -4 -5 -4 -5 -5 -1 -5 -5 -1 -5 -5 -5 -5 -5 -5 -5 -5 -5 -5 -5 -5 -5	1.61 1.87 5.50	Barrier Atta 0.0 0.0 0.0 0.0 72.3 69.7 69.3 75.4 75.4 60 dBA 469	en Ber 00 00 00 00 <i>CI</i> 5 5 5 5 1,1	m Atten 0.000 0.000 0.000 VEL 72.7 69.9 69.3 75.7 75.7

Thursday, May 02, 2019

	FHV	VA-RD-77-108	B HIGH	IWAY N	IOISE PI	REDICT	ION MO	DDEL					
Scenari Road Nam Road Segmei	io: OY Withou ne: Kimball Av. nt: e/o Euclid A	t Project Av.			Project Name: MCH Job Number: 10351								
SITE	SPECIFIC IN	IPUT DATA				Ν	IOISE	MODE	L INPUT	s			
Highway Data					Site Cor	nditions	(Hard :	= 10, So	oft = 15)				
Average Daily	Traffic (Adt):	20,429 vehicl	es					Autos:	15				
Peak Hour	Percentage:	10%			Me	dium In	ucks (2	Axles):	15				
Peak H	lour Volume:	2,043 vehicle	s		He	avy Iru	CKS (3+	Axles):	15				
Ve.	nicle Speed:	50 mpn			Vehicle	Mix							
Near/Far La	ne Distance:	51 Teet			Veh	icleType	•	Day	Evening	Night	Daily		
Site Data						,	Autos:	66.3%	13.5%	20.3%	93.40%		
Bai	rrier Height:	0.0 feet			М	edium T	rucks:	77.0%	5.3%	17.6%	4.70%		
Barrier Type (0-W	/all, 1-Berm):	0.0			,	Heavy T	rucks:	86.3%	1.5%	12.2%	1.90%		
Centerline Dis	st. to Barrier:	49.0 feet		1	Noise S	ource E	levatio	ns (in fe	eet)				
Centerline Dist.	to Observer:	49.0 feet				Auto	s: 0	.000	,				
Barrier Distance	to Observer:	0.0 feet			Mediu	m Truck	s: 2	.297					
Observer Height (bserver Height (Above Pad): Pad Elevation:				Heav	/y Truck	s: 8	.004	Grade Ad	justment	: 0.0		
Pa	ad Elevation:	0.0 feet		H	l ana Ea	uivalan	Dista	nee (in	fa a 4)				
Roa	ad Elevation:	0.0 feet		Ľ	Lane Eq	uivalen	Distai	ice (iii	leel)				
	Road Grade:	0.0%			Madiu	AUto	S: 42	020					
	Right View:	90.0 degre	es es		Heav	/y Truck	s. 41 s: 41	.929					
FHWA Noise Mode	el Calculation	s											
VehicleType	REMEL	Traffic Flow	Dis	stance	Finite	Road	Fres	nel	Barrier Att	en Be	rm Atten		
Autos:	70.20	0.51		1.0	1	-1.20		-4.64	0.0	000	0.000		
Medium Trucks:	81.00	-12.47		1.04	4	-1.20		-4.87	0.0	000	0.000		
Heavy Trucks:	85.38	-16.41		1.04	4	-1.20		-5.44	0.0	000	0.000		
Unmitigated Noise	e Levels (with	out Topo and	barrie	er atten	uation)								
VehicleType	Leq Peak Hou	ir Leq Da	y I	Leq E	vening	Leq	Night		Ldn	C	NEL		
Autos:	70	.5	67.9		67.1		64	.1	71.2	2	71.7		
Medium Trucks:	68	.4	66.4		60.8		61	.3	68.7	7	68.9		
Heavy Trucks:	68	.8	67.4		55.8		60	.1	68.2	2	68.3		
Vehicle Noise:	74	.1	72.1		68.2		66	.9	74.4	1	74.6		
Centerline Distant	ce to Noise Co	ontour (in fee	t)	70 /	√RΔ	65	dBΔ		SO dBA	55	dBA		
			I dn	9	6	2	06	1	445		958		
		С	NEL:	10	- 00	2	15		464	1.	000		
		0			-	-							

	FHW	A-RD-77-108 HIG	HWAY N	IOISE PF	REDICTIC		DEL			
Scenar	io: OY Without F	Project			Project N	lame: N	1CH			
Road Nam	e: Kimball Av.				Job Nu	mber: 1	0351			
Road Segme	nt: w/o Rincon M	leadows Av.								
SITE	SPECIFIC INP	UT DATA			NC	DISE N	IODEL	INPUTS	\$	
Highway Data			\$	Site Con	ditions (l	Hard =	10, So	ft = 15)		
Average Daily	Traffic (Adt): 2	1,291 vehicles				A	utos:	15		
Peak Hour	Percentage:	10%		Me	dium Truc	:ks (2 A	xles):	15		
Peak H	lour Volume: 2	,129 vehicles		He	avy Truck	:s (3+ A	xles):	15		
Ve	hicle Speed:	50 mph		Vehicle I	Mix					-
Near/Far La	ne Distance:	51 feet		Vehi	icleType	1	Day	Evening	Night	Daily
Site Data					AL	itos: (6.3%	13.5%	20.3%	93.40%
Ba	rrier Height	0.0 feet		Me	edium Tru	cks:	77.0%	5.3%	17.6%	4.70%
Barrier Type (0-W	/all, 1-Berm):	0.0		ŀ	leavy Tru	cks: 8	36.3%	1.5%	12.2%	1.90%
Centerline Di	st. to Barrier:	49.0 feet	1	Noise So	ource Ele	vations	(in fe	et)		
Centerline Dist.	to Observer:	49.0 feet			Autos:	0.0	00	-		
Barrier Distance	to Observer:	0.0 feet		Mediur	n Trucks:	2.2	97			
Observer Height ((Above Pad):	5.0 feet		Heav	y Trucks:	8.0	04	Grade Adj	ustment	: 0.0
Pi	ad Elevation:	0.0 feet	-	Laws Fre		Di- 1	- () 6	41		
Roi	ad Elevation:	0.0 feet	Ľ	Lane Equ	uivalent i	JISTAIL	e (III 10	el)		
	Road Grade:	0.0%			Autos:	42.1	40			
	Left View:	-90.0 degrees		Mediur	n Trucks:	41.9	29			
	Right View:	90.0 degrees		Heav	y Trucks:	41.5	50			
FHWA Noise Mod	el Calculations									
VehicleType	REMEL	Traffic Flow Di	istance	Finite	Road	Fresn	el E	Barrier Atte	en Bei	m Atten
Autos:	70.20	0.69	1.01	1	-1.20		4.64	0.0	00	0.000
Medium Trucks:	81.00	-12.29	1.04	4	-1.20		4.87	0.0	00	0.000
Heavy Trucks:	85.38	-16.23	1.04	4	-1.20		5.44	0.0	00	0.000
Unmitigated Nois	e Levels (withou	ut Topo and barr	ier atten	uation)						
VehicleType	Leq Peak Hour	Leq Day	Leq Ev	vening	Leq N	light		Ldn	C	NEL
Autos:	70.7	68.1		67.2		64.2		71.4	£	71.8
Medium Trucks:	68.6	66.6		61.0		61.5		68.9	1	69.1
Heavy Trucks:	69.0	67.6		56.0		60.3		68.4	6 - C	68.5
Vehicle Noise:	74.3	72.3		68.4		67.1		74.5		74.8
Centerline Distan	ce to Noise Con	tour (in feet)	r							
			70 0	dBA	65 d	BA	60) dBA	55	dBA
		Ldn:	9	9	212	2		457	ę	985
		CNEL:	10)3	221	1		477	1,	028

	FH	WA-RD-77-108	HIGHW	AY NO	DISE PI	REDICTIO	N MODE	L			
Scenari Road Nam Road Segmer	o: OY Withou e: Kimball Av at: e/o Rincon	it Project Meadows Av.				Project N Job Nur	ame: MC nber: 10	CH 351			
SITE S	SPECIFIC IN	NPUT DATA				NC	ISE MC	DEL INPU	JTS		
Highway Data				Si	te Con	ditions (F	lard = 10	, Soft = 15)		
Average Daily	Traffic (Adt):	20,432 vehicl	es				Au	tos: 15			
Peak Hour	Percentage:	10%			Me	dium Truc	ks (2 Axl	es): 15			
Peak H	our Volume:	2,043 vehicle	s		He	avy Truck	s (3+ Axl	es): 15			
Vel	hicle Speed:	50 mph		Ve	hicle	Mix					
Near/Far Lar	ne Distance:	51 feet			Veh	icleTvpe	Dá	v Evenir	na Ni	aht	Dailv
Site Data						Au	tos: 66	.3% 13.5	% 20	0.3%	93.40%
Bar	rier Heiaht:	0.0 feet			M	edium Tru	cks: 77	.0% 5.3	% 17	7.6%	4.70%
Barrier Type (0-W	all, 1-Berm):	0.0			ŀ	Heavy Tru	cks: 86	.3% 1.5	% 12	2.2%	1.90%
Centerline Dis	t. to Barrier:	49.0 feet		No	oise So	ource Elev	ations (in feet)			
Centerline Dist.	to Observer:	49.0 feet				Autos:	0.000)			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Trucks:	2.29	7			
Observer Height (J	Above Pad):	5.0 feet			Heav	y Trucks:	8.004	1 Grade	Adjusti	ment:	0.0
Pa	d Elevation:	0.0 feet		1			Viotoneo	(in feet)			
Roa	d Elevation:	0.0 feet		Lē	ine Eq	uivalent L	Istance	(In reet)			
, i i i i i i i i i i i i i i i i i i i	Road Grade:	0.0%			A 4	Autos:	42.14	5			
	Left View:	-90.0 degre	es		Hoo	m Trucks:	41.92	9			
	Right view.	90.0 degre	es		Ticav	ly mucks.	41.90	J			
FHWA Noise Mode	el Calculation	IS									
VehicleType	REMEL	Traffic Flow	Distar	nce	Finite	Road	Fresnel	Barrier	Atten	Bern	n Atten
Autos:	70.20	0.51		1.01		-1.20	-4.	64	0.000		0.000
Medium Trucks:	81.00	-12.47		1.04		-1.20	-4.	87	0.000		0.000
Heavy Trucks:	85.38	-16.40		1.04		-1.20	-5.	44	0.000		0.000
Unmitigated Noise	Levels (with	out Topo and	barrier a	attenua	ation)	_					
VehicleType	Leq Peak Ho	ur Leq Daj	/ Le	eq Eve	ening	Leq N	ght	Ldn		CN	EL
Autos:	70	0.5	67.9		67.1		64.1	7	1.2		71.7
Medium Trucks:	68	3.4	66.4		60.8		61.3	6	68.7		68.9
Heavy Trucks:	68	3.8	67.4		55.8		60.1	6	68.2		68.3
Vehicle Noise:	72	k.1	72.1		68.2		66.9	1	4.4		74.6
Centerline Distance	e to Noise C	ontour (in fee)	70.15		05 "		00 -15 1			04
			I also	70 dE	5A	65 dE	5A	ou dBA		55 0	IBA
		~	Lan:	96		206		445		95	00
		C	VEL:	100		215		464		1,0	00

	FHV	VA-RD-77-108	HIGHW	AY N	OISE PF	REDICTIC		EL _			
Scenari	io: OY Without	Project				Project N	ame: M	СН			
Road Nam	e: Kimball Av.					Job Nu	nber: 10	351			
Road Segmer	nt: e/o Mill Cre	ek Av.									
SITE	SPECIFIC IN	PUT DATA				NC	ISE MO	DDEL	INPUT	S	
Highway Data				S	Site Con	ditions (F	lard = 1), Soi	ft = 15)		
Average Daily	Traffic (Adt):	18,591 vehicle	s				AL	itos:	15		
Peak Hour	Percentage:	10%			Mee	dium Truc	ks (2 Ax	les):	15		
Peak H	lour Volume:	1,859 vehicles	5		Hea	avy Truck	s (3+ Ax	les):	15		
Vei	hicle Speed:	50 mph		V	/ehicle I	Nix					
Near/Far Lai	ne Distance:	51 feet		F	Vehi	cleTvpe	D	av	Evenina	Niaht	Dailv
Site Data						AL	tos: 66	5.3%	13.5%	20.3%	93.40%
Bar	rrier Height	0.0 feet			Me	edium Tru	cks: 7	7.0%	5.3%	17.6%	4.70%
Barrier Type (0-W	all 1-Berm)	0.0			F	leavy Tru	cks: 86	6.3%	1.5%	12.2%	1.90%
Centerline Dis	st. to Barrier:	49.0 feet		-							
Centerline Dist.	to Observer:	49.0 feet		^	loise So	ource Ele	ations	in te	et)		
Barrier Distance	to Observer:	0.0 feet				Autos:	0.00	0			
Observer Height (Above Pad):	5.0 feet			Mediur	n Trucks:	2.29	· .	Crada Ad		
Pa	ad Elevation:	0.0 feet			Heav	y Trucks:	8.00	4	Grade Adj	usimeni	0.0
Roa	ad Elevation:	0.0 feet		L	ane Equ	uivalent I	Distance	(in fe	eet)		
F	Road Grade:	0.0%				Autos:	42.14	0			
	Left View:	-90.0 degree	s		Mediur	n Trucks:	41.92	9			
	Right View:	90.0 degree	s		Heav	y Trucks:	41.95	0			
FHWA Noise Mode	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Distar	nce	Finite	Road	Fresne	E	Barrier Atte	en Ber	m Atten
Autos:	70.20	0.10		1.01		-1.20	-4	.64	0.0	000	0.000
Medium Trucks:	81.00	-12.88		1.04		-1.20	-4	.87	0.0	000	0.000
Heavy Trucks:	85.38	-16.81		1.04		-1.20	-5	.44	0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier a	attenı	uation)						
VehicleType	Leq Peak Hou	r Leq Day	L	eq Ev	ening	Leq N	ght		Ldn	CI	VEL
Autos:	70	.1 (57.5		66.6		63.6		70.8	3	71.3
Medium Trucks:	68	.0	56.0		60.4		60.9		68.3	3	68.5
Heavy Trucks:	68	.4 (57.0		55.4		59.7		67.8	3	67.9
	70	.7	71.7		67.8		66.5		74.0)	74.2
Vehicle Noise:	73										
Vehicle Noise: Centerline Distanc	rs ce to Noise Co	ontour (in feet,)								
Vehicle Noise: Centerline Distanc	ce to Noise Co	ontour (in feet,		70 d	'BA	65 dl	BA	60) dBA	55	dBA
Vehicle Noise: Centerline Distand	rs ce to Noise Co	ontour (in feet,	Ldn:	70 d 90	IBA)	65 dl 194	BA	60	0 dBA 418	55 9	<i>dBA</i> 00

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								_	_	
	FHW	/A-RD-77-108 HI	GHWAY	NOISE P	REDICTIO	N MODEL				
Scenar	io: OY Without	Project			Project Na	ame: MCH	1			
Road Nan	ne: Kimball Av.				Job Nun	nber: 1035	51			
Road Segme	nt: e/o Main St.									
SITE	SPECIFIC IN	PUT DATA			NO	ISE MOD	EL INPU	JTS		
Highway Data				Site Cor	nditions (H	ard = 10,	Soft = 15)			
Average Daily	Traffic (Adt):	17,491 vehicles				Auto	s: 15			
Peak Hour	Percentage:	10%		Me	edium Trucl	ks (2 Axles	s): 15			
Peak H	our Volume:	1,749 vehicles		He	eavy Trucks	s (3+ Axles	s): 15			
Ve	hicle Speed:	50 mph		Vehicle	Mix					
Near/Far La	ne Distance:	51 feet		Venicie	nicleType	Dav	Evenin	a Nic	aht	Dailv
Site Data					Aut	os: 66.3	% 13.5	% 20).3%	93.40%
Pa	rrior Hoight:	0.0 foot		М	edium Truc	ks: 77.0	% 5.39	% 17	7.6%	4.70%
Barrier Type (0-V	/all 1-Rerm)	0.0 1001			Heavy Truc	ks: 86.3	% 1.59	% 12	2.2%	1.90%
Centerline Di	ist. to Barrier:	49.0 feet		Noise O			6			
Centerline Dist.	to Observer:	49.0 feet		Noise S	ource Elev	ations (in	teet)			
Barrier Distance	to Observer:	0.0 feet		14	Autos:	0.000				
Observer Height	(Above Pad):	5.0 feet		wealu	m Trucks:	2.297	Crada	Adiuche	mont	0.0
P	ad Elevation:	0.0 feet		пеа	ly mucks.	0.004	Grauer	ujusu	nem.	0.0
Ro	ad Elevation:	0.0 feet		Lane Eq	uivalent D	istance (i	n feet)			
	Road Grade:	0.0%			Autos:	42.140				
	Left View:	-90.0 degrees		Mediu	m Trucks:	41.929				
	Right View:	90.0 degrees		Hea	vy Trucks:	41.950				
EHWA Noise Mod	lel Calculation									
VehicleType	REMEL	Traffic Flow	Distance	Finite	Road	Fresnel	Barrier	Atten	Berm	n Atten
Autos:	70.20	-0.16	1.(01	-1.20	-4.6	4	0.000		0.000
Medium Trucks:	81.00	-13.15	1.(04	-1.20	-4.8	7	0.000		0.000
Heavy Trucks:	85.38	-17.08	1.(04	-1.20	-5.4	4	0.000		0.000
Unmitigated Nois	e Levels (with	out Topo and ba	rrier atte	nuation)						
VehicleType	Leg Peak Hou	r Leq Day	Leg I	Evening	Leq Ni	ght	Ldn		CN	EL
Autos:	69.	9 67.	.3	66.4		63.4	7	0.6		71.0
Medium Trucks:	67.	7 65.	8	60.2		60.6	6	8.0		68.2
Heavy Trucks:	68.	1 66.	7	55.1		59.5	6	7.6		67.6
Vehicle Noise:	73.	4 71.	.4	67.6		66.2	7	3.7		74.0
Centerline Distan	ce to Noise Co	ntour (in feet)								
		,	70	dBA	65 dB	A	60 dBA		55 d	IBA
		Ldi	n:	86	186		401		86	4
		CNE	L: 1	90	194		419		90	2

	FHV	/A-RD-77-108 HIC	GHWAY N	NOISE PI	REDICTIO	N MOD	EL				
Scenar Road Nam	io: OY Without le: Kimball Av.	Project		Project Name: MCH Job Number: 10351							
Road Segme	nt: e/o Flight A	v.									
SITE	SPECIFIC IN	PUT DATA			NO	ISE M	ODEL	INPUT	s		
Highway Data				Site Con	ditions (H	lard = 1	0, Sof	t = 15)			
Average Daily	Traffic (Adt):	14,790 vehicles				A	utos:	15			
Peak Hour	Percentage:	10%		Me	dium Truc	ks (2 A)	des):	15			
Peak H	lour Volume:	1,479 vehicles		He	avy Truck	s (3+ A)	des):	15			
Ve	hicle Speed:	50 mph	-	Vehicle	Mix						
Near/Far La	ne Distance:	51 feet	-	Veh	icleTvpe	L	Dav I	Evenina	Niaht	Dailv	
Site Data					Au	tos: 6	6.3%	13.5%	20.39	93.40%	
Pa	rrior Hoight:	0.0 foot		Me	edium True	cks: 7	7.0%	5.3%	17.69	4.70%	
Barrier Type (0-W	/all 1-Berm)	0.0 1001		ŀ	Heavy True	cks: 8	6.3%	1.5%	12.29	6 1.90%	
Centerline Di	st to Barrier:	49.0 feet	_		,						
Centerline Dist.	to Observer:	49.0 feet	-	Noise So	ource Elev	ations	(in fee	et)			
Barrier Distance	to Observer:	0.0 feet			Autos:	0.00	00				
Observer Height	Above Pad):	5.0 feet		Mediui	m Trucks:	2.2	97				
P	ad Elevation:	0.0 feet		Heav	y Trucks:	8.00	J4 C	srade Adj	ustmen	t: 0.0	
Ro	ad Elevation:	0.0 feet	E F	Lane Eq	uivalent D	listance	e (in fe	et)			
	Road Grade:	0.0%			Autos:	42.1	40				
	Left View:	-90.0 degrees		Mediu	m Trucks:	41.9	29				
	Right View:	90.0 degrees		Heav	ry Trucks:	41.9	50				
FHWA Noise Mod	el Calculations	5									
VehicleType	REMEL	Traffic Flow	Distance	Finite	Road	Fresne	el B	arrier Att	en Be	rm Atten	
Autos:	70.20	-0.89	1.0	1	-1.20	7	4.64	0.0	00	0.000	
Medium Trucks:	81.00	-13.87	1.0	4	-1.20	-1	4.87	0.0	00	0.000	
Heavy Trucks:	85.38	-17.81	1.0	4	-1.20	-	5.44	0.0	000	0.000	
Unmitigated Nois	e Levels (with	out Topo and bar	rrier atter	nuation)							
VehicleType	Leq Peak Hou	r Leq Day	Leq E	vening	Leq Ni	ght	L	dn	(NEL	
Autos:	69.	1 66.5	5	65.7		62.7		69.8	3	70.3	
Medium Trucks:	67.	0 65.0	D	59.4		59.9		67.3	3	67.5	
Heavy Trucks:	67.	4 66.0	0	54.4		58.7		66.8	}	66.9	
Vehicle Noise:	72.	7 70.7	7	66.8		65.5		73.0)	73.2	
Centerline Distan	ce to Noise Co	ntour (in feet)	70	dD A	6E -1		60		-		
		1 -1		aBA	65 dE	5A	60	I aBA	5	772	
		Lan	i. /	7	100		2	274		113	
		CNEL			174		2	074		guo	

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	FH\	NA-RD-77-108	HIGHW.	AY NO	ISE PI	REDICTIO	N MOD	EL			
Scenario Road Namo Road Segmen	o: OY Withou e: Limonite A at: w/o Archiba	t Project v. ald Av.				Project N Job Nur	ame: M nber: 10	CH 0351			
SITE S	SPECIFIC IN	IPUT DATA				NO	ISE MO	ODEL	INPUTS	5	
Highway Data				Sit	e Con	ditions (H	lard = 1	0, Soft	= 15)		
Average Daily	Traffic (Adt):	1 vehicle	es				AL	utos:	15		
Peak Hour	Percentage:	10%			Me	dium Truc	ks (2 Ax	les):	15		
Peak He	our Volume:	0 vehicle:	5		He	avy Truck	s (3+ Ax	:les):	15		
Vel	hicle Speed:	50 mph		Ve	hicle	Mix					
Near/Far Lar	ne Distance:	78 feet			Veh	icleType	D	ay E	vening	Night	Daily
Site Data						Au	tos: 6	6.3%	13.5%	20.3%	93.40%
Bar	rier Heiaht:	0.0 feet			M	edium Truc	cks: 7	7.0%	5.3%	17.6%	4.70%
Barrier Type (0-Wa	all, 1-Berm):	0.0			P	Heavy True	cks: 8	6.3%	1.5%	12.2%	1.90%
Centerline Dis	t. to Barrier:	76.0 feet		No	ise So	ource Elev	ations	(in fee	t)		
Centerline Dist. t	to Observer:	76.0 feet				Autos:	0.00	0	7		
Barrier Distance t	to Observer:	0.0 feet			Mediu	m Trucks:	2.29)7			
Observer Height (/	Above Pad):	5.0 feet			Heav	v Trucks:	8.00)4 G	irade Adj	iustment.	0.0
Pa	d Elevation:	0.0 feet		1.		·		11-1-1-	- 41		
Roa	d Elevation:	0.0 feet		La	ne Eq	uivalent L	istance	e (in ree	et)		
F	Road Grade:	0.0%				Autos:	05.42	22			
	Left View:	-90.0 degree	s		Wealui Hoo	n Trucks:	65.28	36			
	Right view.	90.0 degree	s		neav	y muchs.	05.28	19			
FHWA Noise Mode	el Calculation	S									
VehicleType	REMEL	Traffic Flow	Distar	nce	Finite	Road	Fresne	I Ba	arrier Atte	en Ber	m Atten
Autos:	70.20	-42.59		-1.85		-1.20	-4	1.73	0.0	00	0.000
Medium Trucks:	81.00	-55.57		-1.84		-1.20	-4	1.88	0.0	00	0.000
Heavy Trucks:	85.38	-59.51		-1.84		-1.20	-5	5.25	0.0	100	0.000
Unmitigated Noise	Levels (with	out Topo and	barrier a	attenua	tion)						
Vehicle I ype	Leq Peak Hou	ur Leq Day	L	eq Ever	ning	Leq Ni	ght	L	.dn	CI	NEL
Autos:	24	.6	22.0		21.1		18.1		25.3	5	25.7
Medium Trucks:	22	.4	20.5		14.9		15.3		22.7		22.9
Vehicle Noise	22		21.4		22.3		20.9		22.2		22.3
Contorlino Distano		ontour (in foot	1		22.0		20.0		20.1		20.1
Senternine Distance	e to noise C	undur (milleet,	,	70 dB/	A	65 dE	BA	60	dBA	55	dBA
			Ldn:	0		0			1		1
		CI	IEL:	0		0			1		1

					0.02						
Scenari	o: OY Without	Project				Project I	Vame:	ИСН			
Road Nam	e: Limonite Av					Job Nu	mber:	10351			
Road Segmer	nt: e/o Archibal	ld Av.									
SITE	SPECIFIC IN	PUT DATA				N	DISE N	IODE		S	
Highway Data				S	Site Con	ditions (Hard =	10, Sc	oft = 15)		
Average Daily	Traffic (Adt):	22,105 vehicle	s					Autos:	15		
Peak Hour	Percentage:	10%			Me	dium Tru	cks (2 A	xles):	15		
Peak H	our Volume:	2,211 vehicles			Hea	avy Truci	ks (3+ A	(xles):	15		
Vei	hicle Speed:	50 mph		v	/ehicle I	Nix					
Near/Far Lar	ne Distance:	78 feet		F	Vehi	cleType		Day	Evening	Night	Daily
Site Data					Autos: 66.3% 13.5% 20.3%						93.40%
Bar	rier Height	0.0 feet			Me	dium Tru	icks:	77.0%	5.3%	17.6%	4.70%
Barrier Type (0-W	all. 1-Berm):	0.0			F	leavy Tru	icks:	86.3%	1.5%	12.2%	1.90%
Centerline Dis	st. to Barrier:	76.0 feet			laiaa Ca	uree Ek	votion	o (in fi	a (1		
Centerline Dist.	to Observer:	76.0 feet		~	voise su	Autoo	vauon	s (III 16	el)		
Barrier Distance	to Observer:	0.0 feet			Madium	Autos	. 0.0	007			
Observer Height (Above Pad):	5.0 feet			Hoov	n Trucks	. 2.4	297	Grade Ad	iustmont	0.0
Pa	ad Elevation:	0.0 feet			neav	y mucks	0.0	104	Orade Au	usunom.	0.0
Roa	ad Elevation:	0.0 feet		L	ane Equ	uivalent	Distan	e (in :	feet)		
F	Road Grade:	0.0%				Autos	65.4	122			
	Left View:	-90.0 degree	s		Mediur	n Trucks	65.	286			
	Right View:	90.0 degree	s		Heav	y Trucks	65.	299			
FHWA Noise Mode	el Calculations	5		- 1							
			Distan				_				
Vehicle I ype	REMEL	I rattic Flow	Distan	се	Finite	Road	Fresh	el	Barrier Att	en Ber	m Atten
Vehicle lype Autos:	REMEL 70.20	1 rattic Flow 0.85	Distan	<i>ce</i> -1.85	Finite	Road -1.20	Fresh	el -4.73	Barrier Att 0.0	en Ber	<i>m Atten</i> 0.000
Vehicle I ype Autos: Medium Trucks:	REMEL 70.20 81.00	0.85 -12.13	- Distan	ce -1.85 -1.84	Finite	Road -1.20 -1.20	Fresh	el -4.73 -4.88	Barrier Att 0.0 0.0	en Ber 100 100	m Atten 0.000 0.000
Vehicle Lype Autos: Medium Trucks: Heavy Trucks:	REMEL 70.20 81.00 85.38	0.85 -12.13 -16.06	- Distan	ce -1.85 -1.84 -1.84	Finite	Road -1.20 -1.20 -1.20	Fresh	el -4.73 -4.88 -5.25	<u>Barrier Att</u> 0.0 0.0 0.0	en Ben 100 100 100	<u>m Atten</u> 0.000 0.000 0.000
Vehicle Type Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise	REMEL 70.20 81.00 85.38 Levels (witho	0.85 -12.13 -16.06	bisturi oarrier a	ce -1.85 -1.84 -1.84	Finite	Road -1.20 -1.20 -1.20	Fresh	el -4.73 -4.88 -5.25	<u>Barrier Att</u> 0.0 0.0 0.0	en Ben 100 100 100	m Atten 0.000 0.000 0.000
Vehicle Type Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise Vehicle Type	REMEL 70.20 81.00 85.38 • Levels (without Leg Peak Hout	Trattic Flow 0.85 -12.13 -16.06 Dut Topo and I r r Leq Day	Distant Darrier a	ce -1.85 -1.84 -1.84 ttenu eq Ev	Finite uation)	Road -1.20 -1.20 -1.20 Leq N	Fresn	el -4.73 -4.88 -5.25	Barrier Att 0.0 0.0 0.0 0.0	en Ben 100 100 100 100 <i>Cl</i>	m Atten 0.000 0.000 0.000 VEL
Vehicle Type Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise Vehicle Type Autos:	REMEL 70.20 81.00 85.38 Levels (without Leg Peak Hout 68.	Irattic Flow 0.85 -12.13 -16.06 Dut Topo and I r I Leq Day 0 6	barrier a Le	ce -1.85 -1.84 -1.84 ttenu eq Ev	Finite Finite	Road -1.20 -1.20 -1.20 Leq N	Fresh light 61.5	el -4.73 -4.88 -5.25	Barrier Att 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	en Ben 100 100 100 100 100 <i>Cl</i>	<u>m Atten</u> 0.000 0.000 0.000 <u>0.000</u> <u>VEL</u> 69.1
Vehicle Type Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise Vehicle Type Autos: Medium Trucks:	REMEL 70.20 81.00 85.38 Levels (without Leg Peak Hout 68. 65.	Irattic Flow 0.85 -12.13 -16.06 Dut Topo and I I r Leq Day 0 6 8 6	bistan barrier a 5.4 3.9	ce -1.85 -1.84 -1.84 -1.84 -1.84 -1.84	Finite uation) rening 64.5 58.3	Road -1.20 -1.20 -1.20 Leq N	Fresh light 61.5 58.7	el -4.73 -4.88 -5.25	Barrier Att 0.0 0.0 0.0 <u>Ldn</u> 68.7 66.1	en Ben 000 000 000 000 <i>CI</i>	<u>m Atten</u> 0.000 0.000 0.000 <u>0.000</u> <u>VEL</u> 69.1 66.3
Vehicle Type Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise Vehicle Type Autos: Medium Trucks: Heavy Trucks:	REMEL 70.20 81.00 85.38 • Levels (without Leg Peak Hout 68. 65. 66.	Trattic Flow 0.85 0.85 -12.13 -16.06 -1000000000000000000000000000000000000	Distant Distantante Distantantante Distantante Distantante Distantent Distantentantent Distant Distantententententententententententententen	ce -1.85 -1.84 -1.84 -1.84 -ttenu	Finite wation) rening 64.5 58.3 53.3	Road -1.20 -1.20 -1.20 Leq N	Fresh light 61.5 58.7 57.6	el -4.73 -4.88 -5.25	Barrier Att 0.0 0.0 0.0 Ldn 68.7 66.7 65.7	en Ben 000 000 000 000 C/	<u>m Atten</u> 0.000 0.000 0.000 <u>VEL</u> 69.1 66.3 65.8
Vehicle I ype Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise Vehicle Type Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	REMEL 70.20 81.00 85.38 Levels (witho 68. 65. 66. 71.	Trattic Flow 0.85 -12.13 -16.06 Dut Topo and I I r Leq Day 0 6 3 6 6 6	Distant Darrier a Le 5.4 3.9 4.8 9.5	ce -1.85 -1.84 -1.84 <i>ttenu</i> eq Ev	Finite uation) rening 64.5 58.3 53.3 65.7	Road -1.20 -1.20 -1.20 <i>Leq N</i>	Fresh light 61.5 58.7 57.6 64.4	el -4.73 -4.88 -5.25	Barrier Att 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	en Ben 1000 100	<u>m Atten</u> 0.000 0.000 0.000 <u>VEL</u> 69.1 66.3 65.8 72.1
Vehicle Type Autos: Medium Trucks: Heavy Trucks: VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distance	REMEL 70.20 81.00 85.38 Levels (witht Leq Peak Hour 68. 65. 66. 71. :e to Noise Co	Trattic How 0.85 -12.13 -16.06 Dut Topo and I I r Leq Day 0 6 3 6 6 6 omtour (in feet)	Darrier a Le 5.4 3.9 4.8 9.5	ce -1.85 -1.84 -1.84 -1.84 -1.84 -1.84	<i>Finite</i> <i>uation)</i> <i>rening</i> 64.5 58.3 53.3 65.7	Road -1.20 -1.20 -1.20 Leg N	Fresh light 61.5 58.7 57.6 64.4	el -4.73 -4.88 -5.25	Barrier Att 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	en Ber 000 000 CI 7 3	M Atten 0.000 0.000 0.000 VEL 69.1 66.3 65.8 72.1
Vehicle type Autos: Medium Trucks: Heavy Trucks: Vehicle Type Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distance	REMEL 70.20 81.00 85.38 Levels (with Leq Peak Hou 68. 65. 66. 71. re to Noise Co	Trathic How 0.85 -12.13 -16.06 Dut Topo and I I r Leq Day 0 6 3 6 6 6 entour (in feet)	Darrier a Le 5.4 3.9 4.8 9.5	ce -1.85 -1.84 -1.84 -1.84 -1.84 -1.84 -1.84 -1.84 -1.84 -1.84 -1.84 -1.84 -1.84 -1.84 -1.84 -1.84 -1.85 -1.85 -1.85 -1.85 -1.85 -1.85 -1.85 -1.85 -1.85 -1.85 -1.84 -1.85 -1.84 -1.84 -1.85 -1.84 -1.	Finite uation) vening 64.5 58.3 53.3 65.7 BA	Road -1.20 -1.20 -1.20 Leq N	Fresh light 61.5 58.7 57.6 64.4 BA	el -4.73 -4.88 -5.25	Barrier Att 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	en Ben 100 100 100 100 100 100 100 10	m Atten 0.000 0.000 0.000 VEL 69.1 66.3 65.8 72.1 dBA
Vehicle I ype Autos: Medium Tracks: Heavy Tracks: VehicleType Autos: Medium Tracks: Heavy Tracks: Vehicle Noise: Centerline Distance	REMEL 70.20 81.00 85.38 a Levels (with Leq Peak Hou 68. 65. 66. 71. :e to Noise Co	Trattic How 0.85 -12.13 -16.06 Dut Topo and I I r Leq Day 0 6 6 6 6 6 0 10	Datrier a Datrier a Le 5.4 3.9 4.8 9.5 	ce -1.85 -1.84 -1.84 -1.84 -1.84 -1.84 -1.84 -1.84 -1.84 -1.84 -1.84 -1.84 -1.84 -1.84 -1.85 -1.85 -1.85 -1.85 -1.85 -1.85 -1.85 -1.85 -1.85 -1.85 -1.84 -1.85 -1.	Finite vation) rening 64.5 58.3 53.3 65.7 BA 1	Road -1.20 -1.20 -1.20 Leg N 	<i>light</i> 61.5 58.7 57.6 64.4 <i>BA</i> 7	el -4.73 -4.88 -5.25	Barrier Att 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	en Ber 1000 100	m Atten 0.000 0.000 0.000 VEL 69.1 66.3 65.8 72.1 dBA 008

Thursday, May 02, 2019

	FHV	VA-RD-77-108	HIGHW	AY N	OISE PI	REDICTI	ON MC	DEL			
Scenar Road Nan Road Segme	rio: OY Without ne: Pine Av. ent: w/o El Prad	: Project o Rd.				Project Job N	Name: umber:	MCH 10351			
SITE	SPECIFIC IN	PUT DATA				N	OISE	NODE	L INPUT	s	
Highway Data				S	Site Con	ditions	(Hard =	10, So	oft = 15)		
Average Daily Peak Hour Peak F	Traffic (Adt): Percentage: Iour Volume:	27 vehicle 10% 3 vehicles	is		Me He	dium Tru avy Truc	ıcks (2 . :ks (3+ .	Autos: Axles): Axles):	15 15 15		
Ve Near/Far La	ehicle Speed: ane Distance:	45 mph 76 feet		V	/ehicle	Mix icleType		Dav	Evenina	Niaht	Daily
Site Data					10/1		utos:	66.3%	13.5%	20.3%	93.40%
Ba Barrier Type (0-V	rrier Height: Vall, 1-Berm):	0.0 feet 0.0			M	edium Tr Heavy Tr	ucks: ucks:	77.0% 86.3%	5.3% 1.5%	17.6% 12.2%	4.70% 1.90%
Centerline Di	ist. to Barrier:	60.0 feet			loise Sc	ource Fl	evation	s (in fi	pet)		
Centerline Dist. Barrier Distance Observer Height P	to Observer: to Observer: (Above Pad): ad Elevation:	60.0 feet 0.0 feet 5.0 feet 0.0 feet			Mediu Heav	Autos m Trucks ry Trucks	s: 0. s: 2. s: 8.	000 297 004	Grade Ad	justmen	t: 0.0
Ro	ad Elevation:	0.0 feet		L	.ane Eq	uivalent	Distan	ce (in	feet)		
	Road Grade: Left View: Right View:	0.0% -90.0 degree 90.0 degree	is is		Mediu Heav	Autos m Trucks y Trucks	8: 46. 8: 46. 8: 46.	701 511 530			
FHWA Noise Mod	lel Calculation	s									
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresi	nel	Barrier Att	en Be	rm Atten
Autos: Medium Trucks: Heavy Trucks:	68.46 79.45 84.25	-27.82 -40.80 -44.74		0.34 0.37 0.37		-1.20 -1.20 -1.20		-4.69 -4.88 -5.34	0.0 0.0 0.0	000 000 000	0.00 0.00 0.00
Unmitigated Nois	e Levels (with	out Topo and	barrier	atteni	uation)						
VehicleType	Leg Peak Hou	r Leg Day	L	eq Ev	ening	Leg	Night		Ldn	0	NEL
Autos:	39	.8 3	37.2	,	36.3		33.3	3	40.5	5	40.
Medium Trucks:	37	.8 3	35.9		30.3		30.	7	38.1	1	38.
Heavy Trucks:	38	.7 3	37.2		25.7		30.)	38.1	1	38.
Vehicle Noise:	43	.6 4	11.6		37.6		36.4	1	43.8	3	44.
Centerline Distan	ce to Noise Co	ontour (in feet)									
				70 d	BA	65 (dBA	e	60 dBA	55	5 dBA
			Ldn:	1		2	2		5		11
		Ch	IEL:	1		2	<u> </u>		5		11

	FH\	NA-RD-77-108	HIGHV	VAY NO	OISE PR	EDICTI	ON MC	DEL				
Scenar	io: OY Withou	t Project				Project	Name:	MCH				
Road Nam	e: Pine Av.					Job Ni	umber:	10351				
Road Segme	nt: w/o Euclid	Av.										
SITE	SPECIFIC IN	IPUT DATA				N	OISE	MODE	L INPUT	s		
Highway Data				S	ite Con	ditions	(Hard =	: 10, S	oft = 15)			
Average Daily	Traffic (Adt):	7,772 vehicle	es					Autos:	15			
Peak Hour	Percentage:	10%			Med	dium Tru	icks (2	Axles).	15			
Peak H	lour Volume:	777 vehicle	s		Hea	avy Truc	ks (3+	Axles).	15			
Ve	hicle Speed:	45 mph		v	ehicle I	Nix						-
Near/Far La	ne Distance:	76 feet		-	Vehi	cleTvpe		Dav	Evenina	Niah	t Dailv	-
Site Data					Autos: 66.3% 13.5% 20.3%						% 93.40	%
Ba	rrior Hoiaht	0.0 feet			Me	dium Tr	ucks:	77.0%	5.3%	17.6	% 4.70	%
Barrier Type (0-W	(all. 1-Berm):	0.0			h	leavy Tr	ucks:	86.3%	1.5%	12.2	% 1.909	%
Centerline Di	st. to Barrier:	60.0 feet						- // /	41			
Centerline Dist.	to Observer:	60.0 feet		N	ioise So	urce El	evation		eet)			
Barrier Distance	to Observer:	0.0 feet				Autos	i: U.	000				
Observer Height	Above Pad):	5.0 feet			wealun	Trucks	5: Z	297	Crada	linoteor	m4: 0.0	
P	ad Elevation:	0.0 feet			Heav	y Trucks	. 8	004	Grade A	ijusime	<i>III.</i> 0.0	
Ro	ad Elevation:	0.0 feet		L	ane Equ	iivalent	Distar	ce (in	feet)			
	Road Grade:	0.0%				Autos	: 46	.701				
	Left View:	-90.0 degree	es		Mediun	n Trucks	s: 46	.511				
	Right View:	90.0 degree	es		Heav	y Trucks	: 46	.530				
FHWA Noise Mod	el Calculation	s										-
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fres	nel	Barrier A	ten E	Berm Atten	1
Autos:	68.46	-3.23		0.34		-1.20		-4.69	0	000	0.00	10
Medium Trucks:	79.45	-16.21		0.37		-1.20		-4.88	0	000	0.00	0
Heavy Trucks:	84.25	-20.14		0.37		-1.20		-5.34	0	000	0.00	0
Unmitigated Nois	e Levels (with	out Topo and	barrier	attenu	uation)							
VehicleType	Leq Peak Hou	ur Leq Day	′ I	Leq Ev	ening	Leq I	Night		Ldn		CNEL	
Autos:	64	.4	61.8		60.9		57.	9	65	.1	65.	.5
Medium Trucks:	62	4	60.5		54.9		55.	3	62	7	62.	.9
Heavy Trucks:	63	.3	61.8		50.3		54.	6	62	.7	62.	.8
Vehicle Noise:	68	.2	66.2		62.2		61.	0	68	.4	68	.7
Centerline Distan	ce to Noise C	ontour (in feet)									
				70 di	BA	65 0	'BA		60 dBA		55 dBA	
			Ldn:	47		10)1		219		471	
		Ci	VEL:	49		10	06		228		491	

Thursday, May 02, 2019

	FH	WA-RD-77-108	HIGHW	AY NO	DISE P	REDICT	ION MO	DEL			
Scenar Road Nam Road Segme	io: OY Withou ne: Pine Av. nt: e/o Euclid	ut Project Av.				Project Job N	Name: I umber:	MCH 10351			
SITE	SPECIFIC IN	NPUT DATA				N	IOISE N	/IODE	L INPUT	s	
Highway Data				S	ite Cor	nditions	(Hard =	10, S	oft = 15)		
Average Daily	Traffic (Adt):	28,876 vehicl	es				,	Autos:	15		
Peak Hour	Percentage:	10%			Me	edium Tri	ucks (2 A	(xles)	15		
Peak H	lour Volume:	2,888 vehicle	s		He	eavy True	cks (3+ A	(xles)	15		
Ve	hicle Speed:	45 mph		V	ehicle	Mix					
Near/Far La	ne Distance:	76 feet			Veh	icleType		Day	Evening	Nigh	t Daily
Site Data							Autos:	66.3%	5 13.5%	20.3	3% 93.40
Ba	rrier Height:	0.0 feet			М	edium T	rucks:	77.0%	5.3%	17.6	6% 4.70
Barrier Type (0-W	/all, 1-Berm):	0.0				Heavy Ti	rucks:	86.3%	1.5%	12.2	2% 1.90%
Centerline Di	st. to Barrier:	60.0 feet		N	oise S	ource El	levation	s (in f	eet)		
Centerline Dist.	to Observer:	60.0 feet				Auto	s: 0.0	000			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Truck	s: 2.2	297			
Observer Height ((Above Pad):	5.0 feet			Hear	vy Truck	s: 8.0	004	Grade Adj	iustme	ent: 0.0
Pa	ad Elevation:	0.0 feet					Distant	//	6		
Roa	ad Elevation:	0.0 feet		La	ane Eq	uivaien	Distant	ce (In	teet)		
	Road Grade:	0.0%			1 d = - E	Auto	S: 46.	/01			
	Left View:	-90.0 degre	es		Mediu	m Truck	S: 46.	511			
	Right view:	90.0 degre	es		пеа	y muck	5. 40.3	530			
FHWA Noise Mod	el Calculation	ıs									
VehicleType	REMEL	Traffic Flow	Distar	nce	Finite	Road	Fresn	el	Barrier Atte	en l	Berm Atter
Autos:	68.46	2.47		0.34		-1.20		-4.69	0.0	00	0.00
Medium Trucks:	79.45	-10.51		0.37		-1.20		-4.88	0.0	00	0.00
Heavy Trucks:	84.25	-14.44		0.37		-1.20		-5.34	0.0	00	0.00
Unmitigated Nois	e Levels (with	out Topo and	barrier a	attenu	ation)			1			
Vehicle I ype	Leq Peak Ho	ur Leq Da	/ L	eq Eve	ening	Leq	Night		Ldn		CNEL
Autos:	/(J.1	67.5		66.6		63.6		70.8	5	/1.
Medium Trucks:	60	5.1	00.2 67.5		60.0 EC 0		61.0		08.4		60
Vehicle Noise:	73	3.0 3.9	71.9		56.0 67.9		66.7		74.1	•	74
Centerline Distan	ce to Noise C	ontour (in fee	6)								
			Ľ	70 dE	BA	65	dBA		60 dBA		55 dBA
			Ldn:	113		2	43		524	-	1,130
		С	NEL:	118		2	54		547		1,178

Scenar	io: OY Withou	t Project				Project Na	me: N	ICH			
Road Nan	ne: Pine Av.	-				Job Nur	ber: 1	0351			
Road Segme	nt: w/o Chino (Corona Rd.									
SITE	SPECIFIC IN	IPUT DATA				NO	SE M	ODE	L INPUT	s	
Highway Data				:	Site Con	ditions (H	ard = 1	10, So	oft = 15)		
Average Daily	Traffic (Adt):	32,911 vehicles					A	utos:	15		
Peak Hour	Percentage:	10%			Mee	dium Truck	s (2 A	xles):	15		
Peak H	lour Volume:	3,291 vehicles			Hea	avy Trucks	(3+ A	xles):	15		
Ve	hicle Speed:	45 mph			Vehicle I	Aix					
Near/Far La	ne Distance:	76 feet			Vehi	cleType	Ĺ	Day	Evening	Night	Daily
Site Data						Aut	os: 6	6.3%	13.5%	20.3%	93.40%
Ba	rrier Height:	0.0 feet			Me	dium Truc	ks: 7	7.0%	5.3%	17.6%	4.70%
Barrier Type (0-V	Vall. 1-Berm):	0.0			F	leavy Truc	ks: 8	86.3%	1.5%	12.2%	1.90%
Centerline Di	ist. to Barrier:	60.0 feet		-	N 0-		- 41	(In 6	4)		
Centerline Dist.	to Observer:	60.0 feet		1	voise So	urce Elev	ations		eet)		
Barrier Distance	to Observer:	0.0 feet				Autos:	0.0	00			
Observer Height	(Above Pad):	5.0 feet			Mediur	n Trucks:	2.2	97	Crada Ad	iuotmont	
- P	ad Elevation:	0.0 feet			Heav	y Trucks:	8.0	04	Graue Auj	usunen	0.0
Ro	ad Elevation:	0.0 feet		1	Lane Equ	ivalent D	istanc	e (in	feet)		
	Road Grade:	0.0%				Autos:	46.7	01			
	Left View:	-90.0 degrees			Mediur	n Trucks:	46.5	11			
	Right View:	90.0 degrees			Heav	y Trucks:	46.5	30			
FHWA Noise Mod	lel Calculation	s									
FHWA Noise Mod VehicleType	el Calculation REMEL	s Traffic Flow	Distar	nce	Finite	Road	Fresne	e/	Barrier Att	en Ber	m Atten
FHWA Noise Mod VehicleType Autos:	lel Calculation REMEL 68.46	s Traffic Flow 3.04	Distar	nce 0.34	Finite	Road -1.20	Fresne -	el 4.69	Barrier Atte 0.0	en Ber)00	m Atten 0.000
FHWA Noise Mod VehicleType Autos: Medium Trucks:	REMEL 68.46 79.45	s Traffic Flow 3.04 -9.94	Distar	nce 0.34 0.37	Finite	Road -1.20 -1.20	Fresne - -	el 4.69 4.88	Barrier Atte 0.0 0.0	en Ber 000	m Atten 0.000 0.000
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks:	el Calculation REMEL 68.46 79.45 84.25	s Traffic Flow 3.04 -9.94 -13.88	Distar	nce 0.34 0.37 0.37	Finite	Road -1.20 -1.20 -1.20	Fresne - -	el 4.69 4.88 5.34	Barrier Atte 0.0 0.0 0.0	en Ber 000 000 000	m Atten 0.000 0.000 0.000
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois	lel Calculation REMEL 68.46 79.45 84.25 e Levels (with	s Traffic Flow 3.04 -9.94 -13.88 out Topo and b	Distar	nce 0.34 0.37 0.37	Finite Finite Finite Unite T T T T T T T T T T T T T T T T T T T	Road -1.20 -1.20 -1.20	Fresne - -	el 4.69 4.88 5.34	Barrier Atte 0.0 0.0 0.0	en Ber 000 000 000	m Atten 0.000 0.000 0.000
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType	el Calculation REMEL 68.46 79.45 84.25 e Levels (with Leq Peak Hou	s Traffic Flow 3.04 -9.94 -13.88 out Topo and b Ir Leq Day	Distar arrier a	nce 0.34 0.37 0.37 atten eq Et	Finite 4 7 7 uation) vening	Road -1.20 -1.20 -1.20 Leg Nig	Fresne - - -	el 4.69 4.88 5.34	Barrier Atte 0.0 0.0 0.0 Ldn	en Ber 000 000 000 Ci	m Atten 0.000 0.000 0.000
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos:	el Calculation REMEL 68.46 79.45 84.25 e Levels (with Leq Peak Hou 70	s Traffic Flow 3.04 -9.94 -13.88 out Topo and b ur Leq Day .6 6	Distar	nce 0.34 0.37 0.37 atten eq E	Finite Finite Finite T T T T T T T T T T T T T T T T T T T	Road -1.20 -1.20 -1.20 Leq Nig	Fresne - - - - - - - - - - - - - - - - - - -	el 4.69 4.88 5.34	Barrier Atte 0.0 0.0 0.0 0.0 0.0 71.4	en Ber 000 000 000 Ci	m Atten 0.000 0.000 0.000 NEL 71.8
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks:	el Calculation <u>REMEL</u> 68.46 79.45 84.25 e Levels (with Leq Peak Hou 70 68	s Traffic Flow 3.04 -9.94 -13.88 out Topo and b ur Leq Day .6 66 .7 66	Distar	nce 0.34 0.37 0.37 atten eq E	Finite 4 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	Road -1.20 -1.20 -1.20 Leq Nig	Fresne - - - - - - - - - - - - - - - - - - -	4.69 4.88 5.34	Barrier Atte 0.0 0.0 0.0 0.0 0.0 <i>Ldn</i> 71.4 69.0	en Ber 000 000 000 000 Ci	<u>m Atten</u> 0.000 0.000 0.000 VEL 71.8 69.2
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks:	tel Calculation REMEL 68.46 79.45 84.25 e Levels (with Leg Peak Hot 70 68 69	s Traffic Flow 3.04 -9.94 -13.88 out Topo and b ir Leq Day .6 6 .7 66 .5 66	Distar arrier a 3.1 3.7 3.1	nce 0.34 0.37 0.37 atten eq E	<i>Finite</i> 4 7 7 <i>vening</i> 67.2 61.1 56.5	Road -1.20 -1.20 -1.20 Leq Nig	Fresne - - - - - - - - - - - - - - - - - - -	el 4.69 4.88 5.34	Barrier Atte 0.0 0.0 0.0 0.0 1.0 5 1.4 69.0 69.0	en Ber 000 000 000 000 Ci 4 0	<u>m Atten</u> 0.000 0.000 0.000 VEL 71.8 69.2 69.0
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	lel Calculation REMEL 68.46 79.45 84.25 e Levels (with Leq Peak Hou 70 68 69 74	s Traffic Flow 3.04 -9.94 -13.88 out Topo and b ir Leq Day .6 6 .7 66 .5 67	Distar arrier a 3.1 3.7 3.1 2.5	nce 0.3 0.3 0.3 atten eq E	Finite 4 7 7 uation) vening 67.2 61.1 56.5 68.4	Road -1.20 -1.20 -1.20 -1.20	Fresne - - - - - - - - - - - - - - - - - - -	el 4.69 4.88 5.34	Barrier Atti 0.0 0.0 0.0 0.0 0.0 71.4 69.0 69.0 74.7	en Ber 000 000 000 Cr 4 0 0	m Atten 0.000 0.000 0.000 VEL 71.8 69.2 69.2
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	tel Calculation <u>REMEL</u> 68.46 79.45 84.25 e Levels (with Leg Peak Hol 70 68 69 74 ce to Noise Co	s Traffic Flow 3.04 -9.94 -13.88 out Topo and b rr Leq Day .6 6 .7 66 .5 66 .5 77: ontour (in feet)	Distar arrier a 2.1 3.1 2.5	nce 0.34 0.37 0.37 atten eq Ev	Finite 4 7 7 wening 67.2 61.1 56.5 68.4	Road -1.20 -1.20 -1.20 Leq Nig	Fresne 	el 4.69 4.88 5.34	Barrier Atte 0.0 0.0 0.0 0.0 0.0 71.4 69.0 69.0 74.7	en Ber 000 000 Ci 4 7 7	m Atten 0.000 0.000 0.000 VEL 71.8 69.2 69.0 75.0
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Zenterline Distan	el Calculation REMEL 68.46 79.45 84.25 e Levels (with Leg Peak Hou 70 68 69 74 ce to Noise Co	s Traffic Flow 3.04 -9.94 -13.88 out Topo and b rr 4.02 1.5 66 .5 77 ontour (in feet)	Distar	nce 0.34 0.37 atten eq Ev	Finite 4 7 7 <i>vening</i> 67.2 61.1 56.5 68.4 <i>IBA</i>	Road -1.20 -1.20 -1.20 -1.20 Leq Nig	Fresne 	el 4.69 4.88 5.34	Barrier Atto 0.0 0.0 0.0 1. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.	en Ber 000 000 Ci 4 7 55	m Atten 0.000 0.000 0.000 VEL 71.8 69.2 69.0 75.0 dBA
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks: Vehicle Noise: Centerline Distan	el Calculation <u>REMEL</u> 68.46 79.45 84.25 e Levels (with Leq Peak Hou 70 68 69 74 ce to Noise Ca	s Traffic Flow 3.04 -9.94 -13.88 out Topo and b I'' Leg Day 6.6 6.6 6.7 6.6 5.5 7: 5.7 5.7 5.7 5.7 5.5 6.1 6.1 6.1 6.1 6.1 6.1 7.1 6.1 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7.2	Distar arrier a 3.1 3.1 2.5 dn:	nce 0.34 0.37 0.37 atten eq Eu 70 c 12	Finite 4 7 7 <i>vening</i> 67.2 61.1 56.5 68.4 <i>IBA</i> 23	Road -1.20 -1.20 -1.20 -1.20 <i>Leq Nig</i> 65 dB 266	Fresne 	el 4.69 4.88 5.34	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	en Ber 000 000 000 Ci 4 0 7 55 1,	<i>m Atten</i> 0.000 0.000 0.000 VEL 71.6 69.2 69.0 75.0 <i>dBA</i> 233

Thursday, May 02, 2019

	FHV	VA-RD-77-108 I	HIGHW	AY N	OISE PI	REDICTI	ON MC	DEL			
Scenar Road Nan Road Segme	io: OY Without ne: Pine Av. nt: w/o W. Pre:	Project serve Loop				Project Job N	Name: umber:	MCH 10351			
SITE	SPECIFIC IN	PUT DATA				N	OISE	MODE	L INPUT	s	
Highway Data				S	Site Con	ditions	(Hard =	: 10, So	oft = 15)		
Average Daily Peak Hour Peak F	Traffic (Adt): Percentage: Iour Volume:	18,578 vehicle 10% 1,858 vehicles	s		Me He	dium Tru avy Truc	icks (2 :ks (3+	Autos: Axles): Axles):	15 15 15		
Ve	hicle Speed:	45 mph		V	/ehicle	Mix					
Near/Far La	ne Distance:	76 feet			Veh	icleType		Day	Evening	Night	Daily
Site Data						A	lutos:	66.3%	13.5%	20.3%	93.40%
Ba	rrier Height	0.0 feet			M	edium Tr	ucks:	77.0%	5.3%	17.6%	4.70%
Barrier Type (0-V	Vall, 1-Berm):	0.0			ŀ	Heavy Tr	ucks:	86.3%	1.5%	12.2%	1.90%
Centerline Di	ist. to Barrier:	60.0 feet			loise So	ource El	evatior	is (in fe	eet)		
Centerline Dist.	to Observer:	60.0 feet				Autos	s: 0.	000			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Trucks	3: 2	297			
Observer Height	(Above Pad):	5.0 feet			Heav	v Trucks	s: 8	004	Grade Ad	justmen	t: 0.0
P	ad Elevation:	0.0 feet								·	
Ro	ad Elevation:	0.0 feet		L	.ane Eq	uivalent	Distan	ce (in	feet)		
	Road Grade:	0.0%				Autos	3: 46	701			
	Left View: Right View:	-90.0 degree	s		Mediu Heav	m Trucks v Trucks	s: 46 s: 46	.511 .530			
VohicloTypo	DEMEI	S Troffic Flow	Dictor	00	Einito	Pood	From	nol	Parriar At	on Ro	rm Atton
Autos:	68.46	0.56	Distan	0.34	1 mile	-1.20	1103	-4 60			0.00
Medium Trucks:	79.45	-12.43		0.37		-1.20		-4.88	0.0	000	0.00
Heavy Trucks:	84.25	-16.36		0.37		-1.20		-5.34	0.0	000	0.00
Unmitigated Nois	e Levels (with	out Topo and L	oarrier a	tten	uation)						
VehicleType	Leq Peak Hou	r Leq Day	Le	eq Ev	ening	Leq	Night		Ldn	C	NEL
Autos:	68	.2 6	5.6		64.7		61.	7	68.9	9	69.
Medium Trucks:	66	.2 6	4.3		58.7		59.	1	66.	5	66.
Heavy Trucks:	67	.1 6	5.6		54.0		58.	4	66.	5	66.
Vehicle Noise:	72	.0 7	0.0		65.9		64.	7	72.:	2	72.
Centerline Distan	ce to Noise Co	ontour (in feet)	_							1	
				70 d	BA	65 (dBA	6	60 dBA	55	5 dBA
		L	.dn:	84	ŀ	18	31		391	-	842
		CN	EL:	88	3	18	39		407	1	878

	FHV	VA-RD-77-108 HI	IGHWAY	NOISE PI	REDICTIO	N MOD	EL				
Scenario Road Name Road Segmen	: OY Without : Pine Av. : w/o E. Pres	t Project erve Loop			Project Na Job Nun	ame: M nber: 1(ICH 0351				
SITE S	PECIFIC IN	IPUT DATA			NO	ISE M	ODEL I	NPUTS	6		
Highway Data				Site Con	ditions (H	lard = 1	0, Soft	= 15)			
Average Daily T Peak Hour F Peak Ho	raffic (Adt): Percentage: ur Volume:	30,018 vehicles 10% 3,002 vehicles		Me He	dium Truci avy Trucks	Ai ks (2 Ax s (3+ Ax	utos: des): des):	15 15 15			
Noar/Ear Lan	n Distanco:	45 mpn 76 foot		Vehicle	Mix	-					
Neal/I al Lali	e Distance.	70 leet		Veh	icleType	E	Day E	vening	Night	Daily	
Site Data Barr Barrier Type (0-Wa	ier Height: II, 1-Berm):	0.0 feet 0.0		M	Au edium Truc Heavy Truc	tos: 6 cks: 7 cks: 8	6.3% 7.0% 6.3%	13.5% 5.3% 1.5%	20.3% 17.6% 12.2%	93.40% 4.70% 1.90%	
Centerline Dist	to Barrier:	60.0 feet		Noiso S	ourco Elov	ations	(in foot)			
Centerline Dist. to Barrier: 60.0 feet Centerline Dist. to Observer: 60.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet				Autos: 0.000 Medium Trucks: 2.297 Heavy Trucks: 8.004 Grade Adjustment: 0.0							
Road	f Elevation:	0.0 feet		Lane Equivalent Distance (in feet)							
R	oad Grade: Left View: Right View:	0.0% -90.0 degrees 90.0 degrees		Autos: 46.701 Medium Trucks: 46.511 Heavy Trucks: 46.530							
FHWA Noise Mode	Calculation	s									
VehicleType	REMEL	Traffic Flow	Distance	Finite	Road	Fresne	l Ba	rrier Atte	en Ber	m Atten	
Autos:	68.46	2.64	0.	34	-1.20	-4	4.69	0.0	00	0.000	
Medium Trucks: Heavy Trucks:	79.45 84.25	-10.34 -14.28	0. 0.	37 37	-1.20 -1.20		4.88 5.34	0.0 0.0	00 00	0.000 0.000	
Unmitigated Noise	Levels (with	out Topo and ba	nrrier atte	enuation)							
VehicleType I	eq Peak Hou	ir Leq Day	Leq	Evening	Leq Ni	ght	Lo	dn	C	NEL	
Autos:	70	.2 67	.7	66.8		63.8		71.0		71.4	
Medium Trucks:	68	.3 66	.3	60.7		61.2		68.6		68.8	
Heavy Trucks:	69	.1 67	.7	56.1 60.5 68.6 6					68.6		
Vehicle Noise:	Vehicle Noise: 74.1 72.1					68.0 66.8 74.3 74					
Centerline Distance	e to Noise Co	ontour (in feet)			05 :-		0.7				
			70) aBA	65 dB	\$A	60 0	3BA	55	dBA 400	
		Ld CNE	n: L:	121	250 260		53 56	60 61	1, 1,	208	

Thursday, May 02, 2019

	FH\	NA-RD-77-108	HIGHW	AY NC	DISE P	REDICTI	ION MO	DEL				
Scenan Road Nam Road Segmei	io: OY Withou ne: Pine Av. nt: w/o Hellma	t Project In Av.				Project Job N	Name: I umber:	MCH 10351				
SITE	SPECIFIC IN	IPUT DATA				N	IOISE N	IODE	L INPUT	s		
Highway Data				S	ite Cor	nditions	(Hard =	10, S	oft = 15)			
Average Daily	Traffic (Adt):	29,448 vehicl	es					Autos:	15			
Peak Hour	Percentage:	10%			Me	edium Tru	ucks (2 A	xles):	15			
Peak H	lour Volume:	2,945 vehicle	s		He	eavy Truc	cks (3+ A	xles):	15			
Ve	hicle Speed:	45 mph		V	ehicle	Mix						
Near/Far La	ne Distance:	76 feet		Ē	Veł	nicleTvpe		Dav	Evening	Niał	nt Da	ilv
Site Data						A	Autos:	66.3%	5 13.5%	20.3	3% 93.4	10%
Bai	rrier Height:	0.0 feet			M	ledium Tr	rucks:	77.0%	5.3%	17.6	5% 4.7	70%
Barrier Type (0-W	/all, 1-Berm):	0.0				Heavy Ti	rucks:	86.3%	1.5%	12.3	2% 1.9	€0%
Centerline Dis	st. to Barrier:	60.0 feet		N	oise S	ource El	levation	s (in f	eet)			
Centerline Dist.	to Observer:	60.0 feet				Autos	s: 0.0	000	,			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Truck	s: 2.2	297				
Observer Height (Above Pad):	5.0 feet			Hea	vy Trucks	s: 8.0	004	Grade Adj	iustm	ent: 0.0	
Pa	ad Elevation:	0.0 feet		-								
Roa	ad Elevation:	0.0 feet		Li	ane Eq	uivalent	Distant	ce (in	feet)			
	Road Grade:	0.0%				Autos	s: 46.	701				
	Left View:	-90.0 degre	es		Mediu	m Truck	s: 46.	511				
	Right View:	90.0 degre	es		неа	vy Truck	S: 46.	530				
FHWA Noise Mode	el Calculation	S										
VehicleType	REMEL	Traffic Flow	Distar	nce	Finite	Road	Fresn	el	Barrier Atte	en l	Berm Att	ten
Autos:	68.46	2.56		0.34		-1.20		-4.69	0.0	00	0.	.000
Medium Trucks:	79.45	-10.43		0.37		-1.20		-4.88	0.0	00	0.	.000
Heavy Trucks:	84.25	-14.36		0.37		-1.20		-5.34	0.0	00	0.	.000
Unmitigated Noise	e Levels (with	out Topo and	barrier a	attenu	ation)							
VehicleType	Leq Peak Hou	ur Leq Day	/ Le	eq Eve	ening	Leq	Night		Ldn		CNEL	
Autos:	70	1.2	67.6		66.7		63.7		70.9)		71.3
Medium Trucks:	68	.2	66.3		60.7		61.1		68.5		6	38.7
Heavy Trucks:	69	0.1	67.6 72.0		56.0 67.0	1	60.4		68.5	,		58.5 74.5
Centerline Distant	re to Noise C	ontour (in foot	1		07.5		00.7		74.2			. 4.0
Centernine Distant	10 10 110/36 0	unioui (in ieei	/	70 dE	BA	65	dBA		60 dBA		55 dBA	
			Ldn:	114	Ļ	24	47		531		1,145	
		C	NEL:	119	•	2	57		554		1,193	

Scenario: OY Without Project					Project Name: MCH								
Road Name: Schleisman Rd.					Job Number: 10351								
Road Segme	ent: w/o Archiba	ald Av.											
SITE	SPECIFIC IN	IPUT DATA			NOISE MODEL INPUTS								
Highway Data					Site Conditions (Hard = 10, Soft = 15)								
Average Daily	Traffic (Adt):	31,944 vehicles	5				Autos	: 15					
Peak Hour Percentage: 10%					Medium Trucks (2 Axles): 15								
Peak Hour Volume: 3,194 vehicles Vehicle Speed: 45 mph Near/Far Lane Distance: 78 feet					Heavy Trucks (3+ Axles): 15								
				Ve	Vehicle Mix								
					Vehi	cleType	Day	Evening	Night	Daily			
Site Data						Auto	s: 66.39	6 13.5%	20.3%	93.40%			
Ba	arrier Height	0.0 feet			Me	dium Truck	s: 77.09	6 5.3%	17.6%	4.70%			
Barrier Type (0-V	Vall. 1-Berm):	0.0			Н	eavy Truck	s: 86.39	6 1.5%	12.2%	1.90%			
Centerline D	ist. to Barrier:	76.0 feet		No	ine Ce	uree Elevia	tiono (in	[a a 4]					
Centerline Dist.	to Observer:	76.0 feet		NO	ise so	Autor		eel)					
Barrier Distance	to Observer:	0.0 feet			Madium	Autos:	0.000						
Observer Height (Above Pad): 5.0 fee				Medium Trucks: 2.297						0.0			
F	ad Elevation:	0.0 feet			neavj	TTUCKS.	0.004	Orade Au	usunom.	0.0			
Ro	Road Elevation: 0.0 feet				Lane Equivalent Distance (in feet)								
Road Grade: 0.0%				Autos: 65.422									
	Left View:	-90.0 degrees	5	1	Mediun	n Trucks:	65.286						
	Right View:	90.0 degrees	6	Heavy Trucks: 65.299									
FHWA Noise Moo	lal Calandada a	s											
	iel Calculation												
VehicleType	REMEL	Traffic Flow	Distanc	e	Finite I	Road F	resnel	Barrier Att	en Ber	m Atten			
VehicleType Autos:	REMEL 68.46	Traffic Flow 2.91	Distand -	e 1.85	Finite I	Road F -1.20	resnel -4.73	Barrier Att 0.0	en Ber	m Atten 0.000			
VehicleType Autos: Medium Trucks:	REMEL 68.46 79.45	<i>Traffic Flow</i> 2.91 -10.07	Distand -	e 1.85 1.84	Finite I	Road F -1.20 -1.20	resnel -4.73 -4.88	Barrier Att 0.0 0.0	en Ber 100 100	m Atten 0.000 0.000			
VehicleType Autos: Medium Trucks: Heavy Trucks:	REMEL 68.46 79.45 84.25	Traffic Flow 2.91 -10.07 -14.01	Distand - -	ne 1.85 1.84 1.84	Finite I	Road F -1.20 -1.20 -1.20	resnel -4.73 -4.88 -5.25	Barrier Att 0.0 0.0 0.0	en Ber 100 100 100	m Atten 0.000 0.000 0.000			
VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois	<i>REMEL</i> 68.46 79.45 84.25 <i>e Levels (with</i>	Traffic Flow 2.91 -10.07 -14.01 out Topo and b	Distand - - arrier at	e 1.85 1.84 1.84 tenua	Finite I	Road F -1.20 -1.20 -1.20	resnel -4.73 -4.88 -5.25	Barrier Att 0.0 0.0 0.0	en Ben 100 100 100	m Atten 0.000 0.000 0.000			
VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType	REMEL 68.46 79.45 84.25 e Levels (with Leq Peak Hou	Traffic Flow 2.91 -10.07 -14.01 out Topo and b Image: constraint of the second s	Distand - - - - - - - - - - - - - - - - - - -	e 1.85 1.84 1.84 tenua g Ever	Finite I ation)	Road F -1.20 -1.20 -1.20 Leq Nigi	resnel -4.73 -4.88 -5.25	Barrier Att 0.0 0.0 0.0 0.0	en Ben 000 000 000 C/	m Atten 0.000 0.000 0.000			
VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos:	REMEL 68.46 79.45 84.25 e Levels (with Leg Peak Hou 68	Traffic Flow 2.91 -10.07 -14.01 out Topo and b 1 Ir Leq Day 3 6	Distance - 	ne 1.85 1.84 1.84 1.84 tenua q Ever	Finite I ntion) ning 64.8	Road F -1.20 -1.20 -1.20 -1.20 Leq Nigi	resnel -4.73 -4.88 -5.25 ht 61.8	Barrier Att 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	en Ben 100 100 100 100 100 <i>Cl</i>	<u>m Atten</u> 0.000 0.000 0.000 VEL 69.5			
VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks:	REMEL 68.46 79.45 84.25 e Levels (with Leg Peak Hou 68 66	Traffic Flow 2.91 -10.07 -14.01 out Topo and b I Ir Leq Day .3 6 .3 6	Distanc - - - - - - - - - - - - - - - - - - -	ne 1.85 1.84 1.84 tenua g Ever	tion) ning 64.8 58.8	Road F -1.20 -1.20 -1.20 Leq Nigi	resnel -4.73 -4.88 -5.25 nt 61.8 59.2	Barrier Att 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 69.0 66.7	en Ben 000 000 000 000 C/	<u>m Atten</u> 0.000 0.000 0.000 VEL 69.5 66.8			
VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks:	REMEL 68.46 79.45 84.25 e Levels (with Leg Peak Hou 68 66 67	Traffic Flow 2.91 -10.07 -14.01 out Topo and b 1 Ir Leq Day .3 6 .3 6 .2 6	Distance - 	xe 1.85 1.84 1.84 tenua g Ever	Finite 1 ning 64.8 58.8 54.2	Road F -1.20 -1.20 -1.20 Leq Nigi	resnel -4.73 -4.88 -5.25 ht 61.8 59.2 58.5	Barrier Att 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 60.0 6	en Ber 000 000 000 000 CI 0 5	<u>m Atten</u> 0.000 0.000 0.000 <u>VEL</u> 69.5 66.8 66.7			
VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	REMEL 68.46 79.45 84.25 e Levels (with Leq Peak Hou 68 66 67 72	Traffic Flow 2.91 -10.07 -14.01 out Topo and b 1 out Cop and b 1 a 6 .3 6 .2 6 .1 7	Distanc - - - - - - - - - - - - - - - - - - -	ne 1.85 1.84 1.84 1.84 tenua g Ever	Finite ning 64.8 58.8 54.2 66.1	Road F -1.20 -1.20 -1.20 -1.20 Leq Nigitian -1.20	resnel -4.73 -4.88 -5.25 ht 61.8 59.2 58.5 64.9	Barrier Att 0.0 0.0 0.0 0.0 0.0 0 0.0 66.7 66.6 72.4	en Ber 1000 100	<u>m Atten</u> 0.000 0.000 0.000 VEL 69.5 66.8 66.7 72.6			
VehicleType Autos: Medium Trucks: Heavy Trucks: Unnitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	rer Catcuration REMEL 68.46 79.45 84.25 re Levels (with Leg Peak Hou 68 66 67 72 ce to Noise Ca	Traffic Flow 2.91 -10.07 -14.01 out Topo and b ir Leq Day .3 6 .2 6 .1 7 ontotour (in feet)	Distanc - - - - - - - - - - - - - - - - - - -	xe 1.85 1.84 1.84 tenua 7 Ever	Finite I ning 64.8 58.8 54.2 66.1	Road F -1.20 -1.20 -1.20 -1.20	resnel -4.73 -4.88 -5.25 ht 61.8 59.2 58.5 64.9	Barrier Att 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 66.7 66.6 66.7 22.4	en Ber 100 100 100 100 100 100 100 10	<u>m Atten</u> 0.000 0.000 0.000 VEL 69.5 66.8 66.7 72.6			
VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	rer Catcuration REMEL 68.46 79.45 84.25 re Levels (with Leq Peak Hou 68 66 67 72 ce to Noise Co	Traffic Flow 2.91 -10.07 -14.01 out Topo and b rr Leq Day .3 6 .3 .2 6 .2 .1 .7 .7 .1 .7 .7	Distanc - - - - - - - - - - - - - - - - - - -	ne 1.85 1.84 1.84 tenua 7 Ever	Finite ation) ning 64.8 58.8 54.2 66.1	Road F -1.20 -1.20 -1.20 -1.20 Leq Nigi 65 dBA	resnel -4.73 -4.88 -5.25 61.8 59.2 58.5 64.9	Barrier Att 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 69.0 66.7 66.6 72.4 60 dBA	en Ber 100 100 100 100 100 100 100 10	m Atten 0.000 0.000 0.000 VEL 69.5 66.8 66.7 72.6 dBA			
VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distant	Level 68.46 79.45 84.25 e Levels (with Leq Peak Hou 68 66 67 72 ce to Noise Co Co	Traffic Flow 2.91 -10.07 -14.01 out Topo and b rr Leq Day 3 6 .3 6 .2 6 .1 7 7 .1 7 Dontour (in feet) L L L	Distant - - - - - - - - - - - - - - - - - - -	ne 1.85 1.84 1.84 tenua g Even 70 dB, 109	Finite 1 ning 64.8 58.8 54.2 66.1	Road F -1.20 -1.20 -1.20 -1.20 Leq Nigi 65 dB/ 235	resnel -4.73 -4.88 -5.25 61.8 59.2 58.5 64.9	Barrier Att 0.0 0.0 0.0 0.0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 000000	en Ber 000 000 000 000 CI 0 5 1,1	<u>m Atten</u> 0.000 0.000 0.000 <u>VEL</u> 66.8 66.7 72.6 <u>dBA</u> 092			

Thursday, May 02, 2019

	FHW	/A-RD-77-108 HI	GHWAY	NOISE PI	REDICTIO	N MOI	DEL					
Scenario: OY With Project Road Name: Central Av. Road Segment: n/o El Prado Rd.					Project N Job Nur	ame: N nber: 1	MCH 10351					
SITE SPECIFIC INPUT DATA					NC	ISE N	IODE		TS			
Highway Data				Site Con	ditions (F	lard =	10, So	ft = 15)				
Average Daily	Traffic (Adt):	31,954 vehicles				A	Autos:	15				
Peak Hour	10%	Medium Trucks (2 Axles): 15										
Peak H	our Volume:	3,195 vehicles		He	avy Truck	s (3+ A	xles):	15				
Vehicle Speed:		45 mph		14-61-6-846-								
Near/Far La	ne Distance:	76 feet	Venicle	icleType		Dav	Evenin		aht	Daily		
Site Data				VCI	Au	tos. I	56.2%	13 50	6 2	0.3%	03 / 8%	
One Data				м	edium Tru	cks [.]	77 1%	5.39	6 1	7.6%	4 64%	
Ba Damien Terra (0.14	rrier Height:	0.0 feet			Heavy Tru	cks:	86.3%	1.59	6 1	2.2%	1.88%	
Contorlino Di	int to Parriar:	60.0 foot										
Centerline Dist. to Barrier:		60.0 feet		Noise Se	ource Ele	ations	s (in fe	et)				
Barriar Distance	to Observer:	0.0 feet			Autos:	0.0	00					
Observer Height (Above Pad):		5.0 feet		Mediu	m Trucks:	2.2	97					
Doserver Height (Above Fau).		0.0 feet		Heav	/y Trucks:	8.0	104	Grade /	Adjust	ment:	0.0	
Ro	ad Elevation:	0.0 feet		Lane Eq	uivalent L	Distanc	e (in f	eet)				
710	0.0%			Autos:	46.7	01	,					
Left View:		-90.0 degrees		Mediu	m Trucks:	46.5	511					
	Right View:	90.0 degrees		Heav	y Trucks:	46.5	530					
FHWA Noise Mod	el Calculations	6										
VehicleType	REMEL	Traffic Flow	Distance	Finite	Road	Fresn	el i	Barrier /	Atten	Ber	m Atten	
Autos:	68.46	2.91	0.0	34	-1.20		4.69		0.000		0.00	
Medium Trucks:	79.45	-10.12	0.0	37	-1.20		4.88		0.000		0.00	
Heavy Trucks:	84.25	-14.05	0.3	37	-1.20		-5.34		0.000		0.00	
Unmitigated Nois	e Levels (with	out Topo and ba	rrier atte	nuation)								
VehicleType	Leq Peak Hou	r Leq Day	Leq E	Evening	Leq Ni	ight		Ldn		CI	VEL	
Autos:	70.	5 67.	9	67.0		64.0		7	1.2		71.	
Medium Trucks:	68.	5 66.	6	61.0		61.4		6	8.8		69.0	
Heavy Trucks:	69.	4 67.	9	56.4		60.7		6	8.8		68.	
Vehicle Noise:	74.	3 72.	72.3		68.3 67.			7	4.5		74.	
Centerline Distan	ce to Noise Co	ntour (in feet)										
			70	dBA	65 dE	65 dBA		60 dBA			55 dBA	
Ldn: 1			20	259 559			559	1,204				
CNEL: 1			25	270			582			1,255		

	FHV	VA-RD-77-108 H	IIGHWA	Y NOISE P	REDICTI	ON MO	DEL							
Scenario: OY With Project Road Name: Central Av. Road Segment: s/o El Prado Rd.				Project Name: MCH Job Number: 10351										
SITE S	NOISE MODEL INPUTS													
Highway Data	Highway Data					Site Conditions (Hard = 10, Soft = 15)								
Average Daily Traffic (Adt): 38,873 vehicles				Autos: 15										
Peak Hour Percentage: 10%			Medium Trucks (2 Axles): 15											
Peak Hour Volume: 3,887 vehicles			Heavy Trucks (3+ Axles): 15											
Vel	45 mph		Vehicle Mix											
Near/Far Lar	ne Distance:	78 feet		Veh	icleType		Day	Evening	Nig	ht Da	aily			
Site Data				Autos: 66.2% 13.5% 20.3% 93.04%										
Bar	rier Heiaht:	0.0 feet		M	ledium Tri	ucks:	77.1%	5.3%	17	6% 4.	80%			
Barrier Type (0-Wa	all, 1-Berm):	0.0			Heavy Tri	ucks:	86.3%	5 1.5%	12	2% 2.	16%			
Centerline Dis	t. to Barrier:	60.0 feet		Noise Source Elevations (in feet)										
Centerline Dist. t	Centerline Dist. to Observer: 60.0 feet			Autos: 0.000										
Barrier Distance to Observer: 0.0 feet				Medium Trucks: 2.297										
Observer Height (/	Observer Height (Above Pad): 5.0 feet			Heavy Trucks: 8.004 Grade Adjustment: 0.0										
Pa	d Elevation:	0.0 feet		Laws Fr		Distan	()	6	·					
Road Elevation: 0.0 feet														
F	Road Grade: 0.0%			AUTOS: 43.809 Modium Trucks: 45.676										
	Left View:	-90.0 degrees	6	Meanum Trucks: 45.676										
	Right View:	90.0 degrees	6	Hea	vy Trucks	: 45.	695							
FHWA Noise Mode	el Calculation	s												
VehicleType	REMEL	Traffic Flow	Distanc	e Finite	Road	Fresr	nel	Barrier A	ten	Berm At	ten			
Autos:	Autos: 68.46 3.75			0.46	46 -1.20		-4.69 0.000		000	0.000				
Medium Trucks:	79.45	-9.13		0.49	-1.20		-4.88	0	000	0	.000			
Heavy Trucks:	84.25	-12.59		0.48	-1.20		-5.34	0	000	0	.000			
Unmitigated Noise	Levels (with	out Topo and b	arrier at	tenuation)										
VehicleType	Leq Peak Hou	ır Leq Day	Leo	q Evening	Leq I	Vight		Ldn		CNEL				
Autos:	71	.5 6	8.9	68.0		65.0)	72	2		72.6			
Medium Trucks:	69	69.6 67.7		62.1	62.5		5	69.9		70.1				
Heavy Trucks:	70	70.9 69.5		57.9	62.3		3	70.4		70.4				
Vehicle Noise:	75	.5 7	3.5	69.3	69.3 68.2		2 75.7		.7	76.0				
Centerline Distanc	e to Noise Co	ontour (in feet)												
				70 dBA	65 c	65 dBA		60 dBA		55 dBA				
Ldn:			144	4 310			669			1,440				
CNEL: 1				150	323 696 1,49					1,499				

Thursday, May 02, 2019
	FH	WA-RD-77-108	HIGHV	VAY NO	ISE P	REDICTI	on Moe	DEL				
Scenario Road Name Road Segmen	b: OY With P e: El Prado R t: n/o Kimbal	roject d. I Av.				Project I Job Nu	Name: N Imber: 1	MCH 10351				
SITE S	PECIFIC IN	NPUT DATA				N	OISE M	IODE	L INPUTS	s		
Highway Data				Si	te Cor	nditions (Hard =	10, So	oft = 15)			
Average Daily 1	Traffic (Adt):	28,653 vehicl	es				F	Autos:	15			
Peak Hour F	Percentage:	10%			Me	edium Tru	cks (2 A	xles):	15			
Peak Ho	our Volume:	2,865 vehicle	s		He	avy Truc	ks (3+ A	xles):	15			
Veh	icle Speed:	45 mph		Ve	hicle	Mix						
Near/Far Lan	e Distance:	36 feet			Veh	icleType	1	Day	Evening	Nigl	ht I	Daily
Site Data						A	utos: 6	66.2%	13.5%	20.3	3% 9	3.15%
Bari	rier Heiaht:	0.0 feet			Μ	edium Tri	ucks:	77.1%	5.3%	17.	6%	4.71%
Barrier Type (0-Wa	all, 1-Berm):	0.0				Heavy Tri	ucks: 8	86.3%	1.5%	12.	2%	2.14%
Centerline Dis	t. to Barrier:	44.0 feet		No	oise S	ource Ele	vations	in fe	eet)			
Centerline Dist. to	o Observer:	44.0 feet				Autos	: 0.0	00	,			
Barrier Distance to	o Observer:	0.0 feet			Mediu	m Trucks	: 2.2	97				
Observer Height (A	Above Pad):	5.0 feet			Hea	v Trucks	: 8.0	104	Grade Adj	iustm	ent: 0	.0
Pa	d Elevation:	0.0 feet		-								
Roa	d Elevation:	0.0 feet		Lá	ine Eq	uivalent	Distanc	e (in	teet)			
F	Road Grade:	0.0%				Autos	: 40.4	60				
	Left View:	-90.0 degre	es		Mediu	m Trucks	: 40.2	241				
	Right View:	90.0 degre	es		Hea	vy Trucks	: 40.2	62				
FHWA Noise Mode	l Calculation	IS										
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresne	el	Barrier Atte	en i	Berm	Atten
Autos:	68.46	2.43		1.28		-1.20	-	4.61	0.0	00		0.000
Medium Trucks:	79.45	-10.54		1.31		-1.20	-	4.87	0.0	00		0.000
Heavy Trucks:	84.25	-13.96		1.31		-1.20	-	-5.50	0.0	00		0.000
Unmitigated Noise	Levels (with	out Topo and	barrier	attenua	ation)							
VehicleType	Leq Peak Ho	ur Leq Da	/ 1	Leq Eve	ning	Leq I	light		Ldn		CNE	L
Autos:	71	1.0	68.4		67.5		64.5		71.7	,		72.1
Medium Trucks:	69	9.0	67.1		61.5		61.9		69.3	5		69.5
Heavy Trucks:	70).4	69.0		57.4		61.7		69.8	3		69.9
Venicle Noise:	75	5.0	73.0		68.8		67.7		75.2			75.4
Centerline Distanc	e to Noise C	ontour (in fee	t)	70 -15		05.	04		0.404	1	FF 45	
			I dn:	70 dE	24	000	n DA	e	452	I	070 dE	24
		0	LUII: NEL	97 210 452			402	2 973 70 1.013				
		C	IVEL:	101		21	0		470		1,01	3

Scenar	io: OY With Pr	oject				Project N	lame: N	лсн				
Road Nam	e: Euclid Av.					Job Nu	mber: 1	0351				
Road Segme	nt: n/o Walnut	Av.										
SITE	SPECIFIC IN	IPUT DATA				N	DISE N	IODE	L INPUT	S		
Highway Data				S	Site Con	ditions (I	Hard =	10, S	oft = 15)			
Average Daily	Traffic (Adt):	35,531 vehicles					A	Autos:	15			
Peak Hour	Percentage:	10%			Me	dium Truo	:ks (2 A	xles):	15			
Peak H	lour Volume:	3,553 vehicles			Hea	avy Truck	:s (3+ A	xles):	15			
Ve	hicle Speed:	55 mph		L.	/ehicle I	Nix						
Near/Far La	ne Distance:	154 feet		F	Vehi	cleType	1	Day	Evening	Night	Daily	
Site Data						A	itos: (56.2%	13.5%	20.3%	92.59%	
Bai	rrier Height	0.0 feet			Me	edium Tru	cks:	77.1%	5.3%	17.6%	5.00%	
Barrier Type (0-W	/all. 1-Berm):	0.0			F	leavy Tru	cks: 8	36.3%	1.5%	12.2%	2.40%	
Centerline Di	st. to Barrier:	84.0 feet		-					4)			
Centerline Dist.	to Observer:	84.0 feet		~	voise So	ource Ele	vations		eet)			
Barrier Distance	to Observer:	0.0 feet			1.4 × 16 × 10	Autos:	0.0	00				
Observer Height (Above Pad):	5.0 feet			wealur	n Trucks:	2.2	97	Grado Ad	iustmont	0.0	
Pa	ad Elevation:	0.0 feet			Heav	y Trucks:	8.0	04	Graue Auj	usuneni	0.0	
Roa	ad Elevation:	0.0 feet		L	ane Equ	uivalent	Distanc	e (in	feet)			
1	Road Grade:	0.0%				Autos:	33.9	41				
	Left View:	-90.0 degrees			Mediur	n Trucks:	33.6	579				
	Right View:	90.0 degrees			Heav	y Trucks:	33.7	'05				
FHWA Noise Mod	el Calculation	s										
Mahiala Truna		Tracking Classes	Dioton				-					
venicie i ype	REMEL	Traffic Flow	Distan	се	Finite	Road	Fresh	e/	Barrier Att	en Ber	m Atten	
Autos:	REMEL 71.78	2.46	Distan	ce 2.42	Finite	Road -1.20	Fresn.	el -4.75	Barrier Atte 0.0	en Ber 100	0.000	
Autos: Medium Trucks:	REMEL 71.78 82.40	2.46 -10.21	Distan	ce 2.42 2.47	Finite	Road -1.20 -1.20	Fresni	el -4.75 -4.88	Barrier Atte 0.0 0.0	en Ber 100 100	0.000 0.000	
Autos: Medium Trucks: Heavy Trucks:	REMEL 71.78 82.40 86.40	2.46 -10.21 -13.39	Distan	ce 2.42 2.47 2.47	Finite	Road -1.20 -1.20 -1.20	Fresh	el -4.75 -4.88 -5.21	Barrier Atte 0.0 0.0 0.0	en Ber 100 100 100	0.000 0.000 0.000 0.000	
Autos: Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise	REMEL 71.78 82.40 86.40 2 Levels (with	2.46 -10.21 -13.39 out Topo and b	arrier a	ce 2.42 2.47 2.47 tten	Finite	Road -1.20 -1.20 -1.20	Fresh	el -4.75 -4.88 -5.21	Barrier Atte 0.0 0.0 0.0	en Ber 100 100 100	0.000 0.000 0.000	
Veriicle Type Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType	REMEL 71.78 82.40 86.40 2 Levels (with Leg Peak Hou	2.46 -10.21 -13.39 out Topo and b Ir Leq Day	arrier a	ce 2.42 2.47 2.47 2.47 ttent	Finite P uation) vening	Road -1.20 -1.20 -1.20 Leq N	Fresh	el -4.75 -4.88 -5.21	Barrier Atte 0.0 0.0 0.0 0.0	en Ber 100 100 100 100 Cl	0.000 0.000 0.000 0.000	
Venicle Type Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos:	REMEL 71.78 82.40 86.40 e Levels (with Leq Peak Hou 75	2.46 -10.21 -13.39 out Topo and b rr Leq Day .5 72	arrier a	ce 2.42 2.47 2.47 ttenu q Ev	Finite P uation) rening 72.0	Road -1.20 -1.20 -1.20 Leg N	Fresh	el -4.75 -4.88 -5.21	Barrier Atte 0.0 0.0 0.0 0.0 <u>Ldn</u> 76.2	en Ber 1000 1000 1000 1000 1000	0.000 0.000 0.000 0.000 <u>VEL</u> 76.6	
Venicle Type Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks:	REMEL 71.78 82.40 86.40 e Levels (with Leg Peak Hou 75 73	Item C Flow 2.46 -10.21 -13.39 <th -13.<="" td=""><td>arrier a</td><td>ce 2.42 2.47 2.47 ttent q Ev</td><td>Finite P uation) rening 72.0 65.9</td><td>Road -1.20 -1.20 -1.20 <i>Leq N</i></td><td>Fresh ight 69.0 66.4</td><td>el -4.75 -4.88 -5.21</td><td>Barrier Atte 0.0 0.0 0.0 <u>Ldn</u> 76.2 73.8</td><td>en Ber 1000 1000 1000 1000 1000 1000 1000</td><td>0.000 0.000 0.000 0.000 <u>VEL</u> 76.6 74.0</td></th>	<td>arrier a</td> <td>ce 2.42 2.47 2.47 ttent q Ev</td> <td>Finite P uation) rening 72.0 65.9</td> <td>Road -1.20 -1.20 -1.20 <i>Leq N</i></td> <td>Fresh ight 69.0 66.4</td> <td>el -4.75 -4.88 -5.21</td> <td>Barrier Atte 0.0 0.0 0.0 <u>Ldn</u> 76.2 73.8</td> <td>en Ber 1000 1000 1000 1000 1000 1000 1000</td> <td>0.000 0.000 0.000 0.000 <u>VEL</u> 76.6 74.0</td>	arrier a	ce 2.42 2.47 2.47 ttent q Ev	Finite P uation) rening 72.0 65.9	Road -1.20 -1.20 -1.20 <i>Leq N</i>	Fresh ight 69.0 66.4	el -4.75 -4.88 -5.21	Barrier Atte 0.0 0.0 0.0 <u>Ldn</u> 76.2 73.8	en Ber 1000 1000 1000 1000 1000 1000 1000	0.000 0.000 0.000 0.000 <u>VEL</u> 76.6 74.0
Venicie Type Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks:	REMEL 71.78 82.40 86.40 e Levels (with Leq Peak Hou 75 73 74	Item C Flow 2.46 -10.21 -13.39 -13.39 -10.21 -13.39 -10.21 <th -10.<="" td=""><td>arrier a Le 2.9 1.5 2.8</td><td>ce 2.42 2.47 2.47 ttenu q Ev</td><td>Finite 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2</td><td>Road -1.20 -1.20 -1.20 Leg N</td><td>Freshi ight 69.0 66.4 65.6</td><td>el -4.75 -4.88 -5.21</td><td>Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.</td><td>en Ber 100 100 100 100 100 100 100 100 100</td><td>NEL 76.6 73.8</td></th>	<td>arrier a Le 2.9 1.5 2.8</td> <td>ce 2.42 2.47 2.47 ttenu q Ev</td> <td>Finite 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2</td> <td>Road -1.20 -1.20 -1.20 Leg N</td> <td>Freshi ight 69.0 66.4 65.6</td> <td>el -4.75 -4.88 -5.21</td> <td>Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.</td> <td>en Ber 100 100 100 100 100 100 100 100 100</td> <td>NEL 76.6 73.8</td>	arrier a Le 2.9 1.5 2.8	ce 2.42 2.47 2.47 ttenu q Ev	Finite 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Road -1.20 -1.20 -1.20 Leg N	Freshi ight 69.0 66.4 65.6	el -4.75 -4.88 -5.21	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	en Ber 100 100 100 100 100 100 100 100 100	NEL 76.6 73.8
Venicie Type Autos: Medium Trucks: Heavy Trucks: VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	REMEL 71.78 82.40 86.40 e Levels (with Leq Peak Hou 75 73 74 79	Item c How 2.46 -10.21 -13.39 out Topo and b Image: mail of the second se	arrier a Le 2.9 1.5 2.8	ce 2.42 2.47 2.47 ttent cq Ev	Finite Prinite vation) vening 72.0 65.9 61.3 73.2	Road -1.20 -1.20 -1.20 <i>Leq N</i>	light 69.0 66.4 65.6 72.0	el -4.75 -4.88 -5.21	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 70.2 73.8 73.7 79.5	en Ber 000 000 000 C/ 2 3 5	VEL 76.6 79.7 79.7	
Venicie Type Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distant	REMEL 71.78 82.40 86.40 e Levels (with Leq Peak Hol 75 73 74 79 2e to Noise Co	Traine From 2.46 -10.21 -13.39 out Topo and b rr Leq Day .5 7' .5 7' .3 7' .2 7' .5 7'	arrier a Le 2.9 1.5 2.8 7.2	ce 2.42 2.47 2.47 ttent cq Ev	Finite 2 vening 72.0 65.9 61.3 73.2	Road -1.20 -1.20 -1.20 Leq N	Freshi ight 69.0 66.4 65.6 72.0	e/ -4.75 -4.88 -5.21	Barrier Atte 0.0 0.0 0.0 0.0 0.0 70.2 73.8 73.7 79.5	en Ber 1000 1000 1000 1000 1000 1000 1000 10	VEL 76.6 79.7 79.7	
Autos: Medium Trucks: Heavy Trucks: VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distance	REMEL 71.78 82.40 86.40 e Levels (with Leq Peak Hou 75 73 74 79 2e to Noise Co	Traine From 2.46 -10.21 -13.39 out Topo and b rr Leq Day .5 7' .5 7' .2 7' contour (in feet)	arrier a 2.9 1.5 2.8 7.2	ce 2.42 2.47 2.47 ttent cq Ev 70 d	Finite Prinite Prinite	Road -1.20 -1.20 -1.20 Leq N	Freshi ight 69.0 66.4 65.6 72.0 BA	el -4.75 -4.88 -5.21	Barrier Atte 0.0 0.0 0.0 0.0 0.0 76.2 73.8 73.7 79.5 50 dBA	en Ber 1000 100	VEL 76.6 74.0 73.8 79.7	
Autos: Autos: Medium Trucks: Heavy Trucks: VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distance	REMEL 71.78 82.40 86.40 e Levels (with Leq Peak Hou 75 73 74 79 2e to Noise Co	Traine Flow 2.46 -10.21 -13.39 out Topo and b ir Leq Day .5 77 .5 .5 77 .2 .7 .2 7 .2 .7 .2 7 .2 .2	arrier a Le 2.9 1.5 2.8 7.2 Jn:	ce 2.42 2.47 2.47 ttent q Ev 70 d 36	Finite Prinite Prinite	Road -1.20 -1.20 -1.20 Leq N 65 d 77:	light 69.0 66.4 65.6 72.0 BA	e/ -4.75 -4.88 -5.21	Barrier Atti 0.0 0.0 0.0 0.0 0.0 76.2 73.8 73.7 79.5 50 dBA 1,671	en Ber 100 100 100 100 100 100 100 10	M Atten 0.000 0.000 0.000 VEL 76.6 74.0 73.8 79.7 dBA 500	

Thursday, May 02, 2019

	FHV	VA-RD-77-108 I	HIGHW	AY N	IOISE PI	REDICT		DEL				
Scenar	rio: OY With Pr	oject				Project	Name:	MCH				
Road Nan	ne: Euclid Av.	,				Job N	umber:	10351				
Road Segme	ent: n/o Riversio	le Dr.										
SITE	SPECIFIC IN	PUT DATA				N	IOISE	MODE	L INPU	TS		
Highway Data					Site Con	ditions	(Hard :	= 10, Se	oft = 15)			
Average Daily	Traffic (Adt):	30,326 vehicles	5					Autos:	15			
Peak Hour	Percentage:	10%			Me	dium Tru	ucks (2	Axles):	15			
Peak H	Hour Volume:	3,033 vehicles			He	avy Truc	cks (3+	Axles):	15			
Ve	ehicle Speed:	55 mph		-	Vahiala	Miy						
Near/Far La	ane Distance:	154 feet		-	Venicle	icleTvpe		Dav	Evening	Ni	aht	Dailv
Site Data				-		,	Autos:	66.2%	13.5%	6 20	0.3%	92.46%
Pa	rrior Hoight:	0.0 foot			M	edium Ti	rucks:	77.1%	5.3%	6 17	7.6%	5.05%
Barrier Type (0-W	Vall, 1-Berm):	0.0			I	Heavy Tr	rucks:	86.3%	1.5%	i 12	2.2%	2.49%
Centerline Di	ist. to Barrier:	84.0 feet			Noise Sr	ource Fl	levatio	ns (in f	eet)			
Centerline Dist.	to Observer:	84.0 feet		Ľ.		Auto	e' 0	000	000			
Barrier Distance	to Observer:	0.0 feet			Modiu	m Truck	s. 0 e 2	207				
Observer Height	(Above Pad):	5.0 feet			Heat	v Truck	s. 2 s [.] 8	004	Grade A	diust	ment:	0.0
P	ad Elevation:	0.0 feet		L	mour	<i>y maon</i>	5. 0			-,		
Ro	ad Elevation:	0.0 feet		1	Lane Eq	uivalent	t Distar	nce (in	feet)			
	Road Grade:	0.0%				Autos	s: 33	.941				
	Left View:	-90.0 degrees	6		Mediu	m Truck	s: 33	.679				
	Right View:	90.0 degrees	5		Heav	y Trucks	s: 33	.705				
FHWA Noise Mod	lel Calculation	s										
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fres	nel	Barrier A	tten	Berr	m Atten
Autos:	71.78	1.77		2.4	2	-1.20		-4.75	C	.000		0.00
Medium Trucks:	82.40	-10.86		2.4	7	-1.20		-4.88	C	.000		0.00
Heavy Trucks:	86.40	-13.93		2.4	7	-1.20		-5.21	C	.000		0.00
Unmitigated Nois	e Levels (with	out Topo and b	arrier	atten	uation)						-	
VehicleType	Leq Peak Hou	r Leq Day	L	.eq E	vening	Leq	Night		Ldn		CI	VEL
Autos:	74	.8 7	2.2		71.3		68.	3	75	.5		75.
Medium Trucks:	72	.8 7	0.9		65.3		65.	7	73	5.1		73.
Heavy Trucks:	73	.7 7	2.3		60.7		65.	1	73	5.1		73.
Vehicle Noise:	78	.6 7	6.6		72.6		71.	4	78	.8		79.
Centerline Distan	ce to Noise Co	ontour (in feet)										
				70 0	dBA	65	dBA	(60 dBA		55	dBA
		L	dn:	32	26	70	03		1,514		3,2	263
		CN	EL:	34	40	73	33		1,578		3,4	400

	FH\	VA-RD-77-108 HI	GHWAY	NOISE PI	REDICTION	MODEL			
Scenar Road Nan Road Segme	io: OY With Pr ne: Euclid Av. nt: n/o Chino A	roject Av.			Project Na Job Num	ime: MCH iber: 1035	1		
SITE	SPECIFIC IN	IPUT DATA			NO	SE MOD	EL INPUT	s	
Highway Data				Site Con	ditions (Ha	ard = 10, S	Soft = 15)		
Average Daily Peak Hour	Traffic (Adt): Percentage:	30,662 vehicles 10%		Me	dium Truck	Autos s (2 Axles)	n: 15): 15		
Peak F	lour Volume:	3,066 vehicles		He	avy Trucks	(3+ Axles)): 15		
Near/Far I a	ne Distance:	154 feet		Vehicle I	Mix				
	no Biotanoo.	10111000		Veh	icle I ype	Day	Evening	Night	Daily
Site Data					Aut	os: 66.29	% 13.5%	20.3%	92.49%
Ba	rrier Height:	0.0 feet		M	eaium Truc	KS: 77.19	% 5.3%	17.6%	5.03%
Barrier Type (0-V	/all, 1-Berm):	0.0		ŀ	leavy Truc	ks: 86.3	% 1.5%	12.2%	2.48%
Centerline Di	st. to Barrier:	84.0 feet		Noise So	ource Elev	ations (in	feet)		
Centerline Dist.	to Observer:	84.0 feet			Autos:	0.000	í.		
Barrier Distance	to Observer:	0.0 feet		Mediu	m Trucks:	2.297			
Observer Height	(Above Pad):	5.0 feet		Heav	v Trucks:	8.004	Grade Ad	justment:	0.0
P	ad Elevation:	0.0 feet							
Ro	ad Elevation:	0.0 feet		Lane Eq	uivalent Di	stance (in	i feet)		
	Road Grade:	0.0%			Autos:	33.941			
	Left View:	-90.0 degrees		Mediu	m Trucks:	33.679			
	Right View:	90.0 degrees		Heav	y Trucks:	33.705			
FHWA Noise Mod	el Calculation	s							
VehicleType	REMEL	Traffic Flow	Distance	Finite	Road	Fresnel	Barrier Att	en Bern	1 Atten
Autos:	71.78	1.82	2.4	12	-1.20	-4.75	i 0.0	000	0.000
Medium Trucks:	82.40	-10.83	2.4	17	-1.20	-4.88	0.0	000	0.000
Heavy Trucks:	86.40	-13.91	2.4	47	-1.20	-5.21	0.0	00	0.000
Unmitigated Nois	e Levels (with	out Topo and ba	rrier atte	nuation)					
VehicleType	Leq Peak Hou	ır Leq Day	Leq E	vening	Leq Nig	pht	Ldn	CN	EL
Autos:	74	.8 72.	.2	71.3		68.3	75.5	5	76.0
Medium Trucks:	72	.8 70.	.9	65.3		65.8	73.2	2	73.4
Heavy Trucks:	73	.8 72.	.3	60.7		65.1	73.2	2	73.2
Vehicle Noise:	78	.7 76.	.6	72.6		71.4	78.9)	79.1
Centerline Distan	ce to Noise Co	ontour (in feet)							
			70	dBA	65 dB	4	60 dBA	55 a	íВА
		Ldi	n: 3	328 707 1,523			3,2	82	
		L: 3	342 737 1,587 3,420						

Thursday, May 02, 2019

	FH	WA-RD-77-108	HIGHW	AY NOI	SE PF	REDICTIC	N MOE	EL			
Scenario Road Name Road Segmen	Scenario: OY With Project Road Name: Euclid Av. Road Segment: n/o Schaefer Av.					Project N Job Nui	lame: N nber: 1	1CH 0351			
SITE S	PECIFIC IN	NPUT DATA				NC	DISE M	ODEI		5	
Highway Data				Site	e Con	ditions (F	lard =	10, So	ft = 15)		
Average Daily T	raffic (Adt):	33,515 vehicle	es				A	utos:	15		
Peak Hour F	Percentage:	10%			Me	dium Truc	ks (2 A	kles):	15		
Peak Ho	our Volume:	3,352 vehicle	S		He	avy Truck	s (3+ A	xles):	15		
Veh	icle Speed:	55 mph		Vel	nicle I	Mix					
Near/Far Lan	e Distance:	154 feet		101	Veh	icleType	1	Dav	Evenina	Niaht	Dailv
Site Data						AL	itos: 6	6.2%	13.5%	20.3%	6 92.58%
Barr	rier Heiaht:	0.0 feet			Me	edium Tru	cks: 7	7.1%	5.3%	17.6%	6 5.00%
Barrier Type (0-Wa	all, 1-Berm):	0.0			ŀ	Heavy Tru	cks: 8	6.3%	1.5%	12.2%	6 2.42%
Centerline Dist	t. to Barrier:	84.0 feet		No	se Sr	ource Ele	vations	(in fe	et)		
Centerline Dist. to	o Observer:	84.0 feet			00 00	Autos:	0.0	00			
Barrier Distance to	o Observer:	0.0 feet			/lediu	m Trucks:	2.2	97			
Observer Height (A	Above Pad):	5.0 feet			Heav	v Trucks:	8.0	04	Grade Adj	ustmen	t: 0.0
Pa	d Elevation:	0.0 feet			-						
Road	d Elevation:	0.0 feet		Lar	ie Eq	uivalent L	Distanc	e (in f	eet)		
R	oad Grade:	0.0%				Autos:	33.9	41			
	Left View:	-90.0 degree	es	Λ	/lediui	m Trucks:	33.6	79			
	Right View:	90.0 degree	es		Heav	y Trucks:	33.7	05			
FHWA Noise Mode	I Calculation	IS									
VehicleType	REMEL	Traffic Flow	Distar	ice i	Finite	Road	Fresne	a) I	Barrier Atte	en Be	erm Atten
Autos:	71.78	2.21		2.42		-1.20	-	4.75	0.0	00	0.000
Medium Trucks:	82.40	-10.47		2.47		-1.20	-	4.88	0.0	00	0.000
Heavy Trucks:	86.40	-13.61		2.47		-1.20	-	5.21	0.0	00	0.000
Unmitigated Noise	Levels (with	out Topo and	barrier a	ttenua	tion)						
VehicleType	Leq Peak Ho	ur Leq Day	' Le	eq Even	ing	Leq N	ight		Ldn	0	ONEL
Autos:	75	5.2	72.6		71.7		68.7		75.9		76.3
Medium Trucks:	73	3.2	71.3		65.7		66.1		73.5		73.7
Heavy Trucks:	74	l.1	72.6		61.0		65.4		73.5		73.5
Vehicle Noise:	79	9.0	77.0		73.0		71.8		79.2		79.5
Centerline Distance	e to Noise C	ontour (in feet)								
				70 dBA	1	65 dl	BA	6	0 dBA	5	5 dBA
			Ldn:	347 747 1,609			3	,466			
		CI	VEL:	361		778	3	1	1,677	3	9,613

Scenario: Road Name: Road Segment: SITE SP Highway Data	OY With Pro Euclid Av. n/o Edison A	oject				Project N	ame: M	СН			
Road Name: Road Segment: SITE SP Highway Data	Euclid Av. n/o Edison A	· \v.									
Road Segment: SITE SP Highway Data	n/o Edison A	w.	Road Name: Euclid AV.								
SITE SP Highway Data											
Highway Data	ECIFIC INI	PUT DATA				NO	ISE MO	DEL	. INPUT	S	
					Site Con	ditions (H	lard = 10), Soi	ft = 15)		
Average Daily Tra	affic (Adt):	35,847 vehicle	5				AL	tos:	15		
Peak Hour Pe	rcentage:	10%			Me	dium Truc	ks (2 Ax	les):	15		
Peak Hou	r Volume:	3,585 vehicles			Hea	avy Truck	s (3+ Ax	les):	15		
Vehic	le Speed:	55 mph			Vehicle I	Nix					
Near/Far Lane	Distance:	154 feet			Vehi	cleType	D	ay	Evening	Night	Daily
Site Data						Au	tos: 66	6.2%	13.5%	20.3%	92.63%
Barrie	r Hoiaht	0.0 feet			Me	edium True	cks: 71	.1%	5.3%	17.6%	4.98%
Barrier Type (0-Wall	1-Berm):	0.0			F	leavy Tru	cks: 86	6.3%	1.5%	12.2%	2.39%
Centerline Dist.	to Barrier:	84.0 feet			N 0-				- 41		
Centerline Dist. to	Observer:	84.0 feet		H	voise So	ource Elev	ations (in ree	et)		
Barrier Distance to	Observer:	0.0 feet				Autos:	0.00	-			
Observer Height (Ab	ove Pad):	5.0 feet			Mediur	n Trucks:	2.29		Crada Ad	i u o france a fr	
Pad	Elevation:	0.0 feet			Heav	y Trucks:	8.00	4 (Grade Adj	usimeni.	0.0
Road	Elevation:	0.0 feet		1	Lane Equ	uivalent D	Distance	(in fe	eet)		
Roa	ad Grade:	0.0%				Autos:	33.94	1			
	Left View:	-90.0 degree	5		Mediur	n Trucks:	33.67	9			
R	ight View:	90.0 degree	S		Heav	y Trucks:	33.70	5			
FHWA Noise Model	Calculations										
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresnel	E	Barrier Atte	en Ber	m Atten
Autos:	71.78	2.50		2.4	2	-1.20	-4	.75	0.0	000	0.000
Medium Trucks:	82.40	-10.20		2.4	7	-1.20	-4	.88	0.0	000	0.000
Heavy Trucks:	86.40	-13.38		2.4	7	-1.20	-5	.21	0.0	000	0.000
Unmitigated Noise L	evels (witho	ut Topo and L	arrier	r atten	uation)						
VehicleType Le	q Peak Hour	· Leq Day		Leq E	vening	Leq Ni	ght		Ldn	CI	VEL
Autos:	75.	57	2.9		72.0		69.0		76.2	2	76.6
Medium Trucks:	73.	57	1.6		66.0		66.4		73.8	3	74.0
Heavy Trucks:	74.3	3 7	2.9		61.3		65.6		73.7	'	73.8
Vehicle Noise:	79.3	3 7	7.3		73.3		72.0		79.5	5	79.8
Centerline Distance	to Noise Co	ntour (in feet)		_						-	-
				70 0	'BA	65 dE	BA	60) dBA	55	dBA
		L	dn:	36	61	779		1	,678	3,0	514
			EL .	27	77	010		- 4	740	2.	768

Thursday, May 02, 2019

	FH\	VA-RD-77-108	HIGH\	NAY N	IOISE PF	REDICTI	ON MC	DEL			
Scenar	io: OY With Pr	oject				Project	Name:	MCH			
Road Narr	e: Euclid Av.					Job Ni	umber:	10351			
Road Segme	nt: n/o Eucaly	otus Av.									
SITE	SPECIFIC IN	IPUT DATA				N	OISE	MODE	L INPUT	S	
Highway Data					Site Con	ditions	(Hard =	= 10, Sc	oft = 15)		
Average Daily	Traffic (Adt):	33,836 vehicle	s					Autos:	15		
Peak Hour	Percentage:	10%			Me	dium Tru	icks (2	Axles):	15		
Peak H	lour Volume:	3,384 vehicles			He	avy Truc	ks (3+	Axles):	15		
Ve	hicle Speed:	55 mph		-	Vohiclo	Mix					
Near/Far La	ne Distance:	154 feet		H	Veh	icleTvpe		Dav	Evenina	Niaht	Dailv
Site Data						A	utos:	66.2%	13.5%	20.3%	6 92.61%
Pa	rrior Hoight:	0.0 foot			Me	edium Tr	ucks:	77.1%	5.3%	17.6%	6 4.98%
Barrier Type (0-W	/all. 1-Berm):	0.0			ŀ	leavy Tr	ucks:	86.3%	1.5%	12.2%	6 2.41%
Centerline Di	st. to Barrier:	84.0 feet		-	Noiso Se	urco El	ovatio	ne (in fr	not)		
Centerline Dist.	to Observer:	84.0 feet		H	10/30 00	Autor	. 0	000			
Barrier Distance	to Observer:	0.0 feet			Modiu	n Trucks	. 0	207			
Observer Height	(Above Pad):	5.0 feet			Hoov	n Trucks	. <u> </u>	.257	Grada Ac	liustmor	±.00
P	ad Elevation:	0.0 feet			Tieav	y mucha	. 0	.004	Orade Ad	jusunen	. 0.0
Ro	ad Elevation:	0.0 feet		1	Lane Eq	uivalent	Distar	nce (in i	feet)		
	Road Grade:	0.0%				Autos	: 33	.941			
	Left View:	-90.0 degree	s		Mediur	n Trucks	: 33	.679			
	Right View:	90.0 degree	s		Heav	y Trucks	: 33	.705			
FHWA Noise Mod	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Dist	ance	Finite	Road	Fres	nel	Barrier At	ten Be	erm Atten
Autos:	71.78	2.25		2.42	2	-1.20		-4.75	0.	000	0.000
Medium Trucks:	82.40	-10.44		2.4	7	-1.20		-4.88	0.	000	0.000
Heavy Trucks:	86.40	-13.59		2.4	7	-1.20		-5.21	0.	000	0.000
Unmitigated Nois	e Levels (with	out Topo and I	barrie	r atten	uation)						
VehicleType	Leq Peak Hou	Ir Leq Day		Leg E	, vening	Leq I	Vight		Ldn	0	ONEL
Autos:	75	.3 7	2.7		71.8		68.	8	76.	0	76.4
Medium Trucks:	73	.2 7	1.3		65.7		66.	1	73.	6	73.
Heavy Trucks:	74	.1 7	2.6		61.1		65.	4	73.	5	73.0
Vehicle Noise:	79	.0 7	7.0		73.0		71.	8	79.	3	79.
Centerline Distan	ce to Noise Co	ontour (in feet)									-
				70 c	1BA	65 0	1BA	6	60 dBA	55	5 dBA
		1	dn:	34	18	75	51		1,617	3	1,484
		CN	IEL:	36	33	78	32		1,685	3	1,631

Scenario: OY With Project Road Name: Project Name: MCH Job Number: Total Road Segment: to Nermil Av. Job Number: 10351 Highway Data Site Conditions (Hard = 10, Soft = 15) Autos: 15 Average Daily Traffic (Adt): 37,570 vehicles Autos: 15 Peak Hour Percentage: 10% Medium Trucks (2 Axles): 15 Vehicle Speed: 55 mph Medium Trucks (2 Axles): 15 Vehicle Speed: 55 mph Noise Model: Autos: 66.2% 13.5% 20.3% 92.7 Barrier Height: 0.0 feet Autos: 66.2% 13.5% 20.3% 92.7 Barrier Distance to Observer: 84.0 feet Noise Social (in feet) Centerline Dist: 0.0 feet Medium Trucks: 2.37 Observer Height (Above Pad): 5.0 feet Autos: 0.00 Medium Trucks: 33.941 Road Grade: 0.0% Autos: 33.941 Medium Trucks: 33.941 Medium Trucks: 84.0 13.23 2.47 -1.20		FH\	VA-RD-77-108	HIGHV	VAY NO	OISE PF	REDICTIO	ON MC	DEL				
Road Segment: n/o Merrill Av. NOISE MODEL INPUTS Highway Data Site Conditions (Hard = 10, Soft = 15) Average Daily Traffic (Adt): 37,570 vehicles Autos: 15 Peak Hour Percentage: 10% Addium Trucks (2 Axles): 15 Peak Hour Volume: 37,570 vehicles Medium Trucks (2 Axles): 15 Vehicle Speed: 55 mph Medium Trucks (2 Axles): 15 Barrier Height: 0.0 feet Medium Trucks: (37,71%) 5.3% 17.6% 4.4 Barrier Height: 0.0 feet Medium Trucks: 77.1% 5.3% 17.6% 4.4 Barrier Height: 0.0 feet Moles Source Elevations (in feet) Moles Trucks: 2.03% 92.2 Centerline Dist. to Desrver: 0.0 feet Moles Source Elevations (in feet) Moles Observer Height (Above Pag): 5.0 feet Medium Trucks: 8.04 Grade Adjustment: 0.0 Road Grade: 0.00 feet Autos: 33.679 Heavy Trucks: 8.040 Grade Adjustment: 0.00 Pad Ele	Scenar Road Nam	io: OY With Pr e: Euclid Av.	oject				Project I Job Nu	Vame: mber:	MCH 10351				
SITE SPECIFIC INPUT DATA NOISE MODEL INPUTS Highway Data Site Conditions (Hard = 10, Soft = 15) Average Daily Traffic (Adt): 37,570 vehicles Autos: 15 Peak Hour Percentage: 10% Autos: 15 Vehicle Speed: 55 mph Medium Trucks (2 Axles): 15 Vehicle Speed: 55 mph Vehicle Mix Vehicle Mix Vehicle Mix Barrier Height: 0.0 feet Medium Trucks: 77.1% 5.3% 17.6% 4.5 Barrier Type (0-Wall, 1-Berm): 0.0 Medium Trucks: 66.2% 13.5% 20.3% 92.7 Barrier Type (0-Wall, 1-Berm): 0.0 Medium Trucks: 66.3% 17.6% 4.5 Distance to Observer: 0.0 feet Medium Trucks: 2.97 164 17.6% 4.5 Observer Height (Above Pad): 5.0 feet Autos: 33.941 Medium Trucks: 2.97 Observer Height (Wew: 90.0 degrees Finite Road Fresnel Barrier Atten Berm Attas: Wehicle Type REMEL Traffic F	Road Segme	nt: n/o Merrill /	Av.										
Site Conditions (Hard = 10, Soft = 15) Average Daily Traffic (Adt): 37,570 vehicles Autos: 15 Peak Hour Percentage: 10% Medium Trucks: (24 Akles): 15 Peak Hour Volume: 3,757 vehicles Medium Trucks: (24 Akles): 15 Vehicle Speed: 55 mph Medium Trucks: (24 Akles): 15 Vehicle Mix Vehicle Mix Vehicle Mix Barrier Height: 0.0 feet Medium Trucks: 77.1% 5.3% 17.8% 4.4 Barrier Type (0-Wail, 1-Berm): 0.0 feet Medium Trucks: 1.5% 2.3% 92.1 Centerline Dist. to Barrier: 84.0 feet Autos:: 0.000 Medium Trucks: 2.297 Observer Height (Above Pad): 0.0 feet Autos:: 3.041 Medium Trucks:: 3.941 Road Grade: 0.0% Autos:: 3.3.941 Medium Trucks:: 3.941 Medium Trucks:: 8.004 0.002 2.47 -1.20 -4.75 0.000 0 Medium Trucks:: 86.40 -13.23 2.47	SITE	SPECIFIC IN	IPUT DATA				N	DISE	MODE	L INPU	тs		
Average Daily Traffic (Ad): 37,570 vehicles Autos: 15 Peak Hour Percentage: 10% Medium Trucks (2 Akles): 15 Peak Hour Volume: 37,570 vehicles Medium Trucks (2 Akles): 15 Vehicle Speed: 55 mph Mean/Far Lane Distance: 154 feet Vehicle Type Day Evening Night Da Site Data Autos: 66.2% 13.5% 20.3% 92.3 Barrier Height: 0.0 feet Medium Trucks: 77.1% 5.3% 12.2% 2.3 Centerline Dist to Diserver: 0.0 feet Moise Source Elevations (in feet) Autos: 0.00 Barrier Type (0-Wall, 1-Berm): 0.0 feet Autos: 0.00 Medium Trucks: 0.00 Centerline Dist to Observer: 0.0 feet Autos: 0.00 feet Autos: 33.705 FHWA Noise Model Calculations Vehicle Type REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berm Atten Autos: 71.78 2.71 2.42 -1.20 <t< th=""><th>Highway Data</th><th></th><th></th><th></th><th>S</th><th>ite Con</th><th>ditions (</th><th>Hard =</th><th>: 10, S</th><th>oft = 15)</th><th></th><th></th><th></th></t<>	Highway Data				S	ite Con	ditions (Hard =	: 10, S	oft = 15)			
Peak Hour Volume: 3,757 vehicles Medium Trucks (2 Akles): 15 Vehicle Speed: 55 mph Heavy Trucks (2 Akles): 15 Vehicle Speed: 55 mph Vehicle Mix Vehicle Mix Site Data Vehicle Type Day Evening Night Da Barrier Height: 0.0 feet Medium Trucks: 77.1% 5.3% 15.% 92.3 Barrier Height: 0.0 feet Medium Trucks: 77.1% 5.3% 12.% 2.2 Centerline Dist. to Barrier: 84.0 feet Medium Trucks: 0.00 Heavy Trucks: 8.03% 1.5% 12.% 2.5 Observer: 0.0 feet Modium Trucks: 2.297 Heavy Trucks: 8.004 Grade Adjustment: 0.0 Road Elevation: 0.0 feet Medium Trucks: 33.619 Heavy Trucks: 33.619 Road Elevation: 0.0 feet Medium Trucks: 33.619 Heavy Trucks: 33.619 Medium Trucks: 82.40 -10.02 2.47 -1.20 -4.88 0.000	Average Daily	Traffic (Adt):	37,570 vehicle	s					Autos:	15			
Peak Hour Volume: 3,757 vehicles Heavy Trucks (3+ Axles): 15 Vehicle Speed: 55 mph Vehicle Mix Vehicle Mix Vehicle Mix Site Data Autos: 13.5% 20.3% 92.1 Barrier Height: 0.0 feet Medium Trucks: 77.1% 5.3% 17.6% 4.5 Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Dsarver: 84.0 feet Moles Medium Trucks: 77.1% 5.3% 17.6% 4.5 Barrier Distance to Observer: 84.0 feet Autos:: 0.00 Medium Trucks: 2.297 Observer Height (Above Pad): 5.0 feet Medium Trucks: 8.04 Grade Adjustment: 0.0 Pad Elevation: 0.0 feet Medium Trucks: 3.3941 Medium Trucks: 3.3941 Left View: 90.0 degrees Medium Trucks: 3.3041 Medium Trucks: 3.3041 Heavy Trucks: 8.04 10.02 2.47 -1.20 -4.75 0.000 0 Heavy Trucks: 8.40 -10.02 <t< th=""><th>Peak Hour</th><th>Percentage:</th><th>10%</th><th></th><th></th><th>Me</th><th>dium Tru</th><th>cks (2 .</th><th>Axles):</th><th>15</th><th></th><th></th><th></th></t<>	Peak Hour	Percentage:	10%			Me	dium Tru	cks (2 .	Axles):	15			
Vehicle Speed: 55 mph Near/Far Lanel Distance: 154 feet Vehicle Mix Day Evening Night Dag Site Data Autos: 66.2% 13.5% 20.3% 92.3%	Peak H	lour Volume:	3,757 vehicles	6		He	avy Truck	ks (3+ .	Axles):	15			
Near/Far Lane Distance: 154 feet VehicleType Day Evening Night Day Site Data Autos: 66.2% 13.5% 20.3% 92.1 Barrier Type (0-Wall, 1-Berm): 0.0 0 Medium Trucks: 77.1% 5.3% 17.6% 4.4 Barrier Type (0-Wall, 1-Berm): 0.0 0 Heavy Trucks: 86.3% 1.5% 12.2% 2.3 Centerline Dist to Daserver: 0.0 feet Mole Source Elevations (in feet) Noise Source Elevations (in feet) 1.2% 2.3 Deserver Height (Above Pag): 5.0 feet Medium Trucks: 2.297 Heavy Trucks: 8.004 Grade Adjustment: 0.0 Road Elevation: 0.0 feet Autos: 33.814 Medium Trucks: 33.814 Road Grade: 0.00 feither Warks: 33.819 Heavy Trucks: 80.00 0.0 Heavy Trucks: 82.40 -10.02 2.47 -1.20 -4.88 0.000 0.0 Heavy Trucks: 86.40 -13.23 2.47 -1.20	Ve	hicle Speed:	55 mph		v	ehicle l	Mix						
Site Data Autos: 66.2% 13.5% 20.3% 92.7 Barrier Height: 0.0 feet Medium Trucks: 77.1% 5.3% 17.6% 4.5 Barrier Height: 0.0 Centerline Dist. to Barrier: 84.0 feet Medium Trucks: 76.1% 1.2.% 2.3% 92.7 Centerline Dist. to Deserver: 84.0 feet Noise Source Elevations: (in feet) 1.2.% 2.3% 1.6% 4.5% Diserver Height (Above Pad): 5.0 feet Autos: 0.000 Medium Trucks: 2.97 Heavy Trucks: 8.004 Grade Adjustment: 0.0 Observer Height (Mew: 90.0 feet Autos: 3.941 Medium Trucks: 3.391 Road Grade: 0.0% Autos: 3.3.941 Medium Trucks: 3.391 VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berrier Atten Berrier Atten Berrier Atten Medium Trucks: 8.00 0.00 0 Medium Trucks:	Near/Far La	ne Distance:	154 feet		-	Veh	icleTvpe		Dav	Evening	Nie	aht	Dailv
Barrier Height: 0.0 feet Medium Trucks: 77.1% 5.3% 17.6% 4.4 Barrier Type (0-Wall, 1-Berm): 0.0 Heavy Trucks: 86.3% 1.5% 12.2% 2.3 Centerline Dist. to Barrier: 84.0 feet Heavy Trucks: 86.3% 1.5% 12.2% 2.3 Observer: 84.0 feet Autos: 0.00 Medium Trucks: 2.97 Pad Elevation: 0.0 feet Autos: 33.941 Medium Trucks: 33.941 Left View: 90.0 degrees Heavy Trucks: 33.705 Heavy Trucks: 33.705 FHWA Noise Model Calculations VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berm Autos: VehicleType Leqt View: 90.0 degrees Finite Road Fresnel Barrier Atten Berm Autos: VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berm Autos: VehicleType Leqt Peak Hour Leqt Verving Leqt Night	Site Data						A	utos:	66.2%	13.5%	6 20).3%	92.70%
Barrier Type Col feet Heavy Trucks: 86.3% 1.5% 12.2% 2.3 Centerline Dist. to Observer: 84.0 feet Noise Source Elevations (in feet) Noise Source Elevati	Pa	rrior Hoight:	0.0 foot			Me	edium Tru	icks:	77.1%	5.3%	6 17	7.6%	4.94%
Centerline Dist. to Barrier: 84.0 feet Centerline Dist. to Doserver: 84.0 feet Centerline Dist. to Observer: 84.0 feet Barrier Distance to Doserver: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees Wehicle Type REMEL Traffic Flow Distance Frishte Road Fresnet Barrier Atten Bernier Atten Autos: 71.78 2.71 2.42 -1.20 -4.25 0.000 0.0 Medium Trucks: 84.0 -13.23 2.47 -1.20 -4.88 0.000 0.0 Heavy Trucks: 86.40 -13.23 2.47 -1.20 -5.21 0.000 0.0 Ummitigated Noise Levels (without Topo and barrier attenuation) Leq Evening Leq Night Ldn Child Vehicle Type Leq Peak Hour Leq Day Leq Evening Leq Night Ldn Autos:	Barrier Type (0-W	/all, 1-Berm):	0.0			ŀ	leavy Tru	icks:	86.3%	5 1.5%	i 12	2.2%	2.36%
Centerline Dist. to Observer: 84.0 feet Barrier Distance to Observer: 0.0 feet Barrier Distance to Observer: 0.0 feet Doserver Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees VehicleType REMEL Taffic Flow Distance VehicleType REMEL Traffic Flow Distance Medium Trucks: 86.40 4.1002: 71.78 2.47 -1.20 -4.28 0.000 Medium Trucks: 86.40 -13.23 2.47 -1.20 -5.21 0.000 0 Unnitigated Noise Levels (without Topo and barrier attenuation) VehicleType VehicleType Leq Peak Hour Leq Zeaving VehicleType Leq Peak Hour Leq Evening Leq Night Utos: 75.7 73.1 72.2 69.2 Medium Trucks:	Centerline Di	st. to Barrier:	84.0 feet		N	loise Sc	ource Ele	vatior	ıs (in f	eet)			
Barrier Distance to Observer: 0.0 feet Medium Trucks: 2.297 Observer Height (Above Pad): 5.0 feet Heavy Trucks: 8.004 Grade Adjustment: 0.0 Pad Elevation: 0.0 feet Lett View: 90.0 degrees Autos: 33.941 WeikleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berm Att Autos: 71.78 2.71 2.42 -1.20 -4.75 0.000 0.0 Medium Trucks: 86.40 -10.02 2.47 -1.20 -6.21 0.000 0.0 Medium Trucks: 86.40 -13.23 2.47 -1.20 -5.21 0.000 0.0 Unnitigated Noise Levels (without Topo and barrier attenuation) Leq Evening Leq Night Ldn Chill Chill Vehicle Type Lag Peak Hour Lag Devening Leq Night Ldn Chill <	Centerline Dist.	to Observer:	84.0 feet		-		Autos	0	000				
Observer Height (Above Pad): 5.0 feet Heavy Trucks: 8.004 Grade Adjustment: 0.0 Road Elevation: 0.0 feet Left View: 0.0 feet Lane Equivalent Distance (in feet) Lane Adjustment: 0.0 Road Grade: 0.0% Autos: 33.941 Medium Trucks: 33.679 FHWA Noise Model Calculations Frinte Road Friesnel Barrier Atten Bermark VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Bermark Medium Trucks: 8.40 -13.23 2.47 -1.20 -4.75 0.000 0.0 Heavy Trucks: 86.40 -13.23 2.47 -1.20 -5.21 0.000 0.0 Ummitgated Noise Levels (without Topo and barrier attenuation) Leq Evening Leq Night Lch C//// VehicleType Leq Peak Hour Leq Day Leq Evening Leq Night Zh -1.20 -5.21 0.000 0 Ummitgated Noise Levels (without Topo and barrier attenuation) Ldn Chee	Barrier Distance	to Observer:	0.0 feet			Mediur	n Trucks	2	297				
Pad Elevation: 0.0 feet Lane Equivalent Distance (in feet) Road Grade: 0.0% Lane Equivalent Distance (in feet) Road Grade: 0.0% Autos: 33.941 Left View: 90.0 degrees Medium Trucks: 33.679 Right View: 90.0 degrees Heavy Trucks: 33.679 FHWA Noise Model Calculations Finite Road Fresnel Barrier Atten Bern Att Autos: 71.78 2.71 2.42 -1.20 -4.75 0.000 0.0 Medium Trucks: 86.40 -10.02 2.47 -1.20 -5.21 0.000 0.0 Heavy Trucks: 86.40 -13.23 2.47 -1.20 -5.21 0.000 0.0 Unnitigated Noise Levels (without Topo and barrier attenuation) Leq Paek Hour Leq Day Leq Evening Leq Night Ldn CNEL Autos: 75.7 71.7 66.1 66.6 74.0	Observer Height (Above Pad):	5.0 feet			Heav	v Trucks	8.	004	Grade A	djustr	ment:	0.0
Road Elevation: 0.0 feet Latt Values: 33.941 Road Grade: 0.0% Matures: 33.941 Left View: -90.0 degrees Medium Trucks: 33.679 Right View: 90.0 degrees Medium Trucks: 33.679 FHWA Noise Model Calculations Finite Road Fresnel Barrier Atten Berm Att Autos: 71.78 2.71 2.42 -1.20 -4.75 0.000 0.0 Medium Trucks: 82.40 -10.02 2.47 -1.20 -4.88 0.000 0.0 Medium Trucks: 86.40 -13.23 2.47 -1.20 -5.21 0.000 0.0 Unmitigated Noise Levels (without Topo and barrier attenuation) Ueq Night Ldn CNEL CNEL Vehicle Type Leq Peak Hour Leq Revening Leq Night Ldn CNEL Medium Trucks: 73.7 71.7 66.1 66.6 74.0 74.4 73.0 71.4 65.0BA 60.0BA 55.0BA 60.0BA 55.0BA 60.0BA	Pa	ad Elevation:	0.0 feet			_					,		
Road Grade: 0.0% Autos: 33.941 Left View: -90.0 degrees Medium Trucks: 33.679 Right View: 90.0 degrees Medium Trucks: 33.705 FHWA Noise Model Calculations Distance Finite Road Fresnel Barrier Atten Berm Atten Medium Trucks: 82.40 -10.02 2.47 -1.20 -4.75 0.000 0. Medium Trucks: 82.40 -13.23 2.47 -1.20 -5.21 0.000 0. Medium Trucks: 86.40 -13.23 2.47 -1.20 -5.21 0.000 0. Ummitigated Noise Levels (without Topo and barrier attenuation) Leq Reak Hour Leq Day Leq Evening Leq Night Ldn CNEL Autos: 75.7 73.1 72.2 69.2 76.4 7 Medium Trucks: 73.0 61.4 65.8 73.8 7 Vehicle Type Leq Day Leq Evening Leq Night Ldn Che Autos: 75.7 73	Ro	ad Elevation:	0.0 feet		L	ane Eq	uivalent	Distan	ce (in	feet)			
Left View: -90.0 degrees Medium Trucks: 33.679 Right View: 90.0 degrees Heavy Trucks: 33.679 FHWA Noise Model Calculations Heavy Trucks: 33.679 VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berrier Atten Autos: 71.78 2.71 2.42 -1.20 -4.75 0.000 0. Medium Trucks: 82.40 -10.02 2.47 -1.20 -5.21 0.000 0. Heavy Trucks: 86.40 -13.23 2.47 -1.20 -5.21 0.000 0. Unnitigated Noise Levels (without Topo and barrier attenuation) Leq Right Ldn CNEL Autos: 75.7 71.7 66.1 66.6 74.0 -1 Medium Trucks: 73.7 71.7 66.1 65.8 73.8 -1 Vehicle Noise: 79.5 77.4 73.5 72.2 79.7 -1 Vehicle Noise: 79.5 77.4		Road Grade:	0.0%				Autos.	33	.941				
Right View: 90.0 degrees Heavy Trucks: 33.705 FHWA Noise Model Calculations VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berrn Att Autos: 71.78 2.71 2.42 -1.20 -4.75 0.000 0. Medium Trucks: 82.40 -10.02 2.47 -1.20 -4.88 0.000 0. Unnitigated Noise Levels (without Topo and barrier attenuation) VehicleType Leq Peak Hour Leq Day Leq Night Ldn CNEL Vehicle Type Leq Peak Hour Leq Day Leq Right Ldn CNEL Medium Trucks: 73.7 71.7 66.1 66.6 74.0 74.4 Heavy Trucks: 79.5 77.4 73.5 72.2 79.7 74 Medium Trucks: 79.5 77.4 73.5 72.2 79.7 74 Vehicle Noise: 79.5 77.4 73.5 72.2 79.7 74 Contertine Distance to Noise Contour (in		Left View:	-90.0 degree	s		Mediur	n Trucks.	: 33	.679				
FHWA Noise Model Calculations VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berm Att Autos: 71.78 2.71 2.42 -1.20 -4.75 0.000 0 Medium Trucks: 82.40 -10.02 2.47 -1.20 -4.88 0.000 0 Heavy Trucks: 86.40 -13.23 2.47 -1.20 -5.21 0.000 0 Ummitgated Noise Levels (without Topo and barrier attenuation) Leq Right Ldn CNEL VehicleType Leq Peak Hour Leq Day Leq Evening Leq Night Ldn CNEL Medium Trucks: 73.7 71.7 66.1 66.6 74.0 74.4 73.0 61.4 65.8 73.8 72.2 79.7 74.7 Heavy Trucks: 79.5 77.4 73.5 72.2 79.7 74.7 Vehicle Noise: 79.5 77.4 73.5 72.2 79.7 74.7 Centerline Distance		Right View:	90.0 degree	s		Heav	y Trucks.	33	.705				
VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berm Atten Autos: 71.78 2.71 2.42 -1.20 -4.75 0.000 0.0 Medium Trucks: 82.40 -10.02 2.47 -1.20 -4.88 0.000 0.0 Heavy Trucks: 86.40 -13.23 2.47 -1.20 -5.21 0.000 0.0 Ummitgated Noise Levels (without Topo and barrier attenuation) Leq Revening Leq Night Ldn CNEL Autos: 75.7 73.1 72.2 69.2 76.4 76.4 Heavy Trucks: 73.7 71.7 66.1 66.6 74.0 76.4 Heavy Trucks: 73.7 71.7 66.1 65.8 73.8 77.4 Vehicle Noise: 79.5 77.4 73.5 72.2 79.7 74.7 Vehicle Noise: 79.5 77.4 73.5 72.2 79.7 74.7 Centerline Distance to Noise Contour (in feet)	FHWA Noise Mod	el Calculation	s										
Autos: 71.78 2.71 2.42 -1.20 -4.75 0.000 0.00 Medium Trucks: 82.40 -10.02 2.47 -1.20 -4.88 0.000 0. Heavy Trucks: 86.40 -13.23 2.47 -1.20 -5.21 0.000 0. Unnitigated Noise Levels (without Topo and barrier attenuation) Leq Posk Leq Posk Leq Night Ldn CNEL Autos: 75.7 73.1 72.2 69.2 76.4 74.0 75.0 72.2 76.7 71.7 66.1 66.6 74.0 75.0 72.2 79.7 71.7 66.1 65.6 73.8 73.8 73.5 72.2 79.7 74.7 74.0 73.5 72.2 79.7 74.7 74.7 75.5 72.2 79.7 74.7 74.8 73.0 61.4 65.6 74.0 75.7 74.7 74.7 75.7 72.2 79.7 74.7 74.7 74.7 75.7 72.7 74.7 74.7	VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fres	nel	Barrier A	tten	Bern	n Atten
Medium Trucks: 82.40 -10.02 2.47 -1.20 -4.88 0.000 0. Heavy Trucks: 86.40 -13.23 2.47 -1.20 -5.21 0.000 0. Unnitigated Noise Levels (without Topo and barrier attenuation) Leq Evening Leq Night Ldn CNEL Autos: 75.7 73.1 72.2 69.2 76.4 76.4 Medium Trucks: 73.7 71.7 66.1 66.6 74.0 78.8 Vehicle Noise: 79.5 77.4 73.5 72.2 79.7 74.4 Centerline Distance to Noise Contour (in feet) 20 70 dBA 65 dBA 60 dBA 55 dBA Ldn: 372 801 1.725 3.716 71.9 3.875	Autos:	71.78	2.71		2.42		-1.20		-4.75	0	0.000		0.000
Heavy Trucks: 86.40 -13.23 2.47 -1.20 -5.21 0.000 0. Unmitigated Noise Levels (without Topo and barrier attenuation) Ueng Peak Hour Leg Peak Hour Leg Value Leg Night Ldn CNEL Autos: 75.7 73.1 72.2 69.2 76.4 7 Medium Trucks: 73.7 71.7 66.1 66.6 74.0 7 Heavy Trucks: 73.7 71.7 66.1 65.8 73.8 7 Vehicle Noise: 79.5 77.4 73.5 72.2 79.7 7 Centerline Distance to Noise Contour (in feet) 70 dBA 65 dBA 60 dBA 55 dBA Ldn: 372 801 1,725 3,716 Ch/EL: 387 835 1,799 3,875	Medium Trucks:	82.40	-10.02		2.47		-1.20		-4.88	0	0.000		0.000
Unmitigated Noise Levels (without Topo and barrier attenuation) Leq Point Leq Day Leq Evening Leq Night Ldn CNEL Autos: 75.7 73.1 72.2 69.2 76.4 76.4 76.4 76.7 71.7 66.1 66.6 74.0 76.7 71.7 71.7 66.1 66.6 74.0 77.7 71.7	Heavy Trucks:	86.40	-13.23		2.47		-1.20		-5.21	0	0.000		0.000
VehicleType Leq Peak Hour Leq Day Leq Evening Leq Night Ldn CNEL Autos: 75.7 73.1 72.2 69.2 76.4 76.9 77.4 77.5 72.2 79.7 77.7	Unmitigated Nois	e Levels (with	out Topo and	barrier	attenu	uation)						-	
Autos: 75.7 73.1 72.2 69.2 76.4 Medium Trucks: 73.7 71.7 66.1 66.6 74.0 Heavy Trucks: 74.4 73.0 61.4 65.8 73.8 72.2 Vehicle Noise: 79.5 77.4 73.5 72.2 79.7 73.5 Centerline Distance to Noise Contour (in feet) Ldn: 372 801 1,725 3,716 CNEL: 387 835 1,799 3,875	VehicleType	Leq Peak Hou	ır Leq Day		Leq Ev	ening	Leq N	light		Ldn		CN	IEL
Medium Trucks: 73.7 71.7 66.1 66.6 74.0 Heavy Trucks: 74.4 73.0 61.4 65.8 73.8 Vehicle Noise: 79.5 77.4 73.5 72.2 79.7 7 Centerline Distance to Noise Contour (in feet) Ldn: 372 801 1,725 3,716 CNHEL: 387 835 1,799 3,875	Autos:	75	.7	73.1		72.2		69.	2	76	i.4		76.8
Heavy Trucks: 74.4 73.0 61.4 65.8 73.8 Vehicle Noise: 79.5 77.4 73.5 72.2 79.7 7 Centerline Distance to Noise Contour (in feet) 70 dBA 65 dBA 60 dBA 55 dBA Ldn: 372 801 1,725 3,716 CNEL: 387 835 1,799 3,875	Medium Trucks:	73	.7	71.7		66.1		66.	6	74	.0		74.2
Vehicle Noise: 79.5 77.4 73.5 72.2 79.7 33 Centerline Distance to Noise Contour (in feet) Image: Contour	Heavy Trucks:	74	.4	73.0		61.4		65.	8	73	.8		73.9
Centerline Distance to Noise Contour (in feet) 70 dBA 65 dBA 60 dBA 55 dBA Ldn: 372 801 1,725 3,716 CNEL: 387 835 1,799 3,875	Vehicle Noise:	79	.5	77.4		73.5		72.	2	79).7		80.0
70 dBA 65 dBA 60 dBA 55 dBA Ldn: 372 801 1,725 3,716 CNEL: 387 835 1,799 3,875	Centerline Distan	ce to Noise Co	ontour (in feet,									-	
Ldn: 372 801 1,725 3,716 CNEL: 387 835 1,799 3,875					70 di	BA	65 d	BA	1	60 dBA		55 0	dBA
CNEL: 387 835 1,799 3,875				Ldn:	372	372 801			1,725			3,7	'16
		CNEL:					387 835 1,799 3,875						75

Thursday, May 02, 2019

	FH	WA-RD-77-108	HIGH	NAY NO	ISE P	REDICTIC	N MOD	EL			
Scenario Road Name Road Segmen	 DY With P Euclid Av. s/o Merrill 	roject Av.				Project N Job Nui	lame: M nber: 10	CH)351			
SITE S	PECIFIC IN	NPUT DATA				NC	DISE M	ODEL	INPUTS	5	
Highway Data				Si	te Cor	ditions (F	lard = 1	0, Sofi	t = 15)		
Average Daily T	raffic (Adt):	36,035 vehicl	es				A	utos:	15		
Peak Hour F	Percentage:	10%			Me	dium Truc	ks (2 Ax	les):	15		
Peak Ho	our Volume:	3,603 vehicle	s		He	avy Truck	s (3+ Ax	des):	15		
Veh	nicle Speed:	55 mph		Ve	hicle	Mix					
Near/Far Lan	e Distance:	154 feet		<u> </u>	Veh	icleTvpe	D	av E	Evenina	Niaht	Dailv
Site Data						AL	tos: 6	6.2%	13.5%	20.3%	92.68%
Barr	rier Heiaht:	0.0 feet			М	edium Tru	cks: 7	7.1%	5.3%	17.6%	4.94%
Barrier Type (0-Wa	all, 1-Berm):	0.0			1	Heavy Tru	cks: 8	6.3%	1.5%	12.2%	2.37%
Centerline Dist	t. to Barrier:	84.0 feet		N	nico Si	ource Ele	vations	(in foo	(f)		
Centerline Dist. to	o Observer:	84.0 feet			//30 01	Autos:	0.00	0	9		
Barrier Distance to	o Observer:	0.0 feet			Modiu	m Trucke:	2.20	17			
Observer Height (A	Above Pad):	5.0 feet			Heat	n Trucks:	8.00	,, 14 G	Grade Adi	ustmen	t: 0.0
Pa	d Elevation:	0.0 feet			mour	y maono.	0.00				
Road	d Elevation:	0.0 feet		Lá	ne Eq	uivalent L	Distance	e (in fe	et)		
R	Road Grade:	0.0%				Autos:	33.94	11			
	Left View:	-90.0 degre	es		Mediu	m Trucks:	33.67	79			
	Right View:	90.0 degre	es		Heav	/y Trucks:	33.70)5			
FHWA Noise Mode	I Calculation	IS									
VehicleType	REMEL	Traffic Flow	Dist	ance	Finite	Road	Fresne	I B	arrier Atte	en Be	rm Atten
Autos:	71.78	2.53		2.42		-1.20	-4	1.75	0.0	00	0.000
Medium Trucks:	82.40	-10.20		2.47		-1.20	-4	4.88	0.0	00	0.000
Heavy Trucks:	86.40	-13.39		2.47		-1.20	-8	5.21	0.0	00	0.000
Unmitigated Noise	Levels (with	out Topo and	barrie	r attenua	ation)						
VehicleType	Leq Peak Ho	ur Leq Da	/	Leq Eve	ning	Leq N	ight	L	dn	C	NEL
Autos:	75	5.5	72.9		72.1		69.1		76.2		76.7
Medium Trucks:	73	3.5	71.5		65.9		66.4		73.8		74.0
Heavy Trucks:	74	1.3	72.8		61.3		65.6		73.7		73.8
Vehicle Noise:	79	9.3	77.3		73.3		72.0		79.5		79.8
Centerline Distance	e to Noise C	ontour (in fee	t)								
				70 dE	BA	65 dl	BA	60	dBA	- 55	5 dBA
			Ldn:	362 780 1,680			3	,619			
	CNEL:				377 813 1,751 3,7				,773		

							EL _			
o: OY With Pro	oject				Project N	ame: N	ICH			
e: Euclid Av.					Job Nur	nber: 1	0351			
t: n/o Kimball	Av.									
SPECIFIC IN	PUT DATA				NO	ISE M	ODE		S	
			S	Site Con	ditions (H	lard = 1	0, So	ft = 15)		
Traffic (Adt):	35,621 vehicle	s				Α	utos:	15		
Percentage:	10%			Me	dium Truc	ks (2 A)	des):	15		
our Volume:	3,562 vehicles	5		Hea	avy Truck	s (3+ A)	des):	15		
nicle Speed:	55 mph		N	/ehicle I	Nix					
e Distance:	154 feet		F	Vehi	cleTvpe	L)av	Evenina	Niaht	Dailv
					Au	tos: 6	6.2%	13.5%	20.3%	92.68%
rier Heiaht:	0.0 feet			Me	edium True	cks: 7	7.1%	5.3%	17.6%	4.94%
all. 1-Berm):	0.0			F	leavy Tru	cks: 8	6.3%	1.5%	12.2%	2.38%
t. to Barrier:	84.0 feet		-							
o Observer:	84.0 feet		^	voise So	ource Elev	ations	(in fe	et)		
o Observer:	0.0 feet				Autos:	0.0	00			
Above Pad):	5.0 feet			Mediur	n Trucks:	2.2	97	0 d- 4-d		
d Elevation:	0.0 feet			Heav	y Trucks:	8.0)4	Grade Adj	ustment:	0.0
d Elevation:	0.0 feet		L	ane Equ	uivalent D	istanc	e (in f	eet)		
Road Grade:	0.0%				Autos:	33.9	41			
Left View:	-90.0 degree	s		Mediur	n Trucks:	33.6	79			
Right View:	90.0 degree	s		Heav	y Trucks:	33.7	05			
Calculations	;									
REMEL	Traffic Flow	Distar	nce	Finite	Road	Fresne	d .	Barrier Att	en Ber	m Atten
71.78	2.48		2.42	2	-1.20	-	4.75	0.0	000	0.000
82.40	-10.25		2.47	,	-1.20	-	4.88	0.0	000	0.000
86.40	-13.43		2.47	,	-1.20	-	5.21	0.0	000	0.000
Levels (witho	out Topo and	barrier a	atteni	uation)						
Leq Peak Hou	r Leq Day	L	eq Ev	rening	Leq Ni	ght		Ldn	CI	VEL
75.	5 7	72.9		72.0		69.0		76.2	2	76.6
73	4 7	71.5		65.9		66.3		73.7	,	73.9
74.	2 7	72.8		61.2		65.6		73.7	,	73.7
79.	2	77.2		73.2		72.0		79.5	5	79.7
e to Noise Co	ntour (in feet)	1								
		1	70 4	ID A	CE de	24	6	0 dBA	55	dRA
			70 U	DA	00 UE	<i></i>		0 0001	00	ubh
		Ldn:	35	9	774			1,668	3,	593
	E - C - Will FIC: E - Unid AV. E - Loid AV. E - Loid AV. E - Loid AV. E - Loid AV. For Contage: U/ Volume: Lick Speed: E - Distance:	2. Of Will Fright 2. Fueld AV. t: nlo Kimball AV. PECIFIC INPUT DATA Traffic (Adt): 35,621 vehicle Precentage: 10% uur Volume: 3,562 vehicles icle Speed: 55 mph uur Volume: 3,562 vehicles icle Speed: 55 mph volume: 154 feet Trief Height: 0.0 feet 0 Observer: 84.0 feet 0 Observer: 0.0 feet 0 Observer: 90.0 degree RelMEL Traffic Flow 71.78 2.48 82.40 -10.25 86.40 -13.43 Levets (Without Top and Leq Pay 75.5 73.4 74.2 79.2 79.2	2. Or with Project 2: Euclid Av. 4: n/o Kimball Av. 37.621 vehicles 37.621 vehicles 37.622 vehicles 10% uur Volume: 3,562 vehicles 10% uur Volume: 3,562 vehicles 10% uur Volume: 3,562 vehicles 10% uur Volume: 154 feet 7.167 11, 1-Berm): 0.0 1. to Barrier: 84.0 feet 0 Observer: 90.0 feet d Elevation: 0.0	2. 01 with Project 2: Euclid Av. 2: Tarlfic (Adt): 35,621 vehicles 2rarfic (Adt): 35,621 vehicles 2rarfic (Adt): 35,621 vehicles 2rarfic (Adt): 35,622 vehicles icide Speed: 100 volume: 35,62 vehicles icide Speed: icide Speed: 11, 1-Berm): 0.0 t. to Barrier: 84.0 feet 0 Observer: 0.0 feet d Elevation: 0.0 feet d Elevation: 0.0 feet d Elevation: 0.0 feet d Elevation: 0.0 degrees RRMEL Traffic Flow Distance 71.78 2.48 2.40 -10.25 2.41 86.40 13.43 2.47 86.40 -13.43 75.5 72.9 73.4 71.5 74.4 72.8	0.1 will Friget 2. brink Friget 2: Euclid Av. 2: Euclid Av. 2: Euclid Av. PECIFIC INPUT DATA Site Con raffic (Adt): 35,621 vehicles Percentage: 10% will volume: 3,562 vehicles will volume: 3,562 vehicles will volume: 154 feet vehicle Jpeed: 55 mph vehicle Jpeed: 55 mph vehicle Jpeed: 55 mph vehicle Jpeed: 50 observer: 0.0 feet Mediur 0 observer: 0.0 feet 0 observer: 0.0 feet d Elevation: 0.0 feet d Elevation: 0.0 feet Lane Equipation: 0.0 feet Vehice I flow: 90.0 degrees Right View: 90.0 degrees REMEL Traffic Flow Distance 71.78 2.48 2.42 86.40 -13.43 2.47 86.40 -13.43 2.47 <trtr> Leevesk</trtr>	Of With Hope II Project N 2: Euclid Av. Job Nur. 1: In Kimball Av. Job Nur. PECIFIC INPUT DATA NO Fraffic (Adt): 35,621 vehicles Percentage: 10% Values: Medium Truc. Values: 35,622 vehicles Wehicle Type Autos: Values: 0.0 feet Values: 0.0 feet values: 0.0 feet 0 Observer: 0.0 feet 0 Observer: 0.0 feet d Elevation: 0.0 feet d Elevation: 0.0 feet Left View: 90.0 degrees Right View: 90.0 degrees REMEL Traffic Flow 71.78 2.48 2.42 -1.20 86.40 -13.43 2.47 -1.20 86.40 -13.43 2.47 -1.20 75.5 72.9 72.4 71.5 73.4 71.5 79.2 77	Normal Project value. Project value. 2: Euclid Av. Job Number: 11 Job Kumball Av. Job Number: 11 PFECIFIC INPUT DATA NOISE M Precentage: 10% Medium Trucks (2 A) Parcentage: 10% Medium Trucks (2 A) Parcentage: 156 2 vehicles Heavy Trucks (3 A) ur/ Volume: 3,562 vehicles Vehicle Mix lc Distance: 154 feet Vehicle Mix Vehicle Mix Vehicle Mix Vehicle Mix t. to Barrier: 84.0 feet Autos:: 0 o Observer: 0.0 feet Autos:: 0.0 d Elevation: 0.0 feet Autos:: 0.0 d Elevation: 0.0 feet Autos:: 3.0 d Elevation: 0.0 feet Lane Equivalent Distance Autos:: 3.0 cheft Weiw: 90.0 degrees Medium Trucks:: 3.3.7 Ict Weiw: 90.0 degrees Heavy Trucks:: 3.3.7 REMEL Traffic Flow Distance Finite Read Fresenc </td <td>A. Of Will Frideit Wallie. Wich Project Wallie. Wallie. Wallie. Wich Project Wallie. Wall</td> <td>Of Will Floged Mathe Dependence 2: Euclid Av. Job Number: 10351 2: Euclid Av. Job Number: 10351 Site Conditions (Hard = 10, Soft = 15) Autos: 15 7affic (Adt): 35,62 vehicles Jick Spaced: Site Conditions (Hard = 10, Soft = 15) 7affic (Adt): 35,62 vehicles Jick Spaced: Site Conditions (Hard = 10, Soft = 15) Values: 35,62 vehicles icite Alight: 0.0 feet Ji. 1:Berm): 0.0 0: Observer: 84.0 feet 0: Observer: 0.0 feet Jacorde: 0.0 feet</td> <td>Of Will Fright Orgen value Fright value Noth 2: Euclid Av. Job Number: 10351 Job Number: 10351 2: Euclid Av. Job Number: 10351 Job Number: 10351 3: PECEIFLE INPUT DATA NOISE MODDEL INPUTS Autos: 15 FarGentage: 10% Autos: 15 Percentage: 10% Medium Trucks (2 Axles): 15 UV Volume: 3,562 vehicles Heavy Trucks (34 Axles): 15 icite Abight: 0.0 feet Medium Trucks (7 Axles): 15 icite Reight: 0.0 feet Medium Trucks (7 Axles): 15 icite Reight: 0.0 feet Autos: 66.2% 13.5% 20.3% icite Reight: 0.0 feet Autos: 06.2% 13.5% 20.3% idi, 1-Berm): 0.0 Observer: 84.0 feet 0 Observer: 84.0 feet Autos: 0.000 0 Observer: 0.0 feet Autos: 8.004 d Elevation: 0.0 feet Autos:: 33.619 Heavy Trucks: 33.941 Left Weiv: 90.0 degrees REMEL Traffic Flow Distance Frinite Road Fresnel</td>	A. Of Will Frideit Wallie. Wich Project Wallie. Wallie. Wallie. Wich Project Wallie. Wall	Of Will Floged Mathe Dependence 2: Euclid Av. Job Number: 10351 2: Euclid Av. Job Number: 10351 Site Conditions (Hard = 10, Soft = 15) Autos: 15 7affic (Adt): 35,62 vehicles Jick Spaced: Site Conditions (Hard = 10, Soft = 15) 7affic (Adt): 35,62 vehicles Jick Spaced: Site Conditions (Hard = 10, Soft = 15) Values: 35,62 vehicles icite Alight: 0.0 feet Ji. 1:Berm): 0.0 0: Observer: 84.0 feet 0: Observer: 0.0 feet Jacorde: 0.0 feet	Of Will Fright Orgen value Fright value Noth 2: Euclid Av. Job Number: 10351 Job Number: 10351 2: Euclid Av. Job Number: 10351 Job Number: 10351 3: PECEIFLE INPUT DATA NOISE MODDEL INPUTS Autos: 15 FarGentage: 10% Autos: 15 Percentage: 10% Medium Trucks (2 Axles): 15 UV Volume: 3,562 vehicles Heavy Trucks (34 Axles): 15 icite Abight: 0.0 feet Medium Trucks (7 Axles): 15 icite Reight: 0.0 feet Medium Trucks (7 Axles): 15 icite Reight: 0.0 feet Autos: 66.2% 13.5% 20.3% icite Reight: 0.0 feet Autos: 06.2% 13.5% 20.3% idi, 1-Berm): 0.0 Observer: 84.0 feet 0 Observer: 84.0 feet Autos: 0.000 0 Observer: 0.0 feet Autos: 8.004 d Elevation: 0.0 feet Autos:: 33.619 Heavy Trucks: 33.941 Left Weiv: 90.0 degrees REMEL Traffic Flow Distance Frinite Road Fresnel

Thursday, May 02, 2019

	FHV	VA-RD-77-108	HIGH	WAY I	NOISE PI	REDICT	ION MO	DDEL				
Scenar Road Nan Road Segme	io: OY With Pr ne: Euclid Av. nt: n/o Bickmo	oject re Av.				Project Job N	Name: lumber:	MCH 10351				
SITE	SPECIFIC IN	PUT DATA				N	IOISE	MODE	L INPU	rs		
Highway Data					Site Cor	nditions	(Hard :	= 10, Se	oft = 15)			
Average Daily Peak Hour Peak F Veak F	Traffic (Adt): Percentage: lour Volume:	23,421 vehicle 10% 2,342 vehicles 55 mph	s	_	Me He	dium Tr avy Tru	ucks (2 cks (3+	Autos: Axles): Axles):	15 15 15			
Near/Far La	ne Distance:	154 feet		-	Venicle	MIX iolo Turu		Deur	Fuening	NG	what .	Dailu
Site Data					ven	icie i ype	Autos:	66.2%	13.5%	20	JIII 13%	02 / 8%
One Data					м	edium T	nucks	77 1%	5.3%	17	6%	5.00%
ва Barrier Type (0-И	rrier Height: Vall, 1-Berm):	0.0 feet 0.0				Heavy T	rucks:	86.3%	1.5%	12	2.2%	2.53%
Centerline Di	ist. to Barrier:	84.0 feet		-	Noise S	ource F	levatio	ns (in f	eet)			
Centerline Dist.	to Observer:	84.0 feet		-		Auto	s' 0	000				-
Barrier Distance	to Observer:	0.0 feet			Mediu	m Truck	s: 2	297				
Observer Height	(Above Pad):	5.0 feet			Heav	v Truck	s: 8	.004	Grade A	diustr	nent:	0.0
P	ad Elevation:	0.0 feet		_		,						
Ro	ad Elevation:	0.0 feet		_	Lane Eq	uivalen	t Distai	nce (in	feet)			
	Road Grade:	0.0%				Auto	s: 33	1.941				
	Left View: Right View:	-90.0 degree 90.0 degree	es es		Mediu Heav	m Truck ∕y Truck	s: 33 s: 33	1.679 1.705				
EHWA Noise Mod	el Calculation					-						
VehicleType	REMEL	Traffic Flow	Dis	stance	Finite	Road	Fres	nel	Barrier A	tten	Beri	m Atten
Autos:	71.78	0.65		2.4	2	-1.20		-4.75	0	.000		0.00
Medium Trucks:	82.40	-12.03		2.4	7	-1.20		-4.88	0	.000		0.00
Heavy Trucks:	86.40	-14.99		2.4	7	-1.20		-5.21	0	.000		0.00
Unmitigated Nois	e Levels (with	out Topo and	barri	er atter	nuation)							-
VehicleType	Leq Peak Hou	r Leq Day		Leq E	vening	Leq	Night		Ldn		CI	JEL
Autos:	73	.6	71.1		70.2		67	.2	74	.4		74.
Medium Trucks:	71	.6 (69.7		64.1		64	.6	72	.0		72.
Heavy Trucks:	72	.7	71.2		59.7		64	.0	72	.1		72.
Vehicle Noise:	77	.5	75.5		71.4		70	.2	77	.7		78.
Centerline Distan	ce to Noise Co	ontour (in feet)) _									
			L	70	dBA	65	dBA	0	50 dBA		55	dBA
			Ldn:	2	75	5	92		1,276		2,7	'49
		Cl	VEL:	2	86	6	17		1,329		2,8	564

	FHV	A-RD-77-108 F	IIGHWAY	NOISE P	REDICTION	MODEL				
Scenar	io: OY With Pro	oject			Project Nan	e: MCH				
Road Nam	e: Archibald A	v.			Job Numb	er: 1035 [.]	1			
Road Segme	nt: n/o Limonite	e Av.								
SITE	SPECIFIC IN	PUT DATA			NOIS	E MOD	EL INPUT	s		
Highway Data				Site Cor	nditions (Har	d = 10, S	oft = 15)			
Average Daily	Traffic (Adt):	29,511 vehicles				Autos	: 15			
Peak Hour	Percentage:	10%		Me	dium Trucks	(2 Axles)	: 15			
Peak H	lour Volume:	2,951 vehicles		He	avy Trucks (3+ Axles)	: 15			
Ve	hicle Speed:	55 mph		Vehicle	Mix					
Near/Far La	ne Distance:	154 feet		Veh	icleTvpe	Dav	Evenina	Niaht	Dailv	
Site Data					Autos	66.29	6 13.5%	20.3%	93.44%	
Ba	wier Height	0.0 feet		М	edium Trucks	; 77.19	6 5.3%	17.6%	4.67%	
Barrier Type (0-W	all, 1-Berm):	0.0			Heavy Trucks	86.39	% 1.5%	12.2%	1.89%	
Centerline Di	st. to Barrier:	84.0 feet		Noise S	ource Elevat	ions (in	feet)			
Centerline Dist.	to Observer:	84.0 feet			Autos:	0.000				
Barrier Distance	to Observer:	0.0 feet		Mediu	m Trucks:	2 297				
Observer Height (Above Pad):	5.0 feet		Heat	A Trucks:	8 004	Grade Ad	iustment	.00	
Pa	ad Elevation:	0.0 feet		11001	ly muono.	0.001	,			
Ro	ad Elevation:	0.0 feet		Lane Eq	uivalent Dis	tance (in	feet)			
	Road Grade:	0.0%			Autos:	33.941				
	Left View:	-90.0 degrees		Mediu	m Trucks:	33.679				
	Right View:	90.0 degrees		Heav	/y Trucks:	33.705				
FHWA Noise Mod	el Calculations	5		1						
VehicleType	REMEL	Traffic Flow	Distance	e Finite	Road Fi	resnel	Barrier Att	en Ber	m Atten	
Autos:	71.78	1.70	2	.42	-1.20	-4.75	0.0	000	0.000	
Medium Trucks:	82.40	-11.32	2	.47	-1.20	-4.88	0.0	000	0.000	
Heavy Trucks:	86.40	-15.25	2	.47	-1.20	-5.21	0.0	000	0.000	
Unmitigated Nois	e Levels (with	out Topo and b	arrier att	enuation)						
VehicleType	Leq Peak Hou	r Leq Day	Leq	Evening	Leq Nigh	t	Ldn	C	NEL	
Autos:	74.	7 72	2.1	71.2		58.2	75.4	ŧ	75.8	
Medium Trucks:	72.	4 70	0.4	64.8		35.3	72.7		72.9	
Heavy Trucks:	72.	4 7	1.0	59.4		53.7	71.8	}	71.9	
Vehicle Noise:	78.	1 76	5.0	72.3		70.9	78.4	ţ	78.6	
Centerline Distan	ce to Noise Co	ntour (in feet)								
			7	0 dBA	65 dBA		60 dBA	55	dBA	
		L	dn:	303 653 1,406 3			3,	030		
	CNEL:				317 682 1,469 3,165					

Thursday, May 02, 2019

	FH\	NA-RD-77-108	HIGHWA	AY NC	DISE P	REDICT	ION MO	DEL			
Scenar Road Nam Road Segme	io: OY With Pr ne: Archibald A nt: s/o Limonit	roject Av. e Av.				Project Job N	Name: I lumber:	MCH 10351			
SITE	SPECIFIC IN	IPUT DATA				N	IOISE N	IODE	L INPUT	s	
Highway Data				Si	ite Cor	nditions	(Hard =	10, S	oft = 15)		
Average Daily	Traffic (Adt):	28,057 vehicl	es					Autos:	15		
Peak Hour	Percentage:	10%			Me	edium Tr	ucks (2 A	xles):	15		
Peak H	lour Volume:	2,806 vehicle	s		He	eavy Tru	cks (3+ A	(xles)	15		
Ve	hicle Speed:	45 mph		Ve	ehicle	Mix					
Near/Far La	ne Distance:	78 feet			Veh	nicleType	,	Day	Evening	Nigh	t Daily
Site Data							Autos:	66.2%	5 13.5%	20.3	% 93.37%
Ba	rrier Heiaht:	0.0 feet			Μ	ledium T	rucks:	77.1%	5.3%	17.6	% 4.66%
Barrier Type (0-W	/all, 1-Berm):	0.0				Heavy T	rucks:	86.3%	5 1.5%	12.2	.% 1.97%
Centerline Di	st. to Barrier:	76.0 feet		N	oise S	ource E	levation	s (in f	eet)		
Centerline Dist.	to Observer:	76.0 feet				Auto	s: 0.0	000			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Truck	s: 2.2	297			
Observer Height ((Above Pad):	5.0 feet			Hear	vy Truck	s: 8.0	004	Grade Adj	iustme	ent: 0.0
Pa	ad Elevation:	0.0 feet			nno Fo		Distant	no (in	fa a 4)		
Roa	ad Elevation:	0.0 feet		Le	ane Eq	Auto		100	ieel)		
	Road Grade:	0.0%			Madiu	AUIO	S: 05.4	+22			
	Left View:	-90.0 degre	es		Hoa	M Truck	S. 65.	280			
	Night view.	90.0 degre	es		nea	vy much	3. 00.	200			
FHWA Noise Mod	el Calculation	S				r					
VehicleType	REMEL	Traffic Flow	Distan	ce	Finite	Road	Fresn	el	Barrier Atte	en E	Berm Atten
Autos:	68.46	2.35		-1.85		-1.20		-4.73	0.0	00	0.00
Medium Trucks:	79.45	-10.68		-1.84		-1.20		-4.88	0.0	00	0.00
Heavy Trucks:	84.25	-14.42		-1.84		-1.20		-5.25	0.0	00	0.00
Unmitigated Nois	e Levels (with	out Topo and	barrier a	ttenu	ation)					1	
Venicie I ype	Leq Peak Hou	ur Leq Day	/ Le	eq Eve	ening	Leq	Night		Ldn		CNEL
Modium Trucks:	67	.0	62.9		69.0 59.0		59.7		66.1		66
Heavy Trucks:	60		65.4		53.8		58.1		66.2	,	66
Vehicle Noise:	71	.6	69.6		65.5		64.4		71.8	5	72.
Centerline Distan	ce to Noise Ce	ontour (in feet)								
µ				70 dE	BA	65	dBA		60 dBA		55 dBA
			Ldn:	101		2	17		467		1,006
		Ci	NEL:	105		2	26		486		1,048

					0.021.0						
Scenar	io: OY With Pr	oject				Project N	ame: M	СН			
Road Nam	e: Archibald A	w.				Job Nur	nber: 10	0351			
Road Segme	nt: s/o Schleisi	man Rd.									
SITE	SPECIFIC IN	IPUT DATA				NO	ISE M	ODE	L INPUT	S	
Highway Data				S	Site Con	ditions (H	lard = 1	0, S	oft = 15)		
Average Daily	Traffic (Adt):	24,178 vehicles					A	utos:	15		
Peak Hour	Percentage:	10%			Med	lium Truc	ks (2 Ax	(les):	15		
Peak H	lour Volume:	2,418 vehicles			Hea	avy Trucks	s (3+ Ax	(les):	15		
Ve	hicle Speed:	45 mph		v	/ehicle N	lix					
Near/Far La	ne Distance:	78 feet			Vehi	cleType	E	ay)	Evening	Night	Daily
Site Data						Au	tos: 6	6.2%	13.5%	20.3%	93.35%
Ba	rrier Height	0.0 feet			Me	dium Truc	:ks: 7	7.1%	5.3%	17.6%	4.71%
Barrier Type (0-W	/all. 1-Berm):	0.0			H	leavy Truc	:ks: 8	6.3%	1.5%	12.2%	1.95%
Centerline Di	st. to Barrier:	76.0 feet			laiaa Ca	uree Eler	ations	(in 6	0.041		
Centerline Dist.	to Observer:	76.0 feet		~	voise So	urce Elev	ations		eet)		
Barrier Distance	to Observer:	0.0 feet			1 4 m all 1 m	Autos:	0.00	JU 7			
Observer Height	(Above Pad):	5.0 feet			Mealun	Trucks:	2.25	97 . 4	Grado Ad	iustmont	
P	ad Elevation:	0.0 feet			neav	/ mucks.	0.00	/4	Orade Haj	usunon	0.0
Roi	ad Elevation:	0.0 feet		L	ane Equ	ivalent D	istance	e (in	feet)		
	Road Grade:	0.0%				Autos:	65.42	22			
	Left View:	-90.0 degrees			Mediun	n Trucks:	65.28	36			
	Right View:	90.0 degrees			Heav	/ Trucks:	65.29	99			
FHWA Noise Mod	el Calculation	s									
VehicleType	REMEL	Troffic Flow	Distan					1			
		Trainic Tiow	Distan	се	Finite	Road	Fresne	/	Barrier Att	en Ber	m Atten
Autos:	68.46	1.70	Distan	ce •1.85	Finite	Road -1.20	Fresne	1 1.73	Barrier Atte 0.0	en Ber 100	0.000
Autos: Medium Trucks:	68.46 79.45	1.70 -11.28	Distan	се -1.85 -1.84	Finite	Road -1.20 -1.20	Fresne 	1 4.73 4.88	Barrier Atte 0.0 0.0	en Ber 100 100	0.000 0.000
Autos: Medium Trucks: Heavy Trucks:	68.46 79.45 84.25	1.70 -11.28 -15.11	Uistan	ce -1.85 -1.84 -1.84	Finite	Road -1.20 -1.20 -1.20	Fresne -4 -4 -4	1 4.73 4.88 5.25	Barrier Atte 0.0 0.0 0.0	en Ber 100 100 100	<u>m Atten</u> 0.000 0.000 0.000
Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois	68.46 79.45 84.25 e Levels (with	1.70 -11.28 -15.11 out Topo and ba	arrier a	ce -1.85 -1.84 -1.84 ttenu	uation)	Road -1.20 -1.20 -1.20	Fresne -4 -4 -{	1 4.73 4.88 5.25	Barrier Atte 0.0 0.0 0.0	en Ber 100 100 100	m Atten 0.000 0.000 0.000
Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType	68.46 79.45 84.25 e Levels (with Leq Peak Hou	1.70 -11.28 -15.11 out Topo and ba r Leq Day	arrier a	ce -1.85 -1.84 -1.84 -1.84 <i>ttenu</i>	Finite uation)	Road -1.20 -1.20 -1.20 <i>Leq Ni</i>	Fresne -4 -4 ght	1 4.73 4.88 5.25	Barrier Atte 0.0 0.0 0.0 0.0	en Ber 100 100 100 100 Ci	m Atten 0.000 0.000 0.000 VEL
Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos:	68.46 79.45 84.25 e Levels (with Leq Peak Hou 67	1.70 -11.28 -15.11 out Topo and ba r Leq Day .1 64	arrier a	ce -1.85 -1.84 -1.84 ttenu cq Ev	Finite uation) rening 63.6	Road -1.20 -1.20 -1.20 <i>Leq Ni</i>	Fresne -4 -4 -4 -4 -4 ght 60.6	1 4.73 4.88 5.25	Barrier Atti 0.0 0.0 0.0 0.0 <u>Ldn</u> 67.8	en Ber 1000 1000 1000 1000 1000	<u>m Atten</u> 0.000 0.000 0.000 <u>0.000</u> <u>VEL</u> 68.2
Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks:	68.46 79.45 84.25 e Levels (with Leq Peak Hou 67 65	1.70 -11.28 -15.11 out Topo and ba rr Leq Day .1 64 .1 63	arrier a	ce -1.85 -1.84 -1.84 ttenu eq Ev	Finite uation) rening 63.6 57.6	Road -1.20 -1.20 -1.20 <i>Leq Ni</i>	Fresne -4 -4 -4 -4 ght 60.6 58.0	1 4.73 4.88 5.25	Barrier Atti 0.0 0.0 0.0 <u>0.0</u> 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	en Ber 000 000 000 Ci 3 5	<u>m Atten</u> 0.000 0.000 0.000 <u>VEL</u> 68.2 65.6
Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks:	68.46 79.45 84.25 e Levels (with Leq Peak Hou 67 65 66	Initial form Initial form 1.70 -11.28 -15.11 -15.11 out Topo and base of the pay I 64 .1 63 .1 64	arrier a Le	ce -1.85 -1.84 -1.84 <i>ttenu</i> <i>eq Ev</i>	Finite (uation) rening 63.6 57.6 53.1	Road -1.20 -1.20 -1.20 <i>Leq Ni</i>	Fresne -4 -4 -4 -4 -4 -4 -4 -4 -4 -4 -4 -4 -4	1 4.73 4.88 5.25	Barrier Atte 0.0 0.0 0.0 <u>Ldn</u> 67.8 65.5	en Ber 100 100 100 100 100 100 100 100 100 10	<u>m Atten</u> 0.000 0.000 0.000 <u>VEL</u> 68.2 65.6 65.6
Autos: Medium Trucks: Heavy Trucks: VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	68.46 79.45 84.25 e Levels (with Leg Peak Hou 67 65 66 71	Initial from 1.70 11.28 -15.11 out Topo and base I I 64 .1 64 .0 69	arrier a Le 5 2 7	ce -1.85 -1.84 -1.84 -1.84 <i>ttenu</i> -q Ev	uation) vening 63.6 57.6 53.1 64.9	Road -1.20 -1.20 -1.20 <i>Leq Ni</i>	Fresne -4 -4 -4 -4 -4 -4 -4 -4 -4 -4 -4 -4 -4	1 4.73 4.88 5.25	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	en Ber 000 000 000 C. 3 5 5 2 2	<u>m Atten</u> 0.000 0.000 0.000 <u>0.000</u> <u>0.000</u> <u>0.000</u> 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.000000
Autos: Medium Trucks: Heavy Trucks: VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distant	68.46 79.45 84.25 e Levels (with Leq Peak Hou 67 65 66 71 ce to Noise Co	Item (10,70) -11.28 -15.11 Out Topo and base r Leq Day 1 64 .0 69 Datour (In feet)	2015tan	ce -1.85 -1.84 -1.84 -1.84 <i>ttenu</i> <i>eq Ev</i>	Lenite : uation) rening 63.6 57.6 53.1 64.9	Road -1.20 -1.20 -1.20 <i>Leq Ni</i>	Fresne -4 -4 -4 60.6 58.0 57.4 63.7	1 4.73 4.88 5.25	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	en Ber 1000 100	M Atten 0.000 0.000 0.000 VEL 68.2 65.6 65.6 71.4
Autos: Medium Trucks: Heavy Trucks: VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distant	68.46 79.45 84.25 e Levels (with Leg Peak Hou 67 65 66 71 71 ce to Noise Co	1.70 -11.28 -11.28 -15.11 out Topo and ba m I 64 .1 64 .0 69 ontour (in feet) -100	<i>arrier a</i> <i>Le</i> .5 .2 .7	ce -1.85 -1.84 -1.84 -1.84 <i>ttenu</i> <i>cq Ev</i>	Enite : aution) rening 63.6 57.6 53.1 64.9 BA	Road -1.20 -1.20 -1.20 -1.20 Leq Ni 65 dE	Fresne -4 -4 -4 60.6 58.0 57.4 63.7	1.73	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 67.8 65.5 65.5 71.2 60 dBA	en Ber 1000 100	M Atten 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.000000
Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distant	68.46 79.45 84.25 e Levels (with Leq Peak Hou 67 65 66 71 ce to Noise Co	1.700 -11.28 -15.11 out Topo and back II 64 .1 64 .1 64 .1 64 .0 69 ontour (in feet)	<i>Distan</i> <i>arrier a</i> <i>Le</i> .5 .2 .7 .0	ce 1.85 1.84 1.84 1.84 ttenu q Ev	Inite uation) rening 63.6 57.6 53.1 64.9 BA	Road -1.20 -1.20 -1.20 -1.20 <i>Leq Ni</i> 65 dE	Fresne 	1 4.73 4.88 5.25	Barrier Att. 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	en Ber 1000 100	m Atten 0.000 0.000 0.000 VEL 68.2 65.6 65.6 71.4 dBA 11

Thursday, May 02, 2019

	FHW	/A-RD-77-108	HIGH	HWAY N	IOISE PF	REDICTIC	N MOI	DEL				
Scenario: (Road Name: + Road Segment: +	OY With Pro	oject				Project N Job Nu	lame: I mber: ·	MCH 10351				
				T		DIC.						
SITE SPE Highway Data	CIFIC IN	PUIDAIA			Site Con	ditions (I	Hard =	10. Sc	L INPO	15		
Average Daily Traf Peak Hour Per Peak Hour	fic (Adt): centage: Volume:	22,859 vehicle 10% 2,286 vehicles	s		Me He	dium Truc avy Truck	/ :ks (2 A :s (3+ A	Autos: Ixles): Ixles):	15 15 15			
Vehicle	e Speed:	50 mph		F	Vehicle I	Mix						
Near/Far Lane D	Distance:	36 feet		-	Vehi	icleTvpe		Dav	Evenino	Ni	aht	Dailv
Site Data						AL	itos:	66.2%	13.5%	20).3%	93.03%
Barrier	· Height	0.0 feet			Me	edium Tru	cks:	77.1%	5.3%	17	7.6%	4.75%
Barrier Type (0-Wall,	1-Berm):	0.0			F	łeavy Tru	cks:	86.3%	1.5%	12	2.2%	2.22%
Centerline Dist. to	Barrier:	44.0 feet		H	Noise Sc	urco Elo	vation	: (in fi	oot)			
Centerline Dist. to C	bserver:	44.0 feet		H	10130 00	Autos:	0.0	000	500			
Barrier Distance to C	bserver:	0.0 feet			Mediur	n Trucks:	2.2	97				
Observer Height (Abo	ve Pad):	5.0 feet			Heav	y Trucks:	8.0	04	Grade A	djustr	nent:	0.0
Pad E	levation:	0.0 feet		-	l ono Em	, ulualant I	Distant	o (in	fa a 4)	-		
Road E	levation:	0.0 feet		-	Lane Equ	uivalent I	Jistand	e (in	reet)			
Roai	d Grade:	0.0%			Madiu	Autos:	40.4	100				
Rig	ent view: ght View:	90.0 degree	s		Heav	y Trucks:	40.2	262				
FHWA Noise Model C	alculations	6										
VehicleType F	REMEL	Traffic Flow	Dis	stance	Finite	Road	Fresn	el	Barrier A	tten	Bern	n Atten
Autos:	70.20	0.98		1.2	8	-1.20		4.61	0	.000		0.000
Medium Trucks:	81.00	-11.94		1.3	1	-1.20		-4.87	0	.000		0.000
Heavy Trucks:	85.38	-15.24		1.3	1	-1.20		-5.50	0	.000		0.000
Unmitigated Noise Le	vels (with	out Topo and I	barri	er atten	uation)							
VehicleType Leo	g Peak Hou	r Leq Day		Leq E	vening	Leq N	light		Ldn		CN	EL
Autos:	71.	36	68.7		67.8		64.8		72	.0		72.4
Medium Trucks:	69.	26	67.3		61.7		62.1		69	.5		69.7
Heavy Trucks:	70.	26	8.8		57.2		61.6		69	.7		69.7
Vehicle Noise:	75.	1 7	73.1		69.0		67.8		75	.3		75.6
Centerline Distance to	o Noise Co	ntour (in feet)										
			Ľ	70 0	dBA	65 di	BA	e	60 dBA		55 0	IBA
		l	.dn:	9	9	214	1		461		99	3
		CN	IEL:	10	03	223	3		480		1,0	35

	FHV	VA-RD-77-108 HI	GHWAY I	NOISE PI	REDICTIO	N MODEL			
Scenar Road Narr Road Segme	io: OY With Pr ne: Kimball Av. nt: w/o Euclid /	roject Av.			Project N Job Nur	lame: MCF mber: 1035	i 51		
SITE	SPECIFIC IN	IPUT DATA			NC	DISE MOD	EL INPUT	s	
Highway Data				Site Con	ditions (H	lard = 10,	Soft = 15)		
Average Daily	Traffic (Adt):	24,497 vehicles				Auto	s: 15		
Peak Hour	Percentage:	10%		Me	dium Truc	ks (2 Axles	<i>:):</i> 15		
Peak H	lour Volume:	2,450 vehicles		He	avy Truck	s (3+ Axles	:): 15		
Ve	hicle Speed:	50 mph		Vehicle	Mix				
Near/Far La	ne Distance:	36 feet		Venicie i	icleTvne	Dav	Evening	Niaht	Daily
Site Data				1011	Au	itos: 66.2	% 13.5%	20.3%	93.25%
Ba	rrier Height:	0.0 feet		Me	edium Tru	cks: 77.1	% 5.3%	17.6%	4.75%
Barrier Type (0-W	/all. 1-Berm):	0.0		ŀ	leavy Tru	cks: 86.3	% 1.5%	12.2%	1.99%
Centerline Di	st. to Barrier:	44.0 feet	-	Noine Cr	uree Ele	votiono (in	fact		
Centerline Dist.	to Observer:	44.0 feet	-	10136 30	Autos:	0.000	leel)		
Barrier Distance	to Observer:	0.0 feet		Madium	Autos.	0.000			
Observer Height ((Above Pad):	5.0 feet		Hoo	n Trucks.	2.257	Grade An	liustmoni	+· 0.0
P	ad Elevation:	0.0 feet		Tieav	y muchs.	0.004	Orade Ad	justinom	. 0.0
Roi	ad Elevation:	0.0 feet		Lane Eq	uivalent L	Distance (i	n feet)		
	Road Grade:	0.0%			Autos:	40.460			
	Left View:	-90.0 degrees		Mediu	m Trucks:	40.241			
	Right View:	90.0 degrees		Heav	y Trucks:	40.262			
FHWA Noise Mod	el Calculation	s							
VehicleType	REMEL	Traffic Flow	Distance	Finite	Road	Fresnel	Barrier At	ten Ber	rm Atten
Autos:	70.20	1.29	1.2	28	-1.20	-4.6	1 0.0	000	0.000
Medium Trucks:	81.00	-11.63	1.3	81	-1.20	-4.8	7 0.0	000	0.000
Heavy Trucks:	85.38	-15.41	1.3	31	-1.20	-5.5	0 0.0	000	0.000
Unmitigated Nois	e Levels (with	out Topo and ba	rrier attei	nuation)				-	-
VehicleType	Leq Peak Hou	ır Leq Day	Leq E	vening	Leq N	ight	Ldn	С	NEL
Autos:	71	.6 69.	0	68.1		65.1	72.	3	72.7
Medium Trucks:	69	.5 67.	6	62.0		62.4	69.	8	70.0
Heavy Trucks:	70	.1 68.	6	57.1		61.4	69.	5	69.6
Vehicle Noise:	75	.2 73.	2	69.3		68.0	75.	5	75.8
Centerline Distan	ce to Noise Co	ontour (in feet)							
			70	dBA	65 dE	BA	60 dBA	55	dBA
		Ldr	n: 1	02	220)	474	1,	,021
		CNEI	L: 1	07	229)	494	1,	,065

Thursday, May 02, 2019

	FH\	WA-RD-77-108	B HIGHV	VAY NO	ISE P	REDICTIO	ON MOD	DEL			
Scenario Road Name Road Segmen	 DY With P Kimball Av t: e/o Euclid a 	roject Av.				Project I Job Nu	Vame: N mber: 1	ICH 0351			
SITE S	PECIFIC IN	NPUT DATA				N	DISE M	ODE	L INPUTS	5	
Highway Data				Si	te Cor	nditions (Hard = 1	10, So	ft = 15)		
Average Daily 1	raffic (Adt):	20,520 vehicl	es				A	utos:	15		
Peak Hour F	Percentage:	10%			Me	edium True	cks (2 A	xles):	15		
Peak Ho	our Volume:	2,052 vehicle	s		He	avy Truck	ks (3+ A	xles):	15		
Veh	icle Speed:	50 mph		Ve	hicle	Mix					
Near/Far Lan	e Distance:	51 feet		-	Veh	icleType	Ĺ	Day	Evening	Night	Daily
Site Data						A	utos: 6	6.2%	13.5%	20.39	% 93.43%
Bari	rier Heiaht:	0.0 feet			М	edium Tru	icks: 7	7.1%	5.3%	17.69	% 4.67%
Barrier Type (0-Wa	all, 1-Berm):	0.0				Heavy Tru	icks: 8	36.3%	1.5%	12.29	% 1.89%
Centerline Dis	t. to Barrier:	49.0 feet		No	oise S	ource Ele	vations	(in fe	et)		
Centerline Dist. to	o Observer:	49.0 feet				Autos	0.0	00			
Barrier Distance to	o Observer:	0.0 feet			Mediu	m Trucks	2.2	97			
Observer Height (A	Above Pad):	5.0 feet			Hea	v Trucks	8.0	04	Grade Adj	ustmei	nt: 0.0
Pa	d Elevation:	0.0 feet		-							
Roa	d Elevation:	0.0 feet		La	ine Eq	uivalent	Distanc	e (in f	eet)		
F	Road Grade:	0.0%				Autos:	42.1	40			
	Left View:	-90.0 degre	es		Mediu	m Trucks.	41.9	29			
	Right View:	90.0 degre	es		Hea	vy Trucks.	41.9	50			
FHWA Noise Mode	l Calculation	IS									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresne	el i	Barrier Atte	en B	erm Atten
Autos:	70.20	0.53		1.01		-1.20	-	4.64	0.0	00	0.000
Medium Trucks:	81.00	-12.48		1.04		-1.20	-	4.87	0.0	00	0.000
Heavy Trucks:	85.38	-16.41		1.04		-1.20	-	5.44	0.0	00	0.000
Unmitigated Noise	Levels (with	out Topo and	barrier	attenua	ation)						
VehicleType	Leq Peak Hou	ur Leq Da	y I	Leq Eve	ning	Leq N	light		Ldn		CNEL
Autos:	70	0.5	68.0		67.1		64.1		71.3		71.7
Medium Trucks:	68	3.4	66.4		60.8		61.3		68.7		68.9
Heavy Trucks:	68	3.8	67.4		55.8		60.1		68.2		68.3
Venicle Noise:	74	1.1	72.1		68.3		66.9		74.4		74.7
Centerline Distanc	e to Noise C	ontour (in fee	t)	70 -10		05.4	04		0.404		C -10 A
			L dn:	7U dB	24	000	DA 7	6	0 0BA	5	050
		C	NEL:	90 100		20	, 8		440		509 1 001
		U		100		21	0		-00		1,001

	FHV	VA-RD-77-108 H	IIGHW#	AY N	OISE PF	REDICTI	ON MO	DEL			
Scenari Road Nam Road Segmer	o: OY With Pr e: Kimball Av. ht: w/o Rincon	oject Meadows Av.				Project I Job Nu	Name: Imber:	MCH 10351			
SITE	SPECIFIC IN	PUT DATA				N	OISE N	/IODE		s	
Highway Data				S	Site Con	ditions (Hard =	10, Sc	oft = 15)		
Average Daily	Traffic (Adt):	21,382 vehicles	3				,	Autos:	15		
Peak Hour	Percentage:	10%			Me	dium Tru	cks (2 A	(xles):	15		
Peak H	our Volume:	2,138 vehicles			Hea	avy Truc	ks (3+ A	(xles)	15		
Vei	hicle Speed:	50 mph		ν	/ehicle I	Nix					
Near/Far Lai	ne Distance:	51 feet		-	Vehi	cleTvpe		Dav	Evenina	Niaht	Dailv
Site Data						A	utos:	66.2%	13.5%	20.3%	93.43%
Bar	rior Hoight	0.0 feet			Me	edium Tri	ucks:	77.1%	5.3%	17.6%	4.68%
Barrier Tyne (0-W	all 1-Berm)	0.0			F	leavy Tri	ucks:	86.3%	1.5%	12.2%	1.89%
Centerline Dis	all, 1 Berrier:	49.0 feet									
Centerline Dist.	to Observer:	49.0 feet		Λ	loise So	urce Ele	evation	s (in fe	eet)		
Barrier Distance	to Observer:	0.0 feet				Autos	: 0.0	000			
Observer Height (Above Pad):	5.0 feet			Mediur	n Trucks	: 2.2	297	Crada Ad	iuotmont	
Pa	d Elevation:	0.0 feet			Heav	y Trucks	: 8.0	JU4	Grade Adj	usuneni.	0.0
Roa	d Elevation:	0.0 feet		L	ane Equ	uivalent	Distan	ce (in i	feet)		
F	Road Grade:	0.0%				Autos	: 42.	140			
	Left View:	-90.0 degrees	5		Mediur	n Trucks	: 41.	929			
	Right View:	90.0 degrees	5		Heav	y Trucks	: 41.9	950			
FHWA Noise Mode	el Calculation:	5									
VehicleType	REMEL	Traffic Flow	Distan	се	Finite	Road	Fresn	el	Barrier Att	en Ber	m Atten
Autos:	70.20	0.71		1.01		-1.20		-4.64	0.0	000	0.000
Medium Trucks:	81.00	-12.30		1.04	Ļ	-1.20		-4.87	0.0	000	0.000
Heavy Trucks:	85.38	-16.23		1.04		-1.20		-5.44	0.0	000	0.000
Unmitigated Noise	Levels (with	out Topo and b	arrier a	ttenı	uation)						
VehicleType	Leq Peak Hou	r Leq Day	Le	q Ev	rening	Leq I	Vight		Ldn	CI	VEL
Autos:	70.	.7 6	B.1		67.3		64.3		71.4	1	71.9
		5 6	6.6		61.0		61.5		68.9	9	69.1
Medium Trucks:	68										68.5
Medium Trucks: Heavy Trucks:	68. 69.	.0 6	7.6		56.0		60.3		68.4	ł	00.0
Medium Trucks: Heavy Trucks: Vehicle Noise:	68 69 74	0 6 3 7	7.6 2.3		56.0 68.4		60.3 67.1		68.4 74.6	3	74.8
Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distanc	68. 69. 74. ce to Noise Co	0 6 3 7 ontour (in feet)	7.6 2.3		56.0 68.4		60.3 67.1		68.4 74.6	3	74.8
Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distanc	68. 69. 74. ce to Noise Co	0 6 3 7 ontour (in feet)	7.6 2.3	70 d	56.0 68.4 /BA	65 c	60.3 67.1 IBA	e	68.4 74.6 60 dBA	55	74.8 dBA
Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distanc	68. 69. 74. re to Noise Co	0 6 3 7 ontour (in feet)	7.6 2.3 dn:	70 d 99	56.0 68.4 BA	65 d 21	60.3 67.1 <i>IBA</i> 2	é	68.4 74.6 60 dBA 458	4 5 55 9	74.8 dBA 86

Thursday, May 02, 2019

	FHV	/A-RD-77-108 H	ligh	WAYN	NOISE PI	REDICT		DDEL				
Scenai Road Nan Road Segme	rio: OY With Pr ne: Kimball Av. nt: e/o Rincon	oject Meadows Av.				Project Job N	Name: umber:	MCH 10351				
SITE	SPECIFIC IN	PUT DATA				N	IOISE	MODE	L INPU	TS		
Highway Data					Site Cor	nditions	(Hard :	= 10, So	oft = 15)			
Average Daily Peak Hour Peak H	Traffic (Adt): Percentage: lour Volume:	20,523 vehicles 10% 2,052 vehicles	5		Me He	dium Tri avy Truc	ucks (2 cks (3+	Autos: Axles): Axles):	15 15 15			
Ve	hicle Speed:	50 mph			Vehicle	Mix						
Near/Far La	ne Distance:	51 feet			Veh	icleType	•	Day	Evenin	g Ni	ght	Daily
Site Data							Autos:	66.2%	13.5%	6 2	0.3%	93.43%
Ba	rrier Heiaht	0.0 feet			М	edium Ti	rucks:	77.1%	5.39	6 1	7.6%	4.67%
Barrier Type (0-V	Vall, 1-Berm):	0.0			1	Heavy Ti	rucks:	86.3%	1.5%	6 13	2.2%	1.89%
Centerline D	ist. to Barrier:	49.0 feet		ŀ	Noise S	ource F	levatio	ns (in fi	pet)			-
Centerline Dist.	to Observer:	49.0 feet		-		Auto	e. 0	000	,			
Barrier Distance	to Observer:	0.0 feet			Modiu	m Truck	s. 0 e 2	297				
Observer Height	(Above Pad):	5.0 feet			Heat	n Truck	s. 2 s [.] 8	004	Grade	Adiust	ment	0.0
P	ad Elevation:	0.0 feet			mour	<i>y maon</i>	3. 0					
Ro	ad Elevation:	0.0 feet		4	Lane Eq	uivalen	t Distai	nce (in	feet)			
	Road Grade:	0.0%				Auto	s: 42	.140				
	Left View:	-90.0 degrees	;		Mediu	m Truck	s: 41	.929				
	Right View:	90.0 degrees	5		Heav	/y Truck	s: 41	.950				
FHWA Noise Moo	el Calculation	5		I								-
VehicleType	REMEL	Traffic Flow	Dis	tance	Finite	Road	Fres	nel	Barrier /	Atten	Ben	m Atten
Autos:	70.20	0.53		1.0	1	-1.20		-4.64	(0.000		0.00
Medium Trucks:	81.00	-12.48		1.0	4	-1.20		-4.87		0.000		0.00
Heavy Trucks:	85.38	-16.40		1.0	4	-1.20		-5.44		0.000		0.00
Unmitigated Nois	e Levels (with	out Topo and b	arrie	er atter	uation)							-
VehicleType	Leq Peak Hou	r Leq Day		Leq E	vening	Leq	Night		Ldn		CI	VEL
Autos:	70.	5 6	3.0		67.1		64	1	7	1.3		71.
Medium Trucks:	68.	4 60	5.4		60.8		61	3	6	8.7		68.
Heavy Trucks:	68.	8 6	7.4		55.8		60	1	6	8.2		68.
Vehicle Noise:	74.	.1 7:	2.1		68.3		66	9	7	4.4		74.
Centerline Distan	ce to Noise Co	ontour (in feet)										-
		,	1	70	dBA	65	dBA	e	0 dBA		55	dBA
		L	dn:	9	16	2	07		445		9	60
		CN	EL:	1(00	2	16		465		1,0	001

	FHW	A-RD-77-108 HIGI	HWAY N	IOISE PI	REDICTIO	N MOI	DEL			
Scenar	io: OY With Pro	ject			Project N	ame: N	ЛСН			
Road Nam	e: Kimball Av.				Job Nur	nber: 1	0351			
Road Segme	nt: e/o Mill Cree	k Av.								
SITE	SPECIFIC INF	PUT DATA			NC	ISE N	IODE	L INPUTS	S	
Highway Data			:	Site Con	ditions (F	lard =	10, Sc	oft = 15)		
Average Daily	Traffic (Adt): 1	8,680 vehicles				1	Autos:	15		
Peak Hour	Percentage:	10%		Me	dium Truc	ks (2 A	xles):	15		
Peak H	lour Volume:	,868 vehicles		He	avy Truck	s (3+ A	xles):	15		
Ve	hicle Speed:	50 mph		Vehicle	Mix					
Near/Far La	ne Distance:	51 feet		Veh	icleType		Day	Evening	Night	Daily
Site Data					Au	tos:	, 66.2%	13.5%	20.3%	93.44%
Ba	rrier Height:	0.0 feet		Me	edium Tru	cks:	77.1%	5.3%	17.6%	4.67%
Barrier Type (0-W	(all. 1-Berm):	0.0		ŀ	leavy Tru	cks:	36.3%	1.5%	12.2%	1.89%
Centerline Di	st. to Barrier:	49.0 feet	H	Naiaa Cr	uree Ele	ation.	lin fe	a (1)		
Centerline Dist.	to Observer:	49.0 feet	-	voise st	Autoor			el)		
Barrier Distance	to Observer:	0.0 feet		Modiu	m Trucks:	2.0	00			
Observer Height (Above Pad):	5.0 feet		Hoo	n Trucks.	2.2	04	Grada Adi	iustmon	. 0.0
Pa	ad Elevation:	0.0 feet		neuv	y mucho.	0.0		0/000/10	aounom	0.0
Ro	ad Elevation:	0.0 feet	1	Lane Eq	uivalent L	Distand	e (in i	feet)		
	Road Grade:	0.0%			Autos:	42.1	40			
	Left View:	-90.0 degrees		Mediu	m Trucks:	41.9	29			
	Right View:	90.0 degrees		Heav	y Trucks:	41.9	950			
FHWA Noise Mod	el Calculations									
VehicleType	REMEL	Traffic Flow Di	istance	Finite	Road	Fresn	el	Barrier Atte	en Be	rm Atten
Autos:	70.20	0.12	1.01	1	-1.20		4.64	0.0	000	0.000
Medium Trucks:	81.00	-12.89	1.04	4	-1.20		4.87	0.0	000	0.000
Heavy Trucks:	85.38	-16.81	1.04	4	-1.20		-5.44	0.0	000	0.000
Unmitigated Nois	e Levels (witho	ut Topo and barri	ier atten	uation)						
VehicleType	Leq Peak Hour	Leq Day	Leq Ev	vening	Leq N	ight		Ldn	С	NEL
Autos:	70.1	67.6		66.7		63.7		70.8	3	71.3
Medium Trucks:	68.0) 66.0		60.4		60.9		68.3	3	68.5
Heavy Trucks:	68.4	67.0		55.4		59.7		67.8	3	67.9
Vehicle Noise:	73.7	7 71.7		67.8		66.5		74.0)	74.2
Centerline Distan	ce to Noise Cor	ntour (in feet)								
			70 c	'BA	65 dE	BA	6	60 dBA	55	dBA
		Ldn:	9	0	194	ŀ		418	9	901
		CNEL:	9	4	203	5		436	ç	940

Thursday, May 02, 2019

	FH	WA-RD-77-108	B HIGHV	VAY NO	ISE P	REDICTIO	ON MOE	DEL			
Scenario Road Name Road Segmen	 b: OY With P c: Kimball Av t: e/o Main S 	roject t.				Project I Job Nu	Vame: N mber: 1	ICH 0351			
SITE S	PECIFIC IN	NPUT DATA				N	DISE M	ODE	L INPUTS	5	
Highway Data				Si	te Cor	ditions (Hard = 1	10, So	oft = 15)		
Average Daily T	raffic (Adt):	17,579 vehic	es				A	utos:	15		
Peak Hour F	Percentage:	10%			Me	dium True	cks (2 A	xles):	15		
Peak Ho	our Volume:	1,758 vehicle	s		He	avy Truck	ks (3+ A	xles):	15		
Veh	icle Speed:	50 mph		Ve	hiclo	Mix					
Near/Far Lan	e Distance:	51 feet			Veh	icleTvpe	1	Dav	Evenina	Niaht	Dailv
Site Data						A	utos: 6	6.2%	13.5%	20.3	% 93.44%
Barr	rier Heiaht:	0.0 feet			М	edium Tru	icks: 7	7.1%	5.3%	17.69	% 4.67%
Barrier Type (0-Wa	all, 1-Berm):	0.0			1	Heavy Tru	icks: 8	36.3%	1.5%	12.29	% 1.89%
Centerline Dist	t. to Barrier:	49.0 feet		No	nise Si	ource Fle	vations	(in fe	pet)		
Centerline Dist. to	o Observer:	49.0 feet				Autos	0.0	00			
Barrier Distance to	o Observer:	0.0 feet			Mediu	m Trucks	22	97			
Observer Height (A	Above Pad):	5.0 feet			Heav	v Trucks	8.0	04	Grade Adj	ustmei	nt: 0.0
Pa	d Elevation:	0.0 feet				,					
Road	d Elevation:	0.0 feet		Lá	ne Eq	uivalent	Distanc	e (in f	feet)		
R	oad Grade:	0.0%				Autos:	42.1	40			
	Left View:	-90.0 degre	es		Mediu	m Trucks.	41.9	29			
	Right View:	90.0 degre	es		Heav	/y Trucks:	41.9	50			
FHWA Noise Mode	I Calculation	IS									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresne	el i	Barrier Atte	en B	erm Atten
Autos:	70.20	-0.14		1.01		-1.20	-	4.64	0.0	00	0.000
Medium Trucks:	81.00	-13.15		1.04		-1.20	-	4.87	0.0	00	0.000
Heavy Trucks:	85.38	-17.08		1.04		-1.20	-	5.44	0.0	00	0.000
Unmitigated Noise	Levels (with	out Topo and	barrier	attenu	ation)						
VehicleType	Leq Peak Ho	ur Leq Da	y l	Leq Eve	ning	Leq N	light		Ldn	(CNEL
Autos:	69	9.9	67.3		66.4		63.4		70.6		71.0
Medium Trucks:	67	7.7	65.8		60.2		60.6		68.0		68.2
Heavy Trucks:	68	3.1	66.7		55.1		59.5		67.6		67.6
Vehicle Noise:	73	3.4	71.4		67.6		66.3		73.7		74.0
Centerline Distance	e to Noise C	ontour (in fee	t)								
				70 dE	8A	65 d	BA	6	0 dBA	5	5 dBA
			Ldn:	87		18	6		402		865
		C	NEL:	90		19	5		419		903

Scenar	io: OY With Pr	oject				Project N	lame: N	лсн			
Road Nam	e: Kimball Av.					Job Nu	mber: 1	0351			
Road Segme	nt: e/o Flight A	V.									
SITE	SPECIFIC IN	IPUT DATA				NC	DISE N	IODE	L INPUT	S	
Highway Data				S	Site Con	ditions (l	lard =	10, S	oft = 15)		
Average Daily	Traffic (Adt):	14,803 vehicles					A	Autos:	15		
Peak Hour	Percentage:	10%			Me	dium Truc	:ks (2 A	xles):	15		
Peak H	lour Volume:	1,480 vehicles			Hea	avy Truck	s (3+ A	xles):	15		
Ve	hicle Speed:	50 mph		V	/ehicle I	<i>lix</i>					
Near/Far La	ne Distance:	51 feet			Vehi	cleType		Day	Evening	Night	Daily
Site Data						AL	itos:	56.2%	13.5%	20.3%	93.41%
Bai	rrier Height	0.0 feet			Me	dium Tru	cks:	77.1%	5.3%	17.6%	4.69%
Barrier Type (0-W	(all. 1-Berm):	0.0			H	leavy Tru	cks:	36.3%	1.5%	12.2%	1.90%
Centerline Di	st. to Barrier:	49.0 feet		-					4)		
Centerline Dist.	to Observer:	49.0 feet		n	voise So	urce Ele	vations		eet)		
Barrier Distance	to Observer:	0.0 feet			1.4 × 16 × 10	Autos:	0.0	00			
Observer Height (Above Pad):	5.0 feet			wealur	Trucks:	2.2	97	Grado Ad	iustmont	0.0
Pa	ad Elevation:	0.0 feet			neav	y mucks.	0.0	04	Orade Haj	usunom.	0.0
Roa	ad Elevation:	0.0 feet		L	ane Equ	ivalent l	Distand	e (in	feet)		
1	Road Grade:	0.0%				Autos:	42.1	40			
	Left View:	-90.0 degrees			Mediur	n Trucks:	41.9	29			
	Right View:	90.0 degrees			Heav	y Trucks:	41.9	50			
FHWA Noise Mode	el Calculation	s									
FHWA Noise Mod VehicleType	el Calculation REMEL	s Traffic Flow	Distan	ce	Finite	Road	Fresn	el	Barrier Att	en Ber	m Atten
FHWA Noise Mode VehicleType Autos:	el Calculation REMEL 70.20	Traffic Flow -0.89	Distan	ce 1.01	Finite	Road -1.20	Fresn	el -4.64	Barrier Atte 0.0	en Ber	<i>m Atten</i> 0.000
FHWA Noise Mode VehicleType Autos: Medium Trucks:	el Calculation REMEL 70.20 81.00	s Traffic Flow -0.89 -13.88	Distan	ce 1.01 1.04	Finite	Road -1.20 -1.20	Fresn	el -4.64 -4.87	Barrier Atte 0.0 0.0	en Ber 100 100	<i>m Atten</i> 0.000 0.000
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks:	el Calculation REMEL 70.20 81.00 85.38	s Traffic Flow -0.89 -13.88 -17.81	Distan	ce 1.01 1.04 1.04	Finite	Road -1.20 -1.20 -1.20	Fresn	el -4.64 -4.87 -5.44	Barrier Att 0.0 0.0 0.0	en Ben 100 100	m Atten 0.000 0.000 0.000
FHWA Noise Mode VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise	el Calculation REMEL 70.20 81.00 85.38 e Levels (with	s <u>Traffic Flow</u> -0.89 -13.88 -17.81 out Topo and ba	Distan	ce 1.01 1.04 1.04	Finite	Road -1.20 -1.20 -1.20	Fresn	el -4.64 -4.87 -5.44	Barrier Atte 0.0 0.0 0.0	en Ben 000 000 000	m Atten 0.000 0.000 0.000
FHWA Noise Mode VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType	el Calculation REMEL 70.20 81.00 85.38 e Levels (with Leq Peak Hou	s Traffic Flow -0.89 -13.88 -17.81 out Topo and ba r Leq Day	Distan	ce 1.01 1.04 1.04 <i>tteni</i> q Ev	Finite	Road -1.20 -1.20 -1.20 Leq N	Fresn	el -4.64 -4.87 -5.44	Barrier Atte 0.0 0.0 0.0 0.0	en Ben 100 100 100 100 <i>CI</i>	m Atten 0.000 0.000 0.000
FHWA Noise Mode VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos:	el Calculation REMEL 70.20 81.00 85.38 e Levels (with Leq Peak Hou 69	s Traffic Flow -0.89 -13.88 -17.81 out Topo and ba rr Leq Day .1 66	Distant	ce 1.01 1.04 1.04 <i>ttent</i> q Ev	Finite	Road -1.20 -1.20 -1.20 Leg N	Fresn ight 62.7	el -4.64 -4.87 -5.44	Barrier Atte 0.0 0.0 0.0 <u>Ldn</u> 69.8	en Ben 100 100 100 100 100 100 100	m Atten 0.000 0.000 0.000 VEL 70.3
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks:	el Calculation <u>REMEL</u> 70.20 81.00 85.38 e Levels (with Leq Peak Hou 69 67	s Traffic Flow -0.89 -13.88 -17.81 out Topo and ba rr Leq Day .1 66 .0 65	Distant arrier a Le	ce 1.01 1.04 1.04 <i>ttent</i> <i>q Ev</i>	Finite uation) rening 65.7 59.4	Road -1.20 -1.20 -1.20 <i>Leq N</i>	Fresn ight 62.7 59.9	el -4.64 -4.87 -5.44	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 69.8 67.3	en Ben 100 100 100 100 100 100	<u>m Atten</u> 0.000 0.000 0.000 <u>VEL</u> 70.3 67.5
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks:	el Calculation <u>REMEL</u> 70.20 81.00 85.38 e Levels (with Leq Peak Hou 69 67 67	s Traffic Flow -0.89 -13.88 -17.81 out Topo and ba rr Leq Day .1 66 .0 65 .4 66	Distant arrier a Le 3.5 5.0 5.0	ce 1.01 1.04 1.04 <u>ttenu</u> q Ev	Finite uation) vening 65.7 59.4 54.4	Road -1.20 -1.20 -1.20 <i>Leq N</i>	Fresn ight 62.7 59.9 58.7	el -4.64 -4.87 -5.44	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 69.8 67.3 66.8	en Ber 000 000 000 C/ 3 3	<u>m Atten</u> 0.000 0.000 0.000 VEL 70.3 67.5 66.9
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	el Calculation <u>REMEL</u> 70.20 81.00 85.38 e Levels (with Leq Peak Hou 69 67 67 72	s Traffic Flow -0.89 -13.88 -17.81 Dut Topo and bit r Leq Day .1 666 .0 655 .4 666 .7 70	Distant arrier a 5.5 5.0 5.0 5.0	ce 1.01 1.04 1.04 <i>ttent</i> <i>q Ev</i>	Finite uation) vening 65.7 59.4 54.4 66.8	Road -1.20 -1.20 -1.20 Leq N	Fresn ight 62.7 59.9 58.7 65.5	el -4.64 -4.87 -5.44	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 0.0 69.8 67.3 66.8 73.0	en Ben 1000 100	<u>m Atten</u> 0.000 0.000 0.000 VEL 70.3 67.5 66.9 73.2
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks: Vehicle Noise: Centerline Distant	el Calculation <u>REMEL</u> 70.20 81.00 85.38 e Levels (with Leq Peak Hou 69 67 67 72 cc to Noise Calculation 69 67 72 72 72 72 72 72 72 72 72 7	s Traffic Flow -0.89 -13.88 -17.81 but Topo and bu r Leq Day .1 66 .0 66 .4 666 .7 70 but topo and bu	Distant arrier a 5.5 5.0 5.0 5.0	ce 1.01 1.04 1.04 <i>ttent</i> <i>q Ev</i>	Finite uation) vening 65.7 59.4 54.4 66.8	Road -1.20 -1.20 -1.20 Leq N	Fresn ight 62.7 59.9 58.7 65.5	el -4.64 -4.87 -5.44	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 0.0 69.8 67.3 66.8 73.0	en Ber 1000 100	m Atten 0.000 0.000 0.000 VEL 70.3 67.5 66.5 73.2
FHWA Noise Modi VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitgated Noise VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distance	el Calculation <u>REMEL</u> 70.20 81.00 85.38 e Levels (with Leq Peak Hou 69 67 72 Cce to Noise Co	s Traffic Flow -0.89 -0.89 -13.88 -17.81 but Topo and bu out Topo and bu roo and bu out Topo and bu out Topo and bu and and and and and and and and and and	Distant arrier a 5.5 5.0 5.0 0.7	ce 1.01 1.04 1.04 <i>ttenu</i> <i>q Ev</i> 70 d	Finite uation) rening 65.7 59.4 54.4 66.8	Road -1.20 -1.20 -1.20 Leq N	Fresn ight 62.7 59.9 58.7 65.5 3A	el -4.64 -4.87 -5.44	Barrier Att. 0.0 0.0 0.0 0.0 0.0 0.0 0.0 69.8 67.3 66.8 73.0 73.0	en Berr 000 000 000 C/ 3 3 3 55	m Atten 0.000 0.000 0.000 VEL 70.3 67.5 66.9 73.2 dBA
FHWA Noise Modul VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks: Vehicle Noise: Centerline Distance	el Calculation <u>REMEL</u> 70.20 81.00 85.38 e Levels (with Leq Peak Hod 69 67 67 72 ce to Noise Ca	s Traffic Flow	Distant arrier a 5.5 5.0 5.0 5.0 5.0 5.0 5.0 5.0	ce 1.01 1.04 1.04 <i>ttenu</i> <i>q Ev</i> 70 <i>d</i> 77	Finite uation) rening 65.7 59.4 54.4 66.8 IBA 7	Road -1.20 -1.20 -1.20 -1.20 <i>Leq N</i> 65 di 166	Fresn ight 62.7 59.9 58.7 65.5 3A	el -4.64 -4.87 -5.44	Barrier Att. 0.0. 0.0. 0.0 0.0 0. 0. 0. 0. 0. 0. 0.	en Berr 000 000 000 C/ 3 3 3 3 55 7	m Atten 0.000 0.000 0.000 VEL 70.3 67.5 66.9 73.2 dBA 73

Thursday, May 02, 2019

	FHV	VA-RD-77-108 H	IIGHWAY	NOISE P	REDICTION		-		
Scenar	io: OY With Pr	oject			Project Na	me: MC	н		
Road Nan	ne: Limonite Av	·			Job Num	ber: 103	51		
Road Segme	nt: w/o Archiba	ild Av.							
SITE	SPECIFIC IN	PUT DATA			NO	SE MOI	DEL INPUT	S	
Highway Data				Site Cor	nditions (Ha	ard = 10,	Soft = 15)		
Average Daily	Traffic (Adt):	1 vehicles	6			Auto	os: 15		
Peak Hour	Percentage:	10%		Me	edium Truck	s (2 Axle	s): 15		
Peak H	lour Volume:	0 vehicles		He	eavy Trucks	(3+ Axle	s): 15		
Ve	hicle Speed:	50 mph		Vehicle	Mix				-
Near/Far La	ne Distance:	78 feet		Veh	icleType	Day	/ Evening	Night	Daily
Site Data					Aut	os: 66.	2% 13.5%	20.3%	93.41%
Ba	rrier Heiaht:	0.0 feet		М	edium Truc	ks: 77.	1% 5.3%	17.6%	4.69%
Barrier Type (0-V	Vall, 1-Berm):	0.0			Heavy Truc	ks: 86.	3% 1.5%	12.2%	» 1.90%
Centerline Di	ist. to Barrier:	76.0 feet		Noise S	ource Eleva	ations (ii	n feet)		
Centerline Dist.	to Observer:	76.0 feet			Autos:	0.000	,		
Barrier Distance	to Observer:	0.0 feet		Mediu	m Trucks:	2.297			
Observer Height	(Above Pad):	5.0 feet		Hear	vy Trucks:	8.004	Grade Ad	djustmen	t: 0.0
P	ad Elevation:	0.0 feet		Lana Fa		/	In 6 4)		
Ro	ad Elevation:	0.0 feet		Lane Eq	uivalent Di	stance (in teet)		
	Road Grade:	0.0%		14-5	Autos:	65.422			
	Left View:	-90.0 degrees	6	Mediu	m Trucks:	05.280			
	Right view:	90.0 degrees	5	пеа	ly mucks.	05.299			
FHWA Noise Mod	el Calculation	s							
VehicleType	REMEL	Traffic Flow	Distance	Finite	Road	Fresnel	Barrier At	ten Be	rm Atten
Autos:	70.20	-42.59	-1.	.85	-1.20	-4.7	73 0.	000	0.00
Medium Trucks:	81.00	-55.58	-1.	.84	-1.20	-4.8	38 0.	000	0.00
Heavy Trucks:	85.38	-59.51	-1.	.84	-1.20	-5.2	25 0.	000	0.00
Unmitigated Nois	e Levels (with	out Topo and b	arrier atte	enuation)					
VehicleType	Leq Peak Hou	r Leq Day	Leq	Evening	Leq Nig	ıht	Ldn	С	;NEL
Autos:	24	.6 2	2.0	21.1		18.1	25.	3	25.
Medium Trucks:	22	.4 2	0.5	14.9		15.3	22.	7	22.9
Heavy Trucks:	22	.8 2	1.4	9.8		14.1	22.	2	22.
Vehicle Noise:	28	.1 2	6.1	22.3		20.9	28.	4	28.
Centerline Distan	ce to Noise Co	ontour (in feet)	7	0.404	05 -10		00 -/04		- 10 4
		,	70	J dBA	65 dB	4	oU dBA	55	aBA
		L	an: El i	0	0		1		1
		CN	EL.:	U	U		1		1

	FH\	VA-RD-77-108 HI	GHWAY	NOISE PI	REDICTION	MODEL				
Scenar	io: OY With Pr	oject			Project Nar	ne: MCH				
Road Nam	e: Limonite Av	ι.			Job Numb	er: 10351				
Road Segme	nt: e/o Archiba	ld Av.								
SITE	SPECIFIC IN	IPUT DATA			NOI	SE MODE	L INPUT	s		
Highway Data				Site Con	ditions (Ha	rd = 10, S	oft = 15)			
Average Daily	Traffic (Adt):	22,688 vehicles				Autos	: 15			
Peak Hour	Percentage:	10%		Me	dium Trucks	(2 Axles)	: 15			
Peak H	lour Volume:	2,269 vehicles		He	avy Trucks	3+ Axles)	: 15			
Ve	hicle Speed:	50 mph		Vehicle	Mix					
Near/Far La	ne Distance:	78 feet		Veh	icleType	Day	Evening	Night	Daily	
Site Data					Auto	s: 66.2%	6 13.5%	20.3%	93.32%	
Bai	rrier Height	0.0 feet		Me	edium Truck	s: 77.19	6 5.3%	17.6%	4.68%	
Barrier Type (0-W	all, 1-Berm):	0.0		ŀ	Heavy Truck	s: 86.3%	6 1.5%	12.2%	2.00%	
Centerline Dis	st. to Barrier:	76.0 feet		Noise So	ource Eleva	tions (in f	eet)			
Centerline Dist.	to Observer:	76.0 feet			Autos:	0.000	000		-	
Barrier Distance	to Observer:	0.0 feet		Mediu	m Trucks:	2.297				
Observer Height (Above Pad):	5.0 feet		Heav	v Trucks:	8.004	Grade Ad	ljustment	t: 0.0	
Pa	ad Elevation:	0.0 feet								
Roa	ad Elevation:	0.0 feet		Lane Eq	uivalent Dis	stance (in	feet)			
	Road Grade:	0.0%			Autos:	65.422				
	Left View:	-90.0 degrees		Mediu	m Trucks:	65.286				
	Right View:	90.0 degrees		Heav	y Trucks:	65.299				
FHWA Noise Mod	el Calculation	s								
VehicleType	REMEL	Traffic Flow	Distance	Finite	Road F	resnel	Barrier At	ten Be	rm Atten	
Autos:	70.20	0.96	-1.3	85	-1.20	-4.73	0.0	000	0.000	
Medium Trucks:	81.00	-12.03	-1.3	84	-1.20	-4.88	0.0	000	0.000	
Heavy Trucks:	85.38	-15.73	-1.3	84	-1.20	-5.25	0.0	000	0.000	
Unmitigated Noise	e Levels (with	out Topo and ba	rrier atte	enuation)						
VehicleType	Leq Peak Hou	r Leq Day	Leq	Evening	Leq Nigl	nt	Ldn	С	NEL	
Autos:	68	.1 65	.5	64.6		61.6	68.	8	69.2	
Medium Trucks:	65	.9 64	.0	58.4		58.8	66.3	2	66.4	
Heavy Trucks:	66	.6 65	.2	53.6		57.9	66.	D	66.1	
Vehicle Noise:	71	.7 69	.7	65.8		64.5	72.	0	72.3	
Centerline Distant	ce to Noise Co	ontour (in feet)								
			70) dBA	65 dBA		60 dBA	55	i dBA	
		Ld	n: '	103 222 479			1,	,032		
		CNE	L: '	108	232		500	500 1,077		

Thursday, May 02, 2019

	FHW	/A-RD-77-108	HIGHW	AY NC	ISE P	REDICTI		DEL			
Scenario Road Namo Road Segmen	o: OY With Pro e: Pine Av. ht: w/o El Prado	oject o Rd.				Project Job Ni	Name: I umber:	MCH 10351			
SITE S	SPECIFIC IN	PUT DATA				N	OISE N	/IODE	L INPUT	s	
Highway Data				Si	te Cor	nditions	(Hard =	10, S	oft = 15)		
Average Daily	Traffic (Adt):	27 vehicle	es					Autos:	15		
Peak Hour	Percentage:	10%			Me	edium Tru	icks (2 A	xles):	15		
Peak He	our Volume:	3 vehicle	s		He	eavy Truc	:ks (3+ A	(xles)	15		
Vel	nicle Speed:	45 mph		V	hicle	Mix					
Near/Far Lar	ne Distance:	76 feet		-	Veh	nicleType		Day	Evening	Nigh	Daily
Site Data						A	lutos:	66.2%	5 13.5%	20.3	% 93.41%
Bar	rier Height:	0.0 feet			М	edium Tr	ucks:	77.1%	5.3%	17.6	% 4.69%
Barrier Type (0-Wa	all, 1-Berm):	0.0				Heavy Tr	ucks:	86.3%	1.5%	12.2	% 1.90%
Centerline Dis	t. to Barrier:	60.0 feet		N	oise S	ource El	evation	s (in f	eet)		
Centerline Dist. t	o Observer:	60.0 feet				Autos	s: 0.0	000	,		
Barrier Distance t	o Observer:	0.0 feet			Mediu	m Trucks	: 2.2	297			
Observer Height (/	Above Pad):	5.0 feet			Hear	vy Trucks	s: 8.0	004	Grade Adj	iustme	nt: 0.0
Pa	d Elevation:	0.0 feet					Distant	//	6		
Roa	d Elevation:	0.0 feet		Lä	ane Eq	uivalent	Distant	ce (in	feet)		
F	Road Grade:	0.0%			1 4 m - 10 -	Autos	3: 46.	/01			
	Left View:	-90.0 degree	es		Mealu	m Trucks	5: 46.8	511			
	Right view.	90.0 degree	es		nea	ly mucka	5. 40.3	530			
FHWA Noise Mode	Calculation	5									
VehicleType	REMEL	Traffic Flow	Distar	nce	Finite	Road	Fresn	el	Barrier Atte	en E	lerm Atten
Autos:	68.46	-27.82		0.34		-1.20		-4.69	0.0	000	0.000
Medium Trucks:	79.45	-40.81		0.37		-1.20		-4.88	0.0	000	0.000
Heavy Trucks:	84.25	-44.74		0.37		-1.20		-5.34	0.0	000	0.000
Unmitigated Noise	Levels (with	out Topo and	barrier a	attenu	ation)						
VehicleType	Leq Peak Hou	r Leq Day	' L	eq Eve	ening	Leq I	Night		Ldn		CNEL
Autos:	39.	8	37.2		36.3		33.3		40.5	5	40.9
Medium Trucks:	37.	8	35.9		30.3		30.7		38.1		38.3
Heavy Trucks:	38.	7	37.2		25.7		30.0		38.1		38.2
venicie noise.	43.	0	41.0		37.0		30.4		43.0	>	44.1
Centerline Distance	e to Noise Co	ntour (in feet)	70 dF	2.4	65.	JDA	r .	CO dBA	ı .	E dDA
			I dn:	10 GE	м	650		L '	5 G	1	11
		CI	VFL:	1		2	-		5		11
		0.				-	-		-		

	FHV	VA-RD-77-108	HIGHW	AY N	OISE PR	REDICTI		DEL			
Scenar	io: OY With Pr	oject				Project	Vame: N	ЛСН			
Road Nam	e: Pine Av.					Job NL	mber: 1	0351			
Road Segme	nt: w/o Euclid /	Av.									
SITE	SPECIFIC IN	PUT DATA				N	DISE N	IODE	L INPUTS	5	
Highway Data				S	Site Con	ditions (Hard =	10, Sc	oft = 15)		
Average Daily	Traffic (Adt):	8,446 vehicle	es				A	Autos:	15		
Peak Hour	Percentage:	10%			Med	dium Tru	cks (2 A	xles):	15		
Peak H	lour Volume:	845 vehicle	s		Hea	avy Truc	ks (3+ A	xles):	15		
Ve	hicle Speed:	45 mph		V	/ehicle N	Nix					
Near/Far La	ne Distance:	76 feet		-	Vehi	cleType		Day	Evening	Night	Daily
Site Data						A	utos: (56.2%	13.5%	20.3%	92.46%
Bai	rrier Height	0.0 feet			Me	edium Tri	icks:	77.1%	5.3%	17.6%	4.94%
Barrier Type (0-W	(all. 1-Berm):	0.0			H	leavy Tri	icks: 8	36.3%	1.5%	12.2%	2.60%
Centerline Di	st. to Barrier:	60.0 feet		-				1	41		
Centerline Dist.	to Observer:	60.0 feet		-	voise So	ource Ele	evations		eet)		
Barrier Distance	to Observer:	0.0 feet				Autos	. 0.0	00			
Observer Height (Above Pad):	5.0 feet			Mealun	n Trucks	. 2.2	97	Grado Adi	ustmont.	0.0
Pa	ad Elevation:	0.0 feet			Heav	y Trucks	. 8.0	04	Grade Auj	usunem.	0.0
Roa	ad Elevation:	0.0 feet		L	ane Equ	uivalent	Distanc	e (in :	feet)		
1	Road Grade:	0.0%				Autos	: 46.7	'01			
	Left View:	-90.0 degree	es		Mediun	n Trucks	46.5	511			
	Right View:	90.0 degree	es		Heav	y Trucks	46.5	30			
FHWA Noise Mod	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresn	el	Barrier Atte	en Berr	m Atten
Autos:	68.46	-2.91		0.34	Ļ	-1.20		4.69	0.0	00	0.000
Medium Trucks:	79.45	-15.64		0.37	7	-1.20		4.88	0.0	00	0.000
Heavy Trucks:	84.25	-18.42		0.37	,	-1.20		5.34	0.0	00	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier	atteni	uation)						
VehicleType	Leq Peak Hou	r Leq Day	/ L	.eq Ev	ening	Leq I	light		Ldn	CN	VEL
Autos:	64	.7	62.1		61.2		58.2		65.4		65.8
Medium Trucks:	63	.0	61.1		55.5		55.9		63.3		63.5
Heavy Trucks:	65	.0	63.6		52.0		56.3		64.4		64.5
Vehicle Noise:	69	.1	67.1		62.6		61.7		69.2		69.5
Centerline Distant	ce to Noise Co	ontour (in feet)								
Centerline Distand	ce to Noise Co	ontour (in feet		70 d	IBA	65 c	BA	e	0 dBA	55	dBA
Centerline Distand	ce to Noise Co	ontour (in feet) Ldn:	70 d	IBA 3	65 c 11	IBA 5	e	0 dBA 247	55 50	dBA 33

Thursday, May 02, 2019

	FHV	VA-RD-77-108	HIGHW	AY N	OISE PI	REDICTI	ON MC	DEL			
Scenar Road Nan Road Segme	rio: OY With Pri ne: Pine Av. nt: e/o Euclid A	oject Av.				Project Job N	Name: umber:	MCH 10351			
SITE	SPECIFIC IN	PUT DATA				N	OISE	MODE	l input	S	
Highway Data				S	Site Con	ditions	(Hard =	: 10, Sc	oft = 15)		
Average Daily Peak Hour Peak H	Traffic (Adt): Percentage: lour Volume:	29,889 vehicle 10% 2,989 vehicles	s		Me He	dium Tru avy Truc	icks (2 :ks (3+	Autos: Axles): Axles):	15 15 15		
Ve	hicle Speed:	45 mph		v	/ehicle	Mix					
Near/Far La	ne Distance:	76 feet		F	Veh	icleType		Day	Evening	Night	Daily
Site Data						A	lutos:	66.2%	13.5%	20.3%	93.35%
Ba	rrier Height:	0.0 feet			M	edium Tr	ucks:	77.1%	5.3%	17.6%	4.65%
Barrier Type (0-V	Vall, 1-Berm):	0.0			ŀ	Heavy Tr	ucks:	86.3%	1.5%	12.2%	2.00%
Centerline Di	ist. to Barrier:	60.0 feet		٨	loise So	ource El	evatior	is (in fe	eet)		
Centerline Dist.	to Observer:	60.0 feet		-		Autos	s: 0	000			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Trucks	3: 2	297			
Observer Height	(Above Pad):	5.0 feet			Heav	v Trucks	s: 8	004	Grade Ad	ljustmen	t: 0.0
P	ad Elevation:	0.0 feet								·	
Ro	ad Elevation:	0.0 feet		L	.ane Eq	uivalent	Distan	ce (in i	teet)		
	Road Grade:	0.0%				Autos	3: 46	701			
	Left View: Right View:	-90.0 degree 90.0 degree	s		Mediu Heav	m Trucks ry Trucks	s: 46 s: 46	.511 .530			
FHWA Noise Mod	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Dista	ince	Finite	Road	Fres	nel	Barrier At	ten Be	rm Atten
Autos:	68.46	2.62		0.34		-1.20		-4.69	0.	000	0.00
Medium Trucks:	79.45	-10.40		0.37		-1.20		-4.88	0.	000	0.00
Heavy Trucks:	84.25	-14.08		0.37		-1.20		-5.34	0.	000	0.00
Unmitigated Nois	e Levels (with	out Topo and I	barrier	attenu	uation)						
VehicleType	Leq Peak Hou	r Leq Day	L	Leq Ev	rening	Leq	Night		Ldn	C	NEL
Autos:	70.	.2 6	67.6		66.7		63.	7	70.	9	71.
Medium Trucks:	68.	.2 6	6.3		60.7		61.	1	68.	5	68.
Heavy Trucks:	69.	.3 6	67.9		56.3		60.	7	68.	8	68.
Vehicle Noise:	74.	.1 7	2.1		68.0		66.	В	74.	3	74.
Centerline Distan	ce to Noise Co	ontour (in feet)		70.1							- 10 4
			. L	/0 d	BA	65 0	3BA	6	IU aBA	5	авА
			an:	11	6	25	1		540	1	,164
		CA	IEL:	12	1	20	01		203	1	,213

	FHV	VA-RD-77-108 H	IIGHWAY	NOISE PI	REDICTIO	N MODEL			
Scenar	io: OY With Pr	oject			Project N	ame: MCI	4		
Road Nam	e: Pine Av.	-			Job Nur	nber: 103	51		
Road Segme	nt: w/o Chino C	Corona Rd.							
SITE	SPECIFIC IN	PUT DATA			NO	ISE MOD	DEL INPUT	s	
Highway Data				Site Con	ditions (H	lard = 10,	Soft = 15)		
Average Daily	Traffic (Adt):	33,928 vehicles				Auto	os: 15		
Peak Hour	Percentage:	10%		Me	dium Truc	ks (2 Axle	s <i>):</i> 15		
Peak H	lour Volume:	3,393 vehicles		He	avy Trucks	s (3+ Axle	s <i>):</i> 15		
Ve	hicle Speed:	45 mph		Vehicle	Mix				
Near/Far La	ne Distance:	76 feet		Veh	icleTvpe	Dav	/ Evenina	Niaht	Dailv
Site Data					Au	tos: 66.2	2% 13.5%	20.3%	93.36%
Pa	rrior Hoight	0.0 foot		M	edium Truc	cks: 77.1	1% 5.3%	17.6%	4.66%
Barrier Type (0-W	(all 1-Rerm)	0.0		1	Heavy Truc	cks: 86.3	3% 1.5%	12.2%	1.98%
Centerline Di	st. to Barrier:	60.0 feet			-				
Centerline Dist.	to Observer:	60.0 feet		Noise Se	ource Elev	ations (ir	i feet)		
Barrier Distance	to Observer:	0.0 feet		14-16-1	Autos:	0.000			
Observer Height (Above Pad):	5.0 feet		wearu	m Trucks:	2.297	Crada Ad	livetment	
Pa	ad Elevation:	0.0 feet		Heav	y Trucks:	8.004	Grade Ad	Justineni	. 0.0
Roa	ad Elevation:	0.0 feet		Lane Eq	uivalent D	istance (i	in feet)		-
	Road Grade:	0.0%			Autos:	46.701			
	Left View:	-90.0 degrees		Mediu	m Trucks:	46.511			
	Right View:	90.0 degrees		Heav	y Trucks:	46.530			
FHWA Noise Mod	el Calculation:	s		1					
VehicleType	REMEL	Traffic Flow	Distance	Finite	Road	Fresnel	Barrier Att	en Bei	rm Atten
Autos:	68.46	3.17	0.	34	-1.20	-4.6	9 0.0	000	0.000
Medium Trucks:	79.45	-9.85	0.	37	-1.20	-4.8	8 0.0	000	0.000
Heavy Trucks:	84.25	-13.56	0.	37	-1.20	-5.3	4 0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and b	arrier atte	enuation)					
VehicleType	Leq Peak Hou	r Leq Day	Leq	Evening	Leq Ni	ght	Ldn	С	NEL
Autos:	70.	.8 68	3.2	67.3		64.3	71.	5	71.9
Medium Trucks:	68	.8 66	5.8	61.2		61.7	69.1	1	69.3
Heavy Trucks:	69.	.9 68	3.4	56.9		61.2	69.3	3	69.3
Vehicle Noise:	74	.6 72	2.6	68.6		67.4	74.9	9	75.1
Centerline Distant	ce to Noise Co	ontour (in feet)							
			70) dBA	65 dE	BA	60 dBA	55	dBA
		Lo	dn:	127	273		587	1,	,266
		CNE	EL:	132	284		612	1,	,319

Thursday, May 02, 2019

	FH	WA-RD-77-108	HIGHW	AY NC	DISE P	REDICT	ION MO	DEL			
Scenar Road Nam Road Segme	io: OY With P ne: Pine Av. nt: w/o W. Pre	roject serve Loop				Project Job N	t Name: I lumber:	MCH 10351			
SITE	SPECIFIC IN	IPUT DATA				P	NOISE N	/IODE	L INPUTS	S	
Highway Data				Si	ite Cor	nditions	(Hard =	10, S	oft = 15)		
Average Daily	Traffic (Adt):	19,546 vehicl	es				,	Autos:	15		
Peak Hour	Percentage:	10%			Me	edium Tr	ucks (2 A	(xles)	15		
Peak H	lour Volume:	1,955 vehicle	s		He	eavy Tru	cks (3+ A	(xles)	15		
Ve	hicle Speed:	45 mph		Ve	ehicle	Mix					
Near/Far La	ne Distance:	76 feet			Veh	icleType	э	Day	Evening	Nigh	t Daily
Site Data							Autos:	66.2%	5 13.5%	20.3	% 93.31%
Ba	rrier Heiaht:	0.0 feet			М	edium T	rucks:	77.1%	5.3%	17.6	% 4.64%
Barrier Type (0-W	/all, 1-Berm):	0.0				Heavy T	rucks:	86.3%	5 1.5%	12.2	% 2.05%
Centerline Di	st. to Barrier:	60.0 feet		N	oise S	ource E	levation	s (in f	eet)		
Centerline Dist.	to Observer:	60.0 feet				Auto	s: 0.0	000	,		
Barrier Distance	to Observer:	0.0 feet			Mediu	m Truck	s: 2.2	297			
Observer Height (Above Pad):	5.0 feet			Hear	vy Truck	s: 8.0	004	Grade Adj	iustme	nt: 0.0
Pa	ad Elevation:	0.0 feet			ono Fo	wixalan	4 Distant	no (in	faa4)		
Roa	ad Elevation:	0.0 feet		Le	ane Eq	Auto		704	ieel)		
	Road Grade:	0.0%			Madiu	AUIO m Truck	S. 40.	- 4 4			
	Lent View: Pight View:	-90.0 degre	es		Hoa	N Truck	S. 40.	520			
	rugin view.	30.0 degre	65		mou	<i>iy maon</i>	.0. 40.	500			
FHWA Noise Mod	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresn	el	Barrier Atte	en E	Berm Atten
Autos:	68.46	0.77		0.34		-1.20		-4.69	0.0	00	0.000
Medium Trucks:	79.45	-12.26		0.37		-1.20		-4.88	0.0	00	0.000
Heavy Trucks:	84.25	-15.81		0.37		-1.20		-5.34	0.0	00	0.000
Unmitigated Nois	e Levels (with	out Topo and	barrier	attenu	ation)						
VehicleType	Leq Peak Ho	ur Leq Day	/ L	eq Eve	ening	Leq	Night		Ldn		CNEL
Autos:	68	1.4	65.8		64.9		61.9		69.1		69.5
Medium Trucks:	66	.4	64.4		58.8		59.3		66.7		66.9
Vehicle Noise:	73	.0	70.3		54.6 66.2		58.9		72.5	;	72.8
Contorline Distan	na ta Naisa C	antour (in foo	10.0		00.2		00.0		72.0	·	12.0
Centernine Distant	Le 10 NOISE C	ontour (in feel	/	70 dE	BA	65	dBA		60 dBA		55 dBA
			Ldn:	88		1	90		409		881
		C	NEL:	92		1	98		426		918

								-			
Scena	rio: OY With Pi	oject				Project Na	me: MC	н			
Road Nar	ne: Pine Av.					Job Num	ber: 10	351			
Road Segme	ent: w/o E. Pres	erve Loop									
SITE	SPECIFIC IN	IPUT DATA				NO	SE MO	DE	L INPUTS	s	
Highway Data				S	Site Con	ditions (Ha	ard = 10	, So	oft = 15)		
Average Daily	/ Traffic (Adt):	30,996 vehicle	es				Au	tos:	15		
Peak Hou	r Percentage:	10%			Med	dium Truck	s (2 Axl	es):	15		
Peak I	Hour Volume:	3,100 vehicles	6		Hea	avy Trucks	(3+ Axl	es):	15		
Ve	ehicle Speed:	45 mph		1	/ehicle I	Nix					
Near/Far La	ane Distance:	76 feet		F	Vehi	cleType	Da	v	Evening	Night	Daily
Site Data						Aut	os: 66	.2%	13.5%	20.3%	93.35%
B	arrior Hoight	0.0 feet			Me	dium Truc	ks: 77	.1%	5.3%	17.6%	4.66%
Barrier Type (0-V	Vall. 1-Berm):	0.0			H	leavy Truc	ks: 86	.3%	1.5%	12.2%	1.99%
Centerline D	ist. to Barrier:	60.0 feet		-							
Centerline Dist.	to Observer:	60.0 feet		n	voise So	urce Elev	ations (in re	et)		
Barrier Distance	to Observer:	0.0 feet				Autos:	0.000	,			
Observer Height	(Above Pad):	5.0 feet			Mediun	n Trucks:	2.29		Crada Adi	i u o france a fr	
F	Pad Elevation:	0.0 feet			Heav	y Trucks:	8.004	ł	Grade Auj	usunem.	0.0
Ro	ad Elevation:	0.0 feet		L	ane Equ	ivalent Di	stance	(in f	eet)		
	Road Grade:	0.0%				Autos:	46.70	1			
	Left View:	-90.0 degree	es		Mediun	n Trucks:	46.51	1			
	Right View:	90.0 degree	es		Heav	y Trucks:	46.53)			
FHWA Noise Mod	del Calculation	s									
VehicleType	REMEL	Traffic Flow	Distar	nce	Finite	Dood	Europe I		Parriar Att		m Atten
						Roau	Freshei		Danner Aut	en Ber	
Autos.	68.46	2.78		0.34		-1.20	-resnei -4.	69	0.0	en Ber 00	0.000
Autos. Medium Trucks	68.46 79.45	2.78 -10.24		0.34 0.37		-1.20 -1.20	-resner -4. -4.	69 88	0.0 0.0	en Ber 100 100	0.000
Autos. Medium Trucks. Heavy Trucks.	68.46 79.45 84.25	2.78 -10.24 -13.93		0.34 0.37 0.37		-1.20 -1.20 -1.20	-resner -4. -4. -5.	69 88 34	0.0 0.0 0.0	en Ben 100 100 100	0.000
Autos. Medium Trucks. Heavy Trucks. Unmitigated Nois	68.46 79.45 84.25 86 Levels (with	2.78 -10.24 -13.93 out Topo and	barrier a	0.34 0.37 0.37 attent	uation)	-1.20 -1.20 -1.20	-resner -4. -4. -5.	69 88 34	0.0 0.0 0.0	en Ber 100 100 100	0.000
Autos. Medium Trucks. Heavy Trucks. Unmitigated Nois VehicleType	: 68.46 79.45 84.25 Se Levels (with Leq Peak Hou	2.78 -10.24 -13.93 out Topo and r Leq Day	barrier a	0.34 0.37 0.37 attent eq Ev	uation)	-1.20 -1.20 -1.20 <i>Leq Nig</i>	-resner -4. -4. -5.	69 88 34	0.0 0.0 0.0 <i>Ldn</i>	en Ben 100 100 100 Cl	0.000 0.000 0.000 0.000
Autos. Medium Trucks. Heavy Trucks. Unmitigated Nois VehicleType Autos.	: 68.46 : 79.45 : 84.25 Se Levels (with Leq Peak Hou : 70	2.78 -10.24 -13.93 out Topo and ir Leq Day .4	barrier a	0.34 0.37 0.37 attent eq Ev	uation) rening 66.9	-1.20 -1.20 -1.20 Leq Nig	-resner -4. -5. ht 63.9	69 88 34	0.0 0.0 0.0 0.0 <u>Ldn</u> 71.1	en Ber 000 000 000 000 <i>CI</i>	0.000 0.000 0.000 <u>VEL</u> 71.5
Autos. Medium Trucks. Heavy Trucks. Unmitigated Nois VehicleType Autos. Medium Trucks.	: 68.46 79.45 84.25 Se Levels (with Leg Peak Hou 70 68	2.78 -10.24 -13.93 out Topo and rr Leq Day .4	barrier a L 67.8 66.5	0.34 0.37 0.37 attent eq Ev	uation) rening 66.9 60.9	-1.20 -1.20 -1.20 -1.20 <i>Leq Nig</i>	-resner -4. -5. ht 63.9 61.3	69 88 34	0.0 0.0 0.0 <u>Ldn</u> 71.1 68.7	en Ber 000 000 000 C/	0.000 0.000 0.000 <u>VEL</u> 71.5 68.9
Autos, Medium Trucks, Heavy Trucks, Unmitigated Nois VehicleType Autos, Medium Trucks, Heavy Trucks,	: 68.46 79.45 84.25 Se Levels (with Leq Peak Hou 70 68 68	2.78 -10.24 -13.93 out Topo and rr Leq Day .4 .4 .5	barrier a 57.8 66.5 68.1	0.34 0.37 0.37 attent eq Ev	uation) rening 66.9 60.9 56.5	-1.20 -1.20 -1.20 -1.20 <i>Leq Nig</i>	-resner -4. -4. -5. (ht 63.9 61.3 60.8	69 88 34	0.0 0.0 0.0 <u>Ldn</u> 71.1 68.7 68.9	en Ber 000 000 000 C/	0.000 0.000 0.000 <u>VEL</u> 71.5 68.9 69.0
Autos. Medium Trucks. Heavy Trucks: VehicleType Autos. Medium Trucks. Heavy Trucks. Vehicle Noise.	: 68.46 : 79.45 : 84.25 Se Levels (with Leq Peak Hou : 70 : 68 : 69 : 74	2.78 -10.24 -13.93 out Topo and ir Leq Day .4 .5 .5	barrier a 57.8 66.5 68.1 72.3	0.34 0.37 0.37 attent eq Ev	uation) rening 66.9 60.9 56.5 68.2	-1.20 -1.20 -1.20 Leq Nig	-reshel -4. -4. -5. ht 63.9 61.3 60.8 67.0	69 88 34	Ldn 71.1 68.7 68.9 74.5	en Ber 000 000 000 C/	0.000 0.000 0.000 <u>VEL</u> 71.5 68.9 69.0 74.7
Autos. Medium Trucks. Heavy Trucks: VehicleType Autos. Medium Trucks. Heavy Trucks. Vehicle Noise. Centerline Distan	: 68.46 : 79.45 : 84.25 Se Levels (with Leg Peak Hot : 70 : 68 : 69 : 74 tee to Noise Co	2.78 -10.24 -13.93 out Topo and ir Leg Day .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5	barrier a 67.8 66.5 68.1 72.3	0.34 0.37 0.37 attent eq Ev	uation) rening 66.9 60.9 56.5 68.2	-1.20 -1.20 -1.20 -1.20	-reshel -4. -4. -5. 63.9 61.3 60.8 67.0	69 88 34	Ldn 71.1 68.7 68.9 74.5	en Ben 1000 1000 1000 	0.000 0.000 0.000 VEL 71.5 68.5 69.0 74.7
Autos. Medium Trucks. Heavy Trucks. VehicleType Autos. Medium Trucks. Vehicle Noise. Centerline Distar	: 68.46 : 79.45 : 84.25 Se Levels (with Leg Peak Hou : 700 : 68 : 69 : 74 Acce to Noise Co	2.78 -10.24 -13.93 out Topo and ir Leq Day 4. .5 .5 .3	barrier a 57.8 66.5 68.1 72.3	0.34 0.37 0.37 attenu eq Ev	uation) rening 66.9 60.9 56.5 68.2 BA	-1.20 -1.20 -1.20 -1.20 <i>Leq Nig</i> 65 dB	-resher -4. -5. (ht 63.9 61.3 60.8 67.0	69 88 34 6	0.0 0.0 0.0 0.0 0.0 71.1 68.7 68.9 74.5 0 dBA	en Ben 1000 1000 1000 C/	0.000 0.000 0.000 VEL 71.5 68.5 69.0 74.7 dBA
Autos Medium Trucks Heavy Trucks Unmitigated Nois VehicleType Autos Medium Trucks Heavy Trucks Vehicle Noise Centerline Distan	: 68.46 : 79.45 : 84.25 See Levels (with Leg Peak Hol : 70 : 68 : 69 : 74 Trace to Noise Co	2.78 -10.24 -13.93 out Topo and rr Leq Day 4 .4 .5 .3 ontour (in feet,	barrier a 57.8 66.5 68.1 72.3 0 Ldn:	0.34 0.37 0.37 attenu eq Ev 70 d	uation) rening 66.9 60.9 56.5 68.2 IBA 9	-1.20 -1.20 -1.20 -1.20 -1.20 <i>Leq Nig</i> 65 dB/ 257	-resher -4. -5. ht 63.9 61.3 60.8 67.0	69 88 34 6	Ldn 0.0 0.0 0.0 0.0 0.0 71.1 68.7 74.5 74.5 0 dBA 554	En Berr 000 000 000	0.000 0.000 0.000 VEL 71.5 68.9 69.0 74.7 dBA 193

Thursday, May 02, 2019

	FHV	VA-RD-77-108	HIGH	I YAWH	NOISE P	REDICT	ION MO	DDEL				
Scenar Road Nan Road Segme	rio: OY With Pr ne: Pine Av. nt: w/o Hellmar	oject n Av.				Project Job N	Name: lumber:	MCH 10351				
SITE	SPECIFIC IN	PUT DATA				ľ	OISE	MODE		UTS		
Highway Data					Site Cor	nditions	(Hard :	= 10, S	oft = 15	5)		
Average Daily Peak Hour Peak F	Traffic (Adt): Percentage: dour Volume:	30,426 vehicle 10% 3,043 vehicles 45 mph	es s		Me He	edium Tr eavy Tru	ucks (2 cks (3+	Autos: Axles): Axles):	15 15 15			
Near/Far La	ne Distance:	76 feet			Vehicle	Mix		0	Gunni		Endet	Deite
Site Data		-			ver	licie i ype	e Autos:	66.2%	Eveni 13.5	ng 1	iignt 20.3%	93.34%
Ba	rrior Hoight	0.0 (act			М	edium T	rucks:	77.1%	5.3	8% 1	7.6%	4.66%
Barrier Type (0-V	Vall, 1-Berm):	0.0				Heavy T	rucks:	86.3%	5 1.5	5% 1	2.2%	2.00%
Centerline Di	ist. to Barrier:	60.0 feet		ŀ	Noise S	ource F	levatio	ns (in f	eet)			
Centerline Dist.	to Observer:	60.0 feet		ŀ		Auto	s' O	000	000			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Truck	s: 2	297				
Observer Height	(Above Pad):	5.0 feet			Hear	v Truck	s: 8	.004	Grade	Adius	tment.	: 0.0
P	ad Elevation:	0.0 feet										
Ro	ad Elevation:	0.0 feet		-	Lane Eq	uivalen	t Distai	nce (in	feet)			
	Road Grade:	0.0%				Auto	s: 46	5.701				
	Left View: Right View:	-90.0 degree 90.0 degree	es es		Mediu Hear	m Truck vy Truck	's: 46 's: 46	6.511 6.530				
ELIMA Noise Med	el Calaulation					-						
VehicleType	REMEL	Traffic Flow	Dis	stance	Finite	Road	Fres	inel	Barrier	Atten	Ber	m Atten
Autos:	68.46	2.70		0.3	34	-1.20		-4.69		0.000)	0.00
Medium Trucks:	79.45	-10.32		0.3	37	-1.20		-4.88		0.000)	0.00
Heavy Trucks:	84.25	-14.00		0.3	37	-1.20		-5.34		0.000)	0.00
Unmitigated Nois	e Levels (with	out Topo and	barri	er atter	nuation)							
VehicleType	Leq Peak Hou	r Leq Day	r	Leq E	vening	Leq	Night		Ldn		CI	NEL
Autos:	70.	.3 (67.7		66.8		63	.8		71.0		71.
Medium Trucks:	68.	.3 (66.4		60.8		61	.2		68.6		68.
Heavy Trucks:	69.	.4 (68.0		56.4		60	.7		68.8		68.
Vehicle Noise:	74.	2	72.2		68.1		66	.9		74.4		74.
Centerline Distan	ce to Noise Co	ontour (in feet))	70	-10.4		-/0.4	1	00 -10 *			-10.4
			L	/0	aBA 40	65	aBA		DU aBA		55	aBA
		~	Lan:	1	10	2	54 64		547 570		1,	1/8
		Cr	VEL:	1	23	2	04		570		1,	220

	FH\	VA-RD-77-108 HI	IGHWAY I	NOISE PI	REDICTIC	ON MOI	DEL				
Scenar Road Nan Road Segme	io: OY With Pr ne: Schleismar nt: w/o Archiba	oject n Rd. ald Av.			Project N Job Nui	lame: N mber: 1	MCH 10351				
SITE	SPECIFIC IN	IPUT DATA			NC	DISE N	IODE	L INPUT	s		
Highway Data				Site Con	ditions (F	Hard =	10, So	oft = 15)			
Average Daily	Traffic (Adt):	32,852 vehicles				A	Autos:	15			
Peak Hour	Percentage:	10%		Me	dium Truc	ks (2 A	xles):	15			
Peak F	lour Volume:	3,285 vehicles		He	avy Truck	is (3+ A	xles):	15			
Ve	hicle Speed:	45 mph	ŀ	Vahiala	Mix						
Near/Far La	ne Distance:	78 feet	-	Venicie i	icleType		Dav	Evening	Mic	tht	Daily
Site Data				VCII	Δι	itos:	66 2%	13.5%	20	3%	03 33%
one Data				M	odium Tru	rcks:	77 1%	5.3%	17	6%	4 67%
Barriar Turna (0.14	rrier Height:	0.0 feet		ŀ	leavy Tru	cks:	B6.3%	1.5%	12	.2%	1.99%
Contorlino Di	all, 1-Dellil).	0.0 76.0 feet		-							
Contorlino Dist	to Obsonior:	76.0 feet		Noise So	ource Ele	vations	s (in fe	eet)			
Parriar Distance	to Observer.	0.0 feet			Autos:	0.0	000				
Obsonior Hoight	(Abovo Bod):	5.0 feet		Mediu	m Trucks:	2.2	97				
	ADOVE Pau).	0.0 feet		Heav	y Trucks:	8.0	04	Grade Ac	ljustn	nent:	0.0
Po	ad Elevation:	0.0 feet	-	Lane Eq	uivalent l	Distanc	e (in f	feet)			
70	Bood Grado:	0.0%	-		Autos:	65.4	122	,			
	Loft Viow:	0.0.0		Modiu	n Trucke	65.0	22				
	Pight View:	=90.0 degrees		Hoo	n Trucks:	65.2	200				
	rugin view.	Solo degrees		mour	<i>y maono.</i>	00.1					
FHWA Noise Mod	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Distance	Finite	Road	Fresn	el	Barrier At	ten	Bern	n Atten
Autos:	68.46	3.03	-1.8	15	-1.20		-4.73	0.	000		0.000
Medium Trucks:	79.45	-9.98	-1.8	4	-1.20		-4.88	0.	000		0.000
Heavy Trucks:	84.25	-13.68	-1.8	14	-1.20		-5.25	0.	000		0.000
Unmitigated Nois	e Levels (with	out Topo and ba	nrrier atter	nuation)						-	
VehicleType	Leg Peak Hou	ır Leq Day	Leq E	vening	Leq N	light		Ldn		CN	IEL
Autos:	68	.4 65	.9	65.0		62.0		69.	1		69.6
Medium Trucks:	66	.4 64	.5	58.9		59.3		66.	8		66.9
Heavy Trucks:	67	.5 66	.1	54.5		58.9		67.	0		67.0
Vehicle Noise:	72	.3 70	.3	66.2		65.1		72.	5		72.8
Centerline Distan	ce to Noise C	ontour (in feet)								-	
			70	dBA	65 dl	BA	6	i0 dBA	1	55 c	:IBA
		Ld	<i>ln:</i> 1	12	241	1		520		1,1	20
		CNE	<i>L:</i> 1	17	251	1		542		1,1	67

Thursday, May 02, 2019

	FH	WA-RD-77-108	B HIGHW	AY NC	ISE P	REDICTI	ON MOI	DEL				
Scenari Road Nam Road Segmer	o: HY Withou e: Central Av nt: n/o El Prac	it Project lo Rd.				Project Job N	Name: I umber: 1	MCH 10351				
SITE S	SPECIFIC IN	NPUT DATA				N	OISE N	/IODE	L INPUT	s		
Highway Data				Si	te Cor	nditions	(Hard =	10, S	oft = 15)			
Average Daily	Traffic (Adt):	33,180 vehicl	es					Autos:	15			
Peak Hour	Percentage:	10%			Me	edium Tru	ıcks (2 A	(xles)	15			
Peak H	our Volume:	3,318 vehicle	s		He	eavy Truc	cks (3+ A	(xles)	15			
Vel	hicle Speed:	45 mph		V	hicle	Mix						
Near/Far Lar	ne Distance:	76 feet		-	Veh	nicleTvpe		Dav	Evening	Nia	ht	Dailv
Site Data						F	Autos:	66.3%	13.5%	20.	3%	93.40%
Bar	rier Heiaht:	0.0 feet			Μ	edium Ti	ucks:	77.0%	5.3%	17.	6%	4.70%
Barrier Type (0-W	all, 1-Berm):	0.0				Heavy Ti	ucks:	86.3%	5 1.5%	12.	2%	1.90%
Centerline Dis	st. to Barrier:	60.0 feet		N	oise S	ource El	evations	s (in f	eet)			
Centerline Dist.	to Observer:	60.0 feet				Autos	s: 0.0	000				
Barrier Distance	to Observer:	0.0 feet			Mediu	m Truck	s: 2.2	297				
Observer Height (Above Pad):	5.0 feet			Hear	vy Trucks	s: 8.0	004	Grade Adj	iustm	ent:	0.0
Pa	d Elevation:	0.0 feet		1.	ane Fo	uivalent	Distan	e (in	feet)			
RUa	Pood Grado:	0.0 feet			ine Eq	Auto	2 46 T	701	icely			
1	Loft View:	0.0%	00		Mediu	m Truck	s: 46.1	511				
	Right View:	90.0 degre	es		Hear	vy Truck	s: 46.5	530				
FHWA Noise Mode	el Calculation	ıs										
VehicleType	REMEL	Traffic Flow	Distar	nce	Finite	Road	Fresn	el	Barrier Atte	en	Berm	Atten
Autos:	68.46	3.07		0.34		-1.20		-4.69	0.0	000		0.000
Medium Trucks:	79.45	-9.91		0.37		-1.20		-4.88	0.0	000		0.000
Heavy Trucks:	84.25	-13.84		0.37		-1.20		-5.34	0.0	000		0.000
Unmitigated Noise	e Levels (with	nout Topo and	barrier a	attenu	ation)							
VehicleType	Leq Peak Ho	ur Leq Da	y L	eq Eve	ening	Leq	Night		Ldn		CN	EL
Autos:	70).7	68.1		67.2		64.2		71.4	ļ.		71.8
Medium Trucks:	68	3.7	66.8		61.2		61.6		69.0)		69.2
Heavy Trucks:	69	9.6	68.1		56.6		60.9		69.0)		69.1
Venicie Noise:	74	1.5	72.5		68.5		67.3		74.7			75.0
Centerline Distance	e to Noise C	ontour (in fee	t)	70 45	24	65	d D A		60 dBA	1	66 A	DA
			I dn:	10 dE	<i>w</i> -1	200	37		575	1	1 2	ым 10
		C	NFI :	124		20	78		600		1.2	+0 92
		0				-	-				.,	

Scenar	rio: HY Without	t Project				Project Na	me: MCH			
Road Nan	ne: Central Av.	-				Job Num	ber: 1035 ⁻			
Road Segme	nt: s/o El Prad	o Rd.								
SITE	SPECIFIC IN	IPUT DATA				NO	SE MOD	EL INPUT	s	
Highway Data				S	Site Con	ditions (Ha	rd = 10, S	oft = 15)		
Average Daily	Traffic (Adt):	39,805 vehicle	s				Autos	: 15		
Peak Hour	Percentage:	10%			Med	dium Truck	s (2 Axles)	: 15		
Peak F	lour Volume:	3,981 vehicles			Hea	avy Trucks	(3+ Axles)	: 15		
Ve	hicle Speed:	45 mph		V	/ehicle N	lix				
Near/Far La	ne Distance:	78 feet			Vehi	cleType	Day	Evening	Night	Daily
Site Data						Auto	os: 66.39	6 13.5%	20.3%	93.40%
Ba	rrier Height	0.0 feet			Me	dium Truck	s: 77.09	6 5.3%	17.6%	4.70%
Barrier Type (0-V	Vall. 1-Berm):	0.0			H	leavy Truck	s: 86.39	6 1.5%	12.2%	1.90%
Centerline Di	ist. to Barrier:	60.0 feet						(
Centerline Dist.	to Observer:	60.0 feet		^	voise So	urce Eleva	tions (in	reet)		
Barrier Distance	to Observer:	0.0 feet				Autos:	0.000			
Observer Height	(Above Pad):	5.0 feet			Mediun	n Trucks:	2.297	Crada Ad	iuotmont	
P	ad Elevation:	0.0 feet			Heav	y Trucks:	8.004	Grade Adj	usuneni	0.0
Ro	ad Elevation:	0.0 feet		L	ane Equ	ivalent Di	stance (in	feet)		
	Road Grade:	0.0%				Autos:	45.869			
	Left View:	-90.0 degree	s		Mediun	n Trucks:	45.676			
	Right View:	90.0 degree	s		Heav	y Trucks:	45.695			
FHWA Noise Mod	lel Calculation	s								
VehicleType			Dista							
· smole rype	REMEL	Traffic Flow	Dista	nce	Finite	Road F	resnel	Barrier Att	en Ber	m Atten
Autos:	REMEL 68.46	Traffic Flow 3.87	Dista	0.46	Finite	Road F -1.20	resnel -4.69	Barrier Atte 0.0	en Ber)00	<i>m Atten</i> 0.000
Autos: Medium Trucks:	REMEL 68.46 79.45	Traffic Flow 3.87 -9.12	Dista	0.46 0.49	Finite	Road F -1.20 -1.20	resnel -4.69 -4.88	Barrier Atte 0.0 0.0	en Ber)00)00	m Atten 0.000 0.000
Autos: Medium Trucks: Heavy Trucks:	REMEL 68.46 79.45 84.25	Traffic Flow 3.87 -9.12 -13.05	Dista	0.46 0.49 0.48	Finite	Road F -1.20 -1.20 -1.20	resnel -4.69 -4.88 -5.34	Barrier Atte 0.0 0.0 0.0	en Ber 000 000 000	<u>m Atten</u> 0.000 0.000 0.000
Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois	REMEL 68.46 79.45 84.25 e Levels (with	Traffic Flow 3.87 -9.12 -13.05 out Topo and I	Dista	0.46 0.49 0.48 attent	Finite	Road F -1.20 -1.20 -1.20	resnel -4.69 -4.88 -5.34	Barrier Atte 0.0 0.0 0.0	en Ber 000 000 000	<u>m Atten</u> 0.000 0.000 0.000
Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType	REMEL 68.46 79.45 84.25 e Levels (with Leq Peak Hou	Traffic Flow 3.87 -9.12 -13.05 out Topo and I Ir Leq Day	Dista	0.46 0.49 0.48 attenu Leg Ev	Finite	Road F -1.20 -1.20 -1.20 Leq Nig	resnel -4.69 -4.88 -5.34	Barrier Atte 0.0 0.0 0.0 0.0	en Ber 000 000 000 000 Cl	m Atten 0.000 0.000 0.000 VEL
Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos:	REMEL 68.46 79.45 84.25 e Levels (with Leg Peak Hou 71	Traffic Flow 3.87 -9.12 -13.05 out Topo and I Ir Leq Day .6 6	Dista	0.46 0.49 0.48 attenu Leq Ev	Finite	Road F -1.20 -1.20 -1.20 -1.20 Leq Nig	resnel -4.69 -4.88 -5.34 ht 65.1	Barrier Atte 0.0 0.0 0.0 Ldn 72.3	en Ber 000 000 000 000 Cl	<u>m Atten</u> 0.000 0.000 0.000 VEL 72.7
Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks:	REMEL 68.46 79.45 84.25 e Levels (with Leg Peak Hou 71 69	Traffic Flow 3.87 -9.12 -13.05 Out Topo and I Ir Leq Day .6 6 .6 6	0arrier 0.0 19.0	0.46 0.49 0.48 0.48 attent Leg Ev	Finite a a a a a a a a a a a a a	Road F -1.20 -1.20 -1.20 Leq Nig	resnel -4.69 -4.88 -5.34 ht 65.1 65.1	Barrier Atte 0.0 <	en Ber 000 000 000 000 Cl 3	<u>m Atten</u> 0.000 0.000 0.000 <u>VEL</u> 72.7 70.1
Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks:	REMEL 68.46 79.45 84.25 e Levels (with Leg Peak Hou 71 69 70	Traffic Flow 3.87 -9.12 -13.05 Out Topo and I ir Leq Day .6 6 .5 6	Dista	0.46 0.49 0.48 attent Leq Ev	Finite a a a a a a a a a a a a a	Road F -1.20 -1.20 -1.20 Leq Nig	resnel -4.69 -4.88 -5.34 ht 65.1 62.5 61.8	Barrier Atte 0.0 0.1 0.2 <	en Ber 000 000 000 000 Cl 3 3	<u>m Atten</u> 0.000 0.000 0.000 <u>VEL</u> 72.7 70.7
Autos: Medium Trucks: Heavy Trucks: VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise	REMEL 68.46 79.45 84.25 e Levels (with Leq Peak Hou 71 69 70 75	Traffic Flow 3.87 -9.12 -13.05 out Topo and I Ir Leq Day .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6	Dista	0.46 0.49 0.48 0.48 attenu	Finite B uation) rening 68.1 62.1 57.5 69.4	Road F -1.20 -1.20 -1.20 Leq Nig	-resnel -4.69 -4.88 -5.34 ht 65.1 62.5 61.8 68.2	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	en Ber 000 000 000 Cl 3 9 9 5	<u>m Atten</u> 0.000 0.000 0.000 <u>VEL</u> 72.7 70.4 70.0
Medium Trucks: Medium Trucks: Heavy Trucks: VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	REMEL 68.46 79.45 84.25 se Levels (with Leq Peak Hol 71 69 70 75 ce to Noise Ca Ca	Traffic Flow 3.87 -9.12 -13.05 Out Topo and I 1 Ir Leq Day .6 6 .5 6 .4 7 Ontour (In feet) 3	Dista	ance 0.46 0.49 0.48 attenu Leq Ev	Finite a a b b cening 68.1 62.1 57.5 69.4	Road F -1.20 -1.20 -1.20 Leq Nig	-resnel -4.69 -4.88 -5.34 ht 65.1 62.5 61.8 68.2	Barrier Atti 0.0 <	en Ber 000 000 000 000 Cl 3 3 3 3	<u>m Atten</u> 0.000 0.000 0.000 <u>VEL</u> 72.7 70.0 75.8
Autos: Medium Trucks: Heavy Trucks: VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	REMEL 68.46 79.45 84.25 84.25 84.25 84.25 84.25 86.25 <th< td=""><td>Traffic Flow 3.87 -9.12 -13.05 out Topo and I Image: Composition of the second s</td><td>Dista</td><td>0.46 0.49 0.48 attenu Leq Ev</td><td>Finite a a b a b b a a b a b b a b b a b<td>Road F -1.20 -1.20 -1.20 Leq Nig 65 dBA</td><td>-resnel -4.69 -4.88 -5.34 ht 65.1 62.5 61.8 68.2</td><td>Barrier Atti 0.0 <</td><td>en Ber 000 000 000 Cl 3 9 9 5 55</td><td>m Atten 0.000 0.000 0.000 VEL 72.7 70.1 70.2 75.5 dBA</td></td></th<>	Traffic Flow 3.87 -9.12 -13.05 out Topo and I Image: Composition of the second s	Dista	0.46 0.49 0.48 attenu Leq Ev	Finite a a b a b b a a b a b b a b b a b <td>Road F -1.20 -1.20 -1.20 Leq Nig 65 dBA</td> <td>-resnel -4.69 -4.88 -5.34 ht 65.1 62.5 61.8 68.2</td> <td>Barrier Atti 0.0 <</td> <td>en Ber 000 000 000 Cl 3 9 9 5 55</td> <td>m Atten 0.000 0.000 0.000 VEL 72.7 70.1 70.2 75.5 dBA</td>	Road F -1.20 -1.20 -1.20 Leq Nig 65 dBA	-resnel -4.69 -4.88 -5.34 ht 65.1 62.5 61.8 68.2	Barrier Atti 0.0 <	en Ber 000 000 000 Cl 3 9 9 5 55	m Atten 0.000 0.000 0.000 VEL 72.7 70.1 70.2 75.5 dBA
Autos: Medium Trucks: Heavy Trucks: Unmitigated Mois VehicleType Autos: Medium Trucks: Heavy Trucks; Vehicle Noise: Centerline Distan	REMEL 68.46 79.45 84.25 e Levels (with Leq Peak Hou 71 69 70 75 ce to Noise Co 75	Traffic Flow 3.87 -9.12 -13.05 out Topo and I I Ir Leq Day .6 6 .5 6 .5 6 .6 7 .5 6 .6 7 .5 6 .6 7 .5 6 .4 7 .6 7	Dista	0.46 0.49 0.48 attenu Leq Ev	Finite Finite aution) rening 68.1 62.1 57.5 69.4 IBA 3	Road F -1.20 -1.20 -1.20 -1.20 Leq Nig 65 dB/ 307	resnel -4.69 -4.88 -5.34 ht 65.1 62.5 61.8 68.2	Barrier Atti 0.0	en Ber 000 000 000 Cl 3 3 3 3 5 55 1,:	m Atten 0.000 0.000 0.000 VEL 72.7 70.1 70.2 75.9 dBA 425

Thursday, May 02, 2019

Scenario: HY Without Project Project Name: MCH Road Name: El Prado Rd. Job Number: 10351 Road Segment: n/o Kimball Av. Sitte SPECIFIC INPUT DATA NOISE MODEL INPUTS Highway Data Site Conditions (Hard = 10, Soft = 15) Average Daily Traffic (Adt): 28,632 vehicles Autos: 15	
SITE SPECIFIC INPUT DATA NOISE MODEL INPUTS Highway Data Site Conditions (Hard = 10, Soft = 15) Average Daily Traffic (Adt): 28,632 vehicles Autos: 15	
Highway Data Site Conditions (Hard = 10, Soft = 15) Average Daily Traffic (Adt): 28,632 vehicles Autos: 15	
Average Daily Traffic (Adt): 28,632 vehicles Autos: 15	
Peak Hour Percentage: 10% Medium Trucks (2 Axles): 15	
Peak Hour Volume: 2,863 vehicles Heavy Trucks (3+ Axles): 15	
Vehicle Speed: 45 mph Vehicle Mix	
Near/Far Lane Distance: 36 feet	aily
Site Data Autos: 66.3% 13.5% 20.3% 93	.40%
Barrier Height: 0.0 feet Medium Trucks: 77.0% 5.3% 17.6% 4	.70%
Barrier Type (0-Wall, 1-Berm): 0.0 Heavy Trucks: 86.3% 1.5% 12.2% 1	.90%
Centerline Dist. to Barrier: 44.0 feet Noise Source Elevations (in feet)	
Centerline Dist. to Observer: 44.0 feet	
Barrier Distance to Observer: 0.0 feet Medium Trucks: 2,297	
Observer Height (Above Pad): 5.0 feet Heavy Trucks: 8.004 Grade Adjustment: 0.0	n
Pad Elevation: 0.0 feet	-
Road Elevation: 0.0 feet Lane Equivalent Distance (in feet)	
Road Grade: 0.0% Autos: 40.460	
Left View: -90.0 degrees Medium Trucks: 40.241	
Right View: 90.0 degrees Heavy Trucks: 40.262	
FHWA Noise Model Calculations	
VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten Berm A	ltten
Autos: 68.46 2.43 1.28 -1.20 -4.61 0.000	0.000
Medium Trucks: 79.45 -10.55 1.31 -1.20 -4.87 0.000	0.000
Heavy Trucks: 84.25 -14.48 1.31 -1.20 -5.50 0.000	0.000
Unmitigated Noise Levels (without Topo and barrier attenuation)	
VehicleType Leq Peak Hour Leq Day Leq Evening Leq Night Ldn CNEL	
Autos: 71.0 68.4 67.5 64.5 71.7	72.1
Medium Trucks: 69.0 67.1 61.5 61.9 69.3	69.5
Heavy Trucks: 69.9 68.4 56.9 61.2 69.3	69.4
Vehicle Noise: 74.8 72.8 68.8 67.6 75.0	75.3
Centerline Distance to Noise Contour (in feet)	
70 dBA 65 dBA 60 dBA 55 dB/	4
Ldn: 95 205 442 952	
CNEL: 99 214 460 992	

	FHV	VA-RD-77-108 F	IIGHWAY	' NOISE PI	REDICTIO	N MODEL		
Scenar Road Nam Road Segmei	io: HY Without e: Euclid Av. nt: n/o Walnut	: Project Av.			Project N Job Nur	ame: MCH nber: 10351	I	
SITE	SPECIFIC IN	IPUT DATA			NO	ISE MODE	EL INPUTS	
Highway Data				Site Con	ditions (H	lard = 10, S	oft = 15)	
Average Daily Peak Hour Peak H	Traffic (Adt): Percentage: lour Volume:	52,793 vehicles 10% 5,279 vehicles		Me He	dium Truc avy Truck	Autos ks (2 Axles) s (3+ Axles)	: 15 : 15 : 15	
Ve Nasa/Fasta	nicie Speea:	55 mpn		Vehicle	Mix			
ivear/r-ar La	ne Distance:	154 Teet		Veh	icleType	Day	Evening	Night Daily
Site Data Barrier Type (0-W	rrier Height:	0.0 feet		м	Au edium True Heavy True	tos: 66.3% cks: 77.0% cks: 86.3%	6 13.5% 6 5.3% 6 1.5%	20.3% 93.40% 17.6% 4.70% 12.2% 1.90%
Centerline Di	st. to Barrier:	84.0 feet			-			
Centerline Dist.	to Observer:	84.0 feet		Noise Se	Autos:	Ations (in 1	leet)	
Barrier Distance	to Observer:	0.0 feet		Mediu	m Trucks:	2 207		
Observer Height (Above Pad):	5.0 feet		Heat	N Trucks:	8 004	Grade Adii	istment: 0.0
Pa	ad Elevation:	0.0 feet		mour	y maono.	0.001	,·	
Roa	ad Elevation:	0.0 feet		Lane Eq	uivalent L	oistance (in	feet)	
1	Road Grade:	0.0%			Autos:	33.941		
	Left View: Right View:	-90.0 degrees 90.0 degrees		Mediu Heav	m Trucks: /y Trucks:	33.679 33.705		
FHWA Noise Mod	el Calculation	s						
VehicleType	REMEL	Traffic Flow	Distance	e Finite	Road	Fresnel	Barrier Atte	n Berm Atten
Autos:	71.78	4.22	2	.42	-1.20	-4.75	0.0	0.000 0.000
Medium Trucks:	82.40	-8.76	2	.47	-1.20	-4.88	0.0	0.000 0.000
Heavy Trucks:	86.40	-12.70	2	.47	-1.20	-5.21	0.0	0.000
Unmitigated Noise	e Levels (with	out Topo and b	arrier atte	enuation)				
VehicleType	Leq Peak Hou	r Leq Day	Leq	Evening	Leq Ni	ght	Ldn	CNEL
Autos:	77	.2 74	4.6	73.8		70.8	77.9	78.4
Medium Trucks:	74	.9 73	3.0	67.4		67.8	75.2	75.4
Heavy Trucks:	75	.0 73	3.5	62.0		66.3	74.4	74.4
Vehicle Noise:	80	.6 78	3.5	74.9		73.5	80.9	81.2
Centerline Distant	ce to Noise Co	ontour (in feet)						
			7	0 dBA	65 dE	3A	60 dBA	55 dBA
		L	dn:	447	964		2,077	4,474
		CNI	EL:	467	1,00	7	2,169	4,674

Thursday, May 02, 2019

	FH\	NA-RD-77-108	HIGHW	NAY NO	ISE P	REDICTIC	N MODI	EL			
Scenario: Road Name: Road Segment:	HY Withou Euclid Av. n/o Riversid	t Project de Dr.				Project N Job Nui	lame: M nber: 10	CH 1351			
SITE SP	ECIFIC IN	IPUT DATA				NC	DISE MO	DDEL IN	PUTS		
Highway Data				Si	te Cor	ditions (F	lard = 1	0, Soft =	15)		
Average Daily Tra	affic (Adt):	45,572 vehicl	es				AL	itos: 1	5		
Peak Hour Pe	ercentage:	10%			Me	dium Truc	ks (2 Ax	les): 1	5		
Peak Hou	r Volume:	4,557 vehicle	s		He	avy Truck	s (3+ Ax	<i>les):</i> 1	5		
Vehic	le Speed:	55 mph		Ve	hicle	Mix					
Near/Far Lane	Distance:	154 feet			Veh	icleTvpe	D	av Eve	nina N	liaht	Dailv
Site Data						AL	tos: 66	5.3% 13	3.5% 2	0.3%	93.40%
Barrie	er Heiaht:	0.0 feet			М	edium Tru	cks: 7	7.0%	5.3% 1	7.6%	4.70%
Barrier Type (0-Wall,	, 1-Berm):	0.0			1	Heavy Tru	cks: 86	5.3%	1.5% 1	2.2%	1.90%
Centerline Dist.	to Barrier:	84.0 feet		No	oise Si	ource Ele	vations	(in feet)			
Centerline Dist. to	Observer:	84.0 feet				Autos:	0.00	0			
Barrier Distance to	Observer:	0.0 feet			Mediu	m Trucks:	2.29	7			
Observer Height (Ab	ove Pad):	5.0 feet			Heav	v Trucks:	8.00	4 Gra	de Adjus	tment:	0.0
Pad	Elevation:	0.0 feet						(1 64)	-		
Road	Elevation:	0.0 feet		La	ne Eq	uivalent L	Distance	(In reet)			
Roi	ad Grade:	0.0%				Autos:	33.94	-1			
	Left View:	-90.0 degre	es		Mediu	m Trucks:	33.67	9			
K	igni view.	90.0 degre	es		near	ly mucks.	33.70	0			
FHWA Noise Model	Calculation	S									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresnel	Barr	ier Atten	Bern	n Atten
Autos:	71.78	3.58		2.42		-1.20	-4	.75	0.000		0.000
Medium Trucks:	82.40	-9.40		2.47		-1.20	-4	.88	0.000		0.000
Heavy Trucks:	86.40	-13.33		2.47		-1.20	-5	.21	0.000		0.000
Unmitigated Noise L	evels (with	out Topo and	barrier	r attenua	ation)						
Vehicle Type Le	eq Peak Hou	ur Leq Day	/	Leq Eve	ning	Leq N	ight 70.4	Ldn		CN	IEL
Autos:	76	1.6	74.0		73.1		70.1		77.3		71.7
Medium Trucks:	74		72.3		61.2		07.Z		74.0		74.8
Vehicle Noise	80	10	77.9		74.2		72.8		80.3		80.5
Centerline Distance	to Noise C	ontour (in feet	4								
Contentine Distance	10/30 0	un leer	/	70 dB	A	65 dl	BA	60 dE	BA	55 0	:BA
			Ldn:	406		874		1,883	3	4,0	56
	Ldn: CNEL:					913	3	1,96	7	4,2	37

	FHV	VA-RD-77-108	HIGHV	VAY N	IOISE PF	REDICTIO					
Scenari	o: HY Without	Project				Project I	lame: M	СН			
Road Nam	e: Euclid Av.					Job Nu	mber: 10)351			
Road Segmer	nt: n/o Chino A	w.									
SITE	SPECIFIC IN	IPUT DATA				N	DISE M	ODE		S	
Highway Data				3	Site Con	ditions (Hard = 1	0, So	oft = 15)		
Average Daily	Traffic (Adt):	49,051 vehicle	es				A	itos:	15		
Peak Hour	Percentage:	10%			Me	dium Tru	cks (2 Ax	les):	15		
Peak H	our Volume:	4,905 vehicle	s		He	avy Trucl	(3+ Ax	les):	15		
Vei	hicle Speed:	55 mph		1	Vehicle I	Mix					
Near/Far Lar	ne Distance:	154 feet			Veh	icleType	E	av	Evening	Night	Daily
Site Data						A	utos: 6	6.3%	13.5%	20.3%	93.40%
Bar	rier Height:	0.0 feet			Me	edium Tru	icks: 7	7.0%	5.3%	17.6%	4.70%
Barrier Type (0-W	all, 1-Berm):	0.0			F	leavy Tru	icks: 8	6.3%	1.5%	12.2%	1.90%
Centerline Dis	st. to Barrier:	84.0 feet		-	N 0-			11. 6.	- 41		
Centerline Dist.	to Observer:	84.0 feet		'	Noise Sc	burce Ele	vations	(In fe	et)		
Barrier Distance	to Observer:	0.0 feet				Autos.	0.00	0			
Observer Height (.	Above Pad):	5.0 feet			Mediur	m Trucks.	2.29	17	Grada Ad	iustmont	
Pa	ad Elevation:	0.0 feet			Heav	y Trucks.	8.00	14	Graue Auj	usuneni	0.0
Roa	ad Elevation:	0.0 feet		1	Lane Eq	uivalent	Distance	e (in f	eet)		
F	Road Grade:	0.0%				Autos.	33.94	1			
	Left View:	-90.0 degree	es		Mediur	m Trucks.	33.67	'9			
	Right View:	90.0 degree	es		Heav	y Trucks.	33.70)5			
FHWA Noise Mode	el Calculation:	s									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresne	Ι.	Barrier Att	en Ber	m Atten
Autos:	71.78	3.90		2.42	2	-1.20	-4	1.75	0.0	000	0.000
Medium Trucks:	82.40	-9.08		2.47	7	-1.20	-4	1.88	0.0	000	0.000
Heavy Trucks:	86.40	-13.01		2.47	7	-1.20	-{	5.21	0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier	atten	uation)						
VehicleType	Leq Peak Hou	ir Leq Day	/	Leq Ev	vening	Leq N	light		Ldn	CI	VEL
Autos:	76	.9	74.3		73.4		70.4		77.6	6	78.0
Medium Trucks:	74	.6	72.7		67.1		67.5		74.9)	75.1
Heavy Trucks:	74.	.6	73.2		61.6		66.0		74.1		74.1
Vehicle Noise:	80	.3	78.2		74.6		73.1		80.6	6	80.9
	e to Noise Co	ontour (in feet)								
Centerline Distand				70 -		05 -	D A	6	0 dRA	55	dBA
Centerline Distand				70 0	IDA	65 a	DA	0	0 UDA	00	ubh
Centerline Distanc			Ldn:	42	26	91	в <i>а</i> В		1,977	4,	260

Thursday, May 02, 2019

	FHV	VA-RD-77-108	HIGH	IWAY N	IOISE PF	REDICTIC	N MODI	EL			
Scenari Road Nam	io: HY Without e: Euclid Av.	Project				Project N Job Nui	lame: M nber: 10	CH)351			
Road Segmer	nt: n/o Schaefe	er Av.									
SITE	SPECIFIC IN	IPUT DATA				NC	DISE MO	ODEL	INPUTS	5	
Highway Data					Site Con	ditions (F	lard = 1	0, Soft	= 15)		
Average Daily	Traffic (Adt):	49,457 vehicle	s				AL	itos:	15		
Peak Hour	Percentage:	10%			Me	dium Truc	ks (2 Ax	les):	15		
Peak H	our Volume:	4,946 vehicles	6		He	avy Truck	s (3+ Ax	les):	15		
Vei	hicle Speed:	55 mph		-	Vehicle I	Mix					
Near/Far La	ne Distance:	154 feet		F	Vehi	icleTvpe	D	av E	venina	Niaht	Dailv
Site Data						AL	itos: 66	6.3%	13.5%	20.3%	93.40%
Bai	rier Height	0.0 feet			Me	edium Tru	cks: 7	7.0%	5.3%	17.6%	4.70%
Barrier Type (0-W	all, 1-Berm):	0.0			ŀ	leavy Tru	cks: 86	6.3%	1.5%	12.2%	1.90%
Centerline Dis	st. to Barrier:	84.0 feet			Noise Sc	ource Ele	vations	(in feet	•)		
Centerline Dist.	to Observer:	84.0 feet		F		Autos:	0.00	0	/		
Barrier Distance	to Observer:	0.0 feet			Mediur	n Trucks:	2.29	7			
Observer Height (Above Pad):	5.0 feet			Heav	v Trucks:	8.00	4 G	rade Adj	ustment:	0.0
Pa	ad Elevation:	0.0 feet		-							
Roa	ad Elevation:	0.0 feet		1	Lane Eq	uivalent L	Jistance	e (in tee	et)		
1	Road Grade:	0.0%				Autos:	33.94	1			
	Left View:	-90.0 degree	s		Mediur	n Trucks:	33.67	9			
	Right view:	90.0 degree	s		neav	y TTUCKS.	33.70	15			
FHWA Noise Mode	el Calculation	s 					-				
Venicie i ype	REMEL 71.79	Traffic Flow	DIS	stance	Finite	1.20	Freshel	B8	arrier Atte	en Ben	m Atten
Autos. Madium Truakai	71.70	3.94		2.4	2	-1.20	-4	1.70	0.0	00	0.000
Heavy Trucks:	86.40	-12.08		2.4	7	-1.20	-4	5.00	0.0	00	0.000
Unmitiasted Noise	. Lavala (with	aut Tana and	horri		wetien)	1.20			0.0	00	0.000
VehicleType	Levels (with		Darrie	l on F	vening	Lea N	iaht	-	dn	CI	IFI
Autos	2007 000 100	9	74.4	LUYL	73.5	Login	70.5	2.	77 7	01	78 1
Medium Trucks:	74	6	727		67.1		67.5		74.9		75.1
Heavy Trucks:	74	.7	73.3		61.7		66.0		74.1		74.2
Vehicle Noise:	80	.3	78.3		74.6		73.2		80.6		80.9
Centerline Distance	ce to Noise Co	ontour (in feet)								
				70 0	dBA	65 dl	BA	60	dBA	55	dBA
			Ldn:	42	28	923	3	1,9	88	4,2	284
		CI	IEL:	44	47	964	ļ.	2,0)77	4,4	475

	FHV	VA-RD-77-108 HIG	HWAY	NOISE PI	REDICTION	MODEL			
Scenar	io: HY Without	Project			Project Nar	ne: MCH			
Road Nam	e: Euclid Av.				Job Numb	er: 1035	l		
Road Segme	nt: n/o Edison	Av.							
SITE	SPECIFIC IN	IPUT DATA			NOIS	SE MODI	EL INPUTS	5	
Highway Data				Site Con	ditions (Ha	rd = 10, S	oft = 15)		
Average Daily	Traffic (Adt):	52,051 vehicles				Autos	: 15		
Peak Hour	Percentage:	10%		Me	dium Trucks	(2 Axles)	: 15		
Peak H	lour Volume:	5,205 vehicles		He	avy Trucks	3+ Axles)	: 15		
Ve	hicle Speed:	55 mph	-	Vehicle	Mix			-	
Near/Far La	ne Distance:	154 feet		Veh	icleType	Day	Evening	Night	Daily
Site Data					Auto	s: 66.39	6 13.5%	20.3%	93.40%
Ba	rrier Height	0.0 feet		Me	edium Truck	s: 77.09	6 5.3%	17.6%	4.70%
Barrier Type (0-W	/all, 1-Berm):	0.0		ŀ	leavy Truck	s: 86.39	6 1.5%	12.2%	1.90%
Centerline Di	st. to Barrier:	84.0 feet	-	Noise So	ource Eleva	tions (in	feet)		
Centerline Dist.	to Observer:	84.0 feet	-		Autos:	0.000	,		
Barrier Distance	to Observer:	0.0 feet		Mediu	m Trucks:	2.297			
Observer Height (Above Pad):		Heav	v Trucks:	8.004	Grade Adj	ustment	: 0.0	
Pi	Pad Elevation: 0.0 feet								
Roi	ad Elevation:	0.0 feet	_	Lane Eq	uivalent Dis	stance (in	feet)		
	Road Grade:	0.0%			Autos:	33.941			
	Left View:	-90.0 degrees		Mediu	m Trucks:	33.679			
	Right View:	90.0 degrees		Heav	y Trucks:	33.705			
FHWA Noise Mod	el Calculation	s							
VehicleType	REMEL	Traffic Flow D	istance	Finite	Road F	resnel	Barrier Atte	en Ber	m Atten
Autos:	71.78	4.16	2.4	2	-1.20	-4.75	0.0	/00	0.000
Medium Trucks:	82.40	-8.82	2.4	7	-1.20	-4.88	0.0	00	0.000
Heavy Trucks:	86.40	-12.76	2.4	7	-1.20	-5.21	0.0	00	0.000
Unmitigated Nois	e Levels (with	out Topo and barr	rier atter	nuation)					
VehicleType	Leq Peak Hou	r Leq Day	Leq E	ivening	Leq Nigl	nt	Ldn	C	NEL
Autos:	77	.2 74.6		73.7		70.7	77.9)	78.3
Medium Trucks:	74	.9 72.9		67.3		67.8	75.2	<u>.</u>	75.4
Heavy Trucks:	74	.9 73.5		61.9		66.2	74.3	1	74.4
Vehicle Noise:	80	.5 78.5		74.8		73.4	80.8	1	81.1
Centerline Distan	ce to Noise Co	ontour (in feet)							
			70	dBA	65 dBA		60 dBA	55	dBA
		Ldn:	4	43	955		2,057	4,	432
		CNEL:	- 40	53	998		2,149	4,	630

Thursday, May 02, 2019

	FH\	WA-RD-77-108	HIGHV	VAY NO	ISE P	REDICTI	ON MOI	DEL				
Scenario Road Name Road Segmen	 b: HY Withou b: Euclid Av. c: n/o Eucaly 	t Project otus Av.				Project Job N	Name: 1 umber: 1	MCH 10351				
SITE S	PECIFIC IN	IPUT DATA				N	OISE N	IODE	L INPUTS	s		
Highway Data				Si	te Cor	nditions	(Hard =	10, S	oft = 15)			
Average Daily T	raffic (Adt):	47,542 vehicl	es					Autos:	15			
Peak Hour F	Percentage:	10%			Me	edium Tru	ıcks (2 A	xles):	15			
Peak Ho	our Volume:	4,754 vehicle	s		He	eavy Truc	:ks (3+ A	(xles)	15			
Veh	icle Speed:	55 mph		Ve	hicle	Mix						
Near/Far Lan	e Distance:	154 feet			Veh	nicleType		Day	Evening	Nigh	nt L	Daily
Site Data						A	utos:	66.3%	5 13.5%	20.3	3% 93	3.40%
Barr	rier Height:	0.0 feet			М	edium Tr	ucks:	77.0%	5.3%	17.6	5% 4	4.70%
Barrier Type (0-Wa	all, 1-Berm):	0.0				Heavy Tr	ucks:	86.3%	5 1.5%	12.2	2%	1.90%
Centerline Dist	t. to Barrier:	84.0 feet		No	oise S	ource El	evation	s (in f	eet)			
Centerline Dist. to	o Observer:	84.0 feet				Autos	: 0.0	000	,			
Barrier Distance to	o Observer:	0.0 feet			Mediu	m Trucks	: 2.2	297				
Observer Height (A	bove Pad):	5.0 feet			Hear	vy Trucks	s: 8.0	004	Grade Adj	iustme	ent: 0	.0
Pa	d Elevation:	0.0 feet					Distant	//	6			
Roa	d Elevation:	0.0 feet		La	ine Eq	uivaient	Distanc	ce (In	reet)			
R	oad Grade:	0.0%			Madiu	Autos	. 33.8	941				
	Left View:	-90.0 degre	es		Wealu Hoo	m Trucks	5. 33.6	579 705				
	Ngni view.	90.0 degre	es		nea	ry muone	. 33.1	105				
FHWA Noise Mode	I Calculation	s										
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresn	el	Barrier Atte	en l	Berm /	Atten
Autos:	71.78	3.77		2.42		-1.20		-4.75	0.0	00		0.000
Medium Trucks:	82.40	-9.22		2.47		-1.20		-4.88	0.0	000		0.000
Heavy Trucks:	86.40	-13.15		2.47		-1.20		-5.21	0.0	00		0.000
Unmitigated Noise	Levels (with	out Topo and	barrier	attenua	ation)			1				
Vehicle I ype	Leq Peak Hou	ur Leq Da	/ 1	Leq Eve	ning	Leq	Night		Ldn		CNE	-
Autos:	/6	.8	74.2		73.3		70.3		77.5			77.9
Medium Trucks:	74	D	72.5		00.9 61.5		67.4		74.8	5		75.0
Vehicle Noise	74	12	78.1		74.4		73.0		73.9	,		80.7
Centerline Distance	e to Noise C	ontour (in fee	6		,		10.0		00.1			
Contentine Distante	0.00.000		y	70 dB	A	65 0	dBA		60 dBA		55 dB	A
			Ldn:	417		. 89	99		1,937		4,172	2
	Ldn: CNEL:			436		93	39		2,023		4,359)

	FHV	VA-RD-77-108	HIGHW.	AY N	OISE PF	REDICTIC	N MOE	EL			
Scenari	io: HY Without	Project				Project N	lame: N	ICH			
Road Nam	e: Euclid Av.					Job Nu	mber: 1	0351			
Road Segmer	nt: n/o Merrill A	w.									
SITE	SPECIFIC IN	PUT DATA				NC	DISE M	ODE	L INPUT	s	
Highway Data				S	Site Con	ditions (l	lard = '	10, Sc	oft = 15)		
Average Daily	Traffic (Adt):	47,149 vehicle	s				A	utos:	15		
Peak Hour	Percentage:	10%			Mee	dium Truc	:ks (2 A	xles):	15		
Peak H	lour Volume:	4,715 vehicles	\$		Hea	avy Truck	s (3+ A	xles):	15		
Ve	hicle Speed:	55 mph		V	/ehicle I	Mix					
Near/Far La	ne Distance:	154 feet		-	Vehi	icleType	1	Day	Evening	Night	Daily
Site Data						AL	itos: 6	6.3%	13.5%	20.3%	93.40%
Bai	rrier Height	0.0 feet			Me	edium Tru	cks: 7	7.0%	5.3%	17.6%	4.70%
Barrier Type (0-W	all. 1-Berm):	0.0			F	leavy Tru	cks: 8	86.3%	1.5%	12.2%	1.90%
Centerline Dis	st. to Barrier:	84.0 feet			1-1 0-			1	4)		
Centerline Dist.	to Observer:	84.0 feet		N	voise so	ource Ele	vations		eet)		
Barrier Distance	to Observer:	0.0 feet			14 K	Autos:	0.0	00			
Observer Height (Above Pad):	5.0 feet			Meaiur	n Trucks:	2.2	97	Grada Ad	iustmont	
Pa	ad Elevation:	0.0 feet			neav	y mucks.	0.0	04	Orade Au	usunoni	. 0.0
Roa	ad Elevation:	0.0 feet		L	ane Equ	uivalent l	Distanc	e (in :	feet)		
1	Road Grade:	0.0%				Autos:	33.9	41			
	Left View:	-90.0 degree	s		Mediur	n Trucks:	33.6	79			
	Right View:	90.0 degree	s		Heav	y Trucks:	33.7	05			
FHWA Noise Mode	el Calculation	S									
VehicleType	REMEL	Traffic Flow	Distar	ice	Finite	Road	Fresne	el 🛛	Barrier Att	en Ber	m Atten
Autos:	71.78	3.73		2.42	2	-1.20	-	4.75	0.0	000	0.000
Medium Trucks:	82.40	-9.25		2.47		-1.20	-	4.88	0.0	000	0.000
Heavy Trucks:	86.40	-13.19		2.47	,	-1.20	-	5.21	0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier a	attenu	uation)						
VehicleType	Leq Peak Hou	r Leq Day	Le	eq Ev	ening	Leq N	ight		Ldn	CI	NEL
Autos:	76	.7	74.2		73.3		70.3		77.4	1	77.9
Medium Trucks:	74	.4	72.5		66.9		67.3		74.7	7	74.9
Heavy Trucks:	74	.5	73.0		61.5		65.8		73.9	9	74.0
Vehicle Noise:	80	.1	78.1		74.4		73.0		80.4	1	80.7
				-						-	
Centerline Distance	ce to Noise Co	ontour (in feet,									
Centerline Distant	ce to Noise Co	ontour (in feet,		70 d	BA	65 di	BA	e	60 dBA	55	dBA
Centerline Distant	ce to Noise Co	ontour (in feet,	Ldn:	70 d	IBA 5	65 di 894	BA I	e	60 dBA 1,926	55 4,	dBA 149

Thursday, May 02, 2019

	EH/					EDICT		DEI			
	FR	WA-RD-77-1061			NUISE PI	EDICI		JUEL			
Scenar	io: HY Withou	t Project				Project	Name:	MCH			
Road Nan	ne: Euclid Av.					Job N	umber:	10351			
Road Segme	nt: s/o Merrill A	ΑV.									
SITE	SPECIFIC IN	IPUT DATA				N	IOISE	MODE	L INPUT	S	
Highway Data					Site Con	ditions	(Hard :	= 10, Se	oft = 15)		
Average Daily	Traffic (Adt):	49,987 vehicle	5					Autos:	15		
Peak Hour	Percentage:	10%			Me	dium Tru	ucks (2	Axles):	15		
Peak H	our Volume:	4,999 vehicles			He	avy Truc	cks (3+	Axles):	15		
Ve	hicle Speed:	55 mph		F	Vehicle	Mix					
Near/Far La	ne Distance:	154 feet		F	Veh	icleTvpe		Dav	Evenina	Night	Dailv
Site Data				-			Autos:	66.3%	13.5%	20.3%	93.40%
Ba	rrior Hoight	0.0 feet			M	edium Ti	rucks:	77.0%	5.3%	17.6%	4.70%
Barrier Type (0-14	/all_1_Borm):	0.0 1001			ŀ	leavy Tr	rucks:	86.3%	1.5%	12.2%	1.90%
Centerline Di	ist to Barrier	84.0 feet		F		,					
Centerline Dist.	to Observer:	84.0 feet		4	Noise So	ource El	evatio	ns (in f	eet)		
Barrier Distance	to Observer:	0.0 feet				Autos	s: 0	.000			
Observer Height	(Above Pad);	5.0 feet			Mediu	n Truck	s: 2	.297	0		
P	ad Elevation:	0.0 feet			Heav	y Truck	s: 8	.004	Grade Ad	justmen	0.0
Ro	ad Elevation:	0.0 feet			Lane Eq	uivalent	t Distai	nce (in	feet)		
	Road Grade:	0.0%		Γ		Autos	s: 33	.941			
	Left View:	-90.0 degree	6		Mediu	n Truck	s: 33	.679			
	Right View:	90.0 degree	5		Heav	y Trucks	s: 33	.705			
FHWA Noise Mod	el Calculation	S Troffic Flow	Diata		Finito	Dood	From	nol	Barriar All	ion Bo	rm Atton
Venicie rype	REIVIEL 71.79	Trainic Flow	Dista	2 4	rinite	1.20	ries	11EI 4 75	Darrier Au	000	0.000
Medium Trucks:	82.40	-9.00		2.4	7	-1.20		-4.75	0.0	000	0.000
Heavy Trucks:	86.40	-12.00		2.4	7	-1.20		-5.21	0.0	000	0.000
neavy nucks.	00.40	-12.55		2.4	,	-1.20		-0.21	0.1	000	0.000
Unmitigated Nois	e Levels (with	out Topo and L	arrier	atten	nuation)			-			
VehicleType	Leq Peak Hou	ir Leq Day	L	.eq E	vening	Leq	Night		Ldn	C	NEL
Autos:	17	.0 7	4.4		73.5		70	5	77.	7	78.1
Medium Trucks:	74	.7 7	2.7		67.1		67	6	75.0	0	75.2
Heavy Trucks:	/4	./ /	3.3		61.7		66	1	74.	1	74.2
Vehicle Noise:	80	.4 7	8.3		74.6		73	2	80.	7	80.9
Centerline Distan	ce to Noise C	ontour (in feet)									
				70 0	dBA	65	dBA	(60 dBA	55	i dBA
		L	dn:	43	31	92	29		2,003	4	,314
		CN	EL:	45	51	9	71		2,092	4	,507

	FH\	VA-RD-77-108 H	IGHWA	NOISE P	REDICTIO	N MODEL			
Scenar	io: HY Withou	t Project			Project Na	ame: MCH			
Road Nam Road Segme	e: Euclid Av. nt: n/o Kimball	Av.			JOD INUN	iber: 10351	l		
SITE	SPECIFIC IN	IPUT DATA			NO	ISE MODE	EL INPUT	s	
Highway Data				Site Cor	nditions (H	ard = 10, S	oft = 15)		
Average Daily	Traffic (Adt):	49,377 vehicles	5			Autos	: 15		
Peak Hour	Percentage:	10%		Me	dium Truck	(2 Axles)	: 15		
Peak H	lour Volume:	4,938 vehicles		He	avy Trucks	(3+ Axles)	: 15		
Ve	hicle Speed:	55 mph		Vehicle	Mix				-
Near/Far La	ne Distance:	154 feet		Veh	icleTvpe	Dav	Evenina	Niaht	Dailv
Site Data					Aut	os: 66.3%	6 13.5%	20.3%	93.40%
Pa	rrior Hoight:	0.0 foot		М	edium Truc	ks: 77.0%	6 5.3%	17.6%	4.70%
Barrier Type (0-W	all, 1-Berm):	0.0			Heavy Truc	ks: 86.3%	6 1.5%	12.2%	1.90%
Centerline Dis	st. to Barrier:	84.0 feet		Noise S	ource Elev	ations (in i	feet)		
Centerline Dist.	to Observer:	84.0 feet			Autos:	0.000			-
Barrier Distance	to Observer:	0.0 feet		Mediu	m Trucks:	2.297			
Observer Height (bserver Height (Above Pad): 5.0 feet				/v Trucks:	8.004	Grade Ad	ljustment	t: 0.0
Pa	ad Elevation:	0.0 feet						,	
Roa	ad Elevation:	0.0 feet		Lane Eq	uivalent D	istance (in	feet)		
	Road Grade:	0.0%			Autos:	33.941			
	Left View:	-90.0 degrees	5	Mediu	m Trucks:	33.679			
	Right View:	90.0 degrees	6	Heavy Trucks: 33.705					
FHWA Noise Mod	el Calculation	s		1					-
VehicleType	REMEL	Traffic Flow	Distance	e Finite	Road	Fresnel	Barrier At	ten Be	rm Atten
Autos:	71.78	3.93	2	.42	-1.20	-4.75	0.0	000	0.000
Medium Trucks:	82.40	-9.05	2	.47	-1.20	-4.88	0.0	000	0.000
Heavy Trucks:	86.40	-12.99	2	.47	-1.20	-5.21	0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and b	arrier att	enuation)					
VehicleType	Leq Peak Hou	ır Leq Day	Leq	Evening	Leq Nig	ght	Ldn	С	NEL
Autos:	76	.9 7	4.4	73.5		70.5	77.	6	78.1
Medium Trucks:	74	.6 7	2.7	67.1		67.5	74.	9	75.1
Heavy Trucks:	74	.7 7	3.2	61.7		66.0	74.	1	74.2
Vehicle Noise:	80	.3 7	8.3	74.6		73.2	80.	6	80.9
Centerline Distant	ce to Noise Co	ontour (in feet)						1	
			7	0 dBA	65 dB	A	60 dBA	55	dBA
		L	dn:	428 922 1,986 4,			,279		
		CN	EL:	447 963 2,075 4,470					

	FH\	VA-RD-77-108	HIGHW	AY NC	DISE P	REDICT	ION MO	DEL			
Scenar Road Nam Road Segme	io: HY Withou ne: Euclid Av. nt: n/o Bickmo	t Project re Av.				Project Job N	Name: I lumber:	MCH 10351			
SITE	SPECIFIC IN	IPUT DATA				N	IOISE N	/IODE	L INPUT	S	
Highway Data				S	ite Cor	nditions	(Hard =	10, S	oft = 15)		
Average Daily	Traffic (Adt):	36,945 vehicl	es					Autos:	15		
Peak Hour	Percentage:	10%			Me	edium Tr	ucks (2 A	xles):	15		
Peak H	lour Volume:	3,695 vehicle	s		He	avy Tru	cks (3+ A	(xles)	15		
Ve	hicle Speed:	55 mph		V	ehicle	Mix					
Near/Far La	ne Distance:	154 feet		Ē	Veh	nicleTvpe		Dav	Evening	Niah	t Dailv
Site Data							Autos:	66.3%	5 13.5%	20.3	% 93.40%
Ba	rrier Heiaht:	0.0 feet			М	edium T	rucks:	77.0%	5.3%	17.6	% 4.70%
Barrier Type (0-W	/all, 1-Berm):	0.0				Heavy T	rucks:	86.3%	1.5%	12.2	% 1.90%
Centerline Di	st. to Barrier:	84.0 feet		N	oise S	ource E	levation	s (in f	eet)		
Centerline Dist.	to Observer:	84.0 feet				Auto	s: 0.0	000	,		
Barrier Distance	to Observer:	0.0 feet			Mediu	m Truck	s: 2.2	297			
Observer Height ((Above Pad):	5.0 feet			Hear	vy Truck	s: 8.0	004	Grade Adj	iustme	ent: 0.0
Pa	ad Elevation:	0.0 feet					Distant		6		
Roa	ad Elevation:	0.0 feet		La	ane Eq	uivaien	t Distant	ce (In	teet)		
	Road Grade:	0.0%			1 da - 10 -	Auto	s: 33.9	941			
	Left View:	-90.0 degre	es		Mediu	m Truck	S: 33.0	579			
	Right view.	90.0 degre	es		nea	ly muck	3. 33.	105			
FHWA Noise Mod	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Distar	се	Finite	Road	Fresn	el	Barrier Atte	en E	Berm Atten
Autos:	71.78	2.67		2.42		-1.20		-4.75	0.0	00	0.000
Medium Trucks:	82.40	-10.31		2.47		-1.20		-4.88	0.0	00	0.000
Heavy Trucks:	86.40	-14.25		2.47		-1.20		-5.21	0.0	00	0.000
Unmitigated Nois	e Levels (with	out Topo and	barrier a	attenu	ation)			1		1	
Vehicle I ype	Leq Peak Hou	Ir Leq Day	/ Le	eq Eve	ening	Leq	Night		Ldn		CNEL
Autos:	/5	./	73.1		72.2		69.2		76.4		76.8
Medium Trucks:	73	.4	71.4		00.8		64.7		73.7		73.9
Vehicle Noise:	73	.4	72.0		73.3		71.9		72.8	5	72.9
Centerline Distan	ce to Noise Co	ontour (in fee)								
			Ĺ	70 dE	BA	65	dBA		60 dBA		55 dBA
			Ldn:	353	3	7	60		1,637		3,527
	CNEL:			368	368 794 1,710 3,684					3,684	

Scenar	io: HY Without	Project				Project N	ame: N	ICH			
Road Nam	e: Archibald A	N.				Job Nur	nber: 1	0351			
Road Segme	nt: n/o Limonit	e Av.									
SITE	SPECIFIC IN	IPUT DATA				NC	ISE M	ODE		s	
Highway Data				S	Site Con	ditions (H	lard = '	10, So	oft = 15)		
Average Daily	Traffic (Adt):	46,489 vehicles	6				A	utos:	15		
Peak Hour	Percentage:	10%			Med	lium Truc	ks (2 A	xles):	15		
Peak H	lour Volume:	4,649 vehicles			Hea	avy Truck	s (3+ A	xles):	15		
Ve	hicle Speed:	55 mph		v	/ehicle N	lix					
Near/Far La	ne Distance:	154 feet			Vehi	cleType	1	Day	Evening	Night	Daily
Site Data						Au	tos: 6	6.3%	13.5%	20.3%	93.40%
Bai	rrier Height	0.0 feet			Me	dium Tru	cks: 7	7.0%	5.3%	17.6%	4.70%
Barrier Type (0-W	(all. 1-Berm):	0.0			H	leavy Tru	cks: 8	86.3%	1.5%	12.2%	1.90%
Centerline Di	st. to Barrier:	84.0 feet			laine Ca	uree Ele	otions	(in f	0.041		
Centerline Dist.	to Observer:	84.0 feet		-	voise 30	Autor	auons	(111 10	eel)		
Barrier Distance	to Observer:	0.0 feet			Madium	Autos:	0.0	00			
Observer Height (Above Pad):	5.0 feet			Hear	Trucks.	2.2	97 04	Grada Ad	iustmont	0.0
Pa	ad Elevation:	0.0 feet			neav	/ HUCKS.	0.0	04	Grade Adj	usunoni	0.0
Roa	ad Elevation:	0.0 feet		L	ane Equ	ivalent L	Distanc	e (in	feet)		
1	Road Grade:	0.0%				Autos:	33.9	41			
	Left View:	-90.0 degrees	6		Mediun	n Trucks:	33.6	79			
	Right View:	90.0 degrees	6		Heav	/ Trucks:	33.7	05			
FHWA Noise Mod	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Distan	ice	Finito		Eroco	N.			m Atton
					1 miles	Road	1163116	71	Barrier Att	en Ber	III MUCH
Autos:	71.78	3.67		2.42	2	Road -1.20		4.75	Barrier Att 0.0	en Ber)00	0.000
Autos: Medium Trucks:	71.78 82.40	3.67 -9.31		2.42 2.47	2	-1.20 -1.20	-	4.75 4.88	Barrier Att 0.0 0.0	en Ber 000 000	0.000
Autos: Medium Trucks: Heavy Trucks:	71.78 82.40 86.40	3.67 -9.31 -13.25		2.42 2.47 2.47	2	-1.20 -1.20 -1.20 -1.20	-	4.75 4.88 5.21	0.0 0.0 0.0	en Ber 000 000 000	0.000 0.000 0.000
Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise	71.78 82.40 86.40 e Levels (with	3.67 -9.31 -13.25 out Topo and b	arrier a	2.42 2.47 2.47	uation)	Road -1.20 -1.20 -1.20	-	4.75 4.88 5.21	0.0 0.0 0.0	en Ber 000 000 000	0.000 0.000 0.000
Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType	71.78 82.40 86.40 e Levels (with Leq Peak Hou	3.67 -9.31 -13.25 out Topo and b r Leq Day	arrier a	2.42 2.47 2.47 tten eq Ev	uation)	Road -1.20 -1.20 -1.20 <i>Leq N</i>	ght	4.75 4.88 5.21	Darrier Att 0.0 0.0 0.0	en Ber 000 000 000 000 Cl	0.000 0.000 0.000 0.000
Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos:	71.78 82.40 86.40 e Levels (with Leq Peak Hou 76	3.67 -9.31 -13.25 out Topo and b r Leq Day .7 7	arrier a	2.42 2.47 2.47 attent eq Ev	uation) rening 73.2	-1.20 -1.20 -1.20 -1.20 <i>Leq N</i>		4.75 4.88 5.21	Barrier Att 0.0 0.0 0.0 Ldn 77.4	en Ber 000 000 000 Cl	0.000 0.000 0.000 0.000 VEL 77.8
Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks:	71.78 82.40 86.40 e Levels (with Leg Peak Hou 76 74	3.67 -9.31 -13.25 out Topo and E rr Leq Day .7 7 .4 7	<i>arrier a</i> <i>Le</i> 4.1 2.4	2.42 2.47 2.47 attenu eq Ev	uation) vening 73.2 66.8	Road -1.20 -1.20 -1.20 <i>Leq N</i>	<i>ight</i> 70.2 67.3	4.75 4.88 5.21	Barner Att 0.0 0.0 0.0 0.0 0.0 77.4 74.7	en Ber 000 000 000 Cl	0.000 0.000 0.000 <u>VEL</u> 77.8
Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks:	71.78 82.40 86.40 e Levels (with Leg Peak Hou 76 74 74	3.67 -9.31 -13.25 out Topo and E ir Leq Day .7 7 .4 7 .4 7 .4 7	<i>arrier a</i> <i>Le</i> 4.1 2.4 3.0	2.42 2.47 2.47 tten eq Ev	uation) rening 73.2 66.8 61.4	Road -1.20 -1.20 -1.20 <i>Leq N</i>	ght 70.2 67.3 65.7	4.75 4.88 5.21	Barrier Att 0.0 0.0 0.0 0.0 0.0 77.2 74.7 73.8	en Ber 000 000 000 C/ 1 7 3	0.000 0.000 0.000 <u>VEL</u> 77.8 74.9 73.9
Autos: Medium Trucks: Heavy Trucks: Unmitigated Noist VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	71.78 82.40 86.40 e Levels (with Leq Peak Hou 76 74 74 74 80	3.67 -9.31 -13.25 out Topo and L r Leq Day .7 7 .4 7 .4 7 .1 7	arrier a Le 4.1 2.4 3.0 8.0	2.42 2.47 2.47 attent eq Ev	uation) rening 73.2 66.8 61.4 74.3	Road -1.20 -1.20 -1.20 <i>Leq Ni</i>	ght 70.2 67.3 65.7 72.9	4.75 4.88 5.21	<i>Earrier Att</i> 0.0 0.0 0.0 0.0 0.0 77.2 74.1 73.8 80.3	en Ber 000 000 000 CI 4 7 3 3	0.000 0.000 0.000 <u>VEL</u> 77.8 74.9 73.9 80.6
Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distance	71.78 82.40 86.40 e Levels (with Leq Peak Hou 76 74 74 80 ce to Noise Co	3.67 -9.31 -13.25 out Topo and L rr Leq Day 7.7 7 4.4 7 1.1 7 ontour (in feet)	<i>arrier a</i> <i>Le</i> 4.1 2.4 3.0 8.0	2.42 2.47 2.47 attenu eq Ev	uation) rening 73.2 66.8 61.4 74.3	Road -1.20 -1.20 -1.20 -1.20	ght 70.2 67.3 65.7 72.9	4.75 4.88 5.21	Barrier Att 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 77.2 74.7 73.8 80.3	en Ber 000 000 000 C/ 4 7 3 3	0.000 0.000 0.000 VEL 77.8 74.9 73.9 80.6
Autos: Medium Trucks: Heavy Trucks: VehicleType Autos: Medium Trucks: Vehicle Noise: Centerline Distance	71.78 82.40 86.40 e Levels (with Leq Peak Hou 76 74 74 80 cce to Noise Co	3.67 -9.31 -13.25 out Topo and E I' Leq Day 7 7 7 4 7 .4 7 .4 7 .1 7 ontour (in feet)	arrier a Le 4.1 2.4 3.0 8.0	2.42 2.47 2.47 attenu eq Ev	vening 73.2 66.8 61.4 74.3	Road -1.20 -1.20 -1.20 -1.20 Leq Ni 65 db	ght 70.2 67.3 65.7 72.9 3A	4.75 4.88 5.21	Barrier Att 0.0 0.0 0.0 0.0 77.2 74.7 73.8 80.3	en Ber 000 000 000 Cl 4 7 3 3 55	0.000 0.000 0.000 VEL 77.8 74.9 73.9 80.6 dBA
Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distance	71.78 82.40 86.40 e Levels (with Leq Peak Hou 76 74 74 74 80 ce to Noise Co	3.67 -9.31 -13.25 out Topo and L rr Leq Day 7 7 4 7 4 7 4 7 .1 7 ontour (in feet)	<i>arrier a</i> <i>Le</i> 4.1 2.4 3.0 8.0 <i>dn:</i>	2.42 2.47 2.47 attenu aq Ev 70 d 41	uation) rening 73.2 66.8 61.4 74.3 IBA 1	Road -1.20 -1.20 -1.20 -1.20 <i>Leq Ni</i> 65 dE	ght 70.2 67.3 65.7 72.9 3A	4.75 4.88 5.21	Barrier Att 0.0 0.0 0.0 777.2 74.1 73.8 80.3 30 dBA 1,908	en Ber 000 000 000 Cl 4 7 3 3 55 4,	0.000 0.000 0.000 VEL 77.8 74.9 73.9 80.6 dBA

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	FHV	VA-RD-77-108 H	IGH\	NAY I	NOISE PI	REDICT	ION MO	DDEL				
Scenar Road Nam Road Segme	io: HY Without ne: Archibald A nt: s/o Limonite	t Project .v. e Av.				Project Job N	Name: lumber:	MCH 10351				
SITE	SPECIFIC IN	IPUT DATA				Ν	IOISE	MODE	l inp	UTS		
Highway Data					Site Cor	ditions	(Hard :	= 10, So	oft = 15	5)		
Average Daily	Traffic (Adt):	36,298 vehicles						Autos:	15			
Peak Hour	Percentage:	10%			Me	dium Tr	ucks (2	Axles):	15			
Peak H	lour Volume:	3,630 vehicles			He	avy Tru	cks (3+	Axles):	15			
Ve	hicle Speed:	45 mph		-	Vehicle	Mix						
Near/Far La	ne Distance:	78 feet			Veh	icleTvpe	9	Dav	Eveni	na N	liaht	Dailv
Site Data							Autos:	66.3%	13.5	5% 2	20.3%	93.40%
Pa	rrior Hoight:	0.0 foot			М	edium T	rucks:	77.0%	5.3	3% ·	7.6%	4.70%
Barrier Type (0-W	/all. 1-Berm):	0.0				Heavy T	rucks:	86.3%	1.5	5% ·	2.2%	1.90%
Centerline Di	st. to Barrier:	76.0 feet		-	Noine C	nuraa E	lovatio	no (in fi	0.041			
Centerline Dist.	to Observer:	76.0 feet		-	NUISE 3	Auto	ievauo.	000	eel)			
Barrier Distance	to Observer:	0.0 feet			Madiu	AUIO Truck	s. u	207				
Observer Height ((Above Pad):	5.0 feet			Hoo	n Truck	S. 2	.297	Grade	Adius	tmont	. 0 0
Pa	ad Elevation:	0.0 feet			near	y muck	a. u	.004	Orado	Aujus	unone	0.0
Roa	ad Elevation:	0.0 feet			Lane Eq	uivalen	t Distaı	nce (in i	feet)			
	Road Grade:	0.0%				Auto	s: 65	.422				
	Left View:	-90.0 degrees			Mediu	m Truck	s: 65	.286				
	Right View:	90.0 degrees			Heav	ry Truck	's: 65	.299				
FHWA Noise Mod	el Calculation	s		- 1								
VehicleType	REMEL	Traffic Flow	Dist	ance	Finite	Road	Fres	nel	Barrier	[,] Atten	Ber	m Atten
Autos:	68.46	3.46		-1.8	5	-1.20		-4.73		0.000)	0.000
Medium Trucks:	79.45	-9.52		-1.8	4	-1.20		-4.88		0.000)	0.000
Heavy Trucks:	84.25	-13.45		-1.8	4	-1.20		-5.25		0.000)	0.000
Unmitigated Noise	e Levels (with	out Topo and b	arrie	r atter	nuation)							
VehicleType	Leq Peak Hou	ır Leq Day		Leq E	vening	Leq	Night		Ldn		C	NEL
Autos:	68	.9 6	6.3		65.4		62	4		69.6		70.0
Medium Trucks:	66	.9 6	5.0		59.4		59	8		67.2		67.4
Heavy Trucks:	67	.8 61	6.3		54.7		59	1		67.2		67.2
Vehicle Noise:	72	.7 7).7		66.7		65	4		72.9		73.
Centerline Distan	ce to Noise Co	ontour (in feet)										
				70	dBA	65	dBA	6	60 dBA		55	dBA
		L	dn:	1	19	2	56		552		1,	189
		CN	L:	1	24	2	67		575		1,	239

	FH\	NA-RD-77-108	HIGHW	AY NO	DISE PF	REDICTI	ON MC	DDEL				
Scenar Road Nan Road Segme	io: HY Withou ne: Archibald A nt: s/o Schleis	t Project w. man Rd.				Project I Job Nu	Name: Imber:	MCH 10351				
SITE	SPECIFIC IN	IPUT DATA				N	OISE	MODE	L INP	UTS		
Highway Data				s	ite Con	ditions (Hard =	= 10, S	oft = 15	5)		
Average Dailv	Traffic (Adt):	27.702 vehicle	s					Autos:	15	-		
Peak Hour	Percentage:	10%			Me	dium Tru	cks (2	Axles).	15			
Peak H	lour Volume:	2,770 vehicles			He	avy Truc	ks (3+	Axles).	15			
Ve	hicle Speed:	45 mph		V	ahiala l	Wix						
Near/Far La	ne Distance:	78 feet		V	Veh	icleType	1	Dav	Eveni	ina N	liaht	Daily
Site Data				_	VCIII	A	utos:	66.3%	13.5	5% 2	20.3%	93.40%
one butu		0.0.4			Me	adium Tr	ucks:	77.0%	5.3	3% 1	7.6%	4.70%
Barriar Turna (0.14	rrier Height:	0.0 feet			F	leavy Tri	ucks:	86.3%	5 0.0	5% 1	2.2%	1.90%
Contorlino Di	all, 1-Dellil).	0.0 76.0 foot										
Centerline Dist	to Observer:	76.0 feet		N	oise So	ource Ele	evatio	ns (in f	eet)			
Barrier Distance	to Observer:	0.0 feet				Autos	: 0	.000				
Observer Height	bserver Height (Above Pad): 5.0 feet					m Trucks	: 2	.297	<u> </u>			
P	Pad Elevation: 0.0 feet					y Trucks	: 8	.004	Grade	Adjusi	tment:	0.0
Ro	ad Elevation:	0.0 feet		L	ane Eq	uivalent	Distar	nce (in	feet)			
	Road Grade:	0.0%				Autos	: 65	.422				
	Left View:	-90.0 degree	s		Mediur	m Trucks	: 65	.286				
	Right View:	90.0 degree	s		Heav	y Trucks	: 65	.299				
FHWA Noise Mod	el Calculation	s										
VehicleType	REMEL	Traffic Flow	Distar	псе	Finite	Road	Fres	nel	Barrier	Atten	Berr	m Atten
Autos:	68.46	2.29		-1.85		-1.20		-4.73		0.000	i i	0.000
Medium Trucks:	79.45	-10.69		-1.84		-1.20		-4.88		0.000	1	0.000
Heavy Trucks:	84.25	-14.62		-1.84		-1.20		-5.25		0.000)	0.000
Unmitigated Nois	e Levels (with	out Topo and I	barrier a	attenu	ation)							
VehicleType	Leq Peak Hou	ır Leq Day	L	eq Ev	ening	Leq I	Vight		Ldn		CI	VEL
Autos:	67	.7 6	65.1		64.2		61.	2		68.4		68.8
Medium Trucks:	65	.7 6	3.8		58.2		58.	6		66.0		66.2
Heavy Trucks: 66.6 65.2					53.6 57.9 66.0				66.1			
Vehicle Noise:	71	.5 6	39.5		65.5		64.	3		71.7		72.0
Centerline Distan	ce to Noise C	ontour (in feet)		70 -		65 -	ID A		60 dB 4		57	dD A
			day	70 di	BA	65 0	IBA A	1 1	AG1		55	aBA 02
			_un: IEI ·	99 214 461 5 103 223 490 4			9	90 125				
		Ch	ILL.	103	103 223 480 1,035						555	

Thursday, May 02, 2019

	FHV	VA-RD-77-108	HIGHWA	Y NOISE	PREDICTIO	ON MODEL	-			
Scenar Road Nam Road Segme	io: HY Without ne: Kimball Av. nt: w/o Mounta	i Project iin Av.			Project I Job Nu	Name: MCI Imber: 103	H 51			
SITE	SPECIFIC IN	IPUT DATA			N	OISE MOI	DEL INPUT	s		
Highway Data				Site Co	onditions (Hard = 10,	Soft = 15)			
Average Daily	Traffic (Adt):	22,744 vehicle	es			Auto	os: 15			
Peak Hour	Percentage:	10%		N	ledium Tru	cks (2 Axle	s): 15			
Peak H	lour Volume:	2,274 vehicles	S	E	leavy Truci	ks (3+ Axle	s): 15			
Ve	hicle Speed:	50 mph		Vehicle	Mix					
Near/Far La	ne Distance:	36 feet		Ve	hicleType	Dav	/ Evenina	Night Dailv		
Site Data					A	utos: 66.	3% 13.5%	20.3% 93.40%		
Ba	rrier Height:	0.0 feet		1	Medium Tru	ucks: 77.	0% 5.3%	17.6% 4.70%		
Barrier Type (0-W	/all, 1-Berm):	0.0			Heavy Tru	ucks: 86.	3% 1.5%	12.2% 1.90%		
Centerline Di	st. to Barrier:	44.0 feet		Noise	Source Ele	evations (ii	n feet)			
Centerline Dist.	to Observer:	44.0 feet			Autos	: 0.000	,			
Barrier Distance	to Observer:	0.0 feet		Medi	um Trucks	: 2.297				
Observer Height ('Above Pad):	5.0 feet		Hea	avy Trucks	: 8.004	Grade Adj	iustment: 0.0		
Pa	ad Elevation:	0.0 feet		1		Distance	les de e 4)			
Roa	ad Elevation:	0.0 feet		Autos: 40.460						
	Road Grade:	0.0%		14-1	Autos	: 40.460				
	Left View:	-90.0 degree	es	Mean	um Trucks	: 40.241				
	Right view:	90.0 degree	es	пе	avy mucks	. 40.262				
FHWA Noise Mod	el Calculation	s								
VehicleType	REMEL	Traffic Flow	Distand	e Finit	e Road	Fresnel	Barrier Atte	en Berm Atten		
Autos:	70.20	0.98		1.28	-1.20	-4.6	61 0.0	0.00		
Medium Trucks:	81.00	-12.01		1.31	-1.20	-4.8	37 0.0	0.00		
Heavy Trucks:	85.38	-15.94		1.31	-1.20	-5.5	50 0.0	000 0.00		
Unmitigated Nois	e Levels (with	out Topo and	barrier at	tenuation)			-		
Vehicle I ype	Leq Peak Hou	Ir Leq Day	Le	q Evening	Leq N	light	Ldn	CNEL		
Autos:	/1	.3	68.7	67.	8	64.8	72.0) 72.		
Medium Trucks:	69	.1	07.Z	01. EC	6 E	62.0	69.4	69.		
Vehicle Noise:	74	.5	72.8	50. 69.	0	67.7	75.1	75.		
Centerline Distant	ce to Noise Co	ontour (in feet)			-				
			L	70 dBA	65 d	IBA	60 dBA	55 dBA		
			Ldn:	96	20	7	447	963		
		CI	VEL:	100	21	6	466	1,005		

Scenar	io: HY Withou	Project				Project N	ame: N	ICH			
Road Nam	e: Kimball Av.					Job Nur	nber: 1	0351			
Road Segme	nt: w/o Euclid	Av.									
SITE	SPECIFIC IN	IPUT DATA				NC	ISE M	ODE		S	
Highway Data					Site Con	ditions (H	lard = '	10, S	oft = 15)		
Average Daily	Traffic (Adt):	29,863 vehicle	s				A	utos:	15		
Peak Hour	Percentage:	10%			Me	dium Truc	ks (2 A	xles):	15		
Peak H	lour Volume:	2,986 vehicles			Hea	avy Truck	s (3+ A	xles):	15		
Ve	hicle Speed:	50 mph			Vehicle I	<i>lix</i>					
Near/Far La	ne Distance:	36 feet			Vehi	cleType	l	Day	Evening	Night	Daily
Site Data						Au	tos: 6	6.3%	13.5%	20.3%	93.40%
Bai	rrier Heiaht:	0.0 feet			Me	dium Tru	cks: 1	7.0%	5.3%	17.6%	4.70%
Barrier Type (0-W	all, 1-Berm):	0.0			F	leavy Tru	cks: 8	86.3%	1.5%	12.2%	1.90%
Centerline Di	st. to Barrier:	44.0 feet			Noise Sc	urce Elev	ations	(in f	oof)		
Centerline Dist.	to Observer:	44.0 feet		H	10/30 00	Autos	0.0	00			
Barrier Distance	to Observer:	0.0 feet			Modiur	n Trucke	2.2	07			
Observer Height (Above Pad):	5.0 feet			Hoov	Trucks:	8.0	04	Grade Ad	iustment	0.0
Pa	ad Elevation:	0.0 feet			neav	y mucho.	0.0				0.0
Roa	ad Elevation:	0.0 feet		1	Lane Equ	ivalent L	Distanc	e (in	feet)		
1	Road Grade:	0.0%				Autos:	40.4	60			
	Left View:	-90.0 degree	s		Mediur	n Trucks:	40.2	41			
	Right View:	90.0 degree	s		Heav	y Trucks:	40.2	62			
FHWA Noise Mod	el Calculation	s									
FHWA Noise Mod VehicleType	el Calculation REMEL	s Traffic Flow	Distar	nce	Finite	Road	Fresne	e/	Barrier Att	en Ber	m Atten
FHWA Noise Mod VehicleType Autos:	el Calculation REMEL 70.20	s Traffic Flow 2.16	Distai	nce 1.2	Finite 8	Road -1.20	Fresne	el 4.61	Barrier Att 0.0	en Ber	m Atten 0.000
FHWA Noise Mod VehicleType Autos: Medium Trucks:	el Calculation REMEL 70.20 81.00	s Traffic Flow 2.16 -10.82	Distar	nce 1.20	Finite	Road -1.20 -1.20	Fresne	el 4.61 4.87	Barrier Att 0.0 0.0	en Ben 100	<i>m Atten</i> 0.000 0.000
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks:	el Calculation REMEL 70.20 81.00 85.38	s Traffic Flow 2.16 -10.82 -14.76	Distai	nce 1.20 1.3 1.3	<i>Finite</i> 8 1 1	Road -1.20 -1.20 -1.20	Fresne	el 4.61 4.87 5.50	Barrier Att 0.0 0.0 0.0	en Ben 100 100	m Atten 0.000 0.000 0.000
FHWA Noise Mode VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise	el Calculation REMEL 70.20 81.00 85.38 e Levels (with	s Traffic Flow 2.16 -10.82 -14.76 out Topo and I	Distai	nce 1.2 1.3 1.3 atten	Finite 8 1 1 1 uation	Road -1.20 -1.20 -1.20	Fresne - -	el 4.61 4.87 5.50	Barrier Att 0.0 0.0 0.0	en Ber 100 100 100	m Atten 0.000 0.000 0.000
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType	el Calculation REMEL 70.20 81.00 85.38 e Levels (with Leq Peak Hou	s Traffic Flow 2.16 -10.82 -14.76 out Topo and I rr Leq Day	Distai	nce 1.20 1.3 1.3 atten .eq E	Finite 8 1 1 vening	Road -1.20 -1.20 -1.20 <i>Leq N</i>	Fresne - - - -	el 4.61 4.87 5.50	Barrier Att 0.0 0.0 0.0 0.0	en Ben 000 000 000 C/	m Atten 0.000 0.000 0.000
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos:	el Calculation REMEL 70.20 81.00 85.38 e Levels (with Leq Peak Hou 72	s Traffic Flow 2.16 -10.82 -14.76 out Topo and I r Leq Day .4 6	Distar Distar	nce 1.2 1.3 1.3 atten eq E	Finite 8 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Road -1.20 -1.20 -1.20 <i>Leq N</i>	Fresne - - - - - - - - - - - - - - - - - - -	el 4.61 4.87 5.50	Barrier Att 0.0 0.0 0.0 0.0 1.0 Ldn 73.2	en Ben 000 000 000 CI	m Atten 0.000 0.000 0.000 VEL 73.6
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks:	el Calculation REMEL 70.20 81.00 85.38 2 Levels (with Leq Peak Hou 72 70	s Traffic Flow 2.16 -10.82 -14.76 out Topo and I rr Leq Day 4 6 .3 6	Distan	nce 1.2 1.3 1.3 atten eq E	<i>Finite</i> 8 1 1 <i>wation)</i> <i>vening</i> 69.0 62.8	Road -1.20 -1.20 -1.20 Leq N	Fresne 	el 4.61 4.87 5.50	Barrier Att 0.0 0.0 0.0 <u>Ldn</u> 73.2 70.6	en Ben 000 000 000 C/	<u>m Atten</u> 0.000 0.000 0.000 <u>VEL</u> 73.6 70.8
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noiss VehicleType Autos: Medium Trucks: Heavy Trucks:	el Calculation REMEL 70.20 81.00 85.38 el Levels (with Leq Peak Hou 72 70 70 70	s Traffic Flow 2.16 -10.82 -14.76 bout Topo and I rr Leq Day 4 6 .3 6 .7 6	Distar parrier a 9.9 8.4 9.3	nce 1.2 1.3 1.3 atten .eq E	Finite 8 1 1 wening 69.0 62.8 57.7	Road -1.20 -1.20 -1.20 <i>Leq N</i>	Fresne ght 66.0 63.2 62.1	el 4.61 4.87 5.50	Barrier Att 0.0 0.0 0.0 0.0 73.2 70.6 70.7	en Ben 000 000 000 C/	m Atten 0.000 0.000 0.000 VEL 73.6 70.8 70.2
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	el Calculation <u>REMEL</u> 70.20 81.00 85.38 e Levels (with Leq Peak Hou 72 70 70 70 70 70	s Traffic Flow 2.16 -10.82 -14.76 out Topo and I rr Leq Day 4. 6 .3 6 .7 6 .0 7	Distan	nce 1.24 1.3 1.3 atten .eq E	Finite 8 1 wailion) vening 69.0 62.8 57.7 70.2	Road -1.20 -1.20 -1.20 Leq N	Freshe ght 66.0 63.2 62.1 68.8	el 4.61 4.87 5.50	Barrier Att 0.0 0.0 0.0 0.0 73.2 70.6 70.6 76.5	en Ber 1000 100	m Atten 0.000 0.000 0.000 VEL 73.6 70.2 76.6
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Heavy Trucks: Vehicle Noise: Centerline Distance	el Calculation REMEL 70.20 81.00 85.38 e Levels (with Leq Peak Hou 72 70 70 70 70 70 70 70 70 70 70	s Traffic Flow 2.16 -10.82 -14.76 but Topo and I rr Leq Day 4 6 7 6 7 but Control (Infect)	Distai	nce 1.20 1.3 1.3 atten .eq E	Finite 8 1 uuation) vening 69.0 62.8 57.7 70.2	Road -1.20 -1.20 -1.20 <i>Leq N</i>	Freshe ght 66.0 63.2 62.1 68.8	el 4.61 4.87 5.50	Barrier Att 0.0 0.0 0.0 0.0 73.2 70.6 70.7 76.3	en Ber 1000 1000 1000 1000 1000 1000 1000 10	m Atten 0.000 0.000 0.000 VEL 73.6 70.8 70.8 76.6
FHWA Noise Mod VehicleType Autos: Medium Tracks: Heavy Tracks: VehicleType Autos: Medium Tracks: Heavy Tracks: Vehicle Noise: Centerline Distance	el Calculation REMEL 70.20 81.00 85.38 e Levels (with Leg Peak Hou 72 70 70 70 70 76 6ce to Noise Co	s Traffic Flow 2.16 -10.82 -14.76 out Topo and I rr Leq Day 4 -7 6 0 7 ontour (in feet)	Distan	nce 1.2 1.3 1.3 atten eq E	Finite 8 1 wation) vening 69.0 62.8 57.7 70.2	Road -1.20 -1.20 -1.20 <i>Leq N</i>	Freshe ght 66.0 63.2 62.1 68.8 3A	el 4.61 4.87 5.50	Barrier Att 0.0 0.0 0.0 0.0 7 0.0 7 0.6 7 0.6 7 0.6 50 dBA	en Bern 1000 100	m Atten 0.000 0.000 0.000 VEL 73.6 70.8 70.2 76.6
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks: Vehicle Noise Centerline Distance	el Calculation REMEL 70.20 81.00 85.38 e Levels (with Leq Peak Hou 72 70 70 76 ce to Noise Co	s Traffic Flow 2.16 -10.82 -14.76 out Topo and J rr Leq Day 4 6 3 6 7 6 0 0 7 0 0 0 7 0 0 0 0 7 0 0 0 0 7 0 0 0 0	Distan	nce 1.21 1.3 1.3 atten eq E	Finite 8 1 wening 69.0 62.8 57.7 70.2 dBA 15	Road -1.20 -1.20 -1.20 Leq N 65 dE	Freshe ght 66.0 63.2 62.1 68.8 3A	el 4.61 4.87 5.50	Barrier Att 0.0 0.0 0.0 0.0 0.0 0.0 7 0.0 7 0.0 7 0.0 7 0.0 7 0.0 7 0.0 7 0.0 7 0.0 0 0 0	en Bern 1000 100	m Atten 0.000 0.000 0.000 VEL 73.6 70.8 70.2 76.6 dBA

Thursday, May 02, 2019

	FHV	/A-RD-77-108 HI	GHWAY	' NOISE P	REDICTIO	on Mo	DEL				
Scenar Road Nam Road Segme	io: HY Without ne: Kimball Av. nt: e/o Euclid A	Project			Project I Job Nu	lame: mber:	MCH 10351				
SITE	SPECIFIC IN	PUT DATA			N	DISE N	NODE	L INPU	rs		
Highway Data				Site Cor	nditions (Hard =	10, Sc	oft = 15)			
Average Daily	Traffic (Adt):	24,348 vehicles					Autos:	15			
Peak Hour	Percentage:	10%		Me	edium True	cks (2 /	Axles):	15			
Peak H	lour Volume:	2,435 vehicles		He	avy Truck	ks (3+7	Axles):	15			
Ve	hicle Speed:	50 mph		Vehicle	Mix						
Near/Far La	ne Distance:	51 feet		Veh	icleType	1	Dav	Evenino	Nio	tht	Dailv
Site Data					A	itos:	66.3%	13.5%	20	3%	93.40%
Ba	rrier Height	0.0 feet		М	edium Tru	icks:	77.0%	5.3%	17	.6%	4.70%
Parrier Type (0.14	(all 1 Borm):	0.0 1001			Heavv Tru	icks:	86.3%	1.5%	12	.2%	1.90%
Centerline Di	st to Barrier	49.0 feet			·						
Centerline Dist.	to Observer:	49.0 feet		Noise S	ource Ele	vation	s (in fe	eet)			
Barrier Distance	to Observer:	0.0 feet			Autos:	0.	000				
Observer Height ((Above Pad):	5.0 feet		Mediu	m Trucks.	2.	297				
Pi	ad Elevation:	0.0 feet		Hear	vy Trucks:	8.	004	Grade A	ajustn	ient:	0.0
Roa	ad Elevation:	0.0 feet		Lane Eq	uivalent	Distan	ce (in f	feet)		-	
	Road Grade:	0.0%			Autos:	42.	140			-	
	Left View:	-90.0 degrees		Mediu	m Trucks.	41.	929				
	Right View:	90.0 degrees		Hear	vy Trucks:	41.	950				
FHWA Noise Mod	el Calculation:	S		1							
VehicleType	REMEL	Traffic Flow	Distance	e Finite	Road	Fresr	nel	Barrier A	tten	Berr	n Atten
Autos:	70.20	1.27	1	.01	-1.20		-4.64	0	.000		0.000
Medium Trucks:	81.00	-11.71	1	.04	-1.20		-4.87	0	.000		0.000
Heavy Trucks:	85.38	-15.64	1	.04	-1.20		-5.44	0	.000		0.000
Unmitigated Nois	e Levels (with	out Topo and ba	rrier att	enuation)							
VehicleType	Leq Peak Hou	r Leq Day	Leq	Evening	Leq N	light		Ldn		C٨	IEL
Autos:	71.	.3 68	.7	67.8		64.8	3	72	.0		72.4
Medium Trucks:	69.	.1 67	.2	61.6		62.0)	69	.5		69.0
Heavy Trucks:	69.	6 68	.1	56.6		60.9)	69	.0		69.
Vehicle Noise:	74	.9 72	.8	69.0		67.7	7	75	.1		75.4
Centerline Distant	ce to Noise Co	ontour (in feet)									
			7	0 dBA	65 d	BA	6	0 dBA		55 0	dBA
		Ld	n:	108	23	2		500		1,0)77
		CNE	L:	112	24	2		522		1,1	24

	FH\	VA-RD-77-108 I	HIGHWA	Y NOISE P	REDICTIC	ON MODE	L			
Scenar Road Nam Road Segmei	io: HY Withou e: Kimball Av. nt: w/o Rincon	Project Meadows Av.			Project N Job Nui	lame: MC mber: 103	H 151			
SITE	SPECIFIC IN	PUT DATA			NC	DISE MO	DEL INPU	TS		
Highway Data				Site Cor	nditions (H	Hard = 10,	Soft = 15)			
Average Daily Peak Hour Peak H	Traffic (Adt): Percentage: lour Volume:	22,356 vehicles 10% 2,236 vehicles	6	Me He	edium Truc eavy Truck	Aut cks (2 Axle cs (3+ Axle	os: 15 es): 15 es): 15			
Ve Noor/For Lo	nicie Speea:	50 mpn		Vehicle	Mix					
Near/Far La	ne Distance:	51 Teet		Veh	nicleType	Da	y Evening	j Nig	<i>yht</i>	Daily
Site Data Bai	rrier Height:	0.0 feet		м	Aı. Iedium Tru	Itos: 66. cks: 77.	3% 13.5% 0% 5.3%	5 20 6 17	.3% 9 .6%	3.40% 4.70%
Barrier Type (0-W	/all, 1-Berm):	0.0			Heavy Iru	CKS: 86.	3% 1.5%	» 12	.2%	1.90%
Centerline Dis	st. to Barrier:	49.0 feet		Noise S	ource Ele	vations (i	n feet)			
Centerline Dist. Barrier Distance Observer Height (to Observer: to Observer: (Above Pad):	49.0 feet 0.0 feet 5.0 feet		Mediu Hea	Autos: m Trucks: vy Trucks:	0.000 2.297 8.004	Grade A	ldjustri	nent: (0.0
Ro	ad Elevation:	0.0 feet		Lane Eq	uivalent I	Distance ((in feet)			
	Road Grade: Left View: Right View:	0.0% -90.0 degree: 90.0 degree:	5	Mediu Hea	Autos: m Trucks: vy Trucks:	42.140 41.929 41.950				
FHWA Noise Mode	el Calculation	s								
VehicleType	REMEL	Traffic Flow	Distanc	e Finite	Road	Fresnel	Barrier A	tten	Berm	Atten
Autos:	70.20	0.90		1.01	-1.20	-4.	64 0	0.000		0.000
Medium Trucks: Heavy Trucks:	81.00 85.38	-12.08 -16.01		1.04 1.04	-1.20 -1.20	-4. -5.	87 (44 ().000).000		0.000 0.000
Unmitigated Noise	e Levels (with	out Topo and b	arrier at	tenuation)						
VehicleType	Leq Peak Hou	r Leq Day	Leo	q Evening	Leq N	light	Ldn		CNE	EL
Autos:	70	.9 6	8.3	67.4		64.4	71	.6		72.1
Medium Trucks:	68	.8 6	6.8	61.2		61.7	69).1		69.3
Heavy Trucks:	69	.2 6	7.8	56.2		60.5	68	.6		68.7
Vehicle Noise:	74	.5 7	2.5	68.6		67.3	74	.8		75.0
Centerline Distant	ce to Noise Co	ontour (in feet)								
	-		7	70 dBA	65 dl	BA	60 dBA		55 dl	BA
		L	dn:	102 219 472 1,018				8		
		CN	EL:	106	229	9	493		1,06	12

Thursday, May 02, 2019

	FH	WA-RD-77-108	HIGHW	AY NO	ISE P	REDICTIC	N MOD	EL			
Scenari Road Name Road Segmen	o: HY Withou e: Kimball Av nt: e/o Rincon	t Project Meadows Av.				Project N Job Nu	lame: M mber: 10	ICH 0351			
SITE S	SPECIFIC IN	NPUT DATA				NC	DISE MO	ODEL	INPUTS	;	
Highway Data				Si	te Cor	nditions (l	Hard = 1	0, Soft	= 15)		
Average Daily	Traffic (Adt):	21,454 vehicl	es				Au	utos:	15		
Peak Hour	Percentage:	10%			Me	dium Truc	ks (2 Ax	des):	15		
Peak He	our Volume:	2,145 vehicle	s		He	avy Truck	's (3+ Ax	des):	15		
Vel	nicle Speed:	50 mph		Ve	hicle	Mix					
Near/Far Lar	ne Distance:	51 feet			Veh	icleType	D	ay E	vening	Night	Daily
Site Data						AL	itos: 6	6.3%	13.5%	20.3%	93.40%
Bar	rier Heiaht:	0.0 feet			М	edium Tru	cks: 7	7.0%	5.3%	17.6%	4.70%
Barrier Type (0-Wa	all, 1-Berm):	0.0			1	Heavy Tru	cks: 8	6.3%	1.5%	12.2%	1.90%
Centerline Dis	t. to Barrier:	49.0 feet		No	oise Se	ource Ele	vations	(in feet	F)		
Centerline Dist. t	o Observer:	49.0 feet				Autos:	0.00	0	/		
Barrier Distance t	o Observer:	0.0 feet			Mediu	m Trucks:	2 29	97			
Observer Height (/	Above Pad):	5.0 feet			Heav	v Trucks:	8.00)4 G	rade Adji	ustment	: 0.0
Pa	d Elevation:	0.0 feet									
Roa	d Elevation:	0.0 feet		Lá	ne Eq	uivalent l	Distance	e (in fee	et)		
F	Road Grade:	0.0%				Autos:	42.14	40			
	Left View:	-90.0 degre	es		Mediu	m Trucks:	41.92	29			
	Right View:	90.0 degre	es		Heav	/y Trucks:	41.95	50			
FHWA Noise Mode	Calculation	IS									
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresne	l Ba	arrier Atte	en Ber	m Atten
Autos:	70.20	0.72		1.01		-1.20	-4	4.64	0.0	00	0.000
Medium Trucks:	81.00	-12.26		1.04		-1.20	-4	4.87	0.0	00	0.000
Heavy Trucks:	85.38	-16.19		1.04		-1.20	-5	5.44	0.0	00	0.000
Unmitigated Noise	Levels (with	out Topo and	barrier	attenu	ation)						
VehicleType	Leq Peak Ho	ur Leq Da	/ L	eq Eve	ning	Leq N	light	L	dn	C	NEL
Autos:	70).7	68.2		67.3		64.3		71.5		71.9
Medium Trucks:	68	3.6	66.7		61.1		61.5		68.9		69.1
Heavy Trucks:	69	9.0	67.6		56.0		60.3		68.4		68.5
Vehicle Noise:	74	1.3	72.3		68.5		67.1		74.6		74.9
Centerline Distance	e to Noise C	ontour (in fee	t)								
				70 dE	BA	65 di	BA	60	dBA	55	dBA
		-	Ldn:	99		213	3	4	60	9	90
		С	NEL:	103		223	3	4	80	1,	033

	FHV	VA-RD-77-108 H	HIGHW/	NY N	OISE PR	REDICTIC	N MOL	EL _			
Scenar	io: HY Without	Project				Project N	lame: N	ICH			
Road Nam	e: Kimball Av.					Job Nu	mber: 1	0351			
Road Segme	nt: e/o Mill Cre	ek Av.									
SITE	SPECIFIC IN	PUT DATA				NC	DISE M	ODE	L INPUT	s	
Highway Data				5	Site Con	ditions (l	lard =	10, Sc	oft = 15)		
Average Daily	Traffic (Adt):	19,521 vehicles	5				A	utos:	15		
Peak Hour	Percentage:	10%			Med	dium Truc	ks (2 A	xles):	15		
Peak H	lour Volume:	1,952 vehicles			Hea	avy Truck	s (3+ A	xles):	15		
Ve	hicle Speed:	50 mph		1	/ehicle I	Mix					
Near/Far La	ne Distance:	51 feet		F	Vehi	cleTvpe	1	Dav	Evenina	Niaht	Dailv
Site Data						AL	itos: 6	6.3%	13.5%	20.3%	93.40%
Po	rrior Hoight:	0.0 foot			Ме	dium Tru	cks: 7	7.0%	5.3%	17.6%	4.70%
Barrier Tyne (0-M	/all 1-Borm)	0.0 1001			h	leavy Tru	cks: 8	86.3%	1.5%	12.2%	1.90%
Centerline Di	st to Barrier:	49.0 feet				-					
Centerline Dist.	to Observer:	49.0 feet		/	Voise So	urce Ele	vations	(in fe	eet)		
Barrier Distance	to Observer:	0.0 feet				Autos:	0.0	00			
Observer Height	Above Pad):	5.0 feet			Mediun	n Trucks:	2.2	97	Our de Ad		
P	ad Elevation:	0.0 feet			Heav	y Trucks:	8.0	04	Grade Adj	ustment.	0.0
Ro	ad Elevation:	0.0 feet		L	ane Equ	uivalent l	Distanc	e (in :	feet)		
	Road Grade:	0.0%				Autos:	42.1	40			
	Left View:	-90.0 degrees	6		Mediun	n Trucks:	41.9	29			
	Right View:	90.0 degrees	6		Heav	y Trucks:	41.9	50			
FHWA Noise Mod	el Calculation:	5		-							
VehicleType	REMEL	Traffic Flow	Distan	се	Finite	Road	Fresne	e/	Barrier Att	en Ber	m Atten
Autos:	70.20	0.31		1.01		-1.20	-	4.64	0.0	000	0.000
Medium Trucks:	81.00	-12.67		1.04	Ļ	-1.20	-	4.87	0.0	000	0.000
											0.000
Heavy Trucks:	85.38	-16.60		1.04	Ļ	-1.20	-	5.44	0.0	000	
Heavy Trucks: Unmitigated Nois	85.38 e Levels (with	-16.60 out Topo and b	arrier a	1.04 tten	uation)	-1.20	-	5.44	0.0	000	
Heavy Trucks: Unmitigated Nois VehicleType	85.38 e Levels (with Leq Peak Hou	-16.60 Dut Topo and b r Leq Day	arrier a	1.04 tten q Ev	u ation) vening	-1.20 Leq N	ight	5.44	0.0	CI	VEL
Heavy Trucks: Unmitigated Noise VehicleType Autos:	85.38 e Levels (with Leq Peak Hou 70.	-16.60 Dut Topo and b r Leq Day .3 6	arrier a Le	1.04 tten q Ev	u ation) vening 66.9	-1.20 Leq N	<i>ight</i> 63.9	5.44	0.0 Ldn 71.0) CI	VEL 71.5
Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks:	85.38 e Levels (with Leq Peak Hou 70. 68	-16.60 but Topo and b r Leq Day .3 6 .2 6	<i>arrier a</i> <i>Le</i> 7.8 6.2	1.04 tten g Ev	uation) vening 66.9 60.6	-1.20 Leq N	<i>ight</i> 63.9 61.1	5.44	0.0 Ldn 71.0 68.5)00 C/) 5	VEL 71.5 68.7
Heavy Trucks: Unmitigated Noiss VehicleType Autos: Medium Trucks: Heavy Trucks:	85.38 e Levels (with Leq Peak Hou 70. 68. 68.	-16.60 but Topo and b r Leq Day 3 6 2 6 6 6	7.8 7.2	1.04 tteni q Ev	uation) vening 66.9 60.6 55.6	-1.20 Leq N	<i>ight</i> 63.9 61.1 59.9	5.44	0.0 Ldn 71.0 68.5 68.0)))))	VEL 71.5 68.7 68.1
Heavy Trucks: Unmitigated Noiss VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	85.38 e Levels (with Leq Peak Hou 70. 68. 68. 73	-16.60 but Topo and b r Leq Day 3 6 2 6 6 6 9 7	<i>arrier a</i> <i>Le</i> 7.8 6.2 7.2 1.9	1.04 tteni q Ev	uation) vening 66.9 60.6 55.6 68.0	-1.20 Leq N	<i>ight</i> 63.9 61.1 59.9 66.7	5.44	0.0 <i>Ldn</i> 71.0 68.5 68.0 74.2	C/ C/ 5 2	VEL 71.5 68.7 68.1 74.4
Heavy Trucks: Unmitigated Noiss VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distant	85.38 e Levels (with Leq Peak Hou 70. 68. 68. 73 ce to Noise Co	-16.60 but Topo and b r Leq Day 3 6 2 6 6 6 9 7 butour (in feet)	7.8 6.2 7.2	1.04 tteni eq Ev	uation) vening 66.9 60.6 55.6 68.0	-1.20 Leq N	<i>ight</i> 63.9 61.1 59.9 66.7	5.44	0.0 Ldn 71.0 68.0 68.0 74.2	CI	NEL 71.5 68.7 68.1 74.4
Heavy Trucks: Unmitigated Noise Vehicle Type Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distance	85.38 e Levels (with Leq Peak Hou 70. 68. 68. 73 73 ce to Noise Co	-16.60 but Topo and b r Leq Day 3 6 2 6 6 6 9 7 butour (in feet)	arrier a Le 7.8 6.2 7.2 1.9	1.04 tteni q Ev	uation) rening 66.9 60.6 55.6 68.0	-1.20 Leq N 65 d	ight 63.9 61.1 59.9 66.7 BA	5.44 6	0.0 Ldn 71.0 68.9 68.0 74.2 60 dBA	CI CI CI CI CI CI CI CI CI CI CI CI CI C	VEL 71.5 68.7 68.1 74.4 dBA
Heavy Trucks: Unmitigated Noiss Vehicle Type Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distance	85.38 e Levels (with Leq Peak Hou 70. 68. 68. 73 Ce to Noise Co	-16.60 Dut Topo and B r Leq Day 3 6 2 6 6 6 9 7 Intour (in feet) L	dn:	1.04 tteni q Ev 70 a 93	uation) rening 66.9 60.6 55.6 68.0 IBA	-1.20 Leq N 65 di 200	- ight 63.9 61.1 59.9 66.7 BA	5.44 	0.0 Ldn 71.0 68.5 68.0 74.2 60 dBA 432	000 C/ 5 0 2 55 9	VEL 71.5 68.7 68.1 74.4 <i>dBA</i> 30

Thursday, May 02, 2019

								0.51	_	_	_	
	FH\	WA-RD-77-108	HIGH	IWAY N	OISE PI	REDICT	ION MC	DEL				
Scenar	io: HY Withou	t Project				Project	Name:	MCH				
Road Nan	ne: Kimball Av					Job N	umber:	10351				
Road Segme	<i>nt:</i> e/o Main S	t.										
SITE	SPECIFIC IN	IPUT DATA				N	IOISE	MODE	EL INP	UTS		
Highway Data				S	Site Con	ditions	(Hard =	= 10, S	oft = 15	5)		
Average Daily	Traffic (Adt):	18,365 vehicl	es					Autos.	: 15			
Peak Hour	Percentage:	10%			Me	dium Tru	ucks (2	Axles)	: 15			
Peak H	our Volume:	1,837 vehicle	s		He	avy Truc	cks (3+	Axles).	: 15			
Ve	hicle Speed:	50 mph		L.	/ohiclo	Mix						
Near/Far La	ne Distance:	51 feet		-	Veh	icleTvpe		Dav	Even	ina N	liaht	Dailv
Site Data							Autos:	66.3%	6 13.	5% 2	20.3%	93.40%
Pa	rrior Hoight	0.0 foot			M	edium Ti	rucks:	77.0%	6 5.3	3% 1	7.6%	4.70%
Barrier Type (0-V	/all 1-Berm):	0.0 1001			ŀ	leavy Tr	rucks:	86.3%	6 1.	5% 1	2.2%	1.90%
Centerline Di	ist. to Barrier:	49.0 feet		-								
Centerline Dist.	to Observer:	49.0 feet		^	loise So	burce El	evatio	15 (IN 1	eet)			
Barrier Distance	to Observer:	0.0 feet				Autos	s: 0	.000				
Observer Height	(Above Pad);	5.0 feet			Mediui	n Truck	s: 2	.297	0			
P	ad Elevation:	0.0 feet			Heav	y Truck	s: 8	.004	Grade	e Adjus	tment.	0.0
Ro	ad Elevation:	0.0 feet		L	.ane Eq	uivalent	t Distar	nce (in	feet)			
	Road Grade:	0.0%				Autos	s: 42	.140				
	Left View:	-90.0 degre	es		Mediu	n Truck	s: 41	.929				
	Right View:	90.0 degre	es		Heav	y Trucks	s: 41	.950				
FHWA Noise Mod	el Calculation	S										
VehicleType	REMEL	Traffic Flow	Dis	tance	Finite	Road	Fres	nel	Barrie	r Atten	Ber	m Atten
Autos:	70.20	0.05		1.01		-1.20		-4.64		0.000		0.000
Medium Trucks:	81.00	-12.93		1.04		-1.20		-4.87		0.000		0.000
Heavy Trucks:	85.38	-16.87		1.04		-1.20		-5.44		0.000		0.000
Unmitigated Nois	e Levels (with	out Topo and	barrie	er atteni	uation)							
VehicleType	Leq Peak Hou	ur Leq Day	/	Leq Ev	rening	Leq	Night		Ldn		CI	VEL
Autos:	70	0.1	67.5		66.6		63.	6		70.8		71.2
Medium Trucks:	67	.9	66.0		60.4		60.	8		68.2		68.4
Heavy Trucks:	68	1.4	66.9		55.3		59.	7		67.8		67.8
Vehicle Noise:	73	1.6	71.6		67.8		66.	5		73.9		74.2
Centerline Distan	ce to Noise C	ontour (in feet)									
				70 d	BA	65	dBA		60 dBA		55	dBA
			Ldn:	89)	19	92		414		8	93
		C	NEL:	93	3	20	01		432		9	31

	FRI	WA-RD-77-108	HIGHW	ATN	JISE PI	REDICTION		DEL			
Scenar	rio: HY Withou	t Project				Project I	Vame:	MCH			
Road Nan	ne: Kimball Av					Job Nu	mber:	10351			
Road Segme	nt: e/o Flight A	w.									
SITE	SPECIFIC IN	IPUT DATA				N	OISE	MODE	L INPUT	s	
Highway Data				S	ite Con	ditions (Hard =	: 10, So	oft = 15)		
Average Daily	Traffic (Adt):	15,529 vehicle	s					Autos:	15		
Peak Hour	Percentage:	10%			Me	dium Tru	cks (2 .	Axles):	15		
Peak H	lour Volume:	1,553 vehicles	5		He	avy Truci	ks (3+ .	Axles):	15		
Ve	hicle Speed:	50 mph		V	ehicle	Mix					
Near/Far La	ne Distance:	51 feet		F	Veh	icleType		Day	Evening	Night	Daily
Site Data						A	utos:	66.3%	13.5%	20.3%	93.40%
Ba	rrier Height	0.0 feet			Me	edium Tru	icks:	77.0%	5.3%	17.6%	4.70%
Barrier Type (0-V	Vall, 1-Berm):	0.0			ŀ	leavy Tru	icks:	86.3%	1.5%	12.2%	1.90%
Centerline Di	ist. to Barrier:	49.0 feet		N	oise So	ource Ele	vatior	s (in f	eet)		
Centerline Dist.	to Observer:	49.0 feet				Autos	. 0	000	,		
Barrier Distance	to Observer:	0.0 feet			Mediu	n Trucks	. 2	297			
Observer Height	(Above Pad):	5.0 feet			Heav	v Trucks	. 8	004	Grade Ad	iustmen	t: 0.0
P	ad Elevation:	0.0 feet				,					
Ro	ad Elevation:	0.0 feet		L	ane Eq	uivalent	Distan	ce (in	feet)		
	Road Grade:	0.0%				Autos	: 42	140			
	Left View:	-90.0 degree	s		Mediu	m Trucks	: 41	929			
	Right View:	90.0 degree	s		Heav	y Trucks	: 41	950			
FHWA Noise Mod	lel Calculation	IS									
VehicleType	REMEL	Traffic Flow	Distar	nce	Finite	Road	Fres	nel	Barrier Att	en Be	rm Atten
Autos:	70.20	-0.68		1.01		-1.20		-4.64	0.0	000	0.000
Medium Trucks:	81.00	-13.66		1.04		-1.20		-4.87	0.0	000	0.000
Heavy Trucks:	85.38	-17.60		1.04		-1.20		-5.44	0.0	000	0.000
Unmitigated Nois	e Levels (with	out Topo and	barrier a	attenu	ation)						
VehicleType	Leq Peak Ho	ur Leq Day	L	eq Eve	ening	Leq N	light		Ldn	C	NEL
Autos:	69	0.3 (56.8		65.9		62.	9	70.0	D	70.5
Medium Trucks:	67	.2 (35.3		59.7		60.	1	67.5	5	67.7
Heavy Trucks:	67	.6 (6.2		54.6		58.	9	67.0)	67.1
Vehicle Noise:	72	2.9	70.9		67.1		65.	7	73.2	2	73.5
Centerline Distan	ce to Noise C	ontour (in feet)									
				70 dl	BA	65 a	BA	6	60 dBA	55	5 dBA
			Ldn:	80 172 370 79			798				
		CN	IEL:	83		17	9		387	1	333

Thursday, May 02, 2019

	FH\	WA-RD-77-108	B HIGHW	AY NC	ISE P	REDICTI	ON MO	DEL				
Scenario Road Name Road Segmen	 b: HY Withou c: Limonite A c: w/o Archiba 	t Project v. ald Av.				Project Job Ni	Name: I umber:	MCH 10351				
SITE S	PECIFIC IN	IPUT DATA				N	OISE N	/ODE		s		
Highway Data				Si	te Cor	nditions	(Hard =	10, S	oft = 15)			
Average Daily 1	raffic (Adt):	27,217 vehicl	es					Autos.	15			
Peak Hour F	Percentage:	10%			Me	edium Tru	icks (2 A	Axles).	15			
Peak Ho	our Volume:	2,722 vehicle	s		He	eavy Truc	:ks (3+ A	Axles).	15			
Veh	icle Speed:	50 mph		V	hicle	Mix						
Near/Far Lan	e Distance:	78 feet		-	Veh	nicleTvpe		Dav	Evenina	Nia	ht	Dailv
Site Data						A	lutos:	66.3%	13.5%	20	3% 9	93.40%
Bari	rier Heiaht:	0.0 feet			М	edium Tr	ucks:	77.0%	5.3%	17.	6%	4.70%
Barrier Type (0-Wa	all, 1-Berm):	0.0				Heavy Tr	ucks:	86.3%	5 1.5%	12	2%	1.90%
Centerline Dis	t. to Barrier:	76.0 feet		N	oise S	ource El	evation	s (in f	eet)			
Centerline Dist. to	o Observer:	76.0 feet				Autos	· 0(000	,			
Barrier Distance to	o Observer:	0.0 feet			Mediu	m Trucks	. 21	297				
Observer Height (A	Above Pad):	5.0 feet			Hear	v Trucks	. 2.	004	Grade Ad	iustrr	ent:	0.0
Pa	d Elevation:	0.0 feet										
Roa	d Elevation:	0.0 feet		Lá	ane Eq	uivalent	Distant	ce (in	feet)			
R	Road Grade:	0.0%				Autos	8: 65.4	422				
	Left View:	-90.0 degre	es		Mediu	m Trucks	8: 65.2	286				
	Right View:	90.0 degre	es		Hea	vy Trucks	8: 65.2	299				
FHWA Noise Mode	I Calculation	IS										
VehicleType	REMEL	Traffic Flow	Dista	псе	Finite	Road	Fresn	iel	Barrier Att	en	Berm	Atten
Autos:	70.20	1.76		-1.85		-1.20		-4.73	0.0	000		0.000
Medium Trucks:	81.00	-11.23		-1.84		-1.20		-4.88	0.0	000		0.000
Heavy Trucks:	85.38	-15.16		-1.84		-1.20		-5.25	0.0	000		0.000
Unmitigated Noise	Levels (with	out Topo and	barrier	attenu	ation)							
VehicleType	Leq Peak Ho	ur Leq Da	y L	eq Eve	ening	Leq I	Night		Ldn		CN	EL
Autos:	68	3.9	66.3		65.4		62.4		69.6	6		70.0
Medium Trucks:	66	6.7	64.8		59.2		59.6	5	67.1			67.2
Heavy Trucks:	67	⁷ .2	65.7		54.2		58.5	5	66.6	6		66.7
Vehicle Noise:	72	2.5	70.4		66.6		65.3	5	72.7	·		73.0
Centerline Distance	e to Noise C	ontour (in fee	t)							1		
			🖵	70 dE	BA	65 0	dBA		50 dBA		55 d	BA
		~	Ldn:	116		24	19		537		1,15	80
		C	NEL:	121		26	50		561		1,20	18

	FH\	VA-RD-77-108 H	IGHWA	NC NC	DISE PF	EDICTIO	N MOE	DEL			
Scenar	io: HY Withou	t Project				Project N	ame: N	ИСН			
Road Nam	e: Limonite Av	<i>i</i> .				Job Nur	nber: 1	0351			
Road Segme	nt: e/o Archiba	ld Av.									
SITE	SPECIFIC IN	IPUT DATA				NC	ISE M	ODE	L INPUT	S	
Highway Data				Si	ite Con	ditions (H	lard = '	10, Sc	oft = 15)		
Average Daily	Traffic (Adt):	43,320 vehicles					A	utos:	15		
Peak Hour	Percentage:	10%			Mee	dium Truc	ks (2 A	xles):	15		
Peak H	lour Volume:	4,332 vehicles			Hea	avy Truck	s (3+ A	xles):	15		
Ve	hicle Speed:	50 mph		V	ehicle I	<i>lix</i>					
Near/Far La	ne Distance:	78 feet			Vehi	cleType	1	Day	Evening	Night	Daily
Site Data						Au	tos: 6	6.3%	13.5%	20.3%	93.40%
Ba	rrier Height	0.0 feet			Me	dium Tru	cks: 7	7.0%	5.3%	17.6%	4.70%
Barrier Type (0-W	/all. 1-Berm):	0.0			ŀ	leavy Tru	cks: 8	36.3%	1.5%	12.2%	1.90%
Centerline Di	st. to Barrier:	76.0 feet		AL	oloo Ca	uree Ele	untio no	(in fi	a (1)		
Centerline Dist.	to Observer:	76.0 feet		/	uise su	urce Ele	vauons		el)		
Barrier Distance	to Observer:	0.0 feet			Madium	Autos:	0.0	00			
Observer Height (Above Pad):	5.0 feet			Wealur	n Trucks:	2.2	97	Grade Ad	iustmont	0.0
P	ad Elevation:	0.0 feet			neav	y TTUCKS.	0.0	04	Orade Haj	usunoni	0.0
Roi	ad Elevation:	0.0 feet		Lá	ane Equ	ivalent E	Distanc	e (in :	feet)		
	Road Grade:	0.0%				Autos:	65.4	22			
	Left View:	-90.0 degrees			Mediur	n Trucks:	65.2	86			
	Right View:	90.0 degrees			Heav	y Trucks:	65.2	99			
FHWA Noise Mod	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Distan	ce	Finite	Road	Fresne	e/	Barrier Att	en Ber	m Atten
Autos:	70.20	3.78	-	1.85		-1.20		4.73	0.0	000	0.000
Medium Trucks:	81.00	-9.21	-	1.84		-1.20	-	4.88	0.0	000	0.000
Heavy Trucks:	85.38	-13.14	-	1.84		-1.20	-	5.25	0.0	000	0.000
Unmitigated Nois	e Levels (with	out Topo and ba	arrier a	ttenu	ation)						
			1e	a Eve	enina	Lea N	ight		Ldn	CI	VEL
VehicleType	Leq Peak Hou	ir Leq Day		1 .	5						72.1
VehicleType Autos:	Leq Peak Hou 70	II Leq Day .9 68	.3		67.5		64.5		71.6)	
VehicleType Autos: Medium Trucks:	Leq Peak Hou 70 68	<u>ir Leq Day</u> .9 68 .8 66	.3	1	67.5 61.2		64.5 61.7		71.6 69.1		69.3
VehicleType Autos: Medium Trucks: Heavy Trucks:	Leq Peak Hou 70 68 69	r <u>Leq Day</u> .9 68 .8 66 .2 67	.3 .8 .8		67.5 61.2 56.2		64.5 61.7 60.5		71.6 69.1 68.6	5 }	69.3 68.7
VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	Leq Peak Hou 70 68 69 74	r Leq Day .9 68 .8 66 .2 67 .5 72	.3 .8 .8 .5		67.5 61.2 56.2 68.6		64.5 61.7 60.5 67.3		71.6 69.1 68.6 74.8	5 5 8	69.3 68.7 75.0
VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distance	Leq Peak Hou 70 68 69 74 ce to Noise Co	Image: Leq Day .9 68 .8 66 .2 67 .5 72 Dontour (in feet) 72	.3 .8 .8 .5		67.5 61.2 56.2 68.6		64.5 61.7 60.5 67.3		71.6 69.1 68.6 74.8	3	69.3 68.7 75.0
VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distant	Leq Peak Hou 70 68 69 74 ce to Noise Co	Image: Leq Day Leq Day .9 68 .8 66 .2 67 .5 72 Ontour (in feet) 68	.3 .8 .5	70 dE	67.5 61.2 56.2 68.6 3A	65 dE	64.5 61.7 60.5 67.3 BA	6	71.6 69.1 68.6 74.8	55	69.3 68.7 75.0 dBA
VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distant	Leq Peak Hou 70 68 69 74 ce to Noise Co	rr Leq Day .9 68 .8 66 .2 67 .5 72 ontour (in feet)	1.3 1.8 1.5 (n:	70 dE 158	67.5 61.2 56.2 68.6 3A	65 dE 340	64.5 61.7 60.5 67.3 BA	6	71.6 69.1 68.6 74.8 60 dBA 732	55 1,	69.3 68.7 75.0 dBA 578

Thursday, May 02, 2019

	FHV	VA-RD-77-108 H	IGHWA	NOISE P	REDICTIO	N MODEL	-			
Scenar Road Nan Road Segme	io: HY Without ne: Pine Av. nt: w/o El Prad	Project o Rd.			Project Na Job Nurr	ame: MCI nber: 103	H 51			
SITE	SPECIFIC IN	PUT DATA			NO	ISE MOI	DEL INP	UTS		
Highway Data				Site Cor	nditions (H	ard = 10,	Soft = 1	5)		
Average Daily	Traffic (Adt):	27,780 vehicles				Auto	os: 15			
Peak Hour	Percentage:	10%		Me	edium Truck	ks (2 Axle	s): 15			
Peak H	lour Volume:	2,778 vehicles		He	eavy Trucks	s (3+ Axle	s): 15			
Ve	hicle Speed:	45 mph		Vohiclo	Mix					
Near/Far La	ne Distance:	76 feet		Vehicle	nicleTyne	Dai	/ Even	ina N	iaht	Daily
Site Data				10.	Aut	05: 66.	3% 13	5% 2	0.3%	93.40%
Ba	rrior Hoight	0.0 feet		M	ledium Truc	ks: 77.	0% 5.	3% 1	7.6%	4.70%
Da Parriar Tuna (0 M	All 1 Porm):	0.0 1001			Heavy Truc	ks: 86.	3% 1.	5% 1	2.2%	1.90%
Centerline Di	ist to Barrier	60.0 feet			,					
Centerline Dist.	to Observer:	60.0 feet		Noise S	ource Elev	ations (ii	n feet)			
Barrier Distance	to Observer:	0.0 feet			Autos:	0.000				
Observer Height	(Above Pad):	5.0 feet		Mediu	m Trucks:	2.297				
P	ad Elevation:	0.0 feet		Hea	vy Trucks:	8.004	Grade	e Adjust	ment:	0.0
Ro	ad Elevation:	0.0 feet		Lane Eq	uivalent D	istance (in feet)			
	Road Grade:	0.0%			Autos:	46.701				
	Left View:	-90.0 degrees		Mediu	m Trucks:	46.511				
	Right View:	90.0 degrees		Hea	vy Trucks:	46.530				
FHWA Noise Mod	el Calculation	S		1						
VehicleType	REMEL	Traffic Flow	Distance	e Finite	Road	Fresnel	Barrie	r Atten	Berr	m Atten
Autos:	68.46	2.30	C	.34	-1.20	-4.6	59	0.000		0.00
Medium Trucks:	79.45	-10.68	C	.37	-1.20	-4.8	38	0.000		0.00
Heavy Trucks:	84.25	-14.61	C	.37	-1.20	-5.3	34	0.000		0.00
Unmitigated Nois	e Levels (with	out Topo and b	arrier att	enuation)						
VehicleType	Leq Peak Hou	r Leq Day	Leq	Evening	Leq Nig	ght	Ldn		CI	JEL
Autos:	69	.9 67	7.3	66.4		63.4		70.6		71.0
Medium Trucks:	67	.9 66	6.0	60.4		60.9		68.3		68.
Heavy Trucks:	68	.8 67	′.4	55.8		60.1		68.2		68.3
Vehicle Noise:	73	.7 7'	1.7	67.7		66.5		74.0		74.
Centerline Distan	ce to Noise Co	ontour (in feet)								
			7	0 dBA	65 dB	A	60 dBA		55	dBA
		Le	dn:	110	237		511		1,1	101
		CNE	EL:	115	247		533		1,1	148

	FH\	NA-RD-77-108 H	IIGHWA	Y NOISE P	REDICTIO	ON MOI	DEL			
Scenar Road Narr Road Segme	io: HY Withou ne: Pine Av. nt: w/o Euclid	t Project Av.			Project I Job Nu	Name: I Imber: ·	MCH 10351			
SITE	SPECIFIC IN	IPUT DATA			N	OISE N	IODE	L INPUT	S	
Highway Data				Site Cor	nditions ('Hard =	10, S	oft = 15)		
Average Daily	Traffic (Adt):	25,288 vehicles			-11. T-1	-1 (0.4	Autos:	15		
Peak Hour	Percentage:	10%		IVIE	aium Tru	CKS (2 P	(xies):	15		
Peak H	lour Volume:	2,529 vehicles		HE	avy Truci	KS (3+ A	(xies):	15		
Ve	hicle Speed:	45 mph		Vehicle	Mix				-	
Near/Far La	ne Distance:	76 feet		Veh	icleType		Day	Evening	Nigh	t Daily
Site Data					A	utos:	66.3%	13.5%	20.3	% 93.40%
Ba	rrier Height:	0.0 feet		M	ledium Tru	ucks:	77.0%	5.3%	17.6	% 4.70%
Barrier Type (0-W	/all, 1-Berm):	0.0			Heavy Tru	ucks:	86.3%	1.5%	12.2	% 1.90%
Centerline Di	st. to Barrier:	60.0 feet		Noise S	ource Ele	evation	s (in f	eet)		
Centerline Dist.	to Observer:	60.0 feet			Autos	: 0.0	000			
Barrier Distance	to Observer:	0.0 feet		Mediu	m Trucks	: 2.2	297			
Observer Height	Observer Height (Above Pad): 5.0 feet				vy Trucks	: 8.0	004	Grade Ad	ljustme	ent: 0.0
Pa	ad Elevation:	0.0 feet		Lana Fa		Distant		64)		
Roi	ad Elevation:	0.0 feet		Lane Eq	uivaient	Distanc	e (In	reet)		
	Road Grade:	0.0%			Autos	: 46.	/01			
	Left View:	-90.0 degrees		Medium Trucks: 46.511 Heavy Trucks: 46.530						
	Right View:	90.0 degrees		Hear	vy Trucks	: 46.	530			
FHWA Noise Mod	el Calculation	s		1						
VehicleType	REMEL	Traffic Flow	Distanc	e Finite	Road	Fresn	el	Barrier At	ten E	Berm Atten
Autos:	68.46	1.90	(0.34	-1.20		-4.69	0.	000	0.000
Medium Trucks:	79.45	-11.09	(0.37	-1.20		-4.88	0.	000	0.000
Heavy Trucks:	84.25	-15.02	(0.37	-1.20		-5.34	0.	000	0.000
Unmitigated Noise	e Levels (with	out Topo and b	arrier at	tenuation)						
VehicleType	Leq Peak Hou	ır Leq Day	Leo	q Evening	Leq N	Vight		Ldn		CNEL
Autos:	69	.5 6	5.9	66.0		63.0		70.	2	70.6
Medium Trucks:	67	.5 6	5.6	60.0		60.4		67.	8	68.0
Heavy Trucks:	68	.4 6	7.0	55.4		59.7		67.	8	67.9
Vehicle Noise:	73	.3 7	1.3	67.3		66.1		73.	5	73.8
Centerline Distan	ce to Noise C	ontour (in feet)								
			7	70 dBA	65 a	IBA	(60 dBA	4	55 dBA
		L	dn:	103 223 480 1,0			1,034			
	Ldn: CNEL:				23	2		500		1,078

Thursday, May 02, 2019

	FH\	NA-RD-77-108	HIGHWA	AY NC	DISE P	REDICT	ION MO	DEL			
Scenar Road Nam Road Segmei	io: HY Withou ne: Pine Av. nt: e/o Euclid J	t Project Av.				Project Job N	Name: I umber:	MCH 10351			
SITE	SPECIFIC IN	IPUT DATA				N	IOISE N	/IODE	L INPUT	S	
Highway Data				Si	ite Cor	nditions	(Hard =	10, S	oft = 15)		
Average Daily	Traffic (Adt):	37,279 vehicl	es				,	Autos:	15		
Peak Hour	Percentage:	10%			Me	edium Tri	ucks (2 A	(xles)	15		
Peak H	lour Volume:	3,728 vehicle	s		He	eavy True	cks (3+ A	(xles)	15		
Ve	hicle Speed:	45 mph		Ve	ehicle	Mix					
Near/Far La	ne Distance:	76 feet			Veh	icleType		Day	Evening	Nigh	t Daily
Site Data							Autos:	66.3%	5 13.5%	20.3	93.40%
Bai	rrier Height:	0.0 feet			М	edium T	rucks:	77.0%	5.3%	17.6	6% 4.70%
Barrier Type (0-W	/all, 1-Berm):	0.0				Heavy Ti	rucks:	86.3%	1.5%	12.2	1.90%
Centerline Dis	st. to Barrier:	60.0 feet		N	oise S	ource El	levation	s (in f	eet)		
Centerline Dist.	to Observer:	60.0 feet				Auto	s: 0.0	000	,		
Barrier Distance	to Observer:	0.0 feet			Mediu	m Truck	s: 2.2	297			
Observer Height ('Above Pad):	5.0 feet			Hear	vy Truck	s: 8.0	004	Grade Adj	iustme	ent: 0.0
Pa	ad Elevation:	0.0 feet					Distant	//	6		
Roa	ad Elevation:	0.0 feet		La	ane Eq	uivaien	Distant	ce (In	teet)		
	Road Grade:	0.0%			1 d = -E	Auto	S: 46.	/01			
	Left View:	-90.0 degre	es		Mediu	m Truck	S: 46.	511			
	Right view.	90.0 degre	es		nea	ly much	5. 40.3	530			
FHWA Noise Mode	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Distan	се	Finite	Road	Fresn	el	Barrier Atte	en l	Berm Atten
Autos:	68.46	3.58		0.34		-1.20		-4.69	0.0	00	0.000
Medium Trucks:	79.45	-9.40		0.37		-1.20		-4.88	0.0	00	0.000
Heavy Trucks:	84.25	-13.34		0.37		-1.20		-5.34	0.0	00	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier a	ttenu	ation)			1			
Vehicle I ype	Leq Peak Hou	ur Leq Day	/ Le	eq Eve	ening	Leq	Night		Ldn		CNEL
Autos:	/1	.2	68.6		67.7		64.7		/1.9		72.3
Medium Trucks:	05	1.2	607		57.4		62.1		69.5		69.7
Vehicle Noise:	70	5.0	73.0		57.1 69.0		67.8		75.2))	75.5
Centerline Distant	ce to Noise C	ontour (in fee	t)								
			Ĺ	70 dE	BA	65	dBA		60 dBA		55 dBA
			Ldn:	134		2	89		622		1,340
		C	NEL:	140		3	01		648		1,396

Scenar	io: HY Withou	t Project				Project Na	ame: N	ИСН			
Road Nan	ne: Pine Av.	-				Job Nun	ber: 1	0351			
Road Segme	nt: w/o Chino (Corona Rd.									
SITE	SPECIFIC IN	IPUT DATA				NO	ISE M	ODE	L INPUT	s	
Highway Data				:	Site Con	ditions (H	ard = '	10, S	oft = 15)		
Average Daily	Traffic (Adt):	36,277 vehicles					A	utos:	15		
Peak Hour	Percentage:	10%			Me	dium Truck	is (2 A	xles):	15		
Peak H	lour Volume:	3,628 vehicles			Hea	avy Trucks	(3+ A	xles):	15		
Ve	ehicle Speed:	45 mph			Vehicle I	Nix					
Near/Far La	ne Distance:	76 feet			Vehi	cleType	1	Day	Evening	Night	Daily
Site Data						Aut	os: 6	6.3%	13.5%	20.3%	93.40%
Ba	rrier Height:	0.0 feet			Me	dium Truc	ks: T	77.0%	5.3%	17.6%	4.70%
Barrier Type (0-V	Vall 1-Berm)	0.0			F	leavy Truc	ks: 8	36.3%	1.5%	12.2%	1.90%
Centerline D	ist, to Barrier:	60.0 feet		H							
Centerline Dist.	to Observer:	60.0 feet			Noise So	urce Elev	ations	(In f	eet)		
Barrier Distance	to Observer:	0.0 feet				Autos:	0.0	00			
Observer Height	(Above Pad):	5.0 feet			Mediur	n Trucks:	2.2	97	Crada Ad	iuotmont	
- P	ad Elevation:	0.0 feet			Heav	y Trucks:	8.0	04	Graue Auj	usunen	0.0
Ro	ad Elevation:	0.0 feet		1	Lane Equ	ıivalent D	istanc	e (in	feet)		
	Road Grade:	0.0%				Autos:	46.7	01			
	Left View:	-90.0 degrees			Mediur	n Trucks:	46.5	11			
	Right View:	90.0 degrees			Heav	y Trucks:	46.5	30			
FHWA Noise Mod	lel Calculation	s									
FHWA Noise Mod VehicleType	el Calculation REMEL	s Traffic Flow	Distar	nce	Finite	Road	Fresne	əl	Barrier Atte	en Ber	m Atten
FHWA Noise Mod VehicleType Autos:	el Calculation REMEL 68.46	s Traffic Flow 3.46	Distar	nce 0.34	Finite	Road -1.20	Fresne	el 4.69	Barrier Atte 0.0	en Ber	m Atten 0.000
FHWA Noise Mod VehicleType Autos: Medium Trucks:	el Calculation REMEL 68.46 79.45	s Traffic Flow 3.46 -9.52	Distar	nce 0.34 0.37	Finite	Road -1.20 -1.20	Fresne -	el 4.69 4.88	Barrier Atte 0.0 0.0	en Ber 000	<i>m Atten</i> 0.000 0.000
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks:	el Calculation REMEL 68.46 79.45 84.25	s Traffic Flow 3.46 -9.52 -13.45	Distar	0.34 0.37 0.37	Finite 4 7	Road -1.20 -1.20 -1.20	Fresne -	el 4.69 4.88 5.34	Barrier Atte 0.0 0.0 0.0	en Ber 000 000 000	m Atten 0.000 0.000 0.000
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois	el Calculation REMEL 68.46 79.45 84.25 e Levels (with	s Traffic Flow 3.46 -9.52 -13.45 out Topo and b	Distar arrier a	nce 0.34 0.37 0.37	Finite Finite Finite T T T Uation	Road -1.20 -1.20 -1.20	Fresne - -	el 4.69 4.88 5.34	Barrier Atte 0.0 0.0 0.0	en Ber 000 000 000	m Atten 0.000 0.000 0.000
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType	el Calculation REMEL 68.46 79.45 84.25 e Levels (with Leg Peak Hou	s Traffic Flow 3.46 -9.52 -13.45 out Topo and b Ir Leq Day	Distar	nce 0.34 0.37 0.37 atten eq Ev	Finite Finite Finite T T T T T T T T T T T T T T T T T T T	Road -1.20 -1.20 -1.20 Leq Nig	Fresne - - -	el 4.69 4.88 5.34	Barrier Atte 0.0 0.0 0.0 Ldn	en Ber 000 000 000 Ci	m Atten 0.000 0.000 0.000
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos:	el Calculation REMEL 68.46 79.45 84.25 e Levels (with Leq Peak Hou 71	s Traffic Flow 3.46 -9.52 -13.45 out Topo and b ur Leq Day .1 6i	Distar	nce 0.34 0.37 0.37 atten eq E	Finite Finite Finite T T T T T T T T T T T T T T T T T T T	Road -1.20 -1.20 -1.20 Leq Nig	Fresne ght 64.6	el 4.69 4.88 5.34	Barrier Atte 0.0 0.0 0.0 0.0 0.0 71.8	en Ber 000 000 000 000 Ci 3	<u>m Atten</u> 0.000 0.000 0.000 <u>VEL</u> 72.2
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Mos VehicleType Autos: Medium Trucks:	el Calculation REMEL 68.46 79.45 84.25 e Levels (with Leg Peak Hou 71 69	s Traffic Flow 3.46 -9.52 -13.45 out Topo and b ur Leq Day .1 6i .1 6i	Distar	0.34 0.37 0.37 atten eq E	Finite 4 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	Road -1.20 -1.20 -1.20 Leq Nig	Fresne - - - - - - - - - - - - - - - - - - -	el 4.69 4.88 5.34	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 71.8 69.4	en Ber 000 000 000 000 Ci 3	m Atten 0.000 0.000 0.000 VEL 72.2 69.6
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: VehicleType Autos: Medium Trucks: Heavy Trucks:	lel Calculation REMEL 68.46 79.45 84.25 e Levels (with Leg Peak Hot 71 69 70	s Traffic Flow 3.46 -9.52 -13.45 out Topo and b ur Leq Day .1 66 .0 66	Distar arrier a 3.5 7.2 3.5	0.34 0.37 0.37 atten eq E	<i>Finite</i> 4 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	Road -1.20 -1.20 -1.20 Leq Nig	Fresne 	el 4.69 4.88 5.34	Barrier Atte 0.0 0.0 0.0 0.0 0.0 71.8 69.4 69.4	en Ber 000 000 000 000 Cr 3 4	m Atten 0.000 0.000 0.000 VEL 72.2 69.6 69.4
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	tel Calculation REMEL 68.46 79.45 84.25 e Levels (with Leq Peak Hou 71 69 70 70	s Traffic Flow 3.46 -9.52 -13.45 out Topo and b I'' Leq Day .1 66 .0 66 .9 7.5	Distar arrier a 1.0 3.5 7.2 3.5 2.9	0.34 0.37 0.37 atten eq Ev	Finite 4 7 7 uation) vening 67.6 61.6 57.0 68.9	Road -1.20 -1.20 -1.20 Leq Nig	Fresne 	el 4.69 4.88 5.34	Barrier Atte 0.0 0.0 0.0 0.0 0.0 71.8 69.4 69.4 75.1	en Ber 000 000 000 000 Ci 3 4 4	<u>m Atten</u> 0.000 0.000 0.000 VEL 72.2 69.6 69.4 75.4
FHWA Noise Mod VehicleType Autos: Heavy Trucks: Unmitigated Nois VehicleType Autos: Heavy Trucks: Vehicle Noise: Centerline Distan	tel Calculation REMEL 68.46 79.45 84.25 e Levels (with Leg Peak Hou 71 69 70 74 ce to Noise Ca	s Traffic Flow 3.46 -9.52 -13.45 out Topo and b rr 4 clap Day .1 6 .0 6 .0 6 .9 7: pontour (in feet)	Distar	0.34 0.37 0.37 atten eq E	Finite Fi	Road -1.20 -1.20 -1.20 Leq Nig	Fresne 	el 4.69 4.88 5.34	Barrier Atte 0.0 0.0 0.0 0.0 71.8 69.4 69.4 75.1	en Ber 000 000 000 000 Ci 3 4	m Atten 0.000 0.000 0.000 VEL 72.2 69.6 69.4 75.4
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	el Calculation REMEL 68.46 79.45 84.25 e Levels (with Leg Peak Hou 71 69 70 70 70 74 ce to Noise Co	s Traffic Flow 3.46 -9.52 -13.45 out Topo and b ur 4 Gay .1 6 .1 6 .0 6 .9 7 .5 .5 .0 6 .9 7 .5 .5 .1 .0 6 .0 6 .9 7 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5	Distar arrier a 1.0 3.5 2.9	nce 0.34 0.37 0.37 atten eq Et	Finite 4 7 7 7 7 7 7 7 7 67.6 61.6 57.0 68.9 1BA	Road -1.20 -1.20 -1.20 Leq Nig 65 dB	Fresne ght 64.6 62.0 61.3 67.6 A	el 4.69 4.88 5.34	Barrier Atto 0.0 0.0 0.0 71.8 69.4 75.1 50 dBA	en Ber 000 000 000 3 4 4 55	m Atten 0.000 0.000 0.000 VEL 72.2 69.6 69.4 75.4 dBA
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unnitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	el Calculation REMEL 68.46 79.45 84.25 e Levels (with Leq Peak Hou 71 69 70 74 ce to Noise Co	s Traffic Flow 3.46 -9.52 -13.45 out Topo and b ur Leq Day 1.4 6 0.0 6 0.0 6 0.0 6 0.0 1.1 6 0.0 6 0.5 2 0 0 0 0 0 0 0 0 0 0 0 0 0	Distar arrier a 1 L 3.5 7.2 3.5 2.9	nce 0.32 0.37 0.37 atten eq Ev 70 c 13	Finite 4 7 7 7 7 7 7 7 67.6 61.6 57.0 68.9 1BA 32	Road -1.20 -1.20 -1.20 Leg Nig 65 dB 283	Fresne ght 64.6 62.0 61.3 67.6	el 4.69 4.88 5.34	Barrier Attu 0.0 0.0 0.0 0.0 71.8 69.4 69.4 75.1 50 dBA 611	en Ber 000 000 000 C C 3 4 4 1 55 1,	m Atten 0.000 0.000 0.000 VEL 72.2 69.6 69.4 75.4 75.4 4BA 316

Thursday, May 02, 2019

	FHV	VA-RD-77-108	HIGH	WAY N	IOISE PI	REDICTI	ON MC	DEL			
Scenar Road Narr Road Segme	rio: HY Without ne: Pine Av. nt: w/o W. Pres	Project serve Loop				Project Job N	Name: umber:	MCH 10351			
SITE	SPECIFIC IN	PUT DATA				N	OISE	MODE	L INPUT	S	
Highway Data					Site Con	ditions	(Hard =	: 10, So	oft = 15)		
Average Daily Peak Hour Peak F	Traffic (Adt): Percentage: lour Volume:	19,507 vehicle 10% 1,951 vehicle	es s		Me He	dium Tru avy Truc	ıcks (2 . :ks (3+ .	Autos: Axles): Axles):	15 15 15		
Ve	hicle Speed:	45 mph			Vehicle	Mix					
Near/Far La	ne Distance:	76 feet			Veh	icleType		Day	Evening	Night	Daily
Site Data						A	lutos:	66.3%	13.5%	20.39	6 93.40%
Ba	rrier Height:	0.0 feet			M	edium Tr	ucks:	77.0%	5.3%	17.69	6 4.70%
Barrier Type (0-W	Vall, 1-Berm):	0.0			ŀ	Heavy Tr	ucks:	86.3%	1.5%	12.29	6 1.90%
Centerline Di	ist. to Barrier:	60.0 feet			Noise So	ource El	evation	is (in fe	eet)		
Centerline Dist.	to Observer:	60.0 feet				Autos	s: 0.	000			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Trucks	s: 2.	297			
Observer Height	(Above Pad):	5.0 feet			Heav	v Trucks	s: 8.	004	Grade Ad	ljustmer	nt: 0.0
P	ad Elevation:	0.0 feet		H						-	
Ro	ad Elevation:	0.0 feet		1	Lane Eq	uivalent	Distan	ce (In	teet)		
	Road Grade:	0.0%				Autos	s: 46.	.701			
	Left View: Right View:	-90.0 degree 90.0 degree	es es		Mediui Heav	m Trucks vy Trucks	s: 46. s: 46.	.511 .530			
FHWA Noise Mod	el Calculation	5									
VehicleType	REMEL	Traffic Flow	Dist	tance	Finite	Road	Fresi	nel	Barrier At	ten Be	erm Atten
Autos:	68.46	0.77		0.34	4	-1.20		-4.69	0.	000	0.00
Medium Trucks:	79.45	-12.21		0.3	7	-1.20		-4.88	0.	000	0.00
Heavy Trucks:	84.25	-16.15		0.3	7	-1.20		-5.34	0.	000	0.00
Unmitigated Nois	e Levels (with	out Topo and	barrie	r atten	uation)						
VehicleType	Leq Peak Hou	r Leq Day	r	Leq E	/ening	Leq I	Night		Ldn	(CNEL
Autos:	68.	.4	65.8		64.9		61.9	9	69.	1	69.
Medium Trucks:	66.	.4	64.5		58.9		59.3	3	66.	7	66.
Heavy Trucks:	67.	.3	65.8		54.3		58.	6	66.	7	66.
Vehicle Noise:	72	2	70.2		66.2		65.	D	72.	4	72.
Centerline Distan	ce to Noise Co	ntour (in feet)	-						-	
			L	70 0	зва	65 0	3BA	6	ou dBA	5	5 dBA
			Ldn:	8	(18	57		404		870
		CI	VEL:	9	1	19	95		421		907

	FHV	VA-RD-77-108	HIGHWA	AY NC	DISE PH	REDICTIO		DDEL				
Scenar	Scenario: HY Without Project Road Name: Pine Av.						Vame:	MCH				
Road Nam	e: Pine Av.	-				Job Nu	mber:	10351				
Road Segme	nt: w/o E. Pres	erve Loop										
SITE	SPECIFIC IN	IPUT DATA				N	DISE	MODE	L INPU	гs		
Highway Data				Si	ite Con	ditions (Hard =	= 10, S	oft = 15)			
Average Daily	Traffic (Adt):	31,519 vehicle	es					Autos:	15			
Peak Hour	Percentage:	10%			Me	dium Tru	cks (2	Axles):	15			
Peak H	lour Volume:	3,152 vehicles	6		He	avy Truck	ks (3+	Axles):	15			
Ve	hicle Speed:	45 mph		Ve	ehicle l	Mix						
Near/Far La	ne Distance:	76 feet		-	Veh	icleType		Day	Evening	Nic	aht	Daily
Site Data					Autos: 66.3% 13.5% 20.3%						.3%	93.40%
Pa	rrior Hoight:	0.0 foot			Medium Trucks: 77.0% 5.3% 17.6%							4.70%
Barrier Type (0-W	/all. 1-Berm):	0.0			ŀ	leavy Tru	icks:	86.3%	1.5%	12	.2%	1.90%
Centerline Di	st. to Barrier:	60.0 feet		AL.	oloo Ce	uree Ele	votio	no (in f	0.04)			
Centerline Dist.	to Observer:	60.0 feet		/\	orse sc	Autoo	valio	000	eel)			
Barrier Distance	to Observer:	0.0 feet			Modiu	n Trucks	. 0	207				
Observer Height ((Above Pad):	5.0 feet			Hoov	n Trucks.		004	Grade A	diustr	nont.	0.0
Pa	ad Elevation:	0.0 feet			Tieav	y mucks.	0	.004	Olduc A	ujusui	ioni.	0.0
Ro	ad Elevation:	0.0 feet		Lé	ane Eq	uivalent	Distar	nce (in	feet)			
	Road Grade:	0.0%				Autos.	46	.701				
	Left View:	-90.0 degree	es		Mediur	n Trucks.	: 46	.511				
	Right View:	90.0 degree	es		Heav	y Trucks.	46	.530				
FHWA Noise Mod	el Calculation	s										
VehicleType	REMEL	Traffic Flow	Distan	се	Finite	Road	Fres	nel	Barrier A	tten	Berr	n Atten
Autos:	68.46	2.85		0.34		-1.20		-4.69	0	.000		0.000
Medium Trucks:	79.45	-10.13		0.37		-1.20		-4.88	0	.000		0.000
Heavy Trucks:	84.25	-14.06		0.37		-1.20		-5.34	0	.000		0.000
Unmitigated Nois	e Levels (with	out Topo and	barrier a	ttenu	ation)							
VehicleType	Leq Peak Hou	ır Leq Day	Le	eq Eve	ening	Leq N	light		Ldn		CN	IEL
Autos:	70	.5	67.9		67.0		64.	0	71	.2		71.6
Medium Trucks:	68	.5	6.6		61.0		61.	4	68	.8		69.0
Heavy Trucks:	69	.4 (67.9		56.3		60.	7	68	.8		68.8
Vehicle Noise:	74	.3	72.3		68.2		67.	0	74	.5		74.8
Centerline Distan	ce to Noise Co	ontour (in feet,)									
				70 dE	BA	65 d	BA	(60 dBA		55	dBA
			Ldn:	120 258 556			1,1	98				
		CI	VEL:	125		269 579				1,2	248	

Thursday, May 02, 2019

	FH	WA-RD-77-10	B HIGH	NAY NO	ISE P	REDICTI	ON MOE	DEL			
Scenario Road Name Road Segmen	o: HY Withou e: Pine Av. t: w/o Hellma	ut Project an Av.				Project Job Nu	Name: N Imber: 1	MCH 10351			
SITE S	PECIFIC IN	NPUT DATA				N	OISE N	IODE	L INPUTS	5	
Highway Data				Si	te Cor	nditions (Hard =	10, So	oft = 15)		
Average Daily 7	raffic (Adt):	30,920 vehic	les				A	Autos:	15		
Peak Hour F	Percentage:	10%			Me	edium Tru	cks (2 A	xles):	15		
Peak Ho	our Volume:	3,092 vehicle	es		He	avy Truc	ks (3+ A	xles):	15		
Veh	icle Speed:	45 mph		Ve	hiclo	Mix					
Near/Far Lan	e Distance:	76 feet			Veh	nicleType		Dav	Evenina	Niah	t Dailv
Site Data						A	utos: 6	66.3%	13.5%	20.3	% 93.40%
Barr	rier Heiaht:	0.0 feet			М	edium Tr	ucks:	77.0%	5.3%	17.6	% 4.70%
Barrier Type (0-Wa	all, 1-Berm):	0.0				Heavy Tr	ucks: 8	86.3%	1.5%	12.2	% 1.90%
Centerline Dis	t. to Barrier:	60.0 feet		N	nise S	ource Ele	evations	: (in fi	oet)		
Centerline Dist. to	o Observer:	60.0 feet			0.00 0	Autos	. 0.0	00	,		
Barrier Distance to	o Observer:	0.0 feet			Mediu	m Trucks	. 0.0	97			
Observer Height (A	Above Pad):	5.0 feet			Hear	v Trucks	8.0	104	Grade Adj	ustme	nt: 0.0
Pa	d Elevation:	0.0 feet		_							
Roa	d Elevation:	0.0 feet		Lá	ane Eq	uivalent	Distanc	e (in	feet)		
R	Road Grade:	0.0%				Autos	: 46.7	'01			
	Left View:	-90.0 degre	es		Mediu	m Trucks	46.5	511			
	Right View:	90.0 degre	es		Hea	vy Trucks	46.5	530			
FHWA Noise Mode	I Calculation	15									
VehicleType	REMEL	Traffic Flow	Dist	ance	Finite	Road	Fresne	el	Barrier Atte	en E	Berm Atten
Autos:	68.46	2.77		0.34		-1.20	-	4.69	0.0	00	0.000
Medium Trucks:	79.45	-10.21		0.37		-1.20	-	4.88	0.0	00	0.000
Heavy Trucks:	84.25	-14.15		0.37		-1.20	-	-5.34	0.0	00	0.000
Unmitigated Noise	Levels (with	nout Topo and	l barrie	r attenua	ation)						
VehicleType	Leq Peak Ho	ur Leq Da	у	Leq Eve	ening	Leq I	Vight		Ldn		CNEL
Autos:	70	0.4	67.8		66.9		63.9		71.1		71.5
Medium Trucks:	68	8.4	66.5		60.9		61.3		68.7		68.9
Heavy Trucks:	69	9.3	67.8		56.3		60.6		68.7		68.8
Vehicle Noise:	74	4.2	72.2		68.2		67.0		74.4		74.7
Centerline Distance	e to Noise C	ontour (in fee	t)								
			L	70 dE	BA	65 c	iBA	e	60 dBA	4	55 dBA
		_	Ldn:	118		25	5		549		1,183
		C	NEL:	123		26	б		572		1,233

	FHV	A-100-11-100 11									
Scenar	io: HY Withou	t Project				Project N	ame: I	ИСН			
Road Nam	ie: Schleismar	n Rd.				Job Nur	nber: ·	10351			
Road Segme	nt: w/o Archiba	ald Av.									
SITE	SPECIFIC IN	IPUT DATA				NO	ISE N	IODE	L INPUT	s	
Highway Data				S	ite Con	ditions (H	ard =	10, S	oft = 15)		
Average Daily	Traffic (Adt):	38,337 vehicles					/	Autos:	15		
Peak Hour	Percentage:	10%			Med	lium Truc	ks (2 A	(xles):	15		
Peak H	lour Volume:	3,834 vehicles			Hea	avy Trucks	s (3+ A	(xles):	15		
Ve	hicle Speed:	45 mph		V	ehicle N	lix					
Near/Far La	ne Distance:	78 feet			Vehi	cleType		Day	Evening	Night	Daily
Site Data						Au	tos:	66.3%	13.5%	20.3%	93.40%
Bai	rrier Height	0.0 feet			Me	dium Truc	:ks:	77.0%	5.3%	17.6%	4.70%
Barrier Type (0-W	/all. 1-Berm):	0.0			h	leavy Truc	:ks:	86.3%	1.5%	12.2%	1.90%
Centerline Di	st. to Barrier:	76.0 feet			laiaa Ca	uree Eler	otion	o (in f	a a 41		
Centerline Dist.	to Observer:	76.0 feet		14	oise so	Autor	auon	s (III I	eel)		
Barrier Distance	to Observer:	0.0 feet			Madium	Autos:	0.0	007			
Observer Height ((Above Pad):	5.0 feet			Mealun	1 Trucks:	2.4	297	Grada Ad	iustmont	0.0
Pa	ad Elevation:	0.0 feet			neav	/ ITUCKS.	0.0	104	Grade Adj	usunoni	0.0
Roa	ad Elevation:	0.0 feet		Li	ane Equ	ivalent D	istand	ce (in	feet)		
	Road Grade:	0.0%				Autos:	65.4	122			
	Left View:	-90.0 degrees			Mediun	n Trucks:	65.2	286			
	Right View:	90.0 degrees			Heav	/ Trucks:	65.2	299			
FHWA Noise Mod	el Calculation	s		-							
VehicleType	REMEL	Traffic Flow	Distanc	е	Finite	o (Frash	-1	Rarrier Att		m Atten
Autos:					1 11 11 10 1	Road	110311	ei	Dunior Au	en Ber	
	68.46	3.70	-1	1.85	1 1110	-1.20	110311	ei -4.73	0.0	en Ber 000	0.000
Medium Trucks:	68.46 79.45	3.70 -9.28	-	1.85 1.84	7 11110	-1.20 -1.20	110311	ei -4.73 -4.88	0.0 0.0	en Ber)00)00	0.000
Medium Trucks: Heavy Trucks:	68.46 79.45 84.25	3.70 -9.28 -13.21	د. در د	1.85 1.84 1.84	1 1110	-1.20 -1.20 -1.20 -1.20	110311	ei -4.73 -4.88 -5.25	0.0 0.0 0.0	en Ber 000 000 000	0.000
Medium Trucks: Heavy Trucks: Unmitigated Noise	68.46 79.45 84.25 e Levels (with	3.70 -9.28 -13.21 out Topo and ba	- - arrier at	1.85 1.84 1.84 tenu	nation)	-1.20 -1.20 -1.20	110311	ei -4.73 -4.88 -5.25	0.0 0.0 0.0	en Ber 000 000 000	0.000
Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType	68.46 79.45 84.25 e Levels (with Leq Peak Hou	3.70 -9.28 -13.21 out Topo and ba r Leq Day	arrier at	1.85 1.84 1.84 1.84 tenu	iation)	-1.20 -1.20 -1.20 -1.20 <i>Leq Ni</i>	ght	ei -4.73 -4.88 -5.25	0.0 0.0 0.0	en Ber 000 000 000 Cl	0.000 0.000 0.000
Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos:	68.46 79.45 84.25 <u>e Levels (with</u> Leg Peak Hou 69	3.70 -9.28 -13.21 out Topo and ba rr Leq Day .1 66	arrier at Leo	1.85 1.84 1.84 tenu	iation) ening 65.6	-1.20 -1.20 -1.20 -1.20 Leq Ni	ght 62.6	ei -4.73 -4.88 -5.25	<i>Ldn</i> 69.8	en Ber 000 000 000 000 Cl	0.000 0.000 0.000 VEL 70.2
Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks:	68.46 79.45 84.25 e Levels (with Leg Peak Hou 69 67	3.70 -9.28 -13.21 out Topo and ba rr Leq Day .1 66 .1 65		1.85 1.84 1.84 tenu	uation) ening 65.6 59.6	-1.20 -1.20 -1.20 <i>Leq Ni</i>	ght 62.6 60.0	-4.73 -4.88 -5.25	<u>Ldn</u> 69.8 67.4	en Ber 000 000 000 000 Cl 3 4	0.000 0.000 0.000 <u>VEL</u> 70.2 67.6
Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks:	68.46 79.45 84.25 e Levels (with Leq Peak Hol 69 67 68	3.70 -9.28 -13.21 out Topo and be IT Leq Day .1 66 .1 65 .0 66		1.85 1.84 1.84 tenu	ening 65.6 59.6 55.0	-1.20 -1.20 -1.20 -1.20 <i>Leq Ni</i>	ght 62.6 60.0 59.3	ei -4.73 -4.88 -5.25	Ldn 69.8 67.4 67.4	en Ber 000 000 000 C/ 3 4	0.000 0.000 0.000 VEL 70.2 67.6 67.5
Medium Trucks: Heavy Trucks: Unmitigated Noiss VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	68.46 79.45 84.25 e Levels (with Leg Peak Hou 69 67 68 72	3.70 -9.28 -13.21 out Topo and ba rr Leq Day .1 66 .1 65 .0 66 .9 70		1.85 1.84 1.84 tenu	ation) ening 65.6 59.6 55.0 66.9	-1.20 -1.20 -1.20 -1.20 <i>Leq Ni</i>	ght 62.6 60.0 59.3 65.7	ei -4.73 -4.88 -5.25	Ldn 69.8 67.4 73.2	en Ber 000 000 000 Cl 3 4 4 2 	0.000 0.000 0.000 VEL 70.2 67.6 67.5 73.4
Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distant	68.46 79.45 84.25 e Levels (with Leq Peak Hou 69 67 68 72 72 ce to Noise Ca	3.70 -9.28 -13.21 out Topo and be ur Leq Day .1 66 .1 65 .0 66 .9 70 ontour (in feet)	arrier at Lec .5 .2 .6	1.85 1.84 1.84 tenu	nation) ening 65.6 59.6 55.0 66.9	-1.20 -1.20 -1.20 -1.20 <i>Leq Ni</i>	ght 62.6 60.0 59.3 65.7	ei -4.73 -4.88 -5.25	Lanci Ad 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	en Ber 1000 100	0.000 0.000 0.000 VEL 70.2 67.6 67.5 73.4
Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distance	68.46 79.45 84.25 e Levels (with Leq Peak Hou 69 67 68 72 ce to Noise Co	3.70 -9.28 -13.21 out Topo and be rr Leg Day .1 66 .0 66 .9 70 ontour (in feet)		1.85 1.84 1.84 1.84 1 Eve	nation) ening 65.6 59.6 55.0 66.9 BA	-1.20 -1.20 -1.20 -1.20 -1.20 <i>Leq Ni</i> 65 dE	ght 62.6 60.0 59.3 65.7	ei -4.73 -4.88 -5.25	Ldn 69.8 67.4 67.4 67.4 73.2 50 dBA	en Ber 1000 100	0.000 0.000 VEL 70.2 67.6 67.5 73.4 dBA
Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distant	68.46 79.45 84.25 e Levels (with Leq Peak Hou 69 67 68 72 ce to Noise Co	3.70 -9.28 -13.21 out Topo and bit rr Leq Day .1 66 .1 65 .0 66 .9 70 ontour (In feet)		1.85 1.84 1.84 1 Eve 1 Eve 1 23	number ening 65.6 59.6 55.0 66.9 BA 3	<u>Coad</u> -1.20 -1.20 -1.20 <u>Leq Ni</u> <u>65 dE</u> 266	ght 62.6 60.0 59.3 65.7	ei -4.73 -4.88 -5.25	Lane Au 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	en Ber 000 000 000 Cl 3 4 4 2 55 1,	0.000 0.000 0.000 VEL 70.2 67.6 67.5 73.4 dBA 233

Thursday, May 02, 2019

	FHV	VA-RD-77-108 H	IIGHWA	YN	OISE PF	REDICTIO	N MO	DEL				
Scenari Road Nam Road Segmer	io: HY With Pr e: Central Av. nt: n/o El Prade	oject o Rd.				Project N Job Nur	ame: I nber:	MCH 10351				
SITE	SPECIFIC IN	IPUT DATA				NC	ISE N	/IODE	L INPU	TS		
Highway Data				S	Site Con	ditions (F	lard =	10, Se	oft = 15)			
Average Daily Peak Hour	Traffic (Adt): Percentage:	33,535 vehicles 10%			Mee	dium Truc	ks (2 A	Autos: Axles):	15 15			
Peak H	our Volume:	3,354 vehicles			Hea	avy Truck	s (3+ A	(xies):	15			
Ve	hicle Speed:	45 mph		V	/ehicle I	/lix						
Near/Far La	ne Distance:	76 feet			Vehi	cleType		Day	Evening) Ni	ght	Daily
Site Data						Au	tos:	66.2%	13.5%	6 20	0.3%	93.47%
Bar	rier Heiaht:	0.0 feet			Me	dium Tru	cks:	77.1%	5.3%	6 17	7.6%	4.65%
Barrier Type (0-W	all, 1-Berm):	0.0			H	leavy Tru	cks:	86.3%	1.5%	6 12	2.2%	1.88%
Centerline Dis	st. to Barrier:	60.0 feet		٨	loise So	urce Ele	vation	s (in f	eet)			
Centerline Dist.	to Observer:	60.0 feet				Autos:	0.0	000	í			
Barrier Distance	to Observer:	0.0 feet			Mediur	n Trucks:	2.2	297				
Observer Height (Above Pad):	5.0 feet			Heav	y Trucks:	8.0	004	Grade A	djust	ment:	0.0
Pa	ad Elevation:	0.0 feet		-		de se la se de la	Neter		641			
Roa	ad Elevation:	0.0 feet		-	ane Equ	livalent L	nstand	ce (In	reet)			
, i	Road Grade:	0.0%				Autos:	46.	/01				
	Left View:	-90.0 degrees			Mediur	n Trucks:	46.	511 520				
	Night view.	50.0 degrees			neav	y mucho.	40.5	500				
FHWA Noise Mode	DEMEI	S Troffic Flow	Distan	~	Einito	Pood	Froon		Parriar /	Hon	Porn	Atton
Autos	68.46	3 12	Distant	0.34	1 mile	-1.20	Tiesh	-4 69	Damer /	000	Dem	0.000
Medium Trucks:	79.45	-9.91		0.37		-1.20		-4.88	(0.000		0.000
Heavy Trucks:	84.25	-13.84		0.37		-1.20		-5.34	(000.		0.000
Unmitigated Noise	e Levels (with	out Topo and b	arrier at	teni	uation)							
VehicleType	Leg Peak Hou	Ir Leg Day	Lee	g Ev	ening	Leg N	ight		Ldn		CN	EL
Autos:	70	.7 6	3.1		67.3		64.3		71	1.4		71.9
Medium Trucks:	68	.7 6	5.8		61.2		61.6		69	9.0		69.2
Heavy Trucks:	69	.6 6	3.1		56.6		60.9		69	9.0		69.1
Vehicle Noise:	74	.5 72	2.5		68.5		67.3		74	1.7		75.0
Centerline Distance	ce to Noise Co	ontour (in feet)										
				70 d	BA	65 dE	BA	(60 dBA		55 0	IBA
		L	dn:	12	4	268			577		1,2	44
		CN	EL:	13	0	279			602		1,2	96

	FH\	VA-RD-77-108 H	IIGHWA	Y NOISE P	REDICTIC	ON MOD	DEL			
Scenar	io: HY With Pr	oject			Project N	lame: N	ICH			
Road Nam Road Segme	e: Central Av. nt: s/o El Prad	o Rd.			Job Nui	mber: 1	0351			
SITE	SPECIFIC IN	IPUT DATA			NC	DISE M	IODEL	INPUTS	5	
Highway Data				Site Cor	nditions (H	lard = 1	10, Sof	t = 15)		
Average Daily	Traffic (Adt):	40,021 vehicles	6			A	utos:	15		
Peak Hour	Percentage:	10%		Me	dium Truc	ks (2 A	xles):	15		
Peak H	lour Volume:	4,002 vehicles		He	avy Truck	s (3+ A	xles):	15		
Ve	hicle Speed:	45 mph		Vehicle	Mix					
Near/Far La	ne Distance:	78 feet		Veh	icleType	[Day I	Evening	Night	Daily
Site Data					AL	itos: 6	6.2%	13.5%	20.3%	93.44%
Bai	rrier Height	0.0 feet		М	edium Tru	cks: 7	7.1%	5.3%	17.6%	4.67%
Barrier Type (0-W	all, 1-Berm):	0.0		1	Heavy Tru	cks: 8	36.3%	1.5%	12.2%	1.89%
Centerline Di	st. to Barrier:	60.0 feet		Noise S	ource Ele	vations	(in fee	et)		
Centerline Dist.	to Observer:	60.0 feet			Autos:	0.0	00			-
Barrier Distance	to Observer:	0.0 feet		Mediu	m Trucks:	2.2	97			
Observer Height (Above Pad):	5.0 feet		Heav	/v Trucks:	8.0	04 0	Grade Adi	ustment	: 0.0
Pa	ad Elevation:	0.0 feet								
Roa	ad Elevation:	0.0 feet		Lane Eq	uivalent I	Distanc	e (in fe	et)		
	Road Grade:	0.0%			Autos:	45.8	69			
	Left View:	-90.0 degrees	5	Mediu	m Trucks:	45.6	76			
	Right View:	90.0 degrees	5	Heav	/y Trucks:	45.6	95			
FHWA Noise Mod	el Calculation	s								
VehicleType	REMEL	Traffic Flow	Distance	e Finite	Road	Fresne	el B	arrier Atte	en Ber	m Atten
Autos:	68.46	3.89	C).46	-1.20	-	4.69	0.0	00	0.000
Medium Trucks:	79.45	-9.12	C).49	-1.20	-	4.88	0.0	00	0.000
Heavy Trucks:	84.25	-13.05	C	.48	-1.20	-	5.34	0.0	00	0.000
Unmitigated Noise	e Levels (with	out Topo and b	arrier att	enuation)					-	
VehicleType	Leq Peak Hou	Ir Leq Day	Leq	Evening	Leq N	ight	L	dn	C	NEL
Autos:	71	.6 6	9.0	68.1		65.1		72.3		72.7
Medium Trucks:	69	.6 6	7.7	62.1		62.5		69.9		70.1
Heavy Trucks:	70	.5 6	9.1	57.5		61.8		69.9		70.0
Vehicle Noise:	75	.4 7	3.4	69.4		68.2		75.6		75.9
Centerline Distant	ce to Noise Co	ontour (in feet)								
			7	'0 dBA	65 dl	BA	60	dBA	55	dBA
		L	dn:	143	307	7	6	662	1,	427
		CN	EL:	149	320)	6	690	1,	487

Thursday, May 02, 2019

	FH	WA-RD-77-108	HIGHW	AY NO	ISE P	REDICT	ION MO	DEL			
Scenar Road Nam Road Segme	io: HY With P ne: El Prado R nt: n/o Kimbal	roject td. I Av.				Project Job N	Name: I lumber:	MCH 10351			
SITE	SPECIFIC IN	NPUT DATA				N	IOISE N	/IODE	L INPUTS	S	
Highway Data				Si	te Cor	nditions	(Hard =	10, S	oft = 15)		
Average Daily	Traffic (Adt):	29,164 vehicl	es					Autos:	15		
Peak Hour	Percentage:	10%			Me	edium Tr	ucks (2 A	xles):	15		
Peak H	lour Volume:	2,916 vehicle	s		He	avy Tru	cks (3+ A	(xles)	15		
Ve	hicle Speed:	45 mph		Ve	hicle	Mix					
Near/Far La	ne Distance:	36 feet		-	Veh	nicleTvpe		Dav	Evenina	Niah	t Dailv
Site Data							Autos:	66.2%	13.5%	20.3	% 93.53%
Ba	rrier Heiaht:	0.0 feet			Μ	edium T	rucks:	77.1%	5.3%	17.6	% 4.61%
Barrier Type (0-W	/all, 1-Berm):	0.0				Heavy T	rucks:	86.3%	5 1.5%	12.2	% 1.87%
Centerline Di	st. to Barrier:	44.0 feet		No	oise S	ource E	levation	s (in f	eet)		
Centerline Dist.	to Observer:	44.0 feet				Auto	s: 0.0	000			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Truck	s: 2.2	297			
Observer Height ((Above Pad):	5.0 feet			Hear	vy Truck	s: 8.0	004	Grade Adj	iustme	nt: 0.0
Pa	ad Elevation:	0.0 feet		10	no Fo	wiwelen	4 Distan	no (in	faa4)		
Roa	ad Elevation:	0.0 feet		La	ine Eq	uivalen			leel)		
	Road Grade:	0.0%			Madiu	AUTO	S: 40.4	400			
	Left View:	-90.0 degre	es		Wealu Hoo	m Truck	S: 40.2	241			
	Night view.	90.0 degre	es		nea	ry much	3. 40.	202			
FHWA Noise Mod	el Calculation	15									
VehicleType	REMEL	Traffic Flow	Distar	nce	Finite	Road	Fresn	el	Barrier Atte	en E	Berm Atten
Autos:	68.46	2.52		1.28		-1.20		-4.61	0.0	00	0.000
Medium Trucks:	79.45	-10.55		1.31		-1.20		-4.87	0.0	00	0.000
Heavy Trucks:	84.25	-14.48		1.31		-1.20		-5.50	0.0	00	0.000
Unmitigated Nois	e Levels (with	out Topo and	barrier a	attenua	ation)					1	
Venicie I ype	Leq Peak Ho	ur Leq Day	/ L	eq Eve	ning	Leq	Night		Ldn		CNEL
Autos:	/1	1.1	68.5		67.6		64.6		/1.8	5	72.2
Medium Trucks:	65	9.0	60 4		01.0		61.9		69.3	•	69.5
Vehicle Noise:	74	9.9 1.8	72.8		68.8		67.6		75.1)	75.3
Centerline Distan	ce to Noise C	ontour (in fee	e)								
µ		,		70 dB	A	65	dBA		60 dBA	1	55 dBA
			Ldn:	96 206 444			957				
		С	NEL:	100		2	15		463		998

Scenar	io: HY With Pr	oject				Project Na	ame:	мсн			
Road Nam	ne: Euclid Av.	-				Job Nun	nber:	10351			
Road Segme	nt: n/o Walnut	Av.									
SITE	SPECIFIC IN	IPUT DATA				NO	ISE N	NODE	L INPUT	s	
Highway Data				Sit	e Con	ditions (H	ard =	10, S	oft = 15)		
Average Daily	Traffic (Adt):	53,422 vehicles						Autos:	15		
Peak Hour	Percentage:	10%			Med	dium Truck	(S (2 A	Axles):	15		
Peak H	lour Volume:	5,342 vehicles			Hea	avy Trucks	; (3+ A	Axles):	15		
Ve	hicle Speed:	55 mph		Ve	hicle I	Nix					
Near/Far La	ne Distance:	154 feet			Vehi	cleType		Day	Evening	Night	Daily
Site Data						Aut	os:	66.2%	13.5%	20.3%	92.87%
Ba	rrior Hoight:	0.0 feet			Me	dium Truc	ks:	77.1%	5.3%	17.6%	4.90%
Barrier Type (0-W	/all_1-Rerm)	0.0			H	leavy Truc	ks:	86.3%	1.5%	12.2%	2.24%
Centerline Di	st. to Barrier:	84.0 feet					- 41	- // 4	41		
Centerline Dist.	to Observer:	84.0 feet		NO	ise So	urce Elev	ation	s (in f	eet)		
Barrier Distance	to Observer:	0.0 feet				Autos:	0.0	000			
Observer Height	(Above Pad):	5.0 feet			Mediun	n Trucks:	2.2	297	Crada Ad	iuotmont	
P	ad Elevation:	0.0 feet			Heav	y Trucks:	8.	004	Grade Adj	usuneni	0.0
Ro	ad Elevation:	0.0 feet		La	ne Equ	ıivalent D	istan	ce (in	feet)		
	Road Grade:	0.0%				Autos:	33.	941			
	Left View:	-90.0 degrees		1	Mediun	n Trucks:	33.	679			
	Right View:	90.0 degrees			Heav	y Trucks:	33.	705			
FHWA Noise Mod	el Calculation	s									
FHWA Noise Mod VehicleType	el Calculation REMEL	s Traffic Flow	Distand	e	Finite	Road	Fresr	nel	Barrier Atte	en Ber	m Atten
FHWA Noise Mod VehicleType Autos:	el Calculation REMEL 71.78	s Traffic Flow 4.25	Distanc	e 2.42	Finite	Road -1.20	Fresr	iel -4.75	Barrier Atte	en Ber	m Atten 0.000
FHWA Noise Mod VehicleType Autos: Medium Trucks:	el Calculation REMEL 71.78 82.40	s Traffic Flow 4.25 -8.53	Distanc	e 2.42 2.47	Finite	Road -1.20 -1.20	Fresr	nel -4.75 -4.88	Barrier Atte 0.0 0.0	en Ber 000	m Atten 0.000 0.000
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks:	el Calculation REMEL 71.78 82.40 86.40	s Traffic Flow 4.25 -8.53 -11.94	Distanc	e 2.42 2.47 2.47 2.47	Finite	Road -1.20 -1.20 -1.20	Fresr	el -4.75 -4.88 -5.21	Barrier Atte 0.0 0.0 0.0	en Ber 000 000 000	m Atten 0.000 0.000 0.000
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise	el Calculation REMEL 71.78 82.40 86.40 e Levels (with	s Traffic Flow 4.25 -8.53 -11.94 out Topo and ba	Distanc	e 2.42 2.47 2.47 2.47	Finite .	Road -1.20 -1.20 -1.20	Fresr	el -4.75 -4.88 -5.21	Barrier Atte 0.0 0.0 0.0	en Ber 000 000 000	<u>m Atten</u> 0.000 0.000 0.000
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType	el Calculation REMEL 71.78 82.40 86.40 e Levels (with Leq Peak Hou	s Traffic Flow 4.25 -8.53 -11.94 out Topo and ba Ir Leq Day	Distand	e 2.42 2.47 2.47 tenua g Ever	Finite	Road -1.20 -1.20 -1.20 Leq Nig	Fresr	el -4.75 -4.88 -5.21	Barrier Atte 0.0 0.0 0.0 0.0	en Ber 000 000 000 000	m Atten 0.000 0.000 0.000
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noiss VehicleType Autos:	el Calculation REMEL 71.78 82.40 86.40 e Levels (with Leq Peak Hou 77	s Traffic Flow 4.25 -8.53 -11.94 out Topo and ba ur Leq Day .2 74	Distance arrier at Lee	e 2.42 2.47 2.47 tenua g Ever	Finite ation) ning 73.8	Road -1.20 -1.20 -1.20 Leq Nig	Fresr ght 70.8	-4.75 -4.88 -5.21	Barrier Atte 0.0 0.0 0.0 0.0 0.0 78.0	en Ber 000 000 000 Cl	<u>m Atten</u> 0.000 0.000 0.000 <u>VEL</u> 78.4
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noiss VehicleType Autos: Medium Trucks:	el Calculation REMEL 71.78 82.40 86.40 e Levels (with Leq Peak Hou 77 75	s Traffic Flow 4.25 -8.53 -11.94 out Topo and be rr Leq Day .2 74 .1 73	Distance arrier at Lee	e 2.42 2.47 2.47 tenua g Ever	Finite ntion) ning 73.8 67.6	Road -1.20 -1.20 -1.20 Leq Nig	Fresr ght 70.8 68.1	el -4.75 -4.88 -5.21	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	en Ber 000 000 000 000 Cl	<u>m Atten</u> 0.000 0.000 0.000 <u>0.000</u> <u>NEL</u> 78.4 75.7
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks:	el Calculation <u>REMEL</u> 71.78 82.40 86.40 e Levels (with Leq Peak Hou 77 75 75 75	s Traffic Flow 4.25 -8.53 -11.94 out Topo and ba ur Leq Day .2 74 .1 73 .7 74	Distance arrier at Lee .7 .2 .3	e 2.42 2.47 2.47 tenua 1 Ever	Finite ning 73.8 67.6 62.7	Road -1.20 -1.20 -1.20 Leq Nig	Fresr ght 70.8 68.1 67.0	-4.75 -4.88 -5.21	Barrier Atte 0.0 0.0 0.0 <i>Ldn</i> 78.0 75.5 75.1	en Ber 000 000 000 000 <i>CI</i> 0 5	m Atten 0.000 0.000 0.000 VEL 78.4 75.7 75.2
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise	el Calculation REMEL 71.78 82.40 86.40 e Levels (with Leq Peak Hou 77 75 75 80	s Traffic Flow 4.25 -8.53 -11.94 out Topo and bis rr Leq Day .2 74 .1 73 .7 74 .9 76	Distance arrier at Lee .7 .2 .3	e 2.42 2.47 2.47 tenua 1 Ever	Finite ning 73.8 67.6 62.7 75.0	Road -1.20 -1.20 -1.20 Leq Nig	Fresr ght 70.8 68.1 67.0 73.7	-4.75 -4.88 -5.21	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 7 0.0 7 5.5 75.1 81.2	en Ber 000 000 000 000 Cl 0 5 1 2	m Atten 0.000 0.000 VEL 78 75 75 81
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: VehicleType Autos: Medium Trucks: Vehicle Noise: Vehicle Noise: Centerline Distan	el Calculation REMEL 71.78 82.40 86.40 e Levels (with Leq Peak Hou 77 75 75 80 cc to Noise Ca	s Traffic Flow 4.25 -8.53 -11.94 out Topo and bi rr Leq Day .2 74 .1 73 .7 74 .9 78 ontour (In feet)	Distance arrier at Lee .7 .2 .3 .9	2.42 2.47 2.47 2.47 tenua 7 Ever	Finite ning 73.8 67.6 62.7 75.0	Road -1.20 -1.20 -1.20 Leg Nig	<i>Fresr</i> <i>ght</i> 70.8 68.1 67.0 73.7	el -4.75 -4.88 -5.21	Barrier Atte 0.0 0.0 0.0 0.0 78.0 75.5 75.1 81.2	en Ber 000 000 000 Cl 0 5 1 2	m Atten 0.000 0.000 0.000 VEL 78.4 75.1 75.2 81.4
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distance	el Calculation REMEL 71.78 82.40 86.40 e Levels (with Leq Peak Hou 77 75 75 80 ce to Noise Co	s Traffic Flow 4.25 -8.53 -11.94 out Topo and by .2 74 .1 73 .7 74 .9 76 ontour (in feet)	Distance arrier at Lee 7 2 3 9	2.42 2.47 2.47 tenua g Ever	Finite ning 73.8 67.6 62.7 75.0	Road -1.20 -1.20 -1.20 Leg Nig 65 dB	Fresr 70.8 68.1 67.0 73.7	el -4.75 -4.88 -5.21	Barrier Atto 0.0 0.0 0.0 1. 1. 1. 75.5 75.1 81.2 80 dBA	en Ber 1000 100	m Atten 0.000 0.000 0.000 VEL 78.2 75.2 81.4 dBA
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distance	el Calculation REMEL 71.78 82.40 86.40 e Levels (with Leg Peak Hou 77 75 75 80 ce to Noise Co	s Traffic Flow 4.25 -8.53 -11.94 out Topo and bi Ir Leg Day 2 74 1 73 7 74 .9 78 ontour (In feet)	Distance arrier at Lee 7 2 3 9	e 2.42 2.47 2.47 tenua 1 Even 70 dB, 465	Finite ning 73.8 67.6 62.7 75.0	Road -1.20 -1.20 -1.20 <i>Leq Nig</i> 65 dB	Fresr 9ht 70.8 68.1 67.0 73.7 73.7	el -4.75 -4.88 -5.21	Barrier Atta 0.0 0.0 0.0 0.0 0.0 7 7 8.0 7 8.1 2 8 1.2 8 0 dBA 2,159	en Ber 000 000 000 Cl 0 5 1 2 55 4,	m Atten 0.00(0.00(0.000 VEL 78.4 75.7 75.2 81.4 dBA 652

Thursday, May 02, 2019

	FHW	A-RD-77-108 HIG	HWAY	NOISE PF	REDICTIO	N MODEL		
Scenario Road Name Road Segmen	 b: HY With Pro c: Euclid Av. t: n/o Riversid 	e Dr.			Project Na Job Nun	ame: MCH nber: 10351	1	
SITE S	PECIFIC IN	PUT DATA			NO	ISE MODI	EL INPUTS	
Highway Data				Site Con	ditions (H	ard = 10, S	oft = 15)	
Average Daily T Peak Hour I Peak Ho	Fraffic (Adt): Percentage: our Volume:	46,231 vehicles 10% 4,623 vehicles		Me He	dium Truck avy Trucks	Autos ks (2 Axles) (3+ Axles)	: 15 : 15 : 15	
Veh	icle Speed:	55 mph	-					
Near/Far Lar	e Distance:	154 feet	-	Venicle I Vehi	vix cleTvpe	Dav	Evenina	Night Dailv
Site Data					Aut	os: 66.29	6 13.5%	20.3% 92.79%
Bar	rier Heiaht:	0.0 feet		Me	edium Truc	ks: 77.19	6 5.3%	17.6% 4.93%
Barrier Type (0-Wa	all, 1-Berm):	0.0		F	leavy Truc	ks: 86.3%	6 1.5%	12.2% 2.29%
Centerline Dis	t. to Barrier:	84.0 feet	ŀ	Noise So	ource Elev	ations (in	feet)	
Centerline Dist. t	o Observer:	84.0 feet	Ī		Autos:	0.000	,	
Barrier Distance t	o Observer:	0.0 feet		Mediur	n Trucks:	2.297		
Observer Height (/	Above Pad):	5.0 feet		Heav	y Trucks:	8.004	Grade Adjı	istment: 0.0
Pa	d Elevation.	0.0 feet	ŀ	Lane Fo	uivalent D	istance (in	feet)	
Roa	u Elevation.	0.0 1001	ŀ	Lano Lq	Autor	22 0/1	1000	
, , , , , , , , , , , , , , , , , , ,	Loft Viow:	0.0 /0		Modiur	n Trucks	33 670		
	Right View:	90.0 degrees		Heav	y Trucks:	33.705		
FHWA Noise Mode	Calculations							
VehicleType	REMEL	Traffic Flow D	istance	Finite	Road	Fresnel	Barrier Atte	n Berm Atten
Autos:	71.78	3.62	2.4	2	-1.20	-4.75	0.00	0.000
Medium Trucks:	82.40	-9.13	2.4	7	-1.20	-4.88	0.00	0.000
Heavy Trucks:	86.40	-12.47	2.4	17	-1.20	-5.21	0.00	0.000
Unmitigated Noise	Levels (witho	out Topo and barr	rier attei	nuation)				
VehicleType	Leq Peak Houi	Leq Day	Leq E	vening	Leq Ni	ght	Ldn	CNEL
Autos:	76.	6 74.0		73.1		70.1	77.3	77.8
Medium Trucks:	74.	5 72.6		67.0		67.5	74.9	75.1
Heavy Trucks:	75.:	2 73.8		62.2		66.5	74.6	74.7
Vehicle Noise:	80.	3 78.3		74.4		73.1	80.6	80.8
Centerline Distanc	e to Noise Co	ntour (in feet)				- I	1	
			70	dBA	65 dB	A	60 dBA	55 dBA
		Ldn:	: 4	24	914		1,970	4,244
		CNEL:	: 4	43	954		2,054	4,426

	FHV	VA-RD-77-108 H	IIGHWAY	Y NOISE P	REDICTIO	N MODEL			
Scenar Road Nam Road Segmei	io: HY With Pr e: Euclid Av. nt: n/o Chino A	oject \v.			Project N Job Nur	ame: MCH nber: 1035	1		
SITE	SPECIFIC IN	IPUT DATA			NO	ISE MOD	EL INPUTS	5	
Highway Data				Site Cor	nditions (H	lard = 10, S	Soft = 15)		
Average Daily	Traffic (Adt):	49,822 vehicles	5			Autos	: 15		
Peak Hour	Percentage:	10%		Me	dium Truc	ks (2 Axles)): 15		
Peak H	lour Volume:	4,982 vehicles		He	avy Truck	s (3+ Axles)): 15		
Ve	hicle Speed:	55 mph		Vehicle	Mix				
Near/Far La	ne Distance:	154 feet		Veh	icleType	Dav	Evenina	Night	Daily
Site Data					Au	tos: 66.29	% 13.5%	20.3%	92.85%
Pa	rrior Hoight:	0.0 foot		М	edium Truc	cks: 77.19	% 5.3%	17.6%	4.90%
Barrier Type (0-W	all 1-Berm)	0.0 1001			Heavy Truc	cks: 86.39	% 1.5%	12.2%	2.25%
Centerline Di	st. to Barrier:	84.0 feet			-				
Centerline Dist.	to Observer:	84.0 feet		Noise S	ource Elev	ations (in	feet)		
Barrier Distance	to Observer:	0.0 feet			Autos:	0.000			
Observer Height (Above Pad);	5.0 feet		Mediu	m Trucks:	2.297	Our de Ad		
Pa	ad Elevation:	0.0 feet		Heav	/y Trucks:	8.004	Grade Adj	ustment:	0.0
Roa	ad Elevation:	0.0 feet		Lane Eq	uivalent D	istance (in	feet)		
	Road Grade:	0.0%			Autos:	33.941			
	Left View:	-90.0 degrees	5	Mediu	m Trucks:	33.679			
	Right View:	90.0 degrees	6	Heav	/y Trucks:	33.705			
FHWA Noise Mod	el Calculation	s							
VehicleType	REMEL	Traffic Flow	Distance	e Finite	Road	Fresnel	Barrier Atte	en Berr	m Atten
Autos:	71.78	3.94	2	2.42	-1.20	-4.75	0.0	00	0.000
Medium Trucks:	82.40	-8.83	2	2.47	-1.20	-4.88	0.0	00	0.000
Heavy Trucks:	86.40	-12.21	2	2.47	-1.20	-5.21	0.0	00	0.000
Unmitigated Noise	e Levels (with	out Topo and b	arrier att	enuation)					
VehicleType	Leq Peak Hou	ır Leq Day	Leq	Evening	Leq Ni	ght	Ldn	CN	VEL
Autos:	76	.9 7	4.4	73.5		70.5	77.7		78.1
Medium Trucks:	74	.8 7	2.9	67.3		67.8	75.2	1	75.4
Heavy Trucks:	75	.5 7	4.0	62.4		66.8	74.9)	74.9
Vehicle Noise:	80	.6 7	8.6	74.7		73.4	80.9	1	81.1
Centerline Distant	ce to Noise Co	ontour (in feet)							
			7	'0 dBA	65 dE	BA	60 dBA	55	dBA
		L	dn:	445	958		2,064	4,4	147
		CN	EL:	464	999		2,153	4,6	538

Thursday, May 02, 2019

	FH\	NA-RD-77-108	HIGHW	AY NO	ISE P	REDICTIO	N MODE	EL			
Scenario Road Name Road Segment	e: HY With Pr e: Euclid Av. t: n/o Schaef	roject er Av.				Project N Job Nur	ame: M0 nber: 10	CH 351			
SITE S	PECIFIC IN	IPUT DATA				NO	ISE MO	DDEL IN	IPUTS		
Highway Data				Si	te Cor	ditions (H	lard = 10	0, Soft =	15)		
Average Daily T	raffic (Adt):	50,264 vehicle	es				Au	itos: 1	5		
Peak Hour F	Percentage:	10%			Me	dium Truc	ks (2 Axl	les): 1	5		
Peak Ho	our Volume:	5,026 vehicle	S		He	avy Truck	s (3+ Axl	les): 1	5		
Veh	icle Speed:	55 mph		Ve	hiclo	Mix					
Near/Far Lan	e Distance:	154 feet			Veh	icleTvpe	Da	av Eve	enina N	iaht	Dailv
Site Data						Au	tos: 66	5.2% 1	3.5% 2	0.3%	92.86%
Barr	ier Heiaht:	0.0 feet			М	edium Truc	cks: 77	7.1%	5.3% 1	7.6%	4.89%
Barrier Type (0-Wa	all, 1-Berm):	0.0			1	Heavy True	cks: 86	6.3%	1.5% 1	2.2%	2.25%
Centerline Dist	t. to Barrier:	84.0 feet		No	oise Se	ource Elev	vations ((in feet)			
Centerline Dist. to	o Observer:	84.0 feet				Autos:	0.00	0			
Barrier Distance to	o Observer:	0.0 feet			Mediu	m Trucks:	2.29	7			
Observer Height (A	lbove Pad):	5.0 feet			Heav	v Trucks:	8.00	4 Gra	de Adjus	tment:	0.0
Pad	d Elevation:	0.0 feet									
Road	d Elevation:	0.0 feet		Lá	ine Eq	uivalent L	vistance	(in feet)			
R	oad Grade:	0.0%				Autos:	33.94	1			
	Left View:	-90.0 degree	es		Mediu	m Trucks:	33.67	9			
	Right view:	90.0 degree	es		nea	ly TTUCKS.	33.70	c			
FHWA Noise Model	l Calculation	S									
VehicleType	REMEL	Traffic Flow	Distar	nce	Finite	Road	Fresnel	Barr	ier Atten	Berr	n Atten
Autos:	71.78	3.98		2.42		-1.20	-4	.75	0.000		0.000
Medium Trucks:	82.40	-8.80		2.47		-1.20	-4	.88	0.000		0.000
Heavy Trucks:	86.40	-12.18		2.47		-1.20	-5	.21	0.000		0.000
Unmitigated Noise	Levels (with	out Topo and	barrier a	attenua	ation)						
VehicleType L	Leq Peak Hou	ur Leq Day	' Le	eq Eve	ning	Leq Ni	ight	Ldr	1	C٨	IEL
Autos:	77	.0	74.4		73.5		70.5		77.7		78.1
Medium Trucks:	74	.9	73.0		67.4		67.8		75.2		75.4
Heavy Trucks:	75	.5	74.1		62.5		66.8		74.9		75.0
Vehicle Noise:	80	0.6	78.6		74.7		73.4		80.9		81.2
Centerline Distance	e to Noise Co	ontour (in feet)	70.15		05.5		<i></i>			0.4
				70 dE	5A	65 dE	5A	60 dE	54	55 0	JBA 74
		~	Ldh:	447		963	-	2,07	o 4	4,4	-/1
		CI	VEL:	466		1,00	э	2,16	4	4,6	სავ

				NOISE	PREDICTIO	N MODE	1L		
Scenari	o: HY With Pro	ject			Project N	ame: MO	СН		
Road Nam	e: Euclid Av.				Job Nur	nber: 10	351		
Road Segmer	nt: n/o Edison A	Av.							
SITES	SPECIFIC IN	PUT DATA			NC	ISE MC	DEL INPUTS	5	
Highway Data				Site C	onditions (H	iard = 10), Soft = 15)		
Average Daily	Traffic (Adt):	52,860 vehicles				Au	tos: 15		
Peak Hour	Percentage:	10%			Medium Truc	ks (2 Axl	es): 15		
Peak H	our Volume:	5,286 vehicles			Heavy Truck	s (3+ Axl	es): 15		
Vel	hicle Speed:	55 mph		Vehic	e Mix				
Near/Far Lar	ne Distance:	154 feet		V	ehicleType	Da	ay Evening	Night	Daily
Site Data					Au	tos: 66	.2% 13.5%	20.3%	92.88%
Bar	rier Height	0.0 feet			Medium Tru	cks: 77	.1% 5.3%	17.6%	4.88%
Barrier Type (0-W	all. 1-Berm):	0.0			Heavy Tru	cks: 86	.3% 1.5%	12.2%	2.23%
Centerline Dis	t. to Barrier:	84.0 feet		Malaa	0 F /		(m. fr 4)		
Centerline Dist. I	to Observer:	84.0 feet		Noise	Source Ele	ations (in reet)		
Barrier Distance t	to Observer:	0.0 feet		Ma	Autos:	0.00	J 7		
Observer Height (J	Above Pad):	5.0 feet		Wed	IUIII TTUCKS.	2.29	ı A Grada Adii	istmont.	0.0
Pa	d Elevation:	0.0 feet			avy mucks.	0.004		Journerne.	0.0
Roa	d Elevation:	0.0 feet		Lane	Equivalent L	listance	(in feet)		
F	Road Grade:	0.0%			Autos:	33.94	1		
	Left View:	-90.0 degrees		Mee	lium Trucks:	33.67	9		
	Right View:	90.0 degrees		He	eavy Trucks:	33.70	5		
FHWA Noise Mode	el Calculations			1					
VehicleType	REMEL	Traffic Flow	Distance	e Fin	ite Road	Fresnel	Barrier Atte	en Bern	n Atten
Autos:	71.78	4.20	2	.42	-1.20	-4	.75 0.0	00	0.000
Medium Trucks:	82.40	-8.59	2	.47	-1.20	-4	.88 0.0	00	0.000
Heavy Trucks:	86.40	-11.99	2	.47	-1.20	-5	.21 0.0	00	0.000
Unmitigated Noise	Levels (witho	out Topo and ba	rrier att	enuatio	1)				
VehicleType	Leq Peak Hou	r Leq Day	Leq	Evening	Leq N	ght	Ldn	CN	IEL
Autos:	77.	2 74.	6	73	.7	70.7	77.9		78.3
	75.	1 73.	2	67	.6	68.0	75.4		75.6
Medium Trucks:		7 74	2	62	7	67.0	75.1		75.2
Medium Trucks: Heavy Trucks:	75.	/ /4.				70.0	044		81.4
Medium Trucks: Heavy Trucks: Vehicle Noise:	75. 80.	9 78.	8	74	.9	73.6	81.1		
Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distanc	75. 80. se to Noise Co	ntour (in feet)	8	74	.9	73.6	81.1	[
Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distanc	75. 80. ce to Noise Co	7 74. 9 78. ntour (in feet)	8	74 0 dBA	.9 65 dE	73.6 84	60 dBA	55 0	dBA
Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distanc	75. 80. se to Noise Co	ntour (in feet)	8 7 n:	74 0 dBA 462	9 65 dE 995	73.6 BA	60 dBA 2,143	55 d 4,6	dBA

Thursday, May 02, 2019

	FHV	VA-RD-77-108	HIGHW	VAY N	IOISE PI	REDICTI	ON MC	DEL			
Scenario Road Namo Road Segmen	o: HY With Pr e: Euclid Av. ht: n/o Eucalyp	oject otus Av.				Project Job Ni	Vame: Imber:	MCH 10351			
SITE S	SPECIFIC IN	IPUT DATA				N	OISE	MODE	L INPU	ГS	
Highway Data					Site Cor	ditions	Hard =	= 10, Se	oft = 15)		
Average Daily Peak Hour Peak He	Traffic (Adt): Percentage: our Volume:	48,456 vehicle 10% 4,846 vehicle	es s		Me He	dium Tru avy Truc	cks (2 ks (3+	Autos: Axles): Axles):	15 15 15		
Vel	hicle Speed:	55 mph		F	Vohiclo	Miy					
Near/Far Lar	ne Distance:	154 feet		+	Venicie	icleType		Dav	Evenino	Niah	t Dailv
Site Data					1011	A	utos:	66.2%	13.5%	20.3	% 92.85%
Bor	rior Hoight	0.0 (act			М	edium Tr	ucks:	77.1%	5.3%	17.6	% 4.89%
Barrier Type (0-Wa	all, 1-Berm):	0.0 1001			1	Heavy Tr	ucks:	86.3%	1.5%	12.2	% 2.26%
Centerline Dis	t. to Barrier:	84.0 feet		E	Noise S	ource El	vatior	ns (in f	eet)		
Centerline Dist. t	to Observer:	84.0 feet		F		Autos	· 0	000	000		
Barrier Distance t	to Observer:	0.0 feet			Modiu	m Trucks	. 0.	207			
Observer Height (/	Above Pad):	5.0 feet			Hoai	n/ Trucks	. <u>2</u> . . g	004	Grade A	diustme	nt 0.0
Pa	d Elevation:	0.0 feet			near	ly mucha	. 0.	.004	0/000//	ajaoano	<i>m.</i> 0.0
Roa	d Elevation:	0.0 feet			Lane Eq	uivalent	Distan	ice (in	feet)		
F	Road Grade:	0.0%				Autos	: 33	.941			
	Left View:	-90.0 degree	es		Mediu	m Trucks	: 33	.679			
	Right View:	90.0 degree	es		Heav	y Trucks	: 33	.705			
FHWA Noise Mode	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fres	nel	Barrier A	tten E	erm Atten
Autos:	71.78	3.82		2.4	2	-1.20		-4.75	0	.000	0.00
Medium Trucks:	82.40	-8.96		2.4	7	-1.20		-4.88	0	.000	0.00
Heavy Trucks:	86.40	-12.32		2.4	7	-1.20		-5.21	0	.000	0.00
Unmitigated Noise	Levels (with	out Topo and	barrier	atten	uation)						
VehicleType	Leq Peak Hou	ır Leq Day	' L	Leq E	vening	Leq I	light		Ldn		CNEL
Autos:	76	.8	74.2		73.4		70.	4	77	.5	78.
Medium Trucks:	74	.7	72.8		67.2		67.	6	75	.0	75.
Heavy Trucks:	75	.3	73.9		62.3		66.	7	74	.8	74.
		-	78 5		74.6		73.	3	80	.7	81.
Vehicle Noise:	80	.5	10.0								
Vehicle Noise: Centerline Distance	80 e to Noise Co	.5 ontour (in feet)								
Vehicle Noise: Centerline Distanc	80 se to Noise Co	.5 ontour (in feet,)	70 (dBA	65 (IBA		60 dBA	4	55 dBA
Vehicle Noise: Centerline Distanc	80 e to Noise Co	.5 ontour (in feet) Ldn:	70 d	dBA 37	65 d 94	IBA 0		60 dBA 2,026		55 dBA 4,365

	FHW	/A-RD-77-108 HI	GHWAY	NOISE PH	REDICTION	MODEL			
Scenar	Scenario: HY With Project					ne: MCH			
Road Nam	e: Euclid Av.				Job Numb	er: 1035	1		
Road Segme	nt: n/o Merrill A	ν.							
SITE	SPECIFIC IN	PUT DATA			NOIS	E MODI	EL INPUT	s	
Highway Data				Site Con	ditions (Ha	rd = 10, S	oft = 15)		
Average Daily	Traffic (Adt):	48,135 vehicles				Autos	: 15		
Peak Hour	Percentage:	10%		Me	dium Trucks	(2 Axles)	: 15		
Peak H	lour Volume:	4,814 vehicles		He	avy Trucks (3+ Axles)	: 15		
Ve	hicle Speed:	55 mph		Vehicle I	Mix				
Near/Far La	ne Distance:	154 feet		Veh	icleType	Day	Evening	Night	Daily
Site Data					Auto	s: 66.29	6 13.5%	20.3%	92.86%
Ba	rrior Hoight	0.0 feet		Me	edium Truck	s: 77.19	6 5.3%	17.6%	4.89%
Barrier Type (0-W	/all, 1-Berm):	0.0		ŀ	leavy Truck	s: 86.39	% 1.5%	12.2%	2.26%
Centerline Di	st. to Barrier:	84.0 feet	-	Noise So	ource Eleva	tions (in	feet)		
Centerline Dist.	to Observer:	84.0 feet			Autos:	0.000		-	
Barrier Distance	to Observer:	0.0 feet		Mediur	n Trucks:	2.297			
Observer Height (Above Pad):	5.0 feet		Heav	v Trucks:	8.004	Grade Ad	justment	: 0.0
Pa	ad Elevation:	0.0 feet					,		
Roi	ad Elevation:	0.0 feet		Lane Eq	uivalent Dis	tance (in	teet)		
	Road Grade:	0.0%			Autos:	33.941			
	Left View:	-90.0 degrees		Mediur	n Trucks:	33.679			
	Right View:	90.0 degrees		Heav	y Trucks:	33.705			
FHWA Noise Mod	el Calculations	;							
VehicleType	REMEL	Traffic Flow	Distance	Finite	Road F	resnel	Barrier Att	en Ber	m Atten
Autos:	71.78	3.79	2.4	12	-1.20	-4.75	0.0	000	0.000
Medium Trucks:	82.40	-9.00	2.4	17	-1.20	-4.88	0.0	000	0.000
Heavy Trucks:	86.40	-12.35	2.4	17	-1.20	-5.21	0.0	000	0.000
Unmitigated Nois	e Levels (witho	out Topo and ba	rrier atte	nuation)					
VehicleType	Leq Peak Hou	r Leq Day	Leq E	vening	Leq Nigł	nt	Ldn	C	NEL
Autos:	76.	8 74	.2	73.3		70.3	77.5	i	77.9
Medium Trucks:	74.	7 72	.8	67.2		67.6	75.0)	75.2
Heavy Trucks:	75.	3 73.	.9	62.3		66.6	74.7	/	74.8
Vehicle Noise:	80.	5 78	.4	74.5		73.2	80.7	/	81.0
Centerline Distan	ce to Noise Co	ntour (in feet)		,					
			70	dBA	65 dBA		60 dBA	55	dBA
		Ld	n: 4	34	936		2,017	4,	345
		CNE	L: 4	53	976		2,104	4,	532

Thursday, May 02, 2019

	FHV	VA-RD-77-108	HIGHWA	Y NO	ISE PI	REDICTIO	N MOD	EL			
Scenario Road Name Road Segmen	 b: HY With Pr c: Euclid Av. t: s/o Merrill A 	roject Av.				Project N Job Nur	ame: M nber: 10	CH)351			
SITE S	PECIFIC IN	IPUT DATA				NC	ISE MO	ODEL	INPUTS	;	
Highway Data				Sit	te Con	ditions (H	lard = 1	0, Soft	= 15)		
Average Daily T	raffic (Adt):	51,048 vehicle	s				Au	utos:	15		
Peak Hour F	Percentage:	10%			Me	dium Truc	ks (2 Ax	(les):	15		
Peak Ho	our Volume:	5,105 vehicles			He	avy Truck	s (3+ Ax	des):	15		
Veh	icle Speed:	55 mph		Ve	hicle	Mix					
Near/Far Lan	e Distance:	154 feet			Veh	icleType	D	av E	vening	Night	Daily
Site Data						Au	tos: 6	6.2%	13.5%	20.3%	92.90%
Barı	rier Heiaht:	0.0 feet			M	edium Tru	cks: 7	7.1%	5.3%	17.6%	4.87%
Barrier Type (0-Wa	all, 1-Berm):	0.0			ŀ	Heavy Tru	cks: 8	6.3%	1.5%	12.2%	2.23%
Centerline Dist	t. to Barrier:	84.0 feet		No	oise So	ource Elev	ations	(in feet	9		
Centerline Dist. to	o Observer:	84.0 feet				Autos:	0.00	0	/		
Barrier Distance to	o Observer:	0.0 feet			Mediu	m Trucks:	2.29	97			
Observer Height (A	bove Pad):	5.0 feet			Heav	y Trucks:	8.00	4 G	rade Adju	ıstment	0.0
Pa	d Elevation:	0.0 feet		10	no Fa	uiualant I	Viotonoo	/in for	41		
Road	d Elevation:	0.0 feet		La	ne Eq		22.04	: (III 186	=()		
ĸ	l oft View	0.0%	-		Modiu	MULOS.	33.94	+ I 70			
	Right View:	-90.0 degree	s		Heav	v Trucks:	33.70)5			
			-								
FHWA Noise Mode	I Calculation	S	Distan		Finite	Deed	C	. 0.			
Venicie i ype	REMEL 71 79	I TATTIC FIOW	Distan	2 4 2	Finite	1 20	Freshe	I B6 1.75	arrier Atte	n Ber	m Atten
Medium Trucks:	82.40	-8.76		2.42		-1.20		1.88	0.0	0	0.000
Heavy Trucks:	86.40	-12.14		2.47		-1.20	-5	5.21	0.0	00	0.000
Unmitigated Noise	Levels (with	out Topo and	harrier a	ttenuz	ation)						
VehicleType	Lea Peak Hou	Ir Lea Dav	Le	a Eve	nina	Lea N	iaht	L	dn	С	NEL
Autos:	77	.1 1	4.5		73.6	,	70.6		77.8		78.2
Medium Trucks:	74	.9 7	3.0		67.4		67.8		75.2		75.4
Heavy Trucks:	75	.5 1	4.1		62.5		66.8		74.9		75.0
Vehicle Noise:	80	.7	78.7		74.8		73.5		80.9		81.2
Centerline Distance	e to Noise Co	ontour (in feet)									
				70 dB	A	65 dE	BA	60	dBA	55	dBA
		1	dn:	451		971		2,0	093	4,	508
		Ch	IEL:	470		1,01	3	2,1	183	4,	703

	FHV	/A-RD-77-108	IIGHWA	AY NO	DISE PF	REDICTIO					
Scenari	io: HY With Pr	oject				Project N	ame: N	исн			
Road Nam	e: Euclid Av.	-				Job Nur	nber: 1	0351			
Road Segmer	nt: n/o Kimball	Av.									
SITE	SPECIFIC IN	PUT DATA				NO	ISE N	IODE	L INPUT	S	
Highway Data				S	ite Con	ditions (H	lard =	10, So	oft = 15)		
Average Daily	Traffic (Adt):	50,437 vehicles	3				1	Autos:	15		
Peak Hour	Percentage:	10%			Mee	dium Truc	ks (2 A	xles):	15		
Peak H	lour Volume:	5,044 vehicles			Hea	avy Trucks	s (3+ A	xles):	15		
Vei	hicle Speed:	55 mph		V	ehicle I	Mix					
Near/Far Lai	ne Distance:	154 feet			Vehi	icleType		Day	Evening	Night	Daily
Site Data						Au	tos:	66.2%	13.5%	20.3%	92.89%
Bar	rrier Height	0.0 feet			Me	edium Truc	cks:	77.1%	5.3%	17.6%	4.87%
Barrier Type (0-W	all. 1-Berm):	0.0			F	leavy Truc	cks:	86.3%	1.5%	12.2%	2.24%
Centerline Dis	st. to Barrier:	84.0 feet							4		
Centerline Dist.	to Observer:	84.0 feet		N	oise So	ource Elev	ations		eet)		
Barrier Distance	to Observer:	0.0 feet			Madium	Autos:	0.0	007			
Observer Height (Above Pad):	5.0 feet			Hoov	II TTUCKS.	2.2	97	Grade Ad	iustment	. 0.0
Pa	ad Elevation:	0.0 feet			Tieav	y muchs.	0.0	/04	0/000/10	dounion	0.0
Roa	ad Elevation:	0.0 feet		Li	ane Equ	uivalent D	listand	e (in :	feet)		
F	Road Grade:	0.0%				Autos:	33.9	941			
	Left View:	-90.0 degrees	5		Mediur	n Trucks:	33.6	679			
	Right View:	90.0 degrees	6		Heav	y Trucks:	33.7	705			
FHWA Noise Mode	el Calculation:	5		_							
VehicleType	REMEL	Traffic Flow	Distan	се	Finite	Road	Fresn	el	Barrier Att	en Ber	m Atten
Autos:	71.78	4.00		2.42		-1.20		-4.75	0.0	000	0.000
Medium Trucks:	82.40	-8.81		2.47		-1.20		-4.88	0.0	000	0.000
Heavy Trucks:	86.40	-12.18		2.47		-1.20		-5.21	0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and b	arrier a	ttenu	ation)						
VehicleType	Leq Peak Hou	r Leq Day	Le	q Eve	ening	Leq Ni	ght		Ldn	CI	VEL
Autos:	77.	0 7	4.4		73.5		70.5		77.7	,	78.1
Medium Trucks:	74.	9 7	2.9		67.3		67.8		75.2	2	75.4
Heavy Trucks:	75.	5 7	4.0		62.5		66.8		74.9)	75.0
Vehicle Noise:	80	6 7	8.6		74.7		73.4		80.9)	81.2
Centerline Distanc	ce to Noise Co	ntour (in feet)								1	
Centerline Distanc	ce to Noise Co	ntour (in feet)		70 dE	BA	65 dE	BA	e	60 dBA	55	dBA
Centerline Distanc	ce to Noise Co	ntour (in feet)	dn:	70 dE 447	BA	65 dE 964	BA	é	60 dBA 2,077	55 4,	dBA 474

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	FHV	VA-RD-77-108	HIGHW	VAY N	IOISE PI	REDICTI	ON MO	DEL			
Scenario Road Name Road Segmen	o: HY With Pr e: Euclid Av. t: n/o Bickmo	oject re Av.				Project I Job Nu	Vame: Imber:	MCH 10351			
SITE S	SPECIFIC IN	IPUT DATA				N	OISE	MODE	L INPUT	'S	
Highway Data				4	Site Con	ditions (Hard =	= 10, Se	oft = 15)		
Average Daily T Peak Hour I Peak Ho	Traffic (Adt): Percentage: our Volume:	38,833 vehicle 10% 3,883 vehicles	s		Me He	dium Tru avy Truc	cks (2 ks (3+	Autos: Axles): Axles):	15 15 15		
Veh	nicle Speed:	55 mph			Vehicle	Mix					
Near/Far Lar	ne Distance:	154 feet		-	Veh	icleType		Dav	Evenina	Night	Dailv
Site Data						A	utos:	66.2%	13.5%	20.39	6 92.779
Par	rior Hoight:	0.0 foot			M	edium Tru	ucks:	77.1%	5.3%	17.6%	6 4.879
Barrier Type (0-Wa	all, 1-Berm):	0.0			I	Heavy Tri	ucks:	86.3%	1.5%	12.2%	6 2.36%
Centerline Dis	t. to Barrier:	84.0 feet			Noise Sr	ource Ele	vatio	ns (in f	eet)		
Centerline Dist. t	o Observer:	84.0 feet		F		Autos	· 0	000	000		
Barrier Distance t	o Observer:	0.0 feet			Modiu	m Trucks	. 0	207			
Observer Height (A	Above Pad):	5.0 feet			Hoo	n Trucks	. <u>2</u> . g	004	Grade Ad	liustmer	ot: 0.0
Pa	d Elevation:	0.0 feet			near	ly muchs	. 0	.004	0/440 / 14	ijuounon	. 0.0
Roa	d Elevation:	0.0 feet		1	Lane Eq	uivalent	Distar	ice (in	feet)		
F	Road Grade:	0.0%				Autos	: 33	.941			
	Left View:	-90.0 degree	s		Mediu	m Trucks	: 33	.679			
	Right View:	90.0 degree	s		Heav	y Trucks	: 33	.705			
FHWA Noise Mode	l Calculation	s									
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fres	nel	Barrier At	ten Be	erm Atten
Autos:	71.78	2.86		2.42	2	-1.20		-4.75	0.	000	0.00
Medium Trucks:	82.40	-9.94		2.4	7	-1.20		-4.88	0.	000	0.00
Heavy Trucks:	86.40	-13.09		2.4	7	-1.20		-5.21	0.	000	0.00
Unmitigated Noise	Levels (with	out Topo and	barrier	atten	uation)						
VehicleType	Leq Peak Hou	ır Leq Day	L	Leq E	vening	Leq N	light		Ldn	0	ONEL
Autos:	75	.9	73.3		72.4		69.	4	76.	6	77.
Medium Trucks:	73	.7 7	1.8		66.2		66.	6	74.	.1	74.
Heavy Trucks:	74	.6 7	'3.1		61.6		65.	9	74.	0	74.
Vehicle Noise:	79	.6	7.6		73.6		72.	4	79.	8	80.
Centerline Distanc	e to Noise Co	ontour (in feet)									
Centerline Distanc	e to Noise Co	ontour (in feet)		70 c	dBA	65 a	IBA	6	60 dBA	5	5 dBA
Centerline Distanc	e to Noise Co	ontour (in feet)	dn:	70 d 37	dBA 79	65 a 81	IBA 7	0	60 dBA 1,760	5	5 dBA 3,791

	FHV	VA-RD-77-108 I	HIGHWA	Y NO	ISE PR	EDICTIC	ON MO	DEL				
Scenar	Scenario: HY With Project				1	Project N	lame:	мсн				
Road Nam	e: Archibald A	v.				Job Nu	mber:	10351				
Road Segme	nt: n/o Limonite	e Av.										
SITE	SPECIFIC IN	PUT DATA				NC	DISE	NODE	L INPUT	'S		
Highway Data				Si	te Cona	litions (l	Hard =	: 10, S	oft = 15)			
Average Daily	Traffic (Adt):	46,675 vehicles	5	Autos: 15								
Peak Hour	Percentage:	10%			Med	lium Truc	:ks (2)	Axles):	15			
Peak H	lour Volume:	4,668 vehicles			Hea	vy Truck	:s (3+)	Axles):	15			
Ve	hicle Speed:	55 mph		Ve	hicle M	liv						
Near/Far La	ne Distance:	154 feet			Vehic	leTvpe		Dav	Evenina	Niaht	Dailv	
Site Data				-		A	itos:	66.2%	13.5%	20.39	6 93.43%	
Pa	rrior Hoight	0.0 foot			Mee	dium Tru	cks:	77.1%	5.3%	17.69	6 4.68%	
Barrier Type (0-W	all. 1-Berm):	0.0			H	eavy Tru	cks:	86.3%	1.5%	12.29	6 1.89%	
Centerline Di	st. to Barrier:	84.0 feet		No	vice Cer	uree Ele	votion	o (in f	0.04)			
Centerline Dist.	to Observer:	84.0 feet		NC	Jise Su	Autoou	vauon	000	eel)			
Barrier Distance	to Observer:	0.0 feet			Madium	Autos.	0.	207				
Observer Height	Observer Height (Above Pad): 5.0 feet				Hoove	Trucks.	2.	297	Grada A	diustmo	at- 0.0	
Pad Elevation: 0.0 feet					neavy	TTUCKS.	0.	004	Grade Ad	ijusunei	<i>n</i> . 0.0	
Ro	ad Elevation:	0.0 feet		La	ne Equ	ivalent l	Distan	ce (in	feet)			
	Road Grade:	0.0%				Autos:	33.	941				
	Left View:	-90.0 degree:	S		Medium	Trucks:	33.	679				
	Right View:	90.0 degree	S		Heavy	Trucks:	33.	705				
FHWA Noise Mod	el Calculation	s										
VehicleType	REMEL	Traffic Flow	Distanc	e	Finite F	Road	Fresi	nel	Barrier At	ten Be	erm Atten	
Autos:	71.78	3.69		2.42		-1.20		-4.75	0.	000	0.000	
Medium Trucks:	82.40	-9.32	1	2.47		-1.20		-4.88	0.	000	0.000	
Heavy Trucks:	86.40	-13.25	:	2.47		-1.20		-5.21	0.	000	0.000	
Unmitigated Nois	e Levels (with	out Topo and b	arrier at	tenua	ation)							
VehicleType	Leq Peak Hou	r Leq Day	Leo	q Eve	ning	Leq N	light		Ldn	(CNEL	
Autos:	76	.7 7	4.1		73.2		70.2	2	77.	.4	77.8	
Medium Trucks:	74.	.4 7	2.4		66.8		67.3	3	74.	7	74.9	
Heavy Trucks:	74.	.4 7	3.0		61.4		65.	7	73.	.8	73.9	
Vehicle Noise:	80	.1 7	8.0		74.3		72.9	9	80.	.4	80.6	
Centerline Distan	ce to Noise Co	ontour (in feet)										
				70 dB	A	65 d	BĀ	(60 dBA	5	5 dBA	
		L	.dn:	412		887	7		1,910	4	4,115	
		CN	EL:	430		926	3		1,995	4	4,299	

Thursday, May 02, 2019

	FH\	NA-RD-77-108	HIGHW	AY NO	ISE P	REDICTI	ON MO	DEL				
Scenario Road Name Road Segmen	Scenario: HY With Project Road Name: Archibald Av. Road Segment: s/o Limonite Av.					Project Job N	Name: I umber:	MCH 10351				
SITE S	PECIFIC IN	IPUT DATA				N	OISE N	IODE	L INPUT	s		
Highway Data				Si	te Cor	nditions	(Hard =	10, S	oft = 15)			
Average Daily 7	raffic (Adt):	36,347 vehicl	es				,	Autos:	15			
Peak Hour F	Percentage:	10%			Me	edium Tru	icks (2 A	xles):	15			
Peak Ho	our Volume:	3,635 vehicle	s		He	avy Truc	:ks (3+ A	xles):	15			
Veh	icle Speed:	45 mph		Ve	hiclo	Mix						
Near/Far Lan	e Distance:	78 feet			Veh	nicleTvpe		Dav	Evenina	Niał	nt	Dailv
Site Data						F	lutos:	66.2%	5 13.5%	20.3	3% 9	3.37%
Bari	rier Heiaht:	0.0 feet			М	edium Tr	ucks:	77.1%	5.3%	17.6	5%	4.71%
Barrier Type (0-Wa	all, 1-Berm):	0.0				Heavy Tr	ucks:	86.3%	5 1.5%	12.3	2%	1.92%
Centerline Dis	t. to Barrier:	76.0 feet		N	nise S	ource Fl	evation	s (in f	eet)			
Centerline Dist. to	o Observer:	76.0 feet				Autos	: 0.0	000				
Barrier Distance to	o Observer:	0.0 feet			Mediu	m Trucks	: 2.3	97				
Observer Height (A	Above Pad):	5.0 feet			Hea	v Trucks	s: 8.0	004	Grade Adj	ustm	ent: (0.0
Pa	d Elevation:	0.0 feet										
Roa	d Elevation:	0.0 feet		Lá	ine Eq	uivalent	Distant	ce (in	feet)			
F	Road Grade:	0.0%				Autos	8: 65.4	422				
	Left View:	-90.0 degre	es		Mediu	m Trucks	S: 65.2	286				
	Right View:	90.0 degre	es		Hea	y Trucks	5: 65.2	299				
FHWA Noise Mode	l Calculation	S										
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresn	el	Barrier Atte	en l	Berm	Atten
Autos:	68.46	3.47		-1.85		-1.20		-4.73	0.0	00		0.000
Medium Trucks:	79.45	-9.50		-1.84		-1.20		-4.88	0.0	00		0.000
Heavy Trucks:	84.25	-13.39		-1.84		-1.20		-5.25	0.0	00		0.000
Unmitigated Noise	Levels (with	out Topo and	barrier	attenu	ation)							
VehicleType	Leq Peak Ho	ur Leq Daj	/ L	.eq Eve	ning	Leq	Night		Ldn		CNE	L
Autos:	68	1.9	66.3		65.4		62.4		69.6	6		70.0
Medium Trucks:	66	1.9	65.0		59.4		59.8		67.2	2		67.4
Heavy Trucks:	67	'.8	66.4		54.8		59.1		67.2	2		67.3
Vehicle Noise:	72	2.7	70.7		66.7		65.5		72.9)		73.2
Centerline Distance	e to Noise C	ontour (in fee	t)									
				70 dE	BA	65 (dBA	1	60 dBA		55 dE	BA
		-	Ldn:	119		25	57		554		1,19	3
		С	NEL:	124		26	58		577		1,24	3

	FH\	VA-RD-77-108	HIGHW	AY NC	DISE PR	EDICTIO	N MOD					
Scenari	io: HY With Pr	oject				Project N	ame: M	СН				
Road Nam	e: Archibald A	ν.				Job Nur	nber: 10	0351				
Road Segmer	nt: s/o Schleis	man Rd.										
SITE	SPECIFIC IN	IPUT DATA				NO	ISE M	ODEL	INPUTS	6		
Highway Data				Si	te Con	ditions (H	lard = 1	0, So	ft = 15)			
Average Daily	Traffic (Adt):	27,859 vehicle	S				A	utos:	15			
Peak Hour	Percentage:	10%			Med	lium Truc	ks (2 Ax	des):	15			
Peak H	lour Volume:	2,786 vehicles			Hea	vy Truck	s (3+ Ax	(les):	15			
Ve	hicle Speed:	45 mph		Ve	ehicle N	lix						
Near/Far La	ne Distance:	78 feet		-	Vehi	cleType	Ľ)ay	Evening	Night	Daily	
Site Data						Au	tos: 6	6.2%	13.5%	20.3%	93.36%	
Bai	rrier Height	0.0 feet			Ме	dium Tru	cks: 7	7.1%	5.3%	17.6%	4.70%	
Barrier Type (0-W	all. 1-Berm):	0.0			H	leavy Tru	cks: 8	6.3%	1.5%	12.2%	1.94%	
Centerline Dis	st. to Barrier:	76.0 feet						lin (- 4)			
Centerline Dist.	to Observer:	76.0 feet		N	oise So	urce Elev	ations	(in te	et)			
Barrier Distance	to Observer:	0.0 feet				Autos:	0.00	00				
Observer Height (Above Pad):	5.0 feet			Mediun	1 I rucks:	2.29	37	Crada Adi		0.0	
Pad Elevation: 0.0 feet					Heav	/ Trucks:	8.00)4	Grade Adj	usunem.	0.0	
Roa	ad Elevation:	0.0 feet		Lá	ane Equ	ivalent D	Distance	e (in f	eet)			
1	Road Grade:	0.0%				Autos:	65.42	22				
	Left View:	-90.0 degree	s		Mediun	n Trucks:	65.28	36				
	Right View:	90.0 degree	s		Heav	/ Trucks:	65.29	99				
FHWA Noise Mode	el Calculation	s										
VehicleType	REMEL	Traffic Flow	Distan	се	Finite	Road	Fresne	1 1	Barrier Atte	en Beri	m Atten	
Autos:	68.46	2.31		-1.85		-1.20	-4	4.73	0.0	00	0.000	
Medium Trucks:	79.45	-10.66		-1.84		-1.20	-4	4.88	0.0	00	0.000	
Heavy Trucks:	84.25	-14.51		-1.84		-1.20	-{	5.25	0.0	00	0.000	
Unmitigated Noise	e Levels (with	out Topo and I	arrier a	ttenu	ation)							
VehicleType	Leq Peak Hou	r Leq Day	Le	eq Eve	ening	Leq Ni	ght		Ldn	CI	IEL	
Autos	67	.7 6	5.1		64.2		61.2		68.4		68.9	
Autos.	07		0.0		59.2		597		66.1		66.3	
Medium Trucks:	65	.7 6	3.8		30.2		30.7		00.1		66.	
Medium Trucks: Heavy Trucks:	65 66	.7 6 .7 6	3.8 5.3		53.7		58.0		66.1		66.2	
Medium Trucks: Heavy Trucks: Vehicle Noise:	65 66 71	.7 6 .7 6 .6 6	3.8 5.3 9.6		53.7 65.5		58.0 64.3		66.1 71.8		66.2 72.1	
Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distance	65 65 71 ce to Noise Co	.7 6 .7 6 .6 6 ontour (in feet)	3.8 5.3 9.6		53.7 65.5		58.0 64.3		66.1 71.8	1	66.2 72.1	
Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distanc	65 66 71 ce to Noise Co	.7 6 .7 6 .6 6 ontour (in feet)	3.8 5.3 9.6	70 dE	53.7 65.5 3A	65 dE	58.0 64.3	6	66.1 71.8 0 dBA	55	66.2 72.1 dBA	
Medium Trucks: Meavy Trucks: Vehicle Noise: Centerline Distanc	65 66 71 ce to Noise Co	.7 6 .7 6 .6 6 <i>intour (in feet)</i>	3.8 5.3 9.6 dn:	70 dE 100	53.7 65.5 3A	65 dE 215	58.0 64.3 3A	6	0 dBA 464	55	66.2 72.1 dBA 000	

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	FHW	A-RD-77-108 H	IIGI	WAY I		REDICT		DDEL				
Scenar Road Nam	io: HY With Pro ne: Kimball Av.	iject				Project Job N	Name. lumber.	MCH 10351				
Road Segme	ni. w/o wountai	II AV.										
SITE	SPECIFIC IN	PUT DATA			04- 0	N	IOISE	MODE		JTS		
Average Daily Peak Hour Peak H Veak H	Traffic (Adt): Percentage: lour Volume: hicle Speed:	23,271 vehicles 10% 2,327 vehicles 50 mph			Me He	dium Tr avy Tru	ucks (2 cks (3+	Autos: Axles): Axles):	15 15 15 15	,		
Near/Far La	ne Distance:	36 feet		-	Venicle	MIX ioloTvov		Dav	Evonir		ight	Daily
Site Data					ven	icie i ype	# Autos:	66.2%	13.5	% 2	9/11 0.3%	93.55%
Ba Barrier Type (0-W	rrier Height: /all, 1-Berm):	0.0 feet 0.0			M	edium T Heavy T	rucks: rucks:	77.1% 86.3%	5.3 1.5	% 1 % 1	7.6% 2.2%	4.59% 1.86%
Centerline Di	st. to Barrier:	44.0 feet		ŀ	Noise S	ource E	levatio	ns (in fe	eet)			
Centerline Dist. Barrier Distance Observer Height (to Observer: to Observer: (Above Pad):	44.0 feet 0.0 feet 5.0 feet		-	Mediu Heav	Auto m Truck /y Truck	s: C s: 2 s: 8	.000 .297 .004	Grade	Adjust	ment	0.0
Ro	ad Elevation:	0.0 feet		ŀ	Lane Eo	uivalen	t Dista	nce (in	feet)			
	Road Grade: Left View: Right View:	0.0% -90.0 degrees 90.0 degrees			Mediu Heav	Auto m Truck /y Truck	s: 40 s: 40 s: 40).460).241).262				
FHWA Noise Mod	el Calculations	:										
VehicleType	REMEL	Traffic Flow	Dis	stance	Finite	Road	Fres	nel	Barrier	Atten	Ber	m Atten
Autos: Medium Trucks: Heavy Trucks:	70.20 81.00 85.38	1.08 -12.01 -15.94		1.2 1.3 1.3	8 1	-1.20 -1.20 -1.20		-4.61 -4.87 -5.50		0.000 0.000 0.000		0.00 0.00 0.00
Unmitigated Nois	e Levels (witho	ut Topo and b	arri	er attei	nuation)							
VehicleType	Leg Peak Hour	Leq Day	Т	Leg E	vening	Leq	Night		Ldn		CI	VEL
Autos:	71.4	4 6	3.8		67.9		64	.9	7	2.1		72.
Medium Trucks:	69.	1 6	7.2		61.6		62	.0	6	9.4		69.
Heavy Trucks:	69.	5 6	3.1		56.5		60	.9	6	9.0		69.
Vehicle Noise:	74.	9 7:	2.8		69.1		67	.7	7	5.2		75.
Centerline Distant	ce to Noise Co	ntour (in feet)										
				70	dBA	65	dBA	e	60 dBA		55	dBA
		CNI	dn: EL:	9 1	97 01	2	09 18		450 470		9 1,	70 013

	FHV	VA-RD-77-108 HIG	HWAY	NOISE PH	REDICTION	MODEL			
Scenar	Scenario: HY With Project					me: MCH			
Road Nam	e: Kimball Av.				Job Num	ber: 1035 ⁻	I		
Road Segme	nt: w/o Euclid #	Av.							
SITE	SPECIFIC IN	PUT DATA			NOI	SE MODI	EL INPUT	5	
Highway Data				Site Con	ditions (Ha	ard = 10, S	oft = 15)		
Average Daily	Traffic (Adt):	29,889 vehicles				Autos	: 15		
Peak Hour	Percentage:	10%		Me	dium Truck	s (2 Axles)	: 15		
Peak H	lour Volume:	2,989 vehicles		He	avy Trucks	(3+ Axles)	: 15		
Ve	hicle Speed:	50 mph	-	Vehicle I	Mix				
Near/Far La	ne Distance:	36 feet	-	Veh	icleType	Day	Evening	Night	Daily
Site Data					Auto	os: 66.29	6 13.5%	20.3%	93.41%
Ba	rrier Height	0.0 feet		Me	edium Truci	ks: 77.19	6 5.3%	17.6%	4.69%
Barrier Type (0-W	all, 1-Berm):	0.0		ŀ	leavy Truci	ks: 86.39	6 1.5%	12.2%	1.90%
Centerline Dis	st. to Barrier:	44.0 feet	-	Noise Sc	ource Eleva	ations (in	feet)		
Centerline Dist.	to Observer:	44.0 feet			Autos:	0.000	,		
Barrier Distance	to Observer:	0.0 feet		Mediur	m Trucks:	2.297			
Observer Height (Above Pad): 5.0 feet				Heav	v Trucks:	8.004	Grade Ad	justment	t: 0.0
Pa	Pad Elevation: 0.0 feet						,		
Roa	ad Elevation:	0.0 feet	_	Lane Eq	uivalent Di	stance (in	feet)		
	Road Grade:	0.0%			Autos:	40.460			
	Left View:	-90.0 degrees		Mediur	m Trucks:	40.241			
	Right View:	90.0 degrees		Heav	y Trucks:	40.262			
FHWA Noise Mod	el Calculation:	s		-				-	
VehicleType	REMEL	Traffic Flow D	listance	Finite	Road	Fresnel	Barrier Att	en Bei	m Atten
Autos:	70.20	2.16	1.2	8	-1.20	-4.61	0.0	100	0.000
Medium Trucks:	81.00	-10.83	1.3	1	-1.20	-4.87	0.0	100	0.000
Heavy Trucks:	85.38	-14.76	1.3	1	-1.20	-5.50	0.0	/00	0.000
Unmitigated Noise	e Levels (with	out Topo and bar	rier atter	nuation)					
VehicleType	Leq Peak Hou	r Leq Day	Leq E	vening	Leq Nig	ıht	Ldn	C	NEL
Autos:	72.	.4 69.9)	69.0		66.0	73.2	2	73.6
Medium Trucks:	70.	.3 68.4		62.8		63.2	70.6	;	70.8
Heavy Trucks:	70.	.7 69.3		57.7		62.1	70.1	1	70.2
Vehicle Noise:	76	.0 74.0)	70.2		68.8	76.3	1	76.6
Centerline Distant	ce to Noise Co	ontour (in feet)	70	-10.4	05.10		00-104		
		L elec		JBA	65 dB/	4	OU dBA	55	aBA
		Lan	: 1	10	249		530	1,	100
		CIVEL	. 1.	20	260		009	1,	200

	FH	WA-RD-77-108	B HIGHV	VAY NO	ISE P	REDICTIO	ON MOD	DEL			
Scenario Road Name Road Segmen	 b: HY With P c: Kimball Av t: e/o Euclid 	roject Av.				Project I Job Nu	Vame: N mber: 1	/ICH 0351			
SITE S	PECIFIC IN	NPUT DATA				N	DISE M	IODE	L INPUTS	5	
Highway Data				Si	te Cor	nditions (Hard =	10, So	ft = 15)		
Average Daily 1	Traffic (Adt):	25,135 vehicl	es				A	lutos:	15		
Peak Hour F	Percentage:	10%			Me	edium True	cks (2 A	xles):	15		
Peak Ho	our Volume:	2,513 vehicle	s		He	avy Truck	ks (3+ A	xles):	15		
Veh	icle Speed:	50 mph		Ve	hicle	Mix					
Near/Far Lan	e Distance:	51 feet			Veh	icleType	I	Day	Evening	Night	Daily
Site Data						A	utos: 6	6.2%	13.5%	20.3	% 93.45%
Bari	rier Heiaht:	0.0 feet			Μ	edium Tru	icks: 7	77.1%	5.3%	17.6	% 4.62%
Barrier Type (0-Wa	all, 1-Berm):	0.0				Heavy Tru	icks: 8	36.3%	1.5%	12.2	% 1.94%
Centerline Dis	t. to Barrier:	49.0 feet		No	oise S	ource Ele	vations	in fe	et)		
Centerline Dist. to	o Observer:	49.0 feet				Autos	0.0	00			
Barrier Distance to	o Observer:	0.0 feet			Mediu	m Trucks	2.2	97			
Observer Height (A	Above Pad):	5.0 feet			Hea	v Trucks	8.0	04	Grade Adj	ustme	nt: 0.0
Pa	d Elevation:	0.0 feet		-							
Roa	d Elevation:	0.0 feet		La	ine Eq	uivalent	Distanc	e (in f	eet)		
F	Road Grade:	0.0%				Autos:	42.1	40			
	Left View:	-90.0 degre	es		Mediu	m Trucks.	41.9	29			
	Right view:	90.0 degre	es		пеа	vy mucks.	41.9	100			
FHWA Noise Mode	l Calculation	IS									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresne	el i	Barrier Atte	en B	erm Atten
Autos:	70.20	1.41		1.01		-1.20	-	4.64	0.0	00	0.000
Medium Trucks:	81.00	-11.65		1.04		-1.20	-	4.87	0.0	00	0.000
Heavy Trucks:	85.38	-15.42		1.04		-1.20	-	5.44	0.0	00	0.000
Unmitigated Noise	Levels (with	out Topo and	barrier	attenua	ation)						
VehicleType	Leq Peak Ho	ur Leq Da	y I	Leq Eve	ning	Leq N	light		Ldn		CNEL
Autos:	71	.4	68.8		68.0		65.0		72.1		72.6
Medium Trucks:	69	9.2	67.3		61.7		62.1		69.5		69.7
Heavy Trucks:	69	9.8	68.4		56.8		61.1		69.2		69.3
Vehicle Noise:	75	5.0	73.0		69.1		67.8		75.3		75.5
Centerline Distance	e to Noise C	ontour (in fee	t)								
			L	70 dB	8A	65 d	BA	6	0 dBA	5	i5 dBA
		~	Ldn:	110		23	/		511		1,100
		C	NEL:	115		24	(533		1,148

Scenar	io: HY With Pr	oject				Project N	lame: N	лсн			
Road Nam	e: Kimball Av.	-				Job Nu	mber: 1	0351			
Road Segme	nt: w/o Rincon	Meadows Av.									
SITE	SPECIFIC IN	IPUT DATA				NC	DISE N	IODE	L INPUT	S	
Highway Data				3	Site Con	ditions (l	lard =	10, S	oft = 15)		
Average Daily	Traffic (Adt):	23,141 vehicles					A	Autos:	15		
Peak Hour	Percentage:	10%			Me	dium Truc	:ks (2 A	xles):	15		
Peak H	lour Volume:	2,314 vehicles			Hea	avy Truck	s (3+ A	xles):	15		
Ve	hicle Speed:	50 mph		1	Vehicle I	Nix					
Near/Far La	ne Distance:	51 feet			Vehi	cleType	1	Day	Evening	Night	Daily
Site Data						AL	itos: (56.2%	13.5%	20.3%	93.45%
Bai	rrier Height	0.0 feet			Me	edium Tru	cks:	77.1%	5.3%	17.6%	4.61%
Barrier Type (0-W	/all. 1-Berm);	0.0			F	leavy Tru	cks: 1	36.3%	1.5%	12.2%	1.94%
Centerline Di	st. to Barrier:	49.0 feet		-					41		
Centerline Dist.	to Observer:	49.0 feet			voise So	ource Ele	vations		eet)		
Barrier Distance	to Observer:	0.0 feet			14-16-1	Autos:	0.0	00			
Observer Height (Above Pad):	5.0 feet			weatur	n Trucks:	2.2	97	Grado Ad	iustmont	0.0
Pa	ad Elevation:	0.0 feet			Heav	y Trucks:	8.0	04	Graue Auj	usunem.	0.0
Roa	ad Elevation:	0.0 feet		L	Lane Equ	uivalent l	Distanc	e (in	feet)		
1	Road Grade:	0.0%				Autos:	42.1	40			
	Left View:	-90.0 degrees			Mediur	n Trucks:	41.9	29			
	Right View:	90.0 degrees			Heav	y Trucks:	41.9	50			
	al Calculation	s									
FHWA Noise Mod	el Calculation										
VehicleType	REMEL	Traffic Flow	Distan	се	Finite	Road	Fresn	el	Barrier Att	en Ber	m Atten
VehicleType Autos:	REMEL 70.20	Traffic Flow 1.05	Distan	ce 1.01	Finite	Road -1.20	Fresn	el -4.64	Barrier Atte 0.0	en Ber	<i>m Atten</i> 0.000
VehicleType Autos: Medium Trucks:	REMEL 70.20 81.00	Traffic Flow 1.05 -12.01	Distan	ce 1.01 1.04	Finite	Road -1.20 -1.20	Fresn	el -4.64 -4.87	Barrier Atte 0.0 0.0	en Ber 100 100	m Atten 0.000 0.000
VehicleType Autos: Medium Trucks: Heavy Trucks:	REMEL 70.20 81.00 85.38	Traffic Flow 1.05 -12.01 -15.77	Distan	ce 1.01 1.04 1.04	Finite	Road -1.20 -1.20 -1.20	Fresn	el -4.64 -4.87 -5.44	Barrier Atte 0.0 0.0 0.0	en Ber 100 100 100	<u>m Atten</u> 0.000 0.000 0.000
HWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise	REMEL 70.20 81.00 85.38 2 Levels (with	Traffic Flow 1.05 -12.01 -15.77 out Topo and b	Distan arrier a	ce 1.01 1.04 1.04	Finite	Road -1.20 -1.20 -1.20	Fresn	el -4.64 -4.87 -5.44	Barrier Atte 0.0 0.0 0.0	en Ben 100 100 100	<u>m Atten</u> 0.000 0.000 0.000
HWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType	REMEL 70.20 81.00 85.38 2 Levels (with Leq Peak Hou	Traffic Flow 1.05 -12.01 -15.77 out Topo and b r Leq Day	Distan arrier a	ce 1.01 1.04 1.04 tten q Ev	Finite Finite Understand	Road -1.20 -1.20 -1.20 Leq N	Fresn	el -4.64 -4.87 -5.44	Barrier Atte 0.0 0.0 0.0 0.0	en Ben 000 000 000 C/	m Atten 0.000 0.000 0.000
VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos:	REMEL 70.20 81.00 85.38 2 Levels (with Leq Peak Hou 71	Traffic Flow 1.05 -12.01 -15.77 out Topo and b Image: Compared box of the second b	Distan	ce 1.01 1.04 1.04 tten	Finite Finite uation) vening 67.6	Road -1.20 -1.20 -1.20 Leq N	Fresn ight 64.6	el -4.64 -4.87 -5.44	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 71.8	en Ben 100 100 100 100 100 <i>Cl</i>	<u>m Atten</u> 0.000 0.000 0.000 VEL 72.2
HWA Noise Moda VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks:	Electrolitation REMEL 70.20 81.00 85.38 2 Levels (with Leq Peak Hou 71 68	Traffic Flow 1.05 1.05 -12.01 -15.77 -15.77 out Topo and b Ir Leq Day .1 68	Distan	ce 1.01 1.04 1.04 tten eq Ev	Finite 1 4 4 4 4 4 4 4 4 4 4 4 6 7.6 6 7.6 6 1.3	Road -1.20 -1.20 -1.20 Leq N	Fresn ight 64.6 61.7	el -4.64 -4.87 -5.44	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	en Ben 000 000 000 000 C/	<u>m Atten</u> 0.000 0.000 0.000 <u>VEL</u> 72.2 69.3
HIWA Noise Moda VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks:	Elevels (with the provided of the prov	Traffic Flow 1.05 1.05 -12.01 -15.77 -15.77 out Topo and b r Leq Day .1 68 .8 66 .4 68	Distan	ce 1.01 1.04 1.04 tten eq Ev	Finite 1 4 4 4 4 4 4 4 7 67.6 61.3 56.4	Road -1.20 -1.20 -1.20 Leq N	Fresh ight 64.6 61.7 60.8	el -4.64 -4.87 -5.44	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	en Ber 000 000 000 C/ 3 2 3	<u>m Atten</u> 0.000 0.000 0.000 <u>VEL</u> 72.2 69.3 68.9
HIWA Noise Moda VehicleType Autos: Medium Trucks: Heavy Trucks: VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	REMEL 70.20 81.00 85.38 e Levels (with Leg Peak Hou 71 68 69 74	Traffic Flow 1.05 1.05 -12.01 -15.77 -15.77 Out Topo and b Image: Comparison of the second	Distan	ce 1.01 1.04 1.04 tten	Finite Finite Uation) vening 67.6 61.3 56.4 68.8	Road -1.20 -1.20 -1.20 <i>Leq N</i>	Fresh ight 64.6 61.7 60.8 67.5	el -4.64 -4.87 -5.44	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	en Ben 1000 100	m Atten 0.000 0.000 0.000 VEL 72.2 69.3 68.9 75.2
FHWA Noise Moda VehicleType Autos: Medium Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise Centerline Distance	ef Carlotation REMEL 70.20 81.00 85.38 e Levels (with Leq Peak Hou 71 68 69 74 2e to Noise Co	Traffic Flow 1.05 1.05 -12.01 -15.77 -15.77 Out Topo and b	Distan arrier a 2.6	ce 1.01 1.04 1.04 tten eq Ev	Finite I I I I I I I I I I I I I I I I I I I	Road -1.20 -1.20 -1.20 Leq N	Fresh ight 64.6 61.7 60.8 67.5	el -4.64 -4.87 -5.44	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	en Ber 000 000 000 CI 3 2 9 9	<u>m Atten</u> 0.000 0.000 0.000 <u>VEL</u> 72.2 69.3 68.9 75.2
HWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distance	REWEL 70.20 70.20 81.00 85.38 e e Levels (with Leq Peak Hou 71 68 69 74 2e to Noise Co 74	Traffic Flow 1.05 1.05 -12.01 -15.77 5000 Topo and b rr Leg Day .1 68 .8 66 .7 77 ontour (in feet)	Distan	ce 1.01 1.04 1.04 tten q Ev	Finite I I I I I I I I I I I I I I I I I I I	Road -1.20 -1.20 -1.20 Leq N	Fresh ight 64.6 61.7 60.8 67.5 BA	el -4.64 -4.87 -5.44	Barrier Atte 0.0 0.0 0.0 0.0 0.0 71.8 69.2 68.9 74.9 74.9	en Ber 100 100 100 100 100 100 100 10	m Atten 0.000 0.000 0.000 VEL 72.2 69.3 68.5 75.2 dBA
HWA Noise Mod Vehicle Type Autos: Medium Trucks: Heavy Trucks: Vehicle Type Autos: Heavy Trucks: Vehicle Noise: Centerline Distance	REMEL 70.20 70.20 81.00 85.38 E Levels (with Leq Peak Hou 71 68 69 74 74 20 to Noise Co 74	Traffic Flow 1.05 1.05 -12.01 -15.77 -15.77 Dout Topo and b m Lag Day 1 68 66 4 68 64 7 77 57 Dontour (in feet) Lag Lag	Distan	ce 1.01 1.04 1.04 tten og Ev 70 c 10	Finite I I I I I I I I I I I I I I I IIII IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Road -1.20 -1.20 -1.20 Leq N 65 di 224	Fresh	el -4.64 -4.87 -5.44	Barrier Att. 0.0 0.0 0.0 0.0 0.0 71.8 69.2 68.9 74.8 74.8 74.8	en Ber 000 000 000 000 CI 3 2 9 0 55 1,1	m Atten 0.000 0.000 0.000 VEL 72.2 69.3 68.9 75.2 dBA 041

Thursday, May 02, 2019

	FHV	VA-RD-77-108	HIGH\	NAY N	OISE PI	REDICTI	ON MO	DEL				
Scenar Road Nan Road Segme	rio: HY With Pro ne: Kimball Av. nt: e/o Rincon	oject Meadows Av.				Project Job Nu	Name: ımber:	MCH 10351				
SITE	SPECIFIC IN	PUT DATA				N	OISE	MODE	L INPU	TS		
Highway Data				S	Site Con	ditions ('Hard =	= 10, Se	oft = 15)			
Average Daily Peak Hour Peak F	Traffic (Adt): Percentage: lour Volume:	22,238 vehicle 10% 2,224 vehicles	s		Me He	dium Tru avy Truc	cks (2 ks (3+	Autos: Axles): Axles):	15 15 15			
Noar/For La	no Distanco:	50 mpn		1	/ehicle	Mix						
Neal/I al La	ine Distance.	JT leet			Veh	icleType		Day	Evening	g N	ight	Daily
Site Data Ba Barrier Type (0-W	rrier Height: Vall, 1-Berm):	0.0 feet 0.0			M	A edium Tri Heavy Tri	utos: ucks: ucks:	66.2% 77.1% 86.3%	5.3% 5.3% 1.5%	62 61 61	0.3% 7.6% 2.2%	93.45% 4.61% 1.94%
Centerline Di	ist. to Barrier:	49.0 feet			Voise Si	ource Ele	vatio	ns (in f	oof)			
Centerline Dist. Barrier Distance Observer Height P	to Observer: to Observer: (Above Pad): ad Elevation:	49.0 feet 0.0 feet 5.0 feet 0.0 feet			Mediui Heav	Autos m Trucks ry Trucks	: 0 : 2 : 8	.000 .297 .004	Grade A	Adjusi	tment.	0.0
Ro	ad Elevation:	0.0 feet		L	ane Eq	uivalent	Distar	nce (in	feet)	-		
	Road Grade: Left View: Right View:	0.0% -90.0 degree 90.0 degree	es es		Mediu Heav	Autos m Trucks ry Trucks	: 42 : 41 : 41	.140 .929 .950				
FHWA Noise Mod	el Calculation	s										
VehicleType	REMEL	Traffic Flow	Dist	ance	Finite	Road	Fres	nel	Barrier A	Atten	Ber	m Atten
Autos: Medium Trucks: Heavy Trucks:	70.20 81.00 85.38	0.88 -12.19 -15.94		1.01 1.04 1.04	 	-1.20 -1.20 -1.20		-4.64 -4.87 -5.44	(0.000 0.000 0.000		0.00 0.00 0.00
Unmitigated Nois	e Levels (with	out Topo and	barrie	r atteni	uation)							
VehicleType	Leg Peak Hou	r Leg Day	-	Leg Ev	ening	Leg I	Vight		Ldn		CI	VEL
Autos:	. 70.	.9 0	58.3		67.4		64.	4	7	1.6		72.
Medium Trucks:	68.	.7 (66.7		61.1		61.	6	69	9.0		69.
Heavy Trucks:	69.	.3 (67.8		56.3		60.	6	68	3.7		68.
Vehicle Noise:	74.	.5	72.5		68.6		67.	3	74	4.7		75.
Centerline Distan	ce to Noise Co	ontour (in feet))									
				70 d	IBA	65 c	<i>iBA</i>	(60 dBA		55	dBA
			Ldn:	10	1	21	8		471		1,	014
		CI	IEL:	10	6	22	8		491		1,	058

	FH\	VA-RD-77-108 HIC	GHWAY I	NOISE PI	REDICTIO	N MODEL			
Scenar Road Nan	io: HY With Pr	oject			Project Na	ame: MCH	l H		
Road Segme	nt: e/o Mill Cre	ek Av.			000 1101	1001. 1030			
SITE	SPECIFIC IN	IPUT DATA			NO	ISE MOD	EL INPUT	s	
Highway Data				Site Con	ditions (H	ard = 10,	Soft = 15)		
Average Daily	Traffic (Adt):	20,303 vehicles				Auto	s: 15		
Peak Hour	Percentage:	10%		Me	dium Truci	ks (2 Axles): 15		
Peak H	lour Volume:	2,030 vehicles		He	avy Trucks	s (3+ Axles): 15		
Ve	hicle Speed:	50 mph	ŀ	Vehicle	Mix				
Near/Far La	ne Distance:	51 feet	-	Veh	icleTvpe	Dav	Evenina	Niaht	Dailv
Site Data					Au	tos: 66.2	% 13.5%	20.3%	93.46%
Ba	rrier Height:	0.0 feet		Me	edium Truc	ks: 77.1	% 5.3%	17.6%	4.60%
Barrier Type (0-V	/all, 1-Berm):	0.0		ŀ	leavy Truc	:ks: 86.3	% 1.5%	12.2%	1.95%
Centerline Di	st. to Barrier:	49.0 feet	ŀ	Noise So	ource Elev	ations (in	feet)	-	
Centerline Dist.	to Observer:	49.0 feet	ŀ		Autos:	0.000			-
Barrier Distance	to Observer:	0.0 feet		Mediu	n Trucks:	2.297			
Observer Height	(Above Pad):	5.0 feet		Heav	v Trucks:	8.004	Grade Ad	justment	: 0.0
P	ad Elevation:	0.0 feet	-						
Ro	ad Elevation:	0.0 feet	-	Lane Eq	uivalent D	istance (i	n feet)		
	Road Grade:	0.0%			Autos:	42.140			
	Left View:	-90.0 degrees		Mediu	m Trucks:	41.929			
	Right View:	90.0 degrees		Heav	y Trucks:	41.950			
FHWA Noise Mod	el Calculation	s							
VehicleType	REMEL	Traffic Flow	Distance	Finite	Road	Fresnel	Barrier Att	en Ber	m Atten
Autos:	70.20	0.49	1.0)1	-1.20	-4.6	4 0.0)00	0.000
Medium Trucks:	81.00	-12.59	1.0	14	-1.20	-4.8	7 0.0)00	0.000
Heavy Trucks:	85.38	-16.33	1.0	14	-1.20	-5.4	4 0.0)00	0.000
Unmitigated Nois	e Levels (with	out Topo and bar	rier atter	nuation)					
VehicleType	Leq Peak Hou	ır Leq Day	Leq E	vening	Leq Ni	ght	Ldn	CI	NEL
Autos:	70	.5 67.9	9	67.0		64.0	71.2	2	71.6
Medium Trucks:	68	.3 66.3	3	60.7		61.2	68.6	3	68.8
Heavy Trucks:	68	.9 67.5	5	55.9		60.2	68.3	3	68.4
Vehicle Noise:	74	.1 72.1	1	68.2		66.9	74.3	3	74.6
Centerline Distan	ce to Noise Co	ontour (in feet)	70	dD A	6E -15	4	60 dBA		dD A
		I da		UDA	05 dB	PN .	442		
		Lan	. 9	00	206		443	9	04
		CIVEL	. 1	00	215		402	9	90

Thursday, May 02, 2019

FH	WA-RD-77-108	HIGHWA	Y NOISE	PREDICTIC	N MODEL		
Scenario: HY With F Road Name: Kimball Av Road Segment: e/o Main S	Project 7. St.			Project N Job Nui	lame: MCH mber: 1035	1	
SITE SPECIFIC I	NPUT DATA			NC	DISE MOD	EL INPUTS	5
Highway Data			Site Co	onditions (H	Hard = 10, 3	Soft = 15)	
Average Daily Traffic (Adt):	19,110 vehicle	es			Auto	s: 15	
Peak Hour Percentage:	10%		٨	Aedium Truc	ks (2 Axles:): 15	
Peak Hour Volume:	1,911 vehicles	6	ŀ	leavy Truck	s (3+ Axles): 15	
Vehicle Speed:	50 mph		Vehicl	e Mix			
Near/Far Lane Distance:	51 feet		Ve	ehicleTvpe	Dav	Evenina	Night Daily
Site Data				AL	itos: 66.2	% 13.5%	20.3% 93.45%
Barrier Height:	0.0 feet			Medium Tru	cks: 77.1	% 5.3%	17.6% 4.60%
Barrier Type (0-Wall, 1-Berm):	0.0			Heavy Tru	cks: 86.3	% 1.5%	12.2% 1.95%
Centerline Dist. to Barrier:	49.0 feet		Noise	Source Ele	vations (in	feet)	
Centerline Dist. to Observer:	49.0 feet			Autos:	0.000	,	
Barrier Distance to Observer:	0.0 feet		Med	ium Trucks:	2.297		
Observer Height (Above Pad):	5.0 feet		He	avy Trucks:	8.004	Grade Adji	ustment: 0.0
Pad Elevation:	0.0 feet		Lano F	auivalont l	Distanco (iu	a foot)	
Road Elevation:	0.0 feet		Lane	quivalent L	A2 140	Tieel)	
Road Grade.	0.0%		Mod	ium Trucke:	42.140		
Right View:	-90.0 degree 90.0 degree	es es	He	avy Trucks:	41.929		
FHWA Noise Model Calculation	ns						
VehicleType REMEL	Traffic Flow	Distan	ce Fini	te Road	Fresnel	Barrier Atte	n Berm Atten
Autos: 70.20	0.22		1.01	-1.20	-4.64	4 0.0	00 0.000
Medium Trucks: 81.00	-12.85		1.04	-1.20	-4.87	7 0.0	00 0.000
Heavy Trucks: 85.38	-16.58		1.04	-1.20	-5.44	4 0.0	00 0.000
Unmitigated Noise Levels (with	hout Topo and	barrier a	ttenuation	l)			
VehicleType Leq Peak Ho	ur Leq Day	Le	q Evening	Leq N	ight	Ldn	CNEL
Autos: 7	0.2 6	67.7	66	.8	63.8	70.9	71.4
Medium Trucks: 6	8.0 6	56.1	60	.5	60.9	68.3	68.5
Heavy Trucks: 6	8.6 6	57.2	55	.6	60.0	68.1	68.1
Venicle Noise: 7	3.8	/1.8	67	.9	66.6	74.1	74.4
Centerline Distance to Noise C	contour (in feet))	70 dBA	65 dl	DA .	60 dBA	55 dPA
		l dn:	92	105 02	3	426	917
	CN	VEL:	96	206	3	444	957

	FHV	VA-RD-77-108	monw,		DISE PR	EDICTIO		=L _			
Scenar	io: HY With Pr	oject				Project N	ame: M	СН			
Road Nan	e: Kimball Av.	,				Job Nur	nber: 10	351			
Road Segme	nt: e/o Flight A	V.									
SITE	SPECIFIC IN	PUT DATA				NO	ISE MO	DDE	L INPUTS	S	
Highway Data				S	ite Cond	ditions (H	lard = 1), Sc	oft = 15)		
Average Daily	Traffic (Adt):	16,235 vehicle	es				AL	tos:	15		
Peak Hour	Percentage:	10%			Med	lium Truc	ks (2 Ax	les):	15		
Peak H	lour Volume:	1,624 vehicles	S		Hea	avy Truck	s (3+ Ax	les):	15		
Ve	hicle Speed:	50 mph		v	ehicle N	lix					
Near/Far La	ne Distance:	51 feet			Vehi	cleType	D	ay	Evening	Night	Daily
Site Data						Au	tos: 66	6.2%	13.5%	20.3%	93.44%
Ba	rrier Height:	0.0 feet			Me	dium Tru	cks: 71	.1%	5.3%	17.6%	4.60%
Barrier Type (0-W	/all, 1-Berm):	0.0			Н	leavy Tru	cks: 86	6.3%	1.5%	12.2%	1.97%
Centerline Di	st. to Barrier:	49.0 feet			laisa Sa	urco Elos	ations	in fe	not)		
Centerline Dist.	to Observer:	49.0 feet		N	0136 30	Autoor	0.00	0	el)		
Barrier Distance	to Observer:	0.0 feet			Madium	Autos.	0.00	7			
Observer Height	(Above Pad):	5.0 feet			Hoove	Trucks.	2.29	/ ^	Grada Adi	ustmont	0.0
P	ad Elevation:	0.0 feet			neavj	/ ITUCKS.	0.00	4	Orade Auj	usunom.	0.0
Ro	ad Elevation:	0.0 feet		L	ane Equ	ivalent D	listance	(in i	feet)		
	Road Grade:	0.0%				Autos:	42.14	0			
	Left View:	-90.0 degree	es		Mediun	n Trucks:	41.92	9			
	Right View:	90.0 degree	es		Heavy	/ Trucks:	41.95	0			
FHWA Noise Mod	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Distan	се	Finite I	Road	Fresnel		Barrier Atte	en Ber	m Atten
Autos:	70.20	-0.49		1.01		-1.20	-4	.64	0.0	00	0.000
		10.57		1 04		1 00		07	0.0	00	0.000
Medium Trucks:	81.00	-13.57		1.04		-1.20	-4	.07	0.0	00	0.000
Medium Trucks: Heavy Trucks:	81.00 85.38	-13.57 -17.26		1.04		-1.20 -1.20	-4 -5	.07 .44	0.0	00	0.000
Medium Trucks: Heavy Trucks: Unmitigated Nois	81.00 85.38 e Levels (with	-13.57 -17.26 out Topo and	barrier a	1.04 1.04	uation)	-1.20 -1.20	-4 -5	.07 .44	0.0	00	0.000
Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType	81.00 85.38 e Levels (with Leq Peak Hou	-13.57 -17.26 out Topo and r Leq Day	barrier a	1.04 1.04 ttenu	iation) ening	-1.20 -1.20 Leq Ni	-4 -5 ght	.07 .44	0.0 0.0	00 00 <i>CI</i>	0.000
Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos:	81.00 85.38 <u>e Levels (with</u> Leq Peak Hou 69	-13.57 -17.26 out Topo and r Leq Day 5	barrier a / Le 66.9	1.04 ttenu eq Eve	<i>iation)</i> ening 66.1	-1.20 -1.20 Leq Ni	-4 -5 ght 63.1	.07 .44	0.0 0.0 <u>Ldn</u> 70.2	00 00 <i>CI</i>	0.000 0.000 <u>VEL</u> 70.7
Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks:	81.00 85.38 e Levels (with Leq Peak Hou 69 67	-13.57 -17.26 out Topo and r Leq Day .5 .3	<i>barrier a</i> / <i>Le</i> 66.9 65.4	1.04 ttenu	<i>ation)</i> ening 66.1 59.8	-1.20 -1.20 Leq Ni	-4 -5 <u>ght</u> 63.1 60.2	.44	0.0 0.0 <u>Ldn</u> 70.2 67.6	00 00 <i>CI</i>	0.000 0.000 <u>VEL</u> 70.7 67.8
Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks:	81.00 85.38 e Levels (with Leq Peak Hou 69 67 68	-13.57 -17.26 out Topo and r Leq Day .5 .3 .0	barrier a 66.9 65.4 66.5	1.04 1.04 ttenu eq Eve	ening 66.1 59.8 55.0	-1.20 -1.20 Leq Ni	-4 -5 <u>ght</u> 63.1 60.2 59.3	.44	Ldn 70.2 67.6 67.4	00 00 <i>CI</i>	0.000 0.000 VEL 70.7 67.8 67.4
Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	81.00 85.38 e Levels (with Leq Peak Hou 69 67 68 73	-13.57 -17.26 out Topo and r Leq Day .5 .3 .0 .1	<i>barrier a</i> / <i>Le</i> 66.9 65.4 66.5 71.1	1.04 ttenu eq Eve	<i>iation)</i> ening 66.1 59.8 55.0 67.2	-1.20 -1.20 Leq Ni	-4 -5 63.1 60.2 59.3 65.9	.44	Ldn 70.2 67.6 67.4 73.4	00 00 <i>CI</i>	0.000 0.000 <u>VEL</u> 70.7 67.8 67.4 73.7
Medium Trucks: Heavy Trucks: Unmitigated Noiss VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	81.00 85.38 e Levels (with Leq Peak Hou 69 67 68 73 ce to Noise Co	-13.57 -17.26 out Topo and ir Leq Day 5 .3 .0 .1 .1 ontour (in feet	<i>barrier a</i> / <i>Le</i> 66.9 65.4 66.5 71.1	1.04 ttenu	<i>ation)</i> ening 66.1 59.8 55.0 67.2	-1.20 -1.20 Leq Ni	-4 -5 63.1 60.2 59.3 65.9	.44	Ldn 70.2 67.6 67.4 73.4		0.000 <u>VEL</u> 70.7 67.8 67.4 73.7
Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	81.00 85.38 e Levels (with Leq Peak Hou 69 67 68 73 ce to Noise Co	-13.57 -17.26 out Topo and r Leq Day 5 3 0 1 0 0 1 0 0 0 1	barrier a <u>66.9</u> 65.4 66.5 71.1)	1.04 1.04 attenu ag Eve	<i>ation)</i> ening 66.1 59.8 55.0 67.2 BA	-1.20 -1.20 Leq Ni 65 dE	-4 -5 63.1 60.2 59.3 65.9 3A	.44	Ldn 70.2 67.6 67.4 73.4	00 00 <i>CI</i>	0.000 0.000 VEL 70.7 67.8 67.4 73.7 dBA
Medium Trucks: Heavy Trucks: Unnitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	81.00 85.38 e Levels (with Leq Peak Hou 69 67 68 73 ce to Noise Co	-13.57 -17.26 out Topo and r Leq Day 5 .3 .0 .1 .1 ontour (in feet	<i>barrier a</i> 66.9 65.4 66.5 71.1) <i>Ldn:</i>	1.04 1.04 attenu eq Evi 70 di 82	iation) ening 66.1 59.8 55.0 67.2 BA	-1.20 -1.20 Leq Ni 65 dE	-4 -5 63.1 60.2 59.3 65.9 34	.44	Ldn 70.2 67.6 67.4 73.4 73.4 73.4 382	00 00 <i>CI</i> 55 8	0.000 VEL 70.7 67.8 67.4 73.7 dBA 23

Thursday, May 02, 2019

	FHV	VA-RD-77-108 H	IGHWA	Y N	IOISE PI	REDICTIO	ON MC	DDEL				
Scenar	io: HY With Pr	oject				Project N	lame:	MCH				
Road Nam	ne: Limonite Av	<i>.</i>				Job Nu	mber:	10351				
Road Segme	nt: w/o Archiba	ild Av.										
SITE	SPECIFIC IN	PUT DATA				N	DISE	MODE	L INPU	тѕ		
Highway Data				4	Site Con	ditions (Hard =	= 10, Se	oft = 15)			
Average Daily	Traffic (Adt):	27,934 vehicles						Autos:	15			
Peak Hour	Percentage:	10%			Me	dium True	cks (2	Axles):	15			
Peak H	lour Volume:	2,793 vehicles			He	avy Truck	ks (3+	Axles):	15			
Ve	hicle Speed:	50 mph			Vehicle	Mix						
Near/Far La	ne Distance:	78 feet		-	Veh	icleTvpe		Dav	Evening	a Ni	iaht	Dailv
Site Data						A	utos:	66.2%	13.5%	6 2	0.3%	93.43%
Ba	rrior Hoight	0.0 feet			Me	edium Tru	icks:	77.1%	5.3%	6 1	7.6%	4.64%
Barrier Type (0-W	/all, 1-Berm):	0.0			ŀ	leavy Tru	icks:	86.3%	1.5%	6 13	2.2%	1.94%
Centerline Di	st. to Barrier:	76.0 feet			Noise So	ource Ele	vatio	ns (in f	eet)			
Centerline Dist.	to Observer:	76.0 feet		F		Autos	0	.000				
Barrier Distance	to Observer:	0.0 feet			Mediu	n Trucks	2	297				
Observer Height ((Above Pad):	5.0 feet			Heav	v Trucks	8	.004	Grade A	diust	ment:	0.0
Pa	ad Elevation:	0.0 feet										
Roa	ad Elevation:	0.0 feet		1	Lane Eq	uivalent	Distar	nce (in	feet)			
	Road Grade:	0.0%				Autos:	65	.422				
	Left View:	-90.0 degrees			Mediur	n Trucks.	65	.286				
	Right View:	90.0 degrees			Heav	y Trucks:	65	.299				
FHWA Noise Mod	el Calculation	s										
VehicleType	REMEL	Traffic Flow	Distan	се	Finite	Road	Fres	nel	Barrier A	\tten	Ber	m Atten
Autos:	70.20	1.87		1.8	5	-1.20		-4.73	().000		0.00
Medium Trucks:	81.00	-11.17	-	1.84	4	-1.20		-4.88	().000		0.00
Heavy Trucks:	85.38	-14.96	-	1.84	4	-1.20		-5.25	().000		0.00
Unmitigated Nois	e Levels (with	out Topo and b	arrier a	tten	uation)							
VehicleType	Leq Peak Hou	r Leq Day	Le	q Ei	vening	Leq N	light		Ldn		CI	VEL
Autos:	69	.0 66	6.4		65.5		62.	5	69).7		70.2
Medium Trucks:	66	.8 64	1.9		59.3		59.	7	67	7.1		67.3
Heavy Trucks:	67	.4 65	5.9		54.4		58.	7	66	3.8		66.9
Vehicle Noise:	72	.6 70	0.6		66.7		65.	4	72	2.9		73.
Centerline Distan	ce to Noise Co	ontour (in feet)		70								
				100	JBA	65 d	BA		5U aBA		55	dBA 470
			in: -	11	10	25	4 c		54/		1,	179
		CNE	:L.:	12	20	26	5		5/1		1,2	200

	FH\	WA-RD-77-108	HIGHW	Y NOISE I	PREDICTIC	ON MODI	EL			
Scenari Road Nam Road Segmer	o: HY With Pr e: Limonite A nt: e/o Archiba	roject v. ald Av.			Project N Job Nu	lame: M mber: 10	CH 0351			
SITE	SPECIFIC IN	NPUT DATA			NC	DISE MO	ODEL IN	PUTS		
Highway Data				Site Co	onditions (I	Hard = 1	0, Soft = 1	15)		
Average Daily	Traffic (Adt):	43,906 vehicle	s			AL	utos: 15	5		
Peak Hour	Percentage:	10%		N	ledium Truc	ks (2 Ax	des): 15	i		
Peak H	our Volume:	4,391 vehicles	3	H	leavy Truck	is (3+ Ax	des): 15	5		
Ve	hicle Speed:	50 mph		Vohick	Mix					
Near/Far La	ne Distance:	78 feet		Venicie	hicleType	D	av Eve	nina Ni	aht	Daily
Site Data					AL	itos: 6	6.2% 13	.5% 20	0.3% 9	3.40%
Pa	rior Hoight:	0.0 foot		1	Medium Tru	cks: 7	7.1% 5	.3% 1	7.6%	4.67%
Barrier Type (0-W	all 1-Rerm)	0.0 1001			Heavy Tru	cks: 8	6.3% 1	.5% 12	2.2%	1.93%
Centerline Dis	st. to Barrier:	76.0 feet		Malaa			(In fr a t)			
Centerline Dist.	to Observer:	76.0 feet		Noise	Source Ele	vations	(In reet)			
Barrier Distance	to Observer:	0.0 feet		14-15	Autos:	0.00	JU N7			
Observer Height (Above Pad):	5.0 feet		Mear	um Trucks:	2.29	91 04 Cross	lo Adiuct	monti C	
Pa	d Elevation:	0.0 feet		Hea	avy Trucks:	8.00	J4 Grau	e Aujusi	ment. u	1.0
Roa	ad Elevation:	0.0 feet		Lane E	quivalent l	Distance	e (in feet)			
1	Road Grade:	0.0%			Autos:	65.42	22			
	Left View:	-90.0 degree	s	Medi	um Trucks:	65.28	36			
	Right View:	90.0 degree	s	Hea	avy Trucks:	65.29	99			
FHWA Noise Mode	el Calculation	IS								
VehicleType	REMEL	Traffic Flow	Distan	ce Finit	e Road	Fresne	I Barrie	er Atten	Berm	Atten
Autos:	70.20	3.83		1.85	-1.20	-4	4.73	0.000		0.000
Medium Trucks:	81.00	-9.18		1.84	-1.20	-4	4.88	0.000		0.000
Heavy Trucks:	85.38	-13.02		1.84	-1.20	-5	5.25	0.000		0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier a	ttenuation)					
VehicleType	Leq Peak Ho	ur Leq Day	Le	q Evening	Leq N	light	Ldn		CNE	Ľ
Autos:	71	1.0	58.4	67.	5	64.5		71.7		72.1
Medium Trucks:	68	3.8	56.9	61.	3	61.7		69.1		69.3
Heavy Trucks:	69	9.3 (67.9	56.	3	60.6		68.7		68.8
Vehicle Noise:	74	1.6	72.5	68.	7	67.4		74.8		75.1
Centerline Distance	ce to Noise C	ontour (in feet,	1						-	
				70 dBA	65 d	BA	60 dB	4	55 dE	3A
			Ldn:	159	343	3	740		1,59	4
		CI	IEL:	166	358	3	772		1,66	3

	FH	WA-RD-77-108	B HIGHW	AY NO	ISE P	REDICTI	ON MOI	DEL				
Scenario Road Name Road Segmen	b: HY With P e: Pine Av. t: w/o El Prac	roject do Rd.				Project Job Nu	Name: N Imber: 1	MCH 10351				
SITE S	PECIFIC IN	NPUT DATA				N	OISE N	IODE	L INPUTS	5		
Highway Data				Si	te Cor	ditions ('Hard =	10, So	oft = 15)			
Average Daily 1	Traffic (Adt):	29,483 vehicl	es				A	Autos:	15			
Peak Hour F	Percentage:	10%			Me	dium Tru	cks (2 A	xles):	15			
Peak Ho	our Volume:	2,948 vehicle	s		He	avy Truc	ks (3+ A	xles):	15			
Veh	icle Speed:	45 mph		Ve	hicle	Mix						
Near/Far Lan	e Distance:	76 feet			Veh	icleType		Day	Evening	Nigh	t D	aily
Site Data						A	utos:	66.2%	13.5%	20.3	% 92	.39%
Bari	rier Heiaht:	0.0 feet			М	edium Tr	ucks:	77.1%	5.3%	17.6	% 5	.01%
Barrier Type (0-Wa	all, 1-Berm):	0.0			1	Heavy Tr	ucks:	86.3%	1.5%	12.2	% 2	.60%
Centerline Dis	t. to Barrier:	60.0 feet		No	oise Se	ource Ele	vations	: (in fe	eet)			
Centerline Dist. to	o Observer:	60.0 feet				Autos	0.0	00	,			
Barrier Distance to	o Observer:	0.0 feet			Mediu	m Trucks	2.2	97				
Observer Height (A	Above Pad):	5.0 feet			Heav	v Trucks	: 8.0	04	Grade Adj	ustme	nt: 0.0)
Pa	d Elevation:	0.0 feet		1.			Distance	- //	6			
Roa	d Elevation:	0.0 feet		La	ne Eq	uivalent	Distanc	e (in	feet)			
K	load Grade:	0.0%				Autos	46.7	01				
	Left View:	-90.0 degre	es		Mediu	m Trucks	46.5	011				
	Right view:	90.0 degre	es		nea	ly TTUCKS	. 40.5	530				
FHWA Noise Mode	I Calculation	IS										
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresn	el	Barrier Atte	en E	Berm A	tten
Autos:	68.46	2.51		0.34		-1.20		4.69	0.0	00	(0.000
Medium Trucks:	79.45	-10.14		0.37		-1.20		4.88	0.0	00	(0.000
Heavy Trucks:	84.25	-12.99		0.37		-1.20		5.34	0.0	00	(0.000
Unmitigated Noise	Levels (with	out Topo and	barrier	attenua	ation)	_						
VehicleType	Leq Peak Ho	ur Leq Da	y L	.eq Eve	ning	Leq I	Vight		Ldn		CNEL	
Autos:	70).1	67.5		66.6		63.6		70.8			71.3
Medium Trucks:	68	3.5	66.6		60.9		61.4		68.8			69.0
Heavy Trucks:	70).4	69.0		57.4		61.7		69.8			69.9
venicie ivoise.			12.0		00.1		07.1		74.7			74.9
Centerline Distance	e to Noise C	ontour (in fee	9	70 dB	A	65.0	IRA	f	SO dBA		55 dB4	
			I dn:	123		26	5		570	· · ·	1.229	•
		C	NEL	128		27	5		593		1.277	
		0		.20		21	-				.,,	

Scenar	io: HY With Pr	oject			Project N	<i>lame:</i> M	СН			
Road Nam	e: Pine Av.				Job Nu	mber: 10)351			
Road Segme	nt: w/o Euclid /	4v.								
SITE	SPECIFIC IN	IPUT DATA			NO	DISE M	DDE	L INPUT	S	
Highway Data				Site Co	nditions (I	Hard = 1	0, Sc	oft = 15)		
Average Daily	Traffic (Adt):	25,605 vehicles				A	utos:	15		
Peak Hour	Percentage:	10%		M	edium Truc	:ks (2 Ax	les):	15		
Peak H	lour Volume:	2,560 vehicles		H	eavy Truck	:s (3+ Ax	les):	15		
Ve	hicle Speed:	45 mph		Vehicle	Mix					
Near/Far La	ne Distance:	76 feet		Ve	hicleType	D	ay	Evening	Night	Daily
Site Data					A	itos: 6	6.2%	13.5%	20.3%	93.33%
Bai	rrier Height:	0.0 feet		/	Aedium Tru	cks: 7	7.1%	5.3%	17.6%	4.70%
Barrier Type (0-W	all, 1-Berm):	0.0			Heavy Tru	cks: 8	6.3%	1.5%	12.2%	1.97%
Centerline Dis	st. to Barrier:	60.0 feet		Noiso	Courco Elo	vations	(in fe	not)		
Centerline Dist.	to Observer:	60.0 feet		NOISe	Autor:	0.00	0	el)		
Barrier Distance	to Observer:	0.0 feet		Madi	Autos.	0.00	10			
Observer Height (Above Pad):	5.0 feet		Weak	uni Trucks.	2.28		Grade Ad	iustmont.	0.0
Pa	ad Elevation:	0.0 feet		пеа	ivy mucks.	0.00	14	Orade Haj	usunent.	0.0
Roa	ad Elevation:	0.0 feet		Lane E	quivalent	Distance	e (in i	feet)		
	Road Grade:	0.0%			Autos:	46.70)1			
	Left View:	-90.0 degrees		Medi	um Trucks:	46.51	1			
	Right View:	90.0 degrees		Hea	wy Trucks:	46.53	80			
FHWA Noise Mod	el Calculation	s								
FHWA Noise Mod VehicleType	el Calculation REMEL	s Traffic Flow	Distanc	e Finit	e Road	Fresne	1	Barrier Atte	en Beri	m Atten
FHWA Noise Mod VehicleType Autos:	el Calculation REMEL 68.46	Traffic Flow	Distanci	e Finit	e Road -1.20	Fresne	l 1.69	Barrier Atte 0.0	en Beri 100	<i>m Atten</i> 0.000
FHWA Noise Mod VehicleType Autos: Medium Trucks:	el Calculation REMEL 68.46 79.45	s Traffic Flow 1.95 -11.03	Distanc C	e Finit).34).37	e Road -1.20 -1.20	Fresne -4 -4	l 1.69 1.88	Barrier Atte 0.0 0.0	en Ben 100	<i>m Atten</i> 0.000 0.000
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks:	el Calculation REMEL 68.46 79.45 84.25	s Traffic Flow 1.95 -11.03 -14.81	Distance C C	e Finit 0.34 0.37 0.37	<i>e Road</i> -1.20 -1.20 -1.20	Fresne -4 -4 -5	l 1.69 1.88 5.34	<u>Barrier Atte</u> 0.0 0.0 0.0	en Ben 100 100	<i>m Atten</i> 0.000 0.000 0.000
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise	el Calculation REMEL 68.46 79.45 84.25 e Levels (with	s Traffic Flow 1.95 -11.03 -14.81 out Topo and ba	Distance (((() () ()	e Finit 0.34 0.37 0.37 0.37	e Road -1.20 -1.20 -1.20	Fresne -4 -4 -5	1 1.69 1.88 5.34	<u>Barrier Atte</u> 0.0 0.0 0.0	en Ben 000 000	<i>m Atten</i> 0.000 0.000 0.000
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType	el Calculation REMEL 68.46 79.45 84.25 e Levels (with Leg Peak Hou	s Traffic Flow 1.95 -11.03 -14.81 out Topo and ba rr Leq Day	Distanci C C C C C C C C C C C C C C C C C C C	e Finit 0.34 0.37 0.37 tenuation, Evening	e Road -1.20 -1.20 -1.20 Leq N	Fresne -4 -4 -5	1 1.69 1.88 5.34	Barrier Atti 0.0 0.0 0.0 Ldn	en Ben 000 000 000 Ch	m Atten 0.000 0.000 0.000
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos:	el Calculation REMEL 68.46 79.45 84.25 e Levels (with Leq Peak Hou 69	s Traffic Flow 1.95 -11.03 -14.81 out Topo and ba r Leq Day .5 67	Distance C C C C C C C C C C C C C C C C C C C	e Finit 0.34 0.37 0.37 0.37 Eenuation, Evening 66.	e Road -1.20 -1.20 -1.20 -1.20 Leq N	Fresner -4 -4 -4 -5 light 63.1	1 1.69 1.88 5.34	Barrier Atte 0.0 0.0 0.0 0.0 0.0 <i>Ldn</i> 70.3	en Ben 100 100 100 100 100	m Atten 0.000 0.000 0.000 VEL 70.7
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unnitigated Noiss VehicleType Autos: Medium Trucks:	el Calculation REMEL 68.46 79.45 84.25 e Levels (with Leq Peak Hou 69 67	s Traffic Flow 1.95 -11.03 -14.81 out Topo and ba r Leq Day .5 67 .6 65	Distance C C C C C C C C C C C C C C C C C C C	e Finit 0.34 0.37 0.37 tenuation, 66. 60.	e Road -1.20 -1.20 -1.20 -1.20 Leq N 1 1	Fresne. -4 -4 -4 -5 light 63.1 60.5	1 1.69 1.88 5.34	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 70.3 67.9	en Ben 000 000 000 000 Ch	<u>m Atten</u> 0.000 0.000 0.000 <u>VEL</u> 70.7 68.1
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: VehicleType Autos: Medium Trucks: Heavy Trucks:	el Calculation REMEL 68.46 79.45 84.25 e Levels (with Leq Peak Hou 69 67 68	s Traffic Flow 1.95 -11.03 -14.81 out Topo and b ur Leq Day .5 67 .6 65 .6 67	Distance (C) (C) (C) (C) (C) (C) (C) (C) (C) (C)	e Finit 0.34 0.37 0.37 tenuation , 66. 60. 55.	e Road -1.20 -1.20 -1.20 (Leq N 1 1 5	Fresne -4 -4 -4 -5 -4 -4 -5 -5 -4 -4 -5 -5 -5 -4 -4 -5 -4 -4 -5 -4 -4 -5 -4 -4 -5 -4 -5 -4 -5 -5 -4 -5 -5 -5 -5 -5 -5 -5 -5 -5 -5 -5 -5 -5	1 1.69 1.88 5.34	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 67.9 68.0	en Ben 000 000 000 Ch 3 0	<u>m Atten</u> 0.000 0.000 0.000 <u>VEL</u> 70.7 68.1 68.1
FHWA Noise Mod VehicleType Autos: Heavy Trucks: Unmitigated Noise VehicleType Autos: Heavy Trucks: Heavy Trucks: Vehicle Noise	el Calculation <u>REMEL</u> 68.46 79.45 84.25 a Levels (with Leq Peak Hou 69 67 68 73	s Traffic Flow 1.95 -11.03 -14.81 but Topo and bi tr Leq Day .5 67 .6 66 .6 67 .4 71	Distance C C C C C C C C C C C C C C C C C C C	e Finit 0.34 0.37 0.37 eenuation, 66. 60. 55. 67.	e Road -1.20 -1.20 -1.20 0 Leq N 1 1 3	Fresne -4 -4 -5 -4 -5 -5 -4 -5 -5 -5 -5 -5 -4 -5 -5 -4 -5 -5 -4 -5 -5 -5 -5 -6 -4 -5 -5 -6 -6 -6 -6 -6 -6 -6 -6 -6 -6 -6 -6 -6	1 4.69 4.88 5.34	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 6 0.0 6 8.0 73.6	en Ben 000 000 000 Ch 3 3	m Atten 0.000 0.000 0.000 VEL 70.7 68.1 68.1 73.9
FHWA Noise Mode VehicleType Autos: Medium Trucks: Heavy Trucks: VehicleType Autos: Medium Trucks: Vehicle Noise: Centerline Distance	el Calculation <u>REMEL</u> 68.46 79.45 84.25 e Levels (with Leq Peak Hou 69 67 68 73 ce to Noise Co	s Traffic Flow 1.95 -11.03 -14.81 DOUT TOPO and bi rr Leq Day 5.666 6.667 .471 Dontour (In feet)	Distance (C) (C) (C) (C) (C) (C) (C) (C) (C) (C)	e Finit 0.34 0.37 0.37 tenuation, 66. 60. 55. 67.	e Road -1.20 -1.20 -1.20 0 Leg N 1 1 3	Fresne. -4 -4 -5 -5 -4 -4 -4 -5 -5 -5 -5 -5 -5 -5 -5 -5 -4 -6 -2 -5 -5 -2 -4 -4 -5 -5 -5 -5 -5 -5 -5 -5 -5 -5 -5 -5 -5	1 1.69 1.88 5.34	Barrier Atto 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 6 8.0 7 3.6	en Ben 100 100 100 100 100 100 100 10	m Atten 0.000 0.000 0.000 VEL 70.7 68.1 68.1 73.9
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distance	el Calculation <u>REMEL</u> 68.46 79.45 84.25 2 Levels (with Leq Peak Hou 69 67 68 73 73 75 76 80 73 75 75 75 75 75 75 75 75 75 75	s Traffic Flow 1.95 -11.03 -14.81 out Topo and bi r Leq Day 5.66666 6.667 4.71 ontour (in feet)	Distance (C) (C) (C) (C) (C) (C) (C) (C) (C) (C)	e Finit 0.34 0.37 0.37 ternuation, 1 Evening 66. 60. 55.1 67. 70 dBA	e Road -1.20 -1.20 -1.20 Leg N 1 1 3 65 d	Fresne. -4 -4 -5 -5 -4 -4 -5 -5 -5 -5 -5 -5 -5 -5 -5 -5 -5 -5 -5	1 1.69 1.88 5.34	Barrier Att. 0.0 0.0 0.0 1. 0.0 0.0 0.0 0.0 0 0 0 0	en Ben 1000 100	m Atten 0.000 0.000 0.000 VEL 70.7 68.1 68.1 73.9 dBA
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks: Vehicle Noise Centerline Distance	el Calculation <u>REMEL</u> 68.46 79.45 84.25 a Levels (with Leq Peak Hou 69 67 68 73 ce to Noise Co	s Traffic Flow 1.95 -11.03 -14.81 out Topo and bu rr Leg Day 5 66 6 65 6 67 4 71 ontour (In feet)	Distance (C) (C) (C) (C) (C) (C) (C) (C) (C) (C)	e Finit 	e Road -1.20 -1.20 -1.20 0 1 1 1 5 3 65 d 220	Fresne. -4 -4 -5 -5 -4 -4 -4 -5 -5 -5 -5 -5 -5 -5 -5 -5 -5 -5 -5 -5	1 1.69 1.88 5.34	Barrier Att 0.0 0.0 0.0 0.0 0.0 0.0 0.0 7 0.3 6 7 0.6 8 0.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	en Ben 1000 100	<i>m Atten</i> 0.000 0.000 <i>NEL</i> 70.7 68.1 73.9 <i>dBA</i> 049

Thursday, May 02, 2019

	FHV	VA-RD-77-108 I	HIGHWA	Y NO	OISE PF	REDICTI		DEL			
Scenario: H	Y With Pr	oject				Project	Name: N	NCH			
Road Name: P	ine Av.					Job Ni	Imber: 1	10351			
Road Segment: e	o Euclid A	Av.									
SITE SPE	CIFIC IN	PUT DATA				N	OISE N	IODE	L INPUTS	5	
Highway Data				S	lite Con	ditions	Hard =	10, So	oft = 15)		
Average Daily Traffi	ic (Adt):	37,606 vehicle	в				A	Autos:	15		
Peak Hour Perc	entage:	10%			Mee	dium Tru	cks (2 A	xles):	15		
Peak Hour \	/olume:	3,761 vehicles			Hea	avy Truc	ks (3+ A	xles):	15		
Vehicle	Speed:	45 mph		v	ehicle I	Mix					
Near/Far Lane D	istance:	76 feet		Ē	Vehi	cleType		Day	Evening	Night	Daily
Site Data						A	utos:	, 66.2%	13.5%	20.3%	93.35%
Barrier	Heiaht [.]	0.0 feet			Me	edium Tr	ucks:	77.1%	5.3%	17.6%	4.70%
Barrier Type (0-Wall, 1	-Berm):	0.0			E	łeavy Tr	ucks:	86.3%	1.5%	12.2%	5 1.95%
Centerline Dist. to	Barrier:	60.0 feet			loiso Sa	urco El	wation	in f	not)		
Centerline Dist. to Ol	oserver:	60.0 feet		~	10/36 30			000	<i>eei)</i>		
Barrier Distance to Ol	oserver:	0.0 feet			Modiur	n Trucks	. 0.0	00			
Observer Height (Abov	e Pad):	5.0 feet			Hoov	n Trucks	. 2.2	04	Grada Adi	ustmon	t: 0.0
Pad El	evation:	0.0 feet			neav	y mucho	. 0.0		0/000 / 10/	aoumon	. 0.0
Road El	evation:	0.0 feet		L	ane Equ	uivalent	Distand	e (in	feet)		
Road	Grade:	0.0%				Autos	: 46.7	701			
Le	ft View:	-90.0 degree	5		Mediur	n Trucks	: 46.5	511			
Rigi	ht View:	90.0 degree	5		Heav	y Trucks	: 46.5	530			
FHWA Noise Model Ca	lculation	s									
VehicleType R	EMEL	Traffic Flow	Distan	се	Finite	Road	Fresn	el	Barrier Atte	en Be	rm Atten
Autos:	68.46	3.62		0.34		-1.20		-4.69	0.0	00	0.00
Medium Trucks:	79.45	-9.36		0.37		-1.20		-4.88	0.0	00	0.00
Heavy Trucks:	84.25	-13.19		0.37		-1.20		-5.34	0.0	00	0.00
Unmitigated Noise Lev	els (with	out Topo and k	arrier a	ttenu	uation)						
VehicleType Leq	Peak Hou	r Leq Day	Le	q Eve	ening	Leq I	Vight		Ldn	C	NEL
Autos:	71	.2 6	8.6		67.7		64.7		71.9		72.4
Medium Trucks:	69	.3 6	7.3		61.7		62.2		69.6		69.
Heavy Trucks:	70	.2 6	8.8		57.2		61.5		69.6		69.
Vehicle Noise:	75	.1 7	3.1		69.0		67.8		75.3		75.
Centerline Distance to	Noise Co	ontour (in feet)									
-				70 dl	BA	65 0	iBA	6	60 dBA	55	5 dBA
		L	dn:	135	5	29	2		628	1	,353

	FH\	NA-RD-77-108 H	IIGHWA	Y NOISE P	REDICTI	ON MOI	DEL			
Scenar Road Nam Road Segmei	io: HY With Pr le: Pine Av. nt: w/o Chino (roject Corona Rd.			Project I Job NL	Name: I umber: ·	MCH 10351			
SITE	SPECIFIC IN	IPUT DATA			N	OISE N	/ODE	L INPUT	s	
Highway Data				Site Cor	nditions ((Hard =	10, S	oft = 15)		
Average Daily	Traffic (Adt):	36,604 vehicles			-1	, ,	Autos:	15		
Peak Hour	Percentage:	10%		IV/e		UKS (2 P	(xies).	10		
Peak H	our volume:	3,660 vehicles		He	avy Truc	KS (3+ A	(xies).	15		
Ve	hicle Speed:	45 mph		Vehicle	Mix					
Near/Far La	ne Distance:	76 feet		Veh	icleType		Day	Evening	Night	Daily
Site Data					A	utos:	66.2%	6 13.5%	20.3%	6 93.35%
Bai	rrier Height:	0.0 feet		M	ledium Tri	ucks:	77.1%	5.3%	17.6%	6 4.70%
Barrier Type (0-W	'all, 1-Berm):	0.0			Heavy Tri	ucks:	86.3%	5 1.5%	12.29	6 1.95%
Centerline Dis	st. to Barrier:	60.0 feet		Noise S	ource Ele	evation	s (in f	eet)	-	
Centerline Dist.	to Observer:	60.0 feet			Autos	: 0.0	000			
Barrier Distance	to Observer:	0.0 feet		Mediu	m Trucks	: 2.2	297			
Observer Height (Above Pad):	5.0 feet		Hea	vy Trucks	: 8.0	004	Grade Ad	ijustmer	nt: 0.0
Pa	ad Elevation:	0.0 feet								
Roa	ad Elevation:	0.0 feet		Lane Eq	uivaient	Distanc	ce (In	teet)		
	Road Grade:	0.0%			Autos	: 46.	701			
	Left View:	-90.0 degrees		Mediu	m Trucks	: 46.	511			
	Right View:	90.0 degrees		Hea	vy Trucks	: 46.	530			
FHWA Noise Mod	el Calculation	s								
VehicleType	REMEL	Traffic Flow	Distanc	e Finite	Road	Fresn	el	Barrier Att	en Be	erm Atten
Autos:	68.46	3.50		0.34	-1.20		-4.69	0.0	000	0.000
Medium Trucks:	79.45	-9.48		0.37	-1.20		-4.88	0.0	000	0.000
Heavy Trucks:	84.25	-13.31		0.37	-1.20		-5.34	0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and b	arrier at	tenuation)						
VehicleType	Leq Peak Hou	ır Leq Day	Leo	q Evening	Leq I	Vight		Ldn	0	CNEL
Autos:	71	.1 68	3.5	67.6		64.6		71.8	3	72.2
Medium Trucks:	69	.1 67	7.2	61.6		62.1		69.	5	69.6
Heavy Trucks:	70	.1 68	3.7	57.1		61.4		69.	5	69.6
Vehicle Noise:	75	.0 73	3.0	68.9		67.7		75.2	2	75.4
Centerline Distant	ce to Noise Co	ontour (in feet)								
				70 dBA	65 c	1BA	1	60 dBA	5	5 dBA
		L	dn:	133	28	6		617	1	1,329
		CNI	EL:	138	29	18		643	1	1,385

Thursday, May 02, 2019

	FHV	VA-RD-77-108	HIGHWA	NO YY	ISE P	REDICT	ION MO	DEL				
Scenai Road Nan Road Segme	rio: HY With Pr ne: Pine Av. ent: w/o W. Pre:	oject serve Loop				Project Job N	t Name: lumber:	MCH 10351				
SITE	SPECIFIC IN	PUT DATA				P	NOISE N	/IODE	L INPUT	s		
Highway Data				Sit	te Cor	nditions	(Hard =	10, S	oft = 15)			
Average Daily	Traffic (Adt):	19,782 vehicle	s					Autos	15			
Peak Hour	r Percentage:	10%			Me	edium Tr	ucks (2 A	(xles	: 15			
Peak I	Hour Volume:	1,978 vehicles			He	eavy Tru	cks (3+ A	(xles	: 15			
Ve	ehicle Speed:	45 mph		Ve	hicle	Mix						
Near/Far La	ane Distance:	76 feet			Veh	nicleTvpe	e	Dav	Evenina	Nic	aht	Dailv
Site Data							Autos:	66.29	6 13.5%	20	.3%	93.29%
Ba	nrrier Height:	0.0 feet			М	edium T	rucks:	77.19	6 5.3%	17	.6%	4.72%
Barrier Type (0-V	Vall, 1-Berm):	0.0			1	Heavy T	rucks:	86.3%	6 1.5%	12	.2%	1.99%
Centerline D	ist. to Barrier:	60.0 feet		No	oise Se	ource E	levation	s (in i	eet)			
Centerline Dist.	to Observer:	60.0 feet				Auto	s: 0.0	000	,			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Truck	s: 2.1	297				
Observer Height	(Above Pad):	5.0 feet			Heav	vy Truck	s: 8.0	004	Grade Ad	justr	nent:	0.0
P	Pad Elevation:	0.0 feet					1 Distan	//	64			
Ro	ad Elevation:	0.0 feet		La	ne Eq	uivaien	t Distan	ce (In	reet)			
	Road Grade:	0.0%				Auto	IS: 46.	701				
	Left View:	-90.0 degree	S		Mediu	m Truck	IS: 46.	511				
	Right view:	90.0 degree	s		nea	y muck	.5. 40.	530				
FHWA Noise Mod	lel Calculation	s										
VehicleType	REMEL	Traffic Flow	Distan	се	Finite	Road	Fresr	iel	Barrier Att	en	Bern	n Atten
Autos:	68.46	0.82		0.34		-1.20		-4.69	0.0	000		0.000
Medium Trucks:	79.45	-12.14		0.37		-1.20		-4.88	0.0	000		0.000
Heavy Trucks:	84.25	-15.88		0.37		-1.20		-5.34	0.0	000		0.000
Unmitigated Nois	e Levels (with	out Topo and	barrier a	ttenua	ation)							
VehicleType	Leq Peak Hou	r Leq Day	Le	q Eve	ning	Leq	Night		Ldn		CN	EL
Autos:	68	.4 6	5.8		65.0		62.0)	69.1	1		69.6
Medium Trucks:	66	.5 t	04.6		59.0		59.4		66.8	5		67.0
Vehicle Noise	72	3 3	70.3		54.5 66.2		58.5 65.1	,	72 !	5		72.8
Contorlino Distan	- · ·	ntour (in foot)	0.0		00.2		00.1		72.0			72.0
Genternine Distan	00 10 110/30 00	intour (intreet)		70 dB	A	65	dBA		60 dBA		55 c	IBA
			dn:	89		1	91		411		88	6
		Ch	IEL:	92		1	99		428		92	3

	rnv										
Scenari	io: HY With Pr	oject			1	Project Na	ame: M	СН			
Road Nam	e: Pine Av.					Job Nun	ber: 10)351			
Road Segmer	nt: w/o E. Pres	erve Loop									
SITE	SPECIFIC IN	PUT DATA				NO	ISE M	ODE	L INPUT	s	
Highway Data				Si	te Cond	litions (H	ard = 1	0, Sc	oft = 15)		
Average Daily	Traffic (Adt):	31,805 vehicles	s				A	utos:	15		
Peak Hour	Percentage:	10%			Med	ium Truck	(2 Ax	les):	15		
Peak H	lour Volume:	3,181 vehicles			Hea	vy Trucks	(3+ Ax	les):	15		
Ve	hicle Speed:	45 mph		Ve	hicle M	ix					
Near/Far La	ne Distance:	76 feet			Vehic	leType	D	ay	Evening	Night	Daily
Site Data						Aut	os: 6	, 6.2%	13.5%	20.3%	93.34%
Rai	rrier Height	0.0 feet			Mee	dium Truc	ks: 7	7.1%	5.3%	17.6%	4.71%
Barrier Type (0-W	/all. 1-Berm):	0.0			He	eavy Truc	ks: 8	6.3%	1.5%	12.2%	1.96%
Centerline Dis	st. to Barrier:	60.0 feet		A/-	No. 6	wee El	otion -	lin f.	a4)		
Centerline Dist.	to Observer:	60.0 feet		NC	nse 301	II CE EIEV	adons	(IN TE	eel)		
Barrier Distance	to Observer:	0.0 feet				Autos:	0.00	10			
Observer Height (Above Pad):	5.0 feet			Mealum	Trucks:	2.25		Grado Ad	iustmont	
Pa	ad Elevation:	0.0 feet			Heavy	Trucks:	8.00	14	Grade Auj	usunem.	0.0
Roa	ad Elevation:	0.0 feet		La	ne Equ	ivalent D	istance	e (in i	feet)		
1	Road Grade:	0.0%				Autos:	46.70)1			
	Left View:	-90.0 degrees	3		Medium	Trucks:	46.5	1			
	Right View:	90.0 degrees	3		Heavy	Trucks:	46.53	80			
FHWA Noise Mode	el Calculation	s									
VehicleType	REMEL	T (7) E1	Distan								
	INCIVILL	I raffic Flow		ce	Finite F	Road	Fresne	/	Barrier Att	en Ber	m Atten
Autos:	68.46	2.89		ce 0.34	Finite F	Road -1.20	Fresne	1 1.69	Barrier Atte 0.0	en Ber	0.000
Autos: Medium Trucks:	68.46 79.45	2.89 -10.09		ce 0.34 0.37	Finite F	Road -1.20 -1.20	Fresne 	1 1.69 1.88	Barrier Atte 0.0 0.0	en Ben 000 000	0.000 0.000
Autos: Medium Trucks: Heavy Trucks:	68.46 79.45 84.25	2.89 -10.09 -13.89		0.34 0.37 0.37	Finite F	-1.20 -1.20 -1.20 -1.20	Fresne -4 -4 -4	1 1.69 1.88 5.34	Barrier Atte 0.0 0.0 0.0	en Ber 000 000 000	0.000 0.000 0.000
Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise	68.46 79.45 84.25 • Levels (with	2.89 -10.09 -13.89	arrier a	0.34 0.37 0.37 0.37	Finite F	Road -1.20 -1.20 -1.20	Fresne -4 -4 -4	1 1.69 1.88 5.34	<u>Barrier Atte</u> 0.0 0.0 0.0	en Ben 000 000 000	0.000 0.000 0.000
Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType	68.46 79.45 84.25 e Levels (with Leg Peak Hou	2.89 -10.09 -13.89 Dut Topo and b r Leq Day	arrier a	ce 0.34 0.37 0.37 ttenua q Eve	Finite F	Road -1.20 -1.20 -1.20 Leq Nig	Fresne -4 -4 ght	1 1.69 1.88 5.34	Barrier Atti 0.0 0.0 0.0 0.0	en Ben 000 000 000 000 C/	0.000 0.000 0.000 0.000
Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos:	68.46 79.45 84.25 e Levels (with Leq Peak Hou 70	2.89 -10.09 -13.89 out Topo and E r Leq Day 5 6	arrier a	ce 0.34 0.37 0.37 ttenua q Eve	Finite F ation) ning 67.0	Road -1.20 -1.20 -1.20 Leq Nig	Fresne -4 -4 -4 -4 -4 -4 -4 -4 -4 -4 -4 -4 -4	1 1.69 1.88 5.34	Barrier Atti 0.0 0.0 0.0 0.0 0.0 0.0 71.2	en Ben 000 000 000 000 C/ 2	0.000 0.000 0.000 0.000 VEL 71.6
Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks:	68.46 79.45 84.25 e Levels (with Leq Peak Hou 70 68	Iteratric Flow 2.89 -10.09 -13.89 out Topo and E Image: Comparison of the system r Leq Day 5 6 .5 6 6 6	arrier a Le 7.9 6.6	ce 0.34 0.37 0.37 ttenua q Eve	Finite F ation) ning 67.0 61.0	Road -1.20 -1.20 -1.20 <i>Leq Ni</i> ę	Fresne -4 -4 -4 -4 -4 -4 -4 -4 -4 -4 -4 -4 -4	1 1.69 1.88 5.34	Barrier Atte 0.0 0.0 0.0 <u>Ldn</u> 71.2 68.9	en Ben 000 000 000 C/ 2 3	NEL 69.0
Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks:	68.46 79.45 84.25 e Levels (with Leq Peak Hou 70 68 69	Iteratric Flow 2.89 -10.09 -13.89 out Topo and E r Leq Day .5 6 .5 6 .5 6	<i>arrier a</i> <i>Le</i> 7.9 6.6 8.1	ce 0.34 0.37 0.37 ttenua q Eve	Finite F ation) ning 67.0 61.0 56.5	Road -1.20 -1.20 -1.20 Leq Nig	Fresne -4 -4 -4 -4 -4 -4 -4 -4 -4 -4 -4 -4 -4	1.69 1.88 5.34	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	en Ben 000 000 000 C/ 2 9	NEL 71.6 69.0 69.0
Autos: Medium Trucks: Heavy Trucks: VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	68.46 79.45 84.25 e Levels (with Leq Peak Hou 70 68 69 74	Inamic How 2.89 -10.09 -13.89 out Topo and E Image: Comparison of the system r Leq Day 5 .5 6 5 .5 6 6 .5 6 6	<i>arrier a</i> <i>Le</i> 7.9 6.6 8.1 2.4	ce 0.34 0.37 0.37 ttenua q Eve	Finite F ation) ning 67.0 61.0 56.5 68.3	Road -1.20 -1.20 -1.20 Leq Nig	Fresne -4 -4 -4 -4 -4 -4 64.0 64.0 61.4 60.8 67.1	1 1.69 1.88 5.34	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	en Ben 000 000 000 000 000 000 000 000 000 0	M Atten 0.000 0.000 0.000 VEL 71.6 69.0 69.0 74.8
Autos: Medium Trucks: Heavy Trucks: VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distance	68.46 79.45 84.25 e Levels (with Leq Peak Hou 70 68 69 74 2e to Noise Co	Trainc Flow 2.89 -10.09 -11.38 out Topo and £ 11.89 m Leq Day .5 6 .5 6 .5 6 .4 7 wrtour (in feet)	<i>arrier a</i> <i>Le</i> 7.9 6.6 8.1 2.4	ce 0.34 0.37 0.37 ttenua q Eve	Finite F ation) ning 67.0 61.0 56.5 68.3	Road -1.20 -1.20 -1.20 Leq Nig	Fresne -4 -4 -4 -4 64.0 64.0 61.4 60.8 67.1	1 1.69 1.88 5.34	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	en Berr 000 000 000 C/ 2 0 0 0 0 0 0 0 0 0 0 0 0 0	VEL 71.6 69.0 74.8
Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks: Vehicle Noise: Centerline Distance	68.46 79.45 84.25 e Levels (with Leq Peak Hou 70 68 69 74 2e to Noise Co	Trainc How 2.89 -10.09 -13.89 out Topo and L	<i>parrier a</i> <i>Le</i> 7.9 6.6 8.1 2.4	ce 0.34 0.37 0.37 ttenua q Eve	Finite F ation) ning 67.0 61.0 56.5 68.3	Road -1.20 -1.20 -1.20 Leq Nig 65 dB	Fresne -4 -4 -4 64.0 61.4 60.8 67.1	1 1.69 1.88 5.34 5.34	Barrier Atti 0.0 0.0 0.0 1.2 68.9 68.9 74.6 74.6	en Bern 000 000 000 CI 2 3 3 55	M Atten 0.00(0.00(0.00(0.00(71.6 69.0 69.0 74.8 dBA
Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distance	68.46 79.45 84.25 e Levels (with Leg Peak Hou 70 68 69 74 2e to Noise Co	Trainc How 2.89 -10.09 -13.89 -10.09 -13.89 -10.09 -13.89 -10.09 -5 6 -5 6 -5 6 -5 6 -6 -5 6 -6 -5 6 -4 7 -7	<i>barrier a</i> <i>Le</i> 7.9 6.6 8.1 2.4 <i>dn:</i>	ce 0.34 0.37 ttenua q Eve 70 dB 121	Finite F ation) ning 67.0 61.0 56.5 68.3	Road -1.20 -1.20 -1.20 Leq Nig 65 dB 261	Fresne -4 -4 -4 64.0 61.4 60.8 67.1	1 1.69 1.88 5.34 6	Barrier Atti 0.0 0.0 0.0 1.2 68.9 68.9 74.6 74.6 10 dBA 562	en Berr 000 000 000 CI 2 3 3 55 1,2	M Atten 0.000 0.000 0.000 VEL 71.6 69.0 69.0 74.8 dBA 212

Thursday, May 02, 2019

	EHM	A-PD-77-109	uicuw					DEI				
	FHV	A-RD-77-100	піспи	VATIN		EDICTI		DEL				
Scenari Bood Norr	o: HY With Pro	oject				Project I	Vame:	MCH				
Road Seamer	e. Pine Av.	ο Δv				JOD IVL	imper.	10351				
rioud ocymer	n. w/orrichma	TAV.										
SITE S	SPECIFIC IN	PUT DATA			0/4- 0	N	OISE	MODE	L INPL	JTS		
Highway Data					Site Con	aitions (Hard =	= 10, 50	$5\pi = 15$			
Average Daily	Traffic (Adt):	31,206 vehicle	s					Autos:	15			
Peak Hour	Percentage:	10%			Me	dium I ru	cks (2	Axles):	15			
Peak H	our Volume:	3,121 vehicles			He	avy Truc	ks (3+	Axles):	15			
Ve	hicle Speed:	45 mph			Vehicle	Mix						
Near/Far La	ne Distance:	76 feet			Veh	icleType		Day	Evenin	g Ni	ght	Daily
Site Data						A	utos:	66.2%	13.5	% 20	0.3%	93.33%
Bar	rier Heiaht:	0.0 feet			M	edium Tr	ucks:	77.1%	5.3	% 17	7.6%	4.71%
Barrier Type (0-W	all, 1-Berm):	0.0			ŀ	Heavy Tr	ucks:	86.3%	1.5	% 12	2.2%	1.96%
Centerline Dis	st. to Barrier:	60.0 feet		E	Noise Sr	ource Ele	vatio	ns (in fi	pet)			
Centerline Dist.	to Observer:	60.0 feet		F		Autos	· 0	000	500			
Barrier Distance	to Observer:	0.0 feet			Modiu	m Trucks	. 0	207				
Observer Height (Above Pad):	5.0 feet			Hoo	n Trucks	. <u>2</u> . g	004	Grade	Adiusti	nent [.]	0.0
Pa	ad Elevation:	0.0 feet			mour	<i>y maono</i>	. 0			,		
Roa	ad Elevation:	0.0 feet		1	Lane Eq	uivalent	Distar	ice (in i	feet)			
I	Road Grade:	0.0%				Autos	: 46	.701				
	Left View:	-90.0 degree	s		Mediu	m Trucks	: 46	.511				
	Right View:	90.0 degree	s		Heav	y Trucks	: 46	.530				
FHWA Noise Mode	el Calculation:	5										
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fres	nel	Barrier .	Atten	Berr	m Atten
Autos:	68.46	2.81		0.3	4	-1.20		-4.69		0.000		0.00
Medium Trucks:	79.45	-10.17		0.3	7	-1.20		-4.88		0.000		0.00
Heavy Trucks:	84.25	-13.97		0.3	7	-1.20		-5.34		0.000		0.00
Unmitigated Noise	e Levels (with	out Topo and	barrier	atten	uation)							
VehicleType	Leq Peak Hou	r Leq Day	L	Leq E	vening	Leq I	light		Ldn		CI	IEL
Autos:	70.	4 6	67.8		66.9		63.	9	7	1.1		71.
			6.5		60.9		61.	4	6	8.8		69.
Medium Trucks:	68.	.4 (68.
Medium Trucks: Heavy Trucks:	68. 69.	4 6 4 6	68.0		56.4		60.	8	6	8.9		
Medium Trucks: Heavy Trucks: Vehicle Noise:	68. 69. 74.	4 6 4 6 3 7	88.0 72.3		56.4 68.2		60. 67.	8 0	6 7	8.9 4.5		74.
Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distanc	68. 69. 74. ce to Noise Co	4 (4 (3 5	8.0 72.3		56.4 68.2		60. 67.	8	6	8.9 4.5		74.
Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distanc	68. 69. 74. ce to Noise Co	4 6 3 7 2011 (in feet)	38.0 72.3	70 0	56.4 68.2 dBA	65 c	60. 67. IBA	8 0	6 7 60 dBA	4.5	55	74.i
Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distanc	68. 69. 74. se to Noise Co	4 6 4 6 3 7	2.3	70 0	56.4 68.2 dBA 20	65 c 25	60. 67. IBA 8	8 0 6	6 7 555	8.9 4.5	55 1,1	74.8 dBA 196

	FHV	VA-RD-77-108 HI	GHWAY I	NOISE PF	REDICTIO	N MOD	EL			
Scenar	io: HY With Pr	oject			Project N	lame: M	ICH			
Road Nam	e: Schleisman	Rd.			Job Nur	mber: 1	0351			
Road Segme	nt: w/o Archiba	ld Av.								
SITE	SPECIFIC IN	PUT DATA			NC	DISE M	ODEI		S	
Highway Data				Site Con	ditions (H	lard = 1	0, So	ft = 15)		
Average Daily	Traffic (Adt):	38,557 vehicles				Α	utos:	15		
Peak Hour	Percentage:	10%		Me	dium Truc	ks (2 A)	des):	15		
Peak H	lour Volume:	3,856 vehicles		He	avy Truck	's (3+ A)	des):	15		
Ve	hicle Speed:	45 mph	ŀ	Vehicle I	Mix					
Near/Far La	ne Distance:	78 feet	-	Vehi	icleType	E	Day	Evening	Night	Daily
Site Data					Au	itos: 6	6.2%	13.5%	20.3%	93.34%
Ba	rrier Height:	0.0 feet		Me	edium Tru	cks: 7	7.1%	5.3%	17.6%	4.71%
Barrier Type (0-W	/all, 1-Berm):	0.0		ŀ	leavy Tru	cks: 8	6.3%	1.5%	12.2%	1.95%
Centerline Di	st. to Barrier:	76.0 feet		Noise Sc	ource Elev	vations	(in fe	et)		
Centerline Dist.	to Observer:	76.0 feet	-		Autos	0.00	0	00		
Barrier Distance	to Observer:	0.0 feet		Modiur	n Trucke	2.20	37			
Observer Height ((Above Pad):	5.0 feet		Heav	v Trucks:	8.00	51 74	Grade Ad	iustment	0.0
Pa	ad Elevation:	0.0 feet		mour	y maono.	0.01		,		
Ro	ad Elevation:	0.0 feet		Lane Eq	uivalent L	Distance	e (in f	eet)		
	Road Grade:	0.0%			Autos:	65.4	22			
	Left View:	-90.0 degrees		Mediur	m Trucks:	65.2	36			
	Right View:	90.0 degrees		Heav	y Trucks:	65.2	99			
FHWA Noise Mod	el Calculation:	s	1							
VehicleType	REMEL	Traffic Flow	Distance	Finite	Road	Fresne	4 1	Barrier Att	en Bei	m Atten
Autos:	68.46	3.72	-1.8	35	-1.20	-	4.73	0.0	000	0.000
Medium Trucks:	79.45	-9.24	-1.8	34	-1.20	-1	4.88	0.0	000	0.000
Heavy Trucks:	84.25	-13.07	-1.8	34	-1.20	4	5.25	0.0	000	0.000
Unmitigated Nois	e Levels (with	out Topo and ba	rrier atter	nuation)						
VehicleType	Leq Peak Hou	r Leq Day	Leq E	vening	Leq N	ight		Ldn	C	NEL
Autos:	69	.1 66	.5	65.7		62.7		69.8	3	70.3
Medium Trucks:	67.	.2 65	.2	59.6		60.1		67.5	5	67.7
Heavy Trucks:	68.	.1 66.	.7	55.1		59.5		67.6	6	67.6
Vehicle Noise:	73	.0 71	.0	66.9		65.7		73.2	2	73.5
Centerline Distan	ce to Noise Co	ontour (in feet)								
			70	dBA	65 dE	BA	6	0 dBA	55	dBA
		Ld	n: 1	24	268	3		577	1,	244
		CNE	L: 1	30	279)		602	1,	296

Thursday, May 02, 2019

Scenario: Existing Without Project Road Name: Pine Av. Road Segment: e/o Euclid Av.

SITE	SPECIFIC IN	IPUT DATA					NOISE	MODE		S		
Highway Data				S	Site Con	ditions	s (Hard =	: 10, S	oft = 15)			
Average Daily	Traffic (Adt):	25,747 vehicle	s					Autos:	15			
Peak Hour	Percentage:	10%			Me	dium T	rucks (2	Axles):	15			
Peak F	lour Volume:	2,575 vehicles	5		He	avy Tri	icks (3+	Axles):	15			
Ve	hicle Speed:	45 mph		V	/ehicle	Mix						
Near/Far La	ne Distance:	76 feet		-	Veh	icleTvp	е	Dav	Evenina	Niah	t	Dailv
Site Data) -	Autos:	66.2%	5 13.5%	20.3	3% 9	93.40%
Ba	rrier Heiaht [.]	0.0 feet			Me	edium T	Trucks:	77.1%	5.3%	17.6	6%	4.70%
Barrier Type (0-W	/all. 1-Berm):	0.0			ŀ	leavy T	Frucks:	86.3%	5 1.5%	12.2	2%	1.90%
Centerline Di	st. to Barrier:	60.0 feet			laisa Sa		lovation	o (in f				
Centerline Dist.	to Observer:	60.0 feet		~	ioise sc			000	eel)			
Barrier Distance	to Observer:	0.0 feet			Modiu	AUIC m Truol	$v_{\rm S} = 0$	207				
Observer Height	(Above Pad):	5.0 feet			Hoon	n nuci v Truci	13. 2	291	Grade Ad	liustmi	nt· (n
P	ad Elevation:	0.0 feet			Tieav	y muci	NS. 0.	004	Orade Au	Justin	<i>.</i>	0.0
Ro	ad Elevation:	0.0 feet		L	ane Eq.	uivaler	nt Distan	ce (in	feet)			
	Road Grade:	0.0%				Auto	os: 46	701				
	Left View:	-90.0 degree	s		Mediur	m Trucl	ks: 46	511				
	Right View:	90.0 degree	S		Heav	y Trucl	ks: 46	530				
FHWA Noise Mod	el Calculation	s										
VehicleType	REMEL	Traffic Flow	Dist	ance	Finite	Road	Fres	nel	Barrier Att	ten L	Berm	Atten
Autos:	68.46	1.97		0.34		-1.20		-4.69	0.0	000		0.000
Medium Trucks:	79.45	-11.01		0.37		-1.20		-4.88	0.0	000		0.000
Heavy Trucks:	84.25	-14.94		0.37	,	-1.20		-5.34	0.0	000		0.000
Unmitigated Nois	e Levels (with	out Topo and	barrie	r attenı	uation)							
VehicleType	Leq Peak Hou	ır Leq Day		Leq Ev	rening	Leq	ı Night		Ldn		CNE	ΞL
Autos:	69	.6 6	67.0		66.1		63.	1	70.3	3		70.7
Medium Trucks:	67	.6 6	65.7		60.1		60.	5	67.9	9		68.1
Heavy Trucks:	68	.5 6	67.0		55.5		59.	8	67.9	9		68.0
Vehicle Noise:	73	.4	71.4		67.4		66.	2	73.0	6		73.9
Centerline Distan	ce to Noise Co	ontour (in feet)	 									
				70 d	BA	65	i dBA	(60 dBA		55 d	BA
			_dn:	10	5	2	226		486		1,04	17
		CN	IEL:	109	9	2	235		506		1,09	91

Scenario: Existing Without Project Road Name: Pine Av. Road Segment: w/o Chino Corona Rd.

SITE SPECIFIC IN	IPUT DATA			NOI	SE MODE	L INPUTS	
Highway Data			Site Cond	litions (Ha	ard = 10, S	oft = 15)	
Average Daily Traffic (Adt):	29,771 vehicles				Autos.	15	
Peak Hour Percentage:	10%		Med	lium Truck	s (2 Axles).	: 15	
Peak Hour Volume:	2,977 vehicles		Hea	vy Trucks	(3+ Axles).	: 15	
Vehicle Speed:	45 mph	-	Vehicle M	liv			
Near/Far Lane Distance:	76 feet	_	Vehic	leTvne	Dav	Evenina	Night Daily
Site Data				Auto	os: 66.2%	6 13.5%	20.3% 93.40%
Barrier Height:	0.0 feet		Med	dium Truci	ks: 77.1%	6 5.3%	17.6% 4.70%
Barrier Type (0-Wall 1-Berm) [.]	0.0 1001		He	eavy Truci	ks: 86.3%	6 1.5%	12.2% 1.90%
Centerline Dist. to Barrier:	60.0 feet	-					
Centerline Dist. to Observer:	60.0 feet	_	Noise Sol	urce Eleva	ations (in f	eet)	
Barrier Distance to Observer:	0.0 feet			Autos:	0.000		
Observer Height (Above Pad):	5.0 feet		Medium	Trucks:	2.297	Ora da Adia	- (
Pad Elevation:	0.0 feet		Heavy	' Trucks:	8.004	Grade Adju	stment: 0.0
Road Elevation:	0.0 feet	_	Lane Equ	ivalent Di	stance (in	feet)	
Road Grade:	0.0%			Autos:	46.701		
Left View:	-90.0 degrees	;	Medium	Trucks:	46.511		
Right View:	90.0 degrees	;	Heavy	' Trucks:	46.530		
	_						
VohioloTupo	S Troffic Flow	Diatanaa	Einito E	Dood	Franci	Parriar Atta	Dorm Atton
Autos: 68.46	2 60			1 20	-iesiiei 4 60		
Autos. 00.40	2.00	0.3	94 27	1.20	-4.09	0.00	0 0.000
Heavy Trucks: 84.25	-10.30	0.0	87	-1.20	-4.00	0.00	0 0.000
	-14.51	0.0		-1.20	-0.04	0.00	0 0.000
Unmitigated Noise Levels (with	out Topo and b	arrier atter	nuation)				
VehicleType Leq Peak Hou	ur Leq Day	Leq E	vening	Leq Nig	ht	Ldn	CNEL
Autos: 70	0.2 67	7.6	66.7		63.7	70.9	71.3
Medium Trucks: 68	B.2 66	5.3 	60.7		61.2	68.6	68.7
Heavy Trucks: 69	0.1 67	(.(56.1		60.4	68.5	68.6
Vehicle Noise: 74	.0 72	2.0	68.0		66.8	74.3	74.5
Centerline Distance to Noise C	ontour (in feet)						
		70	dBA	65 dB/	4	60 dBA	55 dBA
	Lo	<i>dn:</i> 1	15	248		535	1,153
	CNE	<i>EL:</i> 1	20	259		558	1,202

Scenario: Existing Without Project Road Name: Pine Av. Road Segment: w/o W. Preserve Loop

SITE	SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS						
Highway Data					Site Con	ditions	s (Hard	= 10, Se	oft = 15)		
Average Daily	Traffic (Adt):	16,445 vehicle	es					Autos:	15		
Peak Hour	Percentage:	10%			Me	dium Ti	rucks (2	2 Axles):	15		
Peak H	Hour Volume:	1,645 vehicles	5		He	avy Tru	icks (3-	Axles):	15		
Ve	ehicle Speed:	45 mph			Vehicle I	Mix					
Near/Far La	ane Distance:	76 feet			Veh	icleTvp	e	Dav	Evenina	Niaht	Daily
Site Data							- Autos:	66.2%	13.5%	20.3%	93.40%
Ba	prrior Hoight:	0.0 foot			Me	ədium 1	rucks:	77.1%	5.3%	17.6%	4.70%
Barrier Type (0-V	Vall 1-Berm):				ŀ	leavy T	rucks:	86.3%	1.5%	12.2%	1.90%
Centerline D	ist to Barrier:	60.0 feet				-					
Centerline Dist.	to Observer:	60.0 feet		1	Noise Sc	ource E	levatio	ons (in f	eet)		
Barrier Distance	to Observer:	0.0 feet				Auto	DS:	0.000			
Observer Height	(Above Pad):	5.0 feet			Mediur	n Truck	KS:	2.297			
P	ad Elevation:	0.0 feet			Heav	y Truck	KS:	8.004	Grade Ad	ustment	. 0.0
Ro	ad Elevation:	0.0 feet		I	Lane Eq	uivalen	nt Dista	nce (in	feet)		
	Road Grade:	0.0%			Autos: 46.701						
	Left View:	-90.0 degree	es		Mediur	n Trucł	ks: 4	6.511			
	Right View:	90.0 degree	es		Heav	y Trucl	ks: 4	6.530			
FHWA Noise Mod	lel Calculation	S									
VehicleType	REMEL	Traffic Flow	Dist	ance	Finite	Road	Fre	snel	Barrier Att	en Bei	rm Atten
Autos:	68.46	0.03		0.34	4	-1.20		-4.69	0.0	000	0.000
Medium Trucks:	79.45	-12.96		0.37	7	-1.20		-4.88	0.0	000	0.000
Heavy Trucks:	84.25	-16.89		0.37	7	-1.20		-5.34	0.0	000	0.000
Unmitigated Nois	e Levels (with	out Topo and	barrie	r atten	uation)						
VehicleType	Leq Peak Hou	ır Leq Day	,	Leq E	vening	Leq	Night		Ldn	С	NEL
Autos:	67	.6	65.0		64.2		61	.2	68.3	3	68.8
Medium Trucks:	65	.7	63.7		58.1		58	8.6	66.0)	66.2
Heavy Trucks:	66	.5	65.1		53.5		57	' .8	65.9	9	66.0
Vehicle Noise:	71	.5	69.4		65.4		64	.2	71.7	7	71.9
Centerline Distan	ce to Noise Co	ontour (in feet)								
				70 c	dBA	65	dBA	6	60 dBA	55	dBA
			Ldn:	78	8	1	67		360	7	76
		CI	VEL:	8	1	1	174		376	8	809

Scenario: Existing Without Project Road Name: Pine Av. Road Segment: w/o E. Preserve Loop

SITE	SPECIFIC IN	IPUT DATA					NOISE	MODE		s	
Highway Data				5	Site Con	ditions	s (Hard =	10, So	oft = 15)		
Average Daily	Traffic (Adt):	26,664 vehicl	es					Autos:	15		
Peak Hour	Percentage:	10%			Me	dium Ti	rucks (2)	Axles):	15		
Peak F	lour Volume:	2,666 vehicle	S		Hea	avy Tru	ıcks (3+)	Axles):	15		
Ve	hicle Speed:	45 mph		1	/ohiclo I	<i>Niy</i>					
Near/Far La	ne Distance:	76 feet			Vehi	cleTvp	e	Dav	Evenina	Niaht	Dailv
Site Data							Autos:	66.2%	13.5%	20.3%	93.40%
Ba	rrier Height:	0.0 feet			Me	dium T	Trucks:	77.1%	5.3%	17.6%	4.70%
Barrier Type (0-W	/all_1-Berm) [.]	0.0			ŀ	leavy T	Trucks:	86.3%	1.5%	12.2%	1.90%
Centerline Di	st. to Barrier:	60.0 feet			Valas Ca		-1	- (in f	4)		
Centerline Dist.	to Observer:	60.0 feet		ľ	voise Sc	ource E	evation		eet)		
Barrier Distance	to Observer:	0.0 feet				Auto	DS: 0.	000			
Observer Height	(Above Pad):	5.0 feet			Mediur	n Truci	KS: 2.	297	Crada Ad	iuotmon	4.00
P	ad Elevation:	0.0 feet			Heav	y Truci	KS: 8.	004	Grade Au	usimen	<i>l.</i> 0.0
Ro	ad Elevation:	0.0 feet		L	ane Equ	uivaler	nt Distan	ce (in	feet)		
	Road Grade:	0.0%				Auto	os: 46.	701			
	Left View:	-90.0 degre	es		Mediur	n Trucl	ks: 46.	511			
	Right View:	90.0 degre	es		Heav	y Trucl	ks: 46.	530			
FHWA Noise Mod	el Calculation	S									
VehicleType	REMEL	Traffic Flow	Dist	tance	Finite	Road	Fresi	nel	Barrier Att	en Be	rm Atten
Autos:	68.46	2.13		0.34	ł	-1.20		-4.69	0.0	000	0.000
Medium Trucks:	79.45	-10.86		0.37	7	-1.20		-4.88	0.0	000	0.000
Heavy Trucks:	84.25	-14.79		0.37	7	-1.20		-5.34	0.0	000	0.000
Unmitigated Nois	e Levels (with	out Topo and	barrie	er atten	uation)						
VehicleType	Leq Peak Hou	ur Leq Day	/	Leq Ev	/ening	Leq	n Night		Ldn	C	NEL
Autos:	69	0.7	67.1		66.3		63.3	3	70.4	1	70.9
Medium Trucks:	67	. .8	65.8		60.2		60.7	7	68.2	l	68.3
Heavy Trucks:	68	8.6	67.2		55.6		59.9	9	68.0)	68.1
Vehicle Noise:	73	8.6	71.5		67.5		66.3	3	73.8	3	74.0
Centerline Distan	ce to Noise C	ontour (in feet	;)								
				70 a	IBA	65	dBA	6	60 dBA	55	5 dBA
			Ldn:	10	7	2	231		497	1	,071
		C	NEL:	11	2	2	241		518	1	,117

Scenario: Existing Without Project Road Name: Pine Av. Road Segment: w/o Hellman Av.

SITE	SPECIFIC IN	IPUT DATA			Γ	NOISE N	/ODE		S	
Highway Data				Site Con	ditions	(Hard =	10, So	oft = 15)		
Average Daily	Traffic (Adt):	26,513 vehicles	5				Autos:	15		
Peak Hour	Percentage:	10%		Me	dium Tı	rucks (2 A	Axles):	15		
Peak F	lour Volume:	2,651 vehicles		He	avy Tru	ıcks (3+ A	Axles):	15		
Ve	hicle Speed:	45 mph		Vehicle	Mix					
Near/Far La	ne Distance:	76 feet		Venicie i Veh	icleTvp	e	Dav	Evenina	Niaht	Dailv
Site Data						Autos:	66.2%	13.5%	20.3%	93.40%
Ba	rrier Height:	0.0 feet		Me	edium T	rucks:	77.1%	5.3%	17.6%	4.70%
Barrier Type (0-W	/all. 1-Berm):	0.0		ŀ	leavy T	rucks:	86.3%	1.5%	12.2%	1.90%
Centerline Di	st. to Barrier:	60.0 feet		Noice Se		lovation	o (in f	oot)		
Centerline Dist.	to Observer:	60.0 feet		NUISE SC			5 (111 1 0	eel)		
Barrier Distance	to Observer:	0.0 feet		Madiu	AUIC m Truck	$\frac{1}{2}$	JUU 207			
Observer Height	(Above Pad):	5.0 feet		Mediui		(S. 2.4	297	Grada Ad	iustmont	· 0 0
P	ad Elevation:	0.0 feet		пеач	y TTUCK	(S. 0.0	JU4	Graue Auj	usuneni	. 0.0
Ro	ad Elevation:	0.0 feet		Lane Eq	uivalen	t Distan	ce (in	feet)		
	Road Grade:	0.0%			Auto	os: 46.	701			
	Left View:	-90.0 degrees	;	Mediu	m Truck	ks: 46.	511			
	Right View:	90.0 degrees	5	Heav	y Truck	ks: 46.	530			
FHWA Noise Mod	el Calculation	S								
VehicleType	REMEL	Traffic Flow	Distance	Finite	Road	Fresh	nel	Barrier Att	en Ber	m Atten
Autos:	68.46	2.10	0.	34	-1.20		-4.69	0.0	000	0.000
Medium Trucks:	79.45	-10.88	0.	37	-1.20		-4.88	0.0	000	0.000
Heavy Trucks:	84.25	-14.82	0.	37	-1.20		-5.34	0.0	000	0.000
Unmitigated Nois	e Levels (with	out Topo and b	arrier atte	enuation)						
VehicleType	Leq Peak Hou	ır Leq Day	Leq	Evening	Leq	ı Night		Ldn	C	NEL
Autos:	69	.7 67	7.1	66.2		63.2	2	70.4	ŀ	70.8
Medium Trucks:	67	.7 65	5.8	60.2		60.6	5	68.1	ļ	68.2
Heavy Trucks:	68	.6 67	7.2	55.6		59.9)	68.0)	68.1
Vehicle Noise:	73	.5 7'	1.5	67.5		66.3	3	73.8	3	74.0
Centerline Distan	ce to Noise Co	ontour (in feet)								
			70) dBA	65	dBA	e	60 dBA	55	dBA
		Le	dn:	107	2	230		495	1,	067
		CNE	EL:	111	2	240		516	1,	112

Scenario: Existing Without Project Road Name: Chino Corona Rd. Road Segment: s/o Pine Av. Project Name: MCH (Dirt Haul Truck Trip Job Number: 10351

SITE	SPECIFIC IN	PUT DATA				N	OISE N	/ODE		;	
Highway Data					Site Con	ditions	(Hard =	10, So	oft = 15)		
Average Daily	Traffic (Adt):	3,068 vehicle	es					Autos:	15		
Peak Hour	Percentage:	10%			Me	dium Tru	icks (2 A	Axles):	15		
Peak F	lour Volume:	307 vehicle	s		He	avy Truc	cks (3+ A	Axles):	15		
Ve	hicle Speed:	45 mph		_	Vehicle I	Mix					
Near/Far La	ne Distance:	12 feet		_	Veh	icleTvpe		Dav	Evenina	Niaht	Daily
Site Data							lutos:	<u> </u>	13.5%	20.3%	93.40%
Ba	rrior Hoight:	0.0 foot			Me	ədium Tr	ucks:	77.1%	5.3%	17.6%	4.70%
Barrier Type (0-W	/all_1_Rerm) [.]				ŀ	leavy Tr	ucks:	86.3%	1.5%	12.2%	1.90%
Centerline Di	st to Barrier:	30.0 feet		_							
Centerline Dist	to Observer:	30.0 feet		_	Noise So	ource El	evation	s (in fe	eet)		
Barrier Distance	to Observer:	0.0 feet				Autos	s: 0.0	000			
Observer Height	(Above Pad):	5.0 feet			Mediur	m Trucks	s: 2.1	297	~		
P	ad Elevation:	0.0 feet			Heav	y Trucks	s: 8.	004	Grade Adj	ustment:	0.0
Ro	ad Elevation:	0.0 feet			Lane Eq	uivalent	Distan	ce (in :	feet)		
	Road Grade:	0.0%				Autos	s: 29.	816			
	Left View:	-90.0 degre	es		Mediur	n Trucks	s: 29.	518			
	Right View:	90.0 degre	es		Heav	y Trucks	s: 29.	547			
FHWA Noise Mod	el Calculations	;									•
Vehicle Type	REMEL	Traffic Flow	Dis	stance	Finite	Road	Fresr	nel	Barrier Atte	en Ber	m Atten
Autos:	68.46	-7.27		3.2	6	-1.20		-4.49	0.0	00	0.000
Medium Trucks:	79.45	-20.25		3.3	3	-1.20		-4.86	0.0	00	0.000
Heavy Trucks:	84.25	-24.18		3.3	2	-1.20		-5.77	0.0	00	0.000
Unmitigated Nois	e Levels (witho	out Topo and	barri	er atter	nuation)						
VehicleType	Leq Peak Hou	r Leq Day	/	Leq E	vening	Leq	Night		Ldn	Cl	VEL
Autos:	63.	3	60.7		59.8		56.8	3	64.0		64.4
Medium Trucks:	61.	3	59.4		53.8		54.2	2	61.7		61.8
Heavy Trucks:	62.	2	60.8		49.2		53.5	5	61.6		61.7
Vehicle Noise:	67.	1	65.1		61.1		59.9)	67.3		67.6
Centerline Distan	ce to Noise Co	ntour (in feet)								
				70	dBA	65 (dBA	6	60 dBA	55	dBA
			Ldn:	2	20	4	3		92	1	99
		C	NEL:	2	21	4	5		96	2	07

Monday, May 20, 2019

Scenario: Existing Without Project Road Name: Chino Corona Rd. Road Segment: e/o Cucamonga Av. Project Name: MCH (Dirt Haul Truck Trip Job Number: 10351

SITE	SPECIFIC IN	IPUT DATA				1	NOISE	IODE		S	
Highway Data				S	Site Con	ditions	(Hard =	10, Se	oft = 15)		
Average Daily	Traffic (Adt):	3,068 vehicl	es					Autos:	15		
Peak Hour	Percentage:	10%			Me	dium Tr	rucks (2 /	Axles):	15		
Peak F	lour Volume:	307 vehicle	s		He	avy Tru	icks (3+ /	Axles):	15		
Ve	hicle Speed:	40 mph		1	/ohiclo I	Mix					
Near/Far La	ne Distance:	12 feet		-	Veh	icleTvn	e,	Dav	Evenina	Niaht	Daily
Site Data							Autos:	<u>66.2%</u>	13.5%	20.3%	93.40%
Ba	rrier Height:	0.0 feet			Me	ədium T	rucks:	77.1%	5.3%	17.6%	4.70%
Barrier Type (0-W	/all_1-Berm) [.]	0.0			ŀ	leavy T	rucks:	86.3%	1.5%	12.2%	1.90%
Centerline Di	st. to Barrier:	30.0 feet			1			- (* 6	()		
Centerline Dist.	to Observer:	30.0 feet		<u>r</u>	Noise Sc	burce E	levation	s (in f	eet)		
Barrier Distance	to Observer:	0.0 feet				Auto	os: 0.	000			
Observer Height	(Above Pad):	5.0 feet			Mediui	m Iruck	(s: 2.)	297	Creada Ad		
P	ad Elevation:	0.0 feet			Heav	y Truck	(S: 8.	504	Grade Auj	usimeni	. 0.0
Ro	ad Elevation:	0.0 feet		L	.ane Eq	uivalen	t Distan	ce (in	feet)		
	Road Grade:	0.0%				Auto	os: 29.	816			
	Left View:	-90.0 degre	es		Mediur	n Truck	ks: 29.	518			
	Right View:	90.0 degre	es		Heav	y Truck	ks: 29.	547			
FHWA Noise Mod	el Calculation	S									
VehicleType	REMEL	Traffic Flow	Dis	stance	Finite	Road	Fresr	nel	Barrier Att	en Ber	m Atten
Autos:	66.51	-6.75		3.26	5	-1.20		-4.49	0.0	00	0.000
Medium Trucks:	77.72	-19.74		3.33	3	-1.20		-4.86	0.0	00	0.000
Heavy Trucks:	82.99	-23.67		3.32	2	-1.20		-5.77	0.0	00	0.000
Unmitigated Nois	e Levels (with	out Topo and	barri	er atteni	uation)						
VehicleType	Leq Peak Hou	ur Leq Day	V	Leq Ev	rening	Leq	Night		Ldn	C	NEL
Autos:	61	.8	59.2		58.4		55.4	ŀ	62.5	5	63.0
Medium Trucks:	60).1	58.2		52.6		53.0)	60.4	Ļ	60.6
Heavy Trucks:	61	.4	60.0		48.4		52.8	3	60.9)	60.9
Vehicle Noise:	66	6.0	64.0		59.7		58.7	7	66.1		66.4
Centerline Distan	ce to Noise C	ontour (in fee	t)								
				70 d	IBA	65	dBA	6	60 dBA	55	dBA
			Ldn:	17	7		36		77	1	66
		С	NEL:	17	7	:	37		80	1	73

Monday, May 20, 2019

Scenario: Existing Without Project Road Name: Hellman Av. Road Segment: s/o Pine Av.

SITE	SPECIFIC IN	IPUT DATA					NOISE	MODE		S	
Highway Data				S	ite Con	ditions	s (Hard =	= 10, S	oft = 15)		
Average Daily	Traffic (Adt):	13,118 vehicle	s					Autos.	15		
Peak Hour	Percentage:	10%			Me	dium T	rucks (2	Axles).	15		
Peak F	lour Volume:	1,312 vehicles			He	avy Tri	ıcks (3+	Axles).	15		
Ve	hicle Speed:	45 mph		V	ehicle l	Mix					
Near/Far La	ne Distance:	51 feet			Veh	icleTvp	e	Dav	Evenina	Niah	t Dailv
Site Data					-	,	Autos:	66.2%	6 13.5%	20.3	3% 93.40%
Ba	rrier Height [.]	0.0 feet			Me	ədium T	Trucks:	77.1%	<i>5.3</i> %	17.6	6% 4.70%
Barrier Type (0-W	/all. 1-Berm):	0.0			ŀ	leavy T	Trucks:	86.3%	ы́ 1.5%	12.2	2% 1.90%
Centerline Di	st. to Barrier:	49.0 feet		A	laica Se			no (in f			
Centerline Dist.	to Observer:	49.0 feet		N	ioise sc			000	eel)		
Barrier Distance	to Observer:	0.0 feet			Madiu	AUIC m Truol	VS. 0	207			
Observer Height	(Above Pad):	5.0 feet			Hoou	n Truci	15. Z	001	Grade Ad	liustma	nt 0 0
P	ad Elevation:	0.0 feet			Tieav	y muci	13. 0	.004	Orade Au	justine	
Ro	ad Elevation:	0.0 feet		L	ane Eq	uivaler	nt Distar	ice (in	feet)		
	Road Grade:	0.0%				Auto	os: 42	.140			
	Left View:	-90.0 degree	s		Mediur	m Trucl	ks: 41	.929			
	Right View:	90.0 degree	s		Heav	y Trucl	ks: 41	.950			
FHWA Noise Mod	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fres	nel	Barrier Att	ten E	Berm Atten
Autos:	68.46	-0.96		1.01		-1.20		-4.64	0.0	000	0.000
Medium Trucks:	79.45	-13.94		1.04		-1.20		-4.87	0.0	000	0.000
Heavy Trucks:	84.25	-17.87		1.04		-1.20		-5.44	0.0	000	0.000
Unmitigated Nois	e Levels (with	out Topo and I	barrier	attenu	uation)						
VehicleType	Leq Peak Hou	ır Leq Day	1	Leq Ev	ening	Leq	n Night		Ldn		CNEL
Autos:	67	.3 6	4.7		63.8		60.	8	68.0	0	68.5
Medium Trucks:	65	.4 6	3.4		57.8		58.	3	65.	7	65.9
Heavy Trucks:	66	.2 6	4.8		53.2		57.	5	65.6	6	65.7
Vehicle Noise:	71	.1 6	9.1		65.1		63.	9	71.4	4	71.6
Centerline Distan	ce to Noise Co	ontour (in feet)									
				70 di	BA	65	6 dBA		60 dBA		55 dBA
		L	.dn:	60			130		281		605
		CN	IEL:	63			136		292		630

Scenario: Existing With Project Road Name: Pine Av. Road Segment: e/o Euclid Av.

SITE SPECIFIC INPUT DATA			NOISE MODEL INPUTS					
Highway Data			Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt):	26,935 vehicles				Autos:	15		
Peak Hour Percentage:	10%		Medium T	rucks (2 /	Axles):	15		
Peak Hour Volume:	2,694 vehicles		Heavy Tr	ucks (3+ /	Axles):	15		
Vehicle Speed:	45 mph	L.	Ahicle Mix					
Near/Far Lane Distance:	76 feet		VehicleTvi)e	Dav	Evenina	Niaht	Dailv
Site Data			i onnoio i yr	Autos:	66.2%	13.5%	20.3%	89.28%
Barrior Hoight:	0.0 foot		Medium	Trucks:	77.1%	5.3%	17.6%	4.49%
Barrier Type (0-Wall 1-Berm) [.]			Heavy	Trucks:	32.3%	21.7%	46.1%	6.23%
Centerline Dist to Barrier:	60.0 feet							
Centerline Dist to Observer:	60.0 feet	^	Noise Source	Elevation	s (in fe	eet)		
Barrier Distance to Observer:	0.0 feet		Au	tos: 0.	000			
Observer Height (Above Pad):	5.0 feet		Medium Truc	:ks: 2.	297	~		
Pad Elevation:	0.0 feet		Heavy Truc	:ks: 8.	004	Grade Ad	iustment.	: 0.0
Road Elevation:	0.0 feet	L	ane Equivale	nt Distan	ce (in i	feet)		
Road Grade:	0.0%		Au	tos: 46.	701			
Left View:	-90.0 degrees		Medium Truc	:ks: 46.	511			
Right View:	90.0 degrees		Heavy Truc	<i>ks:</i> 46.	530			
FHWA Noise Model Calculation	S 	<u> </u>				D ' 4//		A
VehicleType REMEL	Traffic Flow	Distance	Finite Road	Fresr	nel	Barrier Att	en Ber	m Atten
Autos: 68.46	1.97	0.34	-1.20)	-4.69	0.0	000	0.000
Medium Trucks: 79.45	-11.01	0.37	· -1.20)	-4.88	0.0	000	0.000
Heavy Trucks: 84.25	-9.59	0.37	-1.20)	-5.34	0.0	000	0.000
Unmitigated Noise Levels (with	out Topo and ba	arrier atten	uation)		-1			
VehicleType Leq Peak Hou	ur Leq Day	Leq Ev	vening Le	q Night		Ldn	Cl	NEL
Autos: 69	.6 67	.0	66.1	63.1	1	70.3	3	70.7
Medium Trucks: 67	.6 65	.7	60.1	60.5	5	67.9)	68.1
Heavy Trucks: 73	.8 68	.1	72.4	70.9)	77.1		77.5
Vehicle Noise: 75	.9 71	.8	73.5	71.9	9	78.4	1	78.7
Centerline Distance to Noise Contour (in feet)								
		70 d	IBA 6	5 dBA	6	60 dBA	55	dBA
	La	In: 21	7	467		1,006	2,	167
	CNE	EL: 22	9	494		1,064	2,	293

Scenario: Existing With Project Road Name: Pine Av. Road Segment: w/o Chino Corona Rd.

SITE	SPECIFIC IN	IPUT DATA				NOISE	MODE		S	
Highway Data				Site Cor	ditions	: (Hard :	= 10, So	oft = 15)		
Average Daily	Traffic (Adt):	30,959 vehicles	S				Autos:	15		
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 15								
Peak H	lour Volume:	3,096 vehicles		He	avy Tru	ıcks (3+	Axles):	15		
Ve	hicle Speed:	45 mph		Vehicle	Mix					
Near/Far La	ane Distance:	76 feet		Venicle	icleTvp	e	Dav	Evenina	Niaht	Daily
Site Data						Autos:	66.2%	13.5%	20.3%	89.82%
Ba	orrior Hoight:	0.0 feet		М	edium 1	rucks:	77.1%	5.3%	17.6%	4.52%
Barrier Type (0-M	Vall 1-Berm):				Heavy T	rucks:	34.6%	20.8%	44.6%	5.66%
Centerline Di	ist to Barrier:	60.0 feet								
Centerline Dist	to Observer:	60.0 feet		Noise S	ource E	levatio	ns (in f	eet)		
Barrier Distance	to Observer:	0.0 feet			Auto	os: 0	.000			
Observer Height	Observer Height (Above Pad):		5.0 feet		m Truck	ks: 2	.297	Creada Ad		
P	ad Elevation:	0.0 feet		Heav	y Truck	KS: 8	.004	Grade Adj	ustment	. 0.0
Road Elevation: 0.0 feet			Lane Equivalent Distance (in feet)							
	Road Grade:	0.0%			Auto	os: 46	.701			
	Left View:	-90.0 degrees	S	Mediu	m Trucl	ks: 46	.511			
	Right View:	90.0 degrees	S	Heav	/y Trucl	ks: 46	.530			
FHWA Noise Mod	lel Calculation	s								
VehicleType	REMEL	Traffic Flow	Distance	Finite	Road	Fres	nel	Barrier Att	en Ber	m Atten
Autos:	68.46	2.60	0	.34	-1.20		-4.69	0.0	000	0.000
Medium Trucks:	79.45	-10.38	0	.37	-1.20		-4.88	0.0	000	0.000
Heavy Trucks:	84.25	-9.40	0	.37	-1.20		-5.34	0.0	000	0.000
Unmitigated Nois	e Levels (with	out Topo and b	oarrier atte	enuation)						
VehicleType	Leq Peak Hou	ır Leq Day	Leq	Evening	Leq	ı Night		Ldn	C	NEL
Autos:	70	.2 6	7.6	66.7		63.	7	70.9)	71.3
Medium Trucks:	68	.2 6	6.3	60.7		61.	2	68.6	6	68.7
Heavy Trucks:	74	.0 6	8.6	72.4		71.	0	77.2	2	77.6
Vehicle Noise:	76	.3 7	2.4	73.7		72.	1	78.6	6	79.0
Centerline Distan	ce to Noise Co	ontour (in feet)								
			70	0 dBA	65	dBA	6	60 dBA	55	dBA
		L	.dn:	224	2	183		1,041	2,	242
		CN	EL:	237	5	511		1,100	2,	371

Scenario: Existing With Project Road Name: Pine Av. Road Segment: w/o W. Preserve Loop

SITE SPECIFIC I	NPUT DATA			NO	SE MODE	L INPUTS			
Highway Data			Site Cond	ditions (Ha	ard = 10, S	oft = 15)			
Average Daily Traffic (Adt):	17,495 vehicles	s			Autos.	15			
Peak Hour Percentage: 10%			Medium Trucks (2 Axles): 15						
Peak Hour Volume:	1,750 vehicles		Hea	avy Trucks	(3+ Axles).	15			
Vehicle Speed:	45 mph		Vehicle II	liy					
Near/Far Lane Distance:	76 feet		Venicie IV	cleTvpe	Dav	Evenina N	light Daily		
Site Data			, com	Aut	os: 66.2%	6 13.5% 2	20.3% 87.79%		
Barrior Hoight:	0.0 foot		Me	dium Truc	ks: 77.1%	6 5.3% [·]	17.6% 4.42%		
Barrier Type (0-Wall 1-Berm):			Н	leavy Truc	ks: 27.5%	ہ 23.5% d	49.0% 7.79%		
Centerline Dist to Barrier:	60.0 feet								
Centerline Dist. to Observer:	60.0 feet		Noise So	urce Eleva	ations (in f	eet)			
Barrier Distance to Observer:	0.0 feet			Autos:	0.000				
Observer Height (Above Pad):	5.0 feet		Mediun	n Trucks:	2.297		(
Pad Elevation:	0.0 feet		Heavy	/ Trucks:	8.004	Grade Adjus	tment: 0.0		
Road Elevation: 0.0 feet			Lane Equivalent Distance (in feet)						
Road Grade:	0.0%			Autos:	46.701				
Left View:	-90.0 degree	s	Mediun	n Trucks:	46.511				
Right View:	90.0 degree	s	Heavy	y Trucks:	46.530				
EHWA Naisa Madal Calaulatia	no.								
VehicleType REMEI	Traffic Flow	Distance	Finite	Road	Fresnel	Barrier Atten	Berm Atten		
Autos: 68.40	6 0.03	0.	.34	-1.20	-4.69	0.000) 0.000		
Medium Trucks: 79.4	5 -12.96	0.	.37	-1.20	-4.88	0.000	0.000		
Heavy Trucks: 84.25	5 -10.49	0.	.37	-1.20	-5.34	0.000	0.000		
Inmitigated Noise Levels (without Topo and barrier attenuation)									
VehicleType Leg Peak Ho	our Lea Dav	Lea	Evenina	Lea Nic	nht	Ldn	CNEL		
Autos: 6	7.6 6	5.0	64.2		61.2	68.3	68.8		
Medium Trucks: 6	65.7 63.7		58.1 58		58.6	66.0	66.2		
Heavy Trucks: 7	2.9 6	6.5	71.9		70.3	76.5	76.8		
Vehicle Noise: 7	4.6 7	0.0	72.7		71.0	77.4	77.8		
Centerline Distance to Noise Contour (in feet)									
L	. ,	70) dBA	65 dB/	4	60 dBA	55 dBA		
	L	.dn:	187	403	I	868	1,870		
	CN	IEL:	198	427		920	1,982		
Scenario: Existing With Project Road Name: Pine Av. Road Segment: w/o E. Preserve Loop Project Name: MCH (Dirt Haul Truck Trip Job Number: 10351

SITE	SPECIFIC IN	IPUT DATA				Γ	NOISE	MODE		S	
Highway Data				3	Site Con	ditions	; (Hard	= 10, S	oft = 15)	-	
Average Daily	Traffic (Adt):	27,714 vehicle	es					Autos:	15		
Peak Hour	Percentage:	10%			Me	dium Tr	rucks (2	Axles):	15		
Peak H	lour Volume:	2,771 vehicles	6		Hea	avy Tru	ıcks (3+	Axles):	15		
Ve	hicle Speed:	45 mph			Vehicle I	Niv					
Near/Far La	ane Distance:	76 feet			Vehi	cleTvp	e	Dav	Evenina	Niaht	Dailv
Site Data							- Autos:	66.2%	b 13.5%	20.3%	89.86%
Ba	orrior Hoight:	0.0 feet			Me	edium T	rucks:	77.1%	5.3%	17.6%	4.52%
Barrier Type (0-V	Vall 1-Berm) [.]	0.0 1001			ŀ	leavy T	rucks:	34.8%	20.7%	44.4%	5.62%
Centerline Di	ist to Barrier:	60.0 feet									
Centerline Dist	to Observer:	60.0 feet		1	Noise Sc	ource E	levatio	ns (in f	eet)		
Barrier Distance	to Observer:	0.0 feet				Auto	os: (0.000			
Observer Height	(Above Pad);	5.0 feet			Mediur	n Truck	(S: 2	2.297			
P	ad Elevation:	0.0 feet			Heav	y Truck	(S: 8	3.004	Grade Adj	ustmen	. 0.0
Ro	ad Elevation:	0.0 feet		L	Lane Equ	uivalen	t Dista	nce (in	feet)		
	Road Grade:	0.0%				Auto	os: 40	6.701			
	Left View:	-90.0 degree	es		Mediur	n Truck	ks: 40	5.511			
	Right View:	90.0 degree	es		Heav	y Truck	ks: 40	6.530			
FHWA Noise Mod	lel Calculation	S									
VehicleType	REMEL	Traffic Flow	Dist	ance	Finite	Road	Fre	snel	Barrier Att	en Be	rm Atten
Autos:	68.46	2.13		0.34	1	-1.20		-4.69	0.0	000	0.000
Medium Trucks:	79.45	-10.86		0.37	7	-1.20		-4.88	0.0	000	0.000
Heavy Trucks:	84.25	-9.92		0.37	7	-1.20		-5.34	0.0	000	0.000
Unmitigated Nois	e Levels (with	out Topo and	barrie	r atten	uation)						
VehicleType	Leq Peak Hou	ır Leq Day	,	Leq Ev	/ening	Leq	Night		Ldn	C	NEL
Autos:	69	.7	67.1		66.3		63	.3	70.4	ŀ	70.9
Medium Trucks:	67	.8	65.8		60.2		60	.7	68.1		68.3
Heavy Trucks:	73	.5	68.1		71.9		70	.4	76.7	7	77.1
Vehicle Noise:	75	.8	71.9		73.2		71	.6	78.′	l	78.4
Centerline Distan	ce to Noise Co	ontour (in feet)								
				70 c	dBA	65	dBA	(60 dBA	55	dBA
			Ldn:	20)7	4	46		962	2	,072
		Cl	VEL:	21	9	4	72		1,017	2	,191

Monday, May 20, 2019

Scenario: Existing With Project Road Name: Pine Av. Road Segment: w/o Hellman Av.

SITE	SPECIFIC IN	PUT DATA			NOISE M	IODE		;	
Highway Data			5	Site Condition	s (Hard =	10, So	oft = 15)		
Average Daily	Traffic (Adt):	27,563 vehicles			ŀ	Autos:	15		
Peak Hour	Percentage:	10%		Medium	Trucks (2 A	xles):	15		
Peak F	lour Volume:	2,756 vehicles		Heavy Tr	ucks (3+ A	xles):	15		
Ve	hicle Speed:	45 mph	1	Vehicle Mix					
Near/Far La	ne Distance:	76 feet	-	VehicleTy	be	Dav	Evening	Night	Daily
Site Data					Autos:	, 66.2%	13.5%	20.3%	89.84%
Ba	rrier Height:	0.0 feet		Medium	Trucks:	77.1%	5.3%	17.6%	4.52%
Barrier Type (0-W	/all, 1-Berm):	0.0		Heavy	Trucks:	34.7%	20.8%	44.5%	5.64%
Centerline Di	st. to Barrier:	60.0 feet		Noise Source	Flovations	: (in fo	ot)		
Centerline Dist.	to Observer:	60.0 feet	-						
Barrier Distance	to Observer:	0.0 feet		Au Modium Tru	03. 0.0	00			
Observer Height	(Above Pad):	5.0 feet		Hoovy True	r_{NS} . Z_{NS}	-97 104	Grade Adii	istment [.]	0.0
P	ad Elevation:	0.0 feet		neavy nuc	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	104	Crado / lajo		0.0
Ro	ad Elevation:	0.0 feet	L	Lane Equivale	nt Distand	e (in f	eet)		
	Road Grade:	0.0%		Au	tos: 46.7	701			
	Left View:	-90.0 degrees		Medium Truc	cks: 46.5	511			
	Right View:	90.0 degrees		Heavy Truc	cks: 46.5	530			
FHWA Noise Mod	el Calculation	S							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresn	el	Barrier Atte	en Berl	m Atten
Autos:	68.46	2.10	0.34	4 -1.20) .	-4.69	0.0	00	0.000
Medium Trucks:	79.45	-10.88	0.37	7 -1.20)	-4.88	0.0	00	0.000
Heavy Trucks:	84.25	-9.92	0.37	7 -1.20)	-5.34	0.0	00	0.000
Unmitigated Nois	e Levels (with	out Topo and ba	arrier atten	uation)					
VehicleType	Leq Peak Hou	r Leq Day	Leq Ev	/ening Le	q Night		Ldn	Cl	VEL
Autos:	69	.7 67	.1	66.2	63.2		70.4		70.8
Medium Trucks:	67	.7 65	.8	60.2	60.6		68.1		68.2
Heavy Trucks:	73	.5 68	.1	71.9	70.4		76.7		77.1
Vehicle Noise:	75	.8 71	.9	73.2	71.6		78.1		78.4
Centerline Distan	ce to Noise Co	ontour (in feet)							
			70 a	BA 6	5 dBA	6	0 dBA	55	dBA
		Ld	ln: 20)7	446		960	2,0	069
		CNE	<i>L:</i> 21	9	471		1,015	2,7	188

Scenario: Existing With Project Road Name: Chino Corona Rd. Road Segment: s/o Pine Av.

SITE	SPECIFIC IN	IPUT DATA					NOISE	MODE	L INPUT	S	
Highway Data				S	Site Con	ditions	(Hard =	= 10, So	oft = 15)		
Average Daily	Traffic (Adt):	4,256 vehicle	es					Autos:	15		
Peak Hour	Percentage:	10%			Me	dium Ti	rucks (2	Axles):	15		
Peak H	lour Volume:	426 vehicle	S		He	avy Tri	ıcks (3+	Axles):	15		
Ve	hicle Speed:	45 mph		V	/ehicle	Mix					
Near/Far La	ne Distance:	12 feet		-	Veh	icleTvp	е	Dav	Evenina	Niaht	Dailv
Site Data							Autos:	66.2%	13.5%	20.3%	67.33%
Ba	rrier Height:	0.0 feet			Me	ədium T	Frucks:	77.1%	5.3%	17.6%	3.39%
Barrier Type (0-V	/all. 1-Berm):	0.0			ŀ	leavy T	Frucks:	13.6%	28.7%	57.8%	29.28%
Centerline Di	ist. to Barrier:	30.0 feet			1-: 0				4)		
Centerline Dist.	to Observer:	30.0 feet		Λ	ioise So	ource E	:levatior		eet)		
Barrier Distance	to Observer:	0.0 feet				Auto	DS: 0	000			
Observer Height	(Above Pad):	5.0 feet			Mediui	m Truci	KS: 2	297	Crada Adi	untmont	
P	ad Elevation:	0.0 feet			Heav	y Truci	KS: 8	004	Grade Adj	usimeni.	0.0
Ro	ad Elevation:	0.0 feet		L	.ane Eq	uivalen	nt Distan	ce (in	feet)		
	Road Grade:	0.0%				Auto	os: 29	.816			
	Left View:	-90.0 degre	es		Mediui	m Trucł	ks: 29	.518			
	Right View:	90.0 degre	es		Heav	y Trucl	ks: 29	.547			
		_									
FHWA NOISE MOD		S Troffic Flow	Dia	tonoo	Finito	Dood	Fran	nol	Dorrior Att	n Dor	m Atton
Veriicie Type	REIVIEL		DIS	2 26	Fille	1 20	ries	1 4 4 0			
Aulos. Medium Trucks:	70.45	-1.21		3.20		1.20		-4.49	0.0		0.000
Heavy Trucks:	84.25	-20.23		3 32	•	-1.20		-5.77	0.0	00	0.000
Theory Trucks.	04.20	-10.00		0.02		-1.20		0.77	0.0		0.000
Unmitigated Nois	e Levels (with	out Topo and	barrie	er atteni	uation)						
VehicleType	Leq Peak Hou	ur Leq Day	/	Leq Ev	ening	Leq	Night		Ldn	CI	VEL
Autos:	63	5.3	60.7		59.8		56.	8	64.0)	64.4
Medium Trucks:	61	.3	59.4		53.8		54.	2	61.7		61.8
Heavy Trucks:	/5	0.5	66.0		75.3		/3.	6	79.6	i	80.0
Vehicle Noise:	75	5.9	67.8		75.4		73.	7	79.8	5	80.2
Centerline Distan	ce to Noise Co	ontour (in feet	;)								
				70 d	BA	65	dBA	e	60 dBA	55	dBA
			Ldn:	13	5	2	291		627	1,	350
		Ci	NEL:	14	4	3	310		668	1,4	438

Scenario: Existing With Project Road Name: Chino Corona Rd. Road Segment: e/o Cucamonga Av.

SITE SPECIFIC I	NPUT DATA				I	NOISE	MODE		S	
Highway Data			S	ite Con	ditions	(Hard =	= 10, Se	oft = 15)	-	
Average Daily Traffic (Adt):	4,256 vehicle	es					Autos:	15		
Peak Hour Percentage:	10%			Me	dium Ti	rucks (2	Axles):	15		
Peak Hour Volume:	426 vehicles	6		He	avy Tru	ıcks (3+	Axles):	15		
Vehicle Speed:	40 mph		V	ehicle	Mix					
Near/Far Lane Distance:	12 feet		-	Veh	icleTvp	e	Dav	Evenina	Niaht	Dailv
Site Data						- Autos:	66.2%	13.5%	20.3%	67.33%
Barrier Height:	0.0 feet			M	edium T	rucks:	77.1%	5.3%	17.6%	6 3.39%
Barrier Type (0-Wall 1-Berm) [.]	0.0			ŀ	Heavy T	rucks:	13.6%	28.7%	57.8%	6 29.28%
Centerline Dist. to Barrier:	30.0 feet									
Centerline Dist. to Observer:	30.0 feet		N	ioise So	ource E			eet)		
Barrier Distance to Observer:	0.0 feet				Auto	os: 0	000			
Observer Height (Above Pad):	5.0 feet			Mediui	m Truck	(s: 2	297	Over ele A el		
Pad Elevation:	0.0 feet			Heav	y Truck	(S: 8	004	Grade Ad	lustmen	t: 0.0
Road Elevation:	0.0 feet		L	ane Eq	uivalen	t Distan	ce (in	feet)		
Road Grade:	0.0%				Auto	os: 29	.816			
Left View:	-90.0 degree	es		Mediul	m Truck	ks: 29	.518			
Right View:	90.0 degree	es		Heav	y Truck	ks: 29	.547			
FHWA Noise Model Calculation		D'-		- ''()	D /		1	DenterAu		A (1
Vehicle Type REMEL	I raffic Flow	Dis	tance	Finite	Road	Fres	nel	Barrier Att	en Be	erm Atten
Autos: 66.51	-6.75		3.26		-1.20		-4.49	0.0	000	0.000
Medium Trucks: 11.12	-19.74		3.33		-1.20		-4.86	0.0	000	0.000
Heavy Trucks: 82.95	-10.37		3.32		-1.20		-5.77	0.0	000	0.000
Unmitigated Noise Levels (with	hout Topo and	barrie	er attenu	uation)			1			
VehicleType Leq Peak Ho	ur Leq Day	,	Leq Ev	ening	Leq	Night		Ldn	(SNEL
Autos: 6	1.8	59.2		58.4		55.	4	62.5	5	63.0
Medium Trucks: 6	0.1	58.2		52.6		53.	0	60.4	1	60.6
Heavy Trucks: 74	4.7	65.3		74.6		72.	8	78.9)	79.3
Vehicle Noise: 7	5.1	66.9		74.7		72.	9	79.0)	79.4
Centerline Distance to Noise C	contour (in feet)								
			70 di	BA	65	dBA	6	60 dBA	5	5 dBA
		Ldn:	120	C	2	258	- ·	557	1	,200
	CI	IEL:	128	8	2	275		593	1	,278

Scenario: Existing With Project Road Name: Hellman Av. Road Segment: s/o Pine Av.

SITE SPECIFIC IN	IPUT DATA			NOISE	MODE	L INPUTS	5	
Highway Data		5	Site Conditio	ns (Hard =	: 10, So	oft = 15)		
Average Daily Traffic (Adt):	14,168 vehicles				Autos:	15		
Peak Hour Percentage:	10%		Medium	Trucks (2	Axles):	15		
Peak Hour Volume:	1,417 vehicles		Heavy T	rucks (3+)	Axles):	15		
Vehicle Speed:	45 mph	1	Ahicle Mix					
Near/Far Lane Distance:	51 feet		VehicleT	/ne	Dav	Evenina	Niaht	Daily
Site Data			Volliolo 1	Autos:	66 2%	13.5%	20.3%	86 48%
Parriar Haight	0.0 foot		Mediun	Trucks:	77.1%	5.3%	17.6%	4.35%
Barrier Type (0-Wall 1-Berm):			Heav	Trucks:	24.6%	24.5%	50.8%	9.17%
Centerline Dist to Barrier	0.0 10.0 feet							-
Centerline Dist. to Damer.	49.0 feet	^	Voise Source	Elevation	is (in fe	eet)		
Barrier Distance to Observer:	0.0 feet		A	itos: 0.	000			
Observer Height (Above Pad):	5.0 feet		Medium Tru	cks: 2.	297	~		
Pad Elevation:	0.0 feet		Heavy Tru	cks: 8.	004	Grade Adj	ustment:	0.0
Road Elevation:	0.0 feet	L	ane Equival	ent Distan	ce (in	feet)		
Road Grade:	0.0%		A	itos: 42	.140			
Left View:	-90.0 degrees		Medium Tru	cks: 41	.929			
Right View:	90.0 degrees		Heavy Tru	cks: 41	.950			
FHWA Noise Model Calculation	S							• · · ·
Vehicle Type REMEL	Traffic Flow L	Distance	Finite Road	Fresi	nel	Barrier Atte	en Beri	m Atten
Autos: 68.46	-0.96	1.01	-1.2	20	-4.64	0.0	00	0.000
Medium Trucks: 79.45	-13.94	1.04	+ -1.4	20	-4.87	0.0	00	0.000
Heavy Trucks: 84.25	-10.70	1.04	+ -1.2	:0	-5.44	0.0	00	0.000
Unmitigated Noise Levels (with	out Topo and bar	rrier atten	uation)				r	
VehicleType Leq Peak Hou	ır Leq Day	Leq Ev	vening L	əq Night		Ldn	CN	IEL
Autos: 67	.3 64.7	7	63.8	60.	8	68.0		68.5
Medium Trucks: 65	.4 63.4	4	57.8	58.	3	65.7		65.9
Heavy Trucks: 73	.4 66.8	5	72.5	70.	9	77.1		77.4
Vehicle Noise: 74	.9 69.9	9	73.2	71.	5	77.8		78.2
Centerline Distance to Noise Co	ontour (in feet)							
		70 a	IBA	65 dBA	6	60 dBA	55	dBA
	Ldr	<i>n:</i> 16	3	352		757	1,6	632
	CNEL	.: 17	3	373		804	1,7	731

Scenario: Existing With Project Road Name: Pine Av. Road Segment: e/o Euclid Av.

SITE SPECIFIC IN	NPUT DATA			NOISE N	<u>NO</u> DE		S	
Highway Data		S	ite Condition	s (Hard =	10, So	oft = 15)		
Average Daily Traffic (Adt):	26,935 vehicles				Autos:	15		
Peak Hour Percentage:	10%		Medium T	rucks (2 A	Axles):	15		
Peak Hour Volume:	2,694 vehicles		Heavy Tr	ucks (3+ A	Axles):	15		
Vehicle Speed:	45 mph	V	ehicle Mix					
Near/Far Lane Distance:	76 feet		VehicleTvr)e	Dav	Evenina	Niaht	Dailv
Site Data			r en le r y p	Autos:	66.2%	13.5%	20.3%	89.28%
Barrier Height:	0.0 feet		Medium	Trucks:	77.1%	5.3%	17.6%	4.49%
Barrier Type (0-Wall 1-Berm)	0.0		Heavy	Trucks:	96.0%	0.4%	3.6%	6.23%
Centerline Dist. to Barrier:	60.0 feet							
Centerline Dist. to Observer:	60.0 feet	N	loise Source I	Elevation	s (in fe	eet)		
Barrier Distance to Observer:	0.0 feet		Aut	os: 0.0	000			
Observer Height (Above Pad):	5.0 feet		Medium Truc	ks: 2.	297	Oursels Ask		0.0
Pad Elevation:	0.0 feet		Heavy Truc	ks: 8.0	004	Grade Adj	ustment:	0.0
Road Elevation:	0.0 feet	L	ane Equivale	nt Distan	ce (in	feet)		
Road Grade:	0.0%		Aut	os: 46.	701			
Left View:	-90.0 degrees		Medium Truc	<i>ks:</i> 46.	511			
Right View:	90.0 degrees		Heavy Truc	<i>ks:</i> 46.	530			
	IS Traffia Flann - F	N:= (= = = = =		F us en		Demien All		A ((a
		vistance	Finite Road	Fresr		Barrier Atte	en Ber	m Atten
Autos: 68.46	1.97	0.34	-1.20		-4.69	0.0	000	0.000
Hoover Trucks: 19.45	-11.01	0.37	-1.20		-4.00	0.0	00	0.000
Tieavy Trucks. 64.25	-9.59	0.37	-1.20)	-0.34	0.0	00	0.000
Unmitigated Noise Levels (with	out Topo and bar	rier attenu	lation)					
VehicleType Leq Peak Ho	ur Leq Day	Leq Eve	ening Leo	q Night		Ldn	Cl	IEL
Autos: 69	9.6 67.0)	66.1	63.1		70.3	3	70.7
Medium Trucks: 67	7.6 65.7	7	60.1	60.5	5	67.9)	68.1
Heavy Trucks: 73	3.8 72.9)	55.5	59.8	}	71.2	2	71.3
Vehicle Noise: 75	5.9 74.5	5	67.4	66.2	2	74.8	3	75.0
Centerline Distance to Noise C	ontour (in feet)							
		70 di	BA 65	5 dBA	6	60 dBA	55	dBA
	Ldn	: 125	5	270		581	1,2	253
	CNEL	: 129	9	279		600	1,2	293

Scenario: Existing With Project Road Name: Pine Av. Road Segment: w/o Chino Corona Rd.

SITE	SPECIFIC IN					ſ	NOISI			S	
Highway Data			-	S	ite Con	ditions	(Harc	l = 10, S	oft = 15)		
Average Daily	Traffic (Adt):	30,959 vehicle	s					Autos:	15		
Peak Hour	Percentage:	10%			Me	dium Tr	rucks (2 Axles).	15		
Peak F	lour Volume:	3,096 vehicles	6		He	avy Tru	icks (3	+ Axles).	15		
Ve	hicle Speed:	45 mph		V	ahicle I	Mix					
Near/Far La	ne Distance:	76 feet			Vehi	icleTvpe	9	Dav	Evenina	Niaht	Dailv
Site Data							- Autos:	66.2%	6 13.5%	20.3%	89.82%
Ba	rrier Height:	0.0 feet			Me	edium T	rucks:	77.1%	5.3%	17.6%	4.52%
Barrier Type (0-W	/all_1-Rerm) [.]	0.0			F	l eavy T	rucks:	95.6%	6 0.5%	3.9%	5.66%
Centerline Di	st. to Barrier:	60.0 feet									
Centerline Dist.	to Observer:	60.0 feet		N	oise Sc	ource E	levati	ons (in f	eet)		
Barrier Distance	to Observer:	0.0 feet				Auto	os:	0.000			
Observer Height	(Above Pad):	5.0 feet			Mediur	n Truck	(S <i>:</i>	2.297	Crada Ad	instrant	
P	ad Elevation:	0.0 feet			Heav	у тиск	(S <i>:</i>	8.004	Grade Auj	usimeni	. 0.0
Ro	ad Elevation:	0.0 feet		La	ane Eq	uivalen	t Dista	ance (in	feet)		
	Road Grade:	0.0%				Auto	os: 4	6.701			
	Left View:	-90.0 degree	s		Mediur	n Truck	(s: 4	6.511			
	Right View:	90.0 degree	es		Heav	y Truck	(S: 2	6.530			
FHWA Noise Mod	el Calculation	S									
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fre	esnel	Barrier Att	en Bei	rm Atten
Autos:	68.46	2.60		0.34		-1.20		-4.69	0.0	000	0.000
Medium Trucks:	79.45	-10.38		0.37		-1.20		-4.88	0.0	000	0.000
Heavy Trucks:	84.25	-9.40		0.37		-1.20		-5.34	0.0	000	0.000
Unmitigated Nois	e Levels (with	out Topo and	barrier	attenu	uation)						
VehicleType	Leq Peak Hou	ır Leq Day	L	.eq Eve	ening	Leq	Night		Ldn	C	NEL
Autos:	70.	.2 6	67.6		66.7		6	3.7	70.9)	71.3
Medium Trucks:	68.	.2 6	6.3		60.7		6	1.2	68.6	6	68.7
Heavy Trucks:	74.	.0	73.0		56.1		6	0.4	71.5	5	71.6
Vehicle Noise:	76	.3	74.8		68.0		6	6.8	75.3	3	75.5
Centerline Distan	ce to Noise Co	ontour (in feet)								1	
				70 dE	BA	65	dBA		60 dBA	55	dBA
		I	Ldn:	135	5	2	291		627	1,	350
		CN	IEL:	140)	3	801		648	1,	395

Scenario: Existing With Project Road Name: Pine Av. Road Segment: w/o W. Preserve Loop

SITE	SPECIFIC IN	IPUT DATA					NOISE	MODE	L INPUT	S	
Highway Data				S	Site Con	ditions	s (Hard :	= 10, So	oft = 15)		
Average Daily	Traffic (Adt):	17,495 vehicle	s					Autos:	15		
Peak Hour	Percentage:	10%			Me	dium T	rucks (2	Axles):	15		
Peak H	lour Volume:	1,750 vehicles	6		Hea	avy Tru	ıcks (3+	Axles):	15		
Ve	hicle Speed:	45 mph		V	/ohiclo I	Nix					
Near/Far La	ne Distance:	76 feet			Vehi	icleTvn	e	Dav	Evenina	Niaht	Daily
Site Data						0.01.70	Autos:	66.2%	13.5%	20.3%	87.79%
Po	rriar Uaiahti	0.0 foot			Me	dium T	Trucks:	77.1%	5.3%	17.6%	4.42%
Barrier Type (0-M	/all_1_Borm):				F	leavy T	Trucks:	96.9%	0.3%	2.8%	7.79%
Centerline Di	ist to Barrier	0.0 60.0 feet				,				_	_
Centerline Dist	to Observer:	60.0 feet		^	loise Sc	ource E	levatio	ns (in f	eet)		
Barrier Distance	to Observer:	0.0 feet				Auto	os: 0	.000			
Observer Height	(Above Pad):	5.0 feet			Mediur	n Truci	ks: 2	.297			
P	ad Elevation:	0.0 feet			Heav	y Truci	ks: 8	.004	Grade Adj	ustment:	: 0.0
Ro	ad Elevation:	0.0 feet		L	ane Equ	uivaler	nt Distar	nce (in	feet)		
	Road Grade:	0.0%				Auto	os: 46	.701	· ·		
	Left View:	-90.0 degree	es		Mediur	n Trucl	ks: 46	.511			
	Right View:	90.0 degree	es		Heav	y Trucl	ks: 46	.530			
	-	_									
FHWA Noise Mod	el Calculation	S			I						
VehicleType	REMEL	Traffic Flow	Dist	tance	Finite	Road	Fres	nel	Barrier Atte	en Ber	m Atten
Autos:	68.46	0.03		0.34		-1.20		-4.69	0.0	00	0.000
Medium Trucks:	79.45	-12.96		0.37		-1.20		-4.88	0.0	00	0.000
Heavy Trucks:	84.25	-10.49		0.37		-1.20		-5.34	0.0	00	0.000
Unmitigated Nois	e Levels (with	out Topo and	barrie	er attenu	uation)						
VehicleType	Leq Peak Hou	ır Leq Day		Leq Ev	rening	Leq	n Night		Ldn	CI	VEL
Autos:	67	.6 6	55.0		64.2		61	2	68.3	5	68.8
Medium Trucks:	65	6.7 6	53.7		58.1		58	6	66.0		66.2
Heavy Trucks:	72	.9	72.0		53.5		57.	8	70.1		70.1
Vehicle Noise:	74	.6	73.3		65.4		64	2	73.2	2	73.4
Centerline Distan	ce to Noise Co	ontour (in feet)									
				70 d	BA	65	5 dBA	6	60 dBA	55	dBA
			Ldn:	98	3	2	212		457	9	84
		CN	IEL:	10 ⁻	1	2	218		470	1,	013

Scenario: Existing With Project Road Name: Pine Av. Road Segment: w/o E. Preserve Loop

SITE	SPECIFIC IN	PUT DATA				ſ	NOISE	MODE		S	
Highway Data				S	ite Con	ditions	(Hard	= 10, S	oft = 15)		
Average Daily	Traffic (Adt):	27,714 vehicle	s					Autos:	15		
Peak Hour	Percentage:	10%			Me	dium Tr	ucks (2	2 Axles):	15		
Peak F	lour Volume:	2,771 vehicles			He	avy Tru	cks (3·	+ Axles):	15		
Ve	hicle Speed:	45 mph		V	ahicle l	Mix					
Near/Far La	ne Distance:	76 feet			Veh	icleTvpe	e	Dav	Evenina	Niaht	Dailv
Site Data							- Autos:	66.2%	5 13.5%	20.3%	89.86%
Ba	rrier Height:	0.0 feet			Me	edium T	rucks:	77.1%	5.3%	17.6%	4.52%
Barrier Type (0-W	/all_1-Berm) [.]	0.0			ŀ	l eavy T	rucks:	95.5%	6 0.5%	4.0%	5.62%
Centerline Di	st. to Barrier:	60.0 feet		_							
Centerline Dist.	to Observer:	60.0 feet		N	loise Sc	ource E	levatio	ons (in f	eet)		
Barrier Distance	to Observer:	0.0 feet				Auto	os:	0.000			
Observer Height	(Above Pad):	5.0 feet			Mediui	n Iruck	(S:	2.297	Crede Ad		
P	ad Elevation:	0.0 feet			Heav	y Truck	ís:	8.004	Grade Adj	ustment	. 0.0
Ro	ad Elevation:	0.0 feet		L	ane Eq	uivalen	t Dista	nce (in	feet)		
	Road Grade:	0.0%				Auto	os: 4	6.701			
	Left View:	-90.0 degree	s		Mediur	n Truck	(s: 4	6.511			
	Right View:	90.0 degree	S		Heav	y Truck	(s: 4	6.530			
FHWA Noise Mod	el Calculation	S									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fre	snel	Barrier Att	en Bei	rm Atten
Autos:	68.46	2.13		0.34		-1.20		-4.69	0.0	000	0.000
Medium Trucks:	79.45	-10.86		0.37		-1.20		-4.88	0.0	000	0.000
Heavy Trucks:	84.25	-9.92		0.37		-1.20		-5.34	0.0	000	0.000
Unmitigated Nois	e Levels (with	out Topo and I	barrier	r attenu	uation)						
VehicleType	Leq Peak Hou	r Leq Day		Leq Eve	ening	Leq	Night		Ldn	C	NEL
Autos:	69.	.7 6	57.1		66.3		63	3.3	70.4	1	70.9
Medium Trucks:	67.	.8 6	5.8		60.2		60).7	68.1	1	68.3
Heavy Trucks:	73.	.5 7	2.5		55.6		59	9.9	71.0)	71.1
Vehicle Noise:	75.	.8 7	4.3		67.5		66	5.3	74.8	3	75.0
Centerline Distan	ce to Noise Co	ontour (in feet)									
				70 dl	BA	65	dBA	(60 dBA	55	dBA
		L	.dn:	125	5	2	70		581	1,	252
		CN	IEL:	129	9	2	79		601	1,	294

Scenario: Existing With Project Road Name: Pine Av. Road Segment: w/o Hellman Av.

SITE	SPECIFIC IN	IPUT DATA				NOISE N	NODE		S	
Highway Data				Site Co	nditions	s (Hard =	10, So	oft = 15)		
Average Daily	Traffic (Adt):	27,563 vehicles	3				Autos:	15		
Peak Hour	Percentage:	10%		Me	edium Ti	rucks (2 /	Axles):	15		
Peak F	lour Volume:	2,756 vehicles		He	avy Tru	ıcks (3+ A	Axles):	15		
Ve	hicle Speed:	45 mph		Vehicle	Miv					
Near/Far La	ne Distance:	76 feet		Vel	nicleTvn	e	Dav	Evenina	Niaht	Daily
Site Data				101	Поготур	Autos:	66.2%	13.5%	20.3%	89.84%
Bo	rrior Hoight:	0.0 foot		N	ledium T	Trucks:	77.1%	5.3%	17.6%	4.52%
Barrier Type (0-M	Vall 1-Berm):				Heavy T	Trucks:	95.6%	0.5%	4.0%	5.64%
Centerline Di	ist to Barrier:	0.0 60.0 feet								
Centerline Dist	to Observer:	60.0 feet		Noise S	ource E	levation	s (in fe	eet)		
Barrier Distance	to Observer:	0.0 feet			Auto	os: 0.	000			
Observer Height	(Above Pad):	5.0 feet		Mediu	Im Truck	ks: 2.	297	<u> </u>		
P	ad Elevation:	0.0 feet		Hea	vy Truci	ks: 8.0	004	Grade Adj	ustment.	: 0.0
Ro	ad Elevation:	0.0 feet		Lane Ed	uivaler	nt Distan	ce (in :	feet)		
	Road Grade:	0.0%			Auto	os: 46.	701			
	Left View:	-90.0 degrees	5	Mediu	ım Truck	ks: 46.	511			
	Right View:	90.0 degrees	3	Hea	vy Trucl	ks: 46.	530			
FHWA NOISE MOD		S Troffic Flow	Distance	- Finite	Dood	Fraar		Dorrior Att	on Don	m Atton
Venicie i ype	REMEL		Distanc		1 20	Fresh		Barrier Atte	en Ber	
Aulos. Medium Trucks:	00.40 70.45	2.10		0.34	-1.20		-4.09	0.0		0.000
Heavy Trucks:	84.25	-10.00		0.37	-1.20		-5.31	0.0		0.000
	04.20	-5.52		0.07	-1.20		0.04	0.0	.00	0.000
Unmitigated Nois	e Levels (with	out Topo and b	arrier at	tenuation)			-			
Vehicle I ype	Leq Peak Hou	Ir Leq Day	Leo	g Evening	Leq	Night		Ldn	CI	VEL
Autos:	69	./ 6	7.1 5.0	66.2		63.2	2	70.4	•	70.8
Meaium Trucks:	67	./ 6	5.8 0.5	60.2		60.6) \	68.1		68.2
Heavy Trucks:	73	.5 7	2.5	55.0		59.5)	71.0)	71.0
Vehicle Noise:	75	.8 /	4.3	67.5)	66.3	3	74.8	5	75.0
Centerline Distan	ce to Noise Co	ontour (in feet)								
				70 dBA	65	5 dBA	e	60 dBA	55	dBA
		L	dn:	125	2	269		580	1,	249
		CN	EL:	129	2	278		599	1,	290

Scenario: Existing With Project Road Name: Chino Corona Rd. Road Segment: s/o Pine Av.

SITE	SPECIFIC IN	IPUT DATA			N	DISE N	IODE		S	
Highway Data			S	Site Con	ditions (Hard =	10, So	oft = 15)		
Average Daily	Traffic (Adt):	4,256 vehicles				ŀ	Autos:	15		
Peak Hour	Percentage:	10%		Med	dium True	cks (2 A	xles):	15		
Peak F	lour Volume:	426 vehicles		Hea	avy Trucl	ks (3+ A	xles):	15		
Ve	hicle Speed:	45 mph	V	/ehicle II	<i>Aix</i>					
Near/Far La	ne Distance:	12 feet	•	Vehi	cleTvpe		Dav	Evenina	Niaht	Dailv
Site Data					A	utos:	66.2%	13.5%	20.3%	67.33%
Ba	rrier Height:	0.0 feet		Me	dium Tru	icks:	77.1%	5.3%	17.6%	3.39%
Barrier Type (0-W	/all_1-Berm):	0.0		h	leavy Tru	icks:	99.4%	0.1%	0.6%	29.28%
Centerline Di	ist. to Barrier:	30.0 feet		/a :a a . 0 a			. /:	4)		
Centerline Dist.	to Observer:	30.0 feet	Λ	101se 50	urce Ele	evations		et)		
Barrier Distance	to Observer:	0.0 feet		N / a alla an	Autos.	. 0.0	000			
Observer Height	(Above Pad):	5.0 feet		Mealun	n Trucks. 	: Z.Z	.97 04	Grada Adi	ustmont	
P	ad Elevation:	0.0 feet		пеау	y TTUCKS.	. 0.0	104	Graue Auj	usimeni.	0.0
Ro	ad Elevation:	0.0 feet	L	ane Equ	livalent	Distand	e (in :	feet)		
	Road Grade:	0.0%			Autos.	: 29.8	316			
	Left View:	-90.0 degrees		Mediun	n Trucks.	: 29.5	518			
	Right View:	90.0 degrees		Heav	y Trucks:	: 29.5	547			
FHWA Noise Mod	el Calculation	S								
VehicleType	REMEL	Traffic Flow	Distance	Finite	Road	Fresn	el	Barrier Atte	en Ber	m Atten
Autos:	68.46	-7.27	3.26		-1.20		-4.49	0.0	000	0.000
Medium Trucks:	79.45	-20.25	3.33		-1.20		-4.86	0.0	00	0.000
Heavy Trucks:	84.25	-10.88	3.32		-1.20		-5.77	0.0	00	0.000
Unmitigated Nois	e Levels (with	out Topo and ba	rrier attenu	uation)						
VehicleType	Leq Peak Hou	ır Leq Day	Leq Ev	ening	Leq N	light		Ldn	Cl	VEL
Autos:	63	.3 60.	.7	59.8		56.8		64.0)	64.4
Medium Trucks:	61	.3 59.	.4	53.8		54.2		61.7	,	61.8
Heavy Trucks:	75	.5 74.	.7	49.2		53.5		71.9)	71.9
Vehicle Noise:	75	.9 75.	.0	61.1		59.9		72.9)	73.0
Centerline Distan	ce to Noise Co	ontour (in feet)								
			70 d	BA	65 d	BA	6	60 dBA	55	dBA
		Ldi	n: 47	,	10	1		217	4	68
		CNE	L: 47	,	10	2		220	4	73

Scenario: Existing With Project Road Name: Chino Corona Rd. Road Segment: e/o Cucamonga Av.

SITE	SPECIFIC IN	IPUT DATA				I	NOISE	MODE		S	
Highway Data				S	Site Con	ditions	; (Hard =	= 10, Se	oft = 15)		
Average Daily	Traffic (Adt):	4,256 vehicle	es					Autos:	15		
Peak Hour	Percentage:	10%			Me	dium Ti	rucks (2	Axles):	15		
Peak H	lour Volume:	426 vehicles	S		He	avy Tru	ıcks (3+	Axles):	15		
Ve	hicle Speed:	40 mph		V	/ehicle	Mix					
Near/Far La	ne Distance:	12 feet		-	Veh	icleTvp	e	Dav	Evenina	Niaht	Dailv
Site Data							- Autos:	66.2%	b 13.5%	20.3%	67.33%
Ba	rrier Height:	0.0 feet			M	ədium T	rucks:	77.1%	5.3%	17.6%	3.39%
Barrier Type (0-W	/all_1-Berm) [.]	0.0			ŀ	leavy T	rucks:	99.4%	0.1%	0.6%	29.28%
Centerline Di	st. to Barrier:	30.0 feet						- /: f			
Centerline Dist.	to Observer:	30.0 feet		Λ	voise So	ource E			eet)		
Barrier Distance	to Observer:	0.0 feet				Auto	os: 0	000			
Observer Height (Above Pad):	5.0 feet			Meaiui	m Truck	KS: 2	297	Crada Ad	iuotmon	. <u> </u>
Pa	ad Elevation:	0.0 feet			Heav	y Truck	(S: 8	004	Grade Au	Justinen	. 0.0
Roa	ad Elevation:	0.0 feet		L	.ane Eq	uivalen	nt Distan	ce (in	feet)		
	Road Grade:	0.0%				Auto	os: 29	.816			
	Left View:	-90.0 degree	es		Mediu	m Trucł	ks: 29	.518			
	Right View:	90.0 degree	es		Heav	y Truck	ks: 29	.547			
FHWA Noise Mod	el Calculation	S									
VehicleType	REMEL	Traffic Flow	Dis	stance	Finite	Road	Fres	nel	Barrier Att	en Be	rm Atten
Autos:	66.51	-6.75		3.26	5	-1.20		-4.49	0.0	000	0.000
Medium Trucks:	77.72	-19.74		3.33	5	-1.20		-4.86	0.0	000	0.000
Heavy Trucks:	82.99	-10.37		3.32	2	-1.20		-5.77	0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrie	er atteni	uation)						
VehicleType	Leq Peak Hou	ır Leq Day	,	Leq Ev	rening	Leq	ı Night		Ldn	С	NEL
Autos:	61	.8	59.2		58.4		55.	4	62.5	5	63.0
Medium Trucks:	60	.1	58.2		52.6		53.	0	60.4	1	60.6
Heavy Trucks:	74	.7	73.9		48.4		52.	8	71.2	2	71.2
Vehicle Noise:	75	.1	74.2		59.7		58.	7	72.0)	72.1
Centerline Distan	ce to Noise Co	ontour (in feet)								
				70 d	BA	65	dBA	(60 dBA	55	i dBA
			Ldn:	41			88		190	4	410
		CI	VEL:	41	l		89		192	4	414

Scenario: Existing With Project Road Name: Hellman Av. Road Segment: s/o Pine Av.

SITE	SPECIFIC IN	IPUT DATA				NOISE	MODE		\$	
Highway Data				Site Con	ditions	; (Hard =	- 10, So	oft = 15)		
Average Daily	Traffic (Adt):	14,168 vehicles	i.				Autos:	15		
Peak Hour	Percentage:	10%		Me	dium Ti	rucks (2	Axles):	15		
Peak H	lour Volume:	1,417 vehicles		He	avy Tru	ıcks (3+ .	Axles):	15		
Ve	hicle Speed:	45 mph	_	Vehicle I	Mix					
Near/Far La	ne Distance:	51 feet		Veh	icleTvp	e	Dav	Evenina	Niaht	Dailv
Site Data						Autos:	66.2%	13.5%	20.3%	86.48%
Ba	rrier Height:	0.0 feet		Me	ədium T	rucks:	77.1%	5.3%	17.6%	4.35%
Barrier Type (0-V	/all_1-Berm):	0.0		ŀ	leavy T	rucks:	97.4%	0.3%	2.3%	9.17%
Centerline Di	ist. to Barrier:	49.0 feet	-	No. 10 0				()		
Centerline Dist.	to Observer:	49.0 feet	_	Noise So	burce E	evation	is (in te	et)		
Barrier Distance	to Observer:	0.0 feet			Auto	os: 0.	000			
Observer Height	(Above Pad):	5.0 feet		Mediui	m Truck	KS: 2.	297	Crada Adi	untmont	
P	ad Elevation:	0.0 feet		Heav	y Truci	(S: 8.	004	Grade Auj	usument.	0.0
Ro	ad Elevation:	0.0 feet		Lane Eq	uivalen	nt Distan	ce (in i	feet)		
	Road Grade:	0.0%			Auto	os: 42	140			
	Left View:	-90.0 degrees		Mediur	m Trucl	ks: 41	929			
	Right View:	90.0 degrees	i	Heav	y Trucł	ks: 41	950			
EHWA Noiso Mod	lal Calculation	<u> </u>								
VehicleType		Traffic Flow	Distance	Finite	Road	Fres	nel	Rarrier Atte	n Ber	m Δtten
Autos:	68 46	-0.96	1.0)1	-1 20	1100	-4 64	0.0	00	0 000
Medium Trucks:	79.45	-13.94	1.0)4	-1.20		-4.87	0.0	00	0.000
Heavy Trucks:	84.25	-10.70	1.0)4	-1.20		-5.44	0.0	00	0.000
- Unmitiated Nois		aut Tana and b	orrior offo	nuction)						
VehicleType	Levers (with			venina	Leo	Niaht		l dn	C	IFI
Autos:	67 Ecq 1 Can 162	$\frac{1}{3}$ $\frac{1}{64}$	17	63.8	LUY	60 i	8	68.0	0/	68.5
Medium Trucks:	65	4 63	34	57.8		58	3	65.0 65.7		65.9
Heavy Trucks:	73	.4 72	2.5	53.2		57.	5	70.4		70.4
Vehicle Noise:	74	.9 73	3.6	65.1		63.	9	73.2		73.4
Contorlino Distan	ce to Noise Cr	ontour (in feet)								
Contonine Distan			70	dBA	65	dBA	f	60 dBA	55	dBA
		La	dn: 8	<u></u> . 31	1	173		374	8	05
		CNE	EL: 8	33	1	178		384	8	27

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APPENDIX 9.1:

OPERATIONAL NOISE LEVEL CALCULATIONS

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Observer Location: R1

Source: Air Conditioning Unit (Roof-Top) Condition: Operational Project Name: MCH Job Number: 10351 Analyst: A. Wolfe

		NOISE MODEL INPUTS	
Noise Distance to Observer	3,808.0 fe	et Barrier Height:	0.0 feet
Noise Distance to Barrier:	3,808.0 fe	et Noise Source Height:	5.0 feet
Barrier Distance to Observer:	0.0 fe	et Observer Height:	5.0 feet
Observer Elevation: Noise Source Elevation:	0.0 fe 30.0 fe	eet Barrier Type (0-Wall, 1-Berm): Drop Off Coefficient:	0 20.0
Barrier Elevation:	0.0 fe	20 = 6 dBA per doubling of 15 = 4.5 dBA per doubling	of distance g of distance

NOISE MODEL PROJECTIONS											
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax				
Reference (Sample)	5.0	0.0	74.4	76.1	77.4	77.7	78.2				
Distance Attenuation	3,808.0	-57.6	-57.6	-57.6	-57.6	-57.6	-57.6				
Shielding (Barrier Attenuation)	3,808.0	0.0	0.0	0.0	0.0	0.0	0.0				
Raw (Distance + Barrier)		-57.6	16.8	18.5	19.8	20.1	20.6				
39 Minute Hourly Adjustmer	nt	-59.5	14.9	16.6	17.9	18.2	18.7				

STATIONARY SOURCE NOISE PREDICTION MODEL							
Observer Location: R1 Source: Truck Un Condition: Operation	loading/Docking Activity nal	Project Name: MCH Job Number: 10351 Analyst: A. Wolfe					
	NOISE MOI	DEL INPUTS					
Noise Distance to Observer	3,995.0 feet	Barrier Height:	0.0 feet				
Noise Distance to Barrier:	3,995.0 feet	Noise Source Height:	8.0 feet				
Barrier Distance to Observer:	0.0 feet	Observer Height:	5.0 feet				
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0				
Noise Source Elevation:	0.0 feet	Drop Off Coefficient:	20.0				
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling 15 = 4.5 dBA per doubling	of distance g of distance				

NOISE MODEL PROJECTIONS										
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax			
Reference (Sample)	30.0	0.0	64.2	67.2	71.8	75.6	80.0			
Distance Attenuation	3,995.0	-42.5	-42.5	-42.5	-42.5	-42.5	-42.5			
Shielding (Barrier Attenuation)	3,995.0	0.0	0.0	0.0	0.0	0.0	0.0			
Raw (Distance + Barrier)		-42.5	21.7	24.7	29.3	33.1	37.5			
60 Minute Hourly Adjustmer	nt	-42.5	21.7	24.7	29.3	33.1	37.5			

Observer Location: R1 Source: Parking L Condition: Operation	ot Vehicle Movements	Project Name: MCH Job Number: 10351 Analyst: A. Wolfe	
	NOISE I	MODEL INPUTS	
Noise Distance to Observer	3,685.0 feet	Barrier Height:	0.0 feet
Noise Distance to Barrier:	3,685.0 feet	Noise Source Height:	5.0 feet
Barrier Distance to Observer:	0.0 feet	Observer Height:	5.0 feet
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0
Noise Source Elevation:	0.0 feet	Drop Off Coefficient:	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling 15 = 4.5 dBA per doublin	of distance g of distance

NOISE MODEL PROJECTIONS											
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax				
Reference (Sample)	10.0	0.0	49.0	50.0	55.0	61.0	71.9				
Distance Attenuation	3,685.0	-51.3	-51.3	-51.3	-51.3	-51.3	-51.3				
Shielding (Barrier Attenuation)	3,685.0	0.0	0.0	0.0	0.0	0.0	0.0				
Raw (Distance + Barrier)		-51.3	-2.3	-1.3	3.7	9.7	20.6				
60 Minute Hourly Adjustmer	nt	-51.3	-2.3	-1.3	3.7	9.7	20.6				

STATIONARY SOURCE NOISE PREDICTION MODEL 6/17/2							
Observer Location: R2	Project Name: MCH						
Source: Air Conditioning Unit (Roof-Top)	Job Number: 10351						
Condition: Operational	Analyst: A. Wolfe						
NOISE	MODEL INPUTS						
Noise Distance to Observer 3,132.0 feet	Barrier Height:	0.0 feet					
Noise Distance to Barrier: 3,132.0 feet	Noise Source Height:	5.0 feet					
Barrier Distance to Observer: 0.0 feet	Observer Height:	5.0 feet					
Observer Elevation: 0.0 feet	Barrier Type (0-Wall, 1-Berm):	0					
Noise Source Elevation: 30.0 feet	Drop Off Coefficient:	20.0					
Barrier Elevation: 0.0 feet	20 = 6 dBA per doubling 15 = 4.5 dBA per doubling	of distance g of distance					

NOISE MODEL PROJECTIONS											
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax				
Reference (Sample)	5.0	0.0	74.4	76.1	77.4	77.7	78.2				
Distance Attenuation	3,132.0	-55.9	-55.9	-55.9	-55.9	-55.9	-55.9				
Shielding (Barrier Attenuation)	3,132.0	0.0	0.0	0.0	0.0	0.0	0.0				
Raw (Distance + Barrier)		-55.9	18.5	20.2	21.5	21.8	22.3				
39 Minute Hourly Adjustmer	nt	-57.8	16.6	18.3	19.6	19.9	20.4				

Observer Location: R2

Source: Truck Unloading/Docking Activity *Condition:* Operational

Project Name: MCH Job Number: 10351 Analyst: A. Wolfe

		Γ	NOISE MODEL INPUTS	
Noise Distance to Observer	3,355.0	feet	Barrier Height:	0.0 feet
Noise Distance to Barrier:	3,355.0	feet	Noise Source Height:	8.0 feet
Barrier Distance to Observer:	0.0	feet	Observer Height:	5.0 feet
Observer Elevation:	0.0	feet	Barrier Type (0-Wall, 1-Berm): Drop Off Coefficient:	0 20.0
Noise Source Elevation: Barrier Elevation:	0.0 0.0	feet feet	20 = 6 dBA per doubling o 15 = 4.5 dBA per doubling	of distance of distance

NOISE MODEL PROJECTIONS											
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax				
Reference (Sample)	30.0	0.0	64.2	67.2	71.8	75.6	80.0				
Distance Attenuation	3,355.0	-41.0	-41.0	-41.0	-41.0	-41.0	-41.0				
Shielding (Barrier Attenuation)	3,355.0	0.0	0.0	0.0	0.0	0.0	0.0				
Raw (Distance + Barrier)		-41.0	23.2	26.2	30.8	34.6	39.0				
60 Minute Hourly Adjustmer	nt	-41.0	23.2	26.2	30.8	34.6	39.0				

STATIONARY SOURCE NOISE PREDICTION MODEL						
Observer Location: R2 Source: Parking L Condition: Operation	ot Vehicle Movements nal	Project Name: MCH Job Number: 10351 Analyst: A. Wolfe				
	NOISE MO	DEL INPUTS				
Noise Distance to Observer	2,983.0 feet	Barrier Height:	0.0 feet			
Noise Distance to Barrier:	2,983.0 feet	Noise Source Height:	5.0 feet			
Barrier Distance to Observer:	0.0 feet	Observer Height:	5.0 feet			
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0			
Noise Source Elevation:	0.0 feet	Drop Off Coefficient:	20.0			
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling 15 = 4.5 dBA per doubling	of distance g of distance			

NOISE MODEL PROJECTIONS								
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax	
Reference (Sample)	10.0	0.0	49.0	50.0	55.0	61.0	71.9	
Distance Attenuation	2,983.0	-49.5	-49.5	-49.5	-49.5	-49.5	-49.5	
Shielding (Barrier Attenuation)	2,983.0	0.0	0.0	0.0	0.0	0.0	0.0	
Raw (Distance + Barrier)		-49.5	-0.5	0.5	5.5	11.5	22.4	
60 Minute Hourly Adjustmer	nt	-49.5	-0.5	0.5	5.5	11.5	22.4	

Observer Location: R3

Source: Air Conditioning Unit (Roof-Top) Condition: Operational Project Name: MCH Job Number: 10351 Analyst: A. Wolfe

NOISE MODEL INPUTS									
Noise Distance to Observer	4,943.0 feet	Barrier Height:	0.0 feet						
Noise Distance to Barrier:	4,943.0 feet	Noise Source Height:	5.0 feet						
Barrier Distance to Observer:	0.0 feet	Observer Height:	5.0 feet						
Observer Elevation: Noise Source Elevation:	0.0 feet 30.0 feet	Barrier Type (0-Wall, 1-Berm): Drop Off Coefficient:	0 20.0						
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling 15 = 4.5 dBA per doublin	of distance g of distance						

NOISE MODEL PROJECTIONS									
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax		
Reference (Sample)	5.0	0.0	74.4	76.1	77.4	77.7	78.2		
Distance Attenuation	4,943.0	-59.9	-59.9	-59.9	-59.9	-59.9	-59.9		
Shielding (Barrier Attenuation)	4,943.0	0.0	0.0	0.0	0.0	0.0	0.0		
Raw (Distance + Barrier)		-59.9	14.5	16.2	17.5	17.8	18.3		
39 Minute Hourly Adjustmer	nt	-61.8	12.6	14.3	15.6	15.9	16.4		

STATIONARY SOURCE NOISE PREDICTION MODEL					
Observer Location: R3 Source: Truck Un Condition: Operation	loading/Docking Activity nal	Project Name: MCH Job Number: 10351 Analyst: A. Wolfe			
	NOISE MOI	DEL INPUTS			
Noise Distance to Observer	5,030.0 feet	Barrier Height:	0.0 feet		
Noise Distance to Barrier:	5,030.0 feet	Noise Source Height:	8.0 feet		
Barrier Distance to Observer:	0.0 feet	Observer Height:	5.0 feet		
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0		
Noise Source Elevation:	0.0 feet	Drop Off Coefficient:	20.0		
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling 15 = 4.5 dBA per doubling	of distance g of distance		

NOISE MODEL PROJECTIONS									
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax		
Reference (Sample)	30.0	0.0	64.2	67.2	71.8	75.6	80.0		
Distance Attenuation	5,030.0	-44.5	-44.5	-44.5	-44.5	-44.5	-44.5		
Shielding (Barrier Attenuation)	5,030.0	0.0	0.0	0.0	0.0	0.0	0.0		
Raw (Distance + Barrier)		-44.5	19.7	22.7	27.3	31.1	35.5		
60 Minute Hourly Adjustmer	t	-44.5	19.7	22.7	27.3	31.1	35.5		

Observer Location: R3

Source: Parking Lot Vehicle Movements Condition: Operational Project Name: MCH Job Number: 10351 Analyst: A. Wolfe

NOISE MODEL INPUTS									
Noise Distance to Observer	6,330.0	feet	Barrier Height:	0.0 feet					
Noise Distance to Barrier:	6,330.0	feet	Noise Source Height:	5.0 feet					
Barrier Distance to Observer:	0.0	feet	Observer Height:	5.0 feet					
Observer Elevation: Noise Source Elevation:	0.0	feet feet	Barrier Type (0-Wall, 1-Berm): Drop Off Coefficient:	0 20.0					
Barrier Elevation:	0.0	feet	20 = 6 dBA per doubling o 15 = 4.5 dBA per doubling	of distance g of distance					

NOISE MODEL PROJECTIONS									
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax		
Reference (Sample)	10.0	0.0	49.0	50.0	55.0	61.0	71.9		
Distance Attenuation	6,330.0	-56.0	-56.0	-56.0	-56.0	-56.0	-56.0		
Shielding (Barrier Attenuation)	6,330.0	0.0	0.0	0.0	0.0	0.0	0.0		
Raw (Distance + Barrier)		-56.0	-7.0	-6.0	-1.0	5.0	15.9		
60 Minute Hourly Adjustmer	nt	-56.0	-7.0	-6.0	-1.0	5.0	15.9		

STATIONARY SOURCE NOISE PREDICTION MODEL 6/17/20						
Observer Location: R15		Project Name: MCH				
Source: Air Condit	ioning Unit (Roof-Top)	Job Number: 10351				
Condition: Operation	al	Analyst: A. Wolfe				
	NOISE MO	DEL INPUTS				
Noise Distance to Observer	860.0 feet	Barrier Height:	0.0 feet			
Noise Distance to Barrier:	860.0 feet	Noise Source Height:	5.0 feet			
Barrier Distance to Observer:	0.0 feet	Observer Height:	5.0 feet			
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0			
Noise Source Elevation:	30.0 feet	Drop Off Coefficient:	20.0			
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling o 15 = 4.5 dBA per doubling	of distance g of distance			

NOISE MODEL PROJECTIONS									
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax		
Reference (Sample)	5.0	0.0	74.4	76.1	77.4	77.7	78.2		
Distance Attenuation	860.0	-44.7	-44.7	-44.7	-44.7	-44.7	-44.7		
Shielding (Barrier Attenuation)	860.0	0.0	0.0	0.0	0.0	0.0	0.0		
Raw (Distance + Barrier)		-44.7	29.7	31.4	32.7	33.0	33.5		
39 Minute Hourly Adjustmer	nt	-46.6	27.8	29.5	30.8	31.1	31.6		

Observer Location: R15

Source: Truck Unloading/Docking Activity Condition: Operational

Project Name: MCH Job Number: 10351 Analyst: A. Wolfe

NOISE MODEL INPUTS								
Noise Distance to Observer	887.0 feet	Barrier Height:	0.0 feet					
Noise Distance to Barrier:	887.0 feet	Noise Source Height:	8.0 feet					
Barrier Distance to Observer:	0.0 feet	Observer Height:	5.0 feet					
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0					
Noise Source Elevation:	0.0 feet	Drop Off Coefficient:	20.0					
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling o 15 = 4.5 dBA per doubling	of distance g of distance					

NOISE MODEL PROJECTIONS									
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax		
Reference (Sample)	30.0	0.0	64.2	67.2	71.8	75.6	80.0		
Distance Attenuation	887.0	-29.4	-29.4	-29.4	-29.4	-29.4	-29.4		
Shielding (Barrier Attenuation)	887.0	0.0	0.0	0.0	0.0	0.0	0.0		
Raw (Distance + Barrier)		-29.4	34.8	37.8	42.4	46.2	50.6		
60 Minute Hourly Adjustmen	nt	-29.4	34.8	37.8	42.4	46.2	50.6		

S	TATIONARY SOURCE	NOISE PREDICTION MODEL	6/17/2019
Observer Location: R15 Source: Parking L Condition: Operation	ot Vehicle Movements al	Project Name: MCH Job Number: 10351 Analyst: A. Wolfe	
	NOISE MO	DDEL INPUTS	
Noise Distance to Observer	715.0 feet	Barrier Height:	0.0 feet
Noise Distance to Barrier:	715.0 feet	Noise Source Height:	5.0 feet
Barrier Distance to Observer:	0.0 feet	Observer Height:	5.0 feet
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0
Noise Source Elevation:	0.0 feet	Drop Off Coefficient:	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling 0 15 = 4.5 dBA per doubling	of distance g of distance

NOISE MODEL PROJECTIONS							
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	10.0	0.0	49.0	50.0	55.0	61.0	71.9
Distance Attenuation	715.0	-37.1	-37.1	-37.1	-37.1	-37.1	-37.1
Shielding (Barrier Attenuation)	715.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		-37.1	11.9	12.9	17.9	23.9	34.8
60 Minute Hourly Adjustmer	nt	-37.1	11.9	12.9	17.9	23.9	34.8

Observer Location: R16

Source: Air Conditioning Unit (Roof-Top) Condition: Operational Project Name: MCH Job Number: 10351 Analyst: A. Wolfe

NOISE MODEL INPUTS						
Noise Distance to Observer	871.0 feet	Barrier Height:	0.0 feet			
Noise Distance to Barrier:	871.0 feet	Noise Source Height:	5.0 feet			
Barrier Distance to Observer:	0.0 feet	Observer Height:	5.0 feet			
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0			
Noise Source Elevation:	30.0 feet	Drop Off Coefficient:	20.0			
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance				

NOISE MODEL PROJECTIONS							
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	5.0	0.0	74.4	76.1	77.4	77.7	78.2
Distance Attenuation	871.0	-44.8	-44.8	-44.8	-44.8	-44.8	-44.8
Shielding (Barrier Attenuation)	871.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		-44.8	29.6	31.3	32.6	32.9	33.4
39 Minute Hourly Adjustmer	nt	-46.7	27.7	29.4	30.7	31.0	31.5

S	TATIONARY SOURCE N	OISE PREDICTION MODEL	6/17/2019
Observer Location: R16 Source: Truck Unl Condition: Operation	oading/Docking Activity al	Project Name: MCH Job Number: 10351 Analyst: A. Wolfe	
	NOISE MOI	DEL INPUTS	
Noise Distance to Observer	896.0 feet	Barrier Height:	0.0 feet
Noise Distance to Barrier:	896.0 feet	Noise Source Height:	8.0 feet
Barrier Distance to Observer:	0.0 feet	Observer Height:	5.0 feet
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0
Noise Source Elevation:	0.0 feet	Drop Off Coefficient:	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling 15 = 4.5 dBA per doublin	of distance g of distance

NOISE MODEL PROJECTIONS							
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	30.0	0.0	64.2	67.2	71.8	75.6	80.0
Distance Attenuation	896.0	-29.5	-29.5	-29.5	-29.5	-29.5	-29.5
Shielding (Barrier Attenuation)	896.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		-29.5	34.7	37.7	42.3	46.1	50.5
60 Minute Hourly Adjustmen	nt	-29.5	34.7	37.7	42.3	46.1	50.5

Observer Location: R16

Source: Parking Lot Vehicle Movements Condition: Operational Project Name: MCH Job Number: 10351 Analyst: A. Wolfe

		-				
NOISE MODEL INPUTS						
Noise Distance to Observer	2,213.0 feet	Barrier Height:	0.0 feet			
Noise Distance to Barrier:	2,213.0 feet	Noise Source Height:	5.0 feet			
Barrier Distance to Observer:	0.0 feet	Observer Height:	5.0 feet			
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0			
Noise Source Elevation:	0.0 feet	Drop Off Coefficient:	20.0			
Barrier Elevation:	0.0 feet	et 20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance				

NOISE MODEL PROJECTIONS							
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	10.0	0.0	49.0	50.0	55.0	61.0	71.9
Distance Attenuation	2,213.0	-46.9	-46.9	-46.9	-46.9	-46.9	-46.9
Shielding (Barrier Attenuation)	2,213.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		-46.9	2.1	3.1	8.1	14.1	25.0
60 Minute Hourly Adjustmer	nt	-46.9	2.1	3.1	8.1	14.1	25.0

Appendix D

Cultural Resource Letters



DEPARTMENT OF THE ARMY U.S. ARMY CORPS OF ENGINEERS, LOS ANGELES DISTRICT 915 WILSHIRE BOULEVARD, SUITE 930 LOS ANGELES, CALIFORNIA 90017-3489

August 10, 2020

Ms. Julianne Polanco State Historic Preservation Officer Office of Historic Preservation 1725 23rd Street, Suite 100 Sacramento, California 95816-7100

Dear Ms. Polanco:

The U.S. Army Corps of Engineers (Corps), Los Angeles District is consulting with your office regarding a proposed industrial development located in the southern portion of the City of Chino in San Bernardino County, California. The proposed 97-acre industrial development would consist of two warehouse buildings and associated parking areas, drive aisles, outdoor employee break areas, stormwater drainage facilities, and ornamental landscaping. The proposed development is situated on lands owned by the Orange County Flood Control District which are located within the Prado Dam Inundation Area (PDIA). In order to develop the parcel as proposed, the ground surface elevations of the building footprints would need to be raised above the 566-foot flood elevation level of the PDIA. Fill material would be excavated from five proposed borrow locations within the PDIA and transported to the development site in order to raise the proposed building footprints above the inundation line and create additional flood water holding capacity at the excess fill dirt sites. Approximately 740,000 gross cubic yards of fill dirt would be brought to the Project development site from the proposed borrow sites.

Consent from the Corps is required to remove borrow fill from land within the PDIA. Additionally, the proposed Borrow Site located at the southeast corner of Chino Corona Road and East County Road (identified as proposed Borrow Site 4) would require a construction approval from the Corps in order to grade a small area of adjacent Corps land (APN 1057-212-09, -11) in order to maintain the current drainage pattern. The proposed Project would also require a storm drain easement from the Corps within the adjacent El Prado Golf Course (APN 1056-351-02, -01). The Corps is consulting with your office under Section 106 of the National Historic Preservation Act. This letter provides a brief description of the undertaking, documents the area of potential effect (APE), summarizes our efforts to identify historic properties, and requests your concurrence with our finding that there will be *no historic properties affected*.

The Corps has defined the APE as the entire 97-acre development site and the five borrow locations where fill would be removed. The total APE is approximately 265 acres. Majestic Reality Co. contracted with Brian F. Smith and Associates (BFSA) to complete a cultural resource assessment of the APE (Enclosure 1) in anticipation of the Corps Section 106 responsibilities. As part of their assessment, BFSA conducted a records search at the South Central Coastal Information Center (SCCIC) at California State University Fullerton (CSUF) and the Eastern Information Center (EIC) at the University of California Riverside (UCR). The records search included a review of all previously recorded cultural resources and previous cultural resources studies within a ½-mile radius of the Project area. An archaeological survey was conducted on March 14 and 15, 2019, which consisted of an intensive pedestrian survey

that included parallel transects that covered the entirety of the Project development site and the five Borrow Sites.

As part of their historic property identification efforts, BFSA contacted the Native American Heritage Commission (NAHC) to request a review of the Sacred Lands File (SLF) to determine if any recorded Native American sacred sites or locations of religious or ceremonial importance are present within one mile of the APE. The NAHC responded to BFSA on October 28, 2018 indicating the record search returned negative results. The contacts list provided by the NAHC identified a total of 17 contacts with possible knowledge of cultural resources in the Project area. BFSA contacted the individuals/groups on the contacts list via postal and email communications on November 6, 2018 and a total of two responses had been received by the time the cultural resources reports were written in June 2019. The Morongo Band of Mission Indians indicate that they have no additional information to provide at this time. The Agua Caliente Band of Cahuilla Indians indicate that the APE is not located within their Traditional Use Area and therefore, defer to the other tribes in the area.

A total of thirteen cultural resource sites were identified within the APE during the survey and/or record search. Seven of these sites had previously been recorded, CA-SBR-2845, CA-SBR-5241, CA-SBR-12573H, CA-SBR-12613H, P-36-029722, CA-SBR-29791H, and P-36-029792. Of these seven previously-recorded sites, six had been either recommended as ineligible for the National Register of Historic Places (NRHP) or were determined to be not eligible for the California Register of Historic Places. As part of their assessment, BFSA reevaluated these sites and also recommended them as ineligible for the NRHP under all criteria. The final site, CA-SBR-12573H, is a historic ditch known to have been in existence in 1888. The records search indicates a 430-foot portion of the ditch should be located within the southeast corner of Borrow Site Five; however, BFSA did not identify the presence of any portion of the historic era ditch remaining within the APE. Historical aerial photographs indicate that portions of the ditch in the APE were likely destroyed prior to 1938.

Of the remaining six sites, five are foundation remnants of demolished buildings and structures, CA-SBR-33112H, CA-SBR-33113H, CA-SBR-33115H, CA-SBR-33116H, and CA-SBR-33117H. All five are associated with the region's dairy history. None of these sites retain enough integrity to be eligible under Criteria A-C. Further, since the burning of garbage was outlawed in 1939 and garbage collection was available in the early 1950s, it is unlikely that trash deposits associated with these foundations are present. The remaining site, P-36-033114, consists of a single-family residence built between 1948 and 1959 and a detached garage built between 1967 and 1980. There is also a modern shed and modern cabin built after 1980. The residence and garage lack essential integrity. Neither structure is representative of any specific architectural style or are associated with events or individuals. The Corps has determined that the site is not eligible for the NRHP under any criteria.

At this time the Corps is requesting your review and agreement with our determination that sites CA-SBR-2845, CA-SBR-5241, CA-SBR-12573H, CA-SBR-12613H, P-36-029722, CA-SBR-29791H, P-36 -029792, CA-SBR-33112H, CA-SBR-33113H, CA-SBR-33115H, CA-SBR-33116H, CA-SBR-33117H and P-36-033114 are not eligible for the National Register of Historic Places. The Fuqua Ditch CA-SBR-12573H is a long linear site and where it is still extant may be eligible; however it is no longer present within the APE. The Corps is requesting agreement with our finding that the undertaking would result in no historic properties affected. The Corps has compiled a table to aid in your review of the report (Enclosure 2). The Corps is concurrently

notifying the Federally recognized and non-Federally recognized Tribes listed in Appendix D of Enclosure 1. We appreciate your consideration of our request. If you have specific questions or if we can provide any clarification about this request or any other concerns, please contact Ms. Danielle Storey, Archaeologist, at Danielle.L.Storey@usace.army.mil or at (213) 308-0437.

Sincerely,

Eduardo T. De Mesa Chief, Planning Division

Enclosure(s)



DEPARTMENT OF PARKS AND RECREATION OFFICE OF HISTORIC PRESERVATION

Julianne Polanco, State Historic Preservation Officer1725 23rd Street, Suite 100, Sacramento, CA 95816-7100Telephone: (916) 445-7000FAX: (916) 445-7053calshpo.ohp@parks.ca.govwww.ohp.parks.ca.gov

Armando Quintero, Director

September 09, 2020

In reply refer to: COE_2020_0811_004

VIA ELECTRONIC MAIL

Eduardo T. DeMesa Chief, Planning Division U.S. Army Corps of Engineers, Los Angeles District 915 Wilshire Blvd., Suite 930 Los Angeles, CA 90017-3489

RE: Section 106 consultation for the Majestic Chino Heritage, San Bernardino County

Dear Eduardo DeMesa,

The U.S. Army Corps of Engineers (COE) is initiating consultation with the State Historic Preservation Officer (SHPO) to comply with Section 106 of the National Historic Preservation Act of 1966 (as amended) and its implementing regulation at 36 CFR Part 800. By letter received on August 11, 2020, the COE is seeking comments on their finding of effect for the above-referenced undertaking. The COE submitted the following document to support their finding of effect:

• A Section 106 (NHPA) Historic Properties Study for the Majestic Chino Heritage Project; City of Chino, San Bernardino County, California (Brian F. Smith and Associates, Inc. 2019, revised 2020)

The COE is issuing a permit supporting the construction of an industrial development east of the Chino Airport in the Prado Dam Inundation Area (PIDA) in the City of Chino, San Bernardino County. Project activities include the construction of two buildings for general industrial space and associated parking lots, storm water drainages and landscaping. As construction is proposed within the PIDA, the project requires soils to be built up to elevate the buildings out of the flood zone. Five borrow sites (Borrow Site 1-5) will be used for materials relocation to the proposed building footprint areas. The Area of Potential Effects (APE) is defined as 265 acres, encompassing the 97-acre construction site and the five borrow areas. Efforts to identify historic properties include a records search, pedestrian survey, and Native American outreach. Eduardo DeMesa September 09, 2020 Page 2

The COE's applicant requested a Sacred Lands File from the Native American Heritage Commission (NAHC) returning negative results. The COE contacted Native American entities listed by the NAHC as having cultural ties to the project area. The COE received response from the Gabrieleño Band of Mission Indians-Kizh Nation, expressing concern over excavation in the PDIA, the sensitivity of the area for inadvertently damaging previously unrecorded archaeological sites and requesting tribal monitors be present during excavation. Addressing these concerns, the COE is requiring archaeological and Native American monitoring as a permit condition.

Efforts to identify historic properties resulted in 13 possible historic properties in the APE. The COE has evaluated these properties and made determinations of eligibility for the National Register as listed in the table below with the associated SHPO concurrence.

Site #	Description	COE	SHPO
		determination	concurrence
CA- SBR- 33112H	Foundational remains of a dairy farm. First structures built between 1948 and 1959. Other structures were added and/or removed between 1959 and 2014. Only concrete pathways (milk parlor alleys) remain.	Not Eligible	Concur
CA- SBR- 33113H	Foundational remains of a dairy farm – includes concrete driveway and concrete pathways. Site had once contained a Streamline Moderne-style milk parlor building and a Ranch-style residence but these have been destroyed.	Not Eligible	Concur
CA- SBR- 5241	Reported location of a Lithic Scatter. Location was noted by (Langenwalter and Brock 1985) however they did not find evidence of the site. Site was not found during pedestrian survey.	Not Eligible/Not Extant	Not extant – will need to be evaluated if found during monitoring.
P-36- 029722	Previously recorded Southern California Edison transmission line.	Not Eligible	Tower concurred not eligible. Transmission line adequately evaluated in Supernowicz 2013 DPR 523.
P-36- 033114	Single-family residence built between 1948 and 1959 and a detached garage built between 1967 and 1980. There is	Not Eligible	Concur

Eduardo DeMesa September 09, 2020 Page 3

Site #	Description	COE	SHPO
		determination	concurrence
	also a modern shed and modern cabin (post 1980) at the site.		
CA-SBR- 33115H	Foundation remnants of the J.H. Warner/D.B. Warner Ranch and Warner's Stock Removal Company slaughterhouse facility and associated structures. The first structures were built between 1938 and 1946. Other structures were added and/or removed to the site between 1948 and 1980 and the last remaining structures were demolished prior to 1994.	Not Eligible	Concur
CA-SBR- 29791H	Previously recorded 1948 to 1959 farm or dairy farm foundation remains/concrete pads. No standing structures remain at the site.	Not Eligible	Concur
P-36- 029792	Previously recorded segment of the Serrano-Mira Loma Transmission Line built circa 1966.	Not Eligible	Concur
CA-SBR- 12613H	Previously recorded 1953 to 1954 Southern California Edison transmission alignment.	Not Eligible	Concur
CA-SBR- 33116H	Case Van Der Eyk and Sons dairy farm driveway remnants. Original structures built between 1959 and 1966. Demolished between 2011 and 2013.	Not Eligible	Concur
CA-SBR- 2845	Previously recorded prehistoric lithic scatter. Site was not found during pedestrian survey.	Not Eligible/Not Extant	Not found in APE- will need to be evaluated if found during monitoring.
CA-SBR- 33117H	1930s orchard, outbuilding, and dairy feed alley (1967-1994) and a concrete driveway to a modern residence that has been destroyed (1973).	Not Eligible	Concur
CA-SBR- 12573H	Previously recorded portion of the alignment of the 1888 Fuqua Ditch.	Not Extant in APE	Not extant in APE, no need to evaluate

Eduardo DeMesa September 09, 2020 Page 4

The COE has concluded that issuing a permit would have no effect on historic properties and has requested my review and comment on their finding of effect for the proposed undertaking. After reviewing your letter and supporting documentation, **I do not object** to a finding of *no historic properties affected* for this undertaking pursuant to 36 CFR 800.4(d)(1).

Be advised that under certain circumstances, such as unanticipated discovery or a change in project description, the COE may have additional future responsibilities for this undertaking under 36 CFR Part 800. If you require further information, contact Elizabeth Hodges of my staff at (916) 445-7017 or Elizabeth.Hodges@parks.ca.gov.

Sincerely,

Julianne Polanco State Historic Preservation Officer



DEPARTMENT OF THE ARMY U.S. ARMY CORPS OF ENGINEERS, LOS ANGELES DISTRICT 915 WILSHIRE BOULEVARD, SUITE 930 LOS ANGELES, CALIFORNIA 90017-3489

August 10, 2020

Ms. Donna Yocum Chairperson San Fernando Band of Mission Indians P.O. Box 221838 Newhall, California 91322

Dear Chairperson Yocum:

The U.S. Army Corps of Engineers (Corps), Los Angeles District is consulting with your office regarding a proposed industrial development located in the southern portion of the City of Chino in San Bernardino County, California. The proposed 97-acre industrial development would consist of two warehouse buildings and associated parking areas, drive aisles, outdoor employee break areas, stormwater drainage facilities, and ornamental landscaping. The proposed development is situated on lands owned by the Orange County Flood Control District which are located within the Prado Dam Inundation Area (PDIA). In order to develop the parcel as proposed, the ground surface elevations of the building footprints would need to be raised above the 566-foot flood elevation level of the PDIA. Fill material would be excavated from five proposed borrow locations within the PDIA and transported to the development site in order to raise the proposed building footprints above the inundation line and create additional flood water holding capacity at the excess fill dirt sites. Approximately 740,000 gross cubic yards of fill dirt would be brought to the Project development site from the proposed borrow sites.

Consent from the Corps is required to remove borrow fill from land within the PDIA. Additionally, the proposed Borrow Site located at the southeast corner of Chino Corona Road and East County Road (identified as proposed Borrow Site 4) would require a construction approval from the Corps in order to grade a small area of adjacent Corps land (APN 1057-212-09, -11) in order to maintain the current drainage pattern. The proposed Project would also require a storm drain easement from the Corps within the adjacent El Prado Golf Course (APN 1056-351-02, -01). The Corps has determined that the proposed federal action is an undertaking that has the potential to affect historic properties as part of our review under Section 106 of the National Historic Preservation Act (NHPA). This letter provides a brief project description, documents the area of potential effect (APE), summarizes our efforts to identify historic properties, and seeks your comments on our finding that the undertaking would result in *no historic properties affected*. The Corps welcomes you to share any issues or concerns you may have and seeks your assistance in identifying any properties which are of religious or cultural significance that may be affected by the project (see 36 C.F.R 800.4(a)(4)).

The Corps has defined the APE as the entire 97-acre development site and the five borrow locations where fill would be removed. The total APE is approximately 265 acres. Majestic Reality Co. contracted with Brian F. Smith and Associates (BFSA) to complete a cultural resource assessment of the APE (Enclosure 1) in anticipation of the Corps Section 106 responsibilities. As part of their assessment, BFSA conducted a records search at the South Central Coastal Information Center (SCCIC) at California State University Fullerton (CSUF) and the Eastern Information Center (EIC) at the University of California Riverside (UCR). The

records search included a review of all previously recorded cultural resources and previous cultural resources studies within a ½-mile radius of the Project area. An archaeological survey was conducted on March 14 and 15, 2019, which consisted of an intensive pedestrian survey that included parallel transects that covered the entirety of the Project development site and the five Borrow Sites.

As part of their historic property identification efforts, BFSA contacted the Native American Heritage Commission (NAHC) to request a review of the Sacred Lands File (SLF) to determine if any recorded Native American sacred sites or locations of religious or ceremonial importance are present within one mile of the APE. The NAHC responded to BFSA on October 28, 2018 indicating the record search returned negative results. The contacts list provided by the NAHC identified a total of 17 contacts with possible knowledge of cultural resources in the Project area. BFSA contacted the individuals/groups on the contacts list via postal and email communications on November 6, 2018 and a total of two responses had been received by the time the cultural resources reports were written in June 2019. The Morongo Band of Mission Indians indicate that they have no additional information to provide at this time. The Agua Caliente Band of Cahuilla Indians indicate that the APE is not located within their Traditional Use Area and therefore, defer to the other tribes in the area.

A total of thirteen cultural resource sites were identified within the APE during the survey and/or record search. Seven of these sites had previously been recorded, CA-SBR-2845, CA-SBR-5241, CA-SBR-12573H, CA-SBR-12613H, P-36-029722, CA-SBR-29791H, and P-36-029792. Of these seven previously-recorded sites, six had been either recommended as ineligible for the National Register of Historic Places (NRHP) or were determined to be not eligible for the California Register of Historic Places. As part of their assessment, BFSA reevaluated these sites and also recommended them as ineligible for the NRHP under all criteria. The final site, CA-SBR-12573H, is a historic ditch known to have been in existence in 1888. The records search indicates a 430-foot portion of the ditch should be located within the southeast corner of Borrow Site Five; however, BFSA did not identify the presence of any portion of the historic era ditch remaining within the APE. Historical aerial photographs indicate that portions of the ditch in the APE were likely destroyed prior to 1938.

Of the remaining six sites, five are foundation remnants of demolished buildings and structures, CA-SBR-33112H, CA-SBR-33113H, CA-SBR-33115H, CA-SBR-33116H, and CA-SBR-33117H. All five are associated with the region's dairy history. None of these sites retain enough integrity to be eligible under Criteria A-C. Further, since the burning of garbage was outlawed in 1939 and garbage collection was available in the early 1950s, it is unlikely that trash deposits associated with these foundations are present. The remaining site, P-36-033114, consists of a single-family residence built between 1948 and 1959 and a detached garage built between 1967 and 1980. There is also a modern shed and modern cabin built after 1980. The residence and garage lack essential integrity. Neither structure is representative of any specific architectural style or are associated with events or individuals. The Corps has determined that the site is not eligible for the NRHP under any criteria.

By this letter the Corps requests your comments on the appropriateness of the APE (pursuant to 36 C.F.R. 800.(a)(I)) and any concerns or comments that you may have on the undertaking or its potential effect on historic properties. The Corps is concurrently consulting with the State Historic Preservation Officer (SHPO) regarding our determination that sites CA-SBR-2845, CA-SBR-5241, CA-SBR-12573H, CA-SBR-12613H, P-36-029722, CA-SBR-

29791H, P-36 -029792, CA-SBR-33112H, CA-SBR-33113H, CA-SBR-33115H, CA-SBR-33116H, CA-SBR-33117H and P-36-033114 are not eligible for the National Register of Historic Places. The Fuqua Ditch, CA-SBR-12573H, is a long linear site and where it is still extant it may be eligible; however it is no longer present within the APE. The Corps is also requesting agreement from the SHPO with our finding that the undertaking would result in no historic properties affected. The Corps has compiled a table to aid in your review of the report (Enclosure 2). The Corps would appreciate any comments you may have on the appropriateness of our APE and/or any comment you have on the project at your earliest convenience or within 30 days. We appreciate your consideration of our request. If you have specific questions or if we can provide any clarification about this request or any other concerns, please contact Ms. Danielle Storey, Archaeologist, at Danielle.L.Storey@usace.army.mil or at (213) 308-0437.

Sincerely,

Eduardo T. De Mesa Chief, Planning Division

Enclosure(s)



DEPARTMENT OF THE ARMY U.S. ARMY CORPS OF ENGINEERS, LOS ANGELES DISTRICT 915 WILSHIRE BOULEVARD, SUITE 930 LOS ANGELES, CALIFORNIA 90017-3489

August 10, 2020

Mr. Andrew Salas Chairperson Gabrieleno Band of Mission Indians – Kizh Nation P.O. Box 393 Covina, California 91723

Dear Chairperson Salas:

The U.S. Army Corps of Engineers (Corps), Los Angeles District is consulting with your office regarding a proposed industrial development located in the southern portion of the City of Chino in San Bernardino County, California. The proposed 97-acre industrial development would consist of two warehouse buildings and associated parking areas, drive aisles, outdoor employee break areas, stormwater drainage facilities, and ornamental landscaping. The proposed development is situated on lands owned by the Orange County Flood Control District which are located within the Prado Dam Inundation Area (PDIA). In order to develop the parcel as proposed, the ground surface elevations of the building footprints would need to be raised above the 566-foot flood elevation level of the PDIA. Fill material would be excavated from five proposed borrow locations within the PDIA and transported to the development site in order to raise the proposed building footprints above the inundation line and create additional flood water holding capacity at the excess fill dirt sites. Approximately 740,000 gross cubic yards of fill dirt would be brought to the Project development site from the proposed borrow sites.

Consent from the Corps is required to remove borrow fill from land within the PDIA. Additionally, the proposed Borrow Site located at the southeast corner of Chino Corona Road and East County Road (identified as proposed Borrow Site 4) would require a construction approval from the Corps in order to grade a small area of adjacent Corps land (APN 1057-212-09, -11) in order to maintain the current drainage pattern. The proposed Project would also require a storm drain easement from the Corps within the adjacent El Prado Golf Course (APN 1056-351-02, -01). The Corps has determined that the proposed federal action is an undertaking that has the potential to affect historic properties as part of our review under Section 106 of the National Historic Preservation Act (NHPA). This letter provides a brief project description, documents the area of potential effect (APE), summarizes our efforts to identify historic properties, and seeks your comments on our finding that the undertaking would result in *no historic properties affected*. The Corps welcomes you to share any issues or concerns you may have and seeks your assistance in identifying any properties which are of religious or cultural significance that may be affected by the project (see 36 C.F.R 800.4(a)(4)).

The Corps has defined the APE as the entire 97-acre development site and the five borrow locations where fill would be removed. The total APE is approximately 265 acres. Majestic Reality Co. contracted with Brian F. Smith and Associates (BFSA) to complete a cultural resource assessment of the APE (Enclosure 1) in anticipation of the Corps Section 106 responsibilities. As part of their assessment, BFSA conducted a records search at the South Central Coastal Information Center (SCCIC) at California State University Fullerton (CSUF) and
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As part of their historic property identification efforts, BFSA contacted the Native American Heritage Commission (NAHC) to request a review of the Sacred Lands File (SLF) to determine if any recorded Native American sacred sites or locations of religious or ceremonial importance are present within one mile of the APE. The NAHC responded to BFSA on October 28, 2018 indicating the record search returned negative results. The contacts list provided by the NAHC identified a total of 17 contacts with possible knowledge of cultural resources in the Project area. BFSA contacted the individuals/groups on the contacts list via postal and email communications on November 6, 2018 and a total of two responses had been received by the time the cultural resources reports were written in June 2019. The Morongo Band of Mission Indians indicate that they have no additional information to provide at this time. The Agua Caliente Band of Cahuilla Indians indicate that the APE is not located within their Traditional Use Area and therefore, defer to the other tribes in the area.

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Sincerely,

Eduardo T. De Mesa Chief, Planning Division

Enclosure(s)



DEPARTMENT OF THE ARMY U.S. ARMY CORPS OF ENGINEERS, LOS ANGELES DISTRICT 915 WILSHIRE BOULEVARD, SUITE 930 LOS ANGELES, CALIFORNIA 90017-3489

August 10, 2020

Mr. Anthony Morales Chairperson Gabrieleno/Tongva San Gabriel Band of Mission Indians P.O. Box 693 San Gabriel, California 91778

Dear Chairperson Morales:

The U.S. Army Corps of Engineers (Corps), Los Angeles District is consulting with your office regarding a proposed industrial development located in the southern portion of the City of Chino in San Bernardino County, California. The proposed 97-acre industrial development would consist of two warehouse buildings and associated parking areas, drive aisles, outdoor employee break areas, stormwater drainage facilities, and ornamental landscaping. The proposed development is situated on lands owned by the Orange County Flood Control District which are located within the Prado Dam Inundation Area (PDIA). In order to develop the parcel as proposed, the ground surface elevations of the building footprints would need to be raised above the 566-foot flood elevation level of the PDIA. Fill material would be excavated from five proposed borrow locations within the PDIA and transported to the development site in order to raise the proposed building footprints above the inundation line and create additional flood water holding capacity at the excess fill dirt sites. Approximately 740,000 gross cubic yards of fill dirt would be brought to the Project development site from the proposed borrow sites.

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Sincerely,

Eduardo T. De Mesa Chief, Planning Division

Enclosure(s)



DEPARTMENT OF THE ARMY U.S. ARMY CORPS OF ENGINEERS, LOS ANGELES DISTRICT 915 WILSHIRE BOULEVARD, SUITE 930 LOS ANGELES, CALIFORNIA 90017-3489

August 10, 2020

Sandonne Goad Chairperson Gabrielino /Tongva Nation 106 1/2 Judge John Aiso Street #231 Los Angeles, California 90012

Dear Chairperson Goad:

The U.S. Army Corps of Engineers (Corps), Los Angeles District is consulting with your office regarding a proposed industrial development located in the southern portion of the City of Chino in San Bernardino County, California. The proposed 97-acre industrial development would consist of two warehouse buildings and associated parking areas, drive aisles, outdoor employee break areas, stormwater drainage facilities, and ornamental landscaping. The proposed development is situated on lands owned by the Orange County Flood Control District which are located within the Prado Dam Inundation Area (PDIA). In order to develop the parcel as proposed, the ground surface elevations of the building footprints would need to be raised above the 566-foot flood elevation level of the PDIA. Fill material would be excavated from five proposed borrow locations within the PDIA and transported to the development site in order to raise the proposed building footprints above the inundation line and create additional flood water holding capacity at the excess fill dirt sites. Approximately 740,000 gross cubic yards of fill dirt would be brought to the Project development site from the proposed borrow sites.

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Sincerely,

Eduardo T. De Mesa Chief, Planning Division

Enclosure(s)



DEPARTMENT OF THE ARMY U.S. ARMY CORPS OF ENGINEERS, LOS ANGELES DISTRICT 915 WILSHIRE BOULEVARD, SUITE 930 LOS ANGELES, CALIFORNIA 90017-3489

August 10, 2020

Mr. Robert Dorame Chairperson Gabrielino Tongva Indians of California Tribal Council P.O. Box 490 Bellflower, California 90707

Dear Chairperson Dorame:

The U.S. Army Corps of Engineers (Corps), Los Angeles District is consulting with your office regarding a proposed industrial development located in the southern portion of the City of Chino in San Bernardino County, California. The proposed 97-acre industrial development would consist of two warehouse buildings and associated parking areas, drive aisles, outdoor employee break areas, stormwater drainage facilities, and ornamental landscaping. The proposed development is situated on lands owned by the Orange County Flood Control District which are located within the Prado Dam Inundation Area (PDIA). In order to develop the parcel as proposed, the ground surface elevations of the building footprints would need to be raised above the 566-foot flood elevation level of the PDIA. Fill material would be excavated from five proposed borrow locations within the PDIA and transported to the development site in order to raise the proposed building footprints above the inundation line and create additional flood water holding capacity at the excess fill dirt sites. Approximately 740,000 gross cubic yards of fill dirt would be brought to the Project development site from the proposed borrow sites.

Consent from the Corps is required to remove borrow fill from land within the PDIA. Additionally, the proposed Borrow Site located at the southeast corner of Chino Corona Road and East County Road (identified as proposed Borrow Site 4) would require a construction approval from the Corps in order to grade a small area of adjacent Corps land (APN 1057-212-09, -11) in order to maintain the current drainage pattern. The proposed Project would also require a storm drain easement from the Corps within the adjacent El Prado Golf Course (APN 1056-351-02, -01). The Corps has determined that the proposed federal action is an undertaking that has the potential to affect historic properties as part of our review under Section 106 of the National Historic Preservation Act (NHPA). This letter provides a brief project description, documents the area of potential effect (APE), summarizes our efforts to identify historic properties, and seeks your comments on our finding that the undertaking would result in *no historic properties affected*. The Corps welcomes you to share any issues or concerns you may have and seeks your assistance in identifying any properties which are of religious or cultural significance that may be affected by the project (see 36 C.F.R 800.4(a)(4)).

The Corps has defined the APE as the entire 97-acre development site and the five borrow locations where fill would be removed. The total APE is approximately 265 acres. Majestic Reality Co. contracted with Brian F. Smith and Associates (BFSA) to complete a cultural resource assessment of the APE (Enclosure 1) in anticipation of the Corps Section 106 responsibilities. As part of their assessment, BFSA conducted a records search at the South Central Coastal Information Center (SCCIC) at California State University Fullerton (CSUF) and

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Sincerely,

Eduardo T. De Mesa Chief, Planning Division

Enclosure(s)



DEPARTMENT OF THE ARMY U.S. ARMY CORPS OF ENGINEERS, LOS ANGELES DISTRICT 915 WILSHIRE BOULEVARD, SUITE 930 LOS ANGELES, CALIFORNIA 90017-3489

August 10, 2020

Mr. Charles Alvarez Chairperson Gabrielino-Tongva Tribe 23454 Vanowen Street West Hills, California 91307

Dear Chairperson Alvarez:

The U.S. Army Corps of Engineers (Corps), Los Angeles District is consulting with your office regarding a proposed industrial development located in the southern portion of the City of Chino in San Bernardino County, California. The proposed 97-acre industrial development would consist of two warehouse buildings and associated parking areas, drive aisles, outdoor employee break areas, stormwater drainage facilities, and ornamental landscaping. The proposed development is situated on lands owned by the Orange County Flood Control District which are located within the Prado Dam Inundation Area (PDIA). In order to develop the parcel as proposed, the ground surface elevations of the building footprints would need to be raised above the 566-foot flood elevation level of the PDIA. Fill material would be excavated from five proposed borrow locations within the PDIA and transported to the development site in order to raise the proposed building footprints above the inundation line and create additional flood water holding capacity at the excess fill dirt sites. Approximately 740,000 gross cubic yards of fill dirt would be brought to the Project development site from the proposed borrow sites.

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Enclosure(s)



DEPARTMENT OF THE ARMY U.S. ARMY CORPS OF ENGINEERS, LOS ANGELES DISTRICT 915 WILSHIRE BOULEVARD, SUITE 930 LOS ANGELES, CALIFORNIA 90017-3489

August 10, 2020

Mr. Matias Belardes Chairperson Juaneno Band of Mission Indians Acjachemen Nation -Belardes 32161 Avenida Los Amigos San Juan Capisttrano, California 92675

Dear Chairperson Belardes:

The U.S. Army Corps of Engineers (Corps), Los Angeles District is consulting with your office regarding a proposed industrial development located in the southern portion of the City of Chino in San Bernardino County, California. The proposed 97-acre industrial development would consist of two warehouse buildings and associated parking areas, drive aisles, outdoor employee break areas, stormwater drainage facilities, and ornamental landscaping. The proposed development is situated on lands owned by the Orange County Flood Control District which are located within the Prado Dam Inundation Area (PDIA). In order to develop the parcel as proposed, the ground surface elevations of the building footprints would need to be raised above the 566-foot flood elevation level of the PDIA. Fill material would be excavated from five proposed borrow locations within the PDIA and transported to the development site in order to raise the proposed building footprints above the inundation line and create additional flood water holding capacity at the excess fill dirt sites. Approximately 740,000 gross cubic yards of fill dirt would be brought to the Project development site from the proposed borrow sites.

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Sincerely,

Eduardo T. De Mesa Chief, Planning Division

Enclosure(s)

Appendix E

Geotechnical Study



GEOTECHNICAL & SEISMIC ENGINEERING, CONSTRUCTION INSPECTION & MATERIALS TESTING SERVICES

CONSTRUCTION LEVEL GEOTECHNICAL STUDY

MAJESTIC CHINO LOGISTIC CENTER SOUTHEAST CORNER OF BICKMORE AVENUE AND MOUNTAIN AVENUE CITY OF CHINO, CALIFORNIA

PREPARED FOR: COMMERCE CONSTRUCTION CO., L.P. 13191 CROSSROADS PARKWAY NORTH 6th FLOOR CITY OF INDUSTRY, CA 91746

PREPARED BY: KOURY ENGINEERING & TESTING, INC. 14280 EUCLID AVENUE CHINO, CALIFORNIA 91710

PROJECT NO. 18-0817

OCTOBER 24, 2018, REVISED FEBRUARY 14, 2019

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October 24, 2018, Revised February 14, 2019 Project No.18-0817

Mr. John R. Burroughs, LEED AP, President Commerce Construction Co., L.P. 13191 Crossroads Parkway North 6th Floor City of Industry, CA 91746

SUBJECT: Construction Level Geotechnical Study Majestic Chino Logistic Center Southeast Corner of Bickmore Avenue and Mountain Avenue City of Chino, CA

1. INTRODUCTION

This report presents the results of a Geotechnical Investigation performed by Koury Engineering & Testing, Inc. (Koury) for the construction of two large distribution center buildings and associated improvements known as Majestic Chino Logistic Center located at the southeast corner of Bickmore Avenue and Mountain Avenue in the City of Chino (see Figure A-1 in Appendix A). The geotechnical study was performed to evaluate the subsurface soil conditions at the site in order to provide geotechnical recommendations for design and construction of the proposed facilities. This report includes our findings and recommendations for the design and construction of the proposed buildings and associated improvements from a geotechnical studyout.

The recommendations provided within this submittal are based on the results of our field exploration, laboratory testing and engineering analyses. Our services were performed in general accordance with our Proposal No. 18-0817, dated August 20, 2018.

Our professional services have been performed using the degree of care and skill ordinarily exercised, under similar circumstances, by reputable geotechnical consultants practicing in this or similar localities. No other warranty, expressed or implied, is made as to the professional advice included in this report. This report has been prepared exclusively for Commerce Construction Co.,

L.P. and their consultants for the subject project. The report has not been prepared for use by other parties and may not contain sufficient information for the purposes of other parties or other uses.

2. SITE CONDITIONS

The site is bounded by Bickmore Avenue on the north, Mountain Avenue on the west, a golf course on the south, and a vacant lot and a concrete drainage channel on the east. Access is presently via Mountain Avenue on the west side. The site consists roughly of two rectangular areas; the northern area is parallel to Bickmore Avenue and measures about 2,420 feet in the east-west direction and 870 feet in the northerly direction. The southern area measures about 1,660 feet in the east-west direction, 1,340 feet in the northerly direction, and abuts against Mountain Avenue on the west.

The site was previously used as dairy farm and cattle raising. The site is presently vacant, and the buildings and cattle shelters have been removed. However, many of the slabs on grade, foundations, and most likely some of the underground utilities are still in place. At the time of the field exploration in September 2018, most of the site exposed bare ground. There was a few trees and shrubs along Mountain Avenue and around the seasonal water ponds.

The northeast corner of the site contains several water detention basins that are 3 to 5 feet deep; most of these basins have concrete-lined spillways. Within the same area, there is a relatively deep pond (roughly 80 to 100 feet wide, 200 feet long and 12 to 20 feet deep) containing vegetation and trash; this pond retains water during several months of the year. Two relatively smaller ponds were observed adjacent to Mountain Avenue; these ponds also retain storm water for several months of the year until the water evaporates. These ponds are about 10 to 12 feet deep.

The site generally slopes gently from north to south with elevations ranging from about 565 to 553 feet. Along the east property line, within the southeast portion of the site, there is a slope descending about 10 to 13 feet to a flood basin area. This slope gradually decreases in height in the north direction until it reaches a height of about 5 feet about 150 feet south of the proposed Building 1. We understand that a retaining wall ranging in height from about 1 to 12 feet and a length slightly over 400 feet will be constructed in the southeast corner of the Building 1 area to allow grading for the parking and driveway.

In its present state, the site has been cleared of the past structures such as buildings, shelters, and above ground ancillary facilities. The dominant features of the site are the many berms/levees that were constructed across the site. Many of these berms appear to have been constructed by pushing onsite soils into piles; however, the upper portion of some of the berms include imported soils. Within the northeast corner of the site, some of the berms are fitted with concrete spillways. Most of the berms have heights in the range of 3 to 6 feet and consist of relatively loose undocumented fill.

Within the northeastern portion of the proposed Building 2, there is an area measuring about 200 by 200 feet that was used to place import material. Several truckloads of soils were brought in and dumped in place without spreading. The average thickness of dumped material is on the order of $2\frac{1}{2}$ to 3 feet.

3. PROPOSED IMPROVEMENTS

Koury understands the proposed project include the construction of two one-story tilt-up concrete buildings with slab on grade and relevant parking lots and site work. The larger rectangular-shaped Building 1 located within the northern portion of the property will have a footprint of approximately 1,172,387 square feet. This northern building will be about 2,112 feet long and 555 feet wide. The smaller Building 2, to be located within the southern portion of the property, will have a footprint of about 910,087 square feet. This southern building will measure about 1,400 by 650 feet in plan.

In accordance with the conceptual grading plan, there will be two detention basins located immediately south of the smaller building with storage capacities of 14.1 acre-feet and 9.7 acre-feet, respectively. Other proposed improvements include storm and a sewer pump building, construction of parking lots, driveways, retaining walls and some off-site work such as widening Mountain Avenue along the project frontage and construction of curbs and gutters.

We understand that the building pad will be raised to elevation 567 feet, which is one foot above the flood elevation of 566 feet. Most of the Building 1 area will require fill in the range of 2 to 8 feet in thickness with an average of about 5 feet above existing grade at the boring and test pit locations except for the existing retention pond/basin areas where deeper fill will be required to reach design grade. The proposed fill thickness above the existing bottom of the main retention pond is anticipated to be on the order of 30 feet, not including the required overexcavation. This pond contains debris and vegetation, and stores water during several months of the year. The existing detention basin at the northeast corner of the proposed Building 1 is not part of this project. There will be relatively small permanent cuts in the range of 1 to 5 feet in localized areas north and south of Building 1.

Except for the proposed two basins and some localized areas along Mountain Avenue, the grades in the southern half of the site will be raised. The grades within the area of Building 2 will generally be raised by 10 to 12 feet above existing grades. There are two existing water ponds encroaching within the proposed Building 2 footprint along Mountain Avenue that will require about 22 feet or more of backfill above existing grade.

Architectural and structural design details for the buildings were not provided. For the purpose of this report we understand that the maximum column loads will be about 95 kips and wall load approximately 8 kips per lineal foot. We understand that bearing pressures of 2,500 psf for footing and 1,000 psf for slab on grade are typically used.

4. FIELD EXPLORATION

The field exploration programs, including the feasibility study, consisted of drilling 14 soil test borings in Building 1, 10 soil test borings in Building 2, two soil test borings in the Detention Basin A and one boring in the WQ Basin B. Truck-mounted hollow-stem auger drilling equipment was used to drill the test borings, which range in depth from about $16\frac{1}{2}$ to $71\frac{1}{2}$ feet. In addition, a rubber tire backhoe was used to excavate a total of 71 test pits ranging in depth from about $4\frac{1}{2}$ to $16\frac{1}{2}$ feet. The borings and test pits were excavated during the months of May 2017 and August and September of 2018.

The locations of the borings and test pits are shown on the Field Exploration Map, Figures A-2a and A-2b, Appendix A. Standard Penetration Test samples, California Ring samples and bulk samples were obtained from the borings for laboratory testing, and bulk samples were obtained from the test pits. The contractor used a 140-lbs automatic hammer to drive the samplers 18 inches into the soils.

5. LABORATORY TESTING

Laboratory tests, including moisture content, dry unit weight, #200 sieve wash, pocket penetrometer, expansion index, plasticity index, consolidation, direct shear and maximum density were performed to aid in the classification of the materials encountered and to evaluate their engineering properties. Sulfates, chlorides, resistivity, and PH tests (corrosivity tests) were also performed on selected samples. The results of pertinent laboratory tests are presented on the boring logs in Appendix B, and/or in Appendix C.

6. SOIL CONDITIONS

The subsurface soil profile consists generally of artificial fill underlain by alluvial deposits. For the most part, the existing fill is generally 1 to 3 feet thick except for the berms/levees that were constructed, which range in height predominantly between 3 and 7 feet. The fill derived from onsite soils consists predominantly of medium plastic clay (lean clay with sand and sandy lean clay). The fill derived from previously imported material include various mixtures of soils, including asphalt, silty sand, gravel, cobbles, boulders, clay, and shale.

A large portion of the site contains a layer of younger alluvium underneath the fill and above the older alluvium. This younger alluvium generally ranges in thickness from about 2 to 6 feet and consists predominantly of lean clay with sand with localized areas of fat clay. The older alluvium was encountered at depths predominantly between 3½ and 6 feet, and for the most part also consists of clay (both fat and lean clay). The fat clay generally has a higher moisture content and is more expansive than the lean clay, and is considered a less desirable material.

California drive samples were obtained from the borings and test pits. Nuclear gauge tests were also performed in selected test pits. The test data for the drive samples within the test pits and the nuclear gauge tests is summarized in Table C-1 presented in Appendix C. The dry unit weights of the California drive samples range from about 72 to 134 pcf with an average of about 105 pcf. The nuclear gauge tests results (on shallow soils in test pits up to 7 $\frac{1}{2}$ feet) indicate dry unit weight ranging from 86 to 118 pcf with an average of about 103 pcf. The insitu moisture contents of the tested soils range from about 8 to 29 $\frac{1}{2}$ percent with an average of about 18 percent. Depending upon the time of the year, the soil moisture content near the ground surface may vary. Table 1 presents the results of the moisture content tests within the upper 2 $\frac{1}{2}$ and 8 feet and of the test pits

and borings. This tables indicates that the moisture contents increase with depth and the moisture contents of the recent borings and test pits are lower than the previous borings, thus reflecting seasonal variation.

Test Pit / Boring	Min Moisture (%)		Max Moisture (%)		Average Moisture (%)	
	2½ feet	8 feet	2½ feet	8 feet	$2\frac{1}{2}$ feet	8 feet
TP-1 to TP-21 (Old)	8.6	8.6	33.3	40.2	17.5	19.5
TP-22 to TP-72 (New)	4.2	4.2	37.1	39.4	15.1	18.4
B-1 to B-10 (Old)	8.1	8.1	21.9	29.8	15.9	17.9
B-11 to B-28 (New)	5.4	5.4	16.8	25.2	11.6	13.3

Table 1 – Moisture Content Test Results

The degree of saturation was calculated based on the moisture content and the dry density of the tested samples. The results of our calculations show that for the samples at depths between about $2\frac{1}{2}$ and 6 feet, the degree of saturation varies from about $40\frac{1}{2}$ to 100 percent with an average of about 82 percent. Soils with insitu degree of saturation of 85 percent or higher normally require higher compaction efforts to obtain 90 percent relative compaction.

Maximum density tests were performed to evaluate the required dry back of the soils to satisfy the compaction requirements. The following Table 2 indicates the range of optimum moisture for the tests performed to date, which provide some indication of the possible dry back required to facilitate compaction.

Table 2 – Maximum Density Test Results

Test Pit Number/Depth	TP-7 /7'	TP-8 /12'	TP-10/2'	TP-40/3'-3.8'
Maximum Dry Density (pcf)	115.3	112.2	122.8	123.7
Optimum Moisture Content (%)	12.5	14.3	11.2	11.7

To aid in the soils classification and to correlate the soil plasticity with the soil expansion, four plasticity index tests (Atterberg Limits) were performed on samples from depths ranging between about 2 and 12 feet. As shown in Table 3, the liquid limits for the tested samples range between

about 39 and 68 and the plasticity index between 20 and 46, which indicate material ranging from low to high plasticity.

Test Pit Number/Depth	TP-5 /2'	TP-7 /8'	TP-8 /12'	TP-10 /2'
Liquid Limit	39	51	68	39
Plastic Limit	19	21	22	17
Plasticity Index	20	30	46	22

 Table 3 – Plasticity Test Results

Our #200 sieve wash tests indicated that the sand has fines contents in the range of 6 to 46 percent (average of about 27%) and the clay and silt have fines contents in the range of 50 to 99 percent with an average of about 73%. The dry unit weights range from about 72 to 134 pcf with an average of approximately 105 pcf. The consolidation tests indicated moderate consolidation with low potential for expansion and collapse upon addition of water under pressures of 3200 psf; however, some of the rebound curves indicate that the soils could expand significantly under low confining pressures. One direct shear test on a sample remolded to about 90 percent relative compaction indicated a peak friction angle of about 26 degrees and a peak cohesion of approximately 386 psf. The corresponding ultimate values are 28 degrees and 12 psf, respectively

The site soils are generally expansive (EI>20). Table 4 presents the data for 39 tests with depths ranging between 1 and 12 feet. These tests indicate expansion index ranging from 20 to 162 with an average of about 79. Within the upper $2\frac{1}{2}$ feet, the range of expansion index is 20 to 102 with an average of about 68.

Boring/Test Pit	Depth (ft)	Field Moisture (%)	Percentage of Fines	Expansion Index
TP-1	6	25.4	84	78
TP-3	5	16.0	76	62
TP-5	2	23.3	71	50
TP-7	7	27.8	81	59
TP-8	12	23.3	84	90
TP-14	1	35.2	77	89
TP-15	3	31.0	86	60
TP-17	2	33.3	92	96
TP-19	1	17.1	79	24
TP-22	3-3.8	17.4	83	126
TP-22	4-4.8	16-4-18.8	81-80	62
TP-23	1.5-2.2	17.6	60	97
TP-26	Surface	13.4	80	20
TP-26	4.2-4.9	39.4	66	74
TP-27	3.5-4.2	18.4-20.9	65-66	144
TP-28	3-3.8	20.4	71	81
TP-30	3-3.5	15.9	86	48
TP-31	3.8-4.3	16.1	63	86
TP-32	3.8-4.3	8.3	79	61
TP-33	2.5-3	17.9	59	63
TP-37	3-3.5	22.2	70	105
TP-40	3-3.8	10-7-11.5	79-77	162
TP-42	2.7-3.2	12.8	65	62
TP-44	3-3.5	15.1	73	57
TP-48	1.8-2.3	13.5	75	64
TP-50	2-2.5	16.4	73	71
TP-53	3-3.5	20.8	63	50
TP-55	2-4	15.3	80	111
TP-58	3-3.5	14.9	78	59
TP-59	3.5-4			88
TP-60	22.5'	22.3	89	102

Table 4 – Expansion Index Test Results

Boring/Test Pit	Depth (ft)	Field Moisture (%)	Percentage of Fines	Expansion Index
TP-65	6-6.5	24	82	99
TP-70	2.5-3.5	12	57	160
TP-71	2.5-3	14.2	59	45
B-11	0-4	15-6-16.8	64-69	52
B-13	0-4	10.2-11.7	72-66	47
B-23	2-4	16.3	76	107
B-24	2-4	15.8	77	96
B-25	2-4	14.5	84	78

 Table 4 – Expansion Index Test Results (continued)

There is a rough correlation between in situ natural moisture content at depth and expansion index. For the same amount of fines, site soils with higher moisture and higher plasticity index tend to have higher expansion index.

7. **GROUNDWATER**

According to Carson and Matti, 1985, the depth to regional groundwater should be about 35 to 45 feet below the existing ground surface. Groundwater was encountered in the borings at depths between about 24 and 44 feet below the existing ground surface with corresponding elevations between approximately 518 and 539 feet (NAVD88). Groundwater seepage was encountered in three test pits at about elevations between 539 and 541 feet. The groundwater encountered in the test pits and within Boring B-26 is believed to be perched water. The following table summarizes the groundwater depths and elevations encountered in the borings and test pits.

Boring/Test Pit	Ground Elevation	Groundwater Depth	Groundwater Elevation
	(feet)	(feet)	(feet)
B-1	557.5	32.5	525.0
B-2	554.3	31.0	523.3
B-7	562.0	28.0	534.0
B-8	556.5	33.0	523.5
TP-8	556.5	*15.5	*541.0
TP-15	552.4	*10.5	*542.4
B-16	560.7	41	518.7
B-24	563.0	27.5	535.5
B-26	563.0	**24	**539.0
TP-68	540.0	**2	**538.0

Table 5 - Summary of Groundwater Data

*Seepage **Perched water

Fluctuations of the groundwater level, localized zones of perched water, and elevated soil moisture contents should be anticipated during and following the rainy season.

8. SITE GEOLOGY

The site is located within the Upper Santa Ana River Valley, which consists of a series of coalescing alluvial fans formed by streams flowing out of the San Gabriel Mountains to the north. The valley lies within the Peninsular Ranges geomorphic province, which is characterized by alluviated basins, elevated erosion surfaces, and northwest-trending mountain ranges bounded by northwest trending faults. The site, which is located within the Chino Basin, is underlain by sediments deposited by the Santa Ana River and its tributaries such as the Chino Creek.

Morton and Miller (2006) show the site to be underlain by very old alluvial-fan deposits (See Figure A-3 in Appendix A). The sediments observed during drilling consisted predominantly of clay.

9. SEISMIC CONSIDERATIONS

9.1. General

The project site, like the rest of Southern California, is located within a seismically active region as a result of being located near the active margin between the North American and Pacific tectonic plates. The principal source of seismic activity is movement along the northwest-trending regional faults such as the San Andreas, San Jacinto, Newport-Inglewood and Whittier-Elsinore fault zones.

By definition of the California Geological Survey (CGS), an active fault is one which has had surface displacement within the Holocene Epoch (roughly the last 11,000 years). The CGS has defined a potentially active fault as any fault which has been active during the Quaternary Period (approximately the last 2,000,000 years). These definitions are used in delineating Earthquake Fault Zones as mandated by the Alquist-Priolo Geologic Hazard Zones Act of 1972 and as subsequently revised in 1997 as the Alquist-Priolo Earthquake Fault Zones. The intent of the act is to require fault investigations on sites located within Special Studies Zone to preclude new construction of certain inhabited structures across the trace of active faults.

The subject site is not located within an Alquist-Priolo Earthquake Fault Zone. Probably the most important fault to the site from a seismic shaking standpoint is the northwest trending Chino Fault, located approximately 1.4 miles southwest of the site. The Whittier Fault is located about 5³/₄ miles to the southwest. Based on the available maps, the "potentially active" Central Avenue Fault (presently not known to be active) passes through the southwest corner of Building 2. This fault is not known to have moved during the last 11, 000 years. Based on the information available at this time, it is our opinion that a Mw6.7 earthquake may occur on the Chino Fault and a Mw6.9 earthquake may occur on the nearest active segment of the Whittier Fault (see Figure A-4, Fault Map, for fault locations).

Large earthquakes could occur on other faults in the general area, but because of their greater distance and/or lower probability of occurrence, they are less important to the site from a seismic shaking standpoint. Due to the proximity of these faults, near field effects from strong ground motion associated with large earthquakes along these faults may occur at the site. These near field effects, including "fling" and directivity of strong ground motion, may result in significantly higher accelerations at the site, which is normally accounted for/mitigated by the structural design of the project.

9.2. Landsliding

The site is not located in a Landslide Hazard Zone on the State of California Seismic Hazard Zones Map. No evidence for landsliding was observed on or in the immediate vicinity of the site at the time of our field exploration. Based on topographic conditions, landsliding is not considered a potential hazard at the site.

9.3. Liquefaction and Seismic Settlement

Liquefaction may occur when saturated, loose to medium dense, cohesionless soils are densified by ground shaking or vibrations. The densification results in increased pore water pressures if the soils are not sufficiently permeable to dissipate these pressures during and immediately following an earthquake. When the pore water pressure is equal to or exceeds the overburden pressure, liquefaction of the affected soil layers occurs. For liquefaction to occur, three conditions are required:

- Ground shaking of sufficient magnitude and duration;
- Groundwater level at or above the level of the susceptible soils during the ground shaking; and
- Soils that are susceptible to liquefaction.

The Liquefaction Hazards zone on the State of California Seismic Hazards Zones Map indicates that the site is not located in a liquefaction susceptibility zone. However, for seismic settlement due to ground shaking should be considered. For seismic settlement analysis, we calculated an earthquake magnitude of Mw6.49 from a seismic-hazard deaggregation using the USGS Unified Hazard Tool. Our analysis also utilized a site acceleration of 0.71g (PGA_M) obtained from the USGS Design Maps Detailed Report. The SPT tests were performed with an automatic hammer and unlined SPT samplers.

Using the LiquifyPro software, we calculated maximum seismic settlements less than ¹/₂ inch for the alluvium to a depth of 50 feet (see result of calculations in Appendix C). Considering the recommendations in Section 7.66 of the SCEC Guidelines for Implementation of Special Publication 117 and our total seismic settlement calculations, it is our opinion that a relatively small differential settlement on the order of ¹/₄ inch in 30 feet may be used for the design seismic event.

9.4. Tsunamis and Seiches

The site is located at an average elevation of approximately 560 feet and 28 miles away from the coastline. There is no mapped major reservoir in the immediate vicinity and upslope of the site. Therefore, tsunamis and seiches are not considered potential hazards.

10. FLOODING

Except for localized areas within the southwest portion of the site, the project area lies outside the 100year flood zone as shown on the FEMA Flood Map # 06071C9335H, effective date 08/28/2008 (Figure A-5, Appendix A). The site is located at elevations between about 553 and 565 feet (NAVD88) and the existing Prado Dam spillway is reportedly near elevation 543 feet. However, it is understood that the spillway could be raised to elevation 566 feet, which would locate portions of the site, outside the building pads, within the 100-year flood zone.

11. COLLAPSIBLE SOILS

Soils prone to collapse are generally young and deposited by flash floods and wind. The onsite soil moisture contents are generally above optimum, which mitigate collapse potential. Our laboratory tests did not indicate significant collapse. Therefore, the potential for collapse is considered low. Overerexcavation and recompaction, and appropriate drainage are anticipated to mitigate the potential for hydrocollapse.

12. CONCLUSIONS AND RECOMMENDATIONS

12.1. General

In our opinion, the planned improvements are feasible from a geotechnical engineering point of view. The main concerns from a geotechnical standpoint are the presence of fill, soft alluvium near the ground surface, the presence of deep-water ponds encroaching within the building pads, the soil expansion potential, and the soil consolidation due to the proposed fill.

For the proposed buildings, we understand that bearing pressures of 2,000 to 2500 psf are typically used for footings and 1,000 psf for slab on grade. The proposed buildings may be supported on conventional continuous footings or isolated pad footings underlain by engineered fill.

The following sections contain preliminary geotechnical recommendations for the design and construction of the proposed improvements and include our recommendations and discussions about bearing capacity, settlement, flatwork, slabs-on-grade, temporary excavations, and utility trenches.

12.2. Site Grading and Clearing

The site should be cleared of all remaining foundations, concrete and wood debris. One area of the proposed Building 2 contains bark at the ground surface. We recommend that this bark material be raked, and the material taken offsite along with any other onsite vegetation such as trees, shrubs and stumps. There is also some asphalt and oversize cobbles and boulders that should be taken offsite.

All existing fill should be removed, including all the earth berms, and should be replaced as engineered fill. Depending upon the grading time of the year, excessively wet, soft or dry soils may be encountered within the upper 2 to 3 feet of the ground surface. Due to soil expansion potential, all soil with moisture content less than 2 percent above optimum within the building pad area and less than 1 percent above optimum outside the building pad should be overexcavated unless indicated otherwise by the Geotechnical Engineer at the time of construction. To remove the most compressible soils, we anticipate that most of the removal will be on the order of 2½ to 3½ feet deep outside building areas and 4 to 6 feet deep within building areas, extending below the existing undocumented fill bottom. Deeper removal will be required in areas of wet soils and former basins. A table of estimated removal depths at the test pit and boring locations is enclosed in Appendix C and preliminary Remedial Grading Maps (Figure A-2e and A-2f) are presented in Appendix A.

Some of the soils to be removed near the surface generally have a lower expansion potential than the deeper soils. Except for the obvious area of high expansive soils near the surface, we suggest separating the upper 2 to $2\frac{1}{2}$ feet of soil and re-using these soils within the upper 2 feet of pavement subgrade or within the upper 6 to 7 feet of the building pad subgrade. Although less desirable, blending of soils with high expansion and low expansion potential may be acceptable if they are of similar composition (e.g. sandy lean clay with lean clay).

We anticipate the soils with an expansion index less than 80 ("moderate quality dirt") to perform satisfactorily below foundations provided the moisture content of the soils remain stable during the Page 14 of 35
project life. It is therefore important to provide good drainage and to avoid constructing planters immediately adjacent to buildings and other foundations. Soils with greater expansion potential should be placed at least 4 feet below footings and at least 5 feet away from the buildings/structures and in areas such as parking lots, driveways, and planters at the discretion of the owner.

12.3 Grading of Existing Ponds

There are two ponds within the northeast portion of the site (see blue highlighting on Figures A-2a and A-2e). Immediately outside the southeast end of Building 1, there is a former detention basin with a length of approximately 380 feet and a width ranging between about 40 and 80 feet (see Cross Section B-B', Figure A-2d). There is also a water pond encroaching approximately 150 feet within the footprint of the proposed Building 1 (see Cross Section A-A', Figure A-2c, in Appendix A). This water pond is about 80 to 100 feet wide and 200 feet long. The water pond stands about 12 to 20 feet below the high adjacent grades and contains trash and vegetation along most of its perimeter. There is a relatively low area east of the pond.

At the west end of Building 2, there are two water ponds encroaching within the footprint of the building (see blue highlighting on Figure A-2b and A-2f). These ponds, which are located east of Mountain Avenue, retain storm water for several months of the year until the water evaporates. These two ponds are separated by a driveway running east-west. The northern pond measures about 45 by 190 feet in plan and has a depth of 10 to 12 feet and the southern pond is about 80 to 100 feet wide and approximately 190 feet in long and has a depth similar to the northern pond.

During the recent field exploration, the water had evaporated from all the ponds and test pits were excavated in the three ponds. Two test pits were previously excavated within the desilting basin southeast corner of Building 1. The estimated depth of removal presented in the table below are based on our evaluation of the test pit data. The actual depth of removal may vary depending upon the conditions observed at the time of grading.

Pond/Basin Location	Test Pit No.	Anticipated Removal *Depth (feet)
East of Building 1	TP-68	11+
Southeast Corner of Building 1	TP-14 and TP-15	15+
West end of Bldg 2, north pond	TP-67	4+
West end of Bldg 2, south pond	TP-66	4+

*Based on the lowest portion of the pond. Exact depth to be determined at time of construction

Groundwater should be anticipated during the removal operation within the two ponds adjacent to Building 1. During and/or shortly after the rainy seasons, groundwater may also be encountered in the other ponds. The total fill depths above the existing pond bottoms are anticipated to be approximately 26 feet for the pond encroaching on the east end of Building 1, about 10 feet for the desilting pond at the southeast corner of Building 1 and 21 feet for the two ponds encroaching on the west end of Building 2.

The bottom of these ponds is anticipated to be "pumping" under the weight of rubber tire equipment. Track mounted backhoes or excavators are recommended for the bottom excavation of these ponds. To stabilize the subgrade for compaction purpose, we recommend placement of 18 inches of ³/₄- inch crushed rock wrapped with filter fabric (placed above and below the rock). The intent of the crushed rock is not only to stabilize the bottom for compaction purpose but also to provide a drainage path to enhance consolidation of the soils.

Considering the removal depths, the thickness of fill for these ponds will be in the range of about 20 to 30 feet. In order to reduce differential settlement, we suggest overexcavating, backfilling, and raising the grades to quasi final grades within the existing pond areas during the first phase of grading (at the beginning of grading) to accommodate as much settlement as possible before completing the project grading. For the pond encroaching on the east end of Building 1, to accelerate consolidation settlement, we recommend surcharging the pond area with about 10 feet of soil stockpile. We recommend installing two settlement monuments and to monitor the rate of settlement to determine the most appropriate time to remove the stockpile since we cannot accurately predict the amount of time required for settlement (a rough estimate is 6 months for about one half the anticipated settlement since not all settlement needs to occur). Because consolidation settlement depends on subsurface drainage and time, the surcharge load would have

to be doubled to reduce the estimated time to 4 months. The following table indicates roughly the anticipated surcharge depth versus time. The actual surcharge duration required should be based on settlement monitoring.

Estimated Duration (month)	6	51/2	4	31/2
Minimum Surcharge Depth (ft)	10	15	20	25

Surcharge Parameters

12.4 General Grading Requirements

- 1. All fill, unless otherwise specifically stated in the report, should be compacted to at least 90 percent of the maximum dry density as determined by ASTM D1557 Method of Soil Compaction for clay soils and 95 percent relative compaction for sand and other granular soils.
- 2. No fill should be placed until the area to receive the fill has been adequately prepared and approved by the Geotechnical Consultant or his representative.
- 3. Fill soils should be kept free of debris and organic material.
- 4. Rocks or hard fragments larger than 4 inches may not be placed in the fill without approval of the Geotechnical Consultant or his representative, and in a manner specified for each occurrence. There should not be any concentrations of particles sizes of 2 inches or greater; proper mixing should be performed. If encountered, oversize materials should be disposed outside the structural fill and flatwork areas at the locations designated by the Engineer.
- 5. The fill material should be placed in lifts which, when loose, should not exceed 8 inches per lift. Each lift should be spread evenly and should be thoroughly mixed during the spreading operation to obtain uniformity of material and moisture.
- 6. When the moisture content of the fill material is lower than the specified value or is too low to obtain adequate compaction, water should be added and thoroughly dispersed until the soil has a moisture within 2½ percent of optimum moisture content for sand material and 125 percent of optimum for clay soils placed 6 feet below finish subgrade and 130 percent of optimum for clay soil placed within 6 feet of finish subgrade unless indicated otherwise in this report and/or by the Geotechnical Engineer at the time of construction. The moisture content of finished clay subgrade should be maintained until the time of hardscaping by frequent watering or by covering the surface with visqueen, granular material or other methods as agreed upon by the owner representative. The moisture content should be checked for compliance prior to construction above the subgrade.
- 7. When the moisture content of the fill material is too high to obtain adequate compaction, the fill material should be aerated by blading or other satisfactory methods until the soil has a moisture content as specified herein.
- 8. Permanent fill and cut slopes should not be constructed at gradients steeper than 2:1(H: V).

Based on the few maximum density tests performed to date, the optimum moisture contents of the onsite clay soils appear to be predominantly in the range of 11 to 15 percent. It should be noted that some of the clay soils have a high degree of saturation and moisture contents about 5 to 12 percent above optimum and outside the compactable moisture range. The contractor will have to select appropriate excavation and compaction equipment to avoid disturbing the high moisture content subgrade soils and to be able to compact the fill to the project specifications above relatively soft subgrade. Any scarified clay soils must be compacted to at least 90 percent relative compaction as determined by ASTM D1557.

12.5 Fill Materials

12.5.1. Onsite Materials

The onsite shallow clay soils encountered in the borings and test pits are considered to have a low to very high expansion potential. In general, the soils with high expansion potential should not be re-used as backfill within the upper 6 feet of finished subgrade (at least 4 feet below footings and 4 feet below flatwork subgrade). The clay soils with low to moderate expansion potential are considered suitable for backfilling purpose at shallow depths provided they are free of deleterious and oversize materials and are properly processed and moisture conditioned. Import materials will also be needed for backfilling purpose.

Overexcavation and re-compaction will induce fill shrinkage. Many factors such as mixing, relative compaction of the fill, and topographic approximations will affect shrinkage. We cannot estimate the exact amount of shrinkage; however, in our opinion, the shrinkage may be on the order of 15 percent for existing soils excavated and recompacted to 90 percent relative compaction. This estimate does not include the material that will be required to fill in the excavations after the removal of any subsurface structures from the prior use of the site and removal of topsoil.

12.5.2. Import

Import materials should contain sufficient fines (binder material) to be relatively impermeable and result in a stable subgrade when compacted. Soils with high expansion potential expansion are not recommended for import. Where possible, the imported materials should have an expansion index (EI) less than about 80 and should be free of organic materials, debris, and cobbles larger than 4 inches. Selective grading is suggested to place the better import materials (lower expansion) within

the upper portion of the fill below building areas (at least 4 feet below footings and at least 5 feet away from the buildings) and to place the less desirable import material (more clayey and higher expansion) below parking lots, driveways, and other areas as designated by the owner representative. The contractor should also consider that some of the better soils may be encountered at shallow depths in the borrow sites, which may affect the grading sequence. A bulk sample of potential import material, weighing at least 35 pounds, should be submitted to the Geotechnical Consultant at least 48 hours before fill operations. Other than aggregate base and bedding sand, all proposed import materials should be tested for corrosivity, should be environmentally cleared from contamination and should be approved by the Geotechnical Consultant prior to being imported onsite.

12.6 Temporary Excavations

Temporary excavations adjacent to un-surcharged areas are anticipated to be stable vertically to a depth up to 5 feet in fill and alluvium. For deeper excavations up to a depth of 8 feet, we recommend a gradient no steeper than ³/₄:1 (H:V) for unsurcharged excavations unless shoring is used.

The tops of slopes should be barricaded to prevent vehicles and storage loads within 6 feet of the tops of slopes or within ½ the slope height, whichever is greater. A greater setback may be necessary when considering heavy vehicles, such as concrete trucks and cranes; we should be advised of such heavy vehicle loadings so that specific setback requirements can be established. When excavating adjacent to existing footings or building supports, proper means should be employed to prevent any possible damage to the existing structure. Un-shored excavations should not extend below a 1¼:1 (H:V) plane extending downward from the lower edge of adjacent footings and should start at least 2 feet away from the footing edge. Where there is insufficient space to slope back an excavation, shoring may be required. All regulations of State and Federal OSHA should be followed.

Temporary excavations are assumed to be those that will remain un-shored for a period of time not exceeding one week. In dry weather, the excavation slopes should be kept moist, but not soaked. If excavations are made during the rainy season (normally from November through April), particular care should be taken to protect slopes against erosion. Mitigative measures, such as installation of berms, plastic sheeting, or other devices, may be warranted to prevent surface water from flowing over or ponding at the top of excavations.

12.7 Floor Slabs

12.7.1. General

We understand that 7-inch thick slabs with 4000 psi concrete will be used for the building floors. We also anticipate that 6 inches of crushed miscellaneous aggregate base will be placed below the building slabs.

The building code requires minimum slab reinforcement consisting of #3 bars at 18 inches on center both directions when a slab is supported on soils with an expansion index greater than 20. In addition, the soils should be moisture conditioned to at least 130 percent of optimum as indicated in the grading section of this report unless indicated otherwise by the Geotechnical Engineer at the time of construction. The subgrade moisture content should be re-tested and confirmed within 48 hours prior to placement of the aggregate base.

12.7.2 Moisture Sensitive Floor Covering

Water vapor transmitted through floor slabs is a common cause of floor covering problems. In areas where moisture-sensitive floor coverings (such as tile, hardwood floors, linoleum or carpeting) are planned, a vapor retarder should be installed below the concrete slab to reduce excess vapor transmission through the slab.

The function of the recommended impermeable membrane (vapor retarder) is to reduce the amount of soil moisture or water vapor that is transmitted through the floor slab. The membrane should be at least 15-mil thick Stego Wrap, Class A, and care should be taken to preserve the continuity and integrity of the membrane beneath the floor slab. The vapor retarder should conform to ASTM E1745.

Another factor affecting vapor transmission through floor slabs is the water to cement ratio in the concrete used for the floor slab. A high water to cement ratio increases the porosity of the concrete, thereby facilitating the transmission of water vapor through the slab. The project Structural Engineer should provide recommendations for design of building slabs in accordance with the latest version of the applicable codes. We recommend a concrete with a water cement ratio not exceeding 0.45. The placement of sand above the vapor retarder is the purview of the Structural Engineer.

12.8 Seismic Coefficients

Under the Earthquake Design Regulations of Chapter 16A, Section 1613A of the CBC 2016, and based on the mapped values, the coefficients and factors presented in Table 6 were calculated using the USGS web site (refer to Figure A-6 in Appendix A).

The site class is determined in accordance with ASCE 7 Chapter 20 using shear wave velocity, SPT blow count or undrained shear strength. For a site to be classified as Site Class D the weighted average SPT blow count should be between 15 and 50 and the average weighted undrained shear strength should be between 1,000 and 2,000 psf within the upper 100 feet of soil. The SPT blow count test results presented on the boring logs indicate that the requirements for Class D are met.

Site Class (CBC 2016 – 1613A.3.2)	D
Seismic Design Category based on Occupancy Category III	D
(CBC 2016-1604A.5 &1613A.3.5)	D
Mapped Acceleration Parameter for Short Period (0.2 Second), S _S	2.001
Mapped Acceleration Parameter for 1.0 Second, S ₁	0.732
Adjusted Maximum Spectral Response Parameter for	2 001
Short Period (0.2 Second), S _{MS}	2.001
Adjusted Maximum Spectral Response Parameter for	1 099
1.0 Second Period, S _{M1}	1.077
Design Spectral Response Acceleration Parameter, S _{DS}	1.334
Design Spectral Response Acceleration Parameter, S _{D1}	0.732
Peak Ground Acceleration (PGA _M)	0.718

Table 6 – Seismic Coefficients and Factors

Project Site Coordinates: Longitude: W117.66298° Latitude: N33.957164° (WGS84)

12.9 Shallow Foundations

<u>General</u>: For the purpose of preparing this report, we assumed that the proposed building structure will impose maximum column load of about 95 kips and wall loads less than 8 kips per lineal foot. The recommendations for preparation of the subgrade underlying the footings are provided in the

"Earthwork" Section of this report. The Structural Engineer should design foundations in accordance with the requirements of the applicable building code.

Footings should have a minimum width of 2 feet for isolated footings and 18 inches for continuous footings. The bottom of building footings should be located at least 36 inches below the lowest adjacent finish grade, and reinforcement should consist of a minimum of two No.5 bars, top and bottom or equivalent as determined by the Structural Engineer.

The proposed building structures may be supported on isolated and/or strip footings designed using a net allowable bearing pressure of 2,250 pounds per square foot (psf) for footings supported on at least 3½ feet of engineered fill as indicated in the grading section of this report and embedded at least 3 feet below the lowest adjacent grade. A one-third increase in the bearing value may be used when considering wind or seismic loads. In the event of new footings located within one footing width of an existing footing, we recommend reducing the bearing pressure of the new footing by 30 percent.

Minor footings may be required for low height exterior landscape walls (4 feet or less in height), or other small ancillary structures. These footings should be supported on at least 2¹/₂ feet of new engineered fill and should be embedded at least 24 inches. A vertical bearing pressure of 2,000 psf may be used for these footings.

Lateral Resistance of Footings: Lateral load resistance may be derived from passive resistance along the vertical sides of the foundations, friction acting at the base of the foundations, or a combination of the two. A coefficient of friction of 0.30 may be used between the footings, floor slabs, and the supporting soils comprised of engineered fill. Where a vapor retarder is used below the slab, the friction coefficient should not exceed 0.12. The passive resistance of level properly compacted fill soils in direct contact with the footings may be assumed to be equal to the pressure developed by a fluid with a density of 200 pcf, to a maximum pressure of 2,000 psf. A one-third increase in the passive value may be used for wind or seismic loads. The frictional resistance and the passive resistance of the soils may be combined provided that the passive resistance is reduced by one third. We recommend that the first foot of soil cover be neglected in the passive resistance calculations if the ground surface is not protected from erosion or disturbance by a slab, pavement or in a similar manner.

Estimated Settlement of Footings: Based on the results of our analyses and provided that our recommendations in preceding sections of this report are followed, we estimate that once the settlement due to fill placement has occurred, the total static settlement of isolated and/or strip footings under sustained loads will be on the order of 1 inch for the anticipated maximum structural load. The maximum static differential settlement due to building loading, over a horizontal distance of 20 feet, is anticipated to be on the order of $\frac{1}{2}$ inch for similarly loaded footings. The differential settlement during the design seismic event is anticipated to be on the order of $\frac{1}{4}$ inch between adjacent columns located 30 feet apart.

The settlement during fill placement is anticipated to be on the order of 1 to $2\frac{1}{2}$ inches depending upon the fill thickness except for the areas of deep ponds where the settlement is anticipated to be on the order of 3 to 5 inches. Except for the pond areas, a large portion of the calculated settlement is anticipated to have occurred one month following grading.

12.10 Retaining Wall

We have assumed that retaining walls will have a maximum height of 12 feet as shown on the drawings along the eastern portion of Building 2. Design earth pressures for retaining walls depend primarily on the allowable wall movement, wall inclination, type of backfill materials, backfill slopes, surcharges, and drainage. The earth pressures provided assume that non-expansive soil backfill will be used and a drainage system will be installed behind the walls so that hydrostatic pressure will not develop. If a drainage system is not installed, the cantilever level-backfilled walls, under static conditions, should be designed to resist a hydrostatic pressure equal to that developed by a fluid with a density of 90 pcf for the full height of the wall.

Determination of whether the active or at-rest condition is appropriate for design will depend on the flexibility of the wall. Walls that are free to rotate at least 0.002 radians (deflection at the top of the wall of at least 0.002 x H, where H is the unbalanced wall height) may be designed for the active condition. Walls that are not capable of this movement should be assumed rigid and designed for the at-rest conditions. Assuming that the backfill behind the retaining walls will consist of import sand, the recommended static active and at-rest earth pressures are as follow.

Wall Movement	Backfill Condition	Equivalent Fluid Pressure
Free to Deflect	Level	45
Restrained	Level	65

Table 7 - Earth Pressures for Retaining Walls

The above lateral earth pressures do not include the effects of surcharge (e.g., traffic, footings, sloping ground) or compaction-induced wall pressures. Any surcharge (live, including traffic, dead load, or slope) located within a 1:1 plane drawn upward from the base of the excavation should be added to the lateral earth pressures. The lateral contribution of a uniform surcharge load located immediately behind walls may be calculated by multiplying the surcharge by 0.33 for cantilevered walls and 0.5 for restrained walls. For vehicular surcharge, adjacent to driveways or parking areas a uniform lateral pressure of 100 pounds per square foot, acting as a result of an assumed 300 pounds per square foot traffic surcharge should be used. The onsite clay soils should not be used as backfill for the walls unless the soil expansion is considered in the design due to an increase of lateral pressure.

Walls should be waterproofed using appropriate membranes, and properly drained or designed to resist hydrostatic pressures. The waterproofing membrane should be covered with a protection board or equivalent to prevent perforation during backfilling.

Except for the upper $1\frac{1}{2}$ feet, the backfill immediately behind retaining walls (minimum horizontal distance of 12 inches measured perpendicular to the wall) should consist of free-draining $\frac{3}{4}$ -inch crushed rock wrapped with filter fabric. The upper $1\frac{1}{2}$ feet of cover backfill should consist of relatively impervious onsite material. A 4-inch diameter perforated PVC pipe, placed perforations down at the bottom of the crushed rock layer, leading to a suitable gravity outlet, should be installed at the base of the walls. Geocomposite panel drains may be used as an alternative to extending the crushed rock to within $1\frac{1}{2}$ feet of the ground surface for the wall drain. With wall drain panels, the 4-inch diameter perforated pipe located at the heel of the wall/footing should be surrounded with one cubic foot of $\frac{3}{4}$ -inch crushed rock. All drainage should be directed to the street or to a storm drain in non-erosive devices.

In the event of a large earthquake, the lateral earth pressure on walls may be significant. When combining both static and seismic lateral earth pressures, a decreased factor of safety may be used in the design of retaining walls when checking for sliding and overturning stability. For cantilever walls, we have calculated the seismic increment of lateral pressure using the Mononobe-Okabe equation assuming the seismic coefficient to be 1/3 of the peak acceleration (PGA_M). We suggest using a dynamic earth pressure increment of 30 psf/ft for cantilever yielding walls with level backfill assuming the walls will not exceed 10 feet in height. The pressure should be taken as an inverted triangular distribution with the zero pressure point at the toe of the wall and 30 H (psf where H in feet) at the top of the wall, where H is the wall height in feet. The point of application of the dynamic thrust may be taken at 0.6H above the toe of the wall. The Structural Engineer should determine if a seismic increment of lateral earth pressure is applicable based on wall heights and allowable wall movements.

The proposed wall along the east property line is located above a 10 to 13-foot high slope. Due to the proximity of the slope and expansive soils, we recommend a footing embedment of at least 3 feet; the edge of the footing should be located at least 6 feet from the slope face. The passive pressure should be reduced to 120 pcf due to the slope proximity and the presence of expansive soils. The thickness of engineered fill below wall footings should be at least 3 feet. It appears that portions of the slopes were constructed without placing and compacting the fill in thin lifts and without appropriate compaction, and the soils were found to be loose/soft. Deep removal should be anticipated along large portions of the slopes. All undocumented fill should be removed in the vicinity of the retaining walls and slopes.

12.11 Utility Trench Backfill

Bedding material surrounding utility lines and extending to a point 12 inches above the lines should consist of non-expansive soil to support and/or to protect the lines. Where bedding is required, a minimum of 4-inch thick bedding material should be placed below the bottom of the utility lines, on a firm and unyielding subgrade. The bedding material should meet the specifications provided in the latest edition of the "Standard Specifications for Public Works Construction" (Greenbook).

Above the bedding, up to finished subgrade in areas other than landscape and up to one foot below flatworks and pavements, utility trenches should be backfilled with onsite materials or imported

materials with a low expansion potential and mechanically compacted to at least 90% of the maximum dry density of the soils.

For utility trenches within the building areas, the backfill should be compacted to the minimum required relative compaction indicated under the "Grading" Section of this report. The backfill material should be observed, tested and approved by the Geotechnical Consultant.

When adjacent to any footings, utility trenches and pipes should be laid above an imaginary line measured at a gradient of $1\frac{1}{2}$ (H:V) projected down from the bottom edges of any footings. Otherwise, the pipe should be designed to accept the lateral effect from the footing load, or the footing bottom should be deepened as needed to comply with this requirement. Backfill consisting of 2-sack sand cement slurry may also be used.

12.12 Drainage

Foundation, slab, flatwork, and pavement performance depends greatly on proper drainage within and along the boundary of the improvements. Perimeter grades surrounding any type of structures should be sloped in a manner allowing water to drain away from the structure and not pond next to the foundations. Per the 2016 CBC, landscape areas within 10 feet of structures should slope away at gradients of at least 5 percent. Paved areas within 10 feet of structures should slope away at gradients of at least 2 percent. Proper drainage is recommended for all surfaces to reduce the risk of soil movement due to soil expansion.

Common measures to mitigate expansion risk include removal of the more susceptible material and recompaction, preventing and repairing promptly utility line leaks, maintaining site drainage and drainage devices, and proper management of landscape watering to reduce the likelihood of water infiltrating deeper materials. To reduce the potential for overwatering, irrigation should be performed under the management of experienced landscape architects, and not under the control of a landscape contractor.

12.13 Percolation Testing

Three percolation tests were performed; one located near the west side of Detention Basin A, south of Building 2, and two percolation tests within the WQ Basin B. The drilling for the holes and

percolation testing were performed on a sunny day. No significant rain had occurred for several weeks prior to percolation testing. The depths of the holes for the three percolation tests were 20, 15 and 22 feet.

Since the County of San Bernardino does not have specific infiltration test procedures for storm water disposal, Koury performed the tests in substantial conformance with the boring percolation test procedures of the County of Riverside as defined in County Document, Riverside County – Low Impact Development BMP Design Handbook, Rev. 9/2011. The test procedures consisted of drilling 8-inch diameter boreholes to the test depths and placing a 2-inch layer of filter gravel at the bottom of the holes. We also placed a 3½-inch diameter perforated pipe in the holes and backfilled the annulus with clean gravel to avoid caving in the test zone. The procedure involved pre-soaking the percolation zone prior to testing. Following presoaking, the infiltration testing began by filling the bottom of the holes with water and measuring the drop-in water level. For the percolation tests, the water column height in P-1, P-2 and P-3 was about 5, 2½ and 8½ feet, respectively. Based on the infiltration rate during the presoaking period, we selected measuring intervals of 10 and 30 minutes per the test method. The water level drop measurements were repeated several times until consistent results were noted.

The in-situ field percolation tests performed provide short-term percolation rates, which apply mainly to the initiation of the infiltration process due to the short time of the test (minutes to hours instead of days) and the amount of water used. Where appropriate, the short-term infiltration rates should be converted to long-term infiltration rates using reduction factors ranging from 3 to 12 depending upon the degree of infiltrate quality, maintenance access and frequency, site variability, subsurface stratigraphy variation, hydraulic gradient, volume of water to be disposed of and other factors. The small-scale percolation testing cannot model the complexity of the effect of interbedded layers of different soil composition and our test results should be considered index values of infiltration rate.

We have applied a correction factor of 4 and calculated long-term infiltration rates of the percolation tests. For percolation tests P-2 and P-3, the estimated percolation rates are negligible. For percolation test P-1, the long-term rate of infiltration is on the order of 0.3 in/hr or less. The calculations are presented in Appendix C. Based on the boring logs, the

fines contents of the soils are high and a low infiltration rate should be expected. The boring logs presented in Appendix B indicate the fines contents of the soils for different depths.

Other Geotechnical Considerations

The areas of the percolation tests were found to be underlain by alluvium materials consisting predominantly of clay at shallow depth, which are relatively impervious and are not conducive to infiltration and other methods of storm water disposal should be considered (e.g. bioswale). Groundwater was encountered at relatively shallow depths in the proposed WQ Basin. Therefore, onsite infiltration is not considered practical.

12.14 Asphalt Concrete (AC) Pavement

The required pavement structural sections depend on the expected wheel loads, volume of traffic, and subgrade soils. The characteristics of subgrade soils are determined by R-value testing. Based on soil classification and laboratory testing results, an R-value of 5 was selected for pavement design. The R-value may be confirmed by additional testing once pavement subgrade level has been reached, if necessary, at the time of construction. The following pavement sections were calculated based on assumed traffic indices of 4, 5, 6 and 7. The project Civil Engineer should determine the traffic index to be used for different areas of the site.

Traffic Index	Asphalt Thickness (Inches)	Base Course (CAB) Thickness (Inches)
4	3.0	7.0
5	3.0	10.0
6	3.5	13.0
7	4.0	15.0

Table 8 – Alternative Pavement Sections for Vehicular Traffic

Base course material should consist of Crushed Aggregate Base (CAB) as defined by Section 200-2.2 of the Standard Specifications for Public Works Construction ("Greenbook"). Base course and asphalt concrete should be compacted to at least 95 percent of the maximum dry density of that material. Crushed Miscellaneous Base (CMB) may be used only if the supplier can demonstrate that the aggregate does not contain contaminated material and provide documentation to that effect.

The subgrade underlying the pavement areas should be prepared as discussed under the grading section of this report to remove all soft and dry soils present at subgrade level. Prior to fill placement, the exposed surface should be scarified to a minimum depth of 8 inches, moisture conditioned and compacted to at least 90% of the maximum dry density obtained per ASTM D1557. The subgrade should be in a "non-pumping" condition at the time of compaction. Prior to placement of the aggregate base, the moisture content of the upper foot of clay subgrade should be verified to be at least 125 percent of optimum moisture unless approved otherwise by the Geotechnical Engineer.

Any onsite surficial organic soils within landscaped/turf areas should not be used as subgrade materials. Where feasible, the overexcavation should be laterally extended a minimum of 2 feet beyond the perimeters and edges of parking areas, roadways and curbs. Any abandoned footing and/or underground concrete structure within the work limit should be removed entirely and the excavation should be backfilled to grade.

In order to increase pavement performance and extend the pavement life, concrete curbs and gutters could be deepened to extend below the base course material and be seated in the compacted subgrade. Priority should be given to areas where heavier traffic is anticipated and where irrigation may be greater. The intent of deepening the curbs and gutters is to form a "cut-off" wall to reduce the amount of water flow through the base course material from adjacent landscaped areas. Subgrade soils, which become soaked as a result of water flowing through base course material, can reduce the life of the pavement and cause heaving of the pavement. The curbs should be deepened to an elevation of at least 6 inches below the bottom level of the proposed base course section. Proper pavement surface drainage and maintenance is important since longer lasting pavements are associated with soils that do not become excessively moist or soils that have a low expansion potential below the aggregate base.

12.15 Portland Cement Concrete (PCC) Vehicular Pavement

The grading recommendations for vehicular PCC pavement are provided in Section 12.2 of this report. Base course material used in the pavement sections should consist of Crushed Aggregate Page 29 of 35

Base (CAB) as defined by Section 200-2.2 of the Standard Specifications for Public Works Construction (Greenbook 2018) or by Crushed Miscellaneous Base (CMB), as defined by Section 200-2.4 of the Greenbook. The aggregate base course should be compacted to at least 95% of the maximum dry density of that material. Better pavement performance is anticipated where the soils immediately below the aggregate base are prevented from gaining moisture.

The subgrade underlying the pavement areas should be prepared as discussed under the grading section of this report to remove all soft and dry soils present at subgrade level. Prior to placement of the aggregate base, the moisture content of the upper foot of clay subgrade should be verified to be at least 130 percent of optimum moisture unless approved otherwise by the Geotechnical Engineer. The subgrade should be in a "non-pumping" condition at the time of aggregate base placement.

The recommendations presented herein should be used for design and construction of the slabs and pertaining grading work underlying vehicular pavement areas. A minimum modulus of rupture of 550 psi for concrete has been assumed in designing of the PCC pavement sections; this corresponds to a concrete compressive strength of approximately 4,000 psi at 28 days. A qualified design professional should specify traffic index for different areas of the site.

Traffic Index	Portland Cement Concrete Thickness (inches)	Base Course (CAB) Thickness (inches)
4	6.5	4.0
5	7.0	4.0
6	7.5	4.0
7	8.0	4.0

Table 9 - PCC Pavement Sections

The following recommendations should also be incorporated into the design and construction of PCC pavement sections:

• The pavement sections should be reinforced at the discretion of the owner with No. 3 rebar spaced at 18 inches on centers each way to reduce the amount of shrinkage cracking.

- Joint spacing in feet should not exceed twice the slab thickness in inches, e.g., 10 feet for a 5inch thick slab. Regardless of slab thickness, joint spacing should not exceed 10 feet due to the presence of expansive soil.
- Layout joints should form square panels. When this is not practical, rectangular panels can be used if the long dimension is no more than 1.5 times the short one.
- Control joints should have a depth of at least 1/4 the slab thickness, e.g., 1 inch for a 4-inch thick slab.
- Where the pavement does not abut against a curb or gutter, an 8-inch thickened edge should be constructed if landscaping is anticipated.
- Pavement section design assumes that proper maintenance such as sealing, and repair of localized distress will be performed on a periodic basis to prevent the subgrade soils to gain moisture.

Exterior concrete slabs for pedestrian traffic or landscape should be at least four inches thick. Weakened plane joints should be located at intervals of no more than about 6 feet unless slabs thicker than 4 inches are used. A thickened edge (10-inch deep) is recommended at the exterior edge of the flatwork adjacent to landscape subject to irrigation. The upper 18 inches of the clay subgrade should have a moisture content of at least 130 percent of optimum prior to placement of the granular soils. The concrete strength for pedestrian walkways should be at least 2,500 psi unless determined otherwise by the Structural Engineer.

13. SOIL EXPANSIVITY

The subsurface soils encountered in our borings and test pits consist mostly of lean to fat clay. These types of material generally have a moderate to very high susceptibility to expansion when facing seasonal cycles of saturation/desiccation. The expansion index test indicated a range between about 20 and 162 with an average of about 79, which is generally considered a moderate to high expansion potential. The plasticity index test also indicated a moderate expansion potential; however, the expansion potential should be expected to vary throughout the site. As such, the recommendations provided in this report regarding drainage system, moisture content during compaction, presoaking if needed, the use of sand/aggregate base blankets and other pertinent recommendations for site improvements should be incorporated into the design and construction.

14. SOIL CORROSIVITY

The corrosion potential of the onsite materials to steel and buried concrete was preliminarily evaluated. Laboratory testing was performed on selected soil samples to evaluate pH, minimum resistivity, chloride and soluble sulfate content. These tests are only an indicator of soil corrosivity for the samples tested. Other soils found on site may be more, less, or of a similar corrosive nature. Imported fill materials should be tested to confirm that their corrosion potential is not significantly more severe than those noted. The test results are presented in the following table.

Boring	Depth (ft)	Minimum Resistivity (ohm-cm)	рН	Soluble Sulfate Content (ppm)	Soluble Chloride Content (ppm)
B-6	0-2	288	8.2	819	910
TP-4	2.5 - 3	1,550	7.4	112	65
B-18	0-2	1,770	7.9	147	25
B-23	2-4	1,740	7.8	215	45
TP-27	3.5 – 4.2	1,310	8.5	226	145

Table 10 - Corrosion Test Results

Based on the minimum resistivity results, some of the near-surface site soils are severely corrosive towards buried ferrous metals. The concentrations of soluble sulfates indicate that the potential of sulfate attack on concrete in contact with the onsite soils is "negligible" based on ACI 318 Table 4.3.1. Cement Type II may be used in the concrete. Maximum water-cement ratios are not specified for the sulfate concentrations; however, the Structural Engineer should select a concrete with appropriate strength.

Further interpretation of the corrosivity test results, including the resistivity value, and providing corrosion design and construction recommendations are the purview of a corrosion specialists/consultants.

15. OBSERVATION AND TESTING

This report has been prepared assuming that Koury Engineering & Testing, Inc. will perform all geotechnical-related field observations and testing. If the recommendations presented in this report

are utilized, and observation of the geotechnical work is performed by others, the party performing the observations must review this report and assume responsibility for the recommendations contained herein. That party would then assume the title of "Geotechnical Consultant of Record". A representative of the Geotechnical Consultant should be present to observe all grading operations as well as all footing excavations. The proposed import soils should be tested prior to transportation on site.

16. CLOSURE

The findings and recommendations presented in this report were based on the results of our field and laboratory investigations, combined with professional engineering experience and judgment. The report was prepared in accordance with generally accepted engineering principles and practice. We make no other warranty, either expressed or implied. Subsurface variations between borings and test pits should be anticipated. Koury should be notified if subsurface conditions are encountered, which differ from those described in this report since updated recommendations may be required. Samples obtained during this investigation will be retained in our laboratory for a period of 45 days from the date of this report and will be disposed after this period.

Should you have any questions concerning this submittal, or the recommendations contained herewith, please do not hesitate to call our office.

Respectfully submitted,

KOURY ENGINEERING & TESTING, INC.

Jacques B. Roy P.E. G.E.

Principal Geotechnical Engineer



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APPENDICES

Appendix A: Maps and Plans

Vicinity Map – Figure A-1 Field Exploration Points – Figures A-2a and A-2b Cross Section A-A' – Figure A-2c Preliminary Remedial Grading Maps – Figure A-2d and A-2e Geology Map – Figure A-3 Fault Map – Figure A-4 Flood Map – Figure A-5 Response Spectrum – Figure A-6

Appendix B: Field Exploratory Boring and Test Pit Logs

Borings B-1 through B-28

Test Pits 1 through 72 (Test Pit 34 was omitted)

Appendix C: Laboratory Test Results and Calculations

REFERENCES

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- 6. US Army Corps of Engineers, Laboratory Soils Testing, Engineering Manual EM 1110-2-1906, dated 8/26/86.
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- 10. US Army Corps of Engineers, Slope Stability, Engineering Manual EM 1110-2-1902, dated 10/31/2003.
- 11. US Army Corps of Engineers, Groundwater Hydrology, Engineering Manual EM 1110-2-1421, dated 02/28/1999.
- United States Geological Survey, 2006, Geology Map of the San Bernardino & Santa Ana 30' X 60' Quadrangles, California, Version 1.0, compiled by Douglas M. Morton et al, 2006.
- 13. United States Geological Survey, 2015, Prado Dam Quadrangle, 7.5-Minute Series (Topographic) map Quadrangle, California.
- 14. USGS, U. S. Seismic Design Maps, Web Site <u>http://earthquake.usgs.gov/designmaps/</u>us/application.php.
- 15. USGS, Earthquake Hazards Program, Unified Hazard Tool, Web Site <u>http://earthquake.usgs.gov/hazards/interactive/.</u>

APPENDIX A

Maps and Drawings











S ----> N





	Figure:
on B-B'	A-2d





			Qyf _{3a}		
	Cyaa 14		yaa		
Tpsc // Tpsc /	Qvota Qvota Qvfsa Qvfsa				
Tpy	To the second se			Qvofa	Qvoa _a
				15	
			R3D Qyaa		
LEGEND Young alluvial-valley depo Reference: Geologic Map of the San Be	osits Very old alluvial-fan deposits	ion 1.0 Compiled I	by Douglas M. Morton an	0 1	2 Mile N
	Project Name:	Project No.:	18-0817	Drawing Title:	Figure:
ENGINEERING & TESTING, INC.	OC Prado Construction Level Study	Date:	October 2018	Geology Map	A-3



EXPLANATION

Fault traces on land are indicated by solid lines where well located, by dashed lines where approximately located or inferred, and by dotted lines where concealed by younger rocks or by lakes or bays. Fault traces are queried where continuation or existence is uncertain. Concealed faults in the Great Valley are based on maps of selected subsurface horizons, so locations shown are approximate and may indicate structural trend only. All offshore faults based on seismic reflection profile records are shown as solid lines where well defined, dashed where inferred, queried where uncertain.

ENGINEERING & TESTING, INC.	OC Prado	Data: Octo	bor 2019	Fault Map Legend	A-4a
KOURY	Project Name:	Project No.:	18-0817	Drawing Title:	Figure:
	San Andreas faults	meny locally up to I		ated with the releasing step between	i me imperial and
	rocks.	nicity locally up to 1	0 km wide essesi	ated with the releasing step between	the Imperial and
??	ment, and pertinent references including Ear Fault Zoning Act. This Act requires the State	thquake Fault Zone is e Geolo- gist to delin	maps where a faul eate zones to enco	t has been zoned by the Alquist-Pric ompass faults with Holocene displac	blo Earthquake ement.
AQ1	Numbers refer to annotations listed in the ap	pendices of the acco	mpanying report.	Annotations include fault name, age	of fault displace-
		OTHER	R SYMBOI	S	
·	.2. Low angle fault (barbs on upper plate). Faul offshore faults barbs simply indicate a rever	lt surface generally d	lips less than 45° l	out locally may have been subseque	ntly steepened. On
	-? - Arrow on fault indicates direction of dip.				
	-? - Arrows along fault indicate relative or appar	ent direction of later	al movement.		
	A		FAULT SY	MBOLS	
	Pre-Quaternary fault (older that 1.6 million y category because the source of mapping used	vears) or fault withou d was of reconnaissn	t recognized Quar ce nature, or was	ternary displacement. Some faults an not done with the object of dating fa	re shown in this ult displacements.
	2. Quaternary fault (age undifferentiated). Most years; possible exceptions are faults which d based on Fault Map of California, 1975. See	t faults of this catego isplace rocks of undi Bulletin 201, Appen	ry show evidence ifferenti- ated Plio dix D for source of	of displacement some- time during -Pleistocene age. Unnumbered Quat lata.	the past 1.6 millior ternary faults were
	2. Late Quaternary fault displacement (during p cept features are less distinct. Faulting may b	bast 700,000 years). be younger, but lack	Geomorphic evide of younger overly	ence similar to that described for Ho ing deposits precludes more accurat	locene faults ex- e age classification.
	ponds, scarps showing little erosion, or the for es, and triangular faceted spurs. Recency of	ollowing features in faulting offshore is b	Holocene age dep based on the interp	osits: offset stream courses, linear s preted age of the youngest strata disp	carps, shutter ridg- blaced by faulting.
	Holocene fault displacement (during past 11,	,700 years) without h	nistoric record. Ge	omorphic evidence for Holocene fa	ulting includes sag
1969 1968 1 19	causative earthquake indicates where fault creep si causative earthquake indicated. Squares to ri occurred (creep either continuous or intermit	ght and left of date in the second se	that has been trigg ndicate termi- nal nd points).	points between which triggered crea	er fault. Date of ep slippage has
CREEP	tive locations where fault creep has been obs	erved and recorded.			
1992	Fault that exhibits fault creep slippage. Hach	ures indicate linear e	extent of fault cree	ep. Annotation (creep with leader) in	dicates representa-
▶ 1951 ◀	Date bracketed by triangles indicates local fa	ult break.	aala		
1838 ▷ < 1838	location of rupture termination point. Open b	black triangle indicat	es uncertain or est	timated location of rupture terminati	on point.
1906 ► < 1906	A triangle to the right or left of the date indic	cates termination poi	nt of observed sur	face displacement. Solid red triangle	e indicates known
	 (a) a recorded called acc with surface leptic earthquakes, e.g. extensive ground breakage, of the associated earthquake is indicated. Wh movement may be indicated, especially if ea (b) fault creep slippage - slow ground displace (c) displaced survey lines. 	, not on the White W here repeated surface rlier reports are not v cement usually witho	olf fault, caused b ruptures on the sa vell documented a but accompanying	y the Arvin-Tehachapi earthquake o ame fault have occurred, only the da is to location of ground breaks. earthquakes.	f 1952). The date te of the latest
·?	Fault along which historic (last 200 years) di	isplacement has occu	urred and is associ	ated with one or more of the following	ng:
	FAULT CLASSIFICAT	ION COLOR	CODE (Ind	icating Recency of Mov	rement)

October 2018

Date:

Construction Level Study





S s =	2.001 g	S _{мs} =	2.001 g	S _{DS} =	1.334 g
S 1 =	0.732 g	S _{м1} =	1.099 g	S _{D1} =	0.732 g

For information on how the SS and S1 values above have been calculated from probabilistic (risk-targeted) and deterministic ground motions in the direction of maximum horizontal response, please return to the application and select the "2009 NEHRP" building code reference document.



For PGA_M, T_L , C_{RS} , and C_{R1} values, please view the detailed report.

Although this information is a product of the U.S. Geological Survey, we provide no warranty, expressed or implied, as to the accuracy of the data contained therein. This tool is not a substitute for technical subject-matter knowledge.

KOURY	Project Name:	Project No.:	18-0817	Drawing Title:	Figure:
ENGINEERING & TESTING, INC.	OC Prado Construction Level Study	Date: OC	tober 2018	Response Spectrum	A-6

APPENDIX B

Field Exploratory Boring and Test Pit Logs

KEY TO LOGS

SOILS CLASSIFICATION										
	5	GRAPHIC USCS LOG SYMBOL		TYPICAL NAMES						
COARSE GRAINED SOILS	GRAVELS	CLEAN GRAVELS	GW		WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES					
	ONAVEEO	LESS THAN 5% FINES	GP		POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES					
	MORE THAN 50% OF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	GRAVELS WITH FINES		GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES					
		MORE THAN 12% FINES		GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES					
MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	SANDS	CLEAN SANDS		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES					
		LESS THAN 5% FINES		SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES					
	50% OR MORE OF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE	SANDS WITH FINES	SM SILTY SANDS, SAND-SILT MIXTURES		SILTY SANDS, SAND-SILT MIXTURES					
		MORE THAN 12% FINES		SC	CLAYEY SANDS, SAND-CLAY MIXTURES					
FINE GRAINED SOILS	SILTS AND CLAYS			ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY					
	LIQUID LIMIT IS LESS THAN 50			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS					
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY					
50% OR MORE OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS			МН	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR GRAVELLY ELASTIC SILTS					
	LIQUID LIMIT IS 50 OR MORE			СН	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS					
				ОН	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS					
HIGHLY ORGANIC SOILS				PT	PEAT AND OTHER HIGHLY ORGANIC SOILS					

GRAIN SIZES											
	SAND			GRAVEL							
SILT AND CLAT	FINE	MEDIUM	COARSE	FINE	COARSE	COBBLES	BOOLDERS				
	#200	#40	#10	#4	3/4"	3"	12"				
SIEVE SIZES											
KEY TO LOGS (continued)

	SPT/CD BLOW COUNTS VS. CONSISTENCY/DENSITY											
FINE-GRAINED S	OILS (SILT	S, CLAYS, etc.)	GRANULAR SOILS (S	GRANULAR SOILS (SANDS, GRAVELS, etc.)								
CONSISTENCY	*BLC	DWS/FOOT	RELATIVE DENSITY	*BLOWS/F	TOOT							
CONSISTENCT	SPT	CD	RELATIVE DENSIT	SPT	CD							
SOFT	0-4	0-4	VERY LOOSE	0-4	0-8							
FIRM	5-8	5-9	LOOSE	5-10	9-18							
STIFF	9-15	10-18	MEDIUM DENSE	11-30	19-54							
VERY STIFF	16-30	19-39	DENSE	31-50	55-90							
HARD	over 30	over 39	VERY DENSE	over 50	over 90							

* CONVERSION BETWEEN CALIFORNIA DRIVE SAMPLERS (CD) AND STANDARD PENETRATION TEST (SPT) BLOW COUNT HAS BEEN CALCULATED USING "FOUNDATION ENGINEERING HAND BOOK" BY H.Y. FANG. (VALUES ARE FOR 140 Lbs HAMMER WEIGHT ONLY)

DESCRIPTIVE ADJECTIVE VS. PERCENTAGE										
DESCRIPTIVE ADJECTIVE	PERCENTAGE REQUIREMENT									
TRACE	1 - 10%									
LITTLE	10 - 20%									
SOME	20 - 35%									
AND	35 - 50%									

*THE FOLLOWING "DESCRIPTIVE TERMINOLOGY/ RANGES OF MOISTURE CONTENTS" HAVE BEEN USED FOR MOISTURE CLASSIFICATION IN THE LOGS.

APPROXIMATE MOISTURE CONTENT DEFINITION									
DEFINITION	DESCRIPTION								
DRY	Dry to the touch; no observable moisture								
SLIGHTLY MOIST	Some moisture but still a dry appearance								
MOIST	Damp, but no visible water								
VERY MOIST	Enough moisture to wet the hands								
WET	Almost saturated; visible free water								

(RY RING				Project No. : 16-0899 Boring No Project Name : OC Prado Sheet : 1 o Drilling Method : Hollow Stem 8" Auger	.: B-1 f:2
Imple No.	Moisture Intent (%)	Dry Unit ight (pcf)	ows per 6")epth (ft)	iple Location aphic Log	toil Type (USCS)	Sampling Method : Bulk - CD - SPTGround ElevaHammer Weight : 140 lbsDrop Height : 30"Drilling Co. :Location : See Figure A-2Date Drilled :	tion: Geoboden, Inc. 05/17/2017
Sa	2 ° 0	I We	BIG		Gr	S	Description	Additional Tests
1	21.9			0	X		Fill: Sandy Lean CLAY, dry wood chips at the surface	#200 Wash Fines = 73%
2	15.2		3 7 11		X		ALLUVIUM: Sandy Lean CLAY; trace of gravel, very stiff, moist, brown with white inclusions	#200 Wash Fines = 50% PP = 4 tsf
3	23.0	95	4 16 16	5		CL		#200 Wash Fines = 66% PP = 4.5 tsf
4	17.8		3 6 10				Older ALLUVIUM: Sandy Lean CLAY; very stiff, moist, light olive brown	#200 Wash Fines = 51% PP = 4.0 tsf
5	25.7	104	2 7 18			SM	Silty SAND; layers of sandy silt, medium dense, moist to very moist, yellowish brown and pale brown	#200 Wash Fines = 43%
6	25.7		3 5 8			сі/сн	Lean to Fat CLAY; stiff, moist, olive brown	#200 Wash Fines = 85% PP = 3.5 tsf
7	21.6	108	3 9 18	20		CL	Sandy Lean CLAY; very stiff, moist, light olive brown	#200 Wash Fines = 69% PP = 3.5-4 tsf
8	19.4		6 10 17	25 	X			#200 Wash Fines = 70% PP = 3.5-4 tsf
9	34.7	92	6 15 20	30		СН	Fat CLAY; very stiff, moist to very moist, pale brown with some yellowish brown	#200 Wash Fines = 87% PP=3.2-3.5 tsf
10	22.7		7 15 15	35	X	CL	Sandy Lean CLAY; very stiff, moist to very moist, light olive brown with some green	#200 Wash Fines = 61% PP = 3.5 tsf
					Ground	dwater _	Bulk 🕅 CD 🔳 SPT 🔀	

(RY		ļ			Project No. : 18-0817Boring NoProject Name : OC PradoBoring No	.: B-1
	& TES	STING	, INC.					Sheet: 2 o	f:2
	()	f)	-		ion	ũ		Sampling Method : Bulk - CD - SPT Ground Eleva	tion:
le Nc	sture nt (%	Unit t (pc	per (h (ft)	Locat	ic Lo	Type CS)	Hammer Weight : 140 lbs Drop Height : 30" Drilling Co. :	Geoboden, Inc.
amp	Mois ontei	Dry ſeigh	lows	Dept	nple I	iraph	Soil (US	Location : See Figure A-2 Date Drilled :	Additional
<i>.</i> ,	с С	\$	n 15	40	Saı	ъ		Description	Tests #200 Wash
11	20.1		33 50/6"				CL	Layers of sandy silt	Fines = 50% PP = 4.5 tsf
							•-		
			7	45				Fat CLAY; hard, moist to very moist, yellowish brown	#200 Wash
12	28.8		21 33		Х				Fines = 90% PP = 3.5 tsf
							СН		
			12	50 —					#200 Wash
13	29.2	97	17						Fines = 88% PP = 4-4.5 tsf
				55				Silty SAND: lavers of sandy silt, very dense, moist, light olive	//000.1M
14	21.0	111	22 42		Х			brown	#200 Wash Fines = 44%
							SM		
				-					
			12	60			CL	Sandy Lean CLAY: very stiff moist vellowish brown	#200 Wash Fines = 54%
15	20.3		24 50/6"						PP = 4.5 tsf
							ML	Sandy SILT; layers of silty sand, hard, yellowish brown	
10	40.0	400	25	65	$\overline{\mathbf{v}}$			Poorly Graded SAND with SILT; very dense, wet, light olive	#000 \W/
10	10.0	109	44 50/6"		Δ			Brown	#200 wash Fines = 12%
							SP-SM		
			13	70					#200 Wash
17	18.8	109	26 28						Fines = 6%
								End of Boring @ 71' 6" Groundwater encountered @ 32' 6"	
				75					
				80		0			1
						Ground	water _		

$\left(\right)$			RY RING		1.		Project No. : 18-0817 Boring No Project Name : OC Prado Sheet : 1 o	.: B-2 f:2
mple No.	loisture ntent (%)	rry Unit ight (pcf)	ws per 6"	epth (ft)	ole Location Iphic Log	oil Type USCS)	Drilling Method : Hollow Stem 8" Auger Sampling Method : Bulk - CD - SPT Hammer Weight : 140 lbs Drop Height : 30" Drilling Co. : Location : See Figure A-2	tion: Geoboden, Inc. 05/17/2017
Sai	⊆ G	D Wei	Blo	ă	Samp Gra	й С	Description	Additional Tests
1	17.0			0_	X		Fill: Sandy Lean CLAY; trace of gravel, dark brown	#200 Wash Fines = 71%
2	16.5		5 7 9		X		ALLUVIUM: Lean CLAY with SAND; stiff, moist to very moist, concretions, brown with some white	#200 Wash Fines = 85% PP = 4.5 tsf
3	21.8	107	2 5 6	5		CL		#200 Wash Fines = 81% PP=2.5-2.7 tsf
4	23.7		3 3 4		X		Older ALLUVIUM: Sandy Lean CLAY; firm, very moist, brown with some white	#200 Wash Fines = 64% PP = 2.5 tsf
5	36.4	87	3 5 12			сн	Fat CLAY; stiff, moist to very moist, light olive brown	#200 Wash Fines = 78% PP = 2.5-3 tsf
6	20.7		2 6 18	15 	X		Sandy Lean CLAY; stiff to very stiff, moist to very moist, olive brown with some yellowish brown	#200 Wash Fines = 50% PP = 2-2.7 tsf
7	22.8	109	8 14 14	20		CL	Lean CLAY with SAND; very stiff, very moist, olive gray with some yellowish brown	#200 Wash Fines = 78% PP = 3.5 tsf
8	24.4		8 5 6	25 - - - - - -	X		Sandy Lean CLAY; stiff, very moist, light olive brown	#200 Wash Fines = 73% PP = 2.5-3.5 tsf
9	16.3		10 20 36	30		SM	Silty SAND; layers of clayey sand, fine, dense, moist, yellowish brown	#200 Wash Fines = 35%
10	32.7		8 9 15	35	X	ML	SILT; layers of lean clay (2-3" thick), very stiff, moist, light olive brown	#200 Wash Fines = 88% PP = 1.5-2.5 tsf
				40		CL		
					Groun	dwater	Bulk 🕅 CD 🔳 SPT 🔀]

KOU	RY		a .		Project No. : 18-0817 Project Name : OC Prado Boring No.	b. : B-2
& TESTING	, INC.				Sheet: 2	of:2
imple No. Aoisture ntent (%) Dry Unit ight (pcf)	ws per 6"	epth (ft)	ple Location aphic Log	oil Type (USCS)	Sampling Method : Hollow Sterr's Adger Sampling Method : Bulk - CD - SPT Hammer Weight : 140 lbs Drop Height : 30" Drilling Co. : Location : See Figure A-2	ation: Geoboden, Inc. 05/17/2017
Sa Co V	Blo	Δ	Sam Gra	s C	Description	Additional Tests
11 21.2	5 9 17	40 45		CL	Sandy Lean CLAY; very stiff, moist to very moist, caliche, light olive brown	#200 Wash Fines = 51% PP = 4.2 tsf
12 22.4	8 12 14		Х			#200 Wash Fines = 63%
	14	$\begin{bmatrix} & & & & \\ & & & & \\ & & & & \\ & & & & $	Groun	dwater	End of Boring @ 46' 6" Groundwater encountered @ 31'	PP = 2.7 tst

			RY RING				Project No. : 18-0817 Boring No Project Name : OC Prado Sheet : 1	o.: B-3 of:1
mple No.	loisture ntent (%)	bry Unit ight (pcf)	ws per 6"	epth (ft)	aphic Log	oil Type (USCS)	Drilling Method : Hollow Stem 8" AugerSampling Method : Bulk - CD - SPTGround ElevaHammer Weight : 140 lbsDrop Height : 30"Drilling Co. :Location : See Figure A-2Date Drilled :	ation: Geoboden, Inc. 05/17/2017
Sa	⊆ ⊆ C	Vei	Blo	Ď	Gra	ů,	Description	Additional Tests
1	17.6		6				FILL: Sandy Lean CLAY; trace of gravel, stiff, moist, black	#200 Wash Fines = 73%
2	21.0		24		ľ	CL	ALLUVIUM: Sandy Lean CLAY; some concretions, very stiff, moist, light	#200 Wash Fines = 74%
3	26.2	102	7 15 23				OLDER ALLUVIUM: Sandy Lean CLAY; concretions, stiff to very stiff, moist, light olive brown with white inclusions	#200 Wash Fines = 72% PP = 4.5 tsf
4	20.8		3 5 9	目	7			#200 Wash Fines = 58% PP = 3-4 tsf
5	30.6	95	7 11 19			СН	Fat CLAY; very stiff, moist, light olive brown	#200 Wash Fines = 85% PP = 4.5 tsf
6	15.9		3 7 7		K	сц/сн	Lean to Fat CLAY; some concretions, stiff, moist to very moist, pale yellow to light olive brown	#200 Wash Fines = 85% PP = 3 - 3.5 tsf
7	18.4	113	6 13 19	20 		CL	Sandy Lean CLAY; very stiff, moist, light olive brown	#200 Wash Fines = 50% PP = 4-4 5 tsf
				25			End of Boring @ 21' 6" No groundwater encountered	

(K		RY				Project No. : 18-0817 Project Name : OC Prado Boring N	o. : B-4
No.	re (%)	bcf)	, INC.	£	Log) ee	Sheet : 1 Drilling Method : Hollow Stem 8" Auger Sampling Method : Bulk - CD - SPT Ground Elev Hammer Weight : 140 lbs Drop Height : 30" Drilling Co	of:1 ation:
I ald m	Aoistu Intent	Jry Un ight (ows pe	epth (ple Loc aphic I	oil Tyr	Location : See Figure A-2 Date Drilled	: 05/17/2017
ŝ	້ິບ	- Ne	Blo		Sam Gr	0	Description	Additional Tests
1	19.6			0 _ 			FILL: Sandy Lean CLAY; trace of gravel, stiff, moist to very moist, very dark brown	#200 Wash Fines = 70%
2	21.5		4 4 4		X	CL	ALLUVIUM: Sandy Lean CLAY; concretions, stiff, moist, yellowish brown with some white specs	#200 Wash Fines = 63%
3	18.3	113	6 10	э <u> </u>		SC	Clayey SAND; moist, mottled brown and yellowish brown	#200 Wash Fines = 38%
			12			SM	Silty SAND; fine, moist, yellowish brown	
4	30.9		2 4 7		X	СН	OLDER ALLUVIUM: Fat CLAY with SAND; some concretions and calcium carbonate, stiff, moist to very moist, light olive brown	#200 Wash Fines = 81% PP = 3.5 tsf
5	23.6	106	7 9 14			CL/CH	Sandy Lean to Fat CLAY; very stiff, moist to very moist, green to grayish brown with white specs	#200 Wash Fines = 72% PP=3.5-4.5 tsf
6	27.3		3 4 7		X	СН	Fat CLAY with SAND; very stiff, moist, light olive brown	#200 Wash Fines = 84% PP = 3-4 tsf
7	16.2	122	3 14 25	- - 20 -		CL	Sandy Lean CLAY; very stiff, moist, yellowish brown	#200 Wash Fines = 64% PP = >4 5 tsf
				25 - - - - - - - - - - - - - - - - - - -			End of Boring @ 21' 6" No groundwater encountered	

-(RING , INC.				Project No. : 18-0817 Project Name : OC Prado Sheet : 1 Drilling Method : Hollow Stem 8" Auger	5.: B-5 of:1
ample No.	Aoisture Intent (%)	Dry Unit ight (pcf)	ows per 6")epth (ft) ne Location	aphic Log	toil Type (USCS)	Sampling Method : Bulk - CD - SPTGround ElevHammer Weight : 140 lbsDrop Height : 30"Drilling Co. :Location : See Figure A-2Date Drilled :	ation: Geoboden, Inc. 05/18/2017
Sa	≥ ° S	I We	Blo	Sam D	Gr.	S	Description	Additional Tests
1	11.3						FILL: Sandy Lean CLAY; moist, dark yellowish brown	#200 Wash Fines = 65%
2	11.5		9 7 9			CL	ALLUVIUM: Sandy Lean CLAY; trace of subrounded gravel, stiff to very stiff, moist, dark yellowish brown	#200 Wash Fines = 51% PP = 3.5 4.5 tsf
3	11.9	126	5 13 17	5 <u>-</u> 		SC	Clayey SAND; trace of gravel, moist, yellowish brown	#200 Wash Fines = 39% PP = 4.5 tsf
4	33.0		7 13 18				OLDER ALLUVIUM	#200 Wash Fines = 75% PP = 4.5 tsf
5	41.3	78	7 13 15				Fat CLAY with SAND; trace of concretions, very stiff, moist to very moist, light olive brown	#200 Wash Fines = 85% PP = 4.5 tsf
6	34.4		3 3 5			СН	soft to firm, greenish gray	#200 Wash Fines = 76% PP = 0.75 tsf
7	28.1	102	5 8 11	- - 20		CL/CH	Lean to Fat CLAY; very stiff, moist to very moist, light olive brown	#200 Wash Fines = 85% PP = 3.5 tsf
				25 1 - 1			End of Boring @ 21' 6" No groundwater encountered	

KOU ENGINEE & TESTING	RING a, INC.				Project No. : 18-0817 Project Name : OC Prado Sheet : 1 Drilling Method : Hollow Stem 8" Auger	o. : B-6 of:1
Imple No. Noisture Intent (%) Dry Unit ight (pcf)	ws per 6"	lepth (ft) ble Location	aphic Log	oil Type (USCS)	Sampling Method : Bulk - CD - SPTGround ElexHammer Weight : 140 lbsDrop Height : 30"Drilling Co.Location : See Figure A-2Date Drilled	ration: Geoboden, Inc. : 05/18/2017
Ve Co Na	Blo	D Sam	Gra	S	Description	Additional Tests
1 8.1		° _			FILL: Sandy Lean CLAY; very stiff, dry, light olive brown	#200 Wash Fines = 74%
	9		N			#200 Wash
2 21.5 106	16 15			CL	OLDER ALLOVIUM: Lean CLAY with SAND; few concretions, very stiff, moist, mottled white with dark yellowish brown	Fines = 77%
3 14.3	4 6 7				Sandy Lean CLAY: trace of gravel, layers of silty sand, stiff to very stiff, yellowish brown with white specs	#200 Wash Fines = 52% PP = 4.5 tsf
4 40.7 80	6 9 12				Fat CLAY; very stiff, moist to very moist, olive brown	#200 Wash Fines = 88% PP=3.5-3.8 tsf
5 26.2 72	4 5 6				abundant concretions, calcium carbonate, stiff	#200 Wash Fines = 72% PP = 1.5-2.5 tsf
6 25.0 101	4 8 9			5	stiff	#200 Wash Fines = 85% PP = 1.5-2 tsf
7 25.0	4 7 13	20 <u>-</u>		CL	Lean CLAY with SAND; stiff, moist to very moist, light olive brown	#200 Wash Fines = 70% PP = 2.5-3 tsf
					End of Boring @ 21' 6" No groundwater encountered	

(_		Project No. : 18-0817 Project Name : OC Prado Sheet : 1	No.: B-7
nple No.	oisture itent (%)	ry Unit ght (pcf)	vs per 6"	epth (ft)	phic Log	oil Type USCS)	Drilling Method : Hollow Stem 8" Auger Sampling Method : Bulk - CD - SPT Ground El Hammer Weight : 140 lbs Drop Height : 30" Drilling Co Location : See Figure A-2 Date Drille	evation: .: Geoboden, Inc. d: 05/18/2017
Sar	Con	D Wei	Blov	ď	Gra	SC SC	Description	Additional Tests
1	16.4	119	10 15	0 			FILL: Sandy Lean CLAY; few concretions, stiff, moist, dark vellowish brown with some white specs ALLUVIUM:	#200 Wash Fines = 78%
			28			CL	dark yellowish brown with some white inclusions	PP = >4.5 tsf
2	19.8		3 5 7	5 -			OLDER ALLUVIUM: Lean CLAY with SAND; few concretions, very stiff, moist to very moist, dark yellowish brown with some white specs	#200 Wash Fines = 76% PP=3.5-4.5 tsf
3	31.5	90	2 3 4				Fat CLAY; firm, very moist, pale yellow with some brown	#200 Wash Fines = 93% PP = 1.5-2.5 tsf
4	34.5		3 4 5				calcium carbonate, stiff, pale brown	#200 Wash Fines = 88%
5	29.8	95	5 6 9	15 		сн	Fat CLAY with SAND; stiff, moist to very moist, light olive brown	#200 Wash Fines = 81%
6	22.7		5 7 11	20				#200 Wash Fines = 82%
7	29.1	100	4 9 15	25 — 			Sandy Fat CLAY; stiff, moist to very moist, mottled light olive brown and white	#200 Wash Fines = 63% PP = 2-2.5 tsf
8	24.0		22 12 15	30 - 	3	CL	Sandy Lean CLAY; trace of gravel, stiff, moist to very moist, light olive brown	#200 Wash Fines = 65%
9	38.3	88	9 19 29			сн	Fat CLAY with SAND; small pockets of organic, stiff to very stiff, moist to very moist, light olive brown	#200 Wash Fines = 83% PP = 2-2.7 tsf
				40			Bulk 🕅 CD 🗖 SP	

		RING , INC.					Project No. : 18-0817 Boring No Project Name : OC Prado Sheet : 2 o Drilling Method : Hollow Stem 8" Auger	.: B-7 f:2
ample No. Moisture ontent (%)	Dry Unit eight (pcf)	ows per 6"	Jepth (ft)	ple Location	aphic Log	soil Type (USCS)	Sampling Method : Bulk - CD - SPTGround ElevaHammer Weight : 140 lbsDrop Height : 30"Drilling Co. :Location : See Figure A-2Date Drilled :	tion: Geoboden, Inc. 05/18/2017
ος _ Ω	_ ₹	Ble		Sam	ษ	0	Description	Additional Tests
10 23.5		7 16 27	40	X		ML	Sandy SILT; layers silty sand and lean clay with sand, stiff, moist, light olive brown	#200 Wash Fines = 69%
11 23.9	104	7 12 18	45 <mark>-</mark> - - - -			СН	Fat CLAY with SAND; thin lenses of sandy silt, stiff, moist to very moist, light yellowish brown	#200 Wash Fines = 77% PP = 2.5-3.5 tsf
12 21.1		9 15 30	 50	X		CL	Sandy Lean Clay; very stiff, moist, light olive brown with some rusty brown	#200 Wash Fines = 63%
					Ground	water	Groundwater encountered @ 28' 0"	

(RING		-			Project No. : 18-0817 Project Name : OC Prado Sheet : 1 o	.: B-8 f:2
nple No.	oisture tent (%)	ry Unit ght (pcf)	ws per 6"	əpth (ft)	le Location	phic Log	oil Type USCS)	Drilling Method : Hollow Stem 8" Auger Sampling Method : Bulk - CD - SPT Ground Eleva Hammer Weight : 140 lbs Drop Height : 30" Location : See Figure A-2 Date Drilled :	tion: Geoboden, Inc. 05/22/2017
Sar	Cor M	D Wei	Blo	ă	Samp	Gra	S, C,	Description	Additional Tests
1	18.9		7	0				FILL: Lean CLAY with SAND; stiff, moist to very moist, very dark brown	#200 Wash Fines = 76%
2	18.4	111	8 12	-			CI	ALLUVIUM: Lean CLAY with SAND; moist, stiff, very dark brown	Fines = 75% PP =1.5-2 tsf
3	15.5		5 7 15	5	X		CL	OLDER ALLUVIUM: Sandy Lean CLAY; concretions, calcium carbonate, very stiff to hard, moist, light olive brown	#200 Wash Fines = 70%
4	16.4	108	7 10					Lean CLAY with SAND; stiff to very stiff, olive brown	Fines = 73% PP = 3-3.5 tsf
5	22.1		4 5	10	M		СН	Sandy Fat CLAY; very stiff, moist, pale yellow	#200 Wash Fines = 58%
			12					Lean to Fat CLAY; firm to stiff, moist to very moist, light olive brown with some white inclusions	
6	18.5	109	18 50/5"	8 /5" 15 		CL/CH	Lean to Fat CLAY with SAND; few concretions, very stiff, moist, light olive brown with some white	#200 Wash Fines = 79% PP = 4.5 tsf	
7	22.8		15 15 25	20 	X		CL	Sandy Lean CLAY with SAND; few concretions, stiff to very stiff, moist to very moist, light olive brown with some white	#200 Wash Fines = 67%
8	33.9	93	9 16 41	 25 			сн	Fat CLAY; stiff to very stiff, moist to very moist, light olive brown	#200 Wash Fines = 88% PP = 2-2.5 tsf
9	21.4		36 29 20		X		сц/сн	Lean to Fat CLAY; concretions, white inclusion, stiff to very stiff, moist to very moist, light olive brown	#200 Wash Fines = 62%
10	22.6	111	18 45 50				SM	Silty SAND; fine, dense, moist, light olive brown	#200 Wash Fines = 21%
						Ground	water	7 Bulk 🔀 CD 🗖 SPT 🔀	

ENGINEERING & TESTING, INC	NG NC.			Project Name · ()C Prado	j ilv D-0
				Sheet :	2 of:2
ample No. Moisture Intent (%) eight (pcf) ows per 6"	ows per 6" Jepth (ft)	ple Location aphic Log	soil Type (USCS)	Drilling Method : Hollow Stem 8" AugerSampling Method : Bulk - CD - SPTGroundHammer Weight : 140 lbsDrop Height : 30"DrillingLocation : See Figure A-2Date Dri	Elevation: Co.: Geoboden, Inc. Iled: 05/22/2017
Ne Co Blo	Bic	Sam Gra	S	Description	Additional Tests
11 16.0 7 12 13	7 40 12 13 45		ѕм	Silty SAND; fine to coarse, medium dense, moist, light olive brown	#200 Wash Fines = 15%
12 20.5		X I		trace of gravel	#200 Wash Fines = 18%
			water	End of Boring @ 46' 6" Groundwater encountered @ 33'	SPT ▼

-(RY RING , INC.				Project No. : 18-0817 Project Name : OC Prado Sheet : 1 Drilling Method : Hollow Stem ?" Auger	lo.: B-9 of:1
mple No.	foisture ntent (%)	Jry Unit ight (pcf)	ws per 6"	epth (ft)	aphic Log	oil Type (USCS)	Sampling Method : Bulk - CD - SPT Ground Ele Hammer Weight : 140 lbs Drop Height : 30" Drilling Co. Location : See Figure A-2 Date Drilled	vation: : Geoboden, Inc. : 05/22/2017
Sa	⊆ ⊆ C	Nei	Blo	D	Gra	Š,	Description	Additional Tests
1	19.8	104	9 18 28	0 		CL	FILL: Sandy Lean CLAY; stiff, moist, very dark brown ALLUVIUM: Lean CLAY with SAND; very stiff, moist to very moist, few concretions olive brown	#200 Wash Fines = 79% PP = 3.5 tef
2	29.8		8 18 25	5 <u>-</u>		СН	Fat CLAY; very stiff, moist to very moist, pale yellow with light olive brown	#200 Wash Fines = 88%
3	33.6	88	7 9 17				OLDER ALLUVIUM: Fat CLAY; very stiff, moist to very moist, light olive brown	#200 Wash Fines = 85% PP = 3.0 tsf
4	32.9		7 17 22				Sandy Fat CLAY; thin layers of sandy lean clay, stiff, moist to very moist, light olive brown	#200 Wash Fines = 67% PP = 1.5 tsf
5	22.8		12 14 17			СН	Fat CLAY with SAND; stiff, moist to very moist, light olive brown	#200 Wash Fines = 75% PP = 2.5 tsf
6	44.6	79	9 16 26	20 			Fat CLAY; very stiff, moist, light olive brown with white	#200 Wash Fines = 90% PP=3.5-4.5 tsf
				25 			End of Boring @ 21' 6" No groundwater encountered	

-(K		RY		a .			Project No. : 18-0817 Project Name : OC Prado	Boring No.	: B-10
iple No.	isture tent (%)	y Unit tht (pcf)	's per 6"	pth (ft)	e Location	ohic Log	il Type ISCS)	Drilling Method : Hollow Stem 8" Auger Sampling Method : Bulk - CD - SPT Hammer Weight : 140 lbs Drop Height : 30" Location : See Figure A-2	Sheet : 1 of Ground Elevat Drilling Co. : 0 Date Drilled : 0	: 1 ion: Geoboden, Inc. 05/22/2017
Sam	Mc Cont	Dr Weig	Blow	Del	ampl	Grap	Sol (U	Description		Additional
1	12.9			0	Ŵ			FILL: Lean CLAY with SAND; stiff, moist, dark brown		#200 Wash Fines = 75%
2	13.9	121	12 25 37					Lean CLAY with SAND; very stiff, moist, brown		#200 Wash Fines = 78% PP = 4.5 tsf
3	15.5		7 15 20	5 -	X		CL	ALLUVIUM: Sandy Lean CLAY; very stiff, moist, dark yellowis	sh brown	#200 Wash Fines = 67% PP = 2.5 tsf
4	23.3	102	10 15	 10				OLDER ALLUVIUM: Lean CLAY; very stiff, moist, olive brown		#200 Wash Fines = 86% PP=3.2-4.2 tsf
			19				СЦ/СН	Lean to Fat CLAY; very stiff, moist, light olive browhite specs	wn with	
5	37.5		15 25 25	15 <mark>-</mark> - - -	X		сн	Fat CLAY; firm to stiff, moist to very moist, pale ye	ellow	#200 Wash Fines = 90% PP = 1.5 tsf
6	23.6	106	9 19 22	20 <u>-</u>			CL/CH	Lean to Fat CLAY with SAND; stiff to very stiff, n moist, light olive brown with green	noist to very	#200 Wash Fines = 81% PP = 2.5-3 tsf
				25				End of Boring @ 21' 6" No groundwater encountered		

_	K	DU	RY				Project No. : 18-0817 Project Name : OC Prado	Boring No	: B-11
	ENG & TES	STING	, INC.				Drilling Mothod L Lallow Store Of Avera	Sheet:1 o	f:1
mple No.	oisture ntent (%)	rry Unit ght (pcf)	ws per 6"	epth (ft)	ole Location Iphic Log	oil Type USCS)	Sampling Method : Hollow Stem 8" Auger Sampling Method : Bulk - CD - SPT Hammer Weight : 140 lbs Drop Height : 30" Location : See Figure A-2	Ground Elevat Drilling Co. : Date Drilled :	t ion: Geoboden, Inc. 09/05/2017
Sar	Cor M	D Wei	Blo	ă	Samp Gra	°(Sc	Description		Additional Tests
1	15.6			0 _ 	X		Fill: Sandy Lean CLAY; slightly moist, brown		#200 Wash Fines = 64% El = 52
2	16.8	104	3 12 18			CL	ALLUVIUM: Sandy Lean CLAY; very stiff, moist, very pale br	own	#200 Wash Fines = 69% PP = 4.5 tsf
3	19.2		6 8 12	5	X	CL/CH	OLDER ALLUVIUM: Sandy Lean to Fat CLAY; concretions, stiff to ver to very moist, olive brown to pale brown inclusion	ery stiff, moist s	#200 Wash Fines = 72% PP = 4.5 tsf
4	26.5	97	7 7 10				Fat CLAY; stiff, moist to very moist, pale brown v specks	vith red	#200 Wash Fines = 92% PP = 1.7 - 2.2 tsf
5	21.7		6 6 8	10	X		concretions and soft zones		#200 Wash Fines = 97% PP = 2 - 4.5 tsf
6	27.5	124	1 5 10 4 6 7		X	СН	olive brown		#200 Wash Fines = 76% PP = 1 - 1.2 tsf consolodation #200 Wash Fines = 81% PP = 2.7 - 3.7 tsf.
							End of Boring @ 21' 6" No groundwater encountered	SPT	

-(K						Project No. : 18-0817Boring No. : B-12Project Name : OC PradoShorts 1 - sta 1	
mple No.	Aoisture ntent (%)	Dry Unit ight (pcf)	,	lepth (ft)	aphic Log	oil Type (USCS)	Sneet : 1 C Drilling Method : Hollow Stem 6" Auger Ground Eleva Sampling Method : Bulk - CD - SPT Ground Eleva Hammer Weight : 140 lbs Drop Height : 30" Drilling Co. : Location : See Figure A-2 Date Drilled :	t : 1 tion: Geoboden, Inc. 08/29/2018
Sa	S ≥	L We	Blo	D	Gra	ŝ	Description	Additional Tests
1	7.4		6		7		FILL: Sandy Lean CLAY; trace of gravel, firm, slightly moist to moist, brown to dark brown	#200 Wash Fines = 71% #200 Wash
2	11.5	118	12 13 8 25 38	5		CL	ALLUVIUM: Sandy Lean CLAY; very stiff, moist, dark brown to yellowish brown	#200 Wash Fines = 72% PP = 4.5 tsf
4	18.0		4 4 6				OLDER ALLUVIUM: Sandy Lean CLAY; trace of gravel, stiff, moist, yellowish brown	#200 Wash Fines = 57% PP = 3-3.5 tsf
5	38.0	84	6 9 9					#200 Wash Fines = 82% PP = 3.7 tsf
6	28.9		2 2 2			СЦ/СН	Lean to Fat CLAY with SAND; firm to stiff, moist to very moist, grayish brown to yellowish brown	#200 Wash Fines = 82% PP = 2.7-3.5 tsf
7	21.8	100	10 7 8	20			Sandy Lean CLAY; stiff, moist, grayish brown with dark brown inclusions	#200 Wash Fines = 65% PP = 2.5-3.5 tsf
8	21.7		11 7 6			CL	6" layer of silty sand with trace of gravel	#200 Wash Fines = 51% PP = 2.5 tsf
9	23.8		5 9 13	30 <u>-</u> 			Very stiff	#200 Wash Fines = 65% PP = 3-3.5 tsf
				35 - - - - - - - - - - - - - - - - - - -			End of Boring @ 31' 6" No groundwater encountered Bulk ⊠d CD ■ SPT ■	

-(KOURY ENGINEERING & TESTING, INC.							Project No. : 18-0817 Project Name : OC Prado Sheet : 1 c	b. : B-13
nple No.	oisture itent (%)	ry Unit ght (pcf)	ws per 6"	epth (ft)	le Location	phic Log	oil Type USCS)	Drilling Method : Hollow Stem 8" Auger Sampling Method : Bulk - CD - SPT Ground Eleva Hammer Weight : 140 lbs Drop Height : 30" Drilling Co. : Location : See Figure A-2 Date Drilled :	ation: Geoboden, Inc. 09/05/2018
Sar	Con	D Wei	Blov	ð	Samp	Gra	SC SC	Description	Additional Tests
1	10.2			0	\mathbb{X}			FILL: Sandy Lean CLAY; concretions, stiff, moist, brown	#200 Wash Fines 72% FI = 47
2	11.7		8 9 15		X			ALLUVIUM: Sandy Lean CLAY; abundant concretions, very stiff, moist, brown with pale brown inclusioins	#200 Wash Fines = 66% PP = 4.5 tsf
3	17.2	107	12 33 50/4"	5			CL	OLDER ALLUVIUM: Sandy Lean Clay; abundant concretions, hard, pale brown with very pale brown	#200 Wash Fines = 71% PP = 4.5 tsf
4	22.1		4 5 8	-	X			olive brown	#200 Wash Fines = 63% PP = 4.5 tsf
5	13.0	116	5 12 16				sc	Clayey SAND; fine medium dense, moist, olive brown	#200 Wash Fines = 33% Consolidation
6	31.1		356		Х		CL/CH	Lean to Fat CLAY; stiff, moist to very moist, light yellowish brown	#200 Wash Fines = 90% PP = 1.5-2.5 tsf
7	23.1	107	4 7 16	20					#200 Wash Fines = 70% PP = 2.5-3 tsf
								End of Boring @ 21' 6" No groundwater encountered	

			RY RING				Project No. : 18-0817 Project Name : OC Prado Sheet : 1 Drilling Method : Hollow Stem 8" Auger	o.: B-14 of:1
mple No.	Aoisture ntent (%)	Dry Unit ight (pcf)	ws per 6"	epth (ft)	pie <u>rocation</u> aphic Log	toil Type (USCS)	Sampling Method : Bulk - CD - SPT Ground Eler Hammer Weight : 140 lbs Drop Height : 30" Drilling Co. Location : See Figure A-2 Date Drilled	vation: : Geoboden, Inc. : 08/30/2018
Sa	° ≤ C	L We	Blo		Gra	s -	Description	Additional Tests
1	7.3			0 			FILL: Sandy Lean CLAY; slightly moist, powdery, dark brown	#200 Wash Fines = 72%
2	7.7	114	14 16 17			CL	ALLUVIUM: Sandy Lean CLAY; very stiff, moist, dark yellowish brown	#200 Wash Fines = 72% PP = 4.5 tsf
3	18.6		6 8 13				OLDER ALLUVIUM: Sandy Lean CLAY; very stiff, caliche stringers, moist, dark yellowish brown	#200 Wash Fines = 73% PP = 4.5 tsf
4	34.7	88	5 12 22					#200 Wash Fines = 90% PP = 4.5 tsf
5	39.2		4 6 7			СН	Fat CLAY; suin to very suin, moist to very moist, dark yellowish brown	#200 Wash Fines = 89% PP = 2.5-3.5 tsf
6	26.7	98	6 7 10	 15 		CL/CH	Lean to Fat CLAY with SAND; stiff, moist, dark yellowish brown with rusty pockets	#200 Wash Fines = 79% PP = 2-2.5 tsf Consolidation
				20			End of Boring @ 16' 6" No groundwater encountered	

Uriting Method : Holow Stem 6* Auger 99 90		K ENG & TE		RY RING				Project No. : 18-0817 Project Name : OC Prado	Boring No. heet:1 of	: B-15 :1
a b a b a	mple No.	loisture ntent (%)	bry Unit ight (pcf)	ws per 6"	epth (ft) Je Location	Iphic Log	oil Type USCS)	Drilling Method : Hollow Stem 8" AugerSampling Method : Bulk - CD - SPTGrHammer Weight : 140 lbsDrop Height : 30"DrLocation : See Figure A-2Date	round Elevati rilling Co. : G ate Drilled : 0	on: ieoboden, Inc. 18/29/2018
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Saı	Cor	D Wei	Blo	Samp Samp	Gra	S, C	Description		Additional Tests
3 15.1 118 $\begin{bmatrix} 5 \\ 0 \\ 0 \\ 0 \\ 0 \end{bmatrix}$ $\begin{bmatrix} 200 \text{ Wash} \\ Fines = 83\% \\ Free = 45 \text{ transmission} \\ Sandy Lean to Fat CLAY; frm to stiff, moist, brown PP = 4.5 \text{ tsf} \\ PP = 4.5 \text$	1 2	11.8 13.5		34	° X		CL	FILL: Sandy Lean CLAY; fragments, debris, rock, some or concretions, firm to stiff, slightly moist, dark brown	rganics,	#200 Wash Fines = 67% #200 Wash Fines = 72%
3 16.1 118 $\begin{bmatrix} 0\\10 \end{bmatrix}$ 5 Image: transmission of the transmis				5				ALLUVIUM: Sandy Lean CLAY: firm to stiff. moist. brown		PP = 4.5 tst
4 29.7 3 3 90 37 7 33.9 90 90 91 7 7 7 29.1 96 10	3	16.1	118	8 10 10	5		CL/CH	OLDER ALLUVIUM: Sandy Lean to Fat CLAY; concretions, very stiff, mois brown	ist, pale	#200 Wash Fines = 63% PP = 4.5 tsf Consolidation
5 33.9 90 8 17 10 17 Fat CLAY; little gravel/concretions, very stiff, light olive brown #200 Wash. Fries = 92%. PP = 4.5 tsf. Gravel = 14% 6 31.7 3 15 CH Fat CLAY; little gravel/concretions, very stiff, light olive brown #200 Wash. Fries = 86%. PP = 2.3 tsf. Gravel = 14% 7 29.1 96 4 20 15 Fat CLAY with SAND; trace of concretions, stiff, moist to very moist, olive brown #200 Wash. Fries = 86%. PP = 2.3 tsf. 7 29.1 96 4 20 10 End of boring @ 21' 6". No groundwater encountered #200 Wash. Fries = 80%. PP = 2.3 tsf. 7 29.1 96 4 0 1 1 1 1 8 10 1	4	29.7		3 4 7				Fat CLAY with SAND; stiff, moist to very moist, light brown	olive	#200 Wash Fines = 82% PP = 4.5 tsf
6 31.7 3 3 15 CH Fat CLAY with SAND; trace of concretions, stiff, moist to very moist, olive brown $\frac{\#200 \text{ Wash}}{\text{PP} = 2.3 \text{ Isf}}$ 7 29.1 96 4 7 10 20 Chain and the second state of concretions, stiff, moist to very moist, olive brown $\frac{\#200 \text{ Wash}}{\text{PP} = 2.5 \text{ Isf}}$ 7 29.1 96 4 7 10 20 Chain and the second state of concretions, stiff, moist to very moist, olive brown $\frac{\#200 \text{ Wash}}{\text{PP} = 2.5 \text{ Isf}}$ 8 No groundwater encountered $\frac{\#200 \text{ Wash}}{\text{PP} = 2.5 \text{ Isf}}$	5	33.9	90	8 15 17				Fat CLAY; little gravel/concretions, very stiff, light oliv	ve brown	#200 Wash Fines = 92% PP = 4.5 tsf Gravel = 14%
7 29.1 96 47/7 10 20 #200 Wash Fines = 85% PP = 2.5.3 Usf 96 47/7 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 </td <td>6</td> <td>31.7</td> <td></td> <td>3 3 4</td> <td></td> <td></td> <td>СН</td> <td>Fat CLAY with SAND; trace of concretions, stiff, mois moist, olive brown</td> <td>ist to very</td> <td>#200 Wash Fines = 86% PP = 2-3 tsf Consolidation</td>	6	31.7		3 3 4			СН	Fat CLAY with SAND; trace of concretions, stiff, mois moist, olive brown	ist to very	#200 Wash Fines = 86% PP = 2-3 tsf Consolidation
End of boring @ 21' 6" No groundwater encountered	7	29.1	96	4 7 10	20—					#200 Wash Fines = 85% PP = 2.5-3 tsf
					25			End of boring @ 21' 6" No groundwater encountered		

$\left($			RY RING				Project No. : 18-0817 Project Name : OC Prado	Boring No. Sheet : 1 of	.: B-16 f:2
mple No.	loisture ntent (%)	rry Unit ight (pcf)	ws per 6"	epth (ft)	Iphic Log	oil Type USCS)	Drilling Method : Hollow Stem 8" Auger Sampling Method : Bulk - CD - SPT Hammer Weight : 140 lbs Drop Height : 30" Location : See Figure A-2	Ground Elevat Drilling Co. : (Date Drilled :	ion: Geoboden, Inc. 08/29/2018
Sai	G ⊻ C	D Wei	Blo	D	Gra	ی ر	Description		Additional Tests
1	7.2			0			FILL: Lean CLAY with SAND; slightly moist, brown		#200 Wash Fines = 76%
2	14.8	121	10 8 8			CL	ALLUVIUM: Sandy Lean CLAY; trace of gravel, trace of concre moist, dark yellowish brown	etions, stiff,	#200 Wash Fines = 69% PP = 4.5 tsf
3	18.3		4 5 6	5 - 2			OLDER ALLUVIUM: Sandy Lean CLAY; stiff, moist, olive brown with pa	ale brown	#200 Wash Fines = 64% PP = 4.5 tsf
4	37.7	97	4 6 11						#200 Wash Fines = 88% PP = 4-4 5 tsf
5	35.1		2 4 7			СН	Fat CLAY; stiff, moist to very moist, olive with mottl brown	led dark	Consolidation #200 Wash Fines = 92% PP = 3.5-4.5 tsf
6	21.5	110	7 13 15				Lean to Fat CLAY with SAND; very stiff, moist, oli mottled dark brown	ve with	#200 Wash Fines = 82% PP = 4.5 tsf Consolidation
7	26.1		4 5 8		X		Lean to Fat CLAY; stiff, moist, light olive brown		#200 Wash Fines = 86% PP= 3.5 -4 tsf
8	18.6	114	5 15 20	25 - - - - - - - - - - - -		CL	Sandy Lean CLAY; trace of gravel, very stiff, moist brown with reddish brown	t, light olive	#200 Wash Fines = 63% PP = 4.5 tsf Consolidation
9	18.2		5 11 14	30 <u>-</u>	Ζ				#200 Wash Fines = 46%
10	22.2	103	12 28 50	35 		SC	Clayey SAND; layers of sandy clay, concretions, m dense, moist, light olive brown	nedium	#200 Wash Fines = 34%

KOU	RY	r				Project No. :18-0817 Project Name : OC Prado Boring	No.: B-16
ENGINEE & TESTING	RING , INC.					Sheet : 2	of : 2
	:		u	5		Drilling Method : Hollow Stem 8" Auger Sampling Method : Bulk - CD - SPT Ground El	evation:
le No tture nt (% Unit t (pcf	per 6	h (ft)	-ocati	ic Lo	Type CS)	Hammer Weight : 140 lbs Drop Height : 30" Drilling Co	.: Geoboden, Inc.
Samp Mois Contei Dry	lows	Dept	mple I	iraph	Soil . US	Location : See Figure A-2 Date Drille	d : 08/29/2018 Additional
₩ 0 S	6	40	<u> Sa</u>	0		Description	Tests #200 Wash
11 16.0	26 40		X		SC SP-SM	Clayey Sand; layers of sandy clay, concretions, medium dense, moist, light olive brown	Fines 40%
12 10.0 134	7 18 50	45				Poorly Graded SAND with SILT and GRAVEL; fine to coarse, very moist, grayish brown	#200 Wash Fines = 9%
13 23.3	31 50/6"	50 <u>-</u>	Х				#200 Wash Fines = 9%
				Ground	water	End of Boring @ 51' 6" Groundwater encountered @ 44'	

$\left(\right)$			RING				Project No. : 18-0817Boring NProject Name : OC PradoSheet : 1	o. : B-17 of:1
ample No.	Moisture	Dry Unit sight (pcf)	ows per 6"	Jepth (ft)	aphic Location	soil Type (USCS)	Drilling Method : Hollow Stem 8" AugerSampling Method : Bulk - CD - SPTGround ElevHammer Weight : 140 lbsDrop Height : 30"Drilling Co.Location : See Figure A-2Date Drilled	vation: : Geoboden, Inc. : 08/30/2018
Š	- °	- M	Blc		Gr	0)	Description	Additional Tests
			11	0 			FILL: Sandy Lean CLAY; stiff, slightly moist, very dark brown	#200 W/cob
1	11.6	116	15 16			CL	ALLUVIUM: Lean CLAY with SAND; trace of gravel, very stiff, slightly moist to moist, olive brown with white inclustions	Fines = 81% PP = 4.5 tsf
2	13.3		5 6 7	5			OLDER ALLUVIUM: Sandy Lean CLAY; concretions, stiff, very pale brown with zones of olive brown	#200 Wash Fines = 66% PP = 4.5 tsf
3	24.0	103	6 12 17					#200 Wash Fines = 89% PP = 4.5 tsf
4	33.8		4 6 8			CL/CH	Lean to Fat CLAY; stiff to very stiff, moist to very moist, olive brown with white and reddish brown	#200 Wash Fines = 90% PP = 4.2-4.5 tsf
5	35.9	86	11 14 16	15 <u>-</u> 				#200 Wash Fines = 91% PP = 4.5 tsf
				20 - - - - - - - - - - - - -			End of Boring @ 16' 6" No groundwater encountered	

(KOURY ENGINEERING & TESTING, INC.							Project No. : 18-0817Boring NProject Name : OC PradoSheet : 1	o.: B-18 of:1
mple No.	loisture tent (%)	hry Unit ight (pcf)	ws per 6"	epth (ft)	ole Location	Iphic Log	oil Type USCS)	Drilling Method : Hollow Stem 8" AugerSampling Method : Bulk - CD - SPTGround EleventHammer Weight : 140 lbsDrop Height : 30"Drilling Co.Location : See Figure A-2Date Drilled	vation: : Geoboden, Inc. : 08/30/2018
Saı	⊆ G	D Wei	Blo	ă	Samp	Gra	s,)	Description	Additional Tests
1	7.3			0	\mathbb{X}			FILL: Lean CLAY with SAND; slightly moist, crumbly, brown	#200 Wash Fines = 80% Corrosivity
2	7.8	113	17 22 23				CL	ALLUVIUM: Lean CLAY with SAND; very stiff, slightly moist, dark yellowish brown	#200 Wash Fines = 80% PP = 4.5 tsf
3	14.0		5 5 7	5 <mark>-</mark> - -	X			OLDER ALLUVIUM: Sandy Lean CLAY; concretions, stiff, moist, pale brown	#200 Wash Fines = 58%
4	4.3	111	11 24 14				SP-SM	Poorly Graded SAND with SILT; fine to coarse, medium dense, grayish brown with reddish brown	#200 Wash Fines = 11%
5	32.4		2 4 7		X		СН	Fat CLAY; stiff, moist to very moist, gray with reddish brown and white	#200 Wash Fines = 88% PP = 1.5-2.5 tsf
6	26.4	100	6 7 8	15 <u>-</u> 			CL/CH	Lean to Fat CLAY; stiff, moist to very moist, olive brown	#200 Wash Fines = 83% PP = 2.3-2.6 tsf
7	20.1		4 8 12	 20	X		CL	Sandy Lean CLAY; very stiff, moist to very moist, olive brown	#200 Wash Fines = 66% PP = 2.4 tsf
								End of Boring @ 21' 6" No groundwater encountered	

view	K EN & T	ng No.: B-19 ::1 of:1
\overline{a}	mple No. loisture	d Elevation: g Co. : Geoboden, Inc. rilled : 08/30/2018
1 5.4 112 5 112 5 112 5 112 5 112 5 112 5 112 5 112 5 112 112 5 112 112 5 112 114<	Sal	Additional Tests
2 10.5 112 9 3 ALLUVIUM: Lean CLAY with SAND; stiff, moist, dark brown 3 13.3 3 3 3 3 3 3 4 29.8 93 73 17 10 CH Fat CLAY with SAND; stiff, moist, dark yellowish brown with white inclusions 5 33.3 7 7 10 CH Fat CLAY; stiff to very stiff, moist, pale brown 6 22.1 109 6 12 10 CL Lean CLAY with SAND; stiff to very stiff, moist, light olive brown 6 22.1 109 6 12 15 CL Lean CLAY with SAND; stiff to very stiff, moist, light olive brown 10 15 CL Lean CLAY with SAND; stiff to very stiff, moist, light olive brown 11 15 CL Lean CLAY with SAND; stiff to very stiff, moist, light olive brown 12 15 15 15 16 16 14 15 14 15 16 17 15 15 16 16 16 16 16 12 15 16 16 16 16	1 5.4	#200 Wash Fines = 76%
3 13.3 3 3 13.3 3 8 0LDER ALLUVIUM: Lean CLAY with SAND; stiff, moist, dark yellowish brown with white inclusions 4 29.8 93 73 17 7 7 7 5 33.3 5 7 7 7 7 6 22.1 109 6 10 CL Lean CLAY with SAND; stiff to very stiff, moist, light olive brown 6 22.1 109 6 12 15 CL Lean CLAY with SAND; stiff to very stiff, moist, light olive brown 6 22.1 109 6 12 15 CL Lean CLAY with SAND; stiff to very stiff, moist, light olive brown 13 14 15 14 15 15 15 14 15 12 15 14 16 6" 15 12 15 14 15 16 6" 15 12 15 14 16 6" 16" 16 12 14 14 14 14 14 14 17 10 14 14	2 10.5	#200 Wash Fines = 79% PP = 4.5 tsf
4 29.8 93 7 13 10 <td< td=""><td>3 13.3</td><td>#200 Wash Fines = 70% with PP = 4.5 tsf</td></td<>	3 13.3	#200 Wash Fines = 70% with PP = 4.5 tsf
5 33.3 33.3 5 7 8 10 Fat CLAY; stiff to very stiff, moist to very moist, pale brown 6 22.1 109 6 12 CL Lean CLAY with SAND; stiff to very stiff, moist, light olive brown 6 22.1 109 12 15 CL Lean CLAY with SAND; stiff to very stiff, moist, light olive brown 6 22.1 109 12 15 CL Lean CLAY with SAND; stiff to very stiff, moist, light olive brown 6 12 10 15 CL Lean CLAY with SAND; stiff to very stiff, moist, light olive brown 6 12 10 15 CL Lean CLAY with SAND; stiff to very stiff, moist, light olive brown 7 12 15 15 16 16 109 12 12 16 17 20 12 16 16 17 20 12 17 18 18 20 17 18 18 18 20 17 18 18 18 20 17 18 18 18 20 18 18 18 18 20 18 18 18 18 20 18 <	4 29.8	#200 Wash Fines = 96% PP = 4.0-4.2 tsf
6 22.1 109 ⁶ / ₁₂ ¹⁵ / ₁₂ ¹⁵ / ₁₂ ¹⁶ /	5 33.3	n #200 Wash Fines = 90% PP = 4.5 tsf
End of Boring @ 16' 6" No groundwater encountered	6 22.	#200 Wash Fines = 84% PP = 4.5 tsf

$\left($			RY RING	/			Project No. : 18-0817 Project Name : OC Prado	Boring No. Sheet : 1 of	: B-20 f:1
mple No.	loisture itent (%)	ry Unit ght (pcf)	ws per 6"	epth (ft)	phic Log	oil Type USCS)	Drilling Method : Hollow Stem 8" Auger Sampling Method : Bulk - CD - SPT Hammer Weight : 140 lbs Drop Height : 30" Location : See Figure A-2	Ground Elevat Drilling Co. : (Date Drilled :	.ion: Geoboden, Inc. 08/30/2018
Sai	ΩG	D Wei	Blo	ŏ	Gra	S ()	Description		Additional Tests
1	9.4		9				Fill: Lean CLAY with SAND; crumbly, slightly moist,	dark brown	#200 Wash Fines = 77%
2	9.4		10 11		X		ALLUVIUM: Lean CLAY with SAND; very stiff, slightly moist, with white specks	dark brown	Fines = 77%
3	11.6	119	20 28 33	5		CL	OLDER ALLUVIUM: Sandy Lean CLAY; concretions, very stiff to hard brown with white specks	l, moist, dark	#200 Wash Fines = 69% PP = 4.5 tsf
4	19.3		4 7 12		8		Lean CLAY with SAND; trace of concretions, sti brown with white specks	ff, moist,	#200 Wash Fines = 84% PP = 4.5 tsf
5	28.9	94	9 11 13			CL/CH	Lean to Fat CLAY with SAND; stiff to very stiff, moist, light olive brown	moist to very	#200 Wash Fines = 84% PP = 2.5-2.7 tsf
6	26.9		5 6 8	20	ζ		concretions		#200 Wash Fines = 78% PP = 1-1.5 tsf
				25 			End of Boring @ 21' 6" No groundwater encountered		

-			RING					Project No. : 18-0817Boring NoProject Name : OC PradoBoring No	.: B-21
No.	Ire (%)	nit (pcf)	, INC.	(ft)	cation	Log	pe (S	Drilling Method : Hollow Stem 6" Auger Sampling Method : Bulk - CD - SPT Hammer Weight : 140 lbs Drop Height : 30"	f:1 tion: Geoboden, Inc.
mple	loistu ntent	ory Ur ight (nd sw	epth (ole Lo	aphic	oil Ty USC!	Location : See Figure A-2 Date Drilled :	09/04/2018
Sa	⊆ C	D We	Blo	Δ	Sam	Gra	s C	Description	Additional Tests
1	8.6		7 11 13		\mathbb{X}			FILL: Lean CLAY with SAND; trace of gravel, rootlets, crumbly, slightly moist, dark yellowish brown	#200 Wash Fines = 75% PP = 4.5 tsf E.I.=
2	10.2	108	12 22 25	5			CL	OLDER ALLUVIUM: Lean CLAY with SAND; trace of gravel/concretions, very stiff, moist, dark yellowish brown with white specks	#200 Wash Fines = 81% PP = 4.5 tsf
3	18.1		11 12 13		X				#200 Wash Fines = 74% PP =4 5 tsf
4	15.4	114	13 33 47	10 <u>-</u> 				Sandy Lean CLAY; trace of gravel/concretions, stiff to very stiff, moist, brown with white inclusions	#200 Wash Fines = 61% PP = 4.5 tsf
5	24.6		12 18 33	- 15 - - - - - - -			CL/CH	Lean to Fat CLAY with SAND; trace of concretions, very stiff to hard, moist, yellowish brown	#200 Wash Fines = 75% PP = 4.5 tsf
6	20.9		7 10 15	20 -	X		CL	Sandy Lean CLAY; trace of concretions, very stiff, moist, dark yellowish brown with white specks	#200 Wash Fines = 63% PP = 4-4.5 tsf
7	31.6	89	5 10 15				CL/CH	Sandy Lean to Fat CLAY; very stiff, moist to very moist, brown with yellowish brown inclusions	#200 Wash Fines = 72% PP = 1.7-2.7 tsf #200 Wash
8	21.7		5 9 14	30	X			End of Boring @31.5' No groundwater encountered	Fines = 73% PP = 4-4.5 tsf
				35 40					

			RING.		_			Project No. : 18-0817 Project Name : OC Prado Drilling Method : Hollow Stem 8" Auger	Boring No. Sheet : 1 of	: B-22
ample No.	Moisture Intent (%)	Dry Unit sight (pcf)	ows per 6"	Jepth (ft)	ple Location	aphic Log	soil Type (USCS)	Sampling Method : Bulk - CD - SPTGround ElevalHammer Weight : 140 lbsDrop Height : 30"Drilling Co. :Location : See Figure A-2Date Drilled :		ion: Geoboden, Inc. 09/05/2018
Ň	- ö	We	Ble		Sam	G	0	Description		Additional Tests
1	14.5			-				Lean Clay with SAND; trace of concretions, stiff, brown	moist, dark	#200 Wash Fines = 78%
2	13.8	121	6 13 17					ALLUVIUM: Lean CLAY with SAND; very stiff, m with white specks	ioist, brown	#200 Wash Fines =76% PP = 4.5 tsf
3	19.4		10 21 28	5 <u>-</u> - - -	X		CL	OLDER ALLUVIUM:		#200 Wash Fines = 73% PP = 4.5 tsf
4	20.5	105	9 10 12					Sandy Lean CLAY; concretions, very stiff to hard, with white	, pale brown	#200 Wash Fines = 74% PP = 3 5-4 tsf
5	18.1		5 11 14	10	X					#200 Wash Fines = 50% PP = 4 - 4.5 tsf
6	34.7	88	6 12 18	15 — 			CL/CH	Lean to Fat CLAY; trace of concretions, very stiff, very moist, light olive brown	, moist to	#200 Wash Fines = 86% PP = 3-4.5 tsf
7	22.5		4 5 6	20	X		CL	Lean CLAY with SAND; stiff, moist, very pale bro white	wn with	#200 Wash Fines = 83% PP = 3 tsf
8	22.2	105	4 5 12	25 <u>-</u>				Sandy Lean CLAY; trace of gravel, stiff to very still light olive brown	iff, moist,	#200 Wash Fines = 63% PP = 3-4 tsf
				30 				End of Boring @ 26' 6" No groundwater encountered		

	& TES	INEE	RING					Project Name : OC Prado	Boring No.	: B-23
nple No.	bisture tent (%)	y Unit ht (pcf)	/s ber 6"	pth (ft)	e Location	hic Log	il Type ISCS)	Sheet : 1 Characterization Drilling Method : Hollow Stem 8" Auger Ground Eleva Sampling Method : Bulk - CD - SPT Ground Eleva Hammer Weight : 140 lbs Drop Height : 30" Drilling Co. : Location : See Figure A-2 Date Drilled :		: 1 ion: Geoboden, Inc. 09/04/2018
Sam	Mo Cont	Dr Weig	Blow	Del	Sample	Grap	Soi (U	Description		Additional
1	7.8			0	Ŵ		CL	FILL: Sandy Lean CLAY; trace of gravel, crumbly, sligh dark vellowish brown	tly moist,	#200 Wash Fines = 50%
2	16.3		4 7 9		X			ALLUVIUM: Lean to Fat CLAY with SAND; trace of gravel, ve stiff,moist, dark yellowish brown	ery	#200 Wash Fines = 76% PP = 4.5 tsf EI = 107 Corrosivity
3	15.3	115	7 12 17				CI /CH	OLDER ALLUVIUM: Lean to Fat CLAY with SAND; concretions, very dark yellowish brown with white specks	stiff, moist,	#200 Wash Fines = 79% PP = 4.5 tsf
4	23.9		5 8 12		X		02/011	Lean to Fat CLAY; concretions, very stiff, moist, I brown	ight olive	#200 Wash Fines = 89% PP = 4.5 tsf
5	21.8	107	6 18 21					Lean to Fat CLAY with SAND; concretions, very light olive brown	stiff, moist,	#200 Wash Fines = 79% PP = 4.0-4.5 tsf
6	35.8		2 3 6	15 	X		СН	Fat CLAY; caliche stringers, concretions, firm to s olive brown	tiff, light	#200 Wash Fines = 93% PP = 3-3.5 tsf
				20 - 20 - 25 - 30 - 310 - 35 - 40				End of Boring @ 16' 6" No groundwater encountered		

(K	DU	RY					Project No. : 18-0817 Project Name : OC Prado	Boring No.	: B-24
	ENG & TE	STING	RING , INC.					Since Method + Hollow Stop 9" Auger	Sheet:1 of	: 2
mple No.	loisture ntent (%)	rry Unit ight (pcf)	ws per 6"	epth (ft)	ole Location	Iphic Log	oil Type USCS)	Sampling Method : Hollow Stem 8 AugerSampling Method : Bulk - CD - SPTHammer Weight : 140 lbsDrop Height : 30"Location : See Figure A-2Date	oround Elevation rilling Co. : G vate Drilled : 0	on: leoboden, Inc. 9/04/2018
Sai	Col	D Wei	Blo	ŏ	Samp	Gra	s, C	Description		Additional Tests
1				0	\mathbb{X}			FILL: Sandy Lean CLAY; trace of gravel and shale, crumb moist. dark vellowish brown	bly slightly	#200 Wash Fines = 50%
2	15.8	104	4 5 7				CI	Lean CLAY with SAND; stiff, moist, dark brown		Fines = 77% PP = 3 - 4 tsf EI = 96
3	19.0		3 5 8	5 -	X		GL	OLDER ALLUVIUM: Sandy Lean CLAY; concretions, stiff, moist, light oliv	ive brown	#200 Wash Fines = 55% PP = 3-3.7 tsf
4	37.5	89	6 12 17				ML	Silt with SAND; concretions, very stiff, moist, light ye brown to olive brown	ellowish	#200 Wash Fines = 79% PP = 4.5 tsf
5	33.3		3 4 9	10 <u> </u>	X		CL/CH	Lean to Fat CLAY; trace of concretions, stiff, moist, or brown	olive	#200 Wash Fines = 83% PP = 4.5 tsf
6	21.9	108	6 13 19				CL	Sandy Lean CLAY; concretions, very stiff, moist to v olive brown with white inclusions	very moist,	#200 Wash Fines = 66% PP= 3.5 - 4 tsf Consolidation
7	29.6		4 7 10	20	X		CL/CH	Lean to Fat CLAY with SAND; very stiff, moist, yello brown with olive inclusions	owish	#200 Wash Fines = 87% PP= 2.5 - 3 tsf
8	20.1	108	7 14 18	25 <mark>-</mark> - - -			CL	Sandy Lean CLAY; trace of concretions, caliche strir very stiff, moist, yellowish brown	ingers,	#200 Wash Fines = 62% PP = 4.5 tsf
9	29.2	101	12 30 40	30 <mark> </mark>			CL/CH	Lean to Fat CLAY with SAND; very stiff, moist, yello brown	owish	#200 Wash Fines = 84% PP = 4 - 4.5 tsf Consolidation
10	31.2		7 13 16	35	X	<u> </u>	ML	Silt with SAND; layers of silty sand, very stiff, moist t moist, dark yellowish brown	to very	#200 Wash Fines = 76% PP = 1.2-3.5 tsf
				40			CL/CH	Lean to Fat CLAY; very stiff, moist, yellowish brown reddish brown	with	
					(Ground	water	7 Bulk 🔀 CD	SPT 🗙	

/	KOURY							Project No. : 18-0817 Project Name : OC Prode	Boring No.	: B-24
(ENG & TE		RING		-				Sheet: 2 of	:2
	\searrow	/						Drilling Method: Hollow Stem 8" Auger	01100112	
	()	f)	5		ion	g		Sampling Method : Bulk - CD - SPT	Ground Elevat	ion:
No	ure t (%	Jnit (pc	oer ((ft)	ocat	s Lo	ype (S)	Hammer Weight: 140 lbs Drop Height: 30"	Drilling Co. :	Geoboden, Inc.
mple	loist nten	ight	ws p	epth	ole L	ihhi	oil T USC	Location : See Figure A-2	Date Drilled :	09/04/2018
Sai	C or	D Wei	Blo	ă	Samp	Gra	s,)	Description		Additional Tests
11	38.9	89	4 12 21	40			CL/CH	Lean to Fat CLAY; very stiff, moist, yellowish bro reddish brown	wn with	#200 Wash Fines = 92% PP = 4.5 tsf
				-			SM	Silty SAND; layers of silt with sand, moist to very yellowish brown	moist,	
12	14.0		23 28 28	45	X		SP/SM	Poorly Graded SAND with SILT; fine to coarse, dense, wet, reddish brown	dense to very	#200 Wash Fines = 11%
			28					End of Boring @ 46' 6" Groundwater encountered @ 34' 6" Groundwater rose to 27' 6" at end of drilling		
						Ground	water	Bulk 🕅 CD	SPT	

$\left(\right)$	ENG & TE		RING				Project No. : 18-0817 Project Name : OC Prado Sheet :	boring No.: B-25	
mple No.	Aoisture ntent (%)	Dry Unit ight (pcf)	ws per 6"	lepth (ft)	aphic Log	toil Type (USCS)	Drilling Method : Hollow Stem 6" AugerSampling Method : Bulk - CD - SPTGroundHammer Weight : 140 lbsDrop Height : 30"Drilling (Location : See Figure A-2Date Dril	Elevation: Co. : Geoboden, Inc. led : 09/04/2018	
Sa	≥ ° C	L We	Blo	D	Gra	s	Description	Additional Tests	
1	7.1			0 _ 			FILL: Sandy Lean CLAY; trace of gravel and shale, crumbly sligh moist, dark grayish brown	#200 Wash Fines = 60%	
2	14.5	117	6 10 15			CL	ALLUVIUM: Lean CLAY with SAND; very stiff, moist, very dark brown	#200 Wash Fines = 84% PP = 4.5 tsf EI = 78	
3	16.7		4 4 5	5 -			OLDER ALLUVIUM: Lean CLAY with SAND; carbonaceous stringers, trace of concretions stiff, moist to very moist, dark brown to very dark brown	#200 Wash Fines = 79% PP = 3 - 4.5 tsf	
4	18.5	112	6 9 9					#200 Wash Fines = 51% PP = 3 tsf	
5	25.2	84	4 5 9			CL/CH	Sandy Lean CLAY to Fat CLAY; layers and pockets of concretions, stiff, moist, olive brown	#200 Wash Fines = 70% PP = 2.5-2.75	
6	23.5		3 7 10			CL	Lean CLAY with SAND; trace of concretions, very stiff, moi to very moist, dark yellowish brown	#200 Wash Fines = 76% PP = 2.7-3.5 tsf	
7	14.8	119	4 9 18	20		SC	Clayey SAND; layers of sandy clay, medium dense, moist, yellowish brown	#200 Wash Fines = 36% PP = 4.5 tsf	
8	20.6		6 9 15			CL	Sandy Lean CLAY; caliche stringers, very stiff, moist, dark yellowish brown	#200 Wash Fines = 71% PP = 4 - 4.5 tsf	
9	18.4	114	11 22 30	30			hard	#200 Wash Fines = 53% PP = 4.5 tsf	
							End of Boring @ 31' 6" No groundwater encountered		
L				<u>1 - 1</u>	1		Bulk 🔀 CD 🗖 S	PT	

	K		RY				Project No. : 18-0817 Project Name : OC Prado	Boring No.	: B-26
mple No.	tent (%)	ary Unit ght (pcf)	ws per 6"	epth (ft)	iphic Log	oil Type USCS)	Drilling Method : Hollow Stem 6" Auger Sampling Method : Bulk - CD - SPT Hammer Weight : 140 lbs Drop Height : 30" Location : See Figure A-2	Sheet : 1 of Ground Elevati Drilling Co. : G Date Drilled : 0	: 1 on: eoboden, Inc. 19/05/2018
Sar	Con	D Wei	Blov	Ŭ ^{inc}	Gra	Sc (I	Description		Additional Tests
1	12.5			0			FILL: Lean CLAY with SAND; trace of gravel, stiff, mois brown	t, dark	#200 Wash Fines = 79% PP = 3 tsf
2	13.4		5 8 10	_}		CL	ALLUVIUM: Lean CLAY with SAND; very stiff, moist, dark brov	vn	#200 Wash Fines = 80% PP = 4.5 tsf
3	18.0	112	9 13 20	5			OLDER ALLUVIUM: Sandy Lean CLAY; concretions, very stiff, moist, d yellowish brown	lark	#200 Wash Fines = 67% PP = 4.5 tsf
4	24.5		3 4 5				Lean to Fat CLAY with SAND; trace of concretion moist, light olive brown	is, stiff,	#200 Wash Fines = 78% PP = 2.7-3.7 tsf
5	28.9	94	6 9 13						#200 Wash Fines = 82% PP = 4 - 4.2 tsf
6	26.7		3 4 5						#200 Wash Fines = 60% PP = 2.5 - 4 tsf
7	28.1	94	5 7 9	20			Fat CLAY with SAND; concretions, stiff, moist to v pale yellow	ery moist,	#200 Wash Fines = 82% PP = 2 - 3 tsf
8	23.3		5 6 11			СН	light olive brown with pale brown inclusions		#200 Wash Fines = 76% PP = 2 - 3.5 tsf
9	34.4	90	10 18 23	30 <u>-</u> 30 <u>-</u>			Fat CLAY; concretions, very stiff, moist to very moi olive brown with brown	ist, light	#200 Wash Fines = 90% PP = 4 - 4.5 tsf
				35			End of Boring @ 31' 6" Perched groundwater encountered @ 24'		
				40	Ground	water	Bulk 🔀 CD	SPT 🗙	

$\left($			RY RING				Project No. : 18-0817 Project Name : OC Prado	Boring No.: B-27	
mple No.	loisture ntent (%)	bry Unit ight (pcf)	ws per 6"	epth (ft)	ple Location aphic Log	oil Type USCS)	Drilling Method : Hollow Stem 6" AugerSampling Method : Bulk - CD - SPTHammer Weight : 140 lbsDrop Height : 30"Location : See Figure A-2	Ground Elevation: Drilling Co. : Geoboden, Inc. Date Drilled : 09/06/2018	
Sa	⊆ C	D We	Blo	Δ	Sam Gra	ο Ο	Description	Additional Tests	
				0 _ 			FILL: Sandy Lean CLAY; trace of gravel, stiff, mois brown	it, dark	
1	15.1		2 4 5 8		<u>X</u>		ALLUVIUM: Lean CLAY with SAND; trace of conce stiff, moist, dark brown	retions, Fines = 82% PP = 3.5-4.5 tsf	
2	17.7		8 9	5 —	X	CL	OLDER ALLUVIUM:	Fines = 64% PP = 4.5 tsf	
3	17.5		7 9 10		X		Sandy Lean CLAY; abundant concretions, very stiff very pale brown to white	;, moist, #200 Wash Fines = 59% PP = 4.5 tsf	
4	16.0		6 9		⊠			#200 Wash Fines = 61%	
5	18.9		5 7 8	10 <u> </u>	X			#200 Wash Fines = 60% PP = 2 - 2.5 tsf	
6	29.7		3 5 11		X	ML	Sandy Silt; layers of silty sand, trace of concretions moist, yellowish brown to olive brown	, stiff, #200 Wash Fines = 89% PP = 2.5 - 3 tsf	
7	20.8		7 12 13	15	X			#200 Wash Fines = 71%	
8	32.4		6 8 8		X		Layers of sandy lean clay	#200 Wash Fines = 74% PP = 2-2.5 tsf	
9	40.0		3 4 7		X	СН	Fat CLAY; layers of silt, stiff, moist to very moist, lig	#200 Wash Fines = 95% PP = 1.5-4 tsf	
10	34.0		4 5 7		X		brown	#200 Wash Fines = 97%	
11	35.4		2 4 4		X		Lean to Fat CLAY with SAND; stiff, moist, olive bro	#200 Wash Fines = 75% PP = 2.5 tsf	
12	25.4	100	5 7 10	25		CL/CH	Sandy Lean to Fat CLAY; lenses of fine silty sand, stiff, moist, dark grayish brown	firm to #200 Wash Fines = 53% PP = 2.5 - 3 tsf	
13	33.2		3 3 4		X			#200 Wash Fines = 50%	
14	22.2		7 9 12		X	ML	Sandy Silt; layers of sandy lean clay, very stiff, mois olive gray with layers of olive brown	st, dark #200 Wash Fines = 53%	
15	16.3		5 15 26	30 	X	SM	Silty SAND; fine layers of sandy silt, dense, moist to	#200 Wash Fines = 32% o very	
16	14.7	122	9 18 45				moist, dark yellowish brown	#200 Wash Fines = 39%	
17	21.3		9 11 18	35	X	CL	Sandy Lean CLAY; layers of sandy silt and fine silty very stiff, moist to very moist, dark yellowish brown	/ sand, #200 Wash Fines = 50%	
			-				End of Boring @ 35' 6" No groundwater encountered		
L				40			Bulk 🕅 CD	SPT 🗙	

KOURY ENGINEERING & TESTING, INC.								Project No. : 18-0817Boring NoProject Name : OC PradoSheet : 1	Boring No.: B-28 Sheet:1 of:1	
mple No.	loisture ntent (%)	bry Unit ight (pcf)	ws per 6"	epth (ft)	ole Location	tphic Log	oil Type USCS)	Drilling Method : Hollow Stem 6" AugerSampling Method : Bulk - CD - SPTGround ElevaHammer Weight : 140 lbsDrop Height : 30"Drilling Co. :Location : See Figure A-2Date Drilled :	tion: Geoboden, Inc. 09/06/2018	
Saı	Cor M	D Wei	Blo	ŏ	Samp	Gra	ů,	Description	Additional Tests	
1	8.0			0	\mathbb{X}			FILL: Sandy Lean CLAY; trace of gravel, crumbly, slightly moist, brown	#200 Wash Fines = 67%	
2	24.0	106	6 10 12					ALLUVIUM: Sandy Lean CLAY; concretions, stiff, moist, yellowish brown	Fines = 67% PP = 4.5 tsf	
3	25.2		3 4 7	5 <mark> </mark> -	X		CL	OLDER ALLUVIUM: Sandy Lean CLAY; abundant concretions, stiff, moist, yellowish brown	#200 Wash Fines = 65% PP = 4-4.5 tsf	
4	26.4	104	9 13 18	10-				layer of fine silty sand	#200 Wash Fines = 58% PP = 4.5 tsf	
5	32.9		6 7 8		X			Lean to Fat CLAY with SAND; layers of silt, concretions, stiff, moist to very moist, olive brown with yellowish brown	#200 Wash Fines = 74% PP = 1.5-3 tsf	
6	25.7	101	8 9 10				CL/CH	Sandy Lean to Fat CLAY; abundant concretions, stiff to very stiff, moist to very moist, very pale brown to white	#200 Wash Fines = 50% PP = 1.5-1.8 tsf	
7	23.3		5 7 7	20					#200 Wash Fines = 60% PP = 1.5 tsf	
8	28.5		3 4 5		Х			Fat CLAY; abundant concretions, stiff, very moist, very pale brown	#200 Wash Fines = 87% PP = 1-2 tsf	
9 10	26.2 26.3		5 7 8 2 3 3	25 <mark> </mark> - - - -	X		СН	Fat CLAY with SAND; concretions, firm to stiff, very moist, very pale brown	#200 Wash Fines = 79% PP = 1-1.5 tsf #200 Wash Fines = 76% PP = 1.5 tsf	
11	23.0		3 5 6	30 <mark>-</mark> 	X				#200 Wash Fines = 78% PP = 1-1.5 tsf	
				35				End of Boring @ 31' 6" No groundwater encountered		
	1		1					Bulk 🕅 CD 🖬 SPT 🗖	3	

KOURY								Project No. : 16-0899 Project Name : OC Prado Boring No. : T		: TP-1
(ENG & TE	INEE	RING		-			Sheet:1 c		i:1
								Exploration Method : Backhoe Excavation		
<u>o</u>	e %)	t cf)	.9	÷	tion	bo	e	Sampling Method : Bulk		
ole N	sture the line of the line of			nic L	Typ SCS)	Trenching Co.: Lourenco Backhoe, inc. Ground Elev		10n:		
amp	Moi: onte	Dry eigh	SMO	Dept	nple	raph	Soil (US	Location . See Figure A-2	Dale Excavale	Additional
s	Ŭ	8	BI		Sar	U		Description		Tests
				0	Ш			FILL: Lean CLAY with SAND: stiff. moist. dark brown		//000.1M
1	18.2				M					#200 Wash Fines = 82%
				-	\mathbb{A}			ALLUVIUM: Lean CLAY with SAND; stiff, moist, yellowish b	rown	
2	15.3				\mathbb{X}		CL	OLDER ALLUVIUM:		#200 Wash Fines = 77%
				5 —	1			Lean CLAY with SAND; very stiff, moist, dark y	ellowish brown	
3	25.4				\mathbb{X}					#200 Wash Fines = 84%
										EI = 78
				_						
				10-				End of Test Pit @ 9' 0"		
								No groundwater encountered		
				15-						
				_						
				20-						
				_						
				25—						
				—						
				-						
				20						
				30						
				_						
				_	11					
				_	11					
				35						
				-						
				-	$\left \right $					
				-	11					
				40	11					
	l			40	1			Bulk	SPT	
/			PV					Project No. : 16-0899	Test Pit No	.: TP-2
------------------	---------------	----------------	------	--------	--------------	-------	--------------	---	---------------	--------------------------
$\left(\right)$	ENG & TE	INEE	RING	20				Froject Name : OC Frado	Sheet: 1 of	:1
	\rightarrow							Exploration Method : Backhoe Excavation	•	
ö	(%)	cf)	6"		tion	bc	0	Sampling Method : Bulk		
e N	ture nt (º	Unit : (po	per	h (ft)	-ocat	ic Lo	CS)	Trenching Co.: Lourenco Backhoe, inc.	Ground Elevat	ion:
ldmi	Aois nter	Dry eight	SWG	eptl	ple l	aphi	lioi (USr	Location : See Figure A-2	Date Excavate	d: 05-17-2017
S	د م د	- Me	Bld		Sam	Gr	0	Description		Additional Tests
				0	-		см	FILL: Silty SAND; fine, moist, pockets of sandy	silt, and	
1	12.2				\mathbb{X}		Sivi	boulders mixed in piles)	vei, and	#200 Wash Fines = 31%
				-	-		SC	Clayey SAND; fine, loose, moist, dark brown		
2	17.8			_	\mathbb{X}			ALLUVIUM:		#200 Wash Fines = 82%
				5 -			CL	Lean CLAY with SAND; stiff, moist, dark brown		
2	16.7				\lor		• -	OLDER ALLUVIUM:		#200 Wash
3								Lean CLAY with SAND; stiff, moist, yellowish b	rown	Filles = 60%
								End of Test Pit @ 7' 0"		
								No groundwater encountered		
				10						
				_						
				15						
				15						
				20—						
				_						
				25						
				_						
				_						
				30						
				_						
				_						
				35	1					
				-						
				-						
				-						
				40						

_	K	DU	RY		÷.			Project No. : 16-0899 Project Name : OC Prado	Test Pit No	o.: TP-3
	ENG & TE	STING	, INC.						Sheet: 1 of	:1
				-				Exploration Method : Backhoe Excavation		
ġ	e (%)	it ocf)	r 6"	(t)	atior	-og	e o	Sampling Method : Bulk	Ground Elevat	ion:
ple I	istur ent	/ Un ht (I	s pe	th (I	Loc	hic I	I Tyr SCS	Location : See Figure A-2	Date Excavate	d: 05-17-2017
Sam	Moi	Dry Veigl	lows	Dep	mple) Srap	Soil (U:	Description		Additional
		>	ш	0	Sa	0		Ell I (Import):		Tests #200 Wash
1	11.6				\mathbb{X}		SM	Silty SAND; fine, trace of gravel, loose, moist, st	rong brown	Fines = 42%
				_	\bigvee			Lean CLAY with SAND		#200 Wash
2	17.5				Ä			ALLUVIUM:		Fines = 82%
				5 —				Lean CLAY with SAND; stiff, moist, dark yellowis	sh brown	#200 Weeh
3							CL	OLDER ALLUVIUM: Lean CLAY with SAND; very stiff, moist, dark ye with some white, minor concretions	llowish brown	#200 Wash Fines = 76% EI = 62
				10 <u>-</u> 				End of Boring 7' 0" No groundwater encountered		
					-					
				15	-					
					-					
				 20						
					-					
					-					
				25	-					
				30						
				35—						
				-						
				_						
				40						
								Bulk 🔀 CD	SPT	

/	V.		PV					Project No. : 16-0899	Test Pit No	.: TP-4
(ENG & TE	INEE	RING		-			Project Name : OC Prado	Sheet 1 of	• 1
	4	/						Exploration Method : Backhoe Excavation		• •
÷	(%)	if)		_	ion	g		Sampling Method : Bulk		
e No	ture it (%	Jnit (pc	per	(ft)	ocat	c Lo	ype CS)	Trenching Co.: Lourenco Backhoe, inc.	Ground Elevat	ion:
ldm	lois: nter	Jry (ight	SMO	eptł	ple L	aphi	oil T (US(Location : See Figure A-2	Date Excavate	d: 05-17-2017
Sa	° ≤	I We	Blo		Sam	Gra	s -	Description		Additional Tests
1	14.1			0	※			FILL: Sandy Lean CLAY: stiff, moist, brown		#200 Wash Fines = 68%
				_	Η					
2	18.3				\mathbb{X}			Sandy Lean CLAY; stiff, moist to very moist, bro	own	#200 Wash Fines = 74%
3	14.8			_	×		CL			Corrosivity #200 Wash
4	40.2			5 —				OLDER ALLUVIUM:		#200 Weeh
4	40.2				X			Lean CLAY with SAND; firm, very moist, concre olive brown to pale yellow with white	etions, light	#200 Wash Fines = 83%
5	5 21.0							Sandy Lean CLAY; stiff, moist to very moist pal	e yellow with	#200 Wash Fines = 53%
					ſĨ			End of Test Pit @ 7' 6"		
								No groundwater encountered		
				10						
					11					
				_						
				_						
				15	1					
				_						
				_						
				20-						
				_						
				_						
				_						
				25—						
				_						
					11					
				30 —						
				-	11					
				-	11					
					1					
				-						
				35]					
				-	1					
				-						
				<u> </u>						
					1					
				40	1				SPT	

/	V		DV					Project No. : 16-0899	Test Pit No	.: TP-5
(ĘŅĢ	INEE	RING	2	-			Project Name : OC Prado	Shoot 1 -4	
			, INC.					Exploration Method : Backhoe Excavation	Sheet: 01	
		f)	5.		Б	5		Sampling Method : Bulk		
No	ure t (%	nit (pc	er 6	(ft)	ocati	: Lo	ype S)	Trenching Co.: Lourenco Backhoe, inc.	Ground Elevat	ion:
mple	oist	ury U ght	d sw	epth	ole Lo	phic	oil T USC	Location : See Figure A-2	Date Excavate	d: 05-17-2017
Sal	C M	D Wei	Blo	ă	Samp	Gra	s, C	Description		Additional Tests
				0				FILL:		16363
1	27.8			_		×		Lean CLAY with SAND; soft, moist, brown		Fines = 81%
·	21.0			_	ĥ			ALLUVIUM:	brown	EI = 50
				_			CL	Lean CLAT with SAND, soit, very moist, dark	brown	PL = 19
2	19.1			5	\boxtimes			OLDER ALLUVIUM:		#200 Wash Fines= 68%
				J				Sandy Lean CLAY; trace of gravel, stiff to very	stiff, moist to	
	04.0			_						#200 Wash
3	21.2				×					⊢ines = 61%
								End of Test Pit @ 7' 6" No groundwater encountered		
				10-				-		
				15						
				_						
				20						
				_						
				25						
				_						
				30-						
				35						
				40						
_					-			Bulk M CD		

/	KOURY							Project No. : 16-0899	Test Pit No	b. : TP-6
(ENG & TE		RING						Sheet:1 o	f :1
	\rightarrow							Exploration Method : Backhoe Excavation	-	
ö	(%	: cf)	.9		tion	bo	Ø	Sampling Method : Bulk		
le N	iture nt ('	Unit t (p	per	h (ft	Loca	ic L	CS)	Trenching Co.: Lourenco Backhoe, inc.	Ground Elevat	tion:
amp	Mois onte	Dry eigh	swo	Jept	ple	aph'	Soil (US	Location : See Figure A-2	Date Excavate	d: 05-17-2017
Ő	_ റ്റ	Ŵ	BI		San	อิ	•,	Description		Tests
1	21.1			0	X			FILL: Sandy Lean CLAY; very moist, dark bro	wn	#200 Wash Fines = 70%
							CL	ALLUVIUM: Sandy Lean CLAY; stiff, moist to very moist, d brown	ark yellowish	
		21.5					OLDER ALLUVIUM: Sandy Lean CLAY; stiff, moist to very moist, c olive brown with white	oncretions,	#200 Wash	
2	21.5			$\begin{array}{c} - & - & - \\ 10 & - & - \\ 10 & - & - \\ 10 & - & - \\ 15 & - & - \\ 10 & - & - \\$				End of Test Pit @ 7' 6" No groundwater encountered		#200 Wash Fines = 64%
L	1		1					Bulk M CD	SPT	

-(RING				Project No. : 16-0899 Project Name : OC Prado	Test Pit No	b.: TP-7
nple No.	oisture itent (%)	ry Unit ght (pcf)	vs per 6"	spth (ft)	ele Location phic Log	il Type USCS)	Exploration Method : Backhoe Excavation Sampling Method : Bulk Trenching Co.: Lourenco Backhoe, inc. Location : See Figure A-2	Ground Elevat Date Excavate	ion: d: 05-17-2017
Sar	Cong	D	Blov	ð	Gra	Sc (I	Description		Additional Tests
1	18.7			0 _	X		Fill: Sandy Lean CLAY; stiff, moist, dark yellow	vish brown	#200 Wash Fines = 68%
2	17.0				\mathbb{X}		ALLUVIUM:	a dark	#200 Wash
3	18.7 CL			yellowish brown	s, uark	Fines = 83%			
4	18.7 19.8 23.3			OLDER ALLUVIUM: Lean CLAY with SAND; stiff, to very stiff, mois concretions, caliche, light olive brown with white Max dry density; 115.3 Optimum moisture 12 End of Test Pit @ 8' 6" No groundwater encountered	t to very moist, 3 pcf 5%	#200 Wash Fines = 80% LL = 51 PL = 21 EI = 59 #200 Wash Fines = 84%			
							Bulk⊠ CD	SPT	

$\left($	KC ENG & TE		RY RING				Project No. : 16-0899 Project Name : OC Prado	Test Pit No Sheet:1 of	.: TP-8
nple No.	oisture itent (%)	ry Unit ght (pcf)	vs per 6"	pth (ft) le Location	phic Log	il Type JSCS)	Exploration Method : Backhoe Excavation Sampling Method : Bulk Trenching Co.: Lourenco Backhoe, inc. Location : See Figure A-2	Ground Elevat	ion: d: 05-17-2017
Sar	Con	Vei	Blov	De	Gra	Sc (I	Description		Additional Tests
1	15.8			0			FILL: Lean CLAY with SAND; stiff, moist, dark y	rellowish	
2	18.2					CL	ALLUVIUM: Lean CLAY with SAND; stiff, moist to very moist brown	, concretions,	Fines = 80% #200 Wash Fines = 77%
3	3 25.2 5.2 CH					СН	OLDER ALLUVIUM: Fat CLAY with SAND; very stiff, very moist, abu concretions, slightly porous, light yellowish brown	ndant	#200 Wash Fines = 66%
4	4 35.2 5 39.6						stiff Max dry density; 112.2 Optimum moisture 14	? pcf .3%	#200 Wash Fines = 77% LL = 68 PL = 22 EI = 90
	5 39.6					End of Test Pit @ 16' Groundwater seepage encountered @ 15' 6"	SDI	Fines = 80%	

-(RY	-			Project No. : 16-0899 Project Name : OC Prado	Test Pit No	o.: TP-9
		STING	, INC.				Exploration Method : Backhoe Excavation	Sheet:1 of	:1
÷	- (%	if)	-0		ion		Sampling Method : Bulk		
le Nc	sture nt (°	Unit t (po	per	h (ft)	Locat ic Lo	Type CS)	Trenching Co.: Lourenco Backhoe, inc.	Ground Elevat	ion:
amp	Mois onte	Dry (eigh	lows	Dept	nple raph	Soil (US	Location : See Figure A-2	Date Excavate	d: 05-17-2017
0,	с С	\$	В	0	Sal		Description		Tests
				Ŭ			Lean CLAY with SAND; stiff, moist, dark yellowis	sh brown	
1	15.6				X		ALLUVIUM: Lean CLAY with SAND; stiff, moist, dark brown		#200 Wash Fines = 86%
2							OLDER ALLUVIUM: Lean CLAY with SAND; stiff, moist, calcium cart	oonate	#200 Wash Fines = 79%
3	19.0					CL	concretions, olive brown with white		#200 Wash Fines = 78%
4	19.3			10	V		Sandy Lean CLAY; trace of gravel, stiff, moist to light olive brown	very moist,	#200 Wash
r									⊢ınes = 59%
5	21.9			15 <u>-</u> 	8				#200 Wash Fines = 75%
							End of Boring 16' 6" No groundwater encountered		
				20					
				25					
				30 <u>-</u> 					
				35					
				40			Bulk 🔯 CD 🗖	SPT	

/	KOURY							Project No. : 16-0899	Test Pit No	.: TP-10
-(ENG	INEE	RING		-			Project Name : OC Prado	Cheet 4	
	& TE:	STING	, INC.					Exploration Method - Backhoe Excavation	Sheet : 1 of	:1
					Ę	_		Sampling Method : Bulk		
No.	Ire (%)	nit (pcf	er 6'	(tt)	catic	Log	be S)	Trenching Co.: Lourenco Backhoe, inc.	Ground Elevat	ion:
alqr	oistu tent	y Ur Jht (/s be	pth	e Lo	ohic	il Ty ISC(Location : See Figure A-2	Date Excavate	d: 05-17-2017
San	Con	Dr Weiç	Blow	De	ampl	Grap	(L So	Description		Additional
1	17.3			0	8		<u> </u>	FILL:		Fines = 33%
				_			30	Clayey SAND; fine, little gravel, dark yellowish b	prown	#200 \Maab
2	19.2			_	\mathbb{X}			ALLUVIUM: Sandy Lean CLAY; trace of gravel, stiff, moist,	dark brown	#200 Wash Fines = 75%
3	17.8			-	×			Maximum Dry Density :122.8 PCF @ 11.2% Mo	isture	PL = 39 PL = 17 Fines = 80%
4	19.1				$\widehat{\mathbb{X}}$		CL	very moist, concretions, dark brown	stiπ, moist to	#200 Wash Fines = 57%
5	17.5			5 _	$\hat{\mathbb{X}}$			Sandy Lean CLAY: stiff moist concretions cal	sium	#200 Wash Fines = 64%
								carbonate, light olive brown with some white and brown	d yellowish	
							<u>сп</u>	Fat CLAY; stiff, moist to very moist, caliche and	concretions,	#200 Weeh
6	23.1				Ķ		СП	pale yellow with white		Fines = 85% #200 Wash
7	23.2			10	X		CL/CH	Lean to Fat CLAY; stiff, very moist, concretions brown	, light olive	Fines = 61%
				_				End of Test Dit @12' 0"		
				-				No groundwater encountered		
				15						
				_						
				20-						
				-						
				-						
				-						
				25						
				-						
				_						
				30						
				_						
				_	1					
				_	1					
				35 —	1					
				1 -						
				1 -						
				1 -						
				-						
L				40					SPT	

	,			Project No. : 16-0899 Project Name : OC Prado	Test Pit No	b. : TP-11
Per 6 "	t (ft) ocation	: Log	ype (S)	Exploration Method : Backhoe Excavation Sampling Method : Bulk Trenching Co.: Lourenco Backhoe, inc.	Sheet : 1 of Ground Elevat	f:1 ion:
ample Moist Dry L eight	Depth ple L	aphi	soil T (USC	Location : See Figure A-2	Date Excavated: 05-17-2017	
ю́-с́ššš	Sam	ษั	.,	Description		Additional Tests
1 8.6				FILL: Silty SAND with GRAVEL; fine to coarse, loose	, brown	#200 Wash Fines = 12% Gravel = 38%
				ALLUVIUM: Lean CLAY with SAND; stiff, mois	t	
	5		CL	OLDER ALLUVIUM: Lean CLAY with SAND; stiff, moist, black		
				Lean CLAY with SAND; stiff, moist, light brown		
	$ \begin{array}{c} - \\ - \\ 10 \\ - \\ 1$			End of Test Pit @ 9' 6" No groundwater encountered		
	40			Bulk 🕅 CD	SPT	

-(RY RING		-			Project No. : 16-0899 Project Name : OC Prado	Test Pit No Sheet : 1 of	.: TP-12 :1
mple No.	loisture ntent (%)	Iry Unit ght (pcf)	ws per 6"	epth (ft)	ole Location	nphic Log	oil Type USCS)	Exploration Method : Backhoe Excavation Sampling Method : Bulk Trenching Co.: Lourenco Backhoe, inc. Location : See Figure A-2	Ground Elevati Date Excavated	ion: d: 05-17-2017
Sar	SΩ	Vei Vei	Blo	ă	Samp	Gra	S)	Description		Additional Tests
				0				FILL: Sandy Lean CLAY; dark brown		
1	14.9						CL	ALLUVIUM: Lean CLAY with SAND; stiff, moist, dark brown		#200 Wash Fines = 78%
2	17.1			5			CL/CH	OLDER ALLUVIUM; Lean to Fat CLAY; stiff to ve moist to very moist, concretions, calcium carbonate yellowish brown with some white	ery stiff, e, dark	#200 Wash Fines = 52%
3	22.0 CH						СН	Fat CLAY; stiff, very moist, concretions, calcium ca light yellowish brown with white	arbonate,	#200 Wash Fines= 86%
								End Test Pit @ 8' 0" No groundwater encountered	SPT	Filles = 00 %

/	KOURY							Project No. : 16-0899 Project Name : OC Prado	Boring No.	: TP-13
(ENG & TE	INEE	RING , INC.		-				Sheet:1 of	:1
					c			Exploration Method : Backhoe Excavation		
°.	re (%)	it pcf)	ir 6"	ft)	atio	Log	be	Trenching Co: Lourenco Backhoe, inc.	Ground Elevat	ion [.]
ple	istu tent	y Un ht (s pe	pth (e Loc	hic	I Tyl	Location : See Figure A-2	Date Excavate	d: 05-17-2017
Sam	Mo Cont	Dr Weig	Blow	Del	sampl	Grap	Soi (U	Description		Additional
				0	Ŵ			FII 1 -		#200 Weeh
1	26.7				Ä		CL	Lean CLAY with SAND; stiff, very moist, shale yellowish brown	fragments,	#200 Wash Fines = 59%
2	15.5			5	8			Lean CLAY with SAND; moist, dark brown (re- alluvium)	#200 Wash Fines = 75%	
				$\begin{array}{c c} & - & - \\ 10 & - & - \\ 10 & - & - \\ 15 & - & - \\ 20 & - & - \\ 25 & - & - \\ 30 & - & - \\ 30 & - & - \\ 31 & - & - \\ 30 & - & - \\ 31 & - & - \\ 40 & - \\ 40 & - \\ \end{array}$				End of Test Pit @ 8' 0" No groundwater encountered	SPT	

			RY RING					Project No. : 16-0899 Project Name : OC Prado	Boring No. Sheet : 1 of	:TP-14 :1
ample No.	Moisture Intent (%)	Dry Unit sight (pcf)	ows per 6")epth (ft)	ple Location	aphic Log	soil Type (USCS)	Sampling Method : Bulk Trenching Co.: Lourenco Backhoe, inc. Location : See Figure A-2	Ground Elevat Date Excavate	ion: d: 05-17-2017
Se	≥ ° C	I We	Blc		Sam	G	0	Description		Additional Tests
1	33.3			o 	8			ALLUVIUM: Fat CLAY; firm, very moist, slightly porous, gree	nish gray	#200 Wash Fines = 92% EI = 89
2	36.0			5	\mathbb{X}		СН	OLDER ALLUVIUM: Fat CLAY; soft, wet, concretions, light gray		#200 Wash Fines = 74%
	31.9				\lor			Stiff to very stiff, greenish gray		#200 Wash Fines = 83%
	20.9			15—	\otimes		CL	Lean CLAY; stiff, very moist, greenish gray		Fines = 66%
								End of Test Pit 15' 6" No groundwater encountered		

-(RY RING					Project No. : 16-0899 Test F Project Name : OC Prado Sheet	Pit No.: TP-15
nple No.	oisture tent (%)	ry Unit ght (pcf)	vs per 6"	ipth (ft)	le Location	phic Log	il Type JSCS)	Exploration Method : Backhoe Excavation Sampling Method : Bulk Trenching Co.: Lourenco Backhoe, inc. Ground Location : See Figure A-2	Elevation: cavated: 05-17-2017
San	Con	Veiç	Blov	De	Samp	Gra	(I So	Description	Additional Tests
1	18.2			0	3 X		CL	ALLUVIUM: Sandy Lean CLAY; stiff to very stiff, moist to very moist, da grayish brown	#200 Wash Fines = 61% ark
2	31.0 29.9			5 1 1 1 1 1	×		сн	OLDER ALLUVIUM: Fat CLAY; stiff, moist to very moist, concretions, caliche, lig olive brown with some white	#200 Wash Fines = 86% EI = 60 #200 Wash Fines = 86%
4	27.0				×		CL	Sandy Lean CLAY; lenses of silty sand, stiff, very moist, greenish gray with some white	#200 Wash Fines = 73%
5	44.0			15 —	×		СН	Fat CLAY; very stiff, shale-lime, very moist, greenish gray	#200 Wash Fines = 99%
								End of Test Pit 15' 6" Groundwater seepage encountered @ 10' 6"	

-(RING , INC.		-			Project No. : 16-0899 Test Pit N Project Name : OC Prado Sheet : 1	lo. : TP-16 of:1
ample No.	Moisture Intent (%)	Dry Unit sight (pcf)	ows per 6"	Jepth (ft)	Iple Location	aphic Log	soil Type (USCS)	Exploration Method : Backhoe Excavation Sampling Method : Bulk Trenching Co.: Lourenco Backhoe, inc. Location : See Figure A-2 Date Excava	ation: ted: 05-17-2017
ŝ	≤ °	Ne I	Blo		Sam	Gr	0	Description	Additional Tests
1	12.8			0	X			FILL: Sandy Lean CLAY; tsoft to stiff, moist, dark yellowish brown	#200 Wash Fines = 58%
				- - -			CL	ALLUVIUM: Sandy Lean CLAY; firm, moist, dark yellowish brown	
2	15.0			5 <u>-</u> - -	8			OLDER ALLUVIUM: Sandy Lean CLAY; stiff to very stiff, moist, dark yellowish brown	#200 Wash Fines = 55%
3	15.7			-	\mathbb{X}				#200 Wash Fines = 52%
								End of Test Pit @ 8' 6" No groundwater encountered	

-(ENG & TE		RY RING					Project No. : 16-0899 Test Pit No. Project Name : OC Prado Sheet : 1	o.: TP-17 f:1
mple No.	loisture ntent (%)	bry Unit ight (pcf)	ws per 6"	epth (ft)	ole Location	aphic Log	oil Type USCS)	Exploration Method : Backhoe Excavation Sampling Method : Bulk Trenching Co.: Lourenco Backhoe, inc. Location : See Figure A-2 Date Excavate	tion: ∋d: 05-17-2017
Sai	SΩ	Vei	Blo	ă	Samp	Gra	S, C	Description	Additional Tests
				0			CL	FILL: Sandy Lean CLAY; very stiff, moist, dark brown ALLUVIUM:	#200 Wash
1	16.0			_	Å			Lean CLAY with SAND; stiff to very stiff, moist, dark yellowish	Fines = 79%
2	23.3				X		СН	OLDER ALLUVIUM: Sandy Fat CLAY; stiff to very stiff, moist to very moist, concretions, light olive brown	Fines = 71% EI = 96
3	37.6			5	\mathbb{X}			Fat CLAY; stiff to very stiff, moist, dark yellowish brown	#200 Wash Fines = 90%
								End of Test Pit @ 6' 0" No groundwater encountered	

Non-state No-state No-state	KOURY ENGINEERING TESTING, INC.	Project No. : 16-0899 Project Name : OC Prado Sheet : 1 of Exploration Method : Backhoe Excavation	o.: TP-18 of:1
is * Col * So is is <t< td=""><td>Imple No. Noisture Intent (%) Iny Unit ight (pcf) wys per 6" wys per 6" per Location ple Location oil Type</td><td>Sampling Method : Bulk Trenching Co.: Lourenco Backhoe, inc. Location : See Figure A-2 Date Excavate</td><td>ation: ed: 05-17-2017</td></t<>	Imple No. Noisture Intent (%) Iny Unit ight (pcf) wys per 6" wys per 6" per Location ple Location oil Type	Sampling Method : Bulk Trenching Co.: Lourenco Backhoe, inc. Location : See Figure A-2 Date Excavate	ation: ed: 05-17-2017
1 17.8 <t< td=""><td>CON Sam D BIO</td><td>Description</td><td>Additional Tests</td></t<>	CON Sam D BIO	Description	Additional Tests
2 12.2 3 13.0 CL ALLUVUW: Sandy Lean CLAY; very stiff, dark yelowish brown #200 Wash Price = C6% 3 13.0 5		FILL: Sandy Lean CLAY; stiff, moist, concretions, olive brown	#200 Wash Fines = 59%
3 13.0 0.DER ALLUVUM: Sandy Lean CLAY; very stiff, moist, Fines = 65% 5 - 6 - 10 - 10 - 10 - 115 - 120 - 131 - 141 - 15 - 15 - 16 - 17 - 18 - 19 - 10 - 10 - 115 - 120 - 131 - 14 - 15 - 16 - 17 - 18 - 19 - 10 - 115 - 12 - 13 - 14 - 15 - 16 - 17 - 18 - 19 - 19 - 10 - 110 - 12 - 130 - 14 <	2 12.2 CL	ALLUVIUM: Sandy Lean CLAY; very stiff, dark yellowish brown	#200 Wash Fines = 72%
End of Test Pit @ 4' 6' No groundwater encountered	3 13.0	OLDER ALLUVIUM: Sandy Lean CLAY; very stiff, moist, concretions, yellowish brown	#200 Wash Fines = 65%
		End of Test Pit @ 4' 6" No groundwater encountered	

-(Project No. : 16-0899 Project Name : OC Prado	est Pit No	.: TP-19 :1
, No.	ure t (%)	Init (pcf)	ler 6"	(ft)	cation : Log	ype S)	Exploration Method : Backhoe Excavation Sampling Method : Bulk Trenching Co.: Lourenco Backhoe, inc. Gr	round Elevati	on:
ample	Moist	Dry U ∍ight	d swc	Jepth	aphic	Soil T	Location : See Figure A-2 Da	ate Excavated	d: 05-17-2017
š	- °	Ň	Blc		Gr		Description		Additional Tests
1 2	13.9 17.1			0			FILL: Sandy Lean CLAY; trace of gravel, dark yellowish br	rown	#200 Wash Fines = 50% Gravel = 11%
							ALLUVIUM: Lean CLAY with SAND; trace of gravel, stiff, moist, o brown	dark	El = 24
3	23.1			5		CL	OLDER ALLUVIUM: Lean CLAY with SAND; stiff, very moist, yellowish b	brown	#200 Wash Fines = 80%
4	32.2				8		Fat CLAY; trace of gravel, stiff, very moist, dark yello brown	owish	#200 Wash Fines = 93% #200 Wash
5	31.6			$\begin{array}{cccccccccccccccccccccccccccccccccccc$			End of Test Pit @ 9' 6" No groundwater encountered		#200 Wash Fines = 94%
L						1	Bulk 🔀 CD 🗖	SPT 🗙	

y y <th>-(</th> <th></th> <th></th> <th>RING , INC.</th> <th></th> <th>-</th> <th></th> <th></th> <th>Project No. : 16-0899 Project Name : OC Prado Sheet : Exploration Method : Backhoe Excavation</th> <th>it No.: TP-20 1 of:1</th>	-(RING , INC.		-			Project No. : 16-0899 Project Name : OC Prado Sheet : Exploration Method : Backhoe Excavation	it No.: TP-20 1 of:1
I U S a b U Description Tests 1 14.7 14.7 1.6 1 1.6	Sample No.	Sample No. Moisture Dry Unit Weight (pcf) Blows per 6" Depth (ft) ample Location Graphic Log Soil Type (USCS)							Sampling Method : Bulk Trenching Co.: Lourenco Backhoe, inc. Location : See Figure A-2 Date Exe	Elevation: cavated: 05-17-2017 Additional
1 14.7 11.6 <t< th=""><th><i>"</i></th><th>0</th><th>\$</th><th>B</th><th>0</th><th>Sai</th><th>U</th><th></th><th>Description</th><th>Tests</th></t<>	<i>"</i>	0	\$	B	0	Sai	U		Description	Tests
2 11.6 ALLUVIUM: Sandy Lean CLAY; very stiff, moist, dark yellowish brown #200 Wash, Frees = 74%, 3 3 10.9 5 3 4 19.2 10 CL 5 CL Sandy Lean CLAY; stiff, moist, ight olive brown #200 Wash, Frees = 26%, 10 4 19.2 CL Sandy Lean CLAY; stiff, moist, light olive brown #200 Wash, Frees = 63%, 10 4 19.2 CL Sandy Lean CLAY; stiff, moist, light olive brown #200 Wash, Frees = 63%, 5	1	14.7				\mathbb{X}		CI	FILL: Lean CLAY with SAND; stiff, moist, brown	#200 Wash Fines = 78%
3 10.9 5 3 0.0 DER ALLUVIUM: Sity SAND; fine to medium, moist, yellowish brown #200 Wash, Fines = 28% 4 19.2 10 CL Sandy Lean CLAY; stiff, moist, light olive brown #200 Wash, Fines = 0.3% 4 19.2 10 CL Sandy Lean CLAY; stiff, moist, light olive brown #200 Wash, Fines = 0.3% 5 CL Sandy Lean CLAY; stiff, moist, light olive brown #200 Wash, Fines = 0.3% 10 CL Sandy Lean CLAY; stiff, moist, light olive brown #200 Wash, Fines = 0.3% 10 CL Sandy Lean CLAY; stiff, moist, light olive brown #200 Wash, Fines = 0.3% 10 CL Sandy Lean CLAY; stiff, moist, light olive brown #200 Wash, Fines = 0.3% 10 CL Sandy Lean CLAY; stiff, moist, light olive brown #200 Wash, Fines = 0.3% 10 CL Sandy Lean CLAY; stiff, moist, light olive brown #200 Wash, Fines = 0.3% 11 CL Sandy Lean CLAY; stiff, moist, light olive brown #200 Wash, Fines = 0.3% 11 Sandy Lean CLAY; stiff, moist, light olive brown #200 Wash, Fines = 0.3% 12 Sandy Lean CLAY; stiff, moist, light olive brown #200 Wash, Fines = 0.3% 13 Sandy Lean CLAY; stiff, moist, light olive brown #200 Wash, Fines = 0.3% 14 Sandy Lean CLAY; stiff, moist, light olive brown<	2	11.6				8		01	ALLUVIUM: Sandy Lean CLAY; very stiff, moist, dark yellowish brown	#200 Wash Fines = 74%
4 19.2 10 CL Sandy Lean CLAY; stiff, moist, light olive brown #200 Wash Fines = 63% End of Test Pit @ 10' 6" No groundwater encountered No groundwater encountered 15 1 15 1 15 1 16 15 1 15 1 15 17 10 15 10' 6" 10' 6" 18 19.2 10' 6" 10' 6" 10' 6" 19.2 10 10' 6" 10' 6" 10' 6" 10 10 10' 6" 10' 6" 10' 6" 10 10 10' 6" 10' 6" 10' 6" 10 10 10' 6" 10' 6" 10' 6" 10 10 10' 6" 10' 6" 10' 6" 10 10 10' 6" 10' 6" 10' 6" 10 10 10' 6" 10' 6" 10' 6" 10 10 10' 6" 10' 6" 10' 6" 10 10 10' 6" 10' 6" 10' 6" 10 10' 6" 10' 6" 10' 6"	3	10.9			5 —			SM	OLDER ALLUVIUM: Silty SAND; fine to medium, moist, yellowish brown	#200 Wash Fines = 28%
End of Test Pit @ 10' 6" No groundwater encountered	4	19.2			10	\mathbb{X}		CL	Sandy Lean CLAY; stiff, moist, light olive brown	#200 Wash Fines = 63%
									End of Test Pit @ 10' 6" No groundwater encountered	

-(RY RING					Project No. : 16-0899 Project Name : OC Prado	Test Pit No Sheet : 1 of	.: TP-21 [:] :1
ample No.	Moisture Intent (%)	Dry Unit sight (pcf)	ows per 6")epth (ft)	ple Location	aphic Log	soil Type (USCS)	Sampling Method : Balk Trenching Co.: Lourenco Backhoe, inc. Location : See Figure A-2	Ground Elevat Date Excavate	ion: d: 05-17-2017
ŝ	2 0 0	Ne Ne	Blo		Sam	G	0	Description		Additional Tests
				0 			SM	FILL: (Stockpile) Silty SAND; fine, slightly moist, yellowish brown		
1	17.3			 5	$\ $			Sandy Lean CLAY; trace of shale, stiff, moist to yellowish brown	very moist,	#200 Wash Fines = 54%
2	18.9						CL	ALLUVIUM: Lean CLAY with SAND; stiff, moist, dark brown		#200 Wash Fines = 76%
3	14.8			10				OLDER ALLUVIUM: Lean CLAY with SAND; hard, moist, dark yellow with some light brown	vish brown	#200 Wash Fines = 76%
								End of Test Pit @ 10' 6" No groundwater encountered	SPT	

$\left($			RING , INC.	·				Project No. 18-0817 Project Name : OC Prado Exploration Method : Backhoe	b. 22 f : 1
nple No.	oisture itent (%)	ry Unit ght (pcf)	uivalent SPT	epth (ft)	ble Location	,	oil Type USCS)	Sampling Method : Bulk - CD Trenching Co: Bill Bastedo Backhoe Service Location : See Figure A-2 Date Excavate	t ion: • d : 09-10-2018
Sai	⊆ S	D Wei	Eq	ă	Samp		ы С	Description	Additional Tests
1	16.3				×		CL	FILL: Lean CLAY with SAND; stiff to very stiff, moist, very dark brown	#200 Wash Fines = 76% PP = 4.5 tsf
2	17.4			3 <mark>-</mark>	8			ALLUVIUM: Lean to fat CLAY with SAND; very stiff, moist, very dark brown	Fines = 83% PP = 4 tsf EI = 126
3 4	16.4 18.8	122		4 5	≫	c	CL/CH	OLDER ALLUVIUM: Lean to FAT CLAY with SAND; concretions, moist to very moist stiff mottled brown and pale brown	Fines = 81% PP = 3-3.5 tsf Fines = 80% PP = 3-3.5 tsf EI = 62
6	30.6			6				noisi, sin, notied brown and pale brown	PP = 2.5 tsf PP = 1-1.5 tsf PP = 1-1.5 tsf
7	33.6			8					#200 Wash Fines = 91% PP = 1.5-3 tsf
8	41.4			9	X		сн	Fat CLAY; trace of concretions, firm to stiff, moist to very moist, dark grayish brown with red specks	PP = 1 tsf
9	36.9			 11					Fines = 87% PP = 1.2 tsf
				12				End of test pit @ 10' 9" No groundwater encountered	
								Nuclear gauge density test data at 5.5' Dry density = 96 pcf Moisture content = 19.1%	

			RY RING					Project No. 18-0817 Project Name : OC Prado Sheet : 1 C Exploration Method : Backhoe	5. 23 9 f : 1
ample No.	Moisture ontent (%)	Dry Unit eight (pcf)	quivalent SPT	Jepth (ft)	ple Location	aphic Log	soil Type (USCS)	Sampling Method : Bulk - CD Trenching Co: Bill Bastedo Backhoe Service Ground Eleva Location : See Figure A-2 Date Excavate	tion: ed : 09-10-2018
ö	- ŭ	Ň	Э		San	ษิ		Description	Tests
				0 1			CL	FILL: Sandy Lean CLAY; stiff, moist, very dark brown	
1 2	17.6 19.4			2	\mathbb{X}			ALLUVIUM: Sandy Lean to Fat CLAY; trace of gravel, trace of concretions, stiff to hard, moist to very moist, very dark brown to dark yellowish brown with pale brown inclusions	Fines = 60% PP = 3.0 tsf EI = 97 Fines = 52% PP = 4.5 tsf
3	16.1			3 <u> </u>	Â			OLDER ALLUVIUM: Sandy Lean to Fat CLAY; abundant concretions, stiff to very	#200 Wash Fines = 50% PP = 3.5 tsf EI = 107
4	18.2	102		5	8			sun, moist, very pale brown with daik yellowish brown	Fines = 56% PP = 2.0 tsf Fines = 76%
5 6 7	22.0 25.9 29.2	103		6 <mark>-</mark> - 7 -	× \/		CL/CH		PP = 4 - 4.5 tsf Fines = 85% PP= 3.5 tsf Fines = 82%
				8				Lean to Fat CLAY with SAND; trace of concretions, medium to high plastic, stiff to very stiff, dark yellowish brown to light olive brown with white	PP = 2.0 tsf Fines = 82%
8	37.7			9	\mathbb{X}				PP = 2.0 tsf
				11 <u>-</u> 				End of test pit @ 10' 9" No groundwater encountered	
								Nuclear gauge density test data at 5.5' Dry density = 96 pcf Moisture content =19.1%	
								Bulk 🐹 CD 🗖 SPT 🔀	

$\left($			RING				Project No. 18-0817 Project Name : OC Prado Sheet Exploration Method : Backhoe	Pit No. 24 :1 Of :1
nple No.	oisture tent (%)	ry Unit ght (pcf)	uivalent SPT	pth (ft)	phic Log	il Type JSCS)	Sampling Method : Bulk - CD Trenching Co: Bill Bastedo Backhoe Service Ground Location : See Figure A-2 Date E	d Elevation: xcavated : 09-11-2018
Sar	Con	D Wei	Eq	De	Gra	Sc (I	Description	Additional Tests
				0 1		CL	FILL: Sandy Lean CLAY; trace of gravel, abundant concretions stiff, moist, dark brown	,
1	14.2			2 <u>-</u> 3			ALLUVIUM: Sandy Lean to Fat CLAY; abundant concretions, stiff, mo dark brown	ist, Fines = 58% PP = 2 tsf EI = 107
2	22.1			4			OLDER ALLUVIUM: Sandy Lean to Fat CLAY; abundant concretions, stiff, mo to very moist, yellowish brown with pale brown	Fines = 50% PP = 2.5 tsf
3 4 5	19.5 21.1 21.0	107		5	8			PP = 2 tsf Fines = 71% PP = 2.7-4 tsf Fines = 71% PP = 2.7-4 tsf
6	24.9			7		CL/CH	some olive brown	Fines = 71% PP = 2.5 tsf
7	35.3			7 — 8 — 9 —			Lean to Fat CLAY with SAND; trace of concretions, med to high plastic, stiff to very stiff, moist to very moist, olive b to light olive brown with pale yellow	ium Fines = 84% rown PP = 2.5 tsf
8	31.0			10				Fines = 81% PP = 1.5 tsf
9	26.8			11				Fines = 79% PP = 3.75-4 tsf
							End of test pit @ 11' 5" No groundwater encountered Nuclear gauge density test data at 5' 2" Dry density = 99 pcf Moisture content = 22.3%	
							D Bulk 🔀 CD	SPT 🔀

1	K		RY					Project No. 18-0817 Project Name : OC Prado Test Pit I	lo. 25
(ENG & TES		RING		-			Sheet : 1	Of :1
	-	/						Exploration Method : Backhoe	
	(%	cf)	¥	_	tion	bo	a	Sampling Method : Bulk - CD	
le N	iture nt (Unii t (p	/aleı ЭТ	h (ft	госа	ic L	Typ(CS)	Trenching Co: Bill Bastedo Backhoe Service Ground Ele	vation:
amp	Mois	Dry	quiv SF	Dept	ple	Graph Soil (US	Location : See Figure A-2 Date Excava	ited : 09-11-2018	
ö	- ŭ	Ň	ш		San	ษั	.,	Description	Tests
				0				FILL:	
				1 —				Sandy Lean CLAY; trace of gravel, trace concretions, stiff, moist, dark yellowish brown with pale brown inclusions	
									#200 Wash
1	17.3			2 —	\mathbb{X}			ALLUVIUM:	Fines = 68% PP = 2 tsf
					Π		CL	Sandy Lean CLAY; trace of concretions, stiff, moist, dark vellowish brown with pale brown inclusions	
~	01.0	100		3 —					Fines = 58%
∠ 3	21.0 17.3	100			※				PP = 3.7-4.5 tsf Fines = 50%
				4 —	Π			Sandy Lean CLAY; abundant concretions, medium plastic,	PP = 3.5-4.5 tsf
4	19.0			-	\mathbb{N}			stiff, moist, yellowish brown with pale brown	Fines = 58%
				5 —					PP = 2-3 tsf #200 Wash
5	24.5				\mathbb{M}			Sandy Lean to Fat CLAY: concretions, medium to high	Fines = 74% PP = 1.5 tsf
				6 —				plastic, very stiff to hard, moist to very moist, yellowish brown	
								to pale brown with olive brown	
				7 —	L		CL/CH		
6	31.2				M			Lean to Fat CLAY with SAND; trace of concretions, medium	#200 Wash Fines = 82%
				8 —	$\langle \rangle$			to high plastic, stiff to very stiff, moist to very moist, olive brown	PP= 3 tst
7	44.4				X			to light onve brown with pale yellow	Fines = 92% PP = 1.5-1.7 tsf
				9 —	///			5 4 4 4 7 0 0	
								End of test pit @ 9" No groundwater encountered	
				10				Nuclear reurs density test data at 21	
								Dry density = 97 pcf Moisture content = 24.0%	
				12					
				_					
				_	1				
				_	11				
				_	11				
				_	11				
				-]				
				-					
				-	1				
								Bulkt CD SPT	 X

View Status Exploration Method : Backhoe smpling up	-(Project No. 18-0817 Project Name : OC Prado	est Pit N	lo. 26
x x	·o	(%	cf)			og og		Exploration Method : Backhoe Sampling Method : Bulk - CD	ICCL .	
\overline{g}	nple N	oisture tent ('y Unit ght (p	uivaleı SPT	pth (ft	le Loca phic L		Trenching Co: Bill Bastedo Backhoe Service Group Location : See Figure A-2 Da	ound Elev ate Excava	ation: ted : 09-11-2018
1 13.4 14.2 14.2 14.4 14.8 116 14.2 14.8 116 14.4 116 14.4 116 14.4 116 14.4 116 14.4 116 14.4 116 14.4 116 116 14.4 116 <td>San</td> <td>Con</td> <td>D</td> <td>Equ</td> <td>De</td> <td>Samp Graj</td> <td></td> <td>Description</td> <td></td> <td>Additional Tests</td>	San	Con	D	Equ	De	Samp Graj		Description		Additional Tests
 1.1.2 1.1.2 1.1.2 1.1.6 1.1.6 1.1.7 1.1.6 1.1.6 1.1.7 1.1.6 1.1.7 1.1.6 1.1.7 1.1.6 1.1.7 1.1.6 1.1.7 1.1.6 1.1.7 1.1.6 <	1	13.4				~		FILL: Lean CLAY with SAND; mostly crumbly, moist, dark brown	reddish	Fines = 80% PP = 2.5 tsf EI = 20 #200 Wash Fines = 81% PP = 2.5-4 tsf
4 14.8 116 3	3	14.2						trace of concretions, stiff, moist, very dark brown		Fines = 82%
6 39.4 5 CL Spintenergy Fines = 66° 7 21.2 6 - - Fines = 68° 8 20.1 7 - - - Fines = 68° 9 17.9 7 - - - - - 9 17.9 8 - - - - - - 10 14.6 1 -	4 5	14.8 15.7	116			~		OLDER ALLUVIUM: Lean CLAY with SAND; stiff to very stiff, moist, dark y brown laver of fat clay	yellowish	Fines = 79% PP = 4.5 tsf Fines = 79% PP = 4.5 tsf
7 21.2 8 20.1 9 17.9 10 14.8 11 14.4 12 1 14 1 14 1 15 10 16 1 17 1 10 14.8 11 14.4 12 1 14 1 14 1 14 1 14 1 14.8 1 11 14.4 12 1 14 1 15 1 16 1 17 1 14 14.4 15 14 16 14 17 14 18 14 19 15 10 14.8 11 14.4 14 14.4 15 14.4 16 14.4 17 14.4 </td <td>6</td> <td>39.4</td> <td></td> <td></td> <td>5</td> <td>X</td> <td>CL</td> <td></td> <td></td> <td>Fines = 66% EI= 74</td>	6	39.4			5	X	CL			Fines = 66% EI= 74
8 20.1 7 1 1 4200 Wast brown #200 Wast brown 9 17.9 8 1 1 8 1 Fines = 51° PP = 1.5.21 10 14.6 9 3 SC Clayey SAND; layers of sandy clay, medium dense/stiff, PP = 2.5.3.5 Fines = 51° PP = 3.5.4 10 14.6 10 10 End of test pit @ 10° No groundwater encountered 11 14.4 10 11 Integration of test pit @ 10° Nuclear gauge density test data at 3° PP = 3.5.4 12 11 11 12 Nuclear gauge density test data at 4° 2° Dry density = 111 pcf Moisture content = 13.3% Nuclear gauge density test data at 4° 2° Dry density = 97 pcf Moisture content = 19.2%	7	21.2				X		Sandy Lean CLAY; trace of concretions, stiff to verve	stiff,	Fines = 68% PP = 3-3.5 tsf
9 17.9 10 14.6 11 14.4 11 14.4 11 14.4 11 14.4 11 14.4 11 14.4 12 10 14 11 14.4 11 14.4 11 14.4 11 14.4 11 14.4 11 14.4 14.4 14.4 14.4 14.4 14.4 15.4 10 16.1 11 17.2 10 18.4 10 19.4 14.5 11 14.4 14.4 14.4 15.4 10 16.4 10.4 17.4 10.4 18.4 10.4 19.2 11.4 19.2 11.4 19.2 11.4 19.2 11.4 19.2 11.4 10.4 11.4 <	8	20.1			7			moist, very dark brown		#200 Wash Fines = 62% PP = 1.5-2 tsf
10 14.6 11 14.4 11 14.4 11 14.4 11 14.4 11 14.4 11 14.4 11 14.4 11 14.4 11 14.4 11 14.4 11 14.4 11 14.4 12 End of test pit @ 10' No groundwater encountered 11 Nuclear gauge density test data at 3' Dry density = 111 pcf 12 Nuclear gauge density test data at 4' 2" Dry density = 97 pcf Moisture content = 13.3% 14 Nuclear gauge density test data at 4' 2" Dry density = 97 pcf Moisture content = 19.2%	9	17.9				8				Fines = 51% PP= 2.5-3.5 tsf
End of test pit @ 10' No groundwater encountered Nuclear gauge density test data at 3' Dry density = 111 pcf Moisture content = 13.3% Nuclear gauge density test data at 4' 2" Dry density = 97 pcf Moisture content = 19.2%	10 11	14.6 14.4			9 10		SC	Clayey SAND; layers of sandy clay, medium dense/st moist, dark yellowish brown	tiff,	Fines = 40% PP = 4.5 Fines = 39% PP = 3.5-4.5
								End of test pit @ 10' No groundwater encountered Nuclear gauge density test data at 3' Dry density = 111 pcf Moisture content = 13.3% Nuclear gauge density test data at 4' 2" Dry density = 97 pcf Moisture content = 19.2%		

$\left(\right)$	KOURY ENGINEERING & TESTING, INC.							Project No. 18-0817 Project Name : OC Prado Sheet : 1 C	b. 27 Df : 1
imple No.	Aoisture Intent (%)	Dry Unit ight (pcf)	quivalent SPT	hepth (ft)	ple Location	aphic Log	ioil Type (USCS)	Sampling Method : Bulk -CD Trenching Co: Bill Bastedo Backhoe Service Location : See Figure A-2 Date Excavate	tion: ed : 09-10-2018
Sa	C P	L We	Ĕ	Δ	Sam	Gri	s -	Description	Additional Tests
								FILL: Sandy Lean CLAY; trace of gravel, trace concretions, stiff, moist, dark yellowish brown with pale brown inclusions	
1 2	37.1 15.9			2			CL	ALLUVIUM: Sandy Lean CLAY; trace of concretions, stiff, moist, dark yellowish brown with pale brown inclusions	Fines = 72% PP = 2.5-3.5 tsf Fines = 71% PP = 3.0 tsf
3 4 5	18.4 20.9 20.2	110		4	*		CL/CH	OLDER ALLUVIUM: Sandy Lean to Fat CLAY; abundant concretions, stiff, moist, yellowish brown with pale brown	$\frac{Fines = 65\%}{PP = 4.5 \text{ tsf}} \\ \text{Corrosivity} \\ \text{Fines = 66\%} \\ PP = 2.5 \text{ tsf} \\ \text{EI = 144} \\ \text{Fines = 68\%} \\ PP = 2.7 \text{ tsf} \\ \end{cases}$
6	9.2			6 <mark>-</mark> - 7 -				yellowish brown to pale brown with olive brown	Fines = 18% Gravel = 23%
7	7.5						SM	Silty SAND with GRAVEL; fine to coarse, very moist brownish gray	Fines = 12% Gravel = 29%
8	23.9				\mathbb{X}		CL	Sandy Lean CLAY; firm to stiff, very moist, yellowish brown	Fines = 60 % PP = 1.5 tsf
								End of test pit @ 11' No groundwater encountered Nuclear gauge density test data at 3.5' Dry density = 100 pcf Moisture content = 16.2%	
l								Bulk 🔀 CD 🖬 SPT 🔀	1

$\left($			RY RING				Project No. 18-0817 Project Name : OC Prado Sheet : 1 C Exploration Method : Backhoe	5. 28 ff:1
mple No.	loisture ntent (%)	rry Unit ight (pcf)	luivalent SPT	epth (ft)	ole Location Iphic Log	oil Type USCS)	Sampling Method : Bulk - CD Trenching Co: Bill Bastedo Backhoe Service Ground Eleva Location : See Figure A-2 Date Excavate	tion: ed : 09-11-2018
Sai	C N	D Wei	Eq	ă	Samp Gra	°,	Description	Additional Tests
							FILL: Sandy Lean CLAY; crumbly, very stiff, slightly moist, dark yellowish brown ALLUVIUM:	Fines = 73%
1	16.5			3	×		Sandy Lean CLAY; very stiff, moist, concretion, dark yellowish brown	PP = 4.0 tsf
2 3	20.4 16.8			4		CL	OLDER ALLUVIUM: Sandy Lean CLAY; abundant concretions, stiff, moist, yellowish brown with pale brown	Fines = 71% PP = 2-2.5 tsf EI = 81 Fines = 58% PP = 2-2.5 tsf
4 5	13.4 17.6	115		5 6	8		Sandy Lean CLAY; concretions, very stiff to hard, moist to very moist, yellowish brown to pale brown with olive brown	PP = 4.5 tsf Fines = 50% Fines = 56% PP = 2.5-3.5 tsf
6 7	33.1 35.1			7				Fines = 88% PP = 1.7 tsf Fines = 92% PP = 1.5-4 tsf
7	45.0			9 <u>-</u> 9 <u>-</u> 10 <u>-</u>		СН	Fat CLAY; trace of concretions, stiff to very stiff, moist to very moist, olive brown to light olive brown with pale yellow	#200 Wash Fines = 90% PP = 2 7 3 0 tsf
1	45.0			11			End of test pit @ 10' 8"	FF - 2.7-3.0 (SI
				12 <u>-</u>			Nuclear gauge density test data at 5' Dry density = 109 pcf Moisture content = 12.6%	
							Nuclear gauge density test data at 7' 2" Dry density = 86 pcf Moisture content = 31.3%	
							Bulk 🔀 CD 🔳 SPT 🔀	1

$\left(\right)$			RING , INC.					Project No. 18-0817 Project Name : OC Prado Sheet : 1 Exploration Method : Backhoe	l o. 29 Of:1
ample No.	Moisture Intent (%)	Dry Unit șight (pcf)	quivalent SPT	Jepth (ft)	ple Location	aphic Log	soil Type (USCS)	Sampling Method : Bulk - CD Trenching Co: Bill Bastedo Backhoe Service Ground Elev Location : See Figure A-2 Date Excava	ation: ted : 09-11-2018
Se	- °	- Me	Ш		Sam	ษั	0	Description	Additional Tests
				0 1 				FILL: Sandy Lean CLAY; trace gravel, trace of concretions, stiff, moist, dark yellowish brown with pale brown inclusions	Fines = 81%
1	12.5			2	Ä			Lean CLAY with SAND; very stiff, moist to very moist, very dark brown	PP = 3.5 tsf
2	15.9			3 <u>-</u> 4 <u>-</u>	X		CL	OLDER ALLUVIUM: Lean CLAY; abundant concretions, medium plastic, stiff, moist, yellowish brown with pale brown	Fines = 76% PP = 2.7 tsf
3	20.4	98		5				Sandy Lean CLAY; trace of concretions, very stiff to hard,	Fines = 58% PP = 4 -4.5 tsf
4	17.3			6 <u>-</u> 7 <u>-</u>	X			brown	Fines = 53% PP = 2.7-4 tsf
5 6	12.3 14.6			8			SM/SC	Silty to Clayey SAND; fine to medium, layers of sandy clay, trace of gravel, medium dense/stiff, moist, dark yellowish brown	Fines = 38% Fines = 34%
7	41.1						СН	Fat CLAY; trace concretions, stiff, moist to very moist, olive brown	Fines = 88% PP = 2-3 tsf Fines = 93%
0	40.2			112 —				End of test pit @ 11' 3" No groundwater encountered	PP = 3.5-4.5 tsf
								Nuclear gauge density test data at 4.5' Dry density = 98 pcf Moisture content = 19.6%	
								Nuclear gauge density test data at 7.5' Dry density = 118 pcf Moisture content = 13.6%	
									3

$\left($	KC ENG & TE		RY RING				Project No. 18-0817 Test Pit No Project Name : OC Prado Sheet : 1	5. 30 9f : 1
imple No.	Moisture ntent (%)	Dry Unit ight (pcf)	quivalent SPT	epth (ft)	ple Location aphic Log	toil Type (USCS)	Exploration Method : BackhoeSampling Method : Bulk - CDTrenching Co: Bill Bastedo Backhoe ServiceLocation : See Figure A-2Date Excavate	tion: ed : 09-10-2018
Sa	⊡ ⊾ C	L	Щ		Sam Grá	s	Description	Additional Tests
							FILL: Sandy Lean CLAY; trace of gravel, stiff, slightly moist to moist, dark yellowish brown	Fines - 95%
1 2	15.7 16.8			2 — — 3 —	8	CL	ALLUVIUM: Lean CLAY with SAND; trace of concretions, stiff, moist, dark brown dark yellowish brown	PP = 2.5 tsf #200 Wash Fines = 85% PP = 2-3 tsf
3 4	15.9 18.3			4	×			Fines = 86% PP = 3.0 tsf EI = 48
r	. 0.0						OLDER ALLUVIUM: Lean CLAY with SAND; concretions, stiff to very stiff, moist to very moist, dark brown with pale brown inclusions	Fines = 82% PP = 3.0 tsf
5 6 7	19.1 20.3 27.9	110					Sandy Lean to Fat CLAY; concretions, very stiff to hard, moist to very moist, yellowish brown to pale brown with olive brown	Fines = 69% PP = 4.5 tsf Fines = 73% PP = 3-4.5 tsf Fines = 64% PP= 2.0 tsf
8	35.7			7 — 7 — — 8 — — 9 —	~	CL/CH	Lean to Fat CLAY with SAND; concretions, firm to stiff, moist to very moist, dark yellowish brown with pale brown inclusions	#200 Wash Fines = 75% PP = 1.0 tsf
9	24.6			10	8		Sandy Lean to Fat CLAY; concretions, firm to stiff, moist to very moist, dark yellowish brown with pale brown inclusions	#200 Wash Fines = 50% PP = 1.7 tsf
10	14.0			11		SM	Silty SAND; fine to medium, moist, dark yellowish brown	#200 Wash Fines = 28 %
10	40.7			12 13		СН	Fat CLAY; firm to stiff, moist, dark yellowish brown with reddish brown inclusions	#200 Wash Fines = 85% PP = 1 7-2 tsf
							End of test pit @ 13' 2" No groundwater encountered	
							Nuclear gauge density test data at 5.0' Dry density = 94 pcf Moisture content = 26.1%	
							Bulk 🐹 CD 🔳 SPT 🗖	 3

Bulk 🔀

9 9 <th>$\left($</th> <th colspan="6">KOURY ENGINEERING * TESTING, INC.</th> <th>Project No. 18-0817 Project Name : OC Prado Sheet : 1 C Exploration Method : Backhoe</th> <th>5. 31 9f : 1</th>	$\left($	KOURY ENGINEERING * TESTING, INC.						Project No. 18-0817 Project Name : OC Prado Sheet : 1 C Exploration Method : Backhoe	5. 31 9f : 1
i i i i i i i i 1 8.5 11.7 1 <td< th=""><th>ample No.</th><th>Moisture Intent (%)</th><th>Dry Unit sight (pcf)</th><th>quivalent SPT</th><th>Jepth (ft)</th><th>ple Location aphic Log</th><th>soil Type (USCS)</th><th>Sampling Method : Bulk - CDTrenching Co: Bill Bastedo Backhoe ServiceGround ElevaLocation : See Figure A-2Date Excavate</th><th>tion: ed : 09-10-2018</th></td<>	ample No.	Moisture Intent (%)	Dry Unit sight (pcf)	quivalent SPT	Jepth (ft)	ple Location aphic Log	soil Type (USCS)	Sampling Method : Bulk - CDTrenching Co: Bill Bastedo Backhoe ServiceGround ElevaLocation : See Figure A-2Date Excavate	tion: ed : 09-10-2018
1 8.5 2 1 1 8.5 2 11.7 3 16.1 4 15.9 11.7 11.7 6 14.7 7 34.9 7 34.9 7 34.9 7 34.9 8 1 11.7 112 9 1 11.7 112 11.7 112 11.7 112 11.7 112 11.7 112 11.7 112 11.7 112 11.7 11.7 11.7 11.7 11.7 11.7 11.7 11.7 11.7 11.7 11.7 11.7 11.7 11.7 11.7 11.7 11.7 11.7 11.7	ŝ	- °	We	Ш		Gr	0	Description	Additional Tests
1 8.5 11.7 ALLUVIUN: Sandy Lean CLAY; trace of concretions, slightly moist, hard, dark yellowish brown, #200 Wa Fines = 7 3 16.1 4 2								FILL: Sandy Lean CLAY; trace of gravel, stiff, slightly moist, dark yellowish brown	
3 16.1 4 15.9 5 14.7 6 18.7 7 34.9 7 34.9 7 34.9 8 112 9 114 9 117 118.7 7 34.9 118.7 7 34.9 118.7 7 34.9 118.7 7 34.9 118.7 7 118.7 7 118.7 7 119.7 111 111 111 111 111 112 111 111 111 111 111 111 111 111 112 113 <	1 2	8.5 11.7			2		CL	ALLUVIUM: Sandy Lean CLAY; trace of concretions, slightly moist, hard, dark yellowish brown,	#200 Wash Fines = 72% PP = 4.5 tsf Fines = 74% PP = 4.5 tsf
6 18.7 7 34.9 8 CH 9 Fines = 0 9 End of test pit @ 8' No groundwater encountered Nuclear gauge density test data at 4.8' Dry density = 102 pcf 10 11 12 12 13	3 4 5	16.1 15.9 14.7	112		4	*		OLDER ALLUVIUM: Sandy Lean CLAY; concretions, stiff to very stiff, moist, dark	Fines = 63% PP = 2-3 tsf EI = 86 PP = 4.5 tsf Fines = 60% PP = 3.5 tsf
7 34.9 CH Fat CLAY; trace of concretions, stiff to very stiff, moist to very moist, olive brown to light olive brown with pale yellow Fines = 9 9	6	18.7			6			yellowish brown with pale brown and white inclusions	#200 Wash Fines = 63% PP = 2-2.5 tsf
End of test pit @ 8' No groundwater encountered Nuclear gauge density test data at 4.8' Dry density = 102 pcf Moisture content = 16.2%	7	34.9				X	сн	Fat CLAY; trace of concretions, stiff to very stiff, moist to very moist, olive brown to light olive brown with pale yellow	Fines = 91% PP = $3.5-4.5$ tsf
					$\begin{array}{c} 0 \\ - \\ 9 \\ 10 \\ 11 \\ 12 \\ 11 \\ 12 \\ 11 \\ 12 \\ 11 \\ 12 \\ 11 \\ 12 \\ 11 \\ 12 \\ 11 \\ 12 \\ 11 \\ 12 \\ 11 \\ 12 \\ 11 \\ 12 \\ 11 \\ 12 \\ 11 \\ 12 \\ 11 \\ 12 \\ 11 \\ 12$			End of test pit @ 8' No groundwater encountered Nuclear gauge density test data at 4.8' Dry density = 102 pcf Moisture content = 16.2%	

9 9 <th>$\left(\right)$</th> <th colspan="7">KOURY ENGINEERING & TESTING, INC.</th> <th>Project No. 18-0817 Project Name : OC Prado Construction Level S.I. Exploration Method : Backhoe Test Pit No Sheet : 1 O</th> <th>5. 32 f:1</th>	$\left(\right)$	KOURY ENGINEERING & TESTING, INC.							Project No. 18-0817 Project Name : OC Prado Construction Level S.I. Exploration Method : Backhoe Test Pit No Sheet : 1 O	5. 32 f:1
i -3	ample No.	Moisture Intent (%)	Dry Unit ight (pcf)	quivalent SPT	epth (ft)	ple Location	aphic Log	ioil Type (USCS)	Sampling Method : BulkGround ElevalTrenching Co: Bill Bastedo Backhoe ServiceGround ElevalLocation : See Figure A-2Date Excavate	ion: d : 09-07-2018
1 4.2 1 4.2 2 8.3 1 2 5 1 2 1 <t< th=""><th>Sa</th><th>≥ °S</th><th>I We</th><th>Ē</th><th></th><th>Sam</th><th>Ü</th><th>S -</th><th>Description</th><th>Additional Tests</th></t<>	Sa	≥ °S	I We	Ē		Sam	Ü	S -	Description	Additional Tests
1 4.2 3 2 -1 CL ALLUVIUM: Lean CLAY with SAND; hard, slightly moist, rootlets, dark #200 Wash PPE = 4, 5 if E = 6 if 3 19.8 4 -1 -1 -1 -1 4 -1 -1 -1 -1 -1 -1 5 -1 -1 -1 -1 -1 -1 4 -1 -1 -1 -1 -1 -1 4 -1 -1 -1 -1 -1 -1 4 -1 -1 -1 -1 -1 -1 -1 4 -1					0 1				FILL: Sandy Lean CLAY; hard, slightly moist, grayish brown	E:
3 19.8 4 4 -	1 2	4.2 8.3			2 <u>-</u> - 3 <u>-</u>	XX XX		CL	ALLUVIUM: Lean CLAY with SAND; hard, slightly moist, rootlets, dark yellowish brown	#200 Wash Fines = 79% PP = 4.5 tsf
3 19.8 Image: CL/CH CL/CH CL/CH Lean to Fat CLXCH shundant concretions, very stiff, moist to very moist, yellowish brown with pale brown inclusions PP=3.3.5 tef 4 21.2 7 Image: CL/CH End of test pit @ 6' 3'' PP=4.4.5 test 7 1 Image: CL/CH End of test pit @ 6' 3'' PP=4.4.5 test 9 1 10 11 11 10 1 11 12 11 12 1 11 12 1 11 12 13 1 11 12 14 11 12 13 15 1 14 14		10.0			4					EI = 61
4 21.2 6 very moist, yellowish brown with pale brown inclusions Fines = 65% pp = 4.4.5 tst 7	3	19.8			_	Ä		CL/CH	OLDER ALLUVIUM: Lean to Fat CLAY; abundant concretions, very stiff, moist to	PP = 3-3.5 tsf
End of test pit @ 6' 3" No groundwater encountered	4	21.2			6	\mathbb{X}			very moist, yellowish brown with pale brown inclusions	Fines = 65% PP = 4-4.5 tsf
									End of test pit @ 6' 3" No groundwater encountered	PP = 4-4.5 tsf

			RY RING					Project No. 18-0817 Project Name : OC Prado Sheet : 1 Exploration Method : Backhoe	No. 33 Of : 1
ample No.	Aoisture Intent (%)	Dry Unit •ight (pcf)	quivalent SPT	epth (ft)	ple Location	apnic Log	toil Type (USCS)	Sampling Method : Bulk - CDTrenching Co: Bill Bastedo Backhoe ServiceGround ElLocation : See Figure A-2Date Excar	evation: vated : 09-07-2018
Sa	ے ج	I We	ш		Sam	פֿ	0	Description	Additional Tests
1	15.4			0	M			FILL: Sandy Lean CLAY; crumbly, stiff, slightly moist to moist, brown ALLUVIUM:	#200 Wash Fines = 75%
2	17.9			2				Lean CLAT with SAND, very sun, moist, brown	PP = 4.5 tst
				3 <mark> </mark> 4 4			CL	OLDER ALLUVIUM: Sandy Lean CLAY; abundant concretions, very stiff, moist, pale brown with white specks	PP = 4.5 tsf EI =63
3 4	12.7 15.7	110		5	×			layer of silty sand	#200 Wash Fines = 54% PP = 4.5 tsf
5	8.1			6 7	\mathbb{X}		SM	Silty SAND; fine to coarse, trace of gravel, moist, olive brown	#200 Wash Fines = 19%
6	29.3			8 <mark> </mark> 9	×		СН	Fat CLAY; moist to very moist, stiff, pale brown with white specks	#200 Wash Fines = 96% PP = 3-3.5 tsf
								End of test pit @ 9' No groundwater encountered	

visite visite<			RING , INC.				Project No. 18-0817 Project Name : OC Prado Sheet : 1 C Exploration Method : Backhoe	5. 35 f:1
is -X -X<	ample No. Moisture Intent (%)	Dry Unit iight (pcf)	quivalent SPT)epth (ft)	ple Location aphic Log	soil Type (USCS)	Sampling Method : Bulk - CD Trenching Co: Bill Bastedo Backhoe Service Location : See Figure A-2 Date Excavate	tion: d : 09-10-2018
1 12.9 1 12.9 1.1	°_ S C _ S		ш		Gr	S -	Description	Additional Tests
1 12.9 13.7 13.7 ALLUVIUM: Sandy Lean CLAY; hard, slightly moist, rootlets dark yellowish brown Fines = 73% FPP = 4.5 tsf Fines = 73% PP = 4.5 tsf 3 16.5 16.6 Image: Sandy Lean CLAY; hard, slightly moist, rootlets dark yellowish brown Fines = 73% PP = 4.5 tsf 5 18.1 16.6 Image: Sandy Lean CLAY; concretions, stiff to very stiff, moist, yellowish brown to dark yellowish brown and brown inclusions Fines = 52% PP = 4.5 tsf 7 20.9 116 Image: Sandy Lean CLAY; concretions, stiff to very stiff, moist, yellowish brown to dark yellowish brown and brown inclusions Fines = 52% PP = 4.5 tsf 7 20.9 Image: Sandy Lean CLAY; with SAND; abundant concretions, stiff to very stiff, moist, very pale brown Fines = 73% PP = 4.5 tsf 8 Image: Sandy Lean to Fat CLAY with SAND; abundant concretions, stiff to very stiff, moist to very moist, very pale brown Fines = 73% PP = 2.4.6 tsf 9 Image: Sandy Lean to Fat CLAY with SAND; abundant concretions, stiff to very stiff, moist to very moist, very pale brown Fines = 73% PP = 2.4.6 tsf 10 Image: Sandy Lean to fat the file g 8 3' No groundwater encountered Nuclear gauge density test data at 6.5' Dry density = 101 pcf Moisture content = 20.9%				0			FILL: Lean CLAY with SAND; stiff to very stiff, moist dark brown pale brown inclusions, several concretions	
3 18.5	1 12.9 2 13.7			2 <mark>-</mark> - 3 -	X		ALLUVIUM: Sandy Lean CLAY; hard, slightly moist, rootlets dark yellowish brown	Fines = 72% PP = 4.5 tsf Fines = 65% PP = 3-4 tsf Fines = 79%
4 16.6 16.6 116 1	3 16.5			4 —	8	CL		PP = 4.5 tsf Fines = 69% PP = 4.5 tsf
5 18.1 116 116 pale brown and white inclusions Processor 2.5 ker Finess = 58% PP = 4.5 ker Finess = 58% PP = 2.4.5 ker Finess = 58% PP = 2.4.5 ker Finess = 78% PP = 2.4.5 ker Finess = 78% PF = 2.4.5 ker Finess = 78% F	4 16.6			5	X		OLDER ALLUVIUM: Sandy Lean CLAY; concretions, stiff to very stiff, moist, yellowish brown to dark yellowish brown and brown inclusions	Fines = 58% PP = 2.0 tsf
7 20.9 8 CL/CH Lean to Fat CLAY with SAND; abundant concretions, stiff to very stiff, moist to very moist, very pale brown Fines = 78%, PP = 2.4.5 tsf 9 - - End of test pit @ 3'3" No groundwater encountered 10 - - Nuclear gauge density test data at 6.5' Dry density = 101 pcf 11 - - - - 12 - - - - 13 - - - - 13 - - - - 14 - - - - 14 - - - -	5 18.1 6 15.6	116		7 <mark>-</mark>	×		pale brown and white inclusions	Fines = 52% PP = 4.5 tsf Fines = 56% PP = 4.5 tsf
End of test pit @ 8'3" No groundwater encountered Nuclear gauge density test data at 6.5' Dry density = 101 pcf Moisture content = 20.9%	7 20.9			8		CL/CH	Lean to Fat CLAY with SAND; abundant concretions, stiff to very stiff, moist to very moist, very pale brown	Fines = 78% PP = 2-4.5 tsf
	7 20.9			$\begin{array}{cccccccccccccccccccccccccccccccccccc$			End of test pit @ 8' 3" No groundwater encountered Nuclear gauge density test data at 6.5' Dry density = 101 pcf Moisture content = 20.9%	PP = 2-4.5 tsf

$\left($	KOURY ENGINEERING * TESTING, INC.							Project No. 18-0817 Project Name : OC Prado Sheet : 1 C	b. 36 f :1
le No.	sture nt (%)	Unit t (pcf)	valent РТ	th (ft)	Location	ic Log	Type CS)	Exploration Method : Backhoe Sampling Method : Bulk - CD Trenching Co: Bill Bastedo Backhoe Service Ground Eleva Leoption : Soo Figure A 2	tion:
amp	Mois onte	Dry (eigh	Equiv SI	Dept	nple	raph	Soil (US	Location : See Figure A-2 Date Excavate	Additional
S	ပ	N	н	0	Sar	U		Description	Tests
								FILL: Sandy Lean CLAY; trace of gravel, slightly moist to moist, very dark brown	
1	8.1			2 <u>-</u> 			CL	ALLUVIUM: Sandy Lean CLAY; trace of gravel, slightly moist to moist,	Fines = 73% PP = 4.5 tsf
2	10.6			4	X			very dark brown	Fines = 72% PP = 4.5 tsf Fines = 74%
3	10.2	110		_	Ä				$\frac{PP = 4.5 \text{ tsf}}{Fines = 75\%}$
4	10.8 27.2	118		5 6 7	8		сг/сн	OLDER ALLUVIUM: Lean to Fat CLAY with SAND; slightly moist to moist, stiff to very stiff, mottled dark brown and white, concretions	Fines = 83% PP= 4.5 tsf
6	32.8			8 —	\mathbb{X}				Fines =82 % PP = 4.5 tsf
								End of test pit @ 8' Na groundwater encountered Nuclear gauge density test data at 4.5' Dy density = 108 pcf Moisture content = 11.8%	

$\left($	KOURY ENGINEERING a TESTING, INC.						Project No. 18-0817 Project Name : OC Prado	Test Pit No Sheet : 1 O). 37 f:1
nple No.	loisture Itent (%)	rry Unit ght (pcf)	uivalent SPT	spth (ft)	phic Log	oil Type USCS)	Sampling Method : Bulk - CD Trenching Co: Bill Bastedo Backhoe Service Location : See Figure A-2	Ground Elevat Date Excavate	ion: d : 09-13-2018
Sar	Con	D Wei	Eq	Samo Samo	Gra	Š	Description		Additional Tests
1	7.7			0 1		CL	FILL: Sandy Lean CLAY; trace of gravel, crumbly, sl brown	ightly moist,	#200 Wash Fines = 68% PP = 4.5 tsf
2	12.9			2 -			Lean CLAY with SAND; trace of gravel, very s yellowish brown	tiff, moist, dark	#200 Wash Fines = 74% PP = 4.5 tsf
3	22.2			3			Lean to Fat CLAY with SAND; trace of gravel moist, dark yellowish brown	very stiff,	Fines = 70% PP = 2.5-3.5 tsf EI = 105
4	17.5	101		4 <u>-</u> 5 <u>-</u>		CL/CH	OLDER ALLUVIUM: Lean to Fat CLAY with SAND; concretions, st slightly moist to moist, mottled dark brown and	iff to very stiff, white	#200 Wash Fines = 72% PP = 4.5 tsf
5	28.1			6 <u>-</u> - 7 -			Lean to Fat CLAY; stiff, moist to very moist, da to dark yellowish brown	ark olive brown	#200 Wash Fines = 91% PP= 2-4 tsf
				$\begin{array}{c} & & \\$			End of test pit @ 7' No groundwater encountered Nuclear gauge density test data at 2' Dry density = 111 pcf Moisture content = 16.29 Nuclear gauge density test data at 4' Dry density = 100 pcf Moisture content = 21.09	6	
							Bulk 🔀 CD	SPT	

								Project No. 18-0817 Project Name : OC Prado Construction Level S.I. Test Pit N	o. 38
\langle	ENG & TES	STING	, INC.					Sheet:1 0	Of :1
	-				Ę	_		Exploration Method : Backhoe Sampling Method : Bulk	
No.	ure (%	nit (pcf	lent -	(£	catic	: Loç	vpe S)	Trenching Co: Bill Bastedo Backhoe Service Ground Eleva	ition:
mple	loisti Itent	iry U ight	luiva SP1	epth	ole Lo	Iphic	oil T USC	Location : See Figure A-2 Date Excavat	ed : 09-07-2018
Sai	C or	D Wei	Eq	ă	Samp	Gra	s,)	Description	Additional Tests
				0 1				FILL: Sandy Lean CLAY; trace of gravel, stiff, dry to slightly moist, dark brown	
1	12.2			2	8		CL	OLD ALLUVIUM: Lean CLAY with SAND; trace of gravel, stiff to very stiff, moist, very dark brown	Fines = 75% PP = 4 tsf
2	16.1			4 <mark>-</mark> 4 - 5 -	8		CL/CH	OLDER ALLUVIUM: Sandy Lean to Fat CLAY; abundant concretions, trace of gravel, very stiff, moist, brown with pale brown inclusions	Fines = 51% PP = 4.5 tsf
3	16.7				\mathbb{X}			slightly darker, olive brown	Fines = 50%
				$ \begin{bmatrix} 6 \\ - \\ $				End of test pit @ 6' No groundwater encountered	
-(ENG & TE		RY RING					Project No. 18-0817 Project Name : OC Prado Construction Level S.I. Sheet : 1 O	b. 39 f :1
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mple No.	loisture ntent (%)	bry Unit ight (pcf)	luivalent SPT	epth (ft)	ole Location	Iphic Log	oil Type USCS)	Sampling Method : Bulk - CD Trenching Co: Bill Bastedo Backhoe Service Location : See Figure A-2 Date Excavate	t ion: 5 d : 09-07-2018
Sa	C o C	Vei	ы	ă	Samp	Gra	s, C	Description	Additional Tests
				0 				FILL: Sandy Lean CLAY; trace of gravel, crumbly, dry to slightly moist, brown	
1	9.3			2 <u>-</u>	X				#200 Wash Fines = 73% PP = 4.5 tsf
2	13.8			3 <u>-</u>	8		CL	ALLUVIUM: Sandy Lean CLAY; stiff, moist, dark yellowish brown with dark	Fines = 72% PP = 4 tsf
3	17.1	116		4				2.000	Fines = 60% PP = 4.5 tsf Consolidation
4	13.5			6	8				Fines = 57% PP = 4.5 tsf
				7 8 9 10 11 12 				No groundwater encountered	

$\left($			RING				Project No. 18-0817 Test Pit No. Project Name : OC Prado Sheet : 1	5. 40 f:1
nple No.	oisture tent (%)	ry Unit jht (pcf)	uivalent SPT	pth (ft)	shic Log	il Type JSCS)	Exploration Method : Backhoe Sampling Method : Bulk - CD Trenching Co: Bill Bastedo Backhoe Service Location : See Figure A-2 Date Excavate	tion: d : 09-10-2018
San	Con	Dr Weiç	Equ	De	Gra	(L So	Description	Additional Tests
1	10.3					CL	FILL: Lean CLAY with SAND; crumbly, slightly moist, brown ALLUVIUM: Lean CLAY with SAND; trace of rootlets, slightly moist to moist, very stiff to hard, dark brown to very dark brown	Fines = 77% PP = 4.5 tsf
2 3 4	10.8 10.7 11.5	117		3 3 4			Lean to Fat CLAY with SAND; trace of rootlets, slightly moist to moist, very stiff to hard, dark brown to very dark brown Maximum density, Direct shear	Fines 78% PP = 4.5 tsf Fines 79% PP = 4.5 tsf Fines = 77% PP = 4.5 tsf EI = 162 Fines = 72%
5 6 7	14.9 17.1 17.7	96		5		сц/сн	OLDER ALLUVIUM: Sandy Lean to Fat CLAY; trace of concretions, very stiff to hard, moist, dark yellowish brown with white and pale brown inclusions	PP = 4.5 tsf Fines = 74% PP = 4.5 tsf Fines = 62% PP = 4.5 tsf
8	24.8			7				Fines = 73% PP = 3-4.5 tsf
9	30.7			8			Lean to Fat CLAY with SAND; concretions, very moist, stiff, dark yellowish brown	Fines = 77% PP = 2.7-3.5 tsf
				9			End of test pit @ 8' 8" No groundwater encountered	
							Nuclear gauge density test data at 3' Dry density = 106 pcf Moisture content = 13.7%	
				11 <u> </u>			Nuclear gauge density test data at 4' 8" Dry density = 99 pcf Moisture content = 16.2%	
							Bulk 🔀 CD 🔳 SPT 🔀	

$\left($			RY RING		-			Project No. 18-0817 Project Name : OC Prado Sheet : 1 C Exploration Method : Backhoe	5. 41 f:1
mple No.	oisture ntent (%)	rry Unit ght (pcf)	uivalent SPT	epth (ft)	ole Location	Iphic Log	oil Type USCS)	Sampling Method : Bulk Trenching Co: Bill Bastedo Backhoe Service Ground Eleva Location : See Figure A-2 Date Excavate	t ion: • d : 09-13-2018
Sai	⊡ N C	D Wei	Ed	ă	Samp	Gra	s,)	Description	Additional Tests
1	10.0			0 1	8			FILL: Lean CLAY with SAND; trace of gravel and rootlets, crumbly, dry to slightly moist, brown	#200 Wash Fines = 80% PP = 4.5 tsf
2	12.8			2 3	8		CL	ALLUVIUM: Lean CLAY with SAND; trace of gravel and concretions, crumbly, slightly moist, dark yellowish brown with white inclusions	#200 Wash Fines = 80% PP = 4.5 tsf
3	14.1			4	X			OLDER ALLUVIUM: Sandy Lean CLAY; abundant concretions, crumbly, mottled brown and pale brown	Fines = 65% PP = 4.5 tsf
4	17.7			5	X		CL/CH	Lean to Fat CLAY with SAND; abundant concretions, very stiff, moist, dark yellowish brown, pale brown with white	#200 Wash Fines = 79% PP = 4-4.5 tsf
5	27.8			6	X			Inclusions	Fines = 82% PP = 2-4.5 tsf
								No groundwater encountered Nuclear gauge density test data at 3' Dry density = 109pcf Moisture content = 14.7% Nuclear gauge density test data at 5' Dry density = 93 pcf Moisture content = 21.2%	
								✓ Bulk ⊠ CD ■ SPT ▼	

	KOURY ENGINEERING & TESTING, INC.							Project No. 18-0817 Test Pit No Project Name : OC Prado Sheet : 1	5. 42 of:1
ple No.	isture ent (%)	y Unit ht (pcf)	ivalent SPT	oth (ft)	Exaction	hic Log	l Type SCS)	Exploration Method : Backhoe Sampling Method : Bulk Trenching Co: Bill Bastedo Backhoe Service Location : See Figure A-2 Date Excavate	tion: ed : 09-07-2018
Sam	Mo Cont	Dr. Weig	Equ	Dep	ample	Grap	Soi (U	Description	Additional
		-		0 1	ÿ			FILL: Sandy Lean CLAY; trace of gravel, crumbly, dry to slightly moist, yellowish brown	Tests
1 2	9.5 12.8			2 <u>-</u> - 3 <u>-</u>	X X		CL	ALLUVIUM: Sandy Lean Clay; rootlets, trace of concretions and gravel, very stiff, slightly moist to moist, dark yellowish brown	#200 Wash Fines = 72% PP = 4.5 tsf Fines = 65% PP = 4.5 tsf FI = 62
3	18.6			4 5 6	×			OLDER ALLUVIUM: Sandy Lean CLAY; abundant concretions, crumbly, stiff to very stiff, moist, pale brown to brown	#200 Wash Fines = 57% PP = 2.75-4 tsf
4	6.3			7 <u>-</u> 7 <u>-</u> 8 <u>-</u>	\mathbb{N}		SM	Silty SAND; fine to medium, moist, clay inclusions, dark yellowish brown	#200 Wash Fines = 10%
								End of test pit @ 8' 2" No groundwater encountered	

$\left($			RY RING	,				Project No. 18-0817 Test Pit Project Name : OC Prado Sheet : 1 Exploration Method : Backhoe Sheet : 1	No. 43 Of :1
ample No.	Moisture Intent (%)	Dry Unit eight (pcf)	quivalent SPT	Jepth (ft)	ple Location	aphic Log	soil Type (USCS)	Sampling Method : Bulk Trenching Co: Bill Bastedo Backhoe Service Ground E Location : See Figure A-2 Date Exca	evation: vated : 09-07-2018
Š	- ö	- M	ш		Sam	ษั	07	Description	Additional Tests
				0 _ 1				FILL: Sandy Lean CLAY; crumbly, slightly moist, brown	
1	20.4			2 2 3 3	8		CL	ALLUVIUM: Sandy Lean CLAY; trace of concretions, stiff, moist, dark yellowish brown	Fines = 67% PP = 2.5-3.5 tsf
2	17.2			4	\mathbb{X}			OLDER ALLUVIUM: Sandy Lean CLAY; trace of gravel and concretions, stiff, moist, pale brown to yellowish brown	Fines = 51% PP = 2.5-3.5 tsf Fines = 50%
4	29.3			6 7 -			СН	Fat CLAY with SAND; concretions, moist to very moist, olive brown	PP = 2.5 tsf Fines = 80% PP = 4.5 tsf
				8 - - - - - - - - -				End of test pit @ 7' 6" No groundwater encountered	
								Bulk 🕅 CD 🔳 SP	

			RING	·			Project No. 18-0817 Project Name : OC Prado She Exploration Method : Backhoe	est Pit No. leet:1 Of	. 44 : 1
mple No.	oisture itent (%)	ry Unit ght (pcf)	uivalent SPT	apth (ft)	phic Log	oil Type USCS)	Sampling Method : BulkTrenching Co: Bill Bastedo Backhoe ServiceGroLocation : See Figure A-2Date	ound Elevation	on: I : 09-13-2018
Sar	Co ⊠	D Wei	Eq	Ĕ	Gra	Sc Sc	Description		Additional Tests
1	10.8			0 			FILL: Sandy Lean CLAY; trace of concretions, crumbly, stiff, moist, very dark brown	f, slightly	Fines = 74% PP = 3.5 tsf
2	15.8			2			ALLUVIUM: Lean CLAY with SAND: trace of concretions, very stiff very dark brown with white inclusions	ff, moist,	Fines = 75% PP = 3-3.7 tsf
3	15.1			3		CL	Sandy Lean CLAY; concretions, very stiff, moist, dark yellowish brown with white inclusions	(Fines = 73% PP = 3.3-4.5 tsf EI = 57
4	16.6			4 -			OLDER ALLUVIUM: Sandy Lean CLAY; abundant concretions, very stiff, m dark yellowish brown with white inclusions	noist,	Fines = 70% PP = 2.5-3.5 tsf
5	15.0								Fines = 51% PP = 4.5 tsf
6	16.4			 7	×		End of test pit @ 6' 6"		PP = 4.5 tsf
				$\begin{array}{c} 7 \\ - \\ 1 \\ - \\ - \\ 1 \\ - \\ 1 \\ - \\ 1 \\ - \\ 1 \\ - \\ 1 \\ - \\ 1 \\ - \\ -$			End of test pit @ 6' 6" No groundwater encountered Nuclear gauge density test data at 2' Dry density = 106 pcf Moisture content = 17.7% Nuclear gauge density test data at 4' Dry density = 101 pcf Moisture content = 20.0%		
			-				Bulk 🔀 CD	SPT 🗙	

$\left($			RY RING				Project No. 18-0817 Project Name : OC Prado Sheet : 1 Exploration Method : Backhoe	lo. 45 Of : 1
	. (%	(J:	Ţ		lon B		Sampling Method : Bulk	
e Nc	ture nt (%	Unit : (pc	alen T	н (ft)	c Lo	rype cs)	Trenching Co: Bill Bastedo Backhoe Service Ground Elev	ation:
Idme	Mois Inter	Dry ا ight	quiv SP)eptl	aphi	l Ioŝ (US(Location : See Figure A-2 Date Excava	ted : 09-12-2018
ŝ	- ö	We	ш		Gr		Description	Additional Tests
1	11.0			0 			FILL: Sandy Lean CLAY; trace of gravel, crumbly, very stiff, slightly moist to moist, gray and dark brown	Fines = 74% PP = 4.5 tsf
2 3	14.7 15.1			2 -		CL	ALLUVIUM: Lean CLAY with SAND; trace of concretions, very stiff, moist, dark brown to dark reddish brown	Fines = 76% PP = 3.5-4.5 tsf Fines = 75% PP = 4.5 tsf
4	18.5			3 -			Sandy Lean CLAY; trace of concretions, stiff, moist, dark brown to dark reddish brown	Fines = 72% PP = 2.5-3.5 tsf
5	22.1			4			OLDER ALLUVIUM:	Fines = 66% PP = 2.5-3 tsf
6	22.4			5 6		сц/сн	Sandy Lean to Fat CLAY ; trace of gravel and concretions, stiff to very stiff, moist to very moist, dark yellowish brown with pale brown inclusions	Fines = 74% PP= 2.5-4.5 tsf
7	26.8			7			Lean to Fat CLAY; trace of concretions, stiff, moist to very moist, light olive brown	Fines =78% PP = 2-2.5 tsf
7	26.8			8 9 9			End of test pit @ 8' No groundwater encountered Nuclear gauge density test data at 18" Dry density = 117 pcf Moisture content = 14.2% Nuclear gauge density test data at 4' Dry density =102 pcf Moisture content = 19.9%	PP = 2-2.5 tsf
							D Bulk CD SPT	Z Z

$\left($			RY RING					Project No. 18-0817 Project Name : OC Prado Sheet : 1 C	5. 46 of:1
No.	ire (%)	nit (pcf)	lent	(ft)	cation	Log	s)	Sampling Method : Bulk Trenching Co: Bill Bastedo Backhoe Service Ground Eleva	tion:
mple	oistu	ory Ui ght	uival SPT	epth	ole Lo	phic	oil Ty USC:	Location : See Figure A-2 Date Excavate	ed:09-06-2018
Sai	⊡ N	D Wei	Ed	ă	Samp	Gra	s, C	Description	Additional Tests
	10.0			0 1			CL	FILL: Sandy Lean CLAY; trace of gravel, crumbly, slightly moist to moist, brown	Fines = 81%
1	13.2			2	×			ALLUVIUM: Lean CLAY with SAND; concretions, stiff to very stiff, moist, stiff, dark brown	PP = 4.5 tsf
2	18.9			4 5	*			OLDER ALLUVIUM: Sandy Lean to Fat CLAY; abundant concretions, stiff to very stiff, moist, yellowish brown with pale brown	Fines = 68% PP = 4.5 tsf
3	22.3				\bigtriangledown		CL/CH	olive brown and white inclusions	Fines = 71% PP = 3.2-3.7 tsf
4	18.4			6				mostly pale brown to very pale brown	Fines = 66% PP = 4.5 tsf
				7					Fines = 500 /
5	15.1			8 —	X				Pines = 50% PP = 4.5 tsf
				$\begin{array}{cccccccccccccccccccccccccccccccccccc$				End of test pit @ 8' No groundwater encountered	
								Bulk 🐹 CD 🔳 SPT 🗖	<u> </u>

Ea			RY RING					Project No. 18-0817 Project Name : OC Prado Sheet : 1 C Exploration Method : Backhoe	5. 47 of:1
ö	(%	cf)	It	_	tion	bc	0	Sampling Method : Bulk	
le N	sture nt (Unit it (p	valer PT	th (ft	Loca	nic Lo	Typ∉ iCS)	Trenching Co: Bill Bastedo Backhoe Service Ground Eleva Location : Soc Eiguro A 2 Data Evenueta	tion:
Moie	onte	Dry ſeigh	Equi ^r Sl	Dept	nple	iraph	Soil (US	Location . See Figure A-2 Date Excavate	Additional
	U	\$	_	0	Sa	U		Description	Tests
				1 <u> </u>				FILL: Sandy Lean CLAY; trace of organics, crumbly, slightly moist to moist, brown	
1 3	31.4			2	8			ALLUVIUM: Sandy Lean CLAY; trace of organics, stiff to very stiff, moist, very dark brown	Fines = 68% PP = 2-3 tsf
2 1 3 1	18.7 17.1			4 <mark>-</mark> 4 - 5 -	*		CL	Lean CLAY with SAND; very stiff, moist, dark yellowish brown	Fines = 76% PP = 4 tsf Fines = 79% PP = 2.5 tsf
4 1	14.6			6 <mark>-</mark> - 7 -	8			OLDER ALLUVIUM: Sandy Lean CLAY; concretions, stiff, moist, yellowish brown with pale brown	Fines = 73% PP = 3.7-4 tsf
5 1	14.2				X				PP = 2.0 tsf
6 2	22.1			8	\mathbb{X}		CL/CH	Lean to Fat CLAY with SAND; concretions, very stiff, moist to very moist, very pale brown	Fines = 82% PP = 3.5-4 tsf
								End of test pit @ 8' 6" No groundwater encountered	

/			PV					Project No. 18-0817	Test Pit N	lo. 48
(ENG	INEE	RING					Project Name : OC Prado	Sheet 1	Of · 1
	4	/	,					Exploration Method : Backhoe	Sheet . I	U I. 1
		1)			Б	g		Sampling Method : Bulk		
No	ure (%	nit (pc	lent	(ft)	ocati	Lo.	ype S)	Trenching Co: Bill Bastedo Backhoe Service	Ground Elev	ation:
nple	oisti itent	rry U ght	uiva SPT	epth	le Lo	phic	usc.	Location : See Figure A-2 Date Excava		ted : 09-06-2018
Sar	⊆ ⊆	D Wei	Eq	ă	Samp	Gra	Sc Sc	Description		Additional Tests
2 3 4 Sample	13.5 16.3 14.3 23.3	Dry U Weight	Edouiva	0 - 1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10 - 11 - 12	Sample Lo	Graphic	CL CL/CH	Description FILL: Sandy Lean CLAY; trace of gravel, crumbly, we moist to moist, very dark brown ALLUVIUM: Sandy Lean CLAY; trace of gravel and concreations, dark yellowish brown OLDER ALLUVIUM: Sandy Lean to Fat CLAY; concretions, stiff, not overy pale brown End of test pit @ 6' 6" No groundwater encountered	Date Excava	ted : 09-06-2018 Additional Tests #200 Wash Fines = 75% PP = 4.5 tsf EI = 64 Fines = 73% PP = 2.5-4.5 tsf Fines = 59% PP = 3 tsf #200 Wash Fines = 74% PP = 3.5 - 4 tsf
									SPT	X

-(KOURY ENGINEERING & TESTING, INC.							Project No. 18-0817 Project Name : OC Prado Sheet : 1 C	5. 49 of : 1
nple No.	oisture itent (%)	ry Unit ght (pcf)	uivalent SPT	əpth (ft)	le Location	phic Log	oil Type USCS)	Sampling Method : Backhoe Sampling Method : Bulk Trenching Co: Bill Bastedo Backhoe Service Ground Eleval Location : See Figure A-2	tion: ed : 09-10-2018
Sar	Con	D Wei	Eq	ð	Samp	Gra	S ()	Description	Additional Tests
				0 1				FILL: Sandy Lean CLAY; trace of gravel, rootlets, crumbly, slightly moist, dark brown	
1	13.9			2	8		CL	ALLUVIUM: Sandy Lean CLAY; trace of concretions, trace of gravel, rootlets, stiff to very stiff, moist, dark brown	#200 Wash Fines = 74% PP = 3-4.5 tsf
2	13.8			3	\mathbb{X}				Fines = 71% PP = 4.5 tsf
3	19.2			4 <mark>-</mark> - 5 -	8			OLDER ALLUVIUM: Lean to Fat CLAY; abundant concretions, stiff, moist, yellowish brown to pale brown	#200 Wash Fines = 58% PP= 2.5-3.5 tsf
4	17.3			6	\mathbb{X}		CL/CH		Fines = 54% PP = 2-2.5 tsf
5	23.9			~	8			Lean to Fat CLAY; abundant concretions, stiff to very stiff, moist to very moist, pale brown to very pale brown	#200 Wash Fines = 79% PP = 3.5-4.5 tsf
				8 - 9 - 10 - - - - - - - - -				End of test pit @ 8' No groundwater encountered	

e No. ure t (%) nit	(pcf) alent T				Sheet: 1 Exploration Method: Backhoe	Of : 1
ample Moist	eight quiv SP	Jepth (ft) Iple Location	aphic Log	soil Type (USCS)	Sampling Method : BulkGround ElerTrenching Co: Bill Bastedo Backhoe ServiceGround ElerLocation : See Figure A-2Date Excava	vation: ted : 09-12-2018
<u>°</u> - 0 - 9	š ü	Sam	G	0)	Description	Additional Tests
1 11.2					FILL: Lean CLAY with SAND; very stiff, slightly moist, dark yellowish brown	Fines = 76% PP = 4.5 tsf
2 11.9				C	ALLUVIUM: Sandy Lean CLAY; very stiff, slightly moist to moist, very dark brown	Fines = 71% PP = 4.5 tsf Fines = 73% PP = 3.0 tsf
4 16.7		3 - 3 -		CL	OLDER ALLUVIUM: Sandy Lean CLAY; very stiff, moist, dark yellowish brown, medium plasticity	EI = 71 #200 Wash Fines = 57% PP = 2.2 tsf
5 19.4		4			modelin plactory	Fines = 56% PP = 2.5-3.5 tsf
6 22.4		5		CL/CH	Sandy Lean to Fat CLAY; concretions, stiff, moist to very moist, dark yellowish brown with pale brown and white	#200 Wash Fines = 69% PP = 3-3.7 tsf
					End of test pit @ 5' 6" Nuclear gauge density test data at 2' Dy density = 102 pcf Moisture content = 20.3% Nuclear gauge density test data at 3' Dy density = 105 pcf Moisture content = 18.7%	

Simpling Method: Bulk - CD Trenching Cr: Bit Basted Dackho Service Ground Elevation: Date Excavated: Control Contect Control Control Control Contect Control Control		ENG 8 TE		RING	-			Project No. 18-0817 Project Name : OC Prado Sheet : 1 O Exploration Method : Backhoe	b. 51 f :1
\vec{a}	ample No.	Moisture Intent (%)	Dry Unit ight (pcf)	quivalent SPT)epth (ft)	aphic Log	soil Type (USCS)	Sampling Method : Bulk - CD Trenching Co: Bill Bastedo Backhoe Service Location : See Figure A-2 Date Excavate	ion: d : 09-12-2018
117.8	Sa	ီပိ	Ne L	ш		Gr	ω-	Description	Additional Tests
117.8						7		FILL: Sandy Lean CLAY; crumbly, moist, brown	Einos = 620/
3 19.7 19.7 OLDER ALLUVIUM: Sandy Lean CLAY; very stiff, moist, dark yellowish brown Fines = 50%, PP = 2.3 taf 4 23.4 105 5 21.6 5 105 6 CLCH Lean to Fat CLAY with SAND; concretions, stiff to very stiff, PP = 2.3 taf 6 23.4 7 105 6 CLCH Lean to Fat CLAY with SAND; concretions, stiff to very stiff, PP = 2.2 taf 7 19.0 19.0 8 7 19.0 19.0 10 10 10 10 10 10 10 10 10 11 11 12 11 11 12 11 12 11 11 12 11 12 11 12 11 12 13 14 14 15 15 11 12 11 12 11 12 14 15 15 15 15 16	1	17.8 19.0					CL	ALLUVIUM: Lean CLAY with SAND; abundant concretions, stiff to very stiff, moist, very dark brown	PP = 3-3.7 tsf Fines = 57%
4 23.4 105 10	3	19.7			3 -			OLDER ALLUVIUM: Sandy Lean CLAY; very stiff, moist, dark yellowish brown	Fines = 59% PP = 3.5 tsf
516.710510	4	23.4			4				Fines = 80% PP = 2-3 tsf
5 21.6 21.6 Fine = 81% 6 23.4 7 7 10.0 Fine = 80% 7 19.0 8 1 1 1 10 1 1 1 1 1 11 1 1 1 1 1 12 1 1 1 1 1 1 10 1 1 1 1 1 1 1 11 1	5	16.7	105		5			Lean to Fat CLAY with SAND; concretions, stiff to very stiff,	Fines = 77% PP = 4.5 tsf
6 23.4 7 19.0 8 23.4 7 19.0 9 1 End of test pit @ 8'6" No groundwater encountered 10 1 11 1 12 1 12 1 14	5	21.6			6 		CL/CH	moist to very moist, very pale brown	Fines = 81% PP = 2-2.7 tsf
7 19.0 PP = 1.5.2 tsr 9 End of test pit @ 8' 6" 10 1 11 1 12 1 12 1 11 1 12 1 13 1	6	23.4			/ 8				Fines = 80% PP = 2.5-4 tsf Fines = 77%
					9			End of test pit @ 8' 6" No groundwater encountered	PP = 1.5-2 tst

			RING , INC.	,				Project No. 18-0817 Project Name : OC Prado Sheet : 1 C Exploration Method : Backhoe	5. 52 Df:1
					S	~		Sampling Method : Bulk - CD	
No.	Ire (%)	nit (pcf	ent	(£	catic	Loç	be S)	Trenching Co: Bill Bastedo Backhoe Service Ground Eleva	tion:
nple	oistu tent	Jht U	sPT	pth	le Lo	ohic	ii Ty JSC:	Location : See Figure A-2 Date Excavate	ed:09-12-2018
San	Con	D	Equ	De	Samp	Gra	So (L	Description	Additional Tests
1	9.3			0 1	8			FILL: Lean CLAY with SAND; rootlets, hard, slightly moist, very dark brown	#200 Wash Fines = 83% PP = 4.5 tsf
2	10.6			2 <u>-</u> 				ALLUVIUM: Lean CLAY with SAND; rootlets carbonate, slightly moist, hard, dark brown with white specks	#200 Wash Fines = 82%
3	15.3				X		CL		PP = 4.5 tsf
4	13.8	99		4 <u> </u>				OLDER ALLUVIUM: Lean CLAY with SAND; small trace of concretions, very stiff to hard, moist, dark brown, pale brown	Fines = 82% PP = 4.5 tsf
5	16.0			6 —	\mathbb{X}				Fines = 76%
6	16.6			7				Sandy Lean CLAY; trace of gravel, concretions, carbonate, very stiff to hard, moist to very moist, brown to pale brown	Fines = 60% PP = 3-4.5 tsf
7	6.5			8 —			SM	SAND with SILT and GRAVEL; fine to coarse, sub rounded gravel, moist, brown	Fines = 11% Gravel = 28%
				9 <u>-</u> 10				End of test pit @ 9' No groundwater encountered	
				 11 12				Nuclear gauge density test data at 2.5" Dry density = 103 pcf Moisture content =13.1% Nuclear gauge density test data at 6' Dry density = 101 pcf Moisture content = 22.4%	
								Bulk 🐹 CD 🖬 SPT 🔀]

_	K	DU	RY					Project No. 18-0817 Project Name : OC Prado	est Pit N	lo . 53
	ENG & TES	STING	, INC.					SI	heet : 1	Of : 1
		6			Б	5		Exploration Method : Backhoe Sampling Method : Bulk		
e No.	ure t (%	Init (pcf	alent T	(ft)	ocati	: Lo	ype (S)	Trenching Co: Bill Bastedo Backhoe Service Gr	round Elev	ation:
mple	Aoist nten	Dry U ight	quiva SP	epth	ple L	aphic	oil T (USC	Location : See Figure A-2 Date	ate Excava	ted:09-12-2018
Sa	≥ °	I We	Ē		Sam	G	S -	Description		Additional Tests
				0				FILL: Sandy Lean CLAY; crumbly, slightly moist, ye brown	ellowish	
1	17.4			1	\mathbb{X}		CL	ALLUVIUM: Sandy Lean CLAY; concretions, stiff, moist, dark yell brown with pale brown inclusions	llowish	Fines = 65% PP = 3.5-4.5 tsf
2	16.5			2						Fines = 57% PP= 4.0 tsf
3	20.8			3 -	8					Fines = 63% PP = 4.0 tsf EI = 50
4	19.7			4			СЦ/СН	OLDER ALLUVIUM: Sandy Lean to Fat CLAY; abundant concretions, ver moist, pale brown	ry stiff,	Fines = 63% PP = 4.0 tsf
5	22.7									Fines = 61% PP = 2.5-3.5 tsf
6	22.3			Ŭ	X					Fines = 70% PP = 4.0 tsf
				, 111 811				No groundwater encountered Nuclear gauge density test data at 2' Dry density = 111 pcf Moisture content = 17.0%		
				9 10				Dry density = 99 pcf Moisture content = 19.7%		
				11 <u>-</u> 						
				12 <u>-</u> 						
								Bulk 🔀 CD 🗖	SPT	X

	OU	RY RING				Project No. 18-0817 Project Name : OC Prado Sheet : 1 C Exploration Method : Backhoe	5. 54
ample No. Moisture	Dry Unit eight (pcf)	quivalent SPT	Jepth (ft)	iple Location aphic Log	soil Type (USCS)	Sampling Method : Bulk - CD Trenching Co: Bill Bastedo Backhoe Service Ground Eleva Location : See Figure A-2 Date Excavate	tion: ed : 09-12-2018
ů – ŭ	ž	ш		Gr	0,	Description	Additional Tests
			0 1			FILL: Lean CLAY with SAND; stiff, slightly moist to moist, dark yellowish brown	
1 17.1	107		2		CL	ALLUVIUM: Lean CLAY with SAND; very stiff, moist, dark yellowish brown	#200 Wash Fines = 88% PP = 4.5 tsf
2 22.4	Ļ		3	/			#200 Wash Fines = 81%
3 24.7	,		4 -			OLDER ALLUVIUM: Lean to Fat CLAY with SAND; abundant concretions, stiff, moist, dark yellowish brown with pale brown inclusions	Fines = 76% PP = 4.5 tsf
4 25.6	;			×	CL/CH		PP= 2.5-3 tsf
5 26.2	2		6	8		Sandy Lean to Fat CLAY; concretions, stiff to very stiff, moist to very moist, light olive brown with pale brown inclusions	#200 Wash Fines = 68% PP = 2.7-4 tsf
6 26.5	5		7 -				Fines = 72% PP = 2-3 tsf
			8 9 10 11 12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			End of test pit @ 7' 6" No groundwater encountered Nuclear gauge density test data at 18" Dry density = 110 pcf Moisture content = 16.5% Nuclear gauge density test data at 4' Dry density = 96 pcf Moisture content = 26.3%	

y y <th t<="" th="" y<=""><th>$\left($</th><th></th><th></th><th>RY RING</th><th>,</th><th></th><th></th><th></th><th>Project No. 18-0817 Project Name : OC Prado Sheet : 1 C Exploration Method : Backhoe</th><th>o. 55 Of : 1</th></th>	<th>$\left($</th> <th></th> <th></th> <th>RY RING</th> <th>,</th> <th></th> <th></th> <th></th> <th>Project No. 18-0817 Project Name : OC Prado Sheet : 1 C Exploration Method : Backhoe</th> <th>o. 55 Of : 1</th>	$\left($			RY RING	,				Project No. 18-0817 Project Name : OC Prado Sheet : 1 C Exploration Method : Backhoe	o. 55 Of : 1
diant C S u C S v Description Addition 1 13.7 1 <th>ample No.</th> <th>Moisture ontent (%)</th> <th>Dry Unit eight (pcf)</th> <th>quivalent SPT</th> <th>Depth (ft)</th> <th>ple Location</th> <th>aphic Log</th> <th>soil Type (USCS)</th> <th>Sampling Method : Bulk Trenching Co: Bill Bastedo Backhoe Service Ground Eleva Location : See Figure A-2 Date Excavate</th> <th>tion: ed : 09-12-2018</th>	ample No.	Moisture ontent (%)	Dry Unit eight (pcf)	quivalent SPT	Depth (ft)	ple Location	aphic Log	soil Type (USCS)	Sampling Method : Bulk Trenching Co: Bill Bastedo Backhoe Service Ground Eleva Location : See Figure A-2 Date Excavate	tion: ed : 09-12-2018	
1 13.7 1.3.7 1	ů	- ŭ	Ŵ	Э		San	ษ		Description	Additional Tests	
1 13.7 Image: Sector 10 and the sector 10					0 			CL	FILL: Sandy Lean CLAY; crumbly, slightly moist, dark brown		
2 15.3 15.5 <t< th=""><th>1</th><th>13.7</th><th></th><th></th><th></th><th>\mathbb{X}</th><th></th><th></th><th></th><th>Fines = 79% PP = 2.5-4 tsf</th></t<>	1	13.7				\mathbb{X}				Fines = 79% PP = 2.5-4 tsf	
3 15.3 15.3 15.4 10.5 <t< td=""><td>2</td><th>15.3</th><td></td><td></td><td></td><td>\mathbb{X}</td><td></td><td></td><td>ALLUVIUM: Lean to Fat CLAY with SAND; trace of gravel, stiff to very stiff moist very dark brown</td><td>Fines = 80% PP = 3.2-3.7 tsf EI = 111</td></t<>	2	15.3				\mathbb{X}			ALLUVIUM: Lean to Fat CLAY with SAND; trace of gravel, stiff to very stiff moist very dark brown	Fines = 80% PP = 3.2-3.7 tsf EI = 111	
4 16.5 Fines = 7.7% 5 22.7 5 6	3	15.3			3 -	X		CL/CH		Fines = 80% PP = 3-3.5 tsf	
5 22.7 Sandy Lean to Fat CLAY; concretions, stiff to very stiff, moist to very moist, yellowish brown with pale brown inclusions Fines = 7.3% PP = 3.3.5 lsf 6 End of test pit @ 5 6" No groundwater encountered 7 Nuclear gauge density test data at 2' Dry density = 105 pcf 9 Dry density = 100 pcf Moisture content = 11.0% 10 Image: state s	4	16.5				\mathbb{X}			OLDER ALLUVIUM:	Fines = 78% PP = 3-3.5 tsf	
End of test pil @ 5 °C No groundwater encountered Nuclear gauge density test data at 2' Dry density = 105 pcf Moisture content = 11.0% Nuclear gauge density test data at 5' Dry density = 100 pcf Moisture content = 26.5% 10 11 11 11 12 11 11 12 11 11 11 11 12 11 11	5	22.7			5	X			Sandy Lean to Fat CLAY; concretions, stiff to very stiff, moist to very moist, yellowish brown with pale brown inclusions	Fines = 73% PP = 3-3.5 tsf	
					$\begin{bmatrix} 0 & - & - & - \\ 0 & - & - $				End of test pit @ 5' 6" No groundwater encountered Nuclear gauge density test data at 2' Dry density = 105 pcf Moisture content = 11.0% Nuclear gauge density test data at 5' Dry density = 100 pcf Moisture content = 26.5%		

$\left($	ENGINEERING TESTING, INC.							Project No. 18-0817 Project Name : OC Prado Sheet : 1 Exploration Method : Backhoe	lo. 56 Of : 1
	e (%	t cf)	ıt		ation	og	e	Sampling Method : Bulk	
nple N	oisture tent (y Uni ght (p	uivale SPT	pth (f	e Loca	ohic L	il Typ JSCS)	Image: Trenching Co: Bill Bastedo Backhoe Service Ground Elev Location : See Figure A-2 Date Excava	ation: ted : 09-06-2018
San	Con	Dr Weig	Equ	De	Sampl	Gra	(r So	Description	Additional Tests
1	13.2			0 1				FILL: Sandy Lean CLAY; crumbly, stiff, slightly moist, dark brown	Fierce = 75%
				2			CL	ALLUVIUM:	PP = 3.5-4.5 tsf
2	15.9			3 <u>-</u> 4 <u>-</u> 4 <u>-</u>	8			Lean CLAY with SAND; stiff to very stiff, moist, dark brown	Fines = 85% PP = 2.5-4.5 tsf
3	19.7			5	X				Fines = 90% PP = 2.5-3 tsf
4	27.1			6	8		01 (01)	OLDER ALLUVIUM:	Fines = 90% PP = 3.0 tsf
							CL/CH	Lean to Fat CLAY; concretions, very stiff, moist, dark yellowish brown with pale brown	Einos - 97%
5	22.4			8	×				PP = 3.2-3.5 tsf
6	23.5			9 —	×			End of toot oit @ 0'	PP = 2.5-3 tsf
				10				No groundwater encountered	
				11 <u>—</u>					
				12					
				_					
				-					
				_					
				_					
				_					
					1_1			Bulk 🔀 CD 🗖 SPT	X

$\left($	KOURY ENGINE ERING & TESTING, INC.							Project No. 18-0817 Project Name : OC Prado Exploration Method : Backhoe	Test Pit N Sheet : 1	lo. 57 Of : 1
ample No.	Moisture Intent (%)	Dry Unit ∳ight (pcf)	quivalent SPT)epth (ft)	ple Location	aphic Log	soil Type (USCS)	Sampling Method : BulkTrenching Co: Bill Bastedo Backhoe ServiceLocation : See Figure A-2	Ground Elev Date Excava	vation: ited : 09-12-2018
Sa	° - S	l We	Щ		Sam	G	ω -	Description		Additional Tests
				0 1				FILL: Lean CLAY with SAND; crumbly, slightly moist to r brown	noist, dark	
1 2	15.7 17.7			2			CL	ALLUVIUM: Lean CLAY with SAND; stiff, moist, very dark brow	'n	Fines = 86% PP = 3.5 tsf Fines = 85% PP = 2.7-4.5 tsf
3 4	23.1 23.4			3 <mark>-</mark> - 4 -			CL/CH	OLDER ALLUVIUM: Lean to Fat CLAY with SAND; concretions, stiff to moist, dark yellowish brown with pale brown inclusio	very stiff, ons	Fines = 85% PP = 2-3.5 tsf Fines = 81% PP = 3-3.5 tsf
4	23.4			$\begin{bmatrix} - & - & - & - \\ - & - & - & - \\ - & - &$				End of test pit @ 4' 6" No groundwater encountered Nuclear gauge density test data at 2' Dry density = 106 pcf Moisture content = 19.4% Nuclear gauge density test data at 4' Dry density = 86 pcf Moisture content = 29.6%		PP = 3-3.5 tsf
								Bulk 🔀 CD 🗖	SPT	X

Subject Subject <t< th=""><th>(</th><th></th><th></th><th>RY RING</th><th></th><th></th><th></th><th></th><th>Project No. 18-0817 Project Name : OC Prado She Exploration Method : Backhoe</th><th>stPitNo eet:10</th><th>o. 58 f:1</th></t<>	(RY RING					Project No. 18-0817 Project Name : OC Prado She Exploration Method : Backhoe	stPitNo eet:10	o. 58 f:1
x x	imple No.	Moisture ntent (%)	Dry Unit ight (pcf)	quivalent SPT	epth (ft)	ple Location	aphic Log	koil Type (USCS)	Sampling Method : Bulk Trenching Co: Bill Bastedo Backhoe Service Gro Location : See Figure A-2 Date	und Elevat e Excavate	ion: d : 09-06-2018
1 20.2 0	Sa	⊂ ⊽ C	l We	Щ		Sam	л. С	s -	Description		Additional Tests
1 202 14.9 14.9 14.9 14.9 14.9 14.9 14.1 <td< th=""><th></th><th></th><th></th><th></th><th>0</th><th></th><th></th><th></th><th>FILL: Sandy Lean CLAY; trace of travel, slightly moist to mo brown</th><th>ist, stiff,</th><th>//000 14/</th></td<>					0				FILL: Sandy Lean CLAY; trace of travel, slightly moist to mo brown	ist, stiff,	//000 14/
2 14.9 3	1	20.2			2						#200 Wash Fines = 67% PP = 3.5-4 tsf
3 21.3 4 21.2 5 23.2 6 23.4 6 23.4 7 CL/CH 0LDER ALLUVIUM: Lean to Fat CLAY; concretions, stiff to very stiff, moist, dark yellowish brown with pale brown Fines = 909 PP = 2.5.35 6 23.4 9 10 10 11 12 11 12 13 14 15 16 17 18 19 10 11 12 13 14 15 16 17 18 19 10 11 12 13 14 15 16 17 18	2	14.9			3 4 4	8		CL	ALLUVIUM: Lean CLAY with SAND; trace of gravel, moist, stiff, da brown	rk	Fines = 78% PP = 3.5-4.5 tsf EI = 59
4 21.2 0 0 0LDER ALLUVIUM: Lean to Fat CLAY; concretions, stiff to very stiff, moist, dark yellowish brown with pale brown Fines = 90° PP = 2.5-3.5 5 23.2 8 0 0 End of test pit @ 9' 6'' No groundwater encountered Fines = 77° PP = 4.5 ts	3	21.3			5	\times					Fines = 84%
5 23.2 3 3 10 10 Lean to Fat CLAY with SAND; stiff, moist, dark yellowish brown with dark brown inclusions #200 Wast Fines = 903 Fines = 903 Fines = 903 Fines = 903 Fines = 703 Fines =	4	21.2			6 <mark>-</mark> 7 -				OLDER ALLUVIUM: Lean to Fat CLAY; concretions, stiff to very stiff, moist, yellowish brown with pale brown	, dark	Fines = 89% PP = 2.5-3.5 tsf
6 23.4 23.4 9 Lean to Fat CLAY with SAND; stiff, moist, dark yellowish brown with dark brown inclusions #200 Wasi Fines = 77: PP = 4.5 is 10 End of test pit @ 9' 6" No groundwater encountered No groundwater encountered #200 Wasi Fines = 77: PP = 4.5 is 11 12 I1 I1 I1 I1 I1 12 I1 I1 I1 I1 I1 I1 12 I1 I1 I1 I1 I1 I1 I1 I2 I1 I1 <td>5</td> <td>23.2</td> <td></td> <td></td> <td>8</td> <td>\mathbb{X}</td> <td></td> <td>CL/CH</td> <td></td> <td></td> <td>Fines = 90% PP = 2.5-4 tsf</td>	5	23.2			8	\mathbb{X}		CL/CH			Fines = 90% PP = 2.5-4 tsf
End of test pit @ 9' 6" No groundwater encountered	6	23.4			9	8			Lean to Fat CLAY with SAND; stiff, moist, dark yellow brown with dark brown inclusions	ish	#200 Wash Fines = 77% PP = 4.5 tsf
									End of test pit @ 9' 6" No groundwater encountered		

	KOURY ENGINEERING & TESTING, INC.						Project No. 18-0817 Test Pit No. 59 Project Name : OC Prado Sheet : 1 Of : 1		
mple No.	loisture ntent (%)	bry Unit ight (pcf)	luivalent SPT	epth (ft)	ne Location Iphic Log	oil Type USCS)	Exploration Method : Backhoe Sampling Method : Bulk Trenching Co: Bill Bastedo Backhoe Service Location : See Figure A-2 Date E	d Elevation: ixcavated : 09-06-201	18
Sal	Co⊾	Wei	Ĕ	ŏ	Gra	Š	Description	Additiona Tests	al
1	16.4				×		FILL: Lean CLAY with SAND; trace of wood, stiff, moist, dark brown		07
				2 — 2 — 3 — 3		CL	ALLUVIUM: Lean CLAY; stiff, moist, very dark brown	PP = 2.5 t	sf
2				4				EI = 88	
3	23.7					CL/CH	OLDER ALLUVIUM: Lean to Fat CLAY; concretions, stiff, moist to very moist, yellowish brown with pale brown	Fines = 85 PP = 2.5-3 Fines 87%	% tsf %
4	26.5			$\begin{array}{c} 7 \\ 7 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\$			End of test pit @ 7' No groundwater encountered	SPT	⁷⁰ tsf

-(ENGINEERING & TESTING, INC.							Project No. 18-0817 Test Pit No. Project Name : OC Prado Sheet : 1 Exploration Method : Backhoe	o. 60 of : 1
ample No.	Aoisture Intent (%)	Dry Unit ight (pcf)	quivalent SPT	epth (ft)	ple Location	aphic Log	toil Type (USCS)	Sampling Method : Bulk Trenching Co: Bill Bastedo Backhoe Service Ground Eleva Location : See Figure A-2 Date Excavate	tion: ed : 09-06-2018
Sa	² ° °	I We	Ш		Sam	Ğ	S	Description	Additional Tests
				0 	-		CL	FILL: Lean CLAY with SAND, stiff, moist, dark brown	
1	15.9			<u>-</u>	\mathbb{X}				Fines = 86% PP = 4.0 tsf
2	22.3			2 3				ALLUVIUM: Lean to Fat CLAY; very stiff, moist very dark brown	Fines 89% PP = 1.5-4 tsf EI = 102
3	23.4			4	X		CL/CH	OLDER ALLUVIUM:	Fines = 83% PP = 1.7-2.5 tsf
4	25.8			5				Lean to Fat CLAY with SAND; concretions stiff, moist, dark yellowish brown with pale brown	#200 Wash Fines = 78% PP = 2.5-3 tsf
				7 <u>-</u> 7 <u>-</u>	-		СН	Fat CLAY with SAND; stiff, moist to very moist, dark yellowish brown with pale brown	#200 Wash
5	31.0							End of test pit @ 8' 3" No groundwater encountered	PP = 2-2.5 tsf

KO ENGII & TES		Y G C.	-			Project No. 18-0817 Project Name : OC Prado Sheet : 1 Of : 1 Exploration Method : Backhoe		
. 0	t ÷		ion	D		Sampling Method : Bulk		
e No	Jnit (pc	⊢ Î	ocat	c Lo	Type CS)	Trenching Co: Bill Bastedo Backhoe Service Ground Elev	ation:	
Aois Inter	Dry l ight quiv	SP	ple L	aphi	ioil T (US(Location : See Figure A-2 Date Excava	ed: 09-06-2018	
S, - S	Ш Ж		Sam	ō	0	Description	Additional Tests	
		0 				FILL: Sandy Lean CLAY; crumbly, slightly moist to moist, dark yellowish brown	#200 W/ash	
1 15		2				ALLUVIUM: Lean CLAY with SAND; concretions, stiff, moist, dark vellowish brown	Fines = 79% PP = 4.0 tsf	
2 16.4		3 —			CL	,	Fines = 74% PP = 2.5-4 tsf	
3 14.8		4 -				OLDER ALLUVIUM: Sandy Lean CLAY; abundant concretions, stiff, moist,	PP = 2.0 tsf	
4 13.7		5 — 				yellowish brown and pale brown	Fines = 50% PP = 2.5-3.5 tsf	
		7 — 8 —			CL/CH	Sandy Lean to Fat CLAY; abundant concretions, stiff to very stiff, moist, olive brown		
5 21.6							Fines = 56% PP = 3.0 tsf	
5 21.6						End of test pit @ 9' No groundwater encountered	PP = 3.0 tsf	

Exploration Method : Backhoe Sampling Method : Bulk Trenching Co: Bill Bastedo Backhoe Service	Ground Elevation: Date Excavated : 09-06-2018
Description	Additional Tests
FILL:	t brown
1 18.5 2 - - - CL ALLUVIUM: Lean CLAY with SAND; very stiff, moist,	dark brown
2 15.1 OLDER ALLUVIUM: 4 - Sandy Lean CLAY; very stiff, moist, dark	Fines = 72% PP = 3-3.2 tsf
3 25.9 $5 - \frac{1}{2}$ 6 - $6 - \frac{1}{2}$ Lean to Fat CLAY with SAND; trace of c	#200 Wash Fines = 86% PP = 3-3.5 tsf
	Fines = 85%
	Fines = 94% PP = 3.0 tsf
6 20.2 CL Sandy Lean CLAY; stiff, moist, light olive	e brown to brown #200 Wash Fines = 64% PP = 3.0 tsf
End of test pit @ 10' 4" 11	

/	V		PV					Project No. 18-0817	Fest Pit No	. 63
(ENG & TE	INEE	RING		-			Project Name : UC Prado	Sheet 1 Of	.1
	-	/						Exploration Method : Backhoe		• •
÷	(%)	if)	t		ion	g		Sampling Method: Bulk		
e No	ture nt (9	Jnit (pc	alen T	ר (ft)	ocat	c Lo	ype CS)	Trenching Co: Bill Bastedo Backhoe Service G	Fround Elevati	on:
Idmi	Aois: nter	Jry (ight	sp	eptł	ple L	aphi	oil T (US(Location : See Figure A-2	Date Excavated	d : 09-12-2018
Sa	≥ ° C	I We	Ē	Δ	Sam	ър	s -	Description		Additional Tests
				0				FILL: Lean CLAY with SAND: crumbly, slightly moist to to	o moist	
				1	Ш			dark brown	o moiot,	
1	14.0			2			CL	ALLUVIUM: Lean CLAY with SAND; stiff, moist, very dark brow	n	#200 Wash Fines = 86% PP = 3.5 tsf
2	20.5			5	×		CL/CH	OLDER ALLUVIUM: Sandy Lean CLAY; concretions, very stiff, moist, day	ark	#200 Wash Fines = 69% PP = 3.5 tsf
				7				End of test pit @ 6' 6"		FF - 3.3 (SI
								No groundwater encountered		
				8 —				Nuclear gauge density test data at 2.5"		
								Dry density = 98 pcf Moisture content = 15.7%		
				9 —				Nuclear gauge density test data at 6'		
								Dry density – 69 pci Moisture content – 25.5%		
				10-						
				11 —						
				10 -						
				12 _						
				_						
				_						
								D Bulk	SPT	

(RY RING					Project No. 18-0817 Project Name : OC Prado Sheet :	Pit No. 64 ∶1 Of : 1
mple No.	loisture ntent (%)	bry Unit ight (pcf)	juivalent SPT	epth (ft)	ole Location	aphic Log	oil Type USCS)	Exploration Method : Backhoe Sampling Method : Bulk Trenching Co: Bill Bastedo Backhoe Service Location : See Figure A-2 Date Exploration	Elevation: cavated : 09-12-2018
Sai	⊡ N C	D Wei	Ed	ă	Samp	Gra	°S, C	Description	Additional Tests
4	15.0			0 1	N 4			FILL: Sandy Lean CLAY; crumbly, slightly moist to moist, brown	
1	15.9			_	X				PINES = 75% PP = 2.5-2.7 tsf
2	21.5			2	\mathbb{X}			ALLUVIUM: Lean CLAY with SAND; stiff, moist, dark brown	Fines = 80% PP = 3.7-4.5
3	20.1			3 —	X		CL		Fines = 67% PP = 3-4.5 tsf
4	16.6			4	\mathbb{X}			OLDER ALLUVIUM: Sandy Lean CLAY; concretions, very stiff, moist, dark	Fines = 71% PP = 4.5 tsf
5	15.5			5	X			yellowish brown	Fines = 57% PP= 4.5 tsf
6	14.4			6	X			abundant concretions	Fines 50% PP = 4.5 tsf
7	18.0			7					Fines = 50% PP = 4.5 tsf
				$\begin{array}{cccccccccccccccccccccccccccccccccccc$				End of test pit @ 7' 6" No groundwater encountered Nuclear gauge density test data at 2' Dry density = 99 pcf Moisture content = 21.3%	
								Bulk 🔀 CD 🗖 S	SPT 🗙

(ENG & TE		RY RING					Project No. 18-0817 Project Name : OC Prado Sheet : 1 O Exploration Method : Backhoe	b. 65 f:1
mple No.	Aoisture ntent (%)	Dry Unit ight (pcf)	quivalent SPT	epth (ft)	ple Location	aphic Log	oil Type (USCS)	Sampling Method : Bulk - CD Trenching Co: Bill Bastedo Backhoe Service Location : See Figure A-2 Date Excavate	t ion: d : 09-12-2018
Sa	≥ō	L We	ы	Δ	Sam	Gra	s C	Description	Additional Tests
				0 1				FILL: Lean CLAY with SAND; crumbly, dry to slightly moist, dark brown	
1 2	7.7 8.4			2 <u>-</u> 	×		CL	ALLUVIUM: Lean CLAY with SAND; trace of organics, stiff to very stiff, slightly moist to moist, very dark brown	Fines = 86% PP = 4.5 tsf Fines 84% <u>PP = 4.5 tsf</u> Fines = 74%
3	9.3	113		4				Sandy Lean CLAY; concretions, caliche stringers, very stiff, slightly moist, mottled dark yellowish brown with white inclusions	PP = 4.5 tsf
4 5	21.6 17.4	114		5	*		01./011	Lean to Fat CLAY with SAND; trace concretions, very stiff, moist, dark yellowish brown and pale brown	Fines = 80% PP = 4-4.5 tsf
6	24.0			6	X		CL/CH	OLDER ALLUVIUM: Lean to Fat CLAY with SAND; trace of concretions, very stiff, moist, dark yellowish brown	Fines = 82% PP = 2.7-3 tsf EI = 99
7	20.9			- 8			CL	Sandy Lean CLAY; trace of concretions, very stiff, moist, dark yellowish brown with pale brown and white inclusions	Fines = 72% PP = 4-4.5 tsf Fines = 63%
0	13.7							End of test pit @ 8' 6" No groundwater encountered Nuclear gauge density test data at 18" Dy density = 109 pcf Moisture content = 7.9%	PP = 4-4.5 tsf

		RY RING					Project No. 18-0817 Project Name : OC Prado Sheet : 1 0 Exploration Method : Backhoe	o. 66 Df : 1
mple No. loisture ntent (%)	ory Unit ight (pcf)	luivalent SPT	epth (ft)	ole Location	aphic Log	oil Type USCS)	Sampling Method : BulkGround EleveTrenching Co: Bill Bastedo Backhoe ServiceGround EleveLocation : See Figure A-2Date Excavate	ation: ed : 09-07-2018
Cor Za	Wei	Ē	ŏ	Samp	Gra	s, C	Description	Additional Tests
			0				FILL: Sandy Lean CLAY; slightly moist to moist, dark olive gray	
1 20.9			2 –	*			ALLUVIUM: Sandy Lean CLAY; trace of concretions, stiff to very stiff, moist to very mois,t olive brown	Fines = 74% PP = 3-3.5 tsf
2 15.9			3 4 4	8		CL	OLDER ALLUVIUM: Lean CLAY with SAND; trace of concretions, very stiff, moist, olive brown with pale brown	Fines = 79% PP = 4.5 tsf
3 18.2			5	8			Sandy Lean CLAY; stiff to very stiff, moist, dark yellowish brown	Fines = 60% PP = 4-4.5 tsf
4 18.1			6	\mathbb{X}		sc	Clayey SAND; fine, layers of sandy lean clay, moist to very moist, yellowish brown with gray inclusions	Fines = 40%
5 18.6			7	\mathbb{X}				Fines = 44%
			8 9 10 11 12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				End of test pit @ 7' 6" No groundwater encountered	

			RING					Project No. 18-0817 Project Name : OC Prado Sheet : 7 Exploration Method : Backhoe	t No. 67 I Of :1
mple No.	loisture ntent (%)	bry Unit ight (pcf)	ļuivalent SPT	epth (ft)	ole Location	aphic Log	oil Type USCS)	Sampling Method : Bulk - CDTrenching Co: Bill Bastedo Backhoe ServiceGround ELocation : See Figure A-2Date Exca	levation: wated : 09-07-2018
Sa	C ol C ol	L Wei	C ramp D Eq				ق	Description	Additional Tests
				0 1			CL	FILL: Sandy Lean CLAY; trace of gravel, soft, slightly moist, grayis brown (pond surface sediments)	h
1	27.0			2	8			ALLUVIUM: Sandy Lean to Fat CLAY; trace of organics, stiff to very stiff, moist, very dark brown	Fines = 74% PP = 3.5-4 tsf
2	17.0			3 <u> </u>	8				Fines 70% PP = 3-4 tsf
3	19.9	115		5			CL/CH	OLDER ALLUVIUM; Sandy Lean to Fat CLAY; trace concretions, stiff to very stiff moist to very moist, medium to high plasticity, dark olive gray	, Fines = 66% PP = 3.2-3.7 tsf Consolidation
4	22.0				8				Fines = 69% PP = 3-4 tsf
5	24.3			9				End of test pit @ 8' 6" No groundwater encountered	Fines = 70%
				<u> </u>				Bulk 🔯 CD 🗖 SF	 יד 🔽

(E NG		RY RING					Project No. 18-0817 Project Name : OC Prado Sheet : 1 C	o. 68 Df :1
mple No.	oisture itent (%)	rry Unit ght (pcf)	uivalent SPT	∍pth (ft)	le Location	phic Log	oil Type USCS)	Exploration Method : Backhoe Sampling Method : Bulk - CD Trenching Co: Bill Bastedo Backhoe Service Ground Eleva Location : See Figure A-2	ition: ed : 09-07-2018
Sar	Co ⊠	D Wei	Eq	ă	Samp	Gra	Sc Sc	Description	Additional Tests
				0 1				Pond surface containing trash One foot of sediment, very soft, bluish gray	
1	31.9			2	8			Lean to Fat CLAY; firm, moist ot very moist, dark olive brown to dark gray	Fines = 91% PP = 1-1.5 tsf
1	29.3			3 <mark>-</mark>	8			ALLUVIUM: Lean to Fat CLAY with SAND; soft, very moist to wet, olive gray with rusty strike	PP = .575 tsf
2	22.4			4	X			Sandy Lean to Fat Clay; stiff to very stiff, moist to very moist, olive gray with rusty strike and white specks	Fines = 70% PP = 2-4 tsf
3	31.8			5	8		CL/CH	Lean to Fat CLAY; stiff to very stiff, moist to very moist, olive gray	Fines = 90% PP = 1.5-2 tsf
4 5	33.4 36.5	93 88		6 — - 7 — - 8 — -				Lean to Fat CLAY with SAND; firm to stiff, moist to very moist, grayish brown to brownish gray	Fines = 80% PP = 1.2-1.7 tsf Fines = 71% PP = 1.0-1.5 tsf Consolidation
4	37.8			9 <u>-</u> - - 10 <u>-</u>				Lean to Fat CLAY; stiff, moist to very moist, olive gray	Fines = 97% PP = 2.5-4.5 tsf
5	30.5			11 11 12 13			ML	Silt; trace of sand, stiff, moist, dark olive gray	Fines = 92% PP = 2.5-4 tsf
								cementation at 13.5 feet	
6	28.2			_	\mathbb{X}		SM	Silty SAND; fine to medium, wet, dark olive gray	Fines = 13%
								End of test pit @ 14' 6" Water seeping in sand lenses at 3', groundwater at 13' Hole filled with water to 2' of ground surface after one day	
<u> </u>					1			Bulk 🔯 CD 🗖 SPT 🔀	<u> </u>

			RY RING		-			Project No. 18-0817 Project Name : OC Prado Sheet : 1 C	b. 69 if : 1
mple No.	Aoisture ntent (%)	Dry Unit ight (pcf)	quivalent SPT	epth (ft)	ple Location	aphic Log	oil Type (USCS)	Sampling Method : Bulk Trenching Co: Bill Bastedo Backhoe Service Location : See Figure A-2 Date Excavate	tion: ed : 09-12-2018
Sa	≥ õ Ö	9W L	Щ	Δ	Sam	Gra	s	Description	Additional Tests
1	13.4			0 1				FILL: Lean CLAY with SAND; trace concretions, very stiff, slightly moist to moist, dark brown	Fines = 86%
2	15.7			2 — 2 — 3 — 4 — 5 —			CL	ALLUVIUM: Lean CLAY with SAND; trace concretions, very stiff, moist, very dark brown	Fines 84% PP = 3-3.5 tsf
3	16.0				\mathbb{X}				PP = 2.5 tsf
4	21.7			6	8			OLDER ALLUVIUM: Sandy Lean to Fat Clay; concretions, stiff, moist, dark yellowish brown with pale brown inclusions	Fines = 64% PP = 1.5-3 tsf
5	31.1			- 8			CL/CH	Lean to Fat Clay; concretions, stiff, moist to very moist, dark yellowish brown with pale brown inclusions	Fines = 85% PP = 2.0 tsf
6	39.6				\otimes		СН	Fat Clay; concretions, stiff, moist to very moist, dark yellowish brown with pale brown inclusions	Fines = 98% PP = 4.5 tsf
								End of test pit @ 10' No groundwater encountered Nuclear gauge density test data at 4' Dry density = 91 pcf Moisture content = 18.4%	
								Bulk 🔀 CD 🔳 SPT 🔀	1

9 11 11	$\left(\right)$			RING , INC.	-			Project No. 18-0817 Project Name : OC Prado Exploration Method : Backhoe	Test Pit No Sheet : 1 C	5. 70 of :1
u 3 x Description Addition 1 14.9 1	ample No.	Moisture ontent (%)	Dry Unit eight (pcf)	iquivalent SPT	Jepth (ft)	nple Location aphic Log	Soil Type (USCS)	Sampling Method : Bulk - CD Trenching Co: Bill Bastedo Backhoe Service Location : See Figure A-2	Ground Eleva Date Excavate	tion: ed : 09-11-2018
1 14.9 14.9 108 Image: start of the star	ů	- ö	Ŵ	ш		Gr	<i>"</i>	Description		Additional Tests
1 14.9 ALLUVIUM: Lear CLAY with SAND; stiff, moist, dark yellowish brown PP = 3.2, 25 fer PP = 3.7, 48 PP = 3.3, 14 PP					0 1		CL	FILL: Sandy Lean CLAY; crumbly, stiff, slightly moist brown	to moist,	Fines - 76%
2 150 108 Image: Solution of an CLAY; concretions, slightly moist, dark proves if the provide of the	1	14.9			 2	×		ALLUVIUM: Lean CLAY with SAND; stiff, moist, dark yellow	vish brown	PP = 2-2.5 tsf
3 12.0 Image: second seco	2 3	15.0 18.1	108		3 <u> </u>	*	CL/CH	Sandy Lean to Fat CLAY; concretions, slightly yellowish brown with pale brown	moist, dark	PP = 3.7-4 tsf Fines = 74% PP = 2.5-3.5 tsf EI = 160
5 14.9 Image: second seco	3 4	12.0 15.3			4	X	CL	OLDER ALLUVIUM: Sandy Lean CLAY; very stiff, moist, dark yellow	vish brown	Fines = 57% Fines = 52% PP = 4.0 tsf
End of test pit @ 4' 6" No groundwater encountered Nuclear gauge density test data at 2' Dry density = 106 pcf Moisture content = 14.7% Nuclear gauge density test data at 5' Dry density = 105 pcf Moisture content = 14.1%	5	14.9			5					Fines = 50% PP = 3.5 tsf
					$ \begin{array}{c} 6 \\ - \\ - \\ - \\ - \\ - \\ - \\ - \\ - \\ - \\$			End of test pit @ 4' 6" No groundwater encountered Nuclear gauge density test data at 2' Dry density = 106 pcf Moisture content = 14.74 Nuclear gauge density test data at 5' Dry density = 105 pcf Moisture content = 14.19	6	

			RY RING					Project No. 18-0817 Test Pit N Project Name : OC Prado Sheet : 1 Exploration Method : Backhoe Sheet : 1	lo. 71 Of : 1
imple No.	Aoisture Intent (%)	Dry Unit ight (pcf)	quivalent SPT	epth (ft)	ple Location	aphic Log	ioil Type (USCS)	Sampling Method : BulkTrenching Co: Bill Bastedo Backhoe ServiceGround ElevLocation : See Figure A-2Date Excava	ation: ted : 09-11-2018
Sa	≥ ° S	I We	Ēć		Sam	G	s -	Description	Additional Tests
				0 1				FILL: Sandy Lean CLAY; crumbly, slightly moist to moist, brown	
1	10.7			2	8		CL	ALLUVIUM: Sandy Lean CLAY; concretions, very stiff, moist, dark brown	Fines = 64% PP = 4.5 tsf
2	14.2			3	\mathbb{X}			dark vellowish brown	Fines = 59% PP = 3-3.5 tsf EI = 45 Fines = 54%
3	14.5	119		4 —					PP = 3.5-4.5 tsf
				$\begin{array}{c} 4 \\ - \\ 5 \\ - \\ - \\ 6 \\ - \\ - \\ - \\ - \\ - \\ - \\ -$				End of test pit @ 4' 2" No groundwater encountered Nuclear gauge density test data at 3.5' Dry density = 116 pcf Moisture content = 13.1%	PP = 3.5-4.5 tsf
				<u> </u>				V Bulk 🔀 CD 🖬 SPT	<u> </u>

(RY RING				Project No. 18-0817 Project Name : OC Prado Shee Exploration Method : Backhoe	Pit No. 72 t:1 Of :1
ample No.	Moisture Intent (%)	Dry Unit ight (pcf)	quivalent SPT	lepth (ft) ole Location	aphic Log	ioil Type (USCS)	Sampling Method : Bulk - CD Trenching Co: Bill Bastedo Backhoe Service Location : See Figure A-2 Date Backhoe Service	d Elevation: xcavated : 09-11-2018
Sa	≥ °	I We	ш	D	Ğ	S -	Description	Additional Tests
1	15.4					CL	FILL: Sandy Lean CLAY; trace of gravel, crumbly, soft, slightly moist to moist, dark brown ALLUVIUM: Lean CLAY with SAND; trace of concretions, very stiff, n very dark brown	Fines = 78% PP = 2.5-3.5 tsf
2	16.1						Sandy Lean CLAY; trace of concretions, very stiff, moist, brown	dark PP = 2.2-2.7 tsf
3	20.0			3			OLDER ALLUVIUM: Lean to Fat CLAY with SAND; concretions, stiff to very s moist to very moist, dark vellowish brown with nale brown	tiff, Fines = 79% PP = 2.5-3 tsf
4	19.1	103		4 <u>-</u> 5 <u>-</u>		CL/CH	Sandy Lean to Fat CLAY; concretions, stiff to very stiff, r to very moist, yellowish brown	Fines = 54% PP = 3.5-4 tsf noist
5	18.1			6				Fines = 50% PP = 2-2.5 tsf
				$\begin{array}{c} - \\ 7 \\ - \\ 7 \\ - \\ 8 \\ - \\ - \\ 1 \\ 9 \\ - \\ 1 \\ - \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1$			End of test pit @ 6' 3" No groundwater encountered Nuclear gauge density test data at 3' Dry density = 105 pcf Moisture content = 19.1%	
				1 1	1		D Bulk CD	SPT

APPENDIX C

Laboratory Test Results & Calculations
























Tested By: Mathew F. Perry Checked By:



Tested By: Mathew F. Perry Checked By:





Tested By: Mathew F. Perry Checked By:

Location/ Elevation	B13 @	0' - 4'	TP59 @) 3.5' - 4'	ļ	B11 @) 0' - 4'		TP32 @ 3	3.8' - 4.3'		
USCS Symbol	C	Ľ	C	CL CL		;L		С	L			
Normal Load (psf)	144		144			144		144		14	•	
SAMPLE CONDITION	Initial	Final	Initial	Final		Initial	Final		Initial	Final		
Wt Specimen & Ring (gr)	739.170		717.130			750.900			739.930			
Wt. of ring (gr)	367.46		364.15			366.62			367.49			
Wt. Specimen (gr)	371.710		352.980			384.280			372.440			
Specimen diameter (in)	4.010		4.010			4.010			4.010			
Specimen radius (cm)	5.09		5.09			5.09			5.09			
Area of Specimen (cm ²)	81.479		81.479			81.479			81.479			
Init. Spec. height (in)	1.0025	N/A	0.9995	N/A		1.0005	N/A		1.0025	N/A		
Height change (final)(in)	N/A	0.0467	N/A	0.0875		N/A	0.0516		N/A	0.0610		
Adjusted Spec.height(in)	1.00	0.9558	1.00	0.9120		1.00	0.9489		1.00	0.9415		
" " (cm)	2.546	2.428	2.539	2.316		2.541	2.410		2.546	2.391		
Specimen Volume (cm ³)	207.475		206.854]	207.061]	207.475			
Moist Density (pcf)	111.85		106.53			115.86			112.07			
MOISTURE CONTENT												
Wt. moist soil+tare(gr)	124.55	124.55	126.16	126.16		388.88	388.88		342.36	342.36		
Wt. dry soil+tare(gr)	113.05	113.05	111.08	111.08		370.92	370.92		330.03	330.03		
Wt. of tare(gr)	19.64	19.64	17.33	17.33		225.18	225.18		236.00	236.00		
Wt. dry soil (gr)	93.41	93.41	93.75	93.75		145.74	145.74		94.03	94.03		
Wt. of water (gr)	11.50	11.50	15.08	15.08		17.96	17.96	1	12.33	12.33		
M/C (%)	12.31	12.31	16.09	16.09		12.32	12.32		13.11	13.11		
DRY DENSITY (pcf)	99.6		91.8			103.2			99.1			
% Saturation* (48%-52%)	48.0		51.9	•		52.5			50.5		J	
*Assumes Gs =	2.7		2.7			2.7			2.7			
EXPANSION INDEX =	47		88			52			61			
Potential Expansion (per ASTM 4829-08)	Low		Medium			Medium			Medium			
KOURY			Project Name	:				Pr	oject No.:	18-0817	Run by: MFP	Lab:
ENGINEERING & TESTING, INC.	-		OC F	OC Prado - Construction Level					ate: 9/12/18	3	QA:	528

Location/ Elevation	TP71@	2.5' - 3'	TP33 @	2.5' - 3'				
USCS Symbol		; <u>- </u>	C	1				
Normal Load (nsf)	1/	/∟ 1 <i>1</i>	144					
SAMPLE CONDITION	Initial	Final	Initial	Final				
Wt Specimen & Ring (gr)	751.350		730,990					
Wt. of ring (gr)	366.60		367.49					
Wt. Specimen (gr)	384.750		363.500					
Specimen diameter (in)	4.010		4.010					
Specimen radius (cm)	5.09		5.09					
Area of Specimen (cm ²)	81.479		81.479					
Init. Spec. height (in)	1.0005	N/A	<u>1.0025</u>	N/A				
Height change (final)(in)	N/A	0.0450	N/A	0.0628				
Adjusted Spec.height(in)	1.00	0.9555	1.00	0.9397				
" " (cm)	2.541	2.427	2.546	2.387				
Specimen Volume (cm ³)	207.061		207.475					
Moist Density (pcf)	116.00		109.38					
MOISTURE CONTENT								
Wt. moist soil+tare(gr)	146.14	146.14	133.08	133.08				
Wt. dry soil+tare(gr)	131.70	131.70	117.55	117.55				
Wt. of tare(gr)	0.00	0.00	0.00	0.00				
Wt. dry soil (gr)	131.70	131.70	117.55	117.55				
Wt. of water (gr)	14.44	14.44	15.53	15.53				
M/C (%)	10.96	10.96	13.21	13.21				
DRY DENSITY (pcf)	104.5		96.6					
% Saturation* (48%-52%)	48.3		47.9					
*Assumes Gs =	2.7		2.7					
EAPANSION INDEX = Potential Expansion	45		63					
(per ASTM 4829-08)	Low		Medium					
KOURY			Project Name:			Project No.: 18-0817	Run by: SA	Lab:
ENGINEERING & TESTING, INC.			OC P	rado - Con	struction Level	Date: 9/17/18	QA:	5294

ation/ Elevation	TP27 @	3.5' - 4.2'				
USCS Symbol	C	Н				
Normal Load (psf)	14	44				
AMPLE CONDITION	Initial	Final				
Specimen & Ring (gr)	731.670					
Wt. of ring (gr)	364.15					
Wt. Specimen (gr)	367.520					
ecimen diameter (in)	4.010					
pecimen radius (cm)	5.09					
ea of Specimen (cm ²)	81.479					
nit. Spec. height (in)	0.9995	N/A				
ight change (final)(in)	N/A	0.1435				
justed Spec.height(in)	1.00	0.8560				
" " (cm)	2.539	2.174				
ecimen Volume (cm ³)	206.854					
Moist Density (pcf)	110.92					
MOISTURE CONTENT						
/t. moist soil+tare(gr)	149.13	149.19				
Wt. dry soil+tare(gr)	132.49	132.49				
Wt. of tare(gr)	0.00	0.00				
Wt. dry soil (gr)	132.49	132.49				
Wt. of water (gr)	16.64	16.70				
M/C (%)	12.56	12.60				
DRY DENSITY (pcf)	98.5					
Saturation* (48%-52%)	47.7					
*Assumes Gs = EXPANSION INDEX =	2.7 144					
Potential Expansion (per ASTM 4829-08)	Very High					
KOURY	_		Project Name:	Project No.: 18-0817	Run by: SA	Lab:
& TESTING, INC.			OC Prado	Date: 9/18/18	QA:	5

					EXPANS	ION	INDEX TE	STS
			DENS	ITY AN	D MOIST	URE		T DATA -
Location/ Elevation	TP26 @	4.2' - 4.9'		TP30 @	3' - 3.5'		TP22 @	4' - 4.8'
USCS Symbol	C	L		С	Ľ		C	L
Normal Load (psf)	14	44		14	14		14	4
SAMPLE CONDITION	Initial	Final	l	nitial	Final		Initial	Final
Wt Specimen & Ring (gr)	715.780		75	52.220			737.200	
Wt. of ring (gr)	366.60		30	67.44			364.14	
Wt. Specimen (gr)	349.180		38	34.780			373.060	
Specimen diameter (in)	4.010		4	1.010			4.010	
Specimen radius (cm)	5.09			5.09			5.09	
Area of Specimen (cm ²)	81.479		8	1.479			81.479	
Init. Spec. height (in)	1.0005	N/A	1.	.0025	N/A		0.9995	N/A
Height change (final)(in)	N/A	0.0744		N/A	0.0483		N/A	0.0620
Adjusted Spec.height(in)	1.00	0.9261		1.00	0.9542		1.00	0.9375
" " (cm)	2.541	2.352	2	2.546	2.424	ļ	2.539	2.381
Specimen Volume (cm ³)	207.061		20)7.475		ļ	206.854	
Moist Density (pcf)	105.28		1	15.78			112.59	
MOISTURE CONTENT								
Wt. moist soil+tare(gr)	136.32	136.32	1	26.77	126.77		135.36	135.36
Wt. dry soil+tare(gr)	117.67	117.67	1	12.79	112.79		119.12	119.12
Wt. of tare(gr)	0.00	0.00		0.00	0.00		0.00	0.00
Wt. dry soil (gr)	117.67	117.67	1	12.79	112.79		119.12	119.12
Wt. of water (gr)	18.65	18.65	1	13.98	13.98		16.24	16.24
M/C (%)	15.85	15.85	1	12.39	12.39		13.63	13.63
DRY DENSITY (pcf)	90.9		1	103.0			99.1	

52.5

2.7

62

Medium

OC Prado - Construction Level

Project No.: 18-0817

Date: 9/19/18

Run by: SA

QA:

Lab:

5304

% Saturation* (48%-52%)

KOURY ENGINEERING & TESTING, INC.

*Assumes Gs =

EXPANSION INDEX =

Potential Expansion

(per ASTM 4829-08)

50.1

2.7

74

Medium

52.6

2.7

48

Low

Project Name:

Location/ Elevation		3' - 3 8"		3' - 3 8'				
	1F40@	<i>,</i> 3 - 3.0		J = J.0				
USCS Symbol	СН		СН					
Normal Load (psf)	14	44	14	4				
SAMPLE CONDITION		Final	Initial	Final				
Wt Specimen & Ring (gr)	756.190		/31.400					
wt. of ring (gr)	366.59		364.11					
wt. Specimen (gr)	389.600		367.290					
Specimen diameter (in)	4.010		4.010					
Specimen radius (cm)	5.09		5.09					
Area of Specimen (cm ²)	81.479		81.479					
Init. Spec. height (in)	1.0005	N/A	0.9995	N/A				
Height change (final)(in)	N/A	0.1624	N/A	0.1263				
	4 0005	0.0204	0.0005	0.0700				
Adjusted Spec.neight(in)	1.0005	0.8381	0.9995	0.8732				
" " (cm)	2.541	2.129	2.539	2.218				
Specimen Volume (cm ³)	207.061		206.854					
Moist Density (pcf)	117.47		110.85					
MOISTURE CONTENT								
Wt. moist soil+tare(gr)	133.29	133,29	121.12	121.12				
Wt. dry soil+tare(gr)	119.39	119.39	107.54	107.54				
Wt. of tare(gr)	0.00	0.00	0.00	0.00				
Wt. dry soil (gr)	119.39	119.39	107.54	107.54				
Wt. of water (gr)	13.90	13.90	13.58	13.58				
M/C (%)	11.64	11.64	12.63	12.63				
DRY DENSITY (pcf)	105.2		08.4					
% Saturation* (48%-52%)	52.2		47.8					
*Assumes Gs =	2.7		2.7					
EXPANSION INDEX =	162		126					
Potential Expansion (per ASTM 4829-08)	Very High		High					
KOURY			Project Name:			Project No.: 18-0817	Run by: SA	Lab:
ENGINEERING & TESTING, INC.			ос	Prado - Cor	struction Level	Date: 9/21/18	QA:	5

Location/ Elevation	TP70 @	2.5' - 3.5'			
USCS Symbol	(CL			
Normal Load (psf)	1	44			
SAMPLE CONDITION	Initial	Final			
Wt Specimen & Ring (gr)	741.660				
Wt. of ring (gr)	367.45				
Wt. Specimen (gr)	374.210				
Specimen diameter (in)	4.010				
Specimen radius (cm)	5.09				
Area of Specimen (cm ²)	81.479				
Init. Spec. height (in)	1.0025	N/A			
Height change (final)(in)	N/A	0,1599			
Adjusted Spec.height(in)	1.00	0.8426			
" " (cm)	2.546	2.140			
Specimen Volume (cm ³)	207.475				
Maiat Danaity (naf)	110.00				
Moist Density (pcf)	112.00				
MOISTURE CONTENT	. <mark></mark>				
Wt. moist soil+tare(gr)	120.26	120.26			
Wt. dry soil+tare(gr)	107.55	107.55			
Wt. of tare(gr)	0.00	0.00			
Wt. dry soil (gr)	107.55	107.55			
Wt. of water (gr)	12.71	12.71			
M/C (%)	11.82	11.82			
DBV DENGITY (nof)		1			
DRT DENSITT (pci)	100.7	<u> </u>			
% Saturation* (48%-52%)	47.3				
"Assumes Gs =	2.7				
Potential Expansion	100				
(per ASTM 4829-08)	Very High				
VOUDY			Project Name:	Project Name: Project No.: 18-0817	Project Name: Project No.: 18-0817 Run by: SA
ENGINEERING	_		CO Prode Construction Lovel		
a resting, inc.			OC Prado - Construction Level	OC Prado - Construction Level Date: 9/22/18	OC Prado - Construction Level Date: 9/22/18 QA:

Location/ Elevation	B25@) 2' - 4'	TP26 @	Surface				
LISCS Symbol		<u>, </u>		SC				
Normal Load (nef)	1//		144					
SAMPLE CONDITION	Initial	Final	Initial	Final				
Wt Specimen & Ring (gr)	735.110		686 320					
Wt. of ring (gr)	364.12		367.45					
Wt. Specimen (gr)	370.990		318.870					
Specimen diameter (in)	4.010		4.010					
Specimen radius (cm)	5.09		5.09					
Area of Specimen (cm ²)	81.479		81.479					
Init. Spec. height (in)	0.9995	N/A	<u>1.0025</u>	N/A				
Height change (final)(in)	N/A	0.0783	N/A	0.0200				
Adjusted Spec.height(in)	1.00	0.9212	1.00	0.9825				
" " (cm)	2.539	2.340	2.546	2.496				
Specimen Volume (cm ³)	206.854		207.475					
Moist Density (pcf)	111.97		95.95					
MOISTURE CONTENT								
Wt. moist soil+tare(gr)	109.32	109.32	110.27	110.27				
Wt. dry soil+tare(gr)	98.35	98.35	89.96	89.96				
Wt. of tare(gr)	19.67	19.67	0.00	0.00				
Wt. dry soil (gr)	78.68	78.68	89.96	89.96				
Wt. of water (gr)	10.97	10.97	20.31	20.31				
M/C (%)	13.94	13.94	22.58	22.58				
DRY DENSITY (pcf)	98.3		78.3					
% Saturation* (48%-52%)	52.6		52.9					
*Assumes Gs =	2.7		2.7					
EXPANSION INDEX =	78		20					
(per ASTM 4829-08)	Medium		Very Low					
ENGINEERING TESTING, INC.	-		Project Name: OC	Prado Con	struction Level	Project No.: 18-0817 Date: 9/26/18	Run by: SA QA:	Lab: 5322

				-		
cation/ Elevation	TP55 (@ 2' - 4'				
USCS Symbol	C	Н				
Normal Load (psf)	14	44				
SAMPLE CONDITION	Initial	Final				
Specimen & Ring (gr)	744.870					
Wt. of ring (gr)	366.59					
Wt. Specimen (gr)	378.280					
pecimen diameter (in)	4.010					
Specimen radius (cm)	5.09					
area of Specimen (cm ²)	81.479					
Init. Spec. height (in)	1.0005	N/A				
leight change (final)(in)	N/A	0.1114				
djusted Spec.height(in)	1.00	0.8891				
" " (cm)	2.541	2.258				
pecimen Volume (cm ³)	207.061					
Moist Density (pcf)	114.05					
MOISTURE CONTENT						
Wt. moist soil+tare(gr)	117.15	117.15				
Wt. dry soil+tare(gr)	105.12	105.12				
Wt. of tare(gr)	0.00	0.00				
Wt. dry soil (gr)	105.12	105.12				
Wt. of water (gr)	12.03	12.03				
M/C (%)	11.44	11.44	-			
DRY DENSITY (pcf)	102.3					
% Saturation* (48%-52%)	47.8		-			
*Assumes Gs =	2.7					
Potential Expansion	High					
	-		Project Name:	Project No.: 18-0817	Run by: SA	Lab:
ENGINEERING TESTING, INC.	_		OC Prado - Construction Level	Date: 9/27/18	QA:	53

Location/ Elevation	TP23 @	1.5' - 2.2'	TP28 @	3' - 3.8'				
USCS Symbol	CL /	CH	C	L				
Normal Load (psf)	14	44	144					
SAMPLE CONDITION	Initial	Final	Initial	Final				
Wt Specimen & Ring (gr)	726.770		756.580					
Wt. of ring (gr)	367.47		<mark>364.13</mark>					
Wt. Specimen (gr)	359.300		392.450					
Specimen diameter (in)	4.010		4.010					
Specimen radius (cm)	5.09		5.09					
Area of Specimen (cm ²)	81.479		81.479					
Init. Spec. height (in)	1.0025	N/A	0.9995	N/A				
Height change (final)(in)	N/A	0.0968	N/A	0.0805				
Adjusted Spec.height(in)	1.0025	0.9057	1.00	0.9190				
" " (cm)	2.546	2.300	2.539	2.334				
Specimen Volume (cm ³)	207.475		206.854					
Moist Density (pcf)	108.11		118.44					
MOISTURE CONTENT								
Wt. moist soil+tare(gr)	101.09	101.90	110.56	110.56				
Wt. dry soil+tare(gr)	89.21	89.21	97.98	97.98				
Wt. of tare(gr)	0.00	0.00	0.00	0.00				
Wt. dry soil (gr)	89.21	89.21	97.98	97.98				
Wt. of water (gr)	11.88	12.69	12.58	12.58				
M/C (%)	13.32	14.22	12.84	12.84				
DRY DENSITY (pcf)	95.4		105.0					
% Saturation* (48%-52%)	46.9		57.2					
*Assumes Gs =	2.7		2.7					
EXPANSION INDEX =	97		81					
(per ASTM 4829-08)	High		Medium					
KOURY ENGINEERING	-		Project Name: OC	Prado - Con	struction Level	Project No.: 18-0817 Date: 9/28/18	Run by: SA QA:	Lab: 5328

Location/ Elevation B24 @ 2' - 4' USCS Symbol CH Normal Load (psf) 144 SAMPLE CONDITION Initial Wt Specimen & Ring (gr) 780.600 Wt. Specimen (gr) 393.980 Specimen diameter (in) 4.010 Specimen natius (cm) 5.09 Area of Specimen (gr) 81.479 Init. Spec. height (in) 1.0020 N/A 0.0965 Adjusted Spec.height(in) 1.00 1.00 0.9055 " " (cm) 2.545 Specimen Volume (cm ³) 207.371 Moist Density (pcf) 118.61 MOISTURE CONTENT Wt. moist soil+tare(gr) Wt. dry soil+tare(gr) 10.22 Wt. of water (gr) 1.16 MC (%) 11.35 DRY DENSITY (pcf) 106.5 % Saturation* (48%-52%) 52.6 *Assumes Gs = 2.7 EXPANSION INDEX = 96 Potential Expansion (per ASTM 4829-08) High (per ASTM 4829-08) High <th></th> <th></th> <th></th>			
USCS Symbol CH Normal Load (psf) 144 SAMPLE CONDITION Initial Final Wt Specimen & Ring (gr) 760.600 Wt. of ring (gr) 386.62 Wt. Specimen (gr) 393.980 Specimen diameter (in) 4.010 Specimen diameter (in) 4.010 Specimen diameter (in) 4.010 Specimen diameter (in) 4.010 Specimen radius (cm) 5.09 Area of Specimen (cm ²) 81.479 Init. Spec. height (in) 1.0020 N/A Height change (final)(in) N/A 0.09655 " " (cm) 2.545 2.300 Specimen Volume (cm ²) 207.371 Moist Density (pcf) 11.861 Mt. dry soil-tare(gr) 10.22 10.22 Wt. dry soil (gr) 10.22 10.22 Wt. of water (gr) 1.16 1.16 M/C (%) 11.35 11.35 <tr< th=""><th>Location/ Elevation</th><th>B24 @</th><th>) 2' - 4'</th></tr<>	Location/ Elevation	B24 @) 2' - 4'
Normal Load (psf) 144 SAMPLE CONDITION Initial Final Wt Specimen & Ring (gr) 760.600 - Wt. of ring (gr) 366.62 - Wt. Specimen (gr) 393.980 - Specimen diameter (in) 4.010 - Specimen radius (cm) 5.09 - Area of Specimen (cm ²) 81.479 - Init. Spec. height (in) 1.0020 N/A Height change (final)(in) N/A 0.09655 " " (cm) 2.545 2.300 Specimen Volume (cm ³) 207.371 - Moist Density (pcf) 118.61 - Moist Density (pcf) 10.22 10.22 Wt. of vater (gr) 10.22 10.22 Wt. of water (gr) 11.6 1.16 M/C (%) 11.35 11.35 DRY DENSITY (pcf) 106.5 - 'Assumes Gs = 2.7 - 'Xasumes Gs = 2.7 - 'Yasumes Gs = 2.7 -	USCS Symbol	C	H
SAMPLE CONDITION Initial Final Wt Specimen & Ring (gr) 760.600 760.600 Wt. Specimen & Ring (gr) 393.980 393.980 Specimen (gr) 393.980 393.980 Specimen diameter (in) 4.010 Specimen radius (cm) 5.09 Area of Specimen (cm2) 81.479 Init. Spec. height (in) 1.0020 Init. Spec. height (in) 1.0020 N/A 0.0965 " " (cm) 2.545 2.300 Specimen Volume (cm3) 207.371 Moist Density (pcf) Moist Density (pcf) 118.61 MOISTURE CONTENT Wt. moist soil+tare(gr) 10.22 10.22 Wt. of tare(gr) 10.22 10.22 Wt. of water (gr) 11.6 1.16 M/C (%) 11.35 11.35 DRY DENSITY (pcf) 106.5 *Assumes Gs = 2.7 *Assumes Gs = 2.7 *Assumes Gs = 2.7 *Assumes Gs = 2.7 *Assumes Gs = 2	Normal Load (psf)	1	44
Wt Specimen & Ring (gr) 760.600 Wt. of ring (gr) 366.62 Wt. Specimen (gr) 393.980 Specimen diameter (in) 4.010 Specimen radius (cm) 5.09 Area of Specimen (cm ²) 81.479 Init. Spec. height (in) 1.0020 N/A Height change (final)(in) N/A 0.09655 " " (cm) 2.545 2.300 Specimen Volume (cm ³) 207.371 Init. Spec. height (in) Moist Density (pcf) 118.61 Init. Wt. moist soil+tare(gr) 10.22 10.22 Wt. of tare(gr) 10.22 10.22 Wt. of water (gr) 1.16 1.16 M/C (%) 11.35 11.35 DRY DENSITY (pcf) 106.5 Init.35 'Assumes Gs = 2.7 EXPANSION INDEX = Yassumes Gs = 2.7 EXPANSION INDEX = Potential Expansion (per ASTM 4829-08) High Wt. GY ASTM 4829-08) High	SAMPLE CONDITION	Initial	Final
Wt. of ring (gr) 366.62 Wt. Specimen (gr) 393.980 Specimen diameter (in) 4.010 Specimen radius (cm) 5.09 Area of Specimen (cm ²) 81.479 Init. Spec. height (in) 1.0020 N/A Height change (final)(in) N/A 0.0965 Adjusted Spec.height(in) 1.00 0.9055 " (cm) 2.545 2.300 Specimen Volume (cm ³) 207.371 Moist Density (pcf) 118.61 Wt. moist soil+tare(gr) 10.22 10.22 Wt. of tare(gr) 10.22 10.22 Wt. of water (gr) 1.16 1.16 M/C (%) 11.35 11.35 Staturation* (48%-52%) 52.6 *Assumes Gs = 2.7 Staturation* (48%-52%) 52.6 *Assumes Gs = 2.7 96	Wt Specimen & Ring (gr)	760.600	
Wt. Specimen (gr) 393.980 Specimen diameter (in) 4.010 Specimen radius (cm) 5.09 Area of Specimen (cm²) 81.479 Init. Spec. height (in) 1.0020 N/A Height change (final)(in) N/A 0.0965 adjusted Spec.height(in) 1.00 0.9055 " " (cm) 2.545 2.300 Specimen Volume (cm³) 207.371 Image: Comparison of C	Wt. of ring (gr)	366.62	
Specimen diameter (in) 4.010 Specimen radius (cm) 5.09 Area of Specimen (cm ²) 81.479 Init. Spec. height (in) 1.0020 N/A Height change (final)(in) N/A 0.0965 Adjusted Spec.height(in) 1.00 0.9055 " " (cm) 2.545 2.300 Specimen Volume (cm ³) 207.371 Moist Density (pcf) 118.61 MOISTURE CONTENT Wt. moist soil+tare(gr) 10.22 10.22 Wt. of vacil (gr) 10.22 10.22 Wt. of water (gr) 1.16 1.16 M/C (%) 11.35 11.35 DRY DENSITY (pcf) 106.5 *Assumes Gs = 2.7 Potential Expansion (per ASTM 4829-08) High With of X429-08 High	Wt. Specimen (gr)	393.980	
Specimen radius (cm) 5.09 Area of Specimen (cm ²) 81.479 Init. Spec. height (in) 1.0020 N/A Height change (final)(in) N/A 0.0965 " " (cm) 2.545 2.300 Specimen Volume (cm ³) 207.371 Moist Density (pcf) 118.61 Wt. moist soil+tare(gr) 10.22 10.22 Wt. dry soil+tare(gr) 10.22 10.22 Wt. of tare(gr) 0.000 0.00 Wt. of water (gr) 1.16 1.16 M/C (%) 11.35 11.35 DRY DENSITY (pcf) 106.5 % Saturation* (48%-52%) 52.6 *Assumes Gs = 2.7 EXPANSION INDEX = 96 Potential Expansion (per ASTM 4829-08) High (per ASTM 4829-08) High	Specimen diameter (in)	4.010	
Area of Specimen (cm ²) 81.479 Init. Spec. height (in) 1.0020 N/A Height change (final)(in) N/A 0.0965 Adjusted Spec.height (in) 1.00 0.9055 " (cm) 2.545 2.300 Specimen Volume (cm ³) 207.371 Moist Density (pcf) 118.61 MOISTURE CONTENT 10.22 10.22 Wt. moist soil+tare(gr) 10.38 11.38 Wt. dry soil (gr) 10.22 10.22 Wt. of tare(gr) 10.62 10.22 Wt. of water (gr) 11.35 11.35 DRY DENSITY (pcf) 106.5 2.7 EXPANSION INDEX = 96 Potential Expansion (per ASTM 4829-08) Project Name: OC Prado - Construction Level OC Prado - Construction Level	Specimen radius (cm)	5.09	
Init. Spec. height (in) 1.0020 N/A Height change (final)(in) N/A 0.0965 Adjusted Spec.height(in) 1.00 0.9055 " (cm) 2.545 2.300 Specimen Volume (cm ³) 207.371	Area of Specimen (cm ²)	81.479	
Height change (final)(in) N/A 0.0965 Adjusted Spec.height(in) 1.00 0.9055 " " (cm) 2.545 2.300 Specimen Volume (cm ³) 207.371	Init. Spec. height (in)	1.0020	N/A
Adjusted Spec.height(in) 1.00 0.9055 " " (cm) 2.545 2.300 Specimen Volume (cm ³) 207.371	Height change (final)(in)	N/A	0.0965
" (cm) 2.545 2.300 Specimen Volume (cm ³) 207.371	Adjusted Spec.height(in)	1.00	0.9055
Specimen Volume (cm³) 207.371 Moist Density (pcf) 118.61 <u>MOISTURE CONTENT</u>	" " (cm)	2.545	2.300
Moist Density (pcf) 118.61 MOISTURE CONTENT I Wt. moist soil+tare(gr) 11.38 11.38 Wt. dry soil+tare(gr) 10.22 10.22 Wt. dry soil+tare(gr) 0.00 0.00 Wt. dry soil (gr) 10.22 10.22 Wt. of water (gr) 1.16 1.16 M/C (%) 11.35 11.35 DRY DENSITY (pcf) 106.5 1 % Saturation* (48%-52%) 52.6 1 *Assumes Gs = 2.7 2.7 EXPANSION INDEX = 96 Project Name: <	Specimen Volume (cm ³)	207.371	
MOISTURE CONTENT III.38 11.38 Wt. moist soil+tare(gr) 10.22 10.22 Wt. dry soil+tare(gr) 10.22 10.22 Wt. of tare(gr) 0.00 0.00 Wt. dry soil (gr) 10.22 10.22 Wt. of water (gr) 10.22 10.22 Wt. of water (gr) 1.16 1.16 M/C (%) 11.35 11.35 DRY DENSITY (pcf) 106.5	Moist Density (pcf)	118.61	
Wt. moist soil+tare(gr) 11.38 11.38 Wt. dry soil+tare(gr) 10.22 10.22 Wt. of tare(gr) 0.00 0.00 Wt. dry soil (gr) 10.22 10.22 Wt. of water (gr) 10.22 10.22 Wt. of water (gr) 11.6 1.16 M/C (%) 11.35 11.35 DRY DENSITY (pcf) 106.5	MOISTURE CONTENT		
Wt. dry soil+tare(gr) 10.22 10.22 Wt. of tare(gr) 0.00 0.00 Wt. of tare(gr) 10.22 10.22 Wt. of water (gr) 10.22 10.22 Wt. of water (gr) 10.16 1.16 M/C (%) 11.35 11.35 DRY DENSITY (pcf) 106.5 106.5 *Assumes Gs = 2.7 EXPANSION INDEX = 96 Potential Expansion (per ASTM 4829-08) High Frequence Project Name: OC Prado - Construction Level Date:	Wt. moist soil+tare(gr)	11.38	11.38
Wt. of tare(gr) 0.00 0.00 Wt. dry soil (gr) 10.22 10.22 Wt. of water (gr) 1.16 1.16 M/C (%) 11.35 11.35 DRY DENSITY (pcf) 106.5 1 % Saturation* (48%-52%) 52.6 *Assumes Gs = 2.7 EXPANSION INDEX = 96 Potential Expansion (per ASTM 4829-08) High FOURTON CONSTRUCTIONS Project Name: OC Prado - Construction Level Date:	Wt. dry soil+tare(gr)	10.22	10.22
Wt. dry soil (gr) 10.22 10.22 Wt. of water (gr) 1.16 1.16 M/C (%) 11.35 11.35 DRY DENSITY (pcf) 106.5 106.5 % Saturation* (48%-52%) 52.6 *Assumes Gs = 2.7 EXPANSION INDEX = 96 Potential Expansion (per ASTM 4829-08) High Project Name: Project Name: Project Date: 1	Wt. of tare(gr)	0.00	0.00
Wt. of water (gr) 1.16 1.16 M/C (%) 11.35 11.35 DRY DENSITY (pcf) 106.5 106.5 % Saturation* (48%-52%) 52.6 *Assumes Gs = 2.7 EXPANSION INDEX = 96 Potential Expansion (per ASTM 4829-08) High Project Name: Project Name: OC Prado - Construction Level Date: 10	Wt. dry soil (gr)	10.22	10.22
M/C (%) 11.35 11.35 DRY DENSITY (pcf) 106.5 106.5 % Saturation* (48%-52%) 52.6	Wt. of water (gr)	1.16	1.16
DRY DENSITY (pcf) 106.5 % Saturation* (48%-52%) 52.6 *Assumes Gs = 2.7 EXPANSION INDEX = 96 Potential Expansion (per ASTM 4829-08) High Project Name: Project Name: Description Date: 10/3	M/C (%)	11.35	11.35
% Saturation* (48%-52%) 52.6 *Assumes Gs = 2.7 EXPANSION INDEX = 96 Potential Expansion (per ASTM 4829-08) High Project Name: Project No Dote Prado - Construction Level Date: 10/3/	DRY DENSITY (pcf)	106.5	
Assumes Gs = 2.7 EXPANSION INDEX = 96 Potential Expansion (per ASTM 4829-08) High Project Name: Project No. OC Prado - Construction Level Date: 10/3/	% Saturation (48%-52%)	52.6	ī
EXPANSION INDEX = 96 Potential Expansion (per ASTM 4829-08) High Project Name: Project Nome: OC Prado - Construction Level Date: 10/3/2	*Assumes Gs =	2.7	
Potential Expansion (per ASTM 4829-08) High Froject Name: Project No. OC Prado - Construction Level Date: 10/3/	EXPANSION INDEX =	96	
KOURYProject Name:Project No.ENGINER, INC.OC Prado - Construction LevelDate: 10/3/	Potential Expansion (per ASTM 4829-08)	High	
OC Prado - Construction Level Date: 10/3	KOURY		
	& TESTING, INC.		

Location/ Elevation	TP31 @	3.8' - 4.2'				
USCS Symbol	CL /	/ CH				
Normal Load (psf)	1,	44				
SAMPLE CONDITION	Initial	Final				
Wt Specimen & Ring (gr)	750.670					
Wt. of ring (gr)	367.47					
Wt. Specimen (gr)	383.200					
Specimen diameter (in)	4.010					
Specimen radius (cm)	5.09					
Area of Specimen (cm ²)	81.479					
Init. Spec. height (in)	1.0025	N/A				
Height change (final)(in)	N/A	0.0866				
Adjusted Spec.height(in)	1.00	0.9159				
" " (cm)	2.546	2.326				
Specimen Volume (cm ³)	207.475					
Moist Density (pcf)	115.31					
MOISTURE CONTENT						
Wt. moist soil+tare(gr)	103.19	103.19				
Wt. dry soil+tare(gr)	92.26	92.26				
Wt. of tare(gr)	0.00	0.00				
Wt. dry soil (gr)	92.26	92.26				
Wt. of water (gr)	10.93	10.93				
M/C (%)	11.85	11.85				
DRY DENSITY (pcf)	103.1					
% Saturation* (48%-52%)	50.4	·				
*Assumes Gs =	2.7					
EXPANSION INDEX =	86					
Potential Expansion (per ASTM 4829-08)	Medium					
KOURY	_		Project Name:	Project No.: 18-0817	Run by: CG	Lab:
ENGINEERING & TESTING, INC.			OC Prado - Construction Level	Date: 10/3/18	QA:	5

Location/ Elevation	TP42 @	2.7' - 3.2'	TP 37 @	3' - 3.5'				
USCS Symbol	C	Ľ	C	Н				
Normal Load (psf)	14	44	144					
SAMPLE CONDITION	Initial	Final	Initial	Final				
Wt Specimen & Ring (gr)	754.350		716.200					
Wt. of ring (gr)	364.16		<mark>367.44</mark>					
Wt. Specimen (gr)	390.190		348.760					
Specimen diameter (in)	4.010		4.010					
Specimen radius (cm)	5.09		5.09					
Area of Specimen (cm ²)	81.479		81.479					
Init. Spec. height (in)	0.9990	N/A	<u>1.0025</u>	N/A				
Height change (final)(in)	N/A	0.0619	N/A	0.1049				
Adjusted Spec.height(in)	1.00	0.9371	1.00	0.8976				
" " (cm)	2.537	2.380	2.546	2.280				
Specimen Volume (cm ³)	206.750		207.475					
Moist Density (pcf)	117.82		104.94					
MOISTURE CONTENT								
Wt. moist soil+tare(gr)	100.65	100.65	102.16	102.16				
Wt. dry soil+tare(gr)	91.33	91.33	88.75	88.75				
Wt. of tare(gr)	0.00	0.00	0.00	0.00				
Wt. dry soil (gr)	91.33	91.33	88.75	88.75				
Wt. of water (gr)	9.32	9.32	13.41	13.41				
M/C (%)	10.20	10.20	15.11	15.11				
DRY DENSITY (pcf)	106.9		91.2					
% Saturation* (48%-52%)	47.8		48.1					
*Assumes Gs =	2.7		2.7					
EXPANSION INDEX =	62		105					
(per ASTM 4829-08)	Medium		High					
KOURY	_		Project Name:			Project No.: 18-0817	Run by: CG	Lab:
ENGINEERING & TESTING, INC.			OC	Prado - Cor	struction Level	Date: 10/4/18	QA:	5338

Location/ Elevation	TP 44 @) 3' - 3.5'	TP 48 @	1.8' - 2.3'				
USCS Symbol	CL		C	L				
Normal Load (psf)	14	44	144					
SAMPLE CONDITION	Initial	Final	Initial	Final				
Wt Specimen & Ring (gr)	750.950		750.020					
Wt. of ring (gr)	366.63		364.11					
Wt. Specimen (gr)	384.320		385.910					
Specimen diameter (in)	4.010		4.010					
Specimen radius (cm)	5.09		5.09					
Area of Specimen (cm ²)	81.479		81.479					
Init. Spec. height (in)	1.0020	N/A	0.9990	N/A				
Height change (final)(in)	N/A	0.0570	N/A	0.0636				
Adjusted Spec.height(in)	1.00	0.9450	1.00	0.9354				
" " (cm)	2.545	2.400	2.537	2.376				
Specimen Volume (cm ³)	207.371		206.750					
Moist Density (pcf)	115.70		116.53					
MOISTURE CONTENT								
Wt. moist soil+tare(gr)	101.23	101.23	101.31	101.31				
Wt. dry soil+tare(gr)	90.69	90.69	90.67	90.67				
Wt. of tare(gr)	0.00	0.00	0.00	0.00				
Wt. dry soil (gr)	90.69	90.69	90.67	90.67				
Wt. of water (gr)	10.54	10.54	10.64	10.64				
M/C (%)	11.62	11.62	11.73	11.73				
DRY DENSITY (pcf)	103.7		104.3					
% Saturation* (48%-52%)	50.1		51.4					
*Assumes Gs =	2.7		2.7					
EXPANSION INDEX =	57		64					
(per ASTM 4829-08)	Medium		Medium					
ENGINE ERING TESTING, INC.	-		Project Name: OC	Prado - Con	struction Level	Project No.: 18-0817 Date: 10/5/18	Run by: CG QA:	Lab: 5341

Location/ Elevation	TP 53 @	3' - 3 5'	TP 50 @	2'-25'				
LISCS Symbol		y 0.0		, <u> </u>				
Normal Load (nof)	1/			144				
SAMPLE CONDITION	Initial	⁴⁴ Final	Initial	Final				
Wt Specimen & Ring (gr)	702 460		744 770	I IIIQI				
Wt. of ring (gr)	367.41		366.58					
Wt. Specimen (gr)	335.050		378.190					
Specimen diameter (in)	4.010		4.010					
Specimen radius (cm)	5.09		5.09					
Area of Specimen (cm ²)	81.479		81.479					
Init. Spec. height (in)	1.0025	N/A	1.0020	N/A				
Height change (final)(in)	N/A	0.0506	N/A	0.0710				
Adjusted Spec.height(in)	1.00	0.9519	1.00	0.9310				
" " (cm)	2.546	2.418	2.545	2.365				
Specimen Volume (cm ³)	207.475		207.371					
Moist Density (pcf)	100.82		113.86					
MOISTURE CONTENT								
Wt. moist soil+tare(gr)	102.01	102.01	102.71	102.71				
Wt. dry soil+tare(gr)	86.55	86.55	91.41	91.41				
Wt. of tare(gr)	0.00	0.00	0.00	0.00				
Wt. dry soil (gr)	86.55	86.55	91.41	91.41				
Wt. of water (gr)	15.46	15.46	11.30	11.30				
M/C (%)	17.86	17.86	12.36	12.36				
DRY DENSITY (pcf)	85.5		101.3					
% Saturation* (48%-52%)	49.7		50.3					
*Assumes Gs =	2.7		2.7					
EXPANSION INDEX =	50		71					
(per ASTM 4829-08)	Medium		Medium					
KOURY	_		Project Name:			Project No.: 18-0817	Run by: SA	Lab:
& TESTING, INC.			OC	Prado - Con	struction Level	Date: 10/10/18	QA:	5346

Logation/Elevation	TD 60 6	2 2 5		2' 2 5'				
Location/ Elevation	1000	ý z - z.o	19 56 @	, 3 - 3.5	6			
USCS Symbol	СН		C	L				
Normal Load (psf)	14	44	14	4				
SAMPLE CONDITION	Initial	Final	Initial	Final				
Wt Specimen & Ring (gr)	/07.870		748.270					
Wt. of ring (gr)	366.59		364.11					
Wt. Specimen (gr)	341.280		384.160					
Specimen diameter (in)	4.010		4.010					
Specimen radius (cm)	5.09		5.09					
Area of Specimen (cm ²)	81.479		81.479					
Init. Spec. height (in)	1.0020	N/A	<u>0.9990</u>	N/A				
Height change (final)(in)	N/A	0.1021	N/A	0.0594				
Adjusted Spec.height(in)	1.00	0.8999	1.00	0.9396				
" " (cm)	2.545	2.286	2.537	2.387				
Specimen Volume (cm ³)	207.371		206.750					
Moist Density (pcf)	102.74		116.00					
MOISTURE CONTENT								
Wt. moist soil+tare(gr)	101.15	101.15	104.12	104.12				
Wt. dry soil+tare(gr)	86.71	86.71	92.64	92.64				
Wt. of tare(gr)	0.00	0.00	0.00	0.00				
Wt. dry soil (gr)	86.71	86.71	92.64	92.64				
Wt. of water (gr)	14.44	14.44	11.48	11.48				
M/C (%)	16.65	16.65	12.39	12.39				
DRY DENSITY (pcf)	88.1		103.2					
% Saturation* (48%-52%)	49.2	•	52.8					
*Assumes Gs =	2.7		2.7					_
EXPANSION INDEX =	102		59					
Potential Expansion (per ASTM 4829-08)	High		Medium					
KOURY			Project Name:			Project No.: 18-0817	Run by: CG	Lab
ENGINEERING & TESTING, INC.	_		OC	Prado - Cor	struction Level	Date: 10/11/18	QA:	5

cation/ Elevation	TP 65 @	0 6' - 6.5'				
USCS Symbol	CL /	/ CH				
Normal Load (psf)	14	44				
SAMPLE CONDITION	Initial	Final				
Specimen & Ring (gr)	718.690					
Wt. of ring (gr)	367.42					
Wt. Specimen (gr)	351.270					
pecimen diameter (in)	4.010					
specimen radius (cm)	5.09					
rea of Specimen (cm ²)	81.479					
nit. Spec. height (in)	1.0010	N/A				
eight change (final)(in)	N/A	0.0994				
justed Spec.height(in)	1.00	0.9016				
" " (cm)	2.543	2.290				
becimen Volume (cm ³)	207.164					
Noist Density (pcf)	105.86					
IOISTURE CONTENT						
Vt. moist soil+tare(gr)	102.13	102.13				
Wt. dry soil+tare(gr)	87.81	87.81				
Wt. of tare(gr)	0.00	0.00				
Wt. dry soil (gr)	87.81	87.81				
Wt. of water (gr)	14.32	14.32				
M/C (%)	16.31	16.31				
DRY DENSITY (pcf)	91.0					
Saturation* (48%-52%)	51.7		_			
*Assumes Gs = EXPANSION INDEX =	2.7 99					
Potential Expansion (per ASTM 4829-08)	High					
KOURY			Project Name:	Project No.: 18-0817	Run by: CG	Lab:
& TESTING, INC.			OC Prado - Construction Level	Date: 9/1/18	QA:	53

EXPANSION INDEX TESTS											
DENSITY AND MOISTURE CONTENT DATA - EI TEST											
Location/ Elevation	TP-1 @	0 6' - 7'	TP-3 @) 5' - 6'	TP-17 @	2' - 3.5'					
USCS Symbol	CL	(CH	CL/	СН	CL/	СН					
Normal Load (psf)	14	14	14	14	14	4					
SAMPLE CONDITION	Initial	Final	Initial	Final	Initial	Final					
Wt Specimen & Ring (gr)	697.240 364 23		749.180		724.600						
Wt Specimen (ar)	333 010		381 650		357 900						
Specimen diameter (in)	1 010		4 010		4 010						
Specimen radius (cm)	5.09		5.09		5.09						
Area of Specimen (cm ²)	81.479		81.479		81.479						
Init. Spec. height (in)	0.9980	N/A	1.0035	N/A	0.9965	N/A					
Height change (final)(in)	N/A	0.0775	N/A	0.0619	N/A	0.0961					
Adjusted Spec.height(in)	1.00	0.9205	1.00	0.9416	1.00	0.9004					
" " (cm)	2.535	2.338	2.549	2.392	2.531	2.287					
Specimen Volume (cm ³)	206.543		207.682		206.233						
Moist Density (pcf)	100.66		114.73		108.34						
MOISTURE CONTENT											
Wt. moist soil+tare(gr)	288.16	288.16	286.85	286.85	205.10	205.10					
Wt. dry soil+tare(gr)	243.53	243.53	254.11	254.11	179.40	179.40					
Wt. of tare(gr)	0.00	0.00	0.00	0.00	0.00	0.00					
Wt. dry soil (gr)	243.53	243.53	254.11	254.11	179.40	179.40					
Wt. of water (gr)	44.63	44.63	32.74	32.74	25.70	25.70					
M/C (%)	18.33	18.33	12.88	12.88	14.33	14.33					
DRY DENSITY (pcf)	85.1		101.6		94.8						
% Saturation* (48%-52%)	50.4		52.8		49.7		-				
*Assumes Gs =	2.7		2.7		2.7						
EXPANSION INDEX =	78		62		96						
Potential Expansion (per ASTM 4829-08)	Medium		Medium		High						
KOURY			Project Name:				Project No.: 16-0899	Run by: SN/MFP	Lab:		
ENGINEERING & TESTING, INC.				OC P	rado		Date: 7/14/17	QA:	4458 Series		

EXPANSION INDEX TESTS											
DENSITY AND MOISTURE CONTENT DATA - EI TEST											
Location/ Elevation	TP-5 @	1.5' - 2'	TP-7 @) 7' - 8'							
USCS Symbol	C	Ľ	C	H							
Normal Load (psf)	14	44	14	ŀ4							
SAMPLE CONDITION	Initial	Final	Initial	Final							
Wt Specimen & Ring (gr)	734.400		735.970								
Wt. of ring (gr)	364.22		366.68								
Wt. Specimen (gr)	370.180		369.290								
Specimen diameter (in)	4.010		4.010								
Specimen radius (cm)	5.09		5.09								
Area of Specimen (cm ²)	81.479		81.479								
Init. Spec. height (in)	0.9960	N/A	0.9995	N/A							
Height change (final)(in)	N/A	0.0502	N/A	0.0591							
Adjusted Spec.height(in)	1.00	0.9458	1.00	0.9404							
" " (cm)	2.530	2.402	2.539	2.389							
Specimen Volume (cm ³)	206.129		206.854								
Moist Density (pcf)	112.12		111.45								
MOISTURE CONTENT											
Wt. moist soil+tare(gr)	286.42	286.42	426.87	426.87							
Wt. dry soil+tare(gr)	267.49	267.49	401.97	401.97							
Wt. of tare(gr)	114.53	114.53	226.08	226.08							
Wt. dry soil (gr)	152.96	152.96	175.89	175.89							
Wt. of water (gr)	18.93	18.93	24.90	24.90							
M/C (%)	12.38	12.38	14.16	14.16							
DRY DENSITY (pcf)	99.8		97.6								
% Saturation* (48%-52%)	48.5	1	52.6								
*Assumes Gs =	2.7		2.7								
EXPANSION INDEX =	50		59								
Potential Expansion (per ASTM 4829-08)	Medium		Medium								
KOURY			Project Name:			Project No.: 16-0899	Run by: MFP	Lab:			
ENGINEERING & TESTING, INC.				OC Pra	ado	Date: 6/7/17	QA:	4458 Series			

EXPANSION INDEX TESTS								
			DENSITY AND MOISTURE CONTENT DATA	- EI TEST				
Location/ Elevation	TP-8 @	12' - 13'						
USCS Symbol	С	Н						
Normal Load (psf)	14	14						
SAMPLE CONDITION	Initial	Final						
Wt Specimen & Ring (gr)	725.110							
Wt. of ring (gr)	367.54							
Wt. Specimen (gr)	357.570							
Specimen diameter (in)	4.010							
Specimen radius (cm)	5.09							
Area of Specimen (cm ²)	81.479							
Init. Spec. height (in)	1.0010	N/A						
Height change (final)(in)	N/A	0.0901						
Adjusted Spec.height(in)	1.00	0.9109						
" " (cm)	2.543	2.314						
Specimen Volume (cm ³)	207.164							
Moist Density (pcf)	107.76							
MOISTURE CONTENT								
Wt. moist soil+tare(gr)	329.02	329.02						
Wt. dry soil+tare(gr)	315.31	315.31						
Wt. of tare(gr)	226.12	226.12						
Wt. dry soil (gr)	89.19	89.19						
Wt. of water (gr)	13.71	13.71						
M/C (%)	15.37	15.37						
DRY DENSITY (pcf)	93.4							
% Saturation* (48%-52%)	51.6							
*Assumes Gs =	2.7							
EXPANSION INDEX =	90							
Potential Expansion (per ASTM 4829-08)	High							
KOURY			Project Name:	Project No.: 16-0899	Run by: MFP	Lab:		
ENGINEERING & TESTING, INC.			OC Prado	Date: 6/1/17	QA:	4458 Series		

	EXPANSION INDEX TESTS										
DENSITY AND MOISTURE CONTENT DATA - EI TEST											
Location/ Elevation	TP-15 (@_3'-4'	TP-14 @	.5' - 1.5'							
USCS Symbol	CL/	/CH	CL/	СН							
Normal Load (psf)	14	44	14	4							
SAMPLE CONDITION	Initial	Final	Initial	Final							
Wt Specimen & Ring (gr)	711.000		719.000								
Wt. of ring (gr)	367.00		364.00								
Wt. Specimen (gr)	344.000		355.000								
Specimen diameter (in)	4.010		4.010								
Specimen radius (cm)	5.09		5.09								
Area of Specimen (cm ²)	81.479		81.479								
Init. Spec. height (in)	1.0010	N/A	0.9990	N/A	T T						
Height change (final)(in)	N/A	0.0460	N/A	0.0787							
Adjusted Spec.height(in)	1.00	0.9550	1.00	0.9203							
" " (cm)	2.543	2.426	2.537	2.338							
Specimen Volume (cm ³)	207.164		206.750								
Moist Density (pcf)	103.67		107.20								
MOISTURE CONTENT											
Wt. moist soil+tare(gr)	202.00	202.00	200.00	200.00							
Wt. dry soil+tare(gr)	159.00	159.00	166.00	166.00							
Wt. of tare(gr)	0.00	0.00	0.00	0.00	T						
Wt. dry soil (gr)	159.00	159.00	166.00	166.00	T						
Wt. of water (gr)	43.00	43.00	34.00	34.00							
M/C (%)	27.04	27.04	20.48	20.48							
DRY DENSITY (pcf)	81.6		89.0								
% Saturation* (48%-52%)	68.5	<u> </u>	61.8		I						
*Assumes Gs =	2.7		2.7								
EXPANSION INDEX =	60		89								
Potential Expansion (per ASTM 4829-08)	Medium		Medium								
KOURY			Project Name:			Project No.: 16-0899	Run by: MFP	Lab:			
ENGINEERING				OC P	Prado	Date: 7/17/17	QA:	4458 Series			

EXPANSION INDEX TESTS								
			DENSITY AND MOISTURE CONTENT DATA	- EI TEST				
Location/ Elevation	TP-19 (@ 1' - 2'						
USCS Symbol	S	С						
Normal Load (psf)	14	14						
SAMPLE CONDITION	Initial	Final						
Wt Specimen & Ring (gr)	765.800							
Wt. of ring (gr)	364.24							
Wt. Specimen (gr)	401.560							
Specimen diameter (in)	4.010							
Specimen radius (cm)	5.09							
Area of Specimen (cm ²)	81.479							
Init. Spec. height (in)	1.0020	N/A						
Height change (final)(in)	N/A	0.0245						
Adjusted Spec.height(in)	1.00	0.9775						
" " (cm)	2.545	2.483						
Specimen Volume (cm ³)	207.371							
Moist Density (pcf)	120.89							
MOISTURE CONTENT								
Wt. moist soil+tare(gr)	422.90	422.90						
Wt. dry soil+tare(gr)	406.29	406.29						
Wt. of tare(gr)	229.33	229.33						
Wt. dry soil (gr)	176.96	176.96						
Wt. of water (gr)	16.61	16.61						
M/C (%)	9.39	9.39						
DRY DENSITY (pcf)	110.5							
% Saturation* (48%-52%)	48.3		•					
*Assumes Gs =	2.7							
EXPANSION INDEX =	24							
Potential Expansion (per ASTM 4829-08)	Low							
KOURY			Project Name:	Project No.: 16-0889	Run by: MFP	Lab:		
ENGINEERING & TESTING, INC.			OC Prado	Date: 6/14/17	QA:	4458 Series		

Maximum Density & Optimum Moisture

Curve No.: 5326

Project No.: 18-0817 Project: OC Prado - Construction Level **Client:** Location: TP40 @ 3' - 3.8' Sample Number: 2018-249

Remarks: Less than 5% Material retained on the #4 Sieve.

MATERIAL DESCRIPTION

Description: Observed as: Dark Yellowish Brown Clay

Classifications -USCS: Observed as: CH Nat. Moist. = Liquid Limit =

AASHTO: Sp.G. = Plasticity Index = % < No.200 =

Date: 9/27/18





These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical samples
MAXIMUM DENSITY TEST REPORT

Curve No.: 4458 Series

Project No.: 16-0899 Project: OC Prado Client: Location: TP-10 @ 1.5'-2.5' Depth: 1.5'to 2.5' **Remarks:** Less Than 5% Material Retained on the #4 Sieve

MATERIAL DESCRIPTION

Description: Observed as: Dark Brown Sandy Lean Clay

USCS: CL

Classifications -Nat. Moist. = 17.2 % Liquid Limit =

AASHTO: Sp.G. = Plasticity Index = % < No.200 = 73.8 % Date: 06/01/17



MAXIMUM DENSITY TEST REPORT

Project No.: 16 Project: OC Prac Client:	Curve No.: 4458 Series 0899 Date: 6/7/17 o	
Location: TP-7 @ Sample Number	7' to 8' 4458 Series	
Remarks: Less	an 5% Material retained on the #4 Sieve. (1.9% retained)	
	MATERIAL DESCRIPTION	
Description:		
Classifications - Nat. Moist. = Liquid Limit =	USCS: AASHTO: Sp.G. = Plasticity Index = % < No.200 =	
	TEST RESULTS	
Ma Op	ximum dry density = 115.3 pcf imum moisture = 12.5 %	
140	Test specification: ASTM D 1557-91 Procedure A Modified	
130		
120	100% SATURATION CURVES FOR SPEC. GRAV. EQUAL TO:	
	2.8 2.7 2.6	
90		
80		
70	5 10 15 20 25 30 35 40	
ŭ	Water content, % Figure	

 Tested By:
 ABB
 Checked By:

MAXIMUM DENSITY TEST REPORT



Checked By:



Percolation Testing (Falling Head)-Porchet



Job Name: OC Prado

Job No.: 18-0817

Test Location: South of Building 2, west end of proposed detention Basin A

Water Table Depth (ft):

Test Date: 9/7/2018

 Test No.:
 P-1-Falling Head

 Depth of Boring (db):
 240
 in

 Diameter of Boring (D):
 8
 in

 Test Performer:
 AB

1	Trial	Start Time	Stop Time	Time Interval	Initial Water	Final Water	Water Level	Water Level
	No.	(hr:min)	(hr:min)	(hr:min)	Depth (in)	Depth (in)	Change (in)	Change >6"
	1	8:15	8:40	0:25	14	14 11/16	8 4/16	Yes
	2	8:45	9:10	0:25	16	16 8/16	6 6/16	Yes

Relatively Impervious Layer Depth (ft):

If both yes, run test for an additional hour, reading at 10 minute interval If no, run test for an additional 6 hours, reading at 30 minute interval

		Time of Testing	:	Water Level	Measurement		Water Level	Calculations		Percolation & Infiltra	ation Rate Cal	culations
Trial No.	Initial Time	Final Time	Time Interval	Initial Depth to Water	Final Depth to Water	Initial Height of Water Column	Final Height of Water Column	Drop in Height	Average Height of Water Column	Measured Percolation	Reduction Factor	Calculated Infiltration Rate =
	T ₁	T ₂	$\Delta T = T_2 - T_1$	dı	d ₂	d _{H1} = d _b - d ₁	$d_{H2} = d_b - d_2$	$\Delta d_{H} = d_{H1} - d_{H2}$	$d_{avg} = (d_{H1}+d_{H2})/2$	$K_i = \Delta d_H / \Delta T$		(60ΔdHD/2)/ (ΔT(D/2+2davg)
	(hr:min)	(hr:min)	(hr:min)	(in)	(in)	(in)	(in)	(in)	(in)	(in/hr)		(in/hr)
1	0:00	0:10	0:10	189 5/8	196 3/8	50 3/8	43 5/8	6 6/8	47	40.32	24.5	1.64
2	0:00	0:10	0:10	183 3/8	191 1/8	56 5/8	48 7/8	7 6/8	52 6/8	46.80	27.4	1.71
3	0:00	0:10	0:10	191 1/8	197 3/8	48 7/8	42 5/8	6 2/8	45 6/8	37.44	23.9	1.57
4	0:00	0:10	0:10	190 4/8	196 2/8	49 4/8	43 6/8	5 5/8	46 5/8	33.84	24.3	1.39
5	0:00	0:10	0:10	184 6/8	191	55 2/8	49	6 2/8	52 1/8	37.20	27.1	1.38
6	0:00	0:10	0:10	185 6/8	192 4/8	54 2/8	47 4/8	6 5/8	50 7/8	40.08	26.5	1.52
7	0:00	0:10	0:10	193 5/8	198 5/8	46 3/8	41 3/8	4 7/8	43 7/8	29.52	22.9	1.29
8	0:00	0:10	0:10	189 5/8	194 5/8	50 3/8	45 3/8	5	47 7/8	30.24	24.9	1.21
9												
10												
11												
12												

Note:

1. Infiltration Rate, It = $(60\Delta dHD/2)/(\Delta T(D/2+2davg))$

Lowest Infiltration Rate = 1.21 in/hr

2. Long Term Infiltration Rate = Short Term Infiltration Rate / Correction Factor for Test Limitations

Adjusted Infiltration Rate = 0.30 in/hr

Correction Factor Range Normally used to account for Long Term Moderate Siltation, Test Scale Limitations and Other Factors = 3 to 12

Reference: Riverside County - Low Impact Development BMP Design Handbook Appendix A, dated 9/2011

Percolation Testing (Falling Head)-Porchet



Job Name: OC Prado

Job No.: 18-0817

Test Location: South of Building 2, west end of proposed WQ Basin B

Water Table Depth (ft): Relatively Impervious Layer Depth (ft):

Test Date: 9/7/2018

 Test No.:
 P-2-Falling Head

 Depth of Boring (db):
 180
 in

 Diameter of Boring (D):
 8
 in

 Test Performer:
 GG, AB

Trial	Start Time	Stop Time	Time Interval	Initial Water	Final Water	Water Level	Water Level
No.	(hr:min)	(hr:min)	(hr:min)	Depth (ft)	Depth (ft)	Change (in)	Change >6"
1	10:15	10:40	0:25	11 13/16	11 14/16	1 3/16	NO
2	10:40	11:05	0:25	11 14/16	11 14/16	0	NO

If both yes, run test for an additional hour, reading at 10 minute interval If no, run test for an additional 6 hours, reading at 30 minute interval

		Time of Testing	ţ	Water Level	Measurement		Water Level	Calculations		Percolation & Infiltr	ation Rate Cal	culations
Trial No.	Initial Time	Final Time	Time Interval	Initial Depth to Water	Final Depth to Water	Initial Height of Water Column	Final Height of Water Column	Drop in Height	Average Height of Water Column	Measured Percolation	Reduction Factor	Calculated Infiltration Rate =
	T ₁	T ₂	$\Delta T = T_2 - T_1$	dı	d₂	d _{H1} = d _b - d ₁	$d_{H2} = d_b - d_2$	$\Delta d_{H} = d_{H1} - d_{H2}$	$d_{avg} = (d_{H1}+d_{H2})/2$	$K_i = \Delta d_H / \Delta T$		(60ΔdHD/2)/ (ΔT(D/2+2davg)
	(hr:min)	(hr:min)	(hr:min)	(in)	(in)	(in)	(in)	(in)	(in)	(in/hr)		(in/hr)
1	0:00	0:30	0:30	142 6/8	144	37 2/8	36	1 2/8	36 5/8	2.40	19.3	0.124
2	0:00	0:30	0:30	144	144 1/8	36	35 7/8	1/8	36	0.24	19.0	0.013
3	0:00	0:30	0:30	144	144 1/8	36	35 7/8	1/8	36	0.24	19.0	0.013
4	0:00	0:30	0:30	144	144 1/8	36	35 7/8	1/8	36	0.24	19.0	0.013
5	0:00	0:30	0:30	144	144 1/8	36	35 7/8	1/8	36	0.24	19.0	0.013
6	0:00	0:30	0:30	159	159 1/8	21	20 7/8	1/8	21	0.24	11.5	0.021
7	0:00	0:30	0:30	159	159 1/8	21	20 7/8	1/8	21	0.24	11.5	0.021
8	0:00	0:30	0:30	159	159 1/8	21	20 7/8	1/8	21	0.24	11.5	0.021
9												
10												
11												
12												

Note:

1. Infiltration Rate, It = $(60\Delta dHD/2)/(\Delta T(D/2+2davg))$

Lowest Infiltration Rate = 0.013 in/hr

2. Long Term Infiltration Rate = Short Term Infiltration Rate / Correction Factor for Test Limitations

Adjusted Infiltration Rate = 0.003 in/hr

Correction Factor Range Normally used to account for Long Term Moderate Siltation, Test Scale Limitations and Other Factors = 3 to 12

Reference: Riverside County - Low Impact Development BMP Design Handbook Appendix A, dated 9/2011

Percolation Testing (Falling Head)-Porchet



Job Name: OC Prado Job No.: 18-0817

Test Location: South of Building 2, east end of proposed WQ Basin B

Water Table Depth (ft):

Test Date: 9/7/2018

 Test No.:
 P-3-Falling Head

 Depth of Boring (d_b):
 264

 Diameter of Boring (D):
 8

 Test Performer:
 AB

Trial No.	Start Time (hr:min)	Stop Time (hr:min)	Time Interval (hr:min)	Initial Water Depth (in)	Final Water Depth (in)	Water Level Change (in)	Water Level Change >6"
							< 6"
							< 6"

Relatively Impervious Layer Depth (ft):

If both yes, run test for an additional hour, reading at 10 minute interval If no, run test for an additional 6 hours, reading at 30 minute interval

		Time of Testing	:	Water Level	Measurement		Water Level	Calculations		Percolation & Infiltr	ation Rate Cal	culations
Trial No.	Initial Time	Final Time	Time Interval	Initial Depth to Water	Final Depth to Water	Initial Height of Water Column	Final Height of Water Column	Drop in Height	Average Height of Water Column	Measured Percolation	Reduction Factor	Calculated Infiltration Rate =
	T ₁	T ₂	$\Delta T = T_2 - T_1$	dı	d₂	d _{H1} = d _b - d ₁	$d_{H2} = d_b - d_2$	$\Delta d_{H} = d_{H1} - d_{H2}$	$d_{avg} = (d_{H1}+d_{H2})/2$	$K_i = \Delta d_H / \Delta T$		(60ΔdHD/2)/ (ΔT(D/2+2davg)
	(hr:min)	(hr:min)	(hr:min)	(in)	(in)	(in)	(in)	(in)	(in)	(in/hr)		(in/hr)
1	0:00	0:30	0:30	158 3/8	158 4/8	105 5/8	105 4/8	1/8	105 4/8	0.24	53.8	0.004
2	0:00	0:30	0:30	158 3/8	158 4/8	105 5/8	105 4/8	1/8	105 4/8	0.24	53.8	0.004
3	0:00	0:30	0:30	158 3/8	158 4/8	105 5/8	105 4/8	1/8	105 4/8	0.24	53.8	0.004
4	0:00	0:30	0:30	158 3/8	158 4/8	105 5/8	105 4/8	1/8	105 5/8	0.25	53.8	0.005
5												
6												
7												
8												
9												
10												
11												
12												

Note:

1. Infiltration Rate, It = $(60\Delta dHD/2)/(\Delta T(D/2+2davg))$

Lowest Infiltration Rate = 0.004 in/hr

0.001 in/hr

Adjusted Infiltration Rate =

2. Long Term Infiltration Rate = Short Term Infiltration Rate / Correction Factor for Test Limitations

Correction Factor Range Normally used to account for Long Term Moderate Siltation, Test Scale Limitations and Other Factors = 3 to 12

Reference: Riverside County - Low Impact Development BMP Design Handbook Appendix A, dated 9/2011

Test Pit	Sample	Depth	Soil Type	Deposit	Dry Unit	Moisture
No.	Туре	(feet)			Weight (pcf)	Content (pcf)
22	CD	4	CL/CH	Older Alluvium	122	16.4
22	NG	5.5	CL/CH	Older Alluvium	96	19.1
23	CD	5.5	CL/CH	Older Alluvium	103	22.0
23	NG	5.5	CL/CH	Older Alluvium	96	19.1
24	CD	5.25	CL/CH	Older Alluvium	107	21.1
24	NG	5.25	CL/CH	Older Alluvium	99	22.3
25	CD	3	CL/CH	Older Alluvium	100	21.8
25	NG	3	CL/CH	Older Alluvium	97	24.0
26	CD	3	CL	Older Alluvium	116	14.8
26	NG	3	CL	Older Alluvium	111	13.3
26	NG	4.25	CL	Older Alluvium	97	19.2
27	CD	3.5	CL	Alluvium	110	18.4
27	NG	3.5	CL	Alluvium	100	16.2
28	CD	5	CL	Older Alluvium 115		13.4
28	NG	5	CL	Older Alluvium 109		12.6
28	NG	7.25	СН	Older Alluvium	86	31.3
29	CD	4.5	CL	Older Alluvium	98	20.4
29	NG	4.5	CL	Older Alluvium	98	19.6
29	NG	7.5	CL	Older Alluvium	118	13.6
30	CD	5	CL/CH	Older Alluvium	110	19.1
30	NG	5	CL/CH	Older Alluvium	94	26.1
31	CD	4.5	CL	Older Alluvium	112	15.9
31	NG	4.8'	CL	Older Alluvium	102	16.2
33	CD	5.25	CL	Older Alluvium	110	15.7
35	CD	6.5	CL	Older Alluvium	116	15.6
35	NG	6.5	CL	Older Alluvium	101	20.9
36	CD	4.5	CL/CH	Older Alluvium	118	10.8
36	NG	4.5	CL/CH	Older Alluvium	108	11.8
37	NG	2	CL	Alluvium	111	16.2
37	CD	4	CL	Older Alluvium	101	17.5
37	NG	4	CL	Older Alluvium	100	21.0
39	CD	4	CL	Alluvium	116	17.1
40	CD	3	CL	Alluvium	117	10.7
40	NG	3	CL	Alluvium	106	13.7
40	CD	4.8	CL	Older Alluvium	96	17.1
40	NG	4.8	CL	Older Alluvium	99	16.2

Table C-1 -Test Pit Samples - Unit Weight Summary

Test Pit No.	Sample Type	Depth (feet)	Soil Type	Deposit	Dry Unit Weight (pcf)	Moisture Content (pcf)
41	NG	3	CL	Alluvium	109	14 7
41	NG	5	CL/CH	Older Alluvium	93	21.2
44	NG	2	CL	Alluvium	106	17.7
44	NG	4	CL	Older Alluvium	101	20.0
45	NG	1.5	CL	Alluvium	117	14.2
45	NG	4	CL/CH	Older Alluvium	102	19.9
50	NG	2	CL	Alluvium	102	20.3
50	NG	3	CL	Older Alluvium	105	18.7
51	CD	5	CL/CH	Older Alluvium	105	16.7
52	NG	2.5	CL	Alluvium	103	13.1
52	CD	4	CL	Older Alluvium	99	13.8
52	NG	6	CL	Older Alluvium	101	22.4
53	NG	2	CL	Alluvium	111	17.0
53	NG	4	CL/CH	Older Alluvium	99	19.7
54	CD	1.5	CL	Alluvium 107		17.1
54	NG	1.5	CL	Alluvium 110		16.5
54	NG	4	CL/CH	Older Alluvium	96	26.3
55	NG	2	CL	Alluvium	105	11.0
55	NG	5	CL/CH	Older Alluvium	100	26.5
57	NG	2	CL	Alluvium	106	19.4
57	NG	4	CL/CH	Older Alluvium	86	29.6
63	NG	2.5	CL	Alluvium	98	15.7
63	NG	6'	CL	Older Alluvium	90	23.3
64	NG	2	CL	Alluvium	99	21.3
65	NG	1.5	CL	Alluvium	109	7.9
65	CD	3	CL	Alluvium	113	9.3
65	CD	5.25	CL/CH	Alluvium	114	17.4
67	CD	5	CL/CH	Older Alluvium	115	19.9
68	CD	6	CL/CH	Alluvium	93	33.4
69	NG	4	CL/CH	Alluvium	91	18.4
70	CD	2	CL	Alluvium	108	15.0
70	NG	2	CL	Alluvium	106	14.7
70	NG	5	CL	Older Alluvium	105	14.1
71	NG	3.5	CL	Alluvium	117	13.1
71	CD	3.5	CL	Alluvium	119	14.5
72	NG	3	CL	Older Alluvium	105	19.1
72	CD	4	CL	Older Alluvium	103	19.1

Table C-1 -Test Pit Samples - Unit Weight Summary (continued)

Boring/ [*Remedial] , Boring/ [*Remedial]	т
Test Pit Depth (ft) Location Test Pit Depth (ft)	Location
B-1 5 Building 2 TP-23 2.5	Driveway
B-2 5 & N/A Detention Basin TP-24 2.5	Driveway
B-3 3.5 Building 2 TP-25 2.5	Driveway
B-4 4.5 Building 2 TP-26 2.5	Driveway
B-5 4 Building 1 TP-27 3 I	Building 1
B-6 3 Building 1 TP-28 3 I	Building 1
B-7 5 Building 1 TP-29 3 I	Building 1
B-8 4 Building 2 TP-30 3.5 I	Building 1
B-9 3 Building 1 TP-31 3.5 I	Building 1
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Building 1
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Building 1
B-12 5 Building 1 TP-35 6 I	Building 1
B-13 4.5 Building 1 TP-36 4.5 I	Building 1
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Building 1
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Building 1
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Building 1
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$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Building 1
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Building 1
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Dunung I Parking
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Parking
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Drivewow
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Dirveway
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Parking
B-25 4 5 Building 2 TP-49 3 5	Parking
$\frac{11}{1}$	Driveway
$\frac{11}{100} = \frac{11}{2.5}$ $\frac{11}{100} = \frac{11}{2.5}$ $\frac{11}{2.5} = \frac{11}{2.5}$ $\frac{11}{2.5} = \frac{11}{2.5}$	Building 2
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Building 2
TP-2 5 Building 2 TP-53 3.5 I	Building 2
TP-3 5 Building 2 TP-54 3.5 I	Building 2
$\frac{11.5}{\text{TP}-4} \qquad 4 \qquad \text{Building 2} \qquad \frac{11.54}{\text{TP}-55} \qquad 4 \qquad 1$	Building 2
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Building 2
$\frac{11.5}{\text{TP-6}} = \frac{4}{3.5} \qquad \frac{11.50}{\text{Driveway}} = \frac{11.50}{\text{TP-57}} = \frac{4}{4.5}$	Building 2
TP-7 3.5 Parking TP-58 4.5 I	Building 2
$\frac{11}{12} + \frac{11}{12} + 11$	Building 2
TP-9 3 & N/A Detention Basin TP-60 4 I	Building 2
$\frac{110}{\text{TP-10}} = 3 \text{ Control December Data in TP-61} = 3 \text{ Control December Data in TP-61}$	Building 2
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Building 2
$\frac{11}{\text{TP-12}} = \frac{11}{3} = \frac{11}{\text{Driveway}} = \frac{11}{102} = \frac{11}$	Driveway
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Parking
$\frac{11}{19} \frac{11}{19} 11$	Parking
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Building 2
$\frac{1}{10} \frac{1}{10} \frac$	Building 2
TP-17 2.5 Driveway TP-68 11 1	Building 1
TP-18 4 Building 1 TP-60 6	Driveway
TP-19 45 Ruilding 1 TP-70 3.5	Parking
TP-20 4 Driveway TP-71 2.5	Parking
TP-21 8 Ruilding 1 TP-72 2.5	Driveway
TP-22 3 Driveway *Remedial Grading Removal D	Depth

Table C-2 – Estimated Removal Depths



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GEOTECHNICAL & SEISMIC ENGINEERING, CONSTRUCTION INSPECTION & MATERIALS TESTING SERVICES

BORROW SITE GEOTECHNICAL STUDY, PHASE I

OC PRADO - BORROW SITE SOUTHEAST CORNER OF PINE AVENUE AND EUCLID AVENUE CHINO, CALIFORNIA

PREPARED FOR: COMMERCE CONSTRUCTION CO., L.P. 13191 CROSSROADS PARKWAY NORTH 6th FLOOR CITY OF INDUSTRY, CALIFORNIA

PREPARED BY: KOURY ENGINEERING & TESTING, INC. 14280 EUCLID AVENUE CHINO, CALIFORNIA 91710

PROJECT NO. 16-0447 APRIL 24, 2017

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April 24, 2017 Project No.16-0447

Mr. John R. Burroughs, LEED AP, President Commerce Construction Co., L.P. 13191 Crossroads Parkway North 6th Floor City of Industry, CA 91746

SUBJECT: Borrow Site Geotechnical Study, Phase I Southeast Corner of Pine Avenue and Euclid Avenue City of Chino, CA 91708

1. INTRODUCTION

This report presents the results of a preliminary Geotechnical Study performed by Koury Engineering & Testing, Inc., (Koury) for the proposed Borrow Site located at the southeast corner of Pine Avenue and Euclid Avenue in the City of Chino, California. The purpose of our study was to evaluate the surface and subsurface soil conditions for the proposed grading of the borrow site and to determine the suitability of the soils to be used as fill for a project located on the southeast corner of Bickmore Avenue and Mountain Avenue, in the City of Chino.

The recommendations provided within this submittal are based on the results of our field exploration, laboratory testing and engineering analyses. Our services were performed in general accordance with our Proposal No. 16-0447E dated February 13, 2017.

Our professional services have been performed using the degree of care and skill ordinarily exercised, under similar circumstances, by reputable geotechnical consultants practicing in this or similar localities. No other warranty, expressed or implied, is made as to the professional advice included in this report. This report has been prepared exclusively for Commerce Construction Co., L.P. and their consultants for the subject project. The report has not been prepared for use by other parties and may not contain sufficient information for the purposes of other parties or other uses.

2. SITE CONDITIONS

The subject borrow site is bounded by Pine Avenue on the north, Johnson Avenue on the east, Euclid Avenue on the west and Prado Regional Park on the south. The borrow site consists of three small parcels with sizes ranging from 150 to 1000 square feet, and six large parcels with sizes in the range of about 136,000 to 731,800 square feet. The legal standard use code description for these parcels are identified as being; industrial, agricultural, rural, residential, and waste land/marshes parcels.

The existing property is about 1230 to 1390 feet wide in the east-west direction and 1300 to 1690 feet long in the north-south direction. The main topographic feature of the site is a creek/drainage channel that flows southerly and divides the property in two parts. The jurisdictional boundary of the creek ranges in width from about 30 to 60 feet. A 25-foot buffer zone has been established on both sides of the jurisdictional boundary and all proposed grading will remain outside of that buffer zone.

The property contains several easements. There is a 10-foot wide and about 600-foot long SCE easement near the southwest end of the site. There is a 195-foot wide overhead power lines easement crossing the site obliquely in the northeast direction along with two towers adjacent to Euclid Avenue. In the northwest corner of the site, there is a 20-foot wide and about 530-foot-long easement connecting Pine Avenue and Euclid Avenue.

The topographic conditions are centered along the creek. On the west side of the creek, the ground surface generally slopes moderately toward the creek except for the area immediately adjacent to the creek that is relatively level and subject to flooding. There is also relatively level ground immediately adjacent to Euclid Avenue. The ground elevations hover around 560 feet along Euclid Avenue and range between about 530 and 540 feet (NAVD88) along the west side of the creek. On the east side of the creek, the highest area is located in the northeast corner portion of the site where there is relatively flat ground with elevations between about 559 and 560 feet. The ground surface generally slopes between elevations 560 and 550 feet, toward the south, along Johnson Avenue. Within the southern one-half of the site, west of Johnson Avenue, there is a relatively level area with elevations ranging from about 547 to 557 over a width of 280 to 330 feet. On the west side of this area, the ground surface slopes toward the creek. Within the northern

portion of the site and east of the creek, the ground surface generally slopes west toward the creek within a distance of about 250 feet from the creek. The grades along the creek generally ranges from 530 to 540 feet.

The other features of the site include the above ground structures, which encompass the caretaker residence located within the northwest corner of the site. There is still a small area located in the vicinity of the caretaker residence being used for farming purpose. West and south of the small active farming area, there are vacant buildings. West of the creek and south of Pine Avenue, there is an abandoned former electric station and other buildings. Along Johnson Avenue, there are several slabs at grade that appear to be the remains of former buildings. Several corral fences are still remaining in place.

There is some evidence that prior grading has occurred at the site. There are four small retaining walls located in the northwest corner of the site along with a remaining driveway ramp. There is an access trail that begins along Pine Avenue, passes parallel to Euclid Avenue and loop down along the west side of the creek. A small retaining wall and a slope was built to support a portion of that loop road. On the east side of the creek, the main past grading appears to be near the south end of the site where up to about 15 feet of fill may have been placed to raise the grades in the vicinity of the creek. Some grading also appears to have been performed to bury the foundation of some buildings that have been removed.

Most of the vegetation, which consists of medium size trees, is located in the northern portion of the site along Pine Avenue and Johnston Avenue. There are concentrations of large shrubs along the east side of the creek within the southern portion of the site. At the time of our field exploration, there was heavy ground cover below and north of the SCE electrical overhead easement on the slope east of the creek.

3. PROPOSED BORROW SITE GRADING

As presently planned, we understand that approximately 694,038 cubic yards of soils will be excavated from the site, and out of this quantity about 24,023 cubic yards will be placed in low areas on the west side of the creek jurisdictional boundary buffer zone and 670,915 cubic yards will be exported off site. The Conceptual Grading Plan dated November 22, 2016, indicates that

no grading will occur within 20 feet of the property lines on the south, east and west sides, and within 20 feet of the future right-of-way along Pine Avenue. Also, no grading will take place within the immediate vicinity of the two electric towers located along Euclid Avenue and within the Creek Jurisdictional Boundary and its buffer zone that extends 25 feet on both sides of the Jurisdictional Boundary.

Starting from the 20 feet setback from the property lines, the site will be graded at 4:1 (H:V) descending slopes toward the center of the property until the base level of the site is reached. The base level of the site will have a one percent gradient sloping toward the creek traversing the property. For the most part, the proposed cut slope adjacent to Johnson Avenue will have a height in the range of 15 to 21 feet. The slope along Pine Avenue, between Johnson Avenue and the creek will also be a 4:1 (H:V) cut with a height ranging between 3 and 18 feet. Along the buffer zone on the east side of the creek, there will be small 2 to 6-foot high slopes descending toward the graded area except for the southwest corner area where the slope may reach a height of up to about 15 feet in a localized area. Except within the vicinity of the buffer zone, the proposed borrow site cuts between the buffer zone and Johnson Avenue range predominantly between 5 and 20 feet. There is no proposed fill on the east side of the buffer zone. The base grade elevations on the east side of the creek will range between about 531 and 543 feet.

For the most part, the proposed 4:1 (H:V) cut slopes at the south end of the site and adjacent to Euclid Avenue will have a height in the range of 15 to 23 feet. The slope along Pine Avenue, between Euclid Avenue and the creek, will also be at an inclination of 4:1 (H:V), with partial cut and fill segments with a height ranging between about 3 and 15 feet. Along the buffer zone on the west side of the creek, there will be small slopes of about 1 to 4 feet in height descending toward the buffer zone. Except within the vicinity of the buffer zone and Pine Avenue, the proposed cuts between the buffer zone and Euclid Avenue are predominantly between 4 and 23 feet in height. There is a strip along the entire west side of the buffer zone that will be in fill with anticipated thickness in the range of 1 to 6 feet. The proposed width of the fill area is estimated to range predominantly between 100 and 150 feet. The finish base elevations on the west side of the creek will range between about 531 and 544 feet.

4. FIELD EXPLORATION

The field exploration program consisted of drilling twelve soil test borings on March 10 and 17, 2017, and excavating eighteen test pits on March 17, 2017. The borings were drilled to depths ranging between about 16 and 36½ feet and the test pits were excavated to depths between about 6 and 16 feet. The locations of the borings and the test pits are shown on the Boring Location Map, Figures A-2a and 2b, Appendix A. Standard penetration test samples, California ring samples and bulk samples were obtained from the borings for laboratory testing. The test pits were visually logged and bulk samples were obtained from representative strata. The depths, blow counts, and description of the samples are shown on the attached boring logs presented in Appendix B of this report. The contractor used a 140-lbs automatic hammer to drive the samplers 18 inches into the soils.

5. LABORATORY TESTING

Laboratory tests, including moisture content, #200 sieve wash, gradation, dry unit weight, maximum density and optimum moisture content, expansion index, plasticity index (Atterberg Limits) and pocket penetrometer were performed to aid in the classification of the materials encountered and to evaluate their engineering properties. Sulfates, chlorides, resistivity, and PH tests (corrosivity tests) were also performed on selected samples. The results of the laboratory tests are presented on the boring logs in Appendix B, and/or in Appendix C.

6. SOILS CONDITIONS

The subsurface soil profile consists of fill underlain by alluvial deposits. We encountered fill depths up to 15 feet during our field exploration.

The subsurface soils encountered in our borings and test pits consist predominantly of various mixtures of clay, which includes lean clay and fat clay with variable sand contents. Other soils encountered included sandy silt, elastic silt, poorly graded sand with silt, clayey sand and silty sand.

The clay soils were found to be generally very moist. With few exception, the laboratory testing indicated moisture contents of the clay and silt soils to be generally in the range of 11 and 30

percent with an average of about 24 percent. The moisture content of the sand generally range between about 7 and 19 percent with an average of about 13¹/₂ percent.

Our #200 sieve wash tests indicated that the sand generally has about 17 to 49 percent fines contents with an average of about 32 percent. The fines contents of the silt and clay vary between about 50 and 96 percent with an average of about 72 percent. The dry unit weights of sand generally vary between 106 and 115 with an average of about 111 pcf and the dry unit weights of silt and clay vary between 84 and 116 with an average of about 101 pcf. The pocket penetrometer test result shows the unconfined compression strength of the fine soils to be between 0.5 and 4.5 tsf. with an average of about 2.5 tsf. The maximum density test results of representative silt and clay samples are presented in the following table.

Table 1 – Maximum Density Test Results

Test Pit	TP-4	TP-5	TP-11	TP-17
Maximum Dry Density (pcf)	120.5	104.5	119.1	118.1
Optimum Moisture Content (%)	12.4	17.3	13.1	13.0

The plasticity index test results on one sample of Boring B-2 indicated a fat clay type of soil with Liquid Limit, Plastic Limit and Plasticity Index equal to 61, 22 and 39, respectively. The gradation test results indicate that the sand size is generally fine to medium.

The soil conditions described in this report are based on the soils observed in the test borings drilled for this investigation and the laboratory test results. Variations in the soil conditions as well as detailed descriptions are indicated on the logs attached in Appendix B. Variations between and beyond the borings and test pits should be anticipated.

7. SITE GEOLOGY

The site is located within the Upper Santa Ana River Valley, which consists of a series of coalescing alluvial fans formed by streams flowing out of the San Gabriel Mountains to the north. The valley lies within the Peninsular Ranges geomorphic province, which is characterized by alluviated basins, elevated erosion surfaces, and northwest-trending mountain ranges bounded by

northwest trending faults. The site, which is located within the Chino Basin, is underlain by sediments deposited by the Santa Ana River and its tributaries such as the Chino Creek.

Morton and Miller (2006) show the site to be underlain by two sedimentary units; namely young alluvial-valley deposits within the channel and very old alluvial-fan deposits outside the channel (See Figure A-4 in Appendix A). The sediments observed during drilling consisted predominantly of clay and silt.

8. GROUNDWATER

The creek bottom is near elevation 538 feet at the north end of the site and near elevation 528 feet (NAVD) at the south end. Based on extrapolation of groundwater monitoring north and west of the site, the groundwater level should be at approximately elevation 540 feet at the north end of the site and 530 feet at the south end. The groundwater elevations encountered in our borings/test pits near the creek correspond roughly to the elevations anticipated from extrapolation of the previous groundwater monitoring data. Further away from the creek such as along Johnson Avenue and 1/3 of the way between Euclid Avenue and the creek, the water level may be on the order of 5 feet higher than adjacent to the creek. Perched water was encountered in Borings B-9 and B-11 (these borings were drilled following prolonged rains).

We also noted that the creek overflows its west bank during prolonged heavy rainstorms. During some of our site visits immediately following heavy rains, we encountered standing water at the ground surface on the west side of the creek, where it is proposed to raise the grades.

The groundwater elevations encountered in the borings are plotted on Figures A-3a and A-3b presented in Appendix A. The groundwater depths and elevations encountered during the field exploration are summarized in the following Table 2. The groundwater elevations encountered in the exploration points range between about 528 and 542 feet.

Boring/Test Pit	Ground Elevation	Groundwater Depth	Groundwater Elevation
	(feet)	(feet)	(feet)
B-1	548.7	20.0	528.7
B-2	550.4	20.0	530.4
B-3	556.1	16.0	540.1
B-4	557.9	16.0	541.9
B-5	560.2	23.0	537.2
B-6	559.2	20.0	539.2
B-7	559.3	20.0	539.3
B-8	564.2	30.0	534.2
B-9	556.2	14.0	542.2
B-10	556.8	15.0	541.8
B-11	559.2	25.0	534.2
B-12	545.8	≃ 16.0	<i>≃</i> 529.7
TP-13	539.4	6.0	533.4
TP-14	551.5	15.3	536.2
TP-15	549.0	14.5	534.5
TP-16	546.5	10.5	536.0
TP-17	547.0	11.5	535.5

Table 2 - Summary of Groundwater Data

9. SOIL EXPANSIVITY

Except for some of the fills in the southeast portion of the site, the subsurface soils encountered in the borings/test pits consist mostly of clay. This type of material generally has a high susceptibility to expansion when facing seasonal cycles of saturation/desiccation. Except for one test, the expansion index test indicated value of 80, 91 and 95. The majority of the clay soils appears to have an expansion potential near the high range.

10. SOIL CORROSIVITY

The corrosion potential of the onsite materials to steel and buried concrete was preliminarily evaluated. Laboratory testing was performed on selected soil samples to evaluate pH, minimum resistivity, chloride and soluble sulfate content. The test results are presented in the following table.

Test Pit	Depth (ft)	Minimum Resistivity (ohm-cm)	рН	Soluble Sulfate Content (ppm)	Soluble Chloride Content (ppm)
TP-4	6.5-7.0	427	9.4	1380	55
TP-5	3.5	2040	8.3	48	30
TP-11	12-12.5	222	8.9	725	1550
TP-17	8.5-9.5	1300	8.0	271	145

 Table 3 - Corrosion Test Results

These tests are only an indicator of soil corrosivity for the samples tested. Other soils found on site may be more, less, or of a similar corrosive nature. Based on the minimum resistivity results from the soils tested, the near-surface site soils are considered to be corrosive to severely corrosive towards buried ferrous metals.

The concentrations of soluble sulfates indicate that the potential of sulfate attack on concrete in contact with the onsite soils is moderate based on ACI 318 Table 4.3.1. Cement Type II/V may be used in the concrete based on these test results; however, the water-cement ratio should not exceed 0.5 and the concrete strength should be at least 4,000 psi for these sulfate concentrations. Because of the high soluble chloride content and the severe corrosivity to metals, concrete with a water-cement ratio of 0.45 and a minimum strength of 4,500 psi is more appropriated for the soil tested. Further interpretation of the corrosivity test results, including the resistivity value, and providing corrosion design and construction recommendations are the purview of corrosion specialists/consultants. We recommend that additional corrosivity tests be performed following soil placement at the building site.

11. CONCLUSIONS AND RECOMMENDATIONS

11.1. General

In our opinion, the planned borrow site grading is feasible with minor modifications provided the geotechnical recommendations presented in this report are followed.

The main concerns from a geotechnical standpoint are the proposed depths of excavation that may reach groundwater in localized areas, the presence of clay with a high expansion potential, the large quantity of very moist soils that cannot be compacted without dry back, and the presence of undocumented fill containing construction debris and oversize particles. The following sections contain geotechnical conclusions and recommendations for the borrow site grading, and discussions about the suitability of the borrow site soils to be used as engineered fill to balance the grade for the site development at the southeast corner of Bickmore Avenue and Mountain Avenue, in the City of Chino.

11.2. Design and Grading of the Borrow Site

On the east side of the creek buffer zone, the proposed grades are generally lower than along the buffer zone boundary. We recommend to raise the proposed design grades by at least 4 feet to maintain positive drainage toward the creek buffer zone for most of its length. This raise in grade should allow to maintain the finish grade surface above the localized zones of relatively high water levels encountered during the borrow site exploration.

On the west side of the buffer zone, in the vicinity of the SCE overhead electrical line easement and east of the electrical towers, perched water was encountered. We suggest to raise the design grades by about 6 feet in the area of Boring B-10 and 4 feet in the area of Boring B-9. This perched water is attributed to heavy rainfall and should drain itself over time.

The borrow site slopes are generally less than 22 feet in height and will be cut or filled at 4:1 (H:V) inclination. Based on our observation of some of the steeper existing slopes onsite and the types of soils, we expect the proposed slopes to perform as intended both from a gross stability standpoint and a surficial stability standpoint.

Most of the borrow site grading will consist of cuts except for a strip along the west side of the buffer zone that extends to the setback line along Pine Avenue where the existing grades will be raised by 1 to 6 feet, including some slope construction along Pine Avenue. We recommend that all organic materials and other debris be removed from the areas to be filled. Following the removal of unsuitable materials, these areas should be scarified, moisture conditioned and recompacted to at least 85 percent relative compaction except for the slope area and access roads which should be compacted to at least 90 percent relative compaction. The fill outside the slopes and access roads should be placed in 8 inch lifts, moisture conditioned and compacted to at least 85 percent relative compaction. For slope areas, a keyway (1 by 2 by 10'wide) should be excavated prior to filling. The slope fill should be placed in 8 inch lifts, moisture conditioned, and compacted to at least 90 percent relative compaction. Benching into the existing native material should be performed as the fill progress.

11.3. General Grading Requirements

Prior to grading, we recommend that the site be cleared of remaining structures, foundations, abandoned utilities and pavements. We recommend that all organic topsoil be stockpiled for placement at subgrade level once the site has been excavated to design grade.

- All fills, unless otherwise specifically stated in the report, should be compacted to at least 90 percent of the maximum dry density as determined by ASTM D 1557 Method of Soil Compaction.
- 2. No fill should be placed until the area to receive the fill has been adequately prepared and approved by the Geotechnical Consultant or his representative.
- 3. Fill soils should be kept free of debris and organic material.
- 4. Rocks or hard fragments larger than 6 inches may not be placed in the fill without approval of the Geotechnical Consultant or his representative, and in a manner specified for each occurrence. All rock fragments in the 2 to 3-inch range should be dispersed and mixed within the sand matrix to avoid rock concentrations. Oversize materials should be disposed outside the structural fill and flatwork areas.
- 5. The fill material should be placed in lifts which, when loose, should not exceed 8 inches per lift. Each lift should be spread evenly and should be thoroughly mixed during the spreading to obtain uniformity of material and moisture.
- 6. When the moisture content of the fill material is too low to obtain adequate compaction or lower than the minimum recommended, water should be added and thoroughly dispersed until the soil has a moisture within 2¹/₂ percent of optimum moisture content for granular

soils and at least 125 percent of optimum or 3 percent above optimum, whichever is greater, for clay except as indicated otherwise by the Geotechnical Engineer at the time of construction.

7. When the moisture content of the fill material is too high to obtain adequate compaction, the fill material should be aerated by blading or other satisfactory methods until the soil has a moisture content as specified herein.

It should be noted that some of the onsite soils have high moisture contents and these soils are subject to "pumping" (deflection). Remixing and drying back these soils will be required to achieve compaction. When weather and/or time does not allow drying back the excavation bottoms, "bridging" of bottom excavations for exterior flatwork may be performed by overexcavating some of the moist/wet soils and backfilling with ³/₄-inch crushed rock wrapped with geosynthetics. The contractor should select appropriate excavation and compaction equipment to avoid disturbing the subgrade and to be able to compact the fill to the project specifications above a relatively soft subgrade. Track-mounted excavators, track backhoes, and appropriate towed non-vibratory sheepsfoot combined with very thin backfill lifts should be used as necessary to reduce subgrade disturbance.

11.4. Fill Materials for Borrow Site

The onsite soils can be used for backfill within the borrow site following removals of all oversize particles, organic and other deleterious material and proper processing.

11.5. Excavations at the Borrow site

The shallow undisturbed site soils are expected to be temporarily stable when excavated vertically to a depth of 5 feet. For excavations between 5 and 8 feet, a gradient of ³/₄:1 (H:V) may be used. The top of slopes should be barricaded to prevent vehicles and storage loads within 5 feet of the tops of the slopes. A greater setback may be necessary when considering heavy vehicles, such as concrete trucks and cranes; we should be advised of such heavy vehicle loadings so that specific setback requirements can be established. When excavating adjacent to existing footings or building supports, proper means should be employed to prevent any possible damage to the existing structures. Unshored excavations should not extend below a 1¹/₄:1 (H:V) plane extending downward from the lower edge of adjacent footings and should start at least two feet away from the footing. Where there is insufficient space to slope back an excavation, shoring may be required. All regulations of State and Federal OSHA should be followed. Some sloughing and caving of excavations may occur.

Temporary excavations are assumed to be those that will remain un-shored for a period of time not exceeding one week. In dry weather, the excavation slopes should be kept moist, but not soaked. If excavations are made during the rainy season (normally from November through April), particular care should be taken to protect slopes against erosion. Mitigative measures, such as installation of berms, plastic sheeting, or other devices, may be warranted to prevent surface water from flowing over or ponding at the top of excavations.

12. SUITABILITY OF SOILS FOR EXPORT

The majority of the borrow site soils are fine, very moist, and have medium to high plasticity, which make them difficult to excavate, to process, to place and to compact. They will require significantly more effort and more time as compared to importing granular material to achieve an acceptable engineered fill.

Barring the workability constraints, the onsite soils can generally be used for export to the proposed development on Bickmore Avenue in Chino with some special consideration. The primary consideration from a geotechnical standpoint is the presence of clay soils with moderate to high expansion potential. We recommend that the clay soils with expansion index of 80 or greater be placed at least 2 feet below the finished pavement subgrade and at least four feet below the building foundations. The clay soils will have to be placed at moisture contents of at least 130 percent of optimum or 3 percent above optimum, whichever is greater.

The second consideration is the high moisture content of most of the clay soils. Based on the maximum density tests performed for this study, the optimum moisture contents on the clay range from about 12 to 17 percent with an average near 14 percent. On the other hand, the average moisture content of the clay tested from our field exploration indicated an average of about 24 percent with a range generally of up to the lows 30's. The moisture contents get higher within about 6 to 7 feet of the groundwater level. Based on this limited data, the moisture contents of the clay soils are generally 10 to 15 percent above optimum. Therefore, dry back of the soils will be required to achieve the specified relative compaction. We recommend that most of the dry back

be performed in the borrow site by opening large areas and disking and turning over the material several times. Depending upon the weather condition, the efficiency of the processing and the soil conditions, this drying back may take a few days or more for each lift. We recommend that the moisture content of the soils be monitored in the borrow site prior to exporting.

The third consideration is the presence of construction debris. The fill that was placed onsite appears to come from construction/demolition sites and contains some oversize material, concrete, rebars, wood etc. Personnel and equipment should be assigned to remove the deleterious material from these soils prior to export. All topsoil, organic material, manure from the corral areas, and other non-suitable material for structural fill should be stockpiled onsite and placed back at finish surface following grading completion.

A fourth consideration is to perform selective grading within the borrow site and to use another borrow site to complement the soils needed. The upper 10 feet of soil appears to have generally lower moisture contents than the deeper soils and may be more suitable than the deeper soils. Some areas of the borrow site may be more suitable than other areas, i.e. lower plastic soils. We recommend that additional test pits be excavated to further characterize the soils if selective grading is contemplated.

13. OBSERVATION AND TESTING

This report has been prepared assuming that Koury Engineering & Testing, Inc. will perform all geotechnical-related field observations and testing. If the recommendations presented in this report are utilized, and observation of the geotechnical work is performed by others, the party performing the observations must review this report and assume responsibility for the recommendations contained herein. That party would then assume the title of "Geotechnical Consultant of Record". A representative of the Geotechnical Consultant should be present to observe all grading operations as well as all footing excavations. A report presenting the results of these observations and related testing should be issued upon completion of these operations.

14. CLOSURE

The findings and recommendations presented in this report were based on the results of our field and laboratory investigations, combined with professional engineering experience and judgment. The report was prepared in accordance with generally accepted engineering principles and practice. We make no other warranty, either expressed or implied. Subsurface variations between and beyond the borings/test pits should be anticipated. Koury should be notified if subsurface conditions are encountered, which differ from those described in this report. Samples obtained during this investigation will be retained in our laboratory for a period of 45 days from the date of this report and will be disposed after this period.

Should you have any questions concerning this submittal, or the recommendations contained herewith, please do not hesitate to call our office.

Respectfully submitted,

KOURY ENGINEERING & TESTING, IN

aues B. Rov P.E

Principal Geotechnical Engineer



Distribution: 1. Addressee (2 wet stamped copy + a pdf copy via e-mail) 2. File (B)

APPENDICES

Appendix A: Maps and Plans

Vicinity Map – Figure A-1 Field Exploration Map – Figures A-2a and A-2b Water Elevation Map – Figure A-3a and A-3b Geology Map – Figure A-4

Appendix B: Field Exploratory Boring Logs

Appendix C: Laboratory Test Results

REFERENCES

- 1. California Division of Mines and Geological, 1998, Seismic Hazard Zone Report 045 for the Prado Dam 7.5 Minute Quadrangle, California.
- 2. California Division of Mines and Geological Survey, 2003, Earthquake Fault Zones, Prado Dam Quadrangle, May 1, 2003.
- 3. City of Chino General Plan, Safety Element, 2010, Final Report.
- 4. <u>http://geotracker.waterboards.ca.gov</u>.
- 5. US Army Corps of Engineers, Geotechnical Investigations, Engineering Manual EM 1110-1-1804, dated 8/26/86.
- 6. US Army Corps of Engineers, Laboratory Soils Testing, Engineering Manual EM 1110-2-1906, dated 8/26/86.
- United States Geological Survey, 2006, Geology Map of the San Bernardino & Santa Ana 30' X 60' Quadrangles, California, Version 1.0, compiled by Douglas M. Morton et al, 2006.
- 8. United States Geological Survey, 2015, Prado Dam Quadrangle, 7.5-Minute Series (Topographic) Map Quadrangle, California.

APPENDIX A

Maps and Plans












APPENDIX B

Field Exploratory Boring Logs

KEY TO LOGS

		SO	ILS CLA	SSIFICA	TION
	MAJOR DIVISIONS	3	GRAPHIC LOG	USCS SYMBOL	TYPICAL NAMES
		CLEAN GRAVELS		GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
	GIAVELO	LESS THAN 5% FINES		GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
SOILS	MORE THAN 50% OF COARSE ERACTION IS	GRAVELS WITH FINES		GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
	LARGER THAN NO. 4 SIEVE	MORE THAN 12% FINES		GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SANDS	CLEAN SANDS		sw	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
MORE THAN 50% OF MATERIAL IS	SANDS	LESS THAN 5% FINES		SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
LARGER THAN NO. 200 SIEVE SIZE	50% OR MORE OF COARSE	OR MORE OF COARSE FINES		SM	SILTY SANDS, SAND-SILT MIXTURES
	SMALLER THAN NO. 4 SIEVE	MORE THAN 12% FINES		SC	CLAYEY SANDS, SAND-CLAY MIXTURES
	SILTS AN	ID CLAYS		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
FINE GRAINED SOILS		2 I ESS THAN 50		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AN	ID CLAYS		МН	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR GRAVELLY ELASTIC SILTS
DU% OK MORE OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	דואני בסוווס			СН	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
		O GO OK MOKE		ОН	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGH		SOILS		PT	PEAT AND OTHER HIGHLY ORGANIC SOILS

GRAIN SIZES											
		SAND		GRA							
SILT AND CLAT	FINE	MEDIUM	COARSE	FINE	COARSE	COBBLES	DOOLDERS				
	#200	#40	#10	#4	3/4"	3"	12"				
SIEVE SIZES											

KEY TO LOGS (continued)

S	SPT/CD BLOW COUNTS VS. CONSISTENCY/DENSITY												
FINE-GRAINED S	OILS (SILT	S, CLAYS, etc.)	GRANULAR SOILS (S	ANDS, GRAVELS	S, etc.)								
CONSISTENCY	*BLC	JWS/FOOT	RELATIVE DENSITY	*BLOWS/F	OOT								
CONSISTENCT	SPT	CD	RELATIVE DENGIT	SPT	CD								
SOFT	0-4	0-4	VERY LOOSE	0-4	0-8								
FIRM	5-8	5-9	LOOSE	5-10	9-18								
STIFF	9-15	10-18	MEDIUM DENSE	11-30	19-54								
VERY STIFF	16-30	19-39	DENSE	31-50	55-90								
HARD	over 30	over 39	VERY DENSE	over 50	over 90								

* CONVERSION BETWEEN CALIFORNIA DRIVE SAMPLERS (CD) AND STANDARD PENETRATION TEST (SPT) BLOW COUNT HAS BEEN CALCULATED USING "FOUNDATION ENGINEERING HAND BOOK" BY H.Y. FANG. (VALUES ARE FOR 140 Lbs HAMMER WEIGHT ONLY)

DESCRIPTIVE ADJECTIVE VS. PERCENTAGE										
DESCRIPTIVE ADJECTIVE	PERCENTAGE REQUIREMENT									
TRACE	1 - 10%									
LITTLE	10 - 20%									
SOME	20 - 35%									
AND	35 - 50%									

*THE FOLLOWING "DESCRIPTIVE TERMINOLOGY/ RANGES OF MOISTURE CONTENTS" HAVE BEEN USED FOR MOISTURE CLASSIFICATION IN THE LOGS.

APPRO	APPROXIMATE MOISTURE CONTENT DEFINITION									
DEFINITION	DESCRIPTION									
DRY	Dry to the touch; no observable moisture									
SLIGHTLY MOIST	Some moisture but still a dry appearance									
MOIST	Damp, but no visible water									
VERY MOIST	Enough moisture to wet the hands									
WET	Almost saturated; visible free water									

			RY RING					Project No. :16-0447 Boring No Project Name : Borrow Site Sheet : 1	.:B-1 0f:1
mple No.	Aoisture ntent (%)	Unit Weight (pcf)	ws per 6"	epth (ft)	ple Location	aphic Log	oil Type (USCS)	Drilling Method : Hollow Stem 6" Auger Sampling Method : Bulk - CD - SPT Ground Eleva Hammer Weight : 140 lbs Drop Height : 30" Drilling Co. : Location : See Figure A-2 Date Drilled :	tion: Discovery 03/10/17
Sa	°≤	Dry I	Blo	Δ	Samp	Gra	ŝ	Description	Additional Tests
1	19.2		2 3 5	0 	X			FILL: Sandy Lean CLAY; trace of gravel, firm, very moist, upper portion dark brown and lower portion yellowish brown	#200 Wash Fines = 67% PP = 2.0 tsf
2 3	18.4		3 3 5 8 3 6	5	X		CL	wood and asphalt, organic smell, dark brown	#200 Wash Fines = 56% PP=3-4.5 tsf
4	24.6		3 3 3		X			wood debris, firm, dark brown	#200 Wash Fines = 52%
5	27.6	95	2 4 6					ALLUVIUM: Lean to Fat CLAY with SAND; slightly organic smell, stiff, very moist, very dark brown	#200 Wash Fines = 78% PP=1.5-2 tsf
6	21.3	106	3 6 8	20			СГ/СН	wood specks, dark gray	#200 Wash Fines = 76% PP=2.2-2.7 tsf
7	22.7		1 3 8	25 <mark></mark>	X			wood specks, dark yellowish brown with dark gray zones	#200 Wash Fines = 77% PP=0.5-2 tsf
8	26.7	108	3 6 8	30				End of boring @ 31' 6" Groundwater encountered @ 20'	#200 Wash Fines = 75% PP=0.5-2.2 tsf
				35 - - - - - 40	Gro	undwa	ter	7 Bulk⊠1 CD ■ SPT №	

(K	DU	RY	-			Project No. :16-0447 Project Name : Borrow Site Bor	i ng No. : B-2
1	ENG & TE	INEE	RING				Shee	et:1 Of:1
		ţ			5		Drilling Method : Hollow Stem 6" Auger	nd Elevation:
Ňo.	ıre (%)	Veig	er 6"	æ	Log	e (s	Hammer Weight : 140 lbs Drop Height : 30" Drillin	ng Co.: Cascade
nple	oistu itent	nit V (pcf)	vs pe	pth (le Lo phic	ii Ty JSCS	Location : See Figure A-2 Date	Drilled : 3-17-17
San	Con	Dry U	Blov	De	Gra	So	Description	Additional Tests
				0			FILL:	#200 Wash
1	19.8				X		Sandy Lean CLAY: trace of gravel, moist to very moist, brown with yellowish brown	stiff, Fines = 67%
2	17.6				X	CL		#200 Wash Fines = 63% PP = 3 tsf
3	18.7	102	3 4 6	5 <u>-</u> - -			trace of organic, stiff, very moist, brown and dark brown	#200 Wash Fines = 67% PP = 4 tsf
4	27.6		0 0 1		X		Lean to Fat CLAY with SAND; very soft, very moist, dat brown	k #200 Wash Fines = 77%
5	25.2	87	42 22 10	10		CL/CH	very stiff, very moist, dark brown, layer of gravel	#200 Wash Fines = 78% PP = 0.7 tsf
6	29.9		2 4 5		X	СН	ALLUVIUM: Fat CLAY; firm to stiff, caliche and concretions, very mo dark yellowish brown	ist, #200 Wash Fines = 85% Atterberg LL = 61 PL = 22
7	28.6	99	4 6 10	20		сн	Sandy Fat CLAY; caliche, layer of silty sand, 50% clay a 50% sand, stiff, very moist, light yellowish brown	ind #200 Wash Fines = 67% PP=1.5-2 tsf
8	28.4		5 7 8	25 25 	X	сн	Fat CLAY with SAND; layers of silty sand and sandy silt very moist, olive yellow	;, stiff, #200 Wash Fines = 81%
9	19.3	115	14 28 22	30 30 		SM	Silty SAND; fine, medium dense, moist to very moist, m grayish brown and yellowish brown	ottled Gradation Fines = 15%
10	29.0		8 11 12	35	X	CL	Sandy Lean CLAY; layers of silty sand and poorly grade sand, medium dense sand and soft clay, wet, pale yellow	rd v #200 Wash Fines = 51%
							End of boring @ 36' 6" Groundwater encountered @ 20'	
				40				
I				1 -	Ground	water	✓ Bulk 🕅 CD	SPT

-	K		RY					Project No. :16-0447 Project Name : Borrow Site Borrow Site	b. : B-3
	& TE	STING	, INC.	5				Sheet: 1 Drilling Method: Hollow Stem 6" Auger	Of : 1
ō	e %)	∍ight	-9	÷	ation	bo	e l	Sampling Method : Bulk - CD - SPT Ground Elev	ation:
nple N	oisture tent (nit W∈ (pcf)	's per	pth (f	e Loc:	ohic L	il Typ ISCS)	Hammer Weight : 140 lbs Drop Height : 30" Drilling Co. 3 Location : See Figure A-2 Date Drilled	Discovery : 3-10-17
San	Cont	u U	Blow	De	ampl	Grap	Soi (U	Description	Additional
1	16.3			0	Ŵ		CI	FILL:	#200 Wash Fines = 69%
			7	_	\mathbb{A}		UL	moist to very moist, dark yellowish brown	PP = 1.7 tsf
2			8 2	- - -	X		CL	Sandy Lean CLAY with GRAVEL; trace of glass and concrete, moist, dark brown with gray	
3	23.6		1	5	X			ALLUVIUM: Sandy Lean CLAY; trace of rounded gravel, soft, very moist,	#200 Wash Fines = 71%
			2	_			CL	yellowish brown and very dark brown	PP=1-1.7 tst
4	18.3		3 5	-	Å			abundant concretions, firm to stiff, very moist	#200 Wash Fines = 65% PP=2-2.5 tsf
5	28.2		2 2 3	10 - - -	X		ML	Sandy SILT; layer of lean clay, firm to stiff, very moist, olive	#200 Wash Fines = 63% PP=3.2-4.2 tsf
6	28.5		3 5 6		X		СН	Sandy Fat CLAY; layers of sandy silt and fine silty sand, concretions, stiff, very moist, olive and olive brown	#200 Wash Fines = 70% PP=2-3.5 tsf
7	34.3	89	2 2 3	20 			СН	Fat CLAY; firm, very moist, mottled white with yellowish brown	#200 Wash Fines = 87% PP=0.5-1.5 tsf
8	29.1	97	5 9 14	25 — 			CL/CH	Sandy Lean to Fat CLAY; very stiff, very moist, pale yellow	#200 Wash Fines = 72% PP=2.5-3.5 tsf
9	20.2	112	8 14 22	30				light yellowish brown	#200 Wash Fines = 71% PP = 4.5 tsf
				35 				End of boring @ 31' 6" Groundwater encountered @ 16'	
L	1				Gr	roundwa	ater 🔨	✓ Bulk⊠ CD SPT	ব

		DU	RING.				Project No. :16-0447 Boring No Project Name : Borrow Site Sheet : 1 C Drilling Method : Hollow Stem 6" Auger	.: B-4 Dif:1
ample No.	Moisture ontent (%)	Unit Weight (pcf)	ows per 6"	Jepth (ft)	raphic Log	soil Type (USCS)	Sampling Method : Bulk - CD - SPTGround ElevaHammer Weight : 140 lbsDrop Height : 30"Drilling Co. :Location : See Figure A-2Date Drilled :	tion: Cascade 3-17-17
Ű	- ŭ	Dry	B		Ū	.,	Description	Tests
1	17.9					CL	FILL: Lean CLAY with SAND; stiff, moist to very moist, dark brown	#200 Wash Fines = 80% PP=1.7-2.7 tsf
2 3	21.9 21.0	107	8 14 11		X		ALLUVIUM: Sandy Lean CLAY; caliche and concretions, firm to stiff, very moist, dark yellowish brown	#200 Wash Fines = 74 % PP=1.2-1.5 tsf #200 Wash Fines = 70 % PP=1.5-2.5 tsf
4	11.3		12		X	CL		#200 W/ach
5	19.4	116	12 28 19			ML	Sandy SILT; very stiff, very moist, light olive brown	Fines = 57% PP = 4.5 tsf
6	44.5		3 4 5			сн	Fat CLAY with SAND; stiff, very moist, mottled yellowish brown with abundant white stringers (caliche)	#200 Wash Fines = 83% PP = 1.2-1.5 tsf
7	23.9		5 8 9			СН	Sandy Fat CLAY; very stiff, very moist, yellowish brown	#200 Wash Fines = 58% PP = 2.5-3 tsf
5	24.1	106	6 14 26	30		СН	Fat CLAY with SAND; very stiff, very moist, light brown mottled yellowish brown	#200 Wash Fines = 76% PP=4-4.5 tsf
				35 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -			End of boring @ 31' 6" Groundwater encountered @ 16'	
-					-		Bulk CD SPT	1

$\left($					-			Project No. :16-0447 Boring No Project Name : Borrow Site Sheet : 1 C	.:B-5)f:1
mple No.	Aoisture ntent (%)	Unit Weight (pcf)	ws per 6"	lepth (ft)	ple Location	aphic Log	toil Type (USCS)	Drilling Method : Hollow Stem 6" AugerSampling Method : Bulk - CD - SPTGround ElevaHammer Weight : 140 lbsDrop Height : 30"Drilling Co. :Location : See Figure A-2Date Drilled :	tion: Discovery 3-10-17
Sa	≥ °S	Dry I	Blo		Sam	Gra	S	Description	Additional Tests
				0 -				FILL: Sandy Lean Clay; soft, moist, dark yellowish brown	
1	19.2		1 1 1		X		CL	ALLUVIUM: Sandy Lean CLAY; concretions and caliche, very soft, moist to very moist, dark yellowish brown	#200 Wash Fines = 70% PP = 1.6 tsf
2	19.3		1/10"	5	X		CL	ALLUVIUM: Lean CLAY; concretions and caliche, very soft, moist to very moist, dark yellowish brown	#200 Wash Fines = 87% PP=2-3.5 tsf
3	17.0		8 4 7		X			ALLUVIUM: Sandy Lean CLAY; caliche stringers and concretions, stiff, moist to very moist, olive brown with white	#200 Wash Fines = 60% PP = 4.5 tsf
4	19.3		4 7 10	10— — — —	X		CL	very stiff	#200 Wash Fines = 62% PP = 4.5 tsf
5	18.8	112	4 9 15				ML	Sandy SILT; very stiff, moist, olive brown with white specs	#200 Wash Fines = 50% PP=2.7-3.5 tsf
6	26.8	94	8 15 15	20 20 		Þ	СН	Fat CLAY with SAND; very stiff, very moist, dark yellowish brown	#200 Wash Fines = 77% PP = 4.5 tsf
7	27.7	112	3 3 4	25 <u>-</u>	X		СН	Sandy Fat CLAY; caliche stringers and concretions, firm, very moist, dark yellowish brown w/ white, some brown	#200 Wash Fines = 60% PP=1-1.5 tsf
				30 				End of boring @ 26' 6" Groundwater encountered at 23'	

	& TES	INCE	RING	-				Project Name : Borrow Site Boring No	.: B-6
e No.	ture ht (%)	Weight ef)	, DC.	ר (ft)	.ocation	c Log	ſype CS)	Drilling Method : Hollow Stem 6" Auger Sampling Method : Bulk - CD - SPT Ground Eleva Hammer Weight : 140 lbs Drop Height : 30" Drilling Co. :	ition: Discovery
Sampl	Mois Conter	y Unit (po	lows	Dept	nple L	ŝraphi	Soil T (US(Location : See Figure A-2 Date Drilled :	3-10-17 Additional
	0	D	8	0	Sar	U		Description	Tests
				_			CL	Lean CLAY with SAND; trace of organic, moist, brown	
1	18.3		2 3 3		X		CL	ALLUVIUM: Lean CLAY with SAND; trace of organics, concretions, firm, moist to very moist, olive brown with white specs	#200 Wash Fines = 79% PP=1.5-2.5 tsf
2	18.9		3 8 14	5	X		ē	Sandy Lean CLAY; abundant caliche and concretions, very stiff, very moist, light olive brown with white	#200 Wash Fines = 69% PP = 4.5 tsf
3	21.5		2 4 6		X		UL	stiff, pale yellow mottled with olive brown	#200 Wash Fines = 62% PP=2.7-3 tsf
4	28.0		3 5 8	10 — — — —	X			Fat CLAY with SAND; layers of sandy silt, stiff, very moist, light olive brown	#200 Wash Fines = 84% PP=4-4.5 tsf
5	26.0		3 5 7		X		СН	trace of gravel, caliche stringers	#200 Wash Fines = 77% PP = 4.5 tsf
6	36.9	84	5 8 14	 20 				Sandy FAT CLAY; caliche, very stiff, very moist, light olive brown	#200 Wash Fines = 70% PP = 4.5 tsf
7	25.5	104	6 11 14	25 			СН		#200 Wash Fines = 60% PP=1.5-2 tsf
8	23.7	107		30 <u>-</u>					#200 Wash Fines = 74% PP=4-4.5 tsf
				35 — 				End of boring @ 31' 6" Groundwater encountered @ 20'	

-(RY RING					Project No. :16-0447 Project Name : Borrow Site Sheet : 1 Drilling Matheda : Hallan Charle Of Annual	o.: B-7 Of:1
mple No.	floisture ntent (%)	Unit Weight (pcf)	ws per 6"	epth (ft)	ole Location	aphic Log	oil Type (USCS)	Sampling Method : Hollow Stem 6" Auger Sampling Method : Bulk - CD - SPT Hammer Weight : 140 lbs Drop Height : 30" Drilling Co. Location : See Figure A-2	vation: Discovery : 3-10-17
Sa	≥ō	Dry l	Blo	Δ	Samp	Gra	s,)	Description	Additional Tests
1	8.6			0	\mathbb{X}		SM	FILL: Silty SAND; fine to medium, trace of gravel, moist, dark yellowish brown	Gradation Fines = 32%
2	18.8		3 4 7		X		CL	Lean CLAY with SAND; concretions, stiff, very moist, dark yellowish brown	#200 Wash Fines = 81% PP = 4.5 tsf
3	15.3		7 14 12	5 -	X			ALLUVIUM: Sandy Lean CLAY; concretions, very stiff, moist, pale yellow with white	#200 Wash Fines = 50% PP = 4.5 tsf
4	16.8		88		X		CL	Caliche, olive brown with white inclusions	Fines = 58% PP = 4.5 tsf
5	18.9		3 5 10	10	X			abundant concretions and caliche, very moist	#200 Wash Fines = 68% PP=3-4.5 tsf
6	32.2		1 3 4	15 - 15 - - -	X		СН	Sandy Fat CLAY; layer of sandy silt, firm to stiff, very moist, yellowish brown	#200 Wash Fines = 58% PP=1.5-2 tsf
7	29.3	94	9 10 15	20		<u> </u>		abundant concretions and caliche, very stiff, very moist, white with olive brown inclusions	#200 Wash Fines = 50% PP = 4.5 tsf
8	36.3	90	5 7 8	25 <mark>—</mark> 			СН	Fat CLAY with SAND; concretions and caliche, firm to stiff, very moist, yellowish brown	#200 Wash Fines = 76% PP=1.5-4 tsf
								End of boring @ 26' 6" Groundwater encountered @ 20'	

4	K		RY					Project No. :16-0447 Boring No Project Name : Borrow Site Boring No	.: B-8
	& TE	STING	, INC.					Sheet: 1 C Drilling Method: Hollow Stem 6" Auger	9 f : 1
mple No.	Aoisture ntent (%)	Unit Weight (pcf)	ws per 6"	epth (ft)	ple Location	aphic Log	oil Type (USCS)	Sampling Method : Bulk - CD - SPT Ground Eleva Hammer Weight : 140 lbs Drop Height : 30" Drilling Co. : Location : See Figure A-2 Date Drilled :	tion: Discovery 3-10-17
Sa	So	Dry I	Blo		Samp	Gr	s	Description	Additional Tests
1	17.4		22 3	0	Х		CL	FILL: Lean CLAY with SAND; trace of gravel and asphalt, firm, moist, dark brown	#200 Wash Fines = 80%
2	17.3		1 2 4	5 —	X		CL	Sandy Lean CLAY; layers of fine silty sand, firm, moist, dark brown with yellowish brown silty sand	#200 Wash Fines = 58% PP = 4.5 tsf
3	13.4		4 7 7		X		CL	ALLUVIUM: Lean CLAY; stiff, moist, dark yellowish brown	#200 Wash Fines = 85% PP = 4.5 tsf
4	21.5 99 12 14 CL						CL	Lean CLAY with SAND; pinhole porosity, very stiff, veri moist, dark yellowish brown (top) and light bluish brown (bottom)	#200 Wash Fines = 80% PP = 4.5 tsf
5	17.9	114	7 17 25	15 <u>-</u> 			CL	Sandy Lean CLAY; caliche stringers and concretions, hard, moist, light yellowish brown with white inclusions	#200 Wash Fines = 67% PP = 4.5 tsf
6	35.1	87	5 7 12	20 <u>-</u> 20 <u>-</u> 			СН	Fat CLAY with SAND; very stiff, very moist, thin silty sand layers, light yellowish brown with white inclusions	#200 Wash Fines = 80% PP=2-2.7 tsf
7	22.0	107	6 12 12	25 				olive brown with white inclusions	#200 Wash Fines = 81% PP = 4.5 tsf
8	38.0	95	9 15 21	30 <mark></mark>			СН	Fat CLAY; very stiff, moist to very moist, dark brown	#200 Wash Fines = 93% PP = 4.5 tsf
				35 40				End of boring @ 31' 6" Groundwater encountered @ 30'	
L	-					Ground	lwater	Bulk CD SPT	

			RING					Project No. :16-0447 Project Name : Borrow Site Sh	oring No. neet : 1 Of	: B-9 F:1
mple No.	foisture ntent (%)	Unit Weight (pcf)	ws per 6"	epth (ft)	ole Location	aphic Log	oil Type (USCS)	Drilling Method : Hollow Stem 6" Auger Sampling Method : Bulk - CD - SPT Hammer Weight : 140 lbs Drop Height : 30" Dri Location : See Figure A-2	ound Elevati illing Co. : I ate Drilled :	i on: Discovery 3-10-17
Sa	≥ō	Dry l	Blo	Δ	Samp	Gra	ů,	Description		Additional Tests
1	17.8			0	\mathbb{X}		CL	FILL: Lean CLAY with SAND; trace of gravel, soft, moist, d yellowish brown	dark	#200 Wash Fines = 75%
2	20.9		1 1 2		X		CL	ALLUVIUM: Lean CLAY; soft, moist, dark yellow and brown with w concretions	white	#200 Wash Fines = 85% PP=1.5-2.2 tsf
3	16.0		7 35 50/1" 4	5 <mark>-</mark> -	X		CL	Sandy Lean CLAY; abundant concretions, hard, mois and very pale brown firm. very moist	st, white	#200 Wash Fines = 50% #200 Wash
4	23.6		3 2		X					Fines = 57% PP=3-4.5 tsf
5	22.3	109	3 9 9	10 <u>-</u> - 			CL	Lean CLAY; caliche stringers, stiff, very moist, light c brown	olive	#200 Wash Fines = 85% PP=1.5-2.2 tsf
6	17.6	107	3 10 11	 15			CL	Sandy Lean CLAY; layer of fine clayey sand, very stif light olive brown	ff, moist,	#200 Wash Fines = 50% PP=2-2.5 tsf
								End of boring @ 16' 6" Groundwater encountered @ 14'	SPT	

			RING , INC.					Project No. :16-0447 Project Name : Borrow Site Sheet : 1 C Drilling Method : Hollow Stem 6" Auger	.: B-10 Df:1
ample No.	Moisture Intent (%)	Unit Weight (pcf)	ws per 6")epth (ft)	ple Location	aphic Log	soil Type (USCS)	Sampling Method : Bulk - CD - SPT Ground Eleva Hammer Weight : 140 lbs Drop Height : 30" Date Drilled : Location : See Figure A-2 Date Drilled :	tion: Discovery 3-10-17
Sa	° م	Dry	Blo		Sam	ē	S	Description	Additional Tests
1	45.2		2 2 4	0 	X		CL	FILL: Sandy Lean CLAY; pockets of grayish brown clay, organic material, topsoil, lome material, firm, wet, very dark brown	#200 Wash Fines = 50%
2	18.4		2 3 5	5 —	X		CL	ALLUVIUM: Lean CLAY; rootlet inclusions, firm, moist to very moist, dark brown	#200 Wash Fines = 87% PP=2-3.5 tsf
3	18.2		2 4 6		X	∇		Lean CLAY with SAND; caliche, stiff, moist to very moist, dark yellowish brown	#200 Wash Fines = 76% PP=4.2-4.5 tsf
4	19.8		2 4 6	10— — — —	X		CL		#200 Wash Fines = 81% PP=2.5-3.7 tsf
5	17.4	112	1 10 20			<u> </u>	SP-SM	Poorly Graded SAND with SILT; lumps of clay and trace of gravel, very stiff, wet, light olive brown	Gradation Fines = 11%
								Groundwater encountered @ 15' then it raised up to 10'	

(K	DU	RY					Project No. :16-0447 Project Name : Borrow Site Boring No	.: B-11
(ENG & TES	STING	RING					Sheet: 1 C)f: 1
mple No.	foisture ntent (%)	Jnit Weight (pcf)	ws per 6"	epth (ft)	ole Location	aphic Log	oil Type (USCS)	Drilling Method : Hollow Stem 6" Auger Sampling Method : Bulk - CD - SPT Ground Eleva Hammer Weight : 140 lbs Drop Height : 30" Drilling Co. : Location : See Figure A-2 Date Drilled :	tion: Cascade 3-17-17
Sa	Soz	Dry I	Blo	Δ	Samp	Gra	ů, C	Description	Additional Tests
1	15.2			0	8		CL	FILL: Lean CLAY with SAND; abundant concretions, very stiff to hard, moist, dark brown	#200 Wash Fines = 75 %
2 3	19.7 22.3	99	6 17 22	5 - - - -	×		CL	ALLUVIUM: Sandy Lean CLAY; abundant concretions, very stiff, very moist, very dark brown very moist, light yellowish brown with dark brown	#200 Wash Fines = 65% PP = >4.5 tsf
4	23.4			10 <mark>-</mark> 	8		CL	Lean CLAY; stiff, very moist, dark brown	#200 Wash Fines = 85%
5	27.8	103	8 18 32	15 - - - - -			СН	Fat CLAY; layers of sandy silt, hard, moist, mottled olive brown and yellowish brown	#200 Wash Fines = 92% PP = 4.5 tsf
3	29.3		8 10 15	20	X		мн	Elastic SILT with SAND; layers of clay and silty sand, moist, very stiff, mottled gray and yellowish brown	#200 Wash Fines = 85% PP = 2 - 2.5 tsf
4	32.1		5 10 13	25 	X				#200 Wash Fines = 81%
5	26.2	104	3 14 29	30 - - - - -			МН	Sandy Elastic SILT; layer of fine silty sand, moist, very stiff, mottled bluish gray and yellowish brown	#200 Wash Fines = 72% PP=3.5-4.5 tsf
6	26.2		12 19 25	35 -	X		CL	Sandy Lean CLAY; hard, moist, dark bluish gray	#200 Wash Fines = 72%
								End of boring @ 36' 6" Groundwater encountered @ 25'	
				40	Gro	oundwa	ater _	D Bulk CD SPT	1

/	K	DU	RY					Project No. :16-0447	Boring No.	: B-12
(ENG & TE	STING	RING					Froject Name : Borrow Site	Sheet:1 O	f :1
Sample No.	Moisture Content (%)	Dry Unit Weight (pcf)	Blows per 6"	Depth (ft)	Sample Location	Graphic Log	Soil Type (USCS)	Drilling Method : Hollow Stem 6" Auger Sampling Method : Bulk, CD C Hammer Weight : 140 lbs Drop Height : 30" Location : See Figure A-2 C Description C	Ground Elevat Drilling Co. : (Date Drilled :	ion: Cascade 3-17-17 Additional Tests
1	14.1			0 _ 	X		CL	FILL: Sandy Lean CLAY with GRAVEL; trace of wood an	nd asphalt,	#200 wash Fines + 57%
2 3	28.1 24.8	89	2 4 6		X		СН	ALLUVIUM: Fat CLAY; stiff, very moist,		#200 Wash Fines = 96% PP = 1.5 tsf
				10			SP-SM	SAND with SILT and GRAVEL; fine to coarse, cob	bles	
4	22.3						CL	Sandy Lean CLAY with GRAVEL; 75% of the sam large gravel to 3", stiff, very moist, yellowish brown	ple has	#200 Wash Fines = 67%
								Lind of bolining @ 16 , Adger refusairon coubles Near groundwater		

(-			Project No. :16-0447 Test F Project Name : Borrow Site Sheet	Pit No. : 1 : 1 Of : 1
mple No.	foisture ntent (%)	Jnit Weight (pcf)	ws per 6"	epth (ft)	ole Location	aphic Log	oil Type USCS)	Drilling Method : Backhoe Ground Sampling Method : Bulk Ground Hammer Weight : Drop Height : Drilling Location : See Figure A-2 Date Dr	Elevation: Co. : Gilstrap illed : 3-17-17
Sa	≥ō	Dry L	Blo	ă	Samp	Gre	°,	Description	Additional Tests
				0			CL	FILL: Sandy Lean CLAY	
1	19.0			5			CL	ALLUVIUM: Lea CLAY; stiff, moist to very moist, dark olive brown	n #200 Wash Fines = 85%
2	23.0			_	\otimes			Sandy Lean CLAY; stiff, very moist, mottled brown and gra	ay Fines = 68% PP=2-2.5 tsf
3	20.2			-	8		CL	greenish gray with brown inclusions	Fines = 60% PP=1.5-2.5 tsf
4	20.4			10	*				Fines = 51% PP=1.5-2.5 tsf
5	21.4			-	\boxtimes				Fines = 57% PP=1-1.5 tsf
								No groundwater encountered	
					-			Bulk 🔀 CD 🔤 🐰	SPT

1	K		RY	-				Project Project	No. :16-0447 Name : Borrow Site		-	Test Pit No	b. : 2
(ENG & TE	INEE	RING					појест	Nume . Donow olle		:	Sheet:1 O	f :1
	\rightarrow	~ ਦ		1	161			Drilling	Method : Backhoe				
è.	.e (%)	eigh	r 6"	æ	atior	bo-	e (Samplir	ng Method : Bulk)ron Hoight :	(Ground Elevat	ion:
ple	istur ent	nit W pcf)	s pe	oth (1	Loc	hic I	SCS	Locatio	n : See Figure A-2	orop neight .		Date Drilled :	3-17-17
Sam	Mo Cont	IN Un	Blow	Dep	ample	Grap	Soil (U)		C	Description			Additional
				0	S		CL	Fil	: Sandy Lean CLAY	; stiff, very moist	t, yellowish	brown	Tests
				-				AL	LUVIUM:				
1	30.4			_	\boxtimes		СН	Fat	t CLAY; abundant cal	lcium carbonate,	stiff, very i	moist,	#200 Wash
				_				IIIC					Fines = 87% PP=1.5-2.5 tsf
				5			CL	Sa car	ndy Lean CLAY; abu bonate, stiff to very s	indant caliche, at tiff, very moist, m	bundant ca nottled gree	lcium en with	#200 Wash Fines = 67% PP=1.5-4.0 tsf
2	21.1			_	\mathbb{N}			En	d of test pit @ 6' 6"				
				-	1			No	groundwater encoun	tered			
				-									
				10									
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				_									
				_	1								
				35	1								
				-									
				-									
				-	11								
				40	1								
L					1_1			\bigtriangledown	Bulk	\otimes	CD	SPT	

1	K		RY	-				Project No. :16-04	47 prrow Site	Test Pit	No. : 3
(ENG & TE	INEE	RING					i i ojeci name : Di		Sheet: 1	Of : 1
	\rightarrow			1	- -			Drilling Method :	Backhoe		
ġ.	e (%)	eight	-9	÷	ation	og.	e e	Sampling Method	: Bulk	Ground El	evation:
ple N	istur ent	it Wo	s pei	th (f	Loc	hic L	Typ SCS)	Location : See Fi	Drop Height	Drilling Co	d: 3-17-17
Sam	Cont	ry Un (I	Blow	Dep	aldma	Grap	Soil (U)		Description		Additional
-		ā	_	0	Š			FILL: Coarse	e sand at surface		Tests
								Silty SAND;	fine to coarse, slightly r	noist, olive	
				_							
1	7.5				\boxtimes		SM				Gradation
				5	Π						Fines = 17%
											#200 W/ash
2	6.8			_	⋈			End of test pi	t @ 7'		Fines = 16%
				-				No groundwa	ter encountered		
				-				Hole caving			
				10							
				-							
				_							
				15-							
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				20							
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				25—							
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				35							
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				40							
				-				\bigtriangledown	Bulk	CD SP1	

/	K		RY	-				Project No. :	16-0447 e : Borrow Site		Test Pit No	b. : 4
(ENG & TE	INEE	RING					FIUJECLINAIII	E. DOITOW SILE		Sheet:1 O	f :1
	\rightarrow							Drilling Meth	od: Backhoe			
ċ	(%	ight	-9		tion	бc	0	Sampling M	ethod: Bulk		Ground Elevat	ion:
e N	ture nt (°	We	per	ר (ft	-oca	c Lc	CS)	Hammer We	ight : Drop	Height :	Drilling Co. : G	Silstrap
d m	<i>l</i> lois Inter	Unit (po	SWC	eptl	ple L	aphi	loil T (USc	Location : S	see Figure A-2		Date Drilled :	3-17-17
Sa	≤ °	Dry	Blo		Sam	Gr	S		Desc	ription		Additional Tests
				0 _			0	FILL: Sandy J	oan CLAY			
				-			GL	Sanuy				
1	19.7			_	×			ALLUV Sandv	UM: _ean CLAY: stiff. ver	rv moist, dark brown		Fines = 68% PP = 2 tsf
2	20.8				×				,,	, ,		Fines = 68%
				5 —			CL	greenis	n gray with brown inc	lusions		Corrosivity FI = 94
				_						at 6.5' max density	/ = 120.5	Fines = 60%
3	24.3			_	※			caliche		optimum 12.4 %		PP=1-1.75 tsf
				-	1			End of t No arou	est pit @ 7' ndwater encountered	d		
				1 –	11			9.00	encountered	-		
				10-	11							
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				_								
				15								
				-								
				-								
				-								
				20								
				-								
				25	11							
				1 -	1							
				-	1							
				-	1							
				1 -								
				30 -	1							
				-	11							
				1 -								
				1 -								
				1 –								
				35								
				-	$\left \right $							
				-								
				-	1							
				-								
				40	1							
									Bulk	CD	SPT	

ENGINEERING & TESTING, INC.	Sheet: 1 Of: 1
Drilling Method : Backhoe	- · · ·
္ ေႏြးေႏြးေၾကာက္ Sampling Method : Bulk	Ground Elevation:
$\begin{bmatrix} 2 \\ -2 \\ -2 \\ -2 \\ -2 \\ -2 \\ -2 \\ -2 \\$	Drop Height : Drilling Co. : Gilstrap
	Description Tests
Lean CLAY; stiff, very	moist, black PP = 1.5 tsf
	at 3.5' max density = 104.5 EI = 35
	optimum 17.3%
2 50.2 CL CL organic, manure smell	PP = 1.5 tsf
	#200 Wash
- Fat CLAY; stiff, very m	oist, gray Fines = 88% PP = 2.5 tsf
4 26.0 caliche, greenish gray v	with white and dark bands #200 Wash Fines = 87%
End of test pit @ 9' 6"	PP=1.75-2.5 tsf
No groundwater encour	ntered
20-	

(K	DU	RY					Project No. :16-0447 Project Name : Borrow Site	Test Pit No	. : 6
	ENG & TE	STING	RING						Sheet:1 O	f :1
		jht	=	I	u	-		Drilling Method : Backhoe Sampling Method : Bulk	Ground Elevat	ion:
No.	ure : (%	Veiç)	er 6	(¥	ocati	: Lo	s) s	Hammer Weight : Drop Height :	Drilling Co. : G	Silstrap
nple	oisti Itent	Init / (pcf	d sv	spth	le Lc	phic	usc	Location : See Figure A-2	Date Drilled :	3-17-17
San	Con	Dry U	Blov	ð	Samp	Gra	So (I	Description		Additional Tests
				0	-		SC	FILL: Clayey SAND; fine to coarse, asphalt and slab 8" thick by 2x3 ft, wood and concrete debris, silty sand and sandy clay	concrete mixture of	
1	17.7			5			CL	Sandy Lean CLAY; firm, very moist, dark yellowis	sh brown	#200 Wash Fines = 73% PP=1.5-2 tsf
2	16.8						SC	Clayey SAND; minor wood and concrete, trace to very moist, olive brown	o little gravel,	#200 Wash Fines = 36%
								End of test pit @ 12' No groundwater encountered		Fines = 36%
l			•		<u>. </u>	·		Bulk 🕅 CD	SPT	

Sheet: 1 Of: 1 Signification Signification Signification Signification </th <th>/</th> <th>K</th> <th></th> <th>RY</th> <th>-</th> <th></th> <th></th> <th></th> <th>Project No. :16-0447 Test Pit I</th> <th>lo. : 7</th>	/	K		RY	-				Project No. :16-0447 Test Pit I	lo. : 7
Vertice Drilling Method: Bandpling Method:	(ENG & TE	INEE	RING					Sheet: 1	Of : 1
generating and backgroup best figure of the second sec		+	Į	-	1	Ę	_		Drilling Method : Backhoe, John Deere 310SL Sampling Method : Bulk Ground Elev	vation:
end 1 14.2	e No.	ture nt (%)	: Weig	per 6'	ч (f t)	-ocatic	ic Log	rype cs)	Hammer Weight : Drop Height : Drilling Co.	: Gilstrap
v v v v v v Description International structure 1 14.2 1 14.2 1 14.2 1 14.2 1 14.2<	Sampl	Mois onter	/ Unit (pc	lows	Dept	nple L	ìraphi	Soil 7 (US(Location : See Figure A-2 Date Drilled	: Additional
1 14.2 Image: construction debris 2 27.0 Sc Clayey SAND; trace of gravel, debris, moist to very moist, fries = 4 3 13.6 CL Sandy Lean CLAY; trace of gravel and concrete, cobbles and policy sized material, stiff, moist, dark brown #200 We Fries = 7 3 13.6 SC Clayey SAND; trace of wood and concrete, moist, dark #200 We Fries = 7 4 15.0 SC Clayey SAND; trace of wood and concrete, moist, dark #200 We Fries = 7 4 15.0 SC Clayey SAND; trace of wood and concrete, moist, dark #200 We Fries = 7 5 CL Sandy Lean CLAY; tocarse, little gravel, moist, brown #200 We Fries = 5 6 CL Sandy Lean CLAY; coarse, little gravel, moist, brown #200 We Fries = 5 7 CL Sandy Lean CLAY; coarse, little gravel, moist, brown #200 We Fries = 5 8 So So So of the material is oversize So of the material is oversize 15 So So of the material is oversize So of the material is oversize So of the material is oversize	<i>.</i> ,		Ъ	8	0	Sar	σ		Description FILL:	Tests
1 14.2 sc Clayey SAND; trace of gravel, debris, moist to very moist, fries = 4 2 27.0 sc CL Sandy Lean CLAY; trace of gravel and concrete, cobbles and pound with brown 3 13.6 10 Sc Clayey SAND; trace of wood and concrete, moist, dark 4 15.0 Sc Clayey SAND; trace of wood and concrete, moist, dark #200 Wc 5 CL Sandy Lean CLAY; trace of wood and concrete, moist, dark #200 Wc 4 15.0 Sc Clayey SAND; trace of wood and concrete, moist, dark #200 Wc 2 20.1 Sc Clayey SAND; trace of wood and concrete, moist, dark #200 Wc 4 15.0 Sc Clayey SaND; trace of wood and concrete, moist, dark #200 Wc 20 CL Sandy Lean CLAY; coarse, little gravel, moist, brown #End of test pit @ 12 6" No groutwater encountered 30 15 Sc Sc Sc Sc Sc Sc 30 15 Sc Sc Sc Sc Sc Sc 30 15 Sc Sc Sc Sc Sc Sc 30					ĺ –				Construction debris	
2 27.0 27.0 CL Sandy Lean CLAY; trace of gravel and concrete, cobbles and boulder sized material, stiff, moist, dark brown #200 We Fines = 4 3 13.6 10 SC Clayey SAND; trace of wood and concrete, moist, dark #200 We Fines = 4 4 15.0 CL Sandy Lean CLAY; coarse, little gravel, moist, dark #200 We Fines = 4 10 CL Sandy Lean CLAY; coarse, little gravel, moist, dark #200 We Fines = 4 10 CL Sandy Lean CLAY; coarse, little gravel, moist, brown #200 We Fines = 4 10 End of test pit @ 12' 6" No groundwater encountered About 30% of the material is oversize 20 15 Image: state st	1	14.2				8		SC	Clayey SAND; trace of gravel, debris, moist to very moist, dark yellowish brown	#200 Wash Fines = 43%
3 13.6 4 15.0 10 10 SC Clayey SAND; trace of wood and concrete, moist, dark 4 15.0 CL Sandy Lean CLAY; coarse, little gravel, moist, brown End of test pit @ 12 6' No groundwater encountered About 30% of the material is oversize	2	27.0				8		CL	Sandy Lean CLAY; trace of gravel and concrete, cobbles and boulder sized material, stiff, moist, dark brown	#200 Wash Fines = 73% PP=1-1.5 tsf
4 15.0 CL Sandy Lean CLAY; coarse, little gravel, moist, brown Fines = 5 15	3	13.6			10	*		SC	Clayey SAND; trace of wood and concrete, moist, dark yellowish brown	#200 Wash Fines = 49%
End of test pit @ 12' 6" No groundwater encountered About 30% of the material is oversize	4	15.0				\mathbb{X}		CL	Sandy Lean CLAY; coarse, little gravel, moist, brown	#200 Wash Fines = 55%
									End of test pit @ 12' 6" No groundwater encountered About 30% of the material is oversize	

/	K		RY	-				Project No. : 16-0447 Test Pit No. : 8				
(INEE	RING					Sheet : 1	Of : 1			
	+			1	1		1	Drilling Method : Backhoe				
ö	(%	ight	.9	_	ation	bo	۵ ۵	Sampling Method : Bulk Ground Ele	vation:			
le N	sture nt ('	: We cf)	per	н Ц	-003	ic L	Type CS)	Hammer Weight : Drop Height : Drilling Co.	: Gilstrap			
amp	Mois onte	Unit (p	swo	Dept	plel	aph.	soil . US	Location : See Figure A-2 Date Drilled	: 3-17-17			
ő	- ö	Dry	Blo		Sam	Gr	"	Description	Additional Tests			
1	24.8			0 5			сц/сн	FILL: Sandy Lean to Fat CLAY; concrete debris to 3 feet size, rebars (about 15% not usable), old foundation burried at a depth of 5' to 6', firm to stiff, very moist, dark brownish yellow	#200 Wash Fines = 61%			
								ALLUVIUM:	PP=0.8-1.2 tsf			
2	23.9			_	\bigotimes		СН	Fat GLAY with SAND; tirm to stiff, very moist, greenish gray with dark brown inclusions	Fines = 67% PP=0 75-1 5 tef			
3	2 23.9 3 28.3 CH CH CH CH CH CH CH CH CH CH							End of test pit @ 8' No groundwater encountered				

VEX.NEE. Sheet: 1 Of: 1 or of the second s	(K	DU	RY					Project No. :16-0447 Project Name : Borrow Site Test Pit No. : 9			
Joint Subscription Joint Subscription Joint Subscription Joint Subscription Joint Subscription 1 16.6 10.	Ţ	ENG & TE	STING	RING					Sheet : 1 C)f: 1		
orgeneration orgeneration Addition 1 16.6 10<		+	ļ	-		۲,	_		Drilling Method : Backhoe Sampling Method : Bulk Ground Eleva	tion:		
is of solution Addition 1 16.6 1 16.6 Sc Sc FILL: Clayey SAND; trace of gravel, layers of silty sand, stiff, press Files 2 21.0 1 16.6 Sc Sc Silty Sandy Lean CLAY; stiff, very moist, lowe brown (3%) of material not usable) Files 3 21.6 1 1.0 SM Silty SAND; fine, trace of wood, dry to very moist, black Fines 5 27.7 S 24.4 Image: Solution of the spit (2) is of the spit (2) is of material not usable) Fines 6 24.4 Image: Solution of the spit (2) is of material not usable) Image: Solution of the spit (2) is of material not usable) Fines 5 27.7 Image: Solution of the spit (2) is of material not usable) Image: Solution of the spit (2) is of material not usable) Fines 6 24.4 Image: Solution of the spit (2) is of material not usable) Image: Solution of the spit (2) is of material not usable) Fines 7 Image: Solution of the spit (2) is of material not usable) Image: Solution of the spit (2) is of material not usable) Image: Solution of the spit (2) is of material not usable) Image: Solution of the spit (2) is of material not usable) 8 27.7	∋ No.	ure t (%)	Weig f)	er 6'	(¥	ocatic	c Log	ype (S)	Hammer Weight : Drop Height : Drilling Co. : (Gilstrap		
or S ia u B or SC Pill: Clayey SAND; trace of gravel, layers of silty sand, stiff, frings Frings 1 16.6 2 21.0 3 21.6 SC Fill: Clayey SAND; trace of gravel, layers of silty sand, stiff, frings Frings 3 21.6 2 21.0 SC Fill: Clayey SAND; trace of wood, one debris, frm, very moist, black Frings 4 12.9 S SM Silty SAND; fine, trace of wood, dry to very moist, dark gray Frings 5 27.7 S Z4.4 SM Silty SAND; fine, trace of wood, dry to very moist, dark gray Frings 5 27.7 S Z4.4 SM Silty SAND; fine, trace of wood, dry to very stiff, very Frings 6 24.4 SIL SIL SIL SIL SIL SIL SIL 7 SIL File 6 24.4 SIL SIL<	tmpl€	Moist Inten	Unit (pcf	d swc)epth	ple L(aphic	ioil T (USC	Location : See Figure A-2 Date Drilled :			
1 16.6 2 21.0 Sc FILL: Clayey SAND; tace of gravel, layers of silty sand, stiff, most, yelowish norus Fines 3 21.6 CL Sandy Lean CLAY; stiff, very moist, olive brown (35% of material not usable) Fines 4 12.9 SM Silty SAND; fine, trace of wood, dry to very moist, dark gray # 5 27.7 SM Silty SAND; fine, trace of wood, dry to very moist, dark gray #200 6 24.4 CL/CH Lean to Fat CLAY with SAND; stiff to very stiff, very moist, black #200 7 CL/CH Lean to Fat CLAY with SAND; stiff to very stiff, very moist, black #200 10 CL/CH Lean to Fat CLAY with SAND; stiff to very stiff, very moist, black #200 10 CL/CH Lean to Fat CLAY with SAND; stiff to very stiff, very moist, black #200 10 CL/CH Lean to Fat pit @ 15 No groundwater encountered 10 10 10 10 10 11 10 10 10 10 12 14 15 16 16 15 15 16 16 16 16 16 17 16 17 17 18 18 18 18 18 19 <	Sa	² °	Dry	Blc		Sam	Gr	S -	Description	Additional Tests		
2 21.0 21.0 Sandy Lean CLX; stiff, very moist, dive brown Files 3 21.0	1	16.6			0	*		SC	FILL: Clayey SAND; trace of gravel, layers of silty sand, stiff, moist, yellowish brown	Fines = 46% PP=2.5-3 tsf		
3 21.6 4 12.9 5 27.7 6 24.4 10 110 120 121 1220 123 124 125 127.7 12 13 14 15 16 17 18 19 19 10 10 10 10 10 10	2	21.0			-	×			Sandy Lean CLAY; stiff, very moist, olive brown (35% of material not usable)	Fines = 73% PP=1.5-3 tsf		
4 12.9 5 300 5 27.7 6 24.4 6 24.4 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 12 10 13 15 14 15 15 15 16 15 17 15 18 15 19 15 10 15 15 15 16 15 17 16 18 16 19 10 19 10 10 <	3	21.6			-	X		CL	trace of wood, some debris, firm, very moist, black	Fines = 50%		
5 27.7 6 24.4 10 10 10 10 10 10 10 10 10 10 10 10 11 120 13 14 15 16 17 18 19 10 10 10 10 10 10 10 10 10 10 11 120 13 14 15 16 17 18 19 10 10 10 10 10 10 <	4	12.9						SM	Silty SAND; fine, trace of wood, dry to very moist, dark gray	#200 Wash Fines = 36%		
6 24.4 Image: second s	5	5 27.7							Lean to Fat CLAY with SAND; stiff to very stiff, very moist, black	#200 Wash Fines = 83% PP=1.5-2.5 tsf		
End of test pit @ 15' No groundwater encountered	6	24.4				\mathbb{X}			dark brown with gray	Fines = 78% PP=1 5-2 tsf		
									End of test pit @ 15' No groundwater encountered			

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(ENG & TE	INEE	RING					· · · · · · · · · · · · · · · · · · ·	Sheet:1 O	f:1	
_	+	ž		1	Ĕ			Drilling Method : Backhoe	Ground Fleve	ion:	
ŝ	Ire (%)	Veig.	∍r 6"	(¥	catic	Log)) be	Hammer Weight : Drop Height : Drilling Co. : (Gilstrap	
ple	oistu tent	nit V (pcf)	vs pe	pth	e Lo	ohic	il Ty JSCS	Location : See Figure A-2	Date Drilled :	3-17-17	
San	Con	Dry U	Blow	De	Sampl	Grap	(L So	Description		Additional Tests	
		_		0						10303	
				-			0	FILL:			
				_			CL	Sandy Lean CLAY; concretions, firm, very moist yellowish with white	, dark	#200 Wash Fines = 71%	
1	23.8			_	Ä					PP=1-1.25 tsf	
				5 —			CL	Sandy Lean CLAY; firm, very moist, dark brown		#200 Wash Fines = 72%	
2	23.0				※					PP=1.2-1.5 tsf	
				_				End of test pit @ 6' No groundwater encountered			
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	& TE	STING	, INC.					Sheet	::1 O 1	f :1	
mple No.	loisture ntent (%)	Jnit Weight (pcf)	ws per 6"	epth (ft)	ole Location	aphic Log	oil Type (USCS)	Sampling Method : Bulk Ground Hammer Weight : Drop Height : Drilling Location : See Figure A-2 Date D	d Elevat g Co. : G vrilled : 3	u tion: Gilstrap 3-17-17	
Sa	⊆ ⊆ C	Dry L	Blo	Õ	Samp	Gra	°,	Description		Additional Tests	
1	15.5			0 5			SC	FILL: Clayey SAND; trace to little gravel, some cobble, asphalt, boulders, very moist, dark yellowish brown	, and	#200 Wash Fines = 47%	
2	43.7						CL	Sandy Lean CLAY; trace of wood, firm, wet, dark brown t black	o	#200 Wash Fines = 72% PP=0.7-1 tsf	
3 4 5	3 18.2 4 22.5 5 20.5							ALLUVIUM: Lean CLAY with SAND; stiff, very moist, black very dark grayish brown at 12.5' max density = 119. optimum 1 dark gray End of test pit @ 15' 6"	.1 pcf 3.1%	EI = 80 Fines = 82% PP=1.5-2.5 tsf Fines = 77% PP = 1.5 tsf Fines = 77% PP=1.5-2.5 tsf	
								End of test pit @ 15' 6" No groundwater encountered			
L				40	1			Bulk CD	SPT		

1	K	DU	RY	,				Project No. :16-0447 Project Name : Borrow Site Test Pit No. : 12			
+	ENG & TE	INEE	RING						Sheet:1 O	f :1	
imple No.	Aoisture Intent (%)	Unit Weight (pcf)	ws per 6"	epth (ft)	ple Location	aphic Log	oil Type (USCS)	Drilling Method : Backhoe Sampling Method : Bulk Hammer Weight : Drop Height : Location : See Figure A-2	ion: Silstrap 3-17-17		
Sa	≥ ō C	Dry (Blo	Δ	Samp	Gra	ů,	Description		Additional Tests	
1	25.0			0 			сі/сн	FILL: Lean to Fat CLAY with SAND; firm to stiff, very dark brown	r moist, very	#200 Wash Fines = 78%	
2	25.9					CL/CH	Sandy Lean to Fat CLAY; soft, very moist, mo with white	Sandy Lean to Fat CLAY; soft, very moist, mottled brown with white			
3	3 23.3							Lean to Fat CLAY with SAND; very stiff, very n brown	noist, very dark	#200 Wash Fines = 84%	
								End of test pit @ 12' No groundwater encountered		Fines = 84%	
	1		<u> </u>	1.0		<u> </u>		Bulk 🕅 CD	SPT		

-	K		RY					Project No. :16-0447 Project Name : Borrow Site Test Pit No. : 13				
	& TE	STING	, INC.					Drilling Method : Backhoe	Sheet:1 Of	F:1		
o	e (%)	eight	r 6"	ť)	ation	-og	e	Sampling Method : Bulk	ion:			
nple N	oistur tent	nit W((pcf)	vs pei	pth (f	e Loc	phic L	il Typ JSCS)	Location : See Figure A-2	Date Drilled :	3-17-17		
San	Con	Dry U	Blow	De	Sampl	Gra	(r So	Description		Additional Tests		
1	32.0			0 _ - - -	8		CL	ALLUVIUM: Lean CLAY with SAND; firm to stiff, very moist, da	ark brown	#200 Wash Fines = 81% PP = 2.5 tsf		
2	24.4			5 - - - - -	X		CL	Sandy Lean CLAY; soft to firm, very moist, dark gr very stiff, dark yellowish brown	reenish gray	#200 Wash Fines = 73% PP=0.7-1.5 tsf #200 Wash Fines = 71% PP=0.7-1.5 tsf		
3	2 24.4 3 20.9 10 10 11 15 15 16 17 17 17 17 17 17 17 17 17 17							End of test pit @ 9' 6" Groundwater encountered at 6'				
-	-			-				Bulk 🕅 CD	SPT 🗙			

Image: state in the state i	(RY RING					Project No. :16-0447 Test Pit N Project Name : Borrow Site Sheet : 1	lo. : 14 Of : 1
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1 18.4 0	Saı	SΩ	Dry L	Blo	ă	Samp	Gra	s, C	Description	Additional Tests
1 18.4 18.4 19.8 19.8 19.8 19.8 10.1 <					0			CL	FILL: Sandy Lean CLAY; moist, grayish brown	10010
2 19.8 19.8 10	1	18.4			5			CL	ALLUVIUM: Sandy Lean CLAY; stiff, very moist, grayish brown	#200 Wash Fines = 71% PP=2-2.5 tsf
3 18.3 4 25.0 15 15 16 16 17 16 18 16 18 16 18 16 18 16 18 16 18 16 18 16 18 16 18 16 18 16 18 16 19 16 19 16 19 16 19 16 10 16 10 16 10 16 10 16 10 16 10 16 10 16 10 16 10 16 10 16 10 16 10 16 10 16 10 16 10 16 10 16 16 16 <th>2</th> <th>19.8</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>#200 Wash Fines = 62% PP = 2 tsf</th>	2	19.8								#200 Wash Fines = 62% PP = 2 tsf
4 25.0 Image: state of the state of	3	18.3			15	\mathbb{X}	\Box	ML	Sandy SILT; fine, very moist, grayish brown	Fines = 50%
	4	25.0							wet End of test pit @ 16' Groundwater encountered @ 15' 3"	Fines = 70%

Image: Separation of Separation is Separation in Separation is Separation in Separation is Separation in Separation is Separation in Separation in Separation is Separation in Separation in Separation in Separation is Separation in Separa	of : 1 tion: Gilstrap 3-17-17 Additional
Drilling Method : Backhoe Drilling Method : Backhoe Sampling Method : Bulk Ground Elevat Sampling Method : Bulk Drilling Co. : C Drilling Co. : C Drilling Co. : C	tion: Gilstrap 3-17-17 Additional
	3-17-17 Additional
ווּפֿר פֿד ק פֿין אָד א פּוּ פּן פּן פּ	Additional
	Tests
0 _ FILL: CL Sandy Lean CLAY	
1 24.7 CL ALLUVIUM: Sandy Lean CLAY; very moist, very dark brown	#200 Wash Fines = 69%
2 24.1 5	#200 Wash Fines = 77% PP = 4 tsf
3 18.2 ML Sandy SILT; very stiff, moist to very moist, yellowish red	#200 Wash Fines = 62% PP = 4.5 tsf
4 23.3 CL Sandy Lean CLAY; soft, very moist to wet, yellowish brown	#200 Wash Fines = 73%
End of test pit @ 15' Groundwater encountered @ 14' 6" 20	

1	K	DU	RY					Project No. :16-0447 Test Pit No. : 16 Project Name : Borrow Site Test Pit No. : 16			
t	ENG & TE	INEE	RING	1					Sheet:1 O	f :1	
		¥			ç			Drilling Method : Backhoe	Ground Elevat	ion	
No.	re (%)	eig!	r 6"	æ	atio	Log) se	Hammer Weight · Dron Height ·		ilstran	
ple I	istul ent	hit W pcf)	s pe	oth (e Loc	hic	I Tyl SCS	Location : See Figure A-2	Date Drilled :	3-17-17	
Sam	Mo Cont	y Ur (slow	Der	mple	Grap	Soi (U	Description		Additional	
		ā		0	Sa	-		FILL:		Tests	
								Lean CLAY with SAND; moist, dark brown			
1	22.6			-				ALLUVIUM:	4 - 4	Einon - 92%	
	23.0			_	Ê		CI	brown	t, strong	PP=3.5-4.5 tsf	
2	19.5				×		ŰL.			Fines = 76%	
				5							
								Sandy SII T. layer of sandy clay, stiff, yery moist	oravish		
3	20.9				×		ML	brown	9.49.0.1	#200 Wash Fines = 66% PP=2.5-3 tsf	
4	20.9			10	×		CL	Sandy Lean CLAY; layer of sandy silt, firm to stiff, dark yellowish brown	, very moist,	#200 Wash Fines = 66% PP=1-1.5 tsf	
	20.0			_				End of test pit @ 11' Groundwater encountered @ 10' 6"		11 11.0 101	
				_							
				-							
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Groundwater <u>v</u>

/	K		RY	-				Project No. :16-0447 Project Name : Borrow Site Test Pit No. : 17			
(ENG & TE	INEE	RING		1			Sheet : 1 C) f: 1		
	\rightarrow	- F		1	<u>_</u>			Drilling Method : Backhoe			
lo.	e (%)	eigh	-9	t)	atior	-og	e (Sampling Method : Bulk Ground Eleva	tion:		
ole N	stur	it Wo	s pei	th (f	Ľ	hic L	Typ SCS)	Location : See Figure A-2 Date Drilled : Date Drilled :	3_17_17		
Sam	Moi	n N	iows	Dep	nple	irapl	Soil (U;		Additional		
•/	0	Ď	8	0	Sai	U		Description	Tests		
				Ŭ			C	FILL: Lean			
1	17.6				\boxtimes		0L	CLAT WITH SAND, Suil, Very moist, Very dark brown	#200 Wash		
2	20.3					Sandy Lean CLAY; concretions, very stiff, very moist,	#200 Wash Fines = 63%				
					CL	brownish yelow	PP=2-4.5 tsf				
				_							
								Sandy Fat CLAY: stiff to year stiff year moist vellowish brown			
3	24.3							at 8.5' max density = 118.1	EI = 91		
				10	Ø		СН	optimum 13.0%	Fines = 71% PP=1.5-3 tsf		
				_	Η	∇					
4	48.0				\mathbb{X}			soft, wet, yellowish brown	#200 Wash Fines = 86%		
				_				End of test pit @ 12' 6" Groundwater encountered @ 11' 6"			
				-							
				_							
				20							
				25							
				_							
				30							
				35							
				40							
							Groundwa	ater 🔽 Bulk 🕅 CD 🖬 SPT 🗙	1		

(RING.				Project No. :16-0447 Tes Project Name : Borrow Site She	stPitNo eet:1 Of	.:18 ::1
mple No.	Noisture ntent (%)	Jnit Weight (pcf)	ws per 6"	epth (ft)	ole Location aphic Log	oil Type USCS)	Drilling Method : BackhoeGrouSampling Method : BulkGrouHammer Weight :Drop Height :Location : See Figure A-2Date	und Elevati ing Co. : G Drilled : 3	on: ilstrap 3-17-17
Sa	≥ ō C	Dry L	Blo	Ō	Samp Gra	ů,	Description		Additional Tests
1	20.8				8	CL	ALLUVIUM: Sandy Lean CLAY; very moist, dark brown		#200 Wash Fines = 67%
2	23.2			5 –	*	CL	Lean CLAY; soft, very moist, brown		#200 Wash Fines = 88% PP = 0.75 tsf
3	29.0				X	сн	Fat CLAY; stiff to very stiff, very moist, yellowish brown		#200 Wash Fines = 85% PP=1.5-1.75 tsf
4	35.8						very moist, grayish brown End of test pit @ 15' No groundwater encountered		#200 Wash Fines = 93% PP=1.75-2 tsf
				40			Bulk 🕅 CD	SPT	

APPENDIX C

Laboratory Test Results


_ Checked By: _



Checked By:



Checked By:



Checked By:

Curve No.: 4385 Series

Date: 3/24/17

Project No.: 16-0447 Project: Borrow Site Client: Location: TP-4 @ 6.5' -7' Sample Number: 4385 Series

Remarks: Less than 5% Material retained on the #4 Sieve.

MATERIAL DESCRIPTION

Description: Light Yellowish Brown to Light Olive Brown Silty Clay

 Classifications USCS: CL
 AASHTO:

 Nat. Moist. =
 Sp.G. =

 Liquid Limit =
 Plasticity Index =

 % < No.200 =</td>



Curve No.: 4385 Series

Date: 3/24/17

Project No.: 16-0447 Project: Borrow Site Client: Location: TP-5 @ 3.5' Sample Number: 4385 Series

Remarks: Less than 5% Material retained on the #4 Sieve.

MATERIAL DESCRIPTION

Description: Dark Brown to Dark Yellowish Brown Silt

AASHTO: **Classifications -**USCS: ML Nat. Moist. = Sp.G. = Liquid Limit = Plasticity Index = % < No.200 =



Curve No.: 4385 Series

Date: 3/24/17

Project No.: 16-0447 Project: Borrow Site Client: Location: TP-11 @ 12' - 12.5' Sample Number: 4385 Series

Remarks: Less than 5% Material retained on the #4 Sieve.

MATERIAL DESCRIPTION

Description: Very Dark Greyish Brown Silty Clay

 Classifications USCS: CL
 AASHTO:

 Nat. Moist. =
 Sp.G. =

 Liquid Limit =
 Plasticity Index =

 % < No.200 =</td>



Curve No.: 4385 Series

Date: 3/24/17

Project No.: 16-0447 **Project:** Borrow Site Client: Location: TP-17 @ 8.5' - 9.5' Sample Number: 4385 Series

Remarks: Less than 5% Material retained on the #4 Sieve.

MATERIAL DESCRIPTION

Description: Olive Brown to Light Olive Brown Clay

Classifications -USCS: CL/CH AASHTO: Nat. Moist. = Sp.G. = Liquid Limit = Plasticity Index = % < No.200 =



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GEOTECHNICAL & SEISMIC ENGINEERING, CONSTRUCTION INSPECTION & MATERIALS TESTING SERVICES



June 26, 2017 Project No. 17-0320

Mr. John R. Burroughs, LEED AP, President Commerce Construction Co., L.P. 13191 Crossroads Parkway North 6th Floor City of Industry, CA 91746

Subject: Feasibility Study, Proposed East Borrow Site Southeast Corner of Pine Avenue & Johnson Avenue City of Chino, CA

Dear Mr. Burroughs:

Presented herein are our preliminary findings and conclusions regarding the suitability of the soils to be used as engineered fill to balance the grade for the OC Prado site construction located on the southeast corner of Bickmore Avenue and Mountain Avenue, in the City of Chino.

The East Borrow Site consists of two vacant parcels with a total area of about 37 acres. The site is bounded by Pine Avenue to the north, Johnson Avenue to the west, OC Parks on the south and agricultural land on the east. A Site Vicinity Map with approximate ground contour elevations is presented in Appendix A as Figure A-1. Metal fences surround the site except for the east side where wooden fences separate the site from Johnson Avenue. The site is owned by the County of Orange Flood Control District.

Field Exploration and Laboratory Testing for Feasibility Study

The field exploration program for the feasibility study consisted of drilling four soil test borings and excavating nine test pits. Truck-mounted hollow-stem auger drilling equipment was used to drill the test borings to depths of about 31½ feet. In addition, a rubber tire mounted backhoe was used to excavate 9 test pits ranging in depths from about 11½ to 13½ feet. The locations of the borings and test pits are shown on the Field Exploration Map, Figure A-2, presented in Appendix A. Standard penetration test samples, California ring samples and bulk samples were obtained from the borings for laboratory testing, and bulk samples were obtained from the test pits. The contractor used a 140-lbs automatic hammer to drive the samplers 18 inches into the soils.

Laboratory tests, including moisture content, dry unit weight, #200 sieve wash, gradation, pocket penetrometer, expansion index, and plasticity index were performed to aid in the classification of the materials encountered and to evaluate their engineering properties. Sulfates, chlorides, resistivity, and PH tests (corrosivity tests) were also performed on selected samples. The results of pertinent laboratory tests are presented on the boring logs in Appendix B, and/or in Appendix C.

Site Geology

The site is located within the Upper Santa Ana River Valley, which consists of a series of coalescing alluvial fans formed by streams flowing out of the San Gabriel Mountains to the north. The valley lies within the Peninsular Ranges geomorphic province, which is characterized by alluviated basins, elevated erosion surfaces, and northwest-trending mountain ranges bounded by northwest trending faults. The site, which is located within the Chino Basin, is underlain by sediments deposited by the Santa Ana River and its tributaries such as the Chino Creek.

Morton and Miller (2006) show the site to be underlain by very old alluvial-fan deposits (See Figure A-3 in Appendix A). The sediments observed during drilling consisted predominantly of clay.

Surface Site Conditions

The site in its present state has been cleared of the past structures such as buildings, animal shelters, and other above ground ancillary facilities; however, it appears that several foundations and slab on grade are still in place. The dominant features of the site are few berms, a water pond that was constructed near the south end of the site, and power line towers. Many of the berms appear to have been constructed by pushing onsite soils into piles. Most of the berms have heights in the range of 3 to 5 feet and consist of relatively loose undocumented fill.

Near the southern end of the site, there is a detention basin approximately 100 feet long, 30 feet wide and 5 feet deep. High voltage overhead power lines, which are supported by steel towers, cross the site from east to west.

Soil Conditions

The subsurface soil profile consists generally of artificial fill underlain by alluvial deposits. For the most part, the fill is generally 1 to 3 feet thick except for the berms/levees that were constructed, which range in height predominantly between 3 and 5 feet. The fill derived from onsite soils consists predominantly of medium plastic clay (lean clay with sand and sandy lean clay).

The soils at shallow depth (upper 15 feet) consist predominantly of medium plastic clay with sand and interbeds of sandy lean clay and fat clay. No significant quantity of sand was encountered. The moisture contents are highly variable, ranging from about 11 to 34 percent with an average of about 18¹/₂ percent within the upper 15 feet. However, based on Table 1 presented below, many of the moisture contents are in the range of about 6 to 8 percent above optimum for the soils sampled within the upper 15 feet below existing grade.

Test Pit Number	TP-2	TP-5
Maximum Dry Density (pcf)	103.0	114.0
Optimum Moisture Content (%)	21.2	15.3

Table 1 – Maximum Density Test Results

To aid in the soils classification and to correlate the soil plasticity with the soils expansion, five plasticity index tests (Atterberg Limits) were performed on samples from depths ranging between about 2 and 21 feet. As shown in Table 2, the liquid limits for the tested samples range between about 35 and 81 and the plasticity index between 16 and 55, which indicate material ranging from low to high plasticity.

 Table 2 – Plasticity Test Results

Test Pit/Boring No./Depth	B-2 /21'	B-4 /2'	TP-2 /9'	TP-3 /11'	TP-5 /10'
Liquid Limit	62	35	81	39	35
Plastic Limit	31	17	26	21	19
Plasticity Index	31	18	55	18	16

The soil plasticity, thus the expansion potential, appears to generally increase with depth along with the moisture content. The site soils are generally expansive (EI>20). Table 3 presents the data for eight tests with depths ranging between 1 and 10 feet. These tests indicate expansion index up to 92 with an average of about 60.

Test Pit/Boring No./Depth	B-4 /2'	TP-1 /5'	TP-2 /9'	TP-3 /1'	TP-3 /5'	ГР-3 /10 [;]	TP-5 /6'	ГР-5 /10 ³
Expansion Index (EI)	38	57	92	27	62	85	58	40
Field Moisture (%)	16.4	21.4	33.8	18.3	24.2	20.9	25.4	25.5
Percentage of fines (%)	80	74	90	83	77	69	81	78

Table 3 – Expansion Index Test Results

There is a rough correlation between in situ natural moisture content at depth and expansion index. For the same amounts of fines, site soils with higher moisture and higher plasticity index tend to have higher expansion index.

The corrosivity tests performed indicated that the site soils are generally corrosive to metal. However, the tests performed did not indicate high corrosivity to concrete. The corrosivity test results are summarized in the following Table 4.

Boring	Depth (ft)	Minimum Resistivity (ohm-cm)	рН	Soluble Sulfate Content (ppm)	Soluble Chloride Content (ppm)	
TP-1	2-3	5,130	8.0	21	20	
TP-5	8-8.5	1,690	7.8	135	50	

 Table 4 - Corrosion Test Results

Groundwater

Groundwater seepage was encountered in all the borings. Groundwater was encountered at a depth of about 27 feet in Borings B-1 and B-2 at the north end of the site. Groundwater was encountered at a depth of about $24\frac{1}{2}$ feet near the center of the site and at a depth of about $21\frac{1}{2}$ feet near the southwest end of the site in Boring B-4. The attached Field Exploration Map, Figure A-2, shows the locations of the borings and the corresponding groundwater depths.

Conclusions and Recommendations

Based on the data collected from the field to date, it appears feasible to import material from the East Borrow site to use at the OC Prado site. The shallow soils in the borrow site have some similarity with the shallow soils at the OC Prado site. It appears that with a combination of selective grading (and/or blending), the upper 15 to 17 feet of soils from the borrow site could be imported and used below the proposed building foundations at OC Prado. There are layers of high expansive soils within the upper 15 to 17 feet of subgrade; however, with proper mining and/or mixing, the resulting soil mixtures are anticipated to have expansion index less than 80. Drying back will be required; however, with proper mixing equipment, the moisture conditions should be manageable.

The soils below depths of 15 to 17 feet may be used below the proposed parking lot (preferably below a depth of 2 feet below finished subgrade) and at depths exceeding 4 feet below the building foundations; however, because of their relatively high moisture content and their expansion potential, they will be more difficult to process and to compact, and are less desirable from an engineering performance standpoint.

While the soil expansion index generally increases with depth, it is not uniform across the site and for all the layers. There are lenses and layers of more expansive soils sandwiched between lower expansive soil strata. The Field Exploration Map shows the boring and test pit locations and the zones within each exploration point where soils with expansion index of 80 or greater are deemed present. For quantity estimate purpose, we anticipate that the one to three-foot thick zones that have higher expansive soils will be mixed with the less expansive soils.

We recommend that additional borings and test pits be excavated to further determine the variation of moisture contents and soil expansivity with depth. Because the soil moisture contents increase near the water table, we suggest to limit the borrow site excavation depth to about 5 feet above the water table.

LIMITATIONS

Our work was performed in a manner consistent with that level of care and skill ordinarily exercised by other members of Koury's profession practicing in the same locality, under similar conditions and at the date the services are provided.

CLOSURE

The findings and recommendations presented in this report were based on the results of our field and laboratory investigations, combined with professional engineering experience and judgment. The report was prepared in accordance with generally accepted engineering principles and practice. We make no other warranty, either expressed or implied. Subsurface variations between and beyond the borings/test pits should be anticipated. Koury should be notified if subsurface conditions are encountered, which differ from those described in this report. Samples obtained during this investigation will be retained in our laboratory for a period of 45 days from the date of this report and will be disposed after this period.

Should you have any questions concerning this submittal, or the recommendations contained herewith, please do not hesitate to call our office.

Respectfully submitted,



Distribution:

1. Addressee (2 wet stamped copies + a pdf copy via e-mail) 2.File (B)

REFERENCES

- 1. California Division of Mines and Geological Survey, 1998, Seismic Hazard Zone Report 045 for the Prado Dam 7.5 Minute Quadrangle, California.
- 2. California Division of Mines and Geological Survey, 2003, Earthquake Fault Zones, Prado Dam Quadrangle, May 1, 2003.
- 3. City of Chino General Plan, Safety Element, 2010, Final Report.
- 4. US Army Corps of Engineers, Geotechnical Investigations, Engineering Manual EM 1110-1-1804, dated 8/26/86.
- 5. US Army Corps of Engineers, Laboratory Soils Testing, Engineering Manual EM 1110-2-1906, dated 8/26/86.

APPENDICES

Appendix A: Maps and Plans

Vicinity Map – Figure A-1 Boring Location Map – Figure A-2 Geology Map – Figure A-3

Appendix B: Field Exploratory Boring Logs and Test Pits Borings B-1 through B-4 and Test Pits 1 through 9

Appendix C: Laboratory Test Results

APPENDIX A

Maps and Plans







APPENDIX B

Field Exploratory Boring Logs and Test Pits

KEY TO LOGS

	SOILS CLASSIFICATION										
	MAJOR DIVISIONS	6	GRAPHIC LOG	USCS SYMBOL	TYPICAL NAMES						
	GRAVELS	CLEAN GRAVELS		GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES						
COARSE	UNAVEED	LESS THAN 5% FINES		GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES						
SOILS	MORE THAN 50% OF COARSE	GRAVELS WITH FINES		GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES						
	LARGER THAN NO. 4 SIEVE	MORE THAN 12% FINES		GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES						
	SANDS	CLEAN SANDS		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES						
MORE THAN 50% OF MATERIAL IS	SANDS	LESS THAN 5% FINES		SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES						
LARGER THAN NO. 200 SIEVE SIZE	50% OR MORE OF COARSE	SANDS WITH FINES		SM	SILTY SANDS, SAND-SILT MIXTURES						
	SMALLER THAN NO. 4 SIEVE	MORE THAN 12% FINES		SC	CLAYEY SANDS, SAND-CLAY MIXTURES						
	SILTS AN	ND CLAYS		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY						
FINE GRAINED SOILS				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS						
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY						
	SILTS AN	ND CLAYS		МН	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR GRAVELLY ELASTIC SILTS						
50% OR MORE OF MATERIAL IS SMALLER THAN				СН	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS						
		S SU OR MORE		ОН	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS						
HIGH		SOILS		PT	PEAT AND OTHER HIGHLY ORGANIC SOILS						

GRAIN SIZES									
		SAND		GRA	VEL				
SILT AND CLAT	FINE	MEDIUM	COARSE	FINE	COARSE	COBBLES	BOULDERS		
#200 #40 3/4" 3/4"									
SIEVE SIZES									

KEY TO LOGS (continued)

	SPT/CD BLOW COUNTS VS. CONSISTENCY/DENSITY											
FINE-GRAINED S	OILS (SILT	S, CLAYS, etc.)	GRANULAR SOILS (S	ANDS, GRAVELS	S, etc.)							
CONSISTENCY	*BLC	DWS/FOOT	RELATIVE DENSITY	*BLOWS/F	TOOT							
CONSISTENCT	SPT	CD	RELATIVE DENSIT	SPT	CD							
SOFT	0-4	0-4 0-4 VERY LOOSE		0-4	0-8							
FIRM	5-8	5-9	LOOSE	5-10	9-18							
STIFF	9-15	10-18	MEDIUM DENSE	11-30	19-54							
VERY STIFF	16-30	19-39	DENSE	31-50	55-90							
HARD	over 30 over 39		VERY DENSE	over 50	over 90							

* CONVERSION BETWEEN CALIFORNIA DRIVE SAMPLERS (CD) AND STANDARD PENETRATION TEST (SPT) BLOW COUNT HAS BEEN CALCULATED USING "FOUNDATION ENGINEERING HAND BOOK" BY H.Y. FANG. (VALUES ARE FOR 140 Lbs HAMMER WEIGHT ONLY)

DESCRIPTIVE ADJECTIVE VS. PERCENTAGE								
DESCRIPTIVE ADJECTIVE	PERCENTAGE REQUIREMENT							
TRACE	1 - 10%							
LITTLE	10 - 20%							
SOME	20 - 35%							
AND	35 - 50%							

*THE FOLLOWING "DESCRIPTIVE TERMINOLOGY/ RANGES OF MOISTURE CONTENTS" HAVE BEEN USED FOR MOISTURE CLASSIFICATION IN THE LOGS.

APPRO	APPROXIMATE MOISTURE CONTENT DEFINITION								
DEFINITION	DESCRIPTION								
DRY	Dry to the touch; no observable moisture								
SLIGHTLY MOIST	Some moisture but still a dry appearance								
MOIST	Damp, but no visible water								
VERY MOIST	Enough moisture to wet the hands								
WET	Almost saturated; visible free water								

VIEWHERE Sheet: 1 Of: 1 origing with origination of the set of	(K	DU	RY				Project No. :17-0320 Project Name : East Borrow Site Boring I	lo. : B-1
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8 8 3 5 6 7 6 7	nple	oistu tent	Init V (pcf)	vs pŧ	pth	phic	usc:	Location : See Figure A-2 Date Drille	1 : 05/30/17
1 13.9 7 <th7< th=""></th7<>	San	Con	Dry U	Blov	De	Gra	So (I	Description	Additional Tests
1 13.9 13.9 13.9 13.4 13.4 14.4 14.4 7 7 7 1 <td></td> <td></td> <td></td> <td></td> <td>0</td> <td>7</td> <td></td> <td>FILL:</td> <td></td>					0	7		FILL:	
2 14.4 14.6 104 7	1	13.9						Lean CLAY with SAND; moist, concretions, dark yellowish brown	#200 Wash Fines = 80%
214.414.514.610491014.610491014.610491014.610491014.610410				7				ALLUVIUM:	#200 Wash
3 14.6 104	2	14.4		9 11	L_ - 4	4		Lean CLAY with SAND; very stiff, moist, concretions, yellowish brown with some white	PP = 4.5 tsf
4 16.1 4 6 7 15.6 115 5 5 15.6 115 5 15.6 115 5 115 5 115 5 115 5 115 114 10 10 15 115 114 10 10 15 115 </td <td>3</td> <td>14.6</td> <td>104</td> <td>6 9 10</td> <td></td> <td></td> <td></td> <td>Sandy Lean CLAY; very stiff, moist, abundant caliche, and</td> <td>#200 Wash Fines = 61% PP = > 4 5 tsf</td>	3	14.6	104	6 9 10				Sandy Lean CLAY; very stiff, moist, abundant caliche, and	#200 Wash Fines = 61% PP = > 4 5 tsf
4 18.1 Jase 4/5 15.6 115 4/5 115 4/5 115							CL	concretions, pale yellow with white	
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5 15.6 115 $\begin{bmatrix} 5\\14\\15\\14\\15\\14\\15\\14\\15\\14\\15\\14\\15\\14\\15\\14\\15\\14\\15\\14\\15\\14\\15\\14\\15\\14\\15\\16\\14\\15\\16\\14\\15\\16\\14\\15\\16\\14\\15\\16\\14\\15\\16\\14\\15\\16\\14\\15\\16\\14\\15\\16\\14\\15\\16\\14\\15\\16\\14\\15\\16\\14\\15\\16\\14\\16\\16\\16\\16\\16\\16\\16\\16\\16\\16\\16\\16\\16\\$				6 5	10				PP = 4.5 tsf #200 Wash
6 27.6 1020 1020	5	15.6	115	9 14					Fines = 57% PP = 4.5 tsf
6 27.6 102 10									
6 27.6 102 102 101 10									
6 27.6 Image: constraint of the second					15			Fat CLAY with SAND; firm to stiff, thin layers of sandy silt,	#200 Weeh
7 23.7 102 10 18 18 10 18 10	6	27.6				X	СН	moist, light olive brown with some grayish brown	Fines = 82% PP = 1 tsf
7 23.7 102 10 14 18 10 20 14 18 10 14 18 10 14 18 10 14 14 10 14 Sandy SILT; very stiff, moist, light olive brown with grayish brown, micaceous #200 Wash Fines = 69% 8 31.2 6 8 25 14 10 14 10 14 10 14 Lean to Fat CLAY; stiff moist, yellowish brown #200 Wash Fines = 86% PP=1.5-2.5 tsf 9 31.3 92 7 10 30 14 10 14 End of boring @ 31' 6" Groundwater encountered @ 27' #200 Wash Fines = 86%									
7 23.7 102 10 18 10 18 10 18 ML Sandy SILT; very stiff, moist, light olive brown with grayish brown, micaceous #200 Wash Fines = 69% 8 31.2 6 6 8 2 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1									
7 23.7 102 14 18 Image: Finest and the second secon				10	20		ML	Sandy SILT; very stiff, moist, light olive brown with grayish	#200 Wash
8 31.2 8 31.2 8 25 X Lean to Fat CLAY; stiff moist, yellowish brown #200 Wash Fines = 88% PP=1.5-2.5 tsf 9 31.3 92 7 10 1 1 1 1 9 31.3 92 7 10 1 1 1 1	7	23.7	102	14 18				brown, micaceous	Fines = 69%
8 31.2 8 25 1 1 Lean to Fat CLAY; stiff moist, yellowish brown #200 Wash Fines = 88% PP=1.5-2.5 tsf 9 31.3 92 70 1 1 1 1 1 9 31.3 92 70 1 1 1 1 1 9 31.3 92 70 1 1 1 1 1 1 9 31.3 92 70 14 1 1 1 1 1 1]				
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8 31.2 8 8 P=1.5-2.5 tsf 9 31.3 92 7 10 14 14 9 31.3 92 14 14 14 14 9 35 14 14 14 15-2.5-3.0 tsf 9 14 14 15-1 14 15-1 9 14 14 15-1 14 14 14 14 15-1 14 15-1 14 15 14 15-1 14 15-1 14 16 16 16 16 16 16 17 14 15-1 16 16 16 16 16 16 16 16 16 17 14 15-1 16 16 16 16 16 16 16 16 16 17 14 16 16 16 16 18 16 16 16 16 16 16 16 16	_			6	25				#200 Wash
9 31.3 92 7 10 14 30 #200 Wash Fines = 86% PP=2.5-3.0 tsf Groundwater encountered @ 27'	8	31.2		6 8	-	4	CL/CH		⊢ines = 88% PP=1.5-2.5 tsf
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9 31.3 92 7 10 #200 Wash Fines = 86% PP=2.5-3.0 tsf 9 31.3 92 14 14 14 17 14 14 14 14 14 14 14 15 14 14 14 15 14 15 15 14 15 14 15 14 15 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 17 16 16 16 16 16 16 16 16 16									
9 31.3 92 10 Fines = 86% PP=2.5-3.0 tsf Fines = 86% PP=2.5-3.0 tsf Groundwater encountered @ 27' T 35 T T T 35 T T				7	30				#200 Wash
End of boring @ 31' 6" Groundwater encountered @ 27'	9	31.3	92	10 14	-				Fines = 86% PP=2.5-3.0 tsf
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-(RY RING				Project No. 17-0320 Project Name : East Borrow Site Sheet : 1 O Drilling Method : Hollow Stem 8" Auger	.: B-2 vf:1
Imple No.	Moisture Intent (%)	Unit Weight (pcf)	ws per 6")epth (ft)	ple Location aphic Log	soil Type (USCS)	Sampling Method : Bulk - CD - SPT Ground Eleval Hammer Weight : 140 lbs Drop Height : 30" Drilling Co. : 0 Location : See Figure A-2 Date Drilled :	tion: Geoboden Inc. 5-30-17
Sa	- ວິ	Dry	Blo		Gr	S -	Description	Additional Tests
1	11.1						FILL: Lean CLAY with SAND; stiff, moist, concretions, brown with yellowish brown	#200 Wash Fines = 78%
2	16.8	93	9 6 4			CL	ALLUVIUM: Sandy Lean CLAY; stiff, moist, concretions, yellowish brown with white	#200 Wash Fines = 62% PP=3.5-4.5 tsf
3	22.9	93	1 1 1		X			#200 Wash Fines = 82% PP = 2-2.5 tsf
4	25.0	116	8 14 18			0. (5	Lean to Fat CLAY with SAND; very stiff, moist, concretions, dark yellowish brown with some white	#200 Wash Fines = 85% PP = 4.5 tsf
5	15.5		5 6 11		X	CL/CH		#200 Wash Fines = 81% PP = 4.5 tsf
6	19.3	112	7 11 12			CL	Sandy Lean CLAY; very stiff, moist to very moist, light olive brown/greenish	#200 Wash Fines = 55% PP = 4.5 tsf
7	41.4		3 4 4	20	X		Fat CLAY with SAND; firm, some concretions, thin layers of sandy lean clay, light olive brown	#200 Wash Fines = 83% PP = 1.5 tsf LL = 62 PL = 31
8	29.2	100	5 5 7	25 		СН	stiff, moist to very moist, concretions, light olive brown	#200 Wash Fines = 92% PP = 3-4 tsf
9	31.5			30 - 	X			#200 Wash Fines = 76%
							End of boring @ 31' 6" Groundwater encountered @ 27'	
					Ground	water ^{_}	🗸 🛛 🖉 SPT	

							Project No. 17-0320 Boring N Project Name : East Borrow Site Sheet : 1	o.: B-3 Of :1
mple No.	loisture ntent (%)	Jnit Weight (pcf)	ws per 6"	epth (ft)	ole Location Iphic Log	oil Type USCS)	Drilling Method : Hollow Stem 8" Auger Sampling Method : Bulk - CD - SPT Ground Eler Hammer Weight : 140 lbs Drop Height : 30" Drilling Co. Location : See Figure A-2 Date Drilled	vation: : Geoboden Inc. : 5-30-17
Sa	ō≤	Dry l	Blo	ă	Samp Gra	°S, C	Description	Additional Tests
1	12.7			0 			FILL: Lean CLAY with SAND; trace of gravel, stiff, moist, dark yellowish brown	#200 Wash Fines = 83%
2	19.9		6 8 10		X		ALLUVIUM: Lean CLAY with SAND; very stiff, moist, olive brown with layers of pale yellow to white	#200 Wash Fines = 77% PP = 4.5 tsf
3	21.0	107	7 7 13	5		CL	Sandy Lean CLAY; very stiff, moist to very moist, concretions, olive brown	#200 Wash Fines = 71% PP = 1-1.7 tsf
4	16.5		4 7 11		X			#200 Wash Fines = 58% PP = 4.5 tsf
5	16.0	118	9 14 21					#200 Wash Fines = 61% PP = 3.5 tsf
6	30.5		4 6 7		X	63	Fat CLAY; stiff, moist, to very moist, concretions, light olive brown	#200 Wash Fines = 85% PP = 2.0 tsf
7	29.4	100	6 9 11			Сп	Fat CLAY with SAND; layers of sandy silt, very stiff, moist to very moist, concretions, light olive brown	#200 Wash Fines = 75% PP = 4.5 tsf
8	25.0		5 6 10	25	X	сц/сн	Sandy Lean to Fat CLAY with SAND; very stiff, moist to very moist, brown	#200 Wash Fines = 80% PP=2-4.5 tsf
9	19.8	111	6 12 19	30 -		CL	Lean CLAY with SAND; very stiff, moist, concretions olive yellow	#200 Wash Fines = 75% PP = 4.0 tsf
				35 -			End of boring @ 31' 6" Groundwater encountered @ 24' 6"	
L			1		Groundwa	ater	Bulk CD SPT	X

(K	DU	RY					Project No. :17-0320 Project Name : East Borrow Site Boring No	.: B-4
t	ENG & TE	STING	RING					Sheet : 1 C)f: 1
L_	+	Ħ		<u> </u>	<u> </u>			Drilling Method : Hollow Stem 8" Auger	tion
No.	re (%)	/eigh	r 6"	ft)	catio	Log	e (i	Hammer Weight : 140 lbs Drop Height : 30" Drilling Co. :	Geoboden
ble	oistu tent	nit V (pcf)	ed s	pth (e Loc	ohic	il Tyl	Location : See Figure A-2 Date Drilled :	5-30-17
San	Con	ry Ui	Blow	De	ldme	Grap	Sol (U	Description	Additional
		Δ		0	Ю			FILL:	Tests #200 Wash
1	16.4				\mathbb{X}		CL	Lean CLAY with SAND; stiff, moist to very moist, dark brown	Fines = 80% EI = 38 LL = 35 PL = 17
2	22.8	104	4 7 9		/_\		CL/CH	ALLUVIUM: Lean to Fat CLAY with SAND; stiff, very moist, concretions, very pale brown with olive brown	#200 Wash Fines = 75% PP = 4.5 tsf
3	19.4		4 5 7	5 -	X			Sandy Lean CLAY; stiff, moist, yellowish brown and grayish brown with some white	#200 Wash Fines = 63% PP = 4.5 tsf
4	12.3	121	5 12 19				CI	light olive brown	#200 Wash Fines = 58% PP = 4.5 tsf
5	18.4		5 5 10	10	X		νL		#200 Wash Fines = 52% PP = 4.5 tsf
6	13.8	118	5 22 40	15 <mark>-</mark> - -			SM	Silty SAND; fine, moist, yellowish brown	#200 Wash Fines = 13%
7	35.1	116	3 4 5	20	X		СН	Fat CLAY with SAND; lenses of sandy silt, stiff, very moist, concretions, light olive brown	#200 Wash Fines = 81% PP=1.5-1.75tsf
8	17.1	116	16 11 15	25			сн	Sandy Lean CLAY; very stiff, moist, light olive brown	#200 Wash Fines = 50% PP = 4.5 tsf
9			3 6 30	30	M		SP-SM	Poorly Graded SAND with SILT; fine to medium, wet, grayish brown	#200 Wash Fines = 6%
								End of boring @ 31' 6" Groundwater encountered @ 21' 6"	
				35					
				40	Gr	oundwa	iter	Bulk 🕅 CD 🗖 SPT 🔀	

/	KOURY							Project No. : 17-0320	Test Pit No	.:1
(ENG & TE	INEE	RING					Tojet Name . Last Bollow Site	Sheet:1 O	f: 1
	\checkmark	/	a = 554					Drilling Method : Backhoe		
ċ	(%)	ight	-9	-	tion	bc	<i>c</i>	Sampling Method : Bulk	Ground Elevat	ion:
e N	ture ht (°	We	per	h (ft)	oca	ic Lo	lype cs)	Hammer Weight : Drop Height : I	Gilstrap	
dme	Mois	Unit (pe	SWC	Dept	ple I	aph	oil ⁻	Location : See Figure A-2	Date Drilled :	5-30-17
Se	² °	Dry	Bld		Sam	Gr	S	Description		Additional Tests
				0 _				Few inches of gravel at surface Sandy Lean Clay @ 8"		
				_				ALLUVIUM @ 1.2'		
1	13.7				\mathbb{N}		CL	Sandy Lean CLAY: moist vellowish brown		#200 Wash Fines = 72%
								, ,, ,, ,		Corrosivity
				5						
2	21.4						CL/CH	Sandy Lean to Fat CLAY; moist, stiff, abundant, concretions, yellowish brown with white		Fines = 74% EI = 57
3	15.7			_	\mathbb{X}			Sandy Lean CLAY: mojet stiff caliche vellowish h	prown	#200 Wash
1				_	Ĥ					Filles - 09%
				-	1		CL			
4	14.0			10	\mathbb{X}			Some white, few concretions		#200 Wash Fines = 60%
5	17.0			-	\mathbb{X}			More white, abundant concretions		#200 Wash
				-	Π			End of test pit @ 11' 6"		Fines = 57%
								No groundwater encountered		
				<u> </u>						
				15						
				-						
				-						
				20						
				_						
				_						
				25						
				30 —						
				-						
				-	1					
				-						
				35	1					
				1 -						
				_						
				1 _						
				40	$\left\{ \right\}$					
B								Bulk 🔀 CD	SPT	

1	K		RV	-				Project No. :17-0320 Project Name : East Borrow Site Test Pit No. : 2		
(ENG & TE	INEE	RING		•			Froject Name : East Borrow Sile	eet:1 O1	F:1
	\rightarrow	/						Drilling Method : Backhoe		
o.	%)	ight	.9		tion	bc	é	Sampling Method : Bulk Gro	und Elevat	ion:
e N	ture ht (9	We 5f)	per	h (ft	-oca	ic Lo	CS)	Hammer Weight : Drop Height : Drill	ling Co. : G	ilstrap
Idmi	<u> Nois</u> ntei	Unit (po	SWG	eptl	ple l	aphi	lioi (US	Location : See Figure A-2 Date	e Drilled :	5-30-17
Sa	≥ 0 0	Dry	Blo		Sam	Gr	S	Description		Additional Tests
				0				Fill: high organic content		
1	21.5			_	\mathbb{X}					#200 Wash Fines = 83%
								ALLOVIOM: Lean CLAY with SAND: moist to very moist, dark vello	owish	
_				_	L		CL	brown		
2	15.4			5 —	\approx					#200 Wash Fines = 82%
				_				Fat CLAY with SAND; very moist, stiff to very stiff, trac	ce	
3	21.4			_	\boxtimes			of gravel, abundant concretions, dark yellowish brown		#200 Wash
				_						FILLES - 83%
4	33.8			_	\mathbb{X}		СН	Fat CLAY; moist, stiff, concretions, greenish olive		Fines = 90%
				10-	Ê			Max density = 103.0 pcf		El = 92
								Optimum moisture = 21.	.2%	PL = 26
5	30.6			-	8			Concretions, caliche		#200 Wash Fines = 88%
				_				End of test pit @ 12' 6"		
								No groundwater encountered		
	15									
				20						
				_						
				_						
				25						
				-						
				30 —						
				-						
				-						
				-						
				-						
				35						
					11					
					11					
				40				Bulk CD	SPT	

1	KOURY							Project No. :17-0320 Project Name : East Borrow Site Test Pit No. : 3		
t	ENG & TE	INEE	RING						Sheet:1 O	f :1
_	+	۲.		r	1			Drilling Method : Backhoe	• ·	
lo.	e (%)	eigh	-9 -	÷	atior	bo-	e	Sampling Method : Bulk	ition:	
ole N	stur ent	it Wo	i pei	th (f	Loc	nic L	Typ SCS)	Hammer Weight : Drop Height :	Drilling Co. : C	5_30_17
Sam	Moi	y Un (F	lows	Dep	mple	Srapl	Soil (U;		Date Drinea .	Additional
	-	D	ш	0	Sa	0		Fill: Lean Clay with Sand	Tests	
1	16.3			_				ALT 11//ILIM-		#200 Wash
							CL	Lean CLAY with SAND; stiff, moist, dark, yellow	vish brown	Fines = 83% EI = 27
				-						
								Lean to Fat CLAY with SAND; stiff, moist to ve	ry moist,	
2	24.2				\mathbb{X}		CL/CH	small concretions, yellowish brown		#200 Wash Fines = 77%
										EI=62
				_			CI	Sandy Lean CLAY; stiff, moist, trace concretior	s and	#200 Wash
3								caliche, dark yellowish brown		Fines = 61%
4	20.9			10	Ņ		CL/CH	Sandy Lean to Fat CLAY; stiff to very stiff, very vellowish brown	moist,	Fines = 69% EI = 85
				-						LL = 39 PL = 21
5	19.5 CL							Sandy Lean CLAY; very stiff, moist, caliche, co vellowish brown with rusty brown	ncretions,	#200 Wash Fines = 63%
								End of test pit @ 12' 6"		
	15							No groundwater encountered		
				-						
				-						
				_						
				20	1					
				-						
				_						
				25—						
				_						
				_						
				-						
				-						
				30	1					
					1					
				_	1					
				_	1					
				35						
				-	1					
				-						
				-						
				40 -						
				10	1			Bulk CD	SPT	

1	KOURY							Project No. :17-0320 Project Name : East Borrow Site Test Pit No.			.: 4		
t	ENG & TE	INEE	RING							Sh	neet:1 Of	f:1	
	\rightarrow	-			-			Drilling N	Method : Backhoe				
o.	e (%	ight	-9		ation	og	e	Sampling Method : Bulk Ground Eleva				ation:	
le N	sture int (t W€ cf)	per	th (fi	Loci	ic L	Typ (CS)	Hammer	Weight : Drop Height :	Dri	illing Co. : G	Ilstrap	
amp	Moi: onte	Uni (p	smo	Depi	nple	rapł	Soil (US	Location	1: See Figure A-2	Da	te Drilled :	Additional	
s	ပ	Dry	BI		San	U			Description	(, , , , , , , , , , , , , , , , , , ,		Tests	
				0				Fill:	Lean CLAY with SAND; dark bro	own (topsoil)			
1	17.7			_	\mathbb{X}			ALL	UVIUM:			#200 Wash	
							CL	Lea	n CLAY with SAND; trace of grav	el, stiff, moist,		Fines = 85%	
2	19.6			_	\otimes			cond	cretions, dark yellowish brown			#200 Wash Fines = 84%	
				5 —								1 1103 - 0470	
				_									
3	21.1			_	\otimes			Lea	n to Fat CLAY with SAND; stiff, n	noist to very mo	ist,	#200 Wash Fines = 76%	
								brov	vn with some green	cretions, light of	live		
							сі /сн						
				10			02/011						
							End No g	of test pit @ 13' 6" groundwater encountered					
				15 _					-				
				_									
				_									
				20-									
				25									
				30									
				35-									
				40									
								\bigtriangledown	Bulk	CD	SPT 🗙		

/	KOURY							Project No. :17-0	320		Test Pit No	5 .:5
(ENG & TE	INEE	RING		-				asi bonow Sile		Sheet · 1 0	f • 1
	4	/						Drilling Method :	Backhoe			•••
		ght			u	6		Sampling Metho	d : Bulk		Ground Elevat	tion:
Ŝ	ure (%	Veiç	er 6	(#)	ocati	, Lo	/pe S)	Hammer Weight	: Drop Height	::	Drilling Co. : (Gilstrap
uple	oistı tent	nit V (pcf	d sv	pth	е Го	phic	il Ty JSC	Location : See F	igure A-2		Date Drilled :	5-30-17
San	Con	Dry U	Blov	De	Sampl	Gra	So (L		Description			Additional Tests
		_		0	Ĩ			Fill: Lean C	AY with SAND; dark b	rown (topsoil))	10313
1	16.7			-	\mathbb{X}			Lean CLAY dark yellowis	with SAND; moist to ve h brown	ery moist,	LL = 30 PL = 16	Fines = 86% LL = 30 PL = 16
2	16.9			<u> </u>	\mathbb{X}			ALLUVIUM:				#200 Wash Fines = 80%
				5				Lean CLAY dark yellowis	with SAND; very stiff, n h brown	noist, few con	cretions,	
3	25.4			-	\mathbb{X}			Lean CLAY	with SAND; stiff, moist	to very moist,		#200 Wash
				-	╡┃		CL		ono, canone, dark yellow			Fines = 81% EI = 58
4								Sandy Lean olive brown	CLAY; stiff, moist to ve with white	ery moist, con	cretions, light	#200 Wash Fines = 66%
5	5 25.5							Lean CLAY	with SAND; stiff, moist	, concretions,	very pale	#200 Wash Fines = 78%
									Maximum Dry Optimum m	Density 114.0 oisture 15.3%		LL = 35 PL = 19
6	25.7			_	\mathbb{X}			few concret	ons, light olive brown w	ith white		Fines = 78%
								End of test p	it @ 13' 6"			
	15-							No groundwa	ater encountered			
				_								
				-								
				20								
				25								
				-								
				-	╡┃							
				-	1							
				-	11							
				30	1							
				-	11							
				1 -]							
				1 -								
				35								
				<u> </u>	11							
				-	1							
				-	11							
				-	11							
				40	1							
								\bigtriangledown	Bulk🔯	CD	SPT	

1	KOURY							Project No. :17-0320 Project Name : East Borrow Site Test Pit No. : 6		
t	ENG & TE	STING	RING					Sheet	:1 Of :1	
	+	ž		1	ç			Drilling Method : Backhoe	Flovation	
ġ	re (%)	/eigł	ir 6"	(t	catio	Log	be	Hammer Weight : Drop Height : Drilling	Co. : Gilstrap	
ple	oistu tent	nit V (pcf)	ad s	pth (e Lo	ohic	il Ty ISCS	Location : See Figure A-2 Date Dr	illed : 5-30-17	
San	Cont	u Ui)	Blow	De	ampl	Grap	Sol (U	Description	Additional	
				0	s			Fill	lests	
1	16.2			_	\mathbb{X}			Lean to Fat Clay with SAND; stiff, moist, few concretions,	#200 Wash Fines = 83%	
								very dark brown to dark yellowish brown with white	#200 Weeb	
2	19.8			_	X				Fines = 83%	
3	20.2			5	\mathbb{X}		CL/CH	Sandy Lean to Fat CLAY; stiff, moist to very moist, abundant concretions, light olive brown with pale yellow	#200 Wash Fines = 66%	
4								Lean to Fat CLAY with SAND; stiff, moist to very moist, few concretions, caliche, light olive brown with green	#200 Wash Fines = 82%	
5	5 19.5				8		CL	Sandy Lean CLAY; stiff, moist, caliche, few concretions, li olive brown	ght #200 Wash Fines = 74%	
6	16.7				\mathbb{X}				#200 Wash Fines = 70%	
								End of test pit @ 12' No groundwater encountered		
				15						
				-						
				-						
				20						
				-						
				_						
				_						
				25						
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				30-						
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				-						
				-						
				40						
				*				Bulk 🕅 CD	SPT	

/	KOURY							Project No. :17-0320 Test P	t No. : 7	
(ENG & TE	INEE	RING	-	-			Sheet: 1 Of: 1		
	\downarrow	/	8 - 032C					Drilling Method : Backhoe		
÷	()	ght	-		ion	ğ		Sampling Method : Bulk Ground I	levation:	
e Nc	:ure it (%	Wei f)	oer ((#)	ocat	c Lo	ype (S)	Hammer Weight : Drop Height : Drilling C	o. : Gilstrap	
du	loist nten	Jnit (pc	l sw	epth	ole L	aphi	oil T USC	Location : See Figure A-2 Date Dril	ed: 5-30-17	
Sa	≥ ō C	Dry (Blo	Δ	Samp	Gra	ů,	Description	Additional Tests	
				0			CL	Fill: Lean CLAY with SAND; black		
1 2	16.4 15.1			_	\sim			ALLUVIUM:	Fines = 82% Fines = 78%	
0	00.4							Lean CLAY with SAND; stiff, moist, numerous concretions, dark vellowish brown to dark brown	//000 M/h	
3	20.1								#200 Wash Fines = 83%	
				5 —	11					
4	19.2			-	\boxtimes			Sandy Lean CLAY; stiff, moist, concretions, caliche. light	#200 Wash	
				-			CL	olive brown with green	Fines = 62%	
5	17.8			-	\square				#200 Wash Fines = 61%	
					U					
6	17.6				\mathbb{X}				#200 Wash Fines = 53 %	
				_						
						End of test pit @ 13' No groundwater encountered				
		15-			-					
				_						
				_						
				20						
				25						
					1					
				-	1					
				-	11					
				30						
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				35						
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				40	1					
					1			Bulk CD SI	ـــــــــــــــــــــــــــــــــــــ	

/	KOURY							Project No. : 17-0320 Project Name : East Borrow Site Test Pit No. : 8			
(INEE	RING					Sheet:1 C	Df : 1		
	\rightarrow	/		P				Drilling Method : Backhoe			
ö	(%	ight	-9	_	tion	Бo	0	Sampling Method : Bulk Ground Eleva	tion:		
le N	sture nt ("	t We cf)	per	h (ft	Loca	ic L	Type CS)	Hammer Weight : Drop Height : Drilling Co. :	Gilstrap		
amp	Mois onte	Uni (p	swo	Dept	ple	raph	Soil (US	Location : See Figure A-2 Date Drilled :	5-30-17		
s	Ŭ	Dry	BI	_	San	Ū		Description	Tests		
1	16.1			0			CL	Fill: Lean CLAY with SAND; brown	#200 Wash		
	10.1			_	Â			Lean CLAY with SAND; stiff, moist, few concretions, dark brown to dark yellowish brown	Fines = 86%		
2	16.0	16.0							#200 Wash Fines = 76%		
3	15.9			5	X			Sandy Lean CLAY; stiff, moist, abundant concretions, light vellowish brown with white	#200 Wash Fines = 54%		
							CL				
л								light alive brown with groop	#200 Wash		
4	10.0				Î			light onve brown with green	Fines = 62%		
5	20.3							caliche, calcium carbonate, with rusty brown specs	#200 Wash Fines = 64%		
								End of test pit @ 13' No groundwater encountered			
	15-							···			
				20-							
				_							
				25							
				_							
				30-							
				35							
				40				Bulk 🕅 CD SPT 🗖			

/	KOURY							Project No. :17-0320 Project Name : East Borrow Site Test Pit No. : 9		
(ENG & TE	INEE	RING		ł			Last Bollow Olle	Sheet:1 O	f :1
	\rightarrow	/						Drilling Method : Backhoe		
	(%)	ght	-0		tion	g		Sampling Method : Bulk	Ground Elevat	ion:
N N N	t (%	f) Wei	oer ((#)	ocat	c Lo	ype (S)	Hammer Weight : Drop Height :	Drilling Co. : O	Gilstrap
hplo	loist	bc bc	ws p	epth	le L	phi	oil T USC	Location : See Figure A-2	Date Drilled :	5-30-17
Sai	≥ õ	Jry L	Blo	ă	àmp	Gra	s, C	Description		Additional
				0	Ű		CL	Fill: Lean CLAY with SAND; brown		Tests
1	13.0							ALLUVIUM: Lean Clay with SAND; very stiff, moist, abundar concretions, dark yellowish brown	nt	#200 Wash Fines = 80%
2	20.0			-	\otimes		CL	crumbly, desiccated, abundant caliche, light yello with white	wish brown	#200 Wash Fines = 75%
3	18.8			5 -	\mathbb{X}			Sandy Lean CLAY; stiff to very stiff, moist, some concretions, very pale brown with white	e large	#200 Wash Fines = 72%
4	4 17.4						ML	Sandy SILT; firm to stiff, moist, few concretions, chunk of caliche, light olive brown with green	large	#200 Wash Fines = 70%
5										#200 Wash Fines = 44%
					\square		CL	Sandy Lean CLAY; firm to stiff, moist, few concr	etions	#200 Wash
6	5 14.2 6 19.8 19.8 19.8 19.8 19.8 10 10 10 10 10 10 10 10 10 10							End of test pit @ 13' 6" No groundwater encountered		Fines = 50%
L	I	1		-0	11			Bulk 🕅 CD	SPT	L
APPENDIX C

Laboratory Test Results

MAXIMUM DENSITY TEST REPORT

Curve No.: 4467 Series

Project No.: 17-0320 Project: East Borrow Site Client: Location: TP-5 @ 9.5' - 10.5' Sample Number: 4467 Series

Remarks: Less than 5% Material retained on the #4 Sieve.

MATERIAL DESCRIPTION

Description: Light Grey to Very Pale Brown Silty Clay

USCS: CL

Classifications -Nat. Moist. = Liquid Limit = 35 AASHTO: Sp.G. = Plasticity Index = 16 **Date:** 6/27/17







Checked By:

MAXIMUM DENSITY TEST REPORT

Curve No.: 4467 Series

Project No.: 17-0320 Project: East Borrow Site Client: Location: Tp2 @ 8.5' - 9.5' Depth: 8.5' - 9.5' Permarko: Lage Thep 5% Material Bataire

Remarks: Less Than 5% Material Retained on the #4 Sieve.

USCS:

MATERIAL DESCRIPTION

Description: Olive Grey to Olive Brown Clay

Classifications -Nat. Moist. = Liquid Limit =

AASHTO: Sp.G. = Plasticity Index = % < No.200 = Date: 06/14/17



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GEOTECHNICAL & SEISMIC ENGINEERING, CONSTRUCTION INSPECTION & MATERIALS TESTING SERVICES



May 10, 2018, Revised July 22, 2018 Project No. 17-1024

Mr. John R. Burroughs, LEED AP, President Commerce Construction Co., L.P. 13191 Crossroads Parkway North 6th Floor City of Industry, CA 91746

Subject: Limited Borrow Site Study Borrow Site No. 3 (Export Fill Dirt Site No. 3) Cucamonga Avenue and West County Road City of Chino, CA

Dear Mr. Burroughs:

Presented herein are our preliminary findings and conclusions regarding the suitability of the soils within Borrow Site 3 to be used as engineered fill to balance the grades for the OC Prado site construction located on the southeast corner of Bickmore Avenue and Mountain Avenue, in the City of Chino.

In accordance with the revised Conceptual Grading Plan, the irregular hexagonal-shaped borrow site covers an area of about $44\pm$ acres. The site is bounded by the California Institution for Women to the north, Prado Reservoir Park to the west, vacant land to the south and Cucamonga Avenue to the east. On the east side, the site borders Cucamonga Avenue over a distance of about 2230 feet, extending approximately 910 feet south of the intersection with West County Road. The width of the site is about 850 feet in its middle and 1510 feet in its southern portion that extends about 490 feet in the southerly direction.

A Vicinity Map with approximate ground contour elevations is presented in Appendix A as Figure A-1. The site is located entirely on the west side of Cucamonga Avenue, and the nearest street intersection is Cucamonga Avenue with West County Road.

Field Exploration and Laboratory Testing

The field exploration program for Borrow Site 3 was performed in two phases. The first phase of the field exploration was performed within the northern portion of the site and consisted of four test pits, TP-3 through TP-6, excavated on February 23, 2018. The second phase consisted of excavating thirteen test pits; TP-7 though TP-18 plus TP-15A on April 17, 2018. A rubber tire mounted backhoe was used to excavate the test pits ranging in depths from about 14 to 17 feet for the first phase and from 6 to 9 feet for the second phase. Test Pit 1 and 2 were excavated using a hand auger on April 24, 2018 due to the recent re-seeding and on-going irrigation. The locations of the test pits are shown on the Field Exploration Map, Figure A-2, presented in Appendix A. Bulk samples were obtained from the test pits and hand augering for laboratory testing.

Laboratory tests, including moisture content, #200 sieve wash, expansion index, maximum density, pocket penetrometer and plasticity index were performed to aid in the classification of the materials encountered and to evaluate their engineering properties. The results of pertinent laboratory tests are presented on the test pit logs in Appendix B, and/or in Appendix C.

Site Geology

The site is located within the Upper Santa Ana River Valley, which consists of a series of coalescing alluvial fans formed by streams flowing out of the San Gabriel Mountains to the north. The valley lies within the Peninsular Ranges geomorphic province, which is characterized by alluviated basins, elevated erosion surfaces, and northwest-trending mountain ranges bounded by northwest trending faults. The site, which is located within the Chino Basin, is underlain by sediments deposited by the Santa Ana River and its tributaries such as the Chino Creek.

Morton and Miller (2006) show the site to be underlain by very old alluvial-fan deposits (See Figure A-3 in Appendix A). The sediments observed during the subsurface investigation consisted predominantly of clay at shallow depths.

Surface Site Conditions

The site has at least three entrances from Cucamonga Avenue to the east; one of these entrances is near the intersection of West County Road with Cucamonga Avenue. No buildings were present onsite at the time of our field exploration; however, there are power lines supported on pile foundations crossing the site about 100 feet north of West County Road. There are also remnants of concrete slabs on grade, which were observed in various locations. Portions of the site appear to have abandoned underground utilities. Other portions of the site support irrigation lines that are being used to water the recent seeding and other grass areas. More than one-half of the site was devoid of vegetation at the time of our field exploration and the remainder of the site contained mostly sparse to dense grass vegetation.

The southern portion of the site contains several water storage ponds that range in depth mostly from about 3 to 7 feet. At the time of our site exploration in April 2018, only the ponds located east of Test Pit 17 and northwest of Test Pit 18 contained water (approximately 1 to 3 feet). The ponds appear to have been created by excavating and mounding the native soils around the excavations. There was localized grass areas and low shrubs near the ponds at the time of our second phase of the field exploration.

The northern portion of the site slopes gently to the southwest while the southern portion generally slopes gently to the south. The existing elevations range between about 545 feet at the south end to 566 feet at the northeast corner of the site (NAVD88).

Soil Conditions

The subsurface soil profile consists generally of artificial fill underlain by alluvial deposits. The fill depth is variable, ranging from less than one foot to about 6 feet at the test pit locations. For

the most part, the fill materials are derived from onsite shallow soils and consist generally of lean clay with sand, sandy lean clay, and thin layers of clayey sand and silty sand at or near the surface with localized areas of fat clay. Organic material, including manure, was encountered in Test Pit 15A, which was excavated through a pond berm near the southwest corner of the site.

The alluvium soils consist predominantly of stiff to very stiff, medium to high plastic sandy clay, lean clay with sand, fat clay and sandy silt. Some clayey sand and silty sand layers were encountered below a depth of about 12 feet in some of the deeper test pits.

The soils were generally dry near the surface at the time of the Phase 2 field exploration. Except for organic material, for the soils below a depth of about 1 to 2 feet, the moisture contents of the clay soils are highly variable, ranging from about 9 to $41\frac{1}{2}$ percent with an average on the order of 23 percent. At the time of our field exploration, the silty sand and clayey sand moisture contents ranged from about 3 to $23\frac{1}{2}$ percent with an average of about $12\frac{1}{2}$ percent. Based on the maximum density test performed and prior experience with similar soils, many of the clay sample moisture contents are about 8 to 12 percent above optimum for the soils sampled within the upper 8 feet of the ground surface (see Table 1 and Appendix C for maximum density test results).

The fines contents of the clay soils range from about 50 to 93 percent with an average of about 69 percent while the fine contents of the sands range from about 14 to 44 percent with an average of about $26\frac{1}{2}$ percent. The average relatively low fines contents of the clay soils are attributed to the presence of concretions (hard matter formed by precipitation of mineral cement between particles) observed in many of the clay samples. The pocket penetrometer tests indicate unconfined compression strength on the order of 1 to 4.5 tsf with an average of about 2.8 tsf.

To aid in the soil classification and to correlate the soil plasticity with the soil expansion, one plasticity index test (Atterberg Limits) was performed on a sample of Test Pit 6 at a depth of 8 to 9 feet. As shown in Table 1, the Liquid limit, Plastic Limit and Plasticity Index for the tested sample are 75, 18 and 57 respectively, which indicate a high plasticity soil at that depth for this test pit.

Test Pit Number	TP-6 @ 8 to 9 feet
Maximum Dry Density (pcf)	111.1
Optimum Moisture Content (%)	16.2
Liquid Limit	75
Plastic Limit	18
Plasticity Index	57

Table 1 – Maximum Density and Plasticity Index

The site soil expansion potential ranges from low to very high. Table 2 presents the data for 26 expansion index tests at depths ranging from 1 to 11 feet. These tests indicate expansion index variations from 32 to 208 with an average of about 94. For the 13 tests on samples at depths

between 1 and $4\frac{1}{2}$ feet, the expansion index ranges from about 32 to 100 with an average of approximately 65.

Test Pit No.	Depth	Expansion Index	Field Moisture	Fines Percent
	(feet)		(%)	
*TP-1	2 - 3	64	17.7	76
*TP-1	5 - 6	175	22.4	50
*TP-2	3 - 4	100	21.8	71
*TP-3	1.5 - 2.5	53	17.9	66
*TP-3	4 - 4.5	99	23.7	63
*TP-3	10 - 11	96	25.5	51
*TP-4	3 - 3.5	80	33.8	54
*TP-4	4 - 4.5	56	29.1	60
*TP-5	6 - 7	176	28.4	74
*TP-5	8 - 10	190	31.3	50
*TP-6	1 - 2	32	17.9	56
*TP-6	7 - 8	172	30.6	73
*TP-6	8 - 9	208	30.4	57
TP-7	4 - 4.5	92	18.3	79
TP-7	5.7 - 6.5	101	22.8	68
TP-8	6 - 6.5	60	15.7	83
TP-9	4 - 4.5	62	18.4	65
TP-10	6 - 7	37	25.8	93
TP-11	3.7 - 4.2	32	22.0	50
TP-11	5.5 - 6	50	16.1	50
TP-13	4.75 - 5	100	18.7	53
TP-14	6.7 - 7	40	18.0	82
TP-15	4.2 - 4.7	79	25.0	82
TP-15	5.5 - 6	195	36.2	84
TP-17	4 - 4.5	40	23.4	79
TP-18	4.5 - 5	55	22.8	90

Table 2 – Expansion Index Test Results

*Northern portion of proposed borrow site

We noted that the light-colored clay samples containing concretions tend to have higher expansion index. The expansion potential can change rapidly with depth as shown by two tests on TP-15 for depths of about $4\frac{1}{2}$ and $5\frac{1}{2}$ feet, where the expansion indices are 79 and 195, respectively.

There is a rough correlation between in situ natural moisture content and expansion index. For the same amounts of fines, site clay below the depth of seasonal moisture variation, soils with higher moisture and higher plasticity index tend to have higher expansion potential.

Corrosivity

The corrosivity tests performed indicates that the site soils are generally severely corrosive to metal. However, the tests performed did not indicate high corrosivity to concrete. The corrosivity test results are summarized in the following Table 3.

Boring	Depth (ft)	Minimum Resistivity (ohm-cm)	рН	Soluble Sulfate Content (ppm)	Soluble Chloride Content (ppm)
TP-5	5-6	566	7.7	235	490

Table 3 - Corrosion Test Results

Groundwater

Groundwater seepage was encountered in Test Pit 18 which was excavated within the slope of a pond containing water. The wet soil level in the test pit was at about the pond water level. Groundwater seepage was encountered at a depth of about 13½ feet in Test Pit 3. No seepage was encountered in the other test pits excavated to a maximum depth of 17 feet. Borings should be drilled if the groundwater level needs to be determined.

Conclusions and Recommendations

Based on the data collected from the field to date, it appears feasible to import material from Borrow Site 3 to use at the OC Prado site. However, it appears that on average only the upper 4 to 4½ feet of soils (once well blended and once clearing, grubbing and stripping of the topsoil is complete) could be suitable for foundation. It should be noted that for the southernmost portion of the site, the construction of the ponds has resulted in some of the expansive clay soils to be mixed with the less expansive soils and with some organics. Therefore, some material at shallow depth in the southernmost portion of the site may not be suitable for export to be used as engineered fill. Therefore, observation and testing during export of the material to the OC Prado site is advisable. All organic material, construction debris, and other unsuitable materials should be removed prior to export to the OC Prado site.

During the second phase of field exploration, we noted that the upper one to two feet of soils had low moisture contents due to drying weather conditions. Dry clay soils are undesirable from a geotechnical performance standpoint and require time to absorb moisture. Therefore, the surface conditions should be checked prior to export, and where the moisture contents are not above optimum, we recommend that the soils be pre-moisture conditioned in the borrow site prior to export. For the areas under active irrigation, the irrigation system should be stopped at least 3 to 4 weeks prior to soil export. We anticipate that an excavation plan will be prepared by the project civil engineer. Appropriate setback should be set from existing foundations, slopes and property lines.

LIMITATIONS

Our work was performed in a manner consistent with that level of care and skill ordinarily exercised by other members of Koury's profession practicing in the same locality, under similar conditions and at the date the services are provided.

CLOSURE

The findings and recommendations presented in this report were based on the results of our field and laboratory investigations, combined with professional engineering experience and judgment. The report was prepared in accordance with generally accepted engineering principles and practice. We make no other warranty, either expressed or implied. Subsurface variations between and beyond the test pits should be anticipated. Koury should be notified if subsurface conditions are encountered, which differ from those described in this report. Samples obtained during this investigation will be retained in our laboratory for a period of 45 days from the date of this report and will be disposed after this period.

Should you have any questions concerning this submittal, or the recommendations contained herewith, please do not hesitate to call our office.

M.

Respectfully submitted,

KOURY ENGINEERING & TESTING, INC

ues B. Rov. P **Principal Engineer**

Distribution:

1. Addressee (pdf copy via e-mail) 2.File (B)

NO. 2077 Ex. Date 9/30/



Mehrab Jesmani, PhD, P.E. Project Engineer

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- 3. City of Chino General Plan, Safety Element, 2010, Final Report.
- 4. US Army Corps of Engineers, Soil Investigations, Engineering Manual EM 1110-1-1804, dated 8/26/86.
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APPENDICES

Appendix A: Maps and Plans

Vicinity Map – Figure A-1 Field Exploration Map – Figure A-2 Geology Map – Figure A-3

Appendix B: Field Exploratory Test Pits

Test Pits 1 through 18

Appendix C: Laboratory Test Results

APPENDIX A

Maps and Plans







APPENDIX B

Field Exploratory Test Pits

KEY TO LOGS

SOILS CLASSIFICATION										
	MAJOR DIVISIONS	6	GRAPHIC USCS LOG SYMBOL		TYPICAL NAMES					
	GRAVELS	CLEAN GRAVELS		GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES					
	UNAVEED	LESS THAN 5% FINES		GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES					
SOILS	MORE THAN 50% OF COARSE	GRAVELS WITH FINES		GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES					
	LARGER THAN NO. 4 SIEVE	MORE THAN 12% FINES		GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES					
	SANDS	CLEAN SANDS		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES					
MORE THAN 50% OF MATERIAL IS	SANDS	LESS THAN 5% FINES		SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES					
LARGER THAN NO. 200 SIEVE SIZE	50% OR MORE OF COARSE	SANDS WITH FINES		SM	SILTY SANDS, SAND-SILT MIXTURES					
	SMALLER THAN NO. 4 SIEVE	MORE THAN 12% FINES		SC	CLAYEY SANDS, SAND-CLAY MIXTURES					
	SILTS AN	ND CLAYS		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY					
FINE GRAINED SOILS				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS					
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY					
	SILTS AN	ND CLAYS		МН	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR GRAVELLY ELASTIC SILTS					
50% OR MORE OF MATERIAL IS SMALLER THAN NO, 200 SIEVE SIZE				СН	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS					
		S SU OR MORE		ОН	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS					
HIGH		SOILS		PT	PEAT AND OTHER HIGHLY ORGANIC SOILS					

GRAIN SIZES									
		SAND		GRA	VEL		BOULDERS		
SILT AND CLAT	FINE	MEDIUM	COARSE	FINE	COARSE	COBBLES			
	#200	#40	#10	#4	3/4"	3"	12"		
SIEVE SIZES									

KEY TO LOGS (continued)

SPT/CD BLOW COUNTS VS. CONSISTENCY/DENSITY											
FINE-GRAINED S	OILS (SILT	S, CLAYS, etc.)	GRANULAR SOILS (SANDS, GRAVELS, etc.)								
CONSISTENCY	*BLC	DWS/FOOT	RELATIVE DENSITY	*BLOWS/F	TOOT						
CONSISTENCT	SPT	CD	RELATIVE DENSIT	SPT	CD						
SOFT	0-4	0-4	VERY LOOSE	0-4	0-8						
FIRM	5-8	5-9	LOOSE	5-10	9-18						
STIFF	9-15	10-18	MEDIUM DENSE	11-30	19-54						
VERY STIFF	16-30	19-39	DENSE	31-50	55-90						
HARD	over 30	over 39	VERY DENSE	over 50	over 90						

* CONVERSION BETWEEN CALIFORNIA DRIVE SAMPLERS (CD) AND STANDARD PENETRATION TEST (SPT) BLOW COUNT HAS BEEN CALCULATED USING "FOUNDATION ENGINEERING HAND BOOK" BY H.Y. FANG. (VALUES ARE FOR 140 Lbs HAMMER WEIGHT ONLY)

DESCRIPTIVE ADJECTIVE VS. PERCENTAGE									
DESCRIPTIVE ADJECTIVE	PERCENTAGE REQUIREMENT								
TRACE	1 - 10%								
LITTLE	10 - 20%								
SOME	20 - 35%								
AND	35 - 50%								

*THE FOLLOWING "DESCRIPTIVE TERMINOLOGY/ RANGES OF MOISTURE CONTENTS" HAVE BEEN USED FOR MOISTURE CLASSIFICATION IN THE LOGS.

APPROXIMATE MOISTURE CONTENT DEFINITION								
DEFINITION	DESCRIPTION							
DRY	Dry to the touch; no observable moisture							
SLIGHTLY MOIST	Some moisture but still a dry appearance							
MOIST	Damp, but no visible water							
VERY MOIST	Enough moisture to wet the hands							
WET	Almost saturated; visible free water							

/	KOUPY							Project No. 17-1024 Project Name - Barrow Site 2 Test Pit No. : 1			
(ENG	INEE	RING		- ·			Project Name : Borrow Site 3	Sheet 1 0	o f • 1	
	\leq	/	,					Drilling Method : Hand Auger		·• • ·	
								Sampling Method : Bulk	tion:		
No No	ure t (%	Init (pc	er 6	(ft)	ocat	: Lo S)		Hammer Weight : Drop Height :	Drilling Co. : h	Koury	
nple	oist iten	rry U ght	ws p	spth		phic	oil T USC	Location : See Figure A-2	Date Drilled :	4-24-18	
Sar	Cor	D Wei	Blov	ð	Samp	Gra	Sc Sc	Description	Additional Tests		
1	18.7			0	X		CL	FILL: Lean CLAY with SAND; trace of gravel,	very stiff,	Fines = 79%	
2	17.6				×.					PP = 2.5-3 tsf	
3	17.7 19.5				ð		CL/CH	Lean to Fat CLAY with SAND; trace of gravel,	very stiff,	PP = 3.5 tsf EI = 64	
5	22.4				\otimes			moist, brown with light brown inclusions		Fines = 82% Fines = 82%	
6	22.4			5 —	\otimes					PP = 2.5 tsf Fines = 50%	
7	21.0				\otimes		СН	moist, light brown to pale brown	sum to very sum,	EI = 175	
8	26.2									Fines = 53% Fines = 51%	
								End of test pit の 8'			
				10-				No groundwater encountered			
				_							
				15—							
				-							
				20							
				_							
				_							
				25							
				30 —							
				35—							
				-							
				40							
L				I · •				Bulk 🕅 CD	SPT	1	

1	K		RV	-				Project No. 17-1024 Project Name : Borrow Site 3 Test Pit No. : 2				
(ENG & TE	INEE	RING					Sheet : 1	Of : 1			
	\rightarrow	/	•					Drilling Method : Hand Auger	••••			
ċ	o g u u u u u u u u u u u u u u u u u u							Sampling Method : Bulk Ground Ele	vation:			
e No	ture it (%	Jnit (pc	oer ((ft)	ocat	C C C	ype (S)	Hammer Weight : Drop Height : Drilling Co	Koury			
mp	loist nter	ory L ight	SM	epth	ole L	iude	oil T USC	Location : See Figure A-2 Date Drille	1 : 4-24-18			
Sa	⊆ ⊆ C	Wei	Blo	Δ	Sam	פֿ	ی ۳	Description	Additional Tests			
1	8.2			0	X		SC	FILL: Clayey SAND; fine-coarse, trace gravel, moist, dk browr	Fines = 27%			
2	17.2				X		CL	ALLUVIUM: Lean CLAY with SAND; very stiff, concretions	Fines = 76% PP = 3.0 tsf			
3	20.5) 		CL/CH	Lean to Fat CLAY; very stiff, concretions, moist, light brown	Fines = 84% PP = 3.5 tsf			
4 5	21.0 22.3							Sandy Fat CLAY; stiff to very stiff, concretions, moist, light vellowish brown	Fines = 71% PP = 3.0 tsf			
6	27.5			5 —			СН		Fines = 51%			
7	24.5				\overline{X}		on	Fat CLAY with SAND; concretions, stiff, moist, light yellowish brown to pale brown	Fines = 88%			
8	25.8				$\overline{\mathbb{Z}}$				Fines = 88%			
								End of test pit @ 8'				
				10—				No groundwater encountered				
				15—								
				_								
				20—								
				_								
				25								
				30—								
				35								
				40								
								Bulk 🔀 🛛 CD 🗖 SPT				

KOURY								Projec	t No. 17-102	4 rrow Site 3		т	est Pit No	5. :3
(ENG & TE	INEE	RING					Projec	a wanne : Bo	I OW SILE S		S	heet:1 of	:1
	\rightarrow	/						Drillin	g Method :	Backhoe		Ū		
÷	(%)	if)	- 0		ion	g		Sampl	ling Method	: Bulk		G	round Eleva	tion:
e No	ture it (%	Jnit (pc	oer ((ft)	ocat	c Lo	ype (S)	Hammer Weight : Drop Height : Drilling Co. : C						Gilstrap
npl	lloist nten	Jry L ight	SM	eptł	ple L	ihda	oil T (USC	Locati	i on : See Fig	jure A-2		D	ate Drilled :	2-23-18
Sa	° ≤	L We	Blo	Δ	Sam	Ğ	ŝ				Additional Tests			
1	14.4			0	*			F	ILL: Sandy	_ean CLAY; \	very stiff, brown			Fines = 65% PP = >4.5 tsf
2	17.0				\bigtriangledown		CI	А	LLUVIUM:					#200 Wash
2	17.5						01	S a	andy Lean (Ind light grayi	CLAY ; hard, s sh brown	lightly moist, bro	own to da	rk brown	Fines = 66% EI = 53
3	23.7				*									Fines = 63%
4	21.9			5 —	*			S	andy Lean t	o Fat CLAY;	very stiff, moist,	pale brov	vn	EI = 99 Fines = 53%
F	25 G				×			L	ight olive bro	wn with white	specks			PP = 4-4.5 tsf
Э	20.0													PP = 2.5 - 2.8 tsf
							CL/CH							#200 Wash
6	25.5			10	\mathbb{X}			V	ery moist					Fines = 51% PP = 2.5 tsf
								т	hin layers of	sitly sand				EI = 96
7	31.6				₩.				nin layers of	only build				#200 Wash Fines = 51%
0	41.4			15	~			E	nd of test pit	@ 14'				FINES = 52%
								G	Groundwater	sepage obser	ved @ 13' 6"			
				20										
				25										
				_										
				30										
				35—										
]										
				40										
								∇		Bulk 🔀	CE		SPT 🗙	

KOURY								Project No. 17-1024 Project Name : Borrow Site 3 Test Pit No. : 4			
t	ENG & TE	INEE	RING					Sheet : 1	of :1		
	\searrow							Drilling Method : Backhoe			
·	(%	cf)	.9		tion	g	4	Sampling Method : Bulk Ground Ele	vation:		
e No	ture ht (°	Jnit (po	per	(ft	ocat	c Lo	ype CS)	Hammer Weight : Drop Height : Drilling Co.	: Gilstrap		
Idmi	Aois nter	Jry I ight	SWG	ept	ple L	aphi	oil T (US(Location : See Figure A-2 Date Drilled	1: 2-23-18		
Sa	≥ °S	L We	Blc		Sam	Gra	S C	Description	Additional Tests		
				0				FILL:	<i>"</i>		
1	16.2			-				Sandy Lean CLAY; stiff, moist to very moist, dark brown	#200 Wash Fines = 62%		
2	33.8			_	*			ALLUVIUM:	Fines = 54% FI = 80		
3	29.1				\mathbb{N}			Sandy LEAN to Fat CLAY; concretions, firm, moist to very	#200 Wash		
-				5 _				moist, dark yellowish brown	Fines = 60% EI = 56		
				-				Abundant concretions			
4	18.7			-	\mathbb{X}				#200 Wash Fines = 50%		
5 6	15.6 26.4			-	XXXX		SC	Clavev SAND: trace of gravel. moist. dark vellowish brown	Fines = 30% Fines = 51%		
				10-				Sandy Lean CLAY; stiff, moist, yellowish brown			
				_			CL				
				_							
7	23.6			-	*		SC	Clayey SAND; fine, moist, yellowish brown	#200 Wash Fines = 28%		
8	22.7			15—	※		CL	Sandy Lean CLAY; layers of clayey sand, stiff, moist, yellowish brown	#200 Wash Fines = 51%		
9	23.1				※		SM	Silty SAND; fine to medium, very moist, light olive brown	#200 Wash Fines = 17%		
				_				End of test pit @ 17'			
				_				No groundwater encountered			
				20—							
				_							
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E		RING , INC.					Project No. 17-1024 Project Name : Borrow Site 3	Test Pit No Sheet:1 o	5.: 5
mple No. loisture	ntent (%) Jry Unit ight (pcf)	ws per 6"	epth (ft)	ple Location	aphic Log	oil Type USCS)	Drilling Method : Backhoe Sampling Method : Bulk Hammer Weight : Drop Height : Location : See Figure A-2	Ground Eleva Drilling Co. : (Date Drilled :	tion: Bilstrap 2-23-18
Sa	Kei D Co	Blo	ŏ	Samp	Gra	°,	Description		Additional Tests
1 13	3.2		0 _ - - - - - -	X		CL	FILL: Sandy Lean CLAY; stiff to very stiff, slightly brown	moist, yellowish	#200 Wash Fines = 73% PP = 4.5 tsf
2 25	5.6		5	\mathbb{X}		CL/CH	Lean to Fat CLAY; very stiff, moist, concret	ions, olive brown	Fines = 77% PP=3.5-4.5 tsf
3 28	3.4			×			ALLUVIUM:		#200 Wash Fines = 74% El = 176
4 31	.3		- - - 10			СН	Sandy Fat CLAY; very moist, light olive brow	vn	#200 Wash Fines = 50% EI = 190
5 5. 6 14 7 16	.4 4.7 5.3					SC	Clayey SAND; fine to medium, trace of grav moist, yellowish brown	el, moist to very	Fines = 23% Fines = 19% Fines = 27%
8 16	5.6		15 <u>-</u>	×			Coarser, more gravel		Fines = 14%
							End of test pit @ 17' No groundwater encountered		

$\left($	ENG & TE		RING					Project No. 17-1024 Test Project Name : Borrow Site 3 Sheet	Pit No. :6 :1 of:1
mple No.	loisture itent (%)	ry Unit ght (pcf)	ws per 6"	əpth (ft)	ole Location	phic Log	oil Type USCS)	Drilling Method : Backhoe Ground Sampling Method : Bulk Ground Hammer Weight : Drop Height : Drilling Location : See Figure A-2 Date Date Date Date	d Elevation: J Co. : Gilstrap rilled : 2-23-18
Sar	Con	D Wei	Blov	ă	Samp	Gra	SC SC	Description	Additional Tests
				0	Ц			FILL: Sandy Lean Clay; stiff, brown	#000 M
1	17.9				X		CL	ALLUVIUM: Sandy Lean CLAY; trace of gravel, stiff, brown with light brown inclusions	#200 Wash Fines = 56% El = 32
2	18.0			5 <mark> </mark> - -	8		CL/CH	Lean to Fat CLAY with SAND; trace of gravel, concretion stiff, moist, pale brown	s, #200 Wash Fines = 77%
3	30.6				\mathbb{X}				Fines = 73% PP = 1.5 tsf
4	30.4			 10	X		СН	Sandy Fat CLAY; stiff, very moist, light olive brown	EI = 1/2 Fines = 57% PP = 1.5 tsf EI = 208
5	12.4				*		sc	Clayey SAND; fine to medium, pockets of silty sand, trace gravel, concretions, moist olive yellow	of #200 Wash Fines = 25%
6	15.2				X		SM	Silty SAND; fine, trace of gravel, moist, mottled yellowish	#200 Wash Fines = 19%
7	18.8			15 <u>-</u>	\mathbb{X}			brown and gray	#200 Wash Fines = 14%
								End of test pit @ 16' 6" No groundwater encountered	

$\left($			RING , INC.				Project No. 17-1024 Project Name : Borrow Site 3		Test Pit No Sheet : 1 O).: 7 f:1
ample No.	Moisture Intent (%)	Dry Unit sight (pcf)	ows per 6"	Jepth (ft) Inte Location	aphic Log	Soil Type (USCS)	Drilling Method : Backhoe Sampling Method : Bulk Hammer Weight : Drop H Location : See Figure A-2	eight :	Ground Elevat Drilling Co. : B Date Drilled :	ion: astedo Backhoe 4-17-18
ഗ് 1	- 3 84	M	Blo	Sam C	ษั	<i>"</i>	Descrip	otion		Additional Tests Fines = 26%
2	23.5					CL	ALLUVIUM: Lean CLAY with SAND; moist brown to dark brown	own : to very moist, stiff	to very stiff,	Fines = 79%
3 4 5 6	18.3 22.8 24.1 22.2			5		СН	Sandy Fat CLAY; moist, stiff, a brown	abundant concretio	ns, yellowish	EI = 92 Fines = 79% EI = 101 Fines = 68% Fines = 51%
6	22.2			$ \begin{array}{c} - 1 \\ - 1 \\ 10 \\ - 1 \\$			End of test pit @ 8' 6" No groundwater encountered			Fines = 67%
		-			-		Bulk 🔀	CD	SPT 🗙	

	ENG	DU IN EE STING	RING.				Project No. 17-1024 Project Name : Borrow Site 3 Sheet Drilling Method : Backhoe	Pit No. : 8 :1 Of :1
ample No.	Moisture Intent (%)	Dry Unit ight (pcf)	ows per 6")epth (ft)	nple Location aphic Log	soil Type (USCS)	Sampling Method : BulkGroundHammer Weight :Drop Height :DrillingLocation : See Figure A-2Date D	J Elevation: J Co. : Bastedo Backhoe rilled : 4-17-18
Sa	° م د	I We	Blc		Gra	ω -	Description	Additional Tests
1	15.8			0	*		FILL: Sandy Lean CLAY; stiff, moist, trace of gravel, dark brown	#200 Wash Fines = 65%
2 3	17.9 18.3				×		ALLUVIUM: Lean CLAY with SAND; firm to stiff, moist to very moist, o	#200 Wash Fines = 81% PP = 1.0 tsf Jark Fines = 79%
4	25.5			5	8	CL	brown and black	PP = 1.5 tsf Fines = 83%
5 6	21.8 15.7							Fines = 62% Fines = 62% Fines = 1.75 tsf
7	28.6						End of test pit @ 8' 6" No groundwater encountered	Fines = 62%

		DU INEE STING	RING.					Project No. 17-1024 Project Name : Borrow Site 3 Sheet Drilling Method : Backhoe	Pit No.: 9 :1 Of:1
ample No.	Moisture Intent (%)	Dry Unit sight (pcf)	ows per 6"	Jepth (ft)	iple Location	aphic Log	soil Type (USCS)	Sampling Method : BulkGroundHammer Weight :Drop Height :DrillingLocation : See Figure A-2Date Drilling	Elevation: Co. : Bastedo Backhoe iilled : 4-17-18
ŝ	- °	We	Bl(Sam	ษั		Description	Additional Tests
1 2	4.8 5.4			0	×		SM	FILL: Silty SAND; fine to coarse, trace of gravel, moist, dark yellowish brown	Fines = 20% Fines = 19%
3	17.5				\otimes		CL	ALLUVIUM: Lean CLAY with SAND; stiff to very stiff, moi very dark brown	st, Fines = 77%
4	18.4				\mathbb{X}		CL/CH	Sandy Lean to Fat CLAY; stiff, moist to very moist, minor concretions. dark gravish brown	Fines = 65%
5 6 7	21.8 34.7			5 - - - -	×		СН	Sandy Fat CLAY; stiff to very stiff, moist, concretions, pale brown with reddish gray and white	Fines = 50% PP = 4.5 tsf Fines = 70% #200 Wash Fines = 50%
				$ \begin{array}{c} 10 \\ - \\ 10 \\ - \\ - \\ 15 \\ - \\ 20 \\ - \\ - \\ 25 \\ - \\ - \\ 30 \\ - \\ - \\ - \\ - \\ - \\ - \\ - \\ - \\ - \\ -$				End of test pit @ 9' No groundwater encountered	SPT

Uniting Method: Eachbook Visition Uniting Method: Eachbook Visition Visition Visition Visition Visition Visition Visition Visition Visition <	E			RING	,	· .		Project No. 17-1024 Project Name : Borrow Site 3 She	eet:1 Of:1
5 -3 </th <th>mple No.</th> <th>noisture ntent (%)</th> <th>Dry Unit ight (pcf)</th> <th>ws per 6"</th> <th>epth (ft)</th> <th>ple Location aphic Log</th> <th>oil Type USCS)</th> <th>Drilling Method : Backhoe Sampling Method : Bulk Gro Hammer Weight : Drop Height : Drill Location : See Figure A-2 Date</th> <th>Dund Elevation: Iling Co. : Bastedo Backhoe te Drilled : 4-17-18</th>	mple No.	noisture ntent (%)	Dry Unit ight (pcf)	ws per 6"	epth (ft)	ple Location aphic Log	oil Type USCS)	Drilling Method : Backhoe Sampling Method : Bulk Gro Hammer Weight : Drop Height : Drill Location : See Figure A-2 Date	Dund Elevation: Iling Co. : Bastedo Backhoe te Drilled : 4-17-18
1 8.0 3 6.1 3 6.8 7 22.6 SC FillL: Clayey SAND; hard, lumps of sandy clay, trace of fines = 05%, primes = 05\%, primes =	Sa	ō ≤ C	Wei	Blo	Ō	Sam Gra	ů,	Description	Additional Tests
2 16.1	1	8.0			0	×	SC	FILL: Clayey SAND; hard, lumps of sandy clay, trace of gravel, slightly moist, brown	of #200 Wash Fines = 30%
4 27.6 5 25.8 CL Lean CLAY; trace of concretions, stiff, moist, dark gray and dark browninsh gray Filmes = 33%, EL = 37, PP = 1.5 kiff 7 22.6 1 2 stiff to very stiff, gray with while specs Filmes = 23%, PP = 1.5 kiff 10 10 10 10 End of test pit @ 8' No groundwater encountered Filmes = 23%, PP = 2.2.3 kiff 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10	2	16.1 16.8				×		ALLUVIUM: Sandy Lean CLAY; stiff, moist, trace of gravel and wo dark brown	Fines = 69% PP = 2.5 tsf Fines = 72% PP = 3.5 tsf
7 22.6 Fines = 00% 10 10 10 End of test pit @ 8 No groundwater encountered	4 : 5 :	27.6 25.8			5 -	×	CL	Lean CLAY; trace of concretions, stiff, moist, dark gray dark browninsh gray	y and Fines = 93% Fines = 93% EI = 37 PP = 1.5 tsf
End of test pit @ 8' No groundwater encountered	7	22.6			_	×		stiff to very stiff, gray with white specs	Fines = 90%
					$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			End of test pit @ 8' No groundwater encountered	PP = 2.5-3 tsf

$\left($	ENG		RING					Project No. 17-1024 Project Name : Borrow Site 3 Drilling Method : Backhoe	Test Pit N Sheet : 1	lo.: 11 Of:1
Imple No.	Moisture Intent (%)	Dry Unit ight (pcf)	ws per 6"	lepth (ft)	ple Location	aphic Log	soil Type (USCS)	Sampling Method : Bulk Hammer Weight : Drop Height : Location : See Figure A-2	Ground Elev Drilling Co. Date Drilled	vation: Bastedo Backhoe : 4-17-18
Sa	≥ °°	I We	Blc		Sam	Ğ	S -	Description		Additional Tests
1	5.6			0	*		CL/CH	FILL: Sandy Lean to Fat CLAY; hard, trace of gra yellowish brown	avel, dry,	#200 Wash Fines = 66% PP = 2.5 tsf
2	8.3				×		SC	ALLUVIUM: Clayey SAND; organics, wood inclusi light, dry, gray	ons, very	#200 Wash Fines = 27%
3 4	22.0 23.0			5	X		CL	Sandy Lean CLAY; concretions, moist to very moi brown, yellowish brown	ist, mottled	Fines = 50% EI = 32 Fines = 68%
5 6	21.0 16.1				XXX		СН	Sandy Fat CLAY; concretions, stiff, moist, light bro	own to	Fines = 52% PP = 4.5 tsf Fines = 50% EI = 50
7 8	22.5 13.9				※ ※		SC	Clavev SAND: concretions. moist. vellow		Fines = 66% Fines = 38%
				$ \begin{array}{c} - \\ 10 \\ -$				End of test pit @ 8' 6" No groundwater encountered		

$\left($	ENG	DU INEE STING	RING.		-			Project No. 17-1024 Project Name : Borrow Site 3 Drilling Method : Backhoe	Test Pit N Sheet : 1	lo.: 12 Of :1
ample No.	Moisture Intent (%)	Dry Unit ∍ight (pcf)	ows per 6"	Jepth (ft)	ple Location	aphic Log	Soil Type (USCS)	Sampling Method : BulkDrop Height :Hammer Weight :Drop Height :Location : See Figure A-2	Ground Elev Drilling Co. Date Drilled	ation: Bastedo Backhoe : 4-17-18
š	- ö	Ň	Ble		Sam	ē	0)	Description		Additional Tests
1	7.0			° _	※		SC	FILL: Clayey SAND; trace of gravel, dry, brown		#200 Wash Fines = 34%
2 3	14.9 10.9				X X		CL	ALLUVIUM: Sandy Lean CLAY; trace of gravel, stiff to very stiff slightly moist, mottled brown, yellowish brown to da	f, moist to ark brown	Fines = 74% Fines = 61% PP = 4.5 tsf
	5 — СН						СН	Sandy Fat CLAY; stiff to very stiff, moist, yellowish some brown	brown with	
				$ \begin{array}{c} - \\ - \\ 10 \\ - \\ - \\ 10 \\ - \\ - \\ - \\ 10 \\ - \\ - \\ - \\ - \\ - \\ - \\ - \\ - \\ - \\ -$				End of test pit @ 8' 0" No groundwater encountered	SPT	

			RING				Project No. 17-1024 Project Name : Borrow Site 3 Shee Drilling Method : Backhoe	tPitNo et:1Of	.: 13 ::1
Imple No.	Moisture Intent (%)	Dry Unit ight (pcf)	ws per 6")epth (ft)	aphic Log	toil Type (USCS)	Sampling Method : BulkGrounHammer Weight :Drop Height :Location :See Figure A-2Date I	nd Elevati ng Co. : Ba Drilled :	on: astedo Backhoe 4-17-18
Sa	ຼ ິ ບິ	I We	Blo		G	0	Description		Additional Tests
1	14.7			0	*	SC	FILL: Clayey SAND; moist, dark yellowish brown		#200 Wash Fines = 39% Fines = 68%
2 3 4	20.5 17.8					CL	ALLUVIUM: Sandy Lean CLAY; minor concretions, stiff, moist, brown black	n to	#200 Wash Fines = 71% PP = 3.2 tsf Fines = 86% PP = 2.5 tsf
5 6	18.7 28.7			5	8	СН	Sandy Fat CLAY; stiff, concretions, moist, white specs, yellowish brown and grayish brown		Fines = 53% PP = 1.5 tsf EI = 100 Fines = 74% PP = 2-2.5 tsf
7	30.8			$\begin{array}{c} & & & \\ & & & & \\ & & & \\ & & & \\ & & & \\ &$			pale brown End of test pit @ 8' 0" No groundwater encountered	SPT	Fines = 71%

$\left($		DU INEE STING	RY RING				Project No. 17-1024 Project Name : Borrow Site 3 Drilling Method : Backhoe	Test Pit N Sheet : 1	lo. : 14 Of :1
ample No.	Moisture Intent (%)	Dry Unit sight (pcf)	ows per 6"	Jepth (ft)	aphic Log	soil Type (USCS)	Sampling Method : BulkDrop Height :Drop Height :Hammer Weight :Drop Height :Drop Height :Location : See Figure A-2Drop Height :	Ground Elev Drilling Co. Date Drilled	ation: Bastedo Backhoe : 4-17-18
ŝ	- °	W	Blc		Ū	0)	Description		Additional Tests
1	3.0				3	SC	FILL: Clayey SAND; trace of gravel, dry, yellowish brown		#200 Wash Fines = 26%
2	29.6						ALLUVIUM: Sandy Lean CLAY; stiff, moist to very moist, brown	n to black	Fines = 86% PP = 1.5 tsf
3	29.0			5	8	CL			Fines = 84%
4	18.0 20.8				8		become brownish gray		PP = 2.5 tsi Fines = 82% EI = 40 PP = 2.5 tsf Fines = 81%
5	20.8			$\begin{array}{c} & & \\ & & \\ 10 \\ & & \\ 10 \\ & & \\ 10 \\ \\ 10 \\ \\ 10$			End of test pit @ 8' 0" No groundwater encountered	SPT	Fines = 81%

$\left($	ENG & TE		RY RING					Project No. 17-1024 T Project Name : Borrow Site 3 S Drilling Method : Backhoe	Fest Pit No	f:1
mple No.	Moisture ntent (%)	Dry Unit ight (pcf)	ws per 6"	epth (ft)	ple Location abhic Log	0	ioil Type (USCS)	Sampling Method : BulkGHammer Weight :Drop Height :DLocation : See Figure A-2D	Fround Elevat Drilling Co. : B Date Drilled :	ion: astedo Backhoe 4-17-18
Sa	≥ ° °	I We	Blc		Sam Gra		s -	Description		Additional Tests
1	9.3				*			ALLUVIUM: Lean CLAY with SAND; very stiff, slightly moist, mo yellowish brown	ottled	#200 Wash Fines = 83%
2	13.6				×		CL	Sandy Lean CLAY; very stiff, slightly moist, grayish with white	brown	Fines = 73%
3	25.0			5 —	8			Lean CLAY with SAND; stiff to very stiff, moist, min concretions, light yellowish brown	ior	#200 Wash Fines = 82% EI = 79
4	36.2				×		СН	Fat CLAY with SAND; stiff to very stiff, moist to very yellowish brown	y moist,	Fines = 84% El = 195
5	17.8						SC	Clayey SAND; fine, very moist, gray		Fines = 36%
				10				End of test pit @ 8' 5" ho groundwater encountered	SPT	

		DU INEE STING	RY RING					Project No. 17-1024 Test Pit N Project Name : Borrow Site 3 Sheet : 1 Drilling Method : Backhoe Sheet : 1	o.: 15A Of :1
Imple No.	Moisture Intent (%)	Dry Unit ight (pcf)	ws per 6")epth (ft)	ple Location	aphic Log	soil Type (USCS)	Sampling Method : BulkGround ElevHammer Weight :Drop Height :Drilling Co. :Location : See Figure A-2Date Drilled	ation: Bastedo Backhoe 4-17-18
Sa	ိပိ	l We	Blc		Sam	Ğ	S -	Description	Additional Tests
1	12.9			0	×		CL	Test pit excavated on top of pond berm FILL: Sandy Lean CLAY; stiff, moist, yellowish brown	#200 Wash Fines = 62%
2 3	44.0 36.6			- - - 5 -	×		CL/OL	Sandy Lean CLAY with Organic Material; soft, moist, dark brown with reddish brown	Fines = 55% #200 Wash Fines = 63% PP = 1.5 tsf
4	8.7	8.7					CL	ALLUVIUM: Lean CLAY with SAND; trace of gravel, stiff, moist, vellowish brown	#200 Wash
				$\begin{array}{c c} - & - & - \\ 10 & - & - & - \\ 10 & - & - & - \\ 15 & - & - & - \\ 20 & - & - & - \\ 20 & - & - & - \\ 25 & - & - & - \\ 30 & - & - & - \\ 30 & - & - & - \\ 30 & - & - & - \\ 30 & - & - & - \\ 30 & - & - & - \\ 30 & - & - & - \\ 40 & - & - \\ 4$				End of test pit @ 7' 6" No groundwater encountered	

ENGINEERING TESTING, INC.							Project No. 17-1024 Project Name : Borrow Site 3	Test Pit No. : 16	
							Drilling Method : Backhoe Sampling Method : Bulk Ground E		Of:1 vation:
nple No.	oisture tent (%	ry Unit ght (pcf	vs per 6	pth (ft) le Locati	phic Lo	il Type JSCS)	Hammer Weight : Drop Height : Location : See Figure A-2	Drilling Co. Date Drilled	Bastedo Backhoe : 4-17-18
San	Con	Con Con Veiç Blow		De	Gra	Cr So	Description		Additional
1	9.2				2	CL	ALLUVIUM: Lean CLAY with SAND; hard, slig brown to dark brown	ntly moist,	#200 Wash Fines = 79%
2	11.9			<u>*</u>			Sandy Lean CLAY; stiff, dry, mottled, brown with white		Fines = 66%
3	24.6			5					Fines = 65%
4	32.5			СН		СН	Sandy Fat CLAY; stiff, concretions, moist to very moist, light olive brown		Fines = 65%
5	25.0			<u>-</u> X	(Fines = 68% PP = 2.5 tsf
				$\begin{array}{c c} & & & \\ & & & \\ 10 \\ 10 \\ 11 \\ 10 \\ 11 \\ 11$			End of test pit @ 8' No groundwater encountered		
				40					
							Bulk	SPT	X
Test Pit Log

KOURY ENGINEERING & TESTING, INC.							Project No. 17-1024 Project Name : Borrow Site 3	Test Pit N Sheet : 1	lo. : 17 Of:1
nple No.	oisture itent (%)	ry Unit ght (pcf)	vs per 6"	spth (ft) le Location	phic Log	oil Type USCS)	Drilling Method : Backhoe Sampling Method : Bulk Hammer Weight : Drop Height : Location : See Figure A-2	Ground Elev Drilling Co.	ration: Bastedo Backhoe : 4-17-18
Sar	Cor	D Wei	Blov	Samp	Gra	SC	Description		Additional Tosts
1	4.1			○_ ×		SC	FILL: Clayey SAND; trace of gravel, slightly mois brown	st, yellowish	#200 Wash Fines = 44%
2 3	19.1 23.4					CL	ALLUVIUM: Lean CLAY with SAND; stiff, moist, light brow	'n	Fines = 84% PP = 2.75 tsf #200 Wash Fines = 79% EI = 40
4	26.6					СН	Fat CLAY with SAND; soft to stiff, concretions	, pale brown	#200 Wash Fines = 76%
				10			End of test pit @ 8' ho groundwater encountered	SPT	

Test Pit Log

ENGINEERING & TESTING, INC.							Project No. 17-1024 Project Name : Borrow Site 3 Sheet : 1 O Drilling Method : Backhoe	5.: 18 f:1
mple No. loisture ntent (%)	bry Unit ight (pcf)	ws per 6"	epth (ft)	ple Location	aphic Log	oil Type USCS)	Sampling Method : BulkGround ElevalHammer Weight :Drop Height :Drilling Co. : ELocation : See Figure A-2Date Drilled :	t ion: Bastedo Backhoe 4-17-18
Co ≤ Sa	Wei	Blo	Ō	Sam	Gra	s,)	Description	Additional Tests
1 28.0 2 26.2 3 18.0			0			CI	FILL: Sandy Lean CLAY; stiff, moist, very dark brown	Fines = 72% PP= 2.5-3.5 tsf Fines = 73% Fines = 60
4 21.7				×		0L	ALLUVIUM: Sandy Lean CLAY: very stiff. moist. dark gray	Fines = 64%
5 22.8			5 —	×			Lean CLAY with SAND; very stiff, moist, dark gray	Fines = 90% EI = 55
			$\begin{array}{c c c c c c c c c c c c c c c c c c c $				End of test pil @ 6 Wet soils encountered at 6	

APPENDIX C

Laboratory Test Results

	1						•		
Location/ Elevation	TP7 @	4' - 4.5'	TP7 @ 5	.75' - 6.5'	TP9 @	4' - 4.5'			
USCS Symbol	USCS Symbol CH / CL			/ CL	CH	/ CL			
Normal Load (psf)	mal Load (psf) 144			14	14	4			
SAMPLE CONDITION	Initial	Final	Initial	Final	Initial	Final			
Wt Specimen & Ring (gr)	761.380		703.070		742.100				
Wt. of ring (gr)	367.47		364.16		<u>366.64</u>				
Wt. Specimen (gr)	393.910		338.910		375.460				
Specimen diameter (in)	4.010		4.010		4.010				
Specimen radius (cm)	5.09		5.09		5.09				
Area of Specimen (cm ²)	81.479		81.479		81.479				
Init. Spec. height (in)	1.0020	N/A	0.9993	N/A	<u>1.0020</u>	N/A			
Height change (final)(in)	N/A	0.0926	N/A	0.1006	N/A	0.0623			
Adjusted Spec.height(in)	1.00	0.9094	1.00	0.8987	1.00	0.9397			
" " (cm)	2.545	2.310	2.538	2.283	2.545	2.387			
Specimen Volume (cm ³)	207.371		206.812		207.371				
Moist Density (pcf)	118.59		102.31		113.03				
MOISTURE CONTENT									
Wt. moist soil+tare(gr)	126.54	126.54	130.33	130.33	125.87	125.87			
Wt. dry soil+tare(gr)	115.59	115.59	113.23	113.23	113.23	113.23			
Wt. of tare(gr)	19.64	19.64	19.71	19.71	19.74	19.74			
Wt. dry soil (gr)	95.95	95.95	93.52	93.52	93.49	93.49			
Wt. of water (gr)	10.95	10.95	17.10	17.10	12.64	12.64			
M/C (%)	11.41	11.41	18.28	18.28	13.52	13.52			
DRY DENSITY (pcf)	106.4		86.5		99.6				
% Saturation* (48%-52%)	52.8		52.0		52.7		=		
*Assumes Gs =	2.7		2.7		2.7				
EXPANSION INDEX =	92		101		62				
Potential Expansion (per ASTM 4829-08)	High		High		Medium				-
			Project Name:				Project No.: 17-1021	Run by: MFP	Lab:
\forall				Borrow	Site #2		Date: 4/25/18	QA:	S

				EXPANS	ION INDEX TE	STS		
			DENSITY	AND MOIST	URE CONTEN	T DATA -	EITEST	
Location/ Elevation	TP8 @	6' - 6.5'	TP1	0 @ 6' - 7'	TP14 @	6.5' - 7'		
USCS Symbol	C	L		CL	C	L		
Normal Load (psf)	14	44	•	144		14		
SAMPLE CONDITION	Initial	Final	Initial	Final	Initial	Final		
Vt Specimen & Ring (gr)	752.450		718.35	D	762.070			
Wt. of ring (gr)	367.45		364.18		366.65			
Wt. Specimen (gr)	385.000		354.170)	395.420			
Specimen diameter (in)	4.010		4.010		4.010			
Specimen radius (cm)	5.09		5.09		5.09			
Area of Specimen (cm ²)	81.479		81.479		81.479			
Init. Spec. height (in)	1.0020	N/A	0.9993	N/A	<u>1.0020</u>	N/A		
Height change (final)(in)	N/A	0.0606	N/A	0.0369	N/A	0.0404		
Adjusted Spec.height(in)	1.00	0.9414	1.00	0.9624	1.00	0.9616		
, , , , , , , , , , , , , , , , , , ,	0.545	0.004	0.500	0.444	0.545	0.440		
(CM)	2.345	2.391	2.538	∠.444	2.545	Z.44Z		
Specimen Volume (cm [°])	207.371		206.812	<u> </u>	207.371			
Moist Density (pcf)	115.91		106.91		119.04			
MOISTURE CONTENT								
Wt. moist soil+tare(gr)	132.38	132.38	136.31	136.31	148.38	148.38		
Wt. dry soil+tare(gr)	119.95	119.95	122.87	122.87	135.41	135.41		
Wt. of tare(gr)	19.71	19.71	31.57	31.57	17.30	17.30		
Wt. dry soil (ar)	100.24	100.24	91.30	91.30	118.11	118.11		
Wt. of water (ar)	12.43	12.43	13.44	13.44	12.97	12.97		
M/C (%)	12.40	12.40	14.72	14.72	10.98	10.98		
	-	-						
DRY DENSILY (pct)	103.1		93.2		107.3			
% Saturation* (48%-52%)	52.8		49.1		51.9			
*Assumes Gs =	2.7		2.7		2.7			
EXPANSION INDEX =	00		37		40			
(per ASTM 4829-08)	Medium		Low		Low			
KOURY			Project Nan	ne:			Project No.: 17-1021	F
A TESTING, INC.				Borrow	Site #2		Date: 4/27/18	Q

			· · ·					
Location/ Elevation	TP11 @	3.7' - 4.3'	TP11 @ :	5.5' - 6.0'				
USCS Symbol	C	Ľ	CL /	СН				
Normal Load (psf)	14	44	14	4				
SAMPLE CONDITION	Initial	Final	Initial	Final				
Wt Specimen & Ring (gr)	716.340		<mark>743.890</mark>					
Wt. of ring (gr)	367.47		<mark>364.17</mark>					
Wt. Specimen (gr)	348.870		379.720					
Specimen diameter (in)	4.010		4.010					
Specimen radius (cm)	5.09		5.09					
Area of Specimen (cm ²)	81.479		81.479					
Init. Spec. height (in)	1.0020	N/A	0.9993	N/A				
Height change (final)(in)	N/A	0.0321	N/A	0.0502				
Adjusted Spec.height(in)	1.00	0.9699	1.00	0.9491				
" " (cm)	2.545	2.464	2.538	2.411				
Specimen Volume (cm ³)	207.371		206.812					
Moist Density (pcf)	105.03		114.63					
MOISTURE CONTENT								
Wt. moist soil+tare(gr)	142.42	142.42	133.92	133.92				
Wt. dry soil+tare(gr)	125.20	125.20	120.63	120.63				
Wt. of tare(gr)	19.62	19.62	17.33	17.33				
Wt. dry soil (gr)	105.58	105.58	103.30	103.30				
Wt. of water (gr)	17.22	17.22	13.29	13.29				
M/C (%)	16.31	16.31	12.87	12.87				
DRY DENSITY (pcf)	90.3		101.6					
% Saturation* (48%-52%)	50.8		52.7					
*Assumes Gs =	2.7		2.7					
EXPANSION INDEX =	32		50					
(per ASTM 4829-08)	Low		Medium					
KOURY EVELIMINE TIME			Project Name:	Borrow Site	#2	Project No.: 17-1021 Date: 4/23/18	Run by: MFP QA:	Lab: 18-0023 Series

Location/ Elevation	TP13 @	4.75' - 5'				
USCS Symbol	СН	/ CL				
Normal Load (psf)	14	44				
SAMPLE CONDITION	Initial	Final				
Vt Specimen & Ring (gr)	749.650					
Wt. of ring (gr)	366.71					
Wt. Specimen (gr)	382.940					
Specimen diameter (in)	4.010					
Specimen radius (cm)	5.09					
area of Specimen (cm ²)	81.479					
Init. Spec. height (in)	1.0020	N/A				
leight change (final)(in)	N/A	0.0998				
djusted Spec.height(in)	1.00	0.9022				
" " (cm)	2.545	2.292				
pecimen Volume (cm ³)	207.371					
Moist Density (pcf)	115.29					
MOISTURE CONTENT						
Wt. moist soil+tare(gr)	171.93	171.93				
Wt. dry soil+tare(gr)	154.80	154.80				
Wt. of tare(gr)	19.71	19.71				
Wt. dry soil (gr)	135.09	135.09				
Wt. of water (gr)	17.13	17.13				
M/C (%)	12.68	12.68				
DRY DENSITY (pcf)	102.3					
% Saturation* (48%-52%)	52.9	-	-			
*Assumes Gs =	2.7					
EXPANSION INDEX =	100					
(per ASTM 4829-08)	High					
ENGINEERING TESTING, INC.			Project Name: Borrow Site #2	Project No.: 17-1024 Date: 5/1/18	Run by: MFP QA:	Lab:

	I						_
cation/ Elevation	TP-15 @	4.2' - 4.7'					
USCS Symbol	C	L					
Normal Load (psf)	14	44					
SAMPLE CONDITION	Initial	Final					
Vt Specimen & Ring (gr)	679.610						
Wt. of ring (gr)	366.65						
Wt. Specimen (gr)	312.960						
Specimen diameter (in)	4.010						
Specimen radius (cm)	5.09						
Area of Specimen (cm ²)	81.479						
Init. Spec. height (in)	1.0015	N/A					
leight change (final)(in)	N/A	0.0788					
djusted Spec.height(in)	1.00	0.9227					
" " (cm)	2.544	2.344					
Specimen Volume (cm ³)	207.268						
Moist Density (pcf)	94.26						
MOISTURE CONTENT							
Wt. moist soil+tare(gr)	128.75	128.75					
Wt. dry soil+tare(gr)	110.26	110.26					
Wt. of tare(gr)	19.72	19.72					
Wt. dry soil (gr)	90.54	90.54					
Wt. of water (gr)	18.49	18.49					
M/C (%)	20.42	20.42					
DRY DENSITY (pcf)	78.3						
% Saturation* (48%-52%)	47.8	•	i 				
*Assumes Gs =	2.7						
EXPANSION INDEX =	79						
(per ASTM 4829-08)	Medium						
KOURY			Project Name:	P	roject No.: 17-1024	Run by: MFP	Ī
A TESTING, INC.			Borrow Site #2	D	ate: 5/11/18	QA:	

Elevation TP15 @ 5.5' - 6' ymbol CH ad (psf) 144 DNDITION Initial Final & Ring (gr) 682.770 Gad (and the second sec
ymbol CH ad (psf) 144 DNDITION Initial Final & Ring (gr) 682.770 ng (gr) 364.17 nen (gr) 318.600 ameter (in) 4.010 ndius (cm) 5.09 imen (cm²) 81.479 eight (in) 0.9995 N/A
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e (final)(in) N/A 0.1946
- h - i = h + (i =)
c.neight(in) 1.00 0.8049
(cm) 2.539 2.044
lume (cm ³) 206.854
sity (pcf) 96.16
<u>CONTENT</u>
il+tare(gr) 136.78 136.78
+tare(gr) 117.52 117.52
re(gr) 31.57 31.57
oil (gr) 85.95 85.95
ter (gr) 19.26 19.26
%) 22.41 22.41
* (48% 52%) 52.8
$\frac{(46\%-32\%)}{100} = \frac{32.0}{2.7}$
SION INDEX = 195
al Expansion STM 4829-08)

				=		
Location/ Elevation	TP17 @) 4' - 4.5'				
USCS Symbol	C	Ľ				
Normal Load (psf)	14	44				
SAMPLE CONDITION	Initial	Final				
Wt Specimen & Ring (gr)	714.050					
Wt. of ring (gr)	366.68					
Wt. Specimen (gr)	347.370					
Specimen diameter (in)	4.010					
Specimen radius (cm)	5.09					
Area of Specimen (cm ²)	81.479					
Init. Spec. height (in)	1.0020	N/A				
Height change (final)(in)	N/A	0.0399				
djusted Spec.height(in)	1.00	0.9621				
" " (cm)	2.545	2.444				
Specimen Volume (cm ³)	207.371					
Moist Density (pcf)	104.58					
MOISTURE CONTENT						
Wt. moist soil+tare(gr)	155.07	155.07				
Wt. dry soil+tare(gr)	135.10	135.10				
Wt. of tare(gr)	19.73	19.73				
Wt. dry soil (gr)	115.37	115.37				
Wt. of water (gr)	19.97	19.97				
M/C (%)	17.31	17.31				
DRY DENSITY (pcf)	89.1					
% Saturation* (48%-52%)	52.5	-				
*Assumes Gs =	2.7					
EXPANSION INDEX =	40					
(per ASTM 4829-08)	Low					
KOURY			Project Name:	Project No.: 17-1021	Run by: MFP	Lab:
ENGINEERING & TESTING, INC.			Borrow Site #2	Date: 4/26/18	QA:	18- Se



MAXIMUM DENSITY TEST REPORT



These results are for the exclusive use of the client for whom they were obtained. They

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GEOTECHNICAL & SEISMIC ENGINEERING, CONSTRUCTION INSPECTION & MATERIALS TESTING SERVICES



March 16, 2018 Project No. 18-0158

Mr. John R. Burroughs, LEED AP, President Commerce Construction Co., L.P. 13191 Crossroads Parkway North 6th Floor City of Industry, CA 91746

Subject: Limited Borrow Site Feasibility Study Alternative Borrow Site 6 SEC of East County Road and Chino Corona Road City of Chino, California

Dear Mr. Burroughs:

Presented herein are our preliminary findings and conclusions regarding the suitability of the Borrow Site 6 soils to be used as engineered fill to balance the grade for the OC Prado site construction located on the southeast corner of Bickmore Avenue and Mountain Avenue in the City of Chino.

Based on the conceptual grading plan, the proposed rectangular shaped Borrow Site 6 covers an area of about 485,000 square feet or roughly 11 acres. The site is bounded by Chino Corona Road to the north, East County Road to the west, one retention pond to the south and two other retention ponds to the east. A Site Vicinity Map with approximate ground contour elevations is presented in Appendix A as Figure A-1. The site is owned by the County of Orange Flood Control District.

Field Exploration and Laboratory Testing for Feasibility Study

The field exploration program for the feasibility study consisted of excavating twelve test pits. A rubber tire mounted backhoe was used to excavate the 12 test pits ranging in depths from about 15 to $17\frac{1}{2}$ feet. The locations of the test pits are shown on the Field Exploration Map, Figure A-2, presented in Appendix A. Bulk samples were obtained from the test pits for laboratory testing.

Laboratory tests, including moisture content, #200 sieve wash, expansion index, maximum density, pocket penetrometer and plasticity index were performed to aid in the classification of the materials encountered and to evaluate their engineering properties. Sulfates, chlorides, resistivity, and PH tests (corrosivity tests) were also performed on selected samples. The results of pertinent laboratory tests are presented on the boring logs in Appendix B, and/or in Appendix C.

Site Geology

The site is located within the Upper Santa Ana River Valley, which consists of a series of coalescing alluvial fans formed by streams flowing out of the San Gabriel Mountains to the north. The valley lies within the Peninsular Ranges geomorphic province, which is characterized by alluviated basins, elevated erosion surfaces, and northwest-trending mountain ranges bounded by northwest trending faults. The site, which is located within the Chino Basin, is underlain by sediments deposited by the Santa Ana River and its tributaries such as the Chino Creek.

Morton and Miller (2006) show the site to be underlain by very old alluvial-fan deposits (See Figure A-3 in Appendix A). The sediments encountered during the subsurface investigation consisted predominantly of clay.

Surface Site Conditions

At the time of the subsurface investigation, the site was accessible through gated driveways along Chino Corona Road, East County Road, and along unfenced areas adjacent to East County Road. Except for localized areas where concrete was exposed, the ground surface exposed bare soils. There were some concrete slabs remaining at the southwest corner of the site and near the south eastern boundary along with an asphalt paved driveway in the northeastern portion of the site. The site has been cleared of trees, past structures such as buildings, animal shelters, and other above ground ancillary facilities; however, it appears that some foundations may remain below the ground surface.

The site generally slopes to the south between about elevations 563 and 555 feet except for the south end of the site that has a 10-foot high slope dipping toward the existing retention pond. The conceptual plan indicates a proposed 20-feet setback from Chino Corona Road and East County Road followed by slopes at an inclination of 4:1 (H:V). The proposed grades at the toe of the slope will range from about elevation 552 feet at the north end and 544 feet at the south end, which correspond to cuts of about 10 to 12 feet.

Soil Conditions

The subsurface soil profile consists generally of artificial fill underlain by alluvial deposits. For the most part, the fill is generally on the order of one foot thick except for the former area of buildings/structures and underground utilities where 6 feet of fill was encountered in Test Pit 12. The fill derived from onsite shallow soils consists predominantly of lean clay with sand and sandy lean clay.

The alluvium soils consist predominantly of stiff to very stiff medium plastic to high plastic sandy clay and clay with sand. Some discrete layers of silty sand, clayey sand, and poorly graded sand with silt were encountered in Test Pit 3 at depths of 9 to 10 feet, in Test Pit 6 at 15 to $16\frac{1}{2}$ feet, in Test Pit 9 at $11\frac{1}{2}$ to 13 and at 15 to $17\frac{1}{2}$ feet, and in Test Pit 11 at $10\frac{1}{2}$ to 16 feet.

The moisture contents of clay soils are highly variable, ranging from about 12 to 37 percent with an average of about 21 percent while the silty sand and clayey sand moisture contents range from

about $9\frac{1}{2}$ to $12\frac{1}{2}$ percent with an average of about 11 percent. Based on two maximum density tests performed and prior experience with similar soils, many of the clay sample moisture contents are about 8 to 12 percent above optimum for the soils sampled at depths between 4 and 12 feet below the ground surface.

The fine contents range from about 50 to 87 percent with an average of about $64\frac{1}{2}$ percent for clay and from about 15 to 32 percent with an average of about $23\frac{1}{2}$ percent for silt and clayey sand. The average relatively low fine contents of the clay soils are attributed to the presence of concretions (hard matter formed by precipitation of mineral cement between particles), which was observed in many of the clay samples. The pocket penetrometer tests indicate unconfined compression strength on the order of 2 to 4.5 tsf with an average of about 3.8 tsf.

Test Pit Number	TP-6 @ 10 to 11 feet	TP-11 @ 8 to 9 feet
Maximum Dry Density (pcf)	102.6	112.4
Optimum Moisture Content (%)	19.9	15.5
Liquid Limit	54	53
Plastic Limit	29	23
Plasticity Index	25	30

Table 1 – Maximum Density and Plasticity Index

To aid in the soil classification and to correlate the soil plasticity with the soil expansion, two plasticity index tests (Atterberg Limits) were performed on samples of Test Pits 6 and 11 at depths of 8 to 11 feet. As shown in Table 1, the liquid limits exceed 50, which indicate high plasticity for the two samples tested.

The site soil expansion potential ranges from very low to very high. Table 2 presents the data for 15 tests sampled at depths ranging from 1 to 14 feet. These tests indicate expansion index variation from 20 to 180. Within the upper 4 feet, the test data obtained to date indicate expansion indices ranging between 20 and 45 and moisture contents between about 13 and 19 with an average of about 16½ percent. Except for Test Pit 2, at depths of 4 to 5 feet and Test Pit 5 at depths of 6-8 feet that contained abundant concretions, all the expansion index tests performed on samples at depth greater than 4 feet indicated expansion indices greater than 76. Excluding the upper 4 feet of soils and the samples with high concentrations of concretions, the average expansion index is about 132, which is very high.

The moisture contents of the clay below a depth of 4 feet range predominantly between 22 and 37 percent with an average of about 27 percent. On average, this moisture content is about 8 to 12 percent above optimum; however, some samples have moisture contents up to about 15 to 17 percent above optimum.

Test Pit	TP-2	TP-3	TP-5	TP-5	TP-6	TP-6	TP-6	TP-6	TP-7	TP-8	TP-9	TP-11	TP-11	TP-11	TP-12
Depth (ft)	4-5	2-3	1-2	6-8	1.5-2	5.5-6	10-11	13-14	1-2	4.5-5	10-11	1-2	5-6	8-9	8.5-9.5
Expansion	57	28	31	49	38	107	108	151	20	76	158	45	132	180	148
Moisture	22.8	19.3	15.7	26.4	13.8	26.4	36.9	34.3	16.9	21.9	30.5	16.4	22.3	24.9	27.0
Fines	73	51	73	66	66	71	69	78	76	71	87	65	70	64	83

Table 2 – Expansion Index Test Results

There is a rough correlation between in situ natural moisture content at depth and expansion index. For the same amounts of fines, site soils with higher moisture and higher plasticity index tend to have higher expansion index.

Groundwater

No groundwater was encountered in the excavated test pits

Corrosivity

The corrosivity tests performed indicates that the site soils are generally severely corrosive to metal. However, the tests performed did not indicate high corrosivity to concrete. The corrosivity test results are summarized in the following Table 3.

 Table 3 - Corrosion Test Results

Boring	Depth (ft)	Minimum Resistivity (ohm-cm)	рН	Soluble Sulfate Content (ppm)	Soluble Chloride Content (ppm)
TP-11	5.0 - 6.0	446	7.5	203	425
TP-12	1.5-2.5	717	7.6	322	170

Conclusions and Recommendations

Based on the data collected from the field to date, it appears feasible to import some material from Borrow Site 6 to use at the OC Prado site. However, it appears that only the upper 4 feet of soils (once well blended) could be suitable for foundation support. Some silty sand and clayey sands were encountered in the southwest corner of the site (mostly in TP-6, TP-9, and TP-11) at depths of about 15 to 17 feet (end of test pits). However, based on the conceptual plan, the proposed basin depth is only 10 to 12 feet and the sands encountered are generally deeper than these depths.

The other soils tested between the depths of 4 feet and the proposed design bottom of the borrow site are generally undesirable from a geotechnical standpoint due to their high moisture content

(average of about 27%), high plasticity and high to very high expansion potential (EI average of 132).

If this borrow site is further considered for import, we recommend that additional test pits be excavated to confirm the preliminary findings, especially within the zone selected for import.

CLOSURE

The findings and recommendations presented in this report were based on the results of our field and laboratory investigations, combined with professional engineering experience and judgment. The report was prepared in accordance with generally accepted engineering principles and practice. We make no other warranty, either expressed or implied. Subsurface variations between and beyond the test pits should be anticipated. Samples obtained during this investigation will be retained in our laboratory for a period of 45 days from the date of this report and will be disposed after this period.

Should you have any questions concerning this submittal, or the recommendations contained herewith, please do not hesitate to call our office.

Respectfully submitted,

KOURY ENGINEERING & TESTING, INC

ques B. Rov. **Principal Engineer**

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APPENDICES

Appendix A: Maps and Plans

Vicinity Map – Figure A-1 Field Exploration Map – Figure A-2 Geology Map – Figure A-3

Appendix B: Field Exploratory Test Pits

Test Pits 1 through 12

Appendix C: Laboratory Test Results

REFERENCES

- 1. California Division of Mines and Geological Survey, 1998, Seismic Hazard Zone Report 045 for the Prado Dam 7.5 Minute Quadrangle, California.
- 2. California Division of Mines and Geological Survey, 2003, Earthquake Fault Zones, Prado Dam Quadrangle, May 1, 2003.
- 3. City of Chino General Plan, Safety Element, 2010, Final Report.
- 4. US Army Corps of Engineers, Geotechnical Investigations, Engineering Manual EM 1110-1-1804, dated 8/26/86.
- 5. US Army Corps of Engineers, Laboratory Soils Testing, Engineering Manual EM 1110-2-1906, dated 8/26/86.

APPENDIX A

Maps and Plans







APPENDIX B

Field Exploratory Test Pits

KEY TO LOGS

		SO	ILS CLA	SSIFICA	TION
	MAJOR DIVISIONS	6	GRAPHIC LOG	USCS SYMBOL	TYPICAL NAMES
	GRAVELS	CLEAN GRAVELS		GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
	UNAVEED	LESS THAN 5% FINES		GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
SOILS	MORE THAN 50% OF COARSE	GRAVELS WITH FINES		GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
	LARGER THAN NO. 4 SIEVE	MORE THAN 12% FINES		GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	SANDS	CLEAN SANDS		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
	SANDS	LESS THAN 5% FINES		SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
	50% OR MORE OF COARSE	SANDS WITH FINES		SM	SILTY SANDS, SAND-SILT MIXTURES
	SMALLER THAN NO. 4 SIEVE	MORE THAN 12% FINES		SC	CLAYEY SANDS, SAND-CLAY MIXTURES
	SILTS AN	ND CLAYS		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
FINE GRAINED SOILS				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AN	ND CLAYS		МН	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR GRAVELLY ELASTIC SILTS
50% OR MORE OF MATERIAL IS SMALLER THAN NO, 200 SIEVE SIZE				СН	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
		S SU OR MORE		ОН	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGH		SOILS		PT	PEAT AND OTHER HIGHLY ORGANIC SOILS

GRAIN SIZES											
		SAND		GRA	VEL		BOULDERS				
SILT AND CLAT	FINE	MEDIUM	COARSE	FINE	COARSE	COBBLES					
	#200	#40	#10	#4	3/4"	3"	12"				
SIEVE SIZES											

KEY TO LOGS (continued)

	SPT/CD BLOW COUNTS VS. CONSISTENCY/DENSITY												
FINE-GRAINED S	OILS (SILT	S, CLAYS, etc.)	GRANULAR SOILS (S	ANDS, GRAVELS	S, etc.)								
CONSISTENCY	*BLC	DWS/FOOT	RELATIVE DENSITY	*BLOWS/F	TOOT								
CONSISTENCT	SPT	CD	RELATIVE DENSIT	SPT	CD								
SOFT	0-4	0-4	VERY LOOSE	0-4	0-8								
FIRM	5-8	5-9	LOOSE	5-10	9-18								
STIFF	9-15	10-18	MEDIUM DENSE	11-30	19-54								
VERY STIFF	16-30	19-39	DENSE	31-50	55-90								
HARD	over 30	over 39	VERY DENSE	over 50	over 90								

* CONVERSION BETWEEN CALIFORNIA DRIVE SAMPLERS (CD) AND STANDARD PENETRATION TEST (SPT) BLOW COUNT HAS BEEN CALCULATED USING "FOUNDATION ENGINEERING HAND BOOK" BY H.Y. FANG. (VALUES ARE FOR 140 Lbs HAMMER WEIGHT ONLY)

DESCRIPTIVE ADJECTIVE VS. PERCENTAGE									
DESCRIPTIVE ADJECTIVE	PERCENTAGE REQUIREMENT								
TRACE	1 - 10%								
LITTLE	10 - 20%								
SOME	20 - 35%								
AND	35 - 50%								

*THE FOLLOWING "DESCRIPTIVE TERMINOLOGY/ RANGES OF MOISTURE CONTENTS" HAVE BEEN USED FOR MOISTURE CLASSIFICATION IN THE LOGS.

APPRO	APPROXIMATE MOISTURE CONTENT DEFINITION								
DEFINITION	DESCRIPTION								
DRY	Dry to the touch; no observable moisture								
SLIGHTLY MOIST	Some moisture but still a dry appearance								
MOIST	Damp, but no visible water								
VERY MOIST	Enough moisture to wet the hands								
WET	Almost saturated; visible free water								

(KOURY							Project No. : 18-0158Test Pit No. : 1Project Name : Borrow Site 4				
	ENG & TE	STING	, INC.					s	Sheet:1 of	:1		
nple No.	oisture itent (%)	ry Unit ght (pcf)	ws per 6"	epth (ft)	ole Location	phic Log	oil Type USCS)	Drilling Method : BackhoeGSampling Method : BulkGHammer Weight :Drop Height :Location : See Figure A-2D	Ground Elevat Drilling Co. : G Date Drilled :	i on: ilstrap 2-22-18		
Sai	Cor	D Wei	Blo	ă	Samp	Gra	Sc Sc	Description		Additional Tests		
				0				Fill: Lean CLAY with SAND; moist, brown				
1	12.2			-	\mathbb{X}		CL	ALLUVIUM: Lean CLAY with SAND; stiff, moist, brown		#200 Wash Fines = 82%		
2	3.6			5	8			Sandy Lean to Fat CLAY; stiff, some concretions, r very moist, light yellowish brown	moist to	#200 Wash Fines = 72%		
3	17.1				\mathbb{X}		CL/CH	Aubundant concretions, very pale brown with white		#200 Wash Fines = 50%		
4	17.4			10	X					#200 Wash Fines = 50%		
5	23.0				8		СН	Fat CLAY with SAND; minor concretions, stiff, mois moist, brown with white	#200 Wash Fines = 80% PP = 3.0 tsf			
6 7	16.1 19.9			15	XX XX		CL/CH	Lean to Fat CLAY; stiff, concretions, moist, light yel brown	Fines = 65% PP = 2.5-3 tsf Fines = 66%			
								End of test pit @ 16' No groundwater encountered	SPT			

		RING , INC.					Project No. 18-0158 Project Test Pi Name : Borrow Site 4 Sheet : 1	: No. : 2 of : 1
mple No. oisture	rry Unit ght (pcf)	ws per 6"	spth (ft)	le Location	phic Log	oil Type USCS)	Drilling Method : Backhoe Ground E Sampling Method : Bulk Ground E Hammer Weight : Drop Height : Drilling C Location : See Figure A-2 Date Drilling	levation: b. : Gilstrap ed : 2-22-18
S ai	D Wei	Blo	ŏ	Samp	Gra	Š	Description	Additional Tests
			0	Π			Fill: Sandy Lean CLAY; moist, brown	
						CL	ALLUVIUM:	
							Sandy Lean CLAY; stiff, moist, brown	
1 22.8	3		- - - - - - - - - -	8			Sandy Lean to Fat CLAY; concretions, moist to very moist, very pale brown	#200 Wash Fines = 73% El = 57
2 24 (#200 Wash
2 24.3	2		10	ñ				1 11163 - 7070
						CL/CH		#200 Wash
3 18.7	7		15 —	\boxtimes			Yellowish brown	Fines = 61% PP = 2.0 tsf
4 17.{	5		_	\mathbb{X}				#200 Wash Fines = 59%
							End of test pit @ 17' No groundwater encountered	Fines = 59%

_	K	DU	RY					Project No. 18-0158 Project Name : Borrow Site 4	Test Pit No	5. :3
	ENG & TE	STING	, INC.						Sheet: 1 of	f:1
_				1	ç			Drilling Method : Backhoe	Ground Elevat	ion:
No.	Ire (%)	nit (pcf)	er 6"	(£	catio	Log	ed (s	Hammer Weight : Drop Height :	Drilling Co. : G	Silstrap
nple	oistu tent	ry Ur ght	va po	pth	le Lo	phic	il Ty JSC	Location : See Figure A-2	Date Drilled :	2-22-18
Sar	Con	D	Blov	De	Samp	Gra	Sc (I	Description		Additional Tests
				0				Fill: Sandy Lean CLAY; moist, brown		
1	14.5			_	\mathbb{X}		CL	ALLUVIUM:		#200 Wash Fines = 55%
2	19.3				X			Sandy Lean CLAY; trace of concretions, very st pale brown	iff, moist,	EI = 28 Fines = 51% PP = 4-4.5 tsf
3	17.8			5			сц/сн	Sandy Lean to Fat CLAY; very stiff, abundant cor moist, very pale brown with white	ncretions,	#200 Wash Fines = 55% PP = 4.5 tsf #200 Wash
4	10.2						80	Claures CANDs trace to little groups, moint vallessing	a brown	$\frac{7200}{\text{Fines}} = 61\%$
4	16.2			10	(30	Clayey SAND; trace to little gravel, moist, yellowish	norown	Fines = 32% Fines = 51%
	10.2			-				Sandy Lean to Fat CLAY; concretions, moist, darl brown	k yellowish	PP = 3.5 tsf Fines = 50%
6	32.7			_	Ä		СЦ/СП			PP = 2-4 tsf
7	34.1			15 <u>-</u>	\mathbb{X}		СН	Sandy Fat CLAY; stiff, very moist, yellowish browr brown	#200 Wash Fines = 51% PP = 2.5 - 3 tsf	
								End of test pit @ 16' 6" No groundwater encountered		

NUMERIENCE Sheet: 1 of : 1 9		KOURY							Project No. 18-0158 Project Test Pit N Name : Borrow Site 4	o. : 4
Oriented is Bachool 98 98 90 </td <td>(</td> <td>ENG & TE</td> <td>STING</td> <td>, INC.</td> <td></td> <td></td> <td></td> <td></td> <td>Sheet:1 c</td> <td>of:1</td>	(ENG & TE	STING	, INC.					Sheet:1 c	o f: 1
8 8 9 9 9 6 8 6 9 9 9 6 8 9 9 9 1 13.8 13.8 13.8 13.8 13.8 13.8 14.10 15.5 <th15.5< th=""> 15.5 15.5<!--</th--><th>mple No.</th><th>loisture itent (%)</th><th>bry Unit ight (pcf)</th><th>ws per 6"</th><th>epth (ft)</th><th>ole Location</th><th>Iphic Log</th><th>oil Type USCS)</th><th>Drilling Method : BackhoeGround ElevSampling Method : BulkGround ElevHammer Weight :Drop Height :Location : See Figure A-2Date Drilled :</th><th>ation: Gilstrap 2-22-18</th></th15.5<>	mple No.	loisture itent (%)	bry Unit ight (pcf)	ws per 6"	epth (ft)	ole Location	Iphic Log	oil Type USCS)	Drilling Method : BackhoeGround ElevSampling Method : BulkGround ElevHammer Weight :Drop Height :Location : See Figure A-2Date Drilled :	ation: Gilstrap 2-22-18
1 13.8 0 -	Sai	Cor	D Wei	Blo	ŏ	Samp	Gra	ŭ,	Description	Additional Tests
1 13.8 13.8 CL ALLUVUM: Sandy Lean CLAY; very stiff, moist, brown #200 Wesh, Frees = 1% 3 19.4 5 5 5 17.6 6 22.4 10 1 1 10 1 1 10 1 100 10					0				Fill: Sandy Lean CLAY; stiff brown.	
2 19.5 5 3 19.4 5 3 19.4 5 3 19.4 10 4 23.9 10 10 4 23.9 10 10 4 24.9 10 10 4 24.9 10 10 4 24.9 10 10 4 24.9 10 10 4 4 24.9 10 10 4 4 4 24.9 10 4	1	13.8				8		CL	ALLUVIUM: Sandy Lean CLAY; very stiff, moist, brown	#200 Wash Fines = 61% PP= 4 - 4.5 tsf
3 19.4 23.9 4 23.9 4 23.9 4 10	2	19.5			5	×			Sandy Lean to Fat CLAY; abundant concretions, moist, very pale brown	#200 Wash Fines = 51%
4 23.9 10 <t< td=""><td>3</td><td>19.4</td><td></td><td></td><td></td><td>8</td><td></td><td></td><td>abundant concretions</td><td>#200 Wash Fines = 55%</td></t<>	3	19.4				8			abundant concretions	#200 Wash Fines = 55%
5 17.8 17.8 17.8 17.8 17.8 17.8 10	4	23.9			10	8		CL/CH	yellowish brown	#200 Wash Fines = 55%
6 22.4 15 Lean to Fat CLAY with SAND; stiff to very stiff, moist to very moist, olive #200 Wash Fries = 76%, PP= 3.5 tsf 1 1 End of test pit @ 17' No groundwater encountered No groundwater encountered #200 Wash Fries = 76%, PP= 3.5 tsf 20 1 1 1 1 1 1 20 1 1 1 1 1 1 20 1 1 1 1 1 1 20 1 1 1 1 1 1 20 1 1 1 1 1 1 20 1 1 1 1 1 1 20 1 1 1 1 1 1 20 1 1 1 1 1 1 30 1 1 1 1 1 1 1 30 1 1 1 1 1 1 1 1 30 1 1 1 1 1 1 1 1	5	17.6				8			brown and strong brown	#200 Wash Fines = 58% PP=3.5-4.5 tsf
End of test pit @ 17' No groundwater encountered	6	22.4			15				Lean to Fat CLAY with SAND; stiff to very stiff, moist to very moist, olive	#200 Wash Fines = 76% PP= 3.5 tsf
									End of test pit @ 17' No groundwater encountered	

a reating, inc.	Sheet: 1 of: 1
mble Drilling Method : Backhoe In the ut In the ut In	Ground Elevation: t : Drilling Co. : Gilstrap Date Drilled : 2-22-18
	Additional Tests
0 Fill: Sandy Lean CLAY; stiff, moist	
1 15.7 Image: Classical conditions of the second s	ry stiff, moist, brown
2 26.4 5 CL/CH Sandy Lean to Fat CLAY; stiff, abur CL/CH	ndant concretions, stiff to rown EI = 49 PP= 2.5- 3.5 tsf
3 30.9 10 CH Fat CLAY with SAND; concretions, a dark yellowish brown.	stiff, moist to very moist, #200 Wash Fines = 84%
4 27.6 Sandy Lean to Fat CLAY; stiff to ve moist, brown	ery stiff, moist to very #200 Wash Fines = 51% PP= 3- 4.5 tsf
dark yellowish brown with white inclu	usions #200 Wash Fines =66%
End of test pit @ 15' 6" No groundwater encountered	

-(ENG & TE		RING , INC.	,	-			Project No. 18-0158 Project Test Pit No Name : Borrow Site 4 Sheet : 1 of Drilling Method : Backhoe Sheet : 1 of	5. : 6
ample No.	Moisture Intent (%)	Dry Unit ight (pcf)	ows per 6")epth (ft)	ple Location	aphic Log	soil Type (USCS)	Sampling Method : BulkGround ElevaHammer Weight :Drop Height :Drilling Co. :Location : See Figure A-2Date Drilled :	tion: Gilstrap 2-22-18
ŝ	် ပိ	_ ₩	Ble		Sam	G	0	Description	Additional Tests
				0				Fill: Sandy Lean CLAY; stiff, dark brown	#200 W/ash
1	13.8				8		CL	ALLUVIUM: Sandy Lean CLAY; stiff, moist, dark brown	Fines = 65% EI = 38
2	17.7			5 —	\mathbb{X}			Sandy Lean to Fat CLAY; stiff, concretions, moist, brownish yellow	#200 Wash Fines = 50% #200 Wash
3 4	26.4 20.8				×		CL/CH	light olive brown with white, moist to very moist	#200 Wash Fines = 71% EI= 107 #200 Wash Fines = 51%
5	25.3			-	\mathbb{X}			brown, layers of dark yellowish brown silty sand	#200 Wash Fines = 54%
6	36.9			10	\mathbb{X}			Sandy Fat CLAY; very stiff, very moist, yellowish brown	#200 Wash Fines = 69%
							СН	LL= 54 PL= 29 Max Density = 102.6 pcf Opt Moisture = 19.9%	PP= 3.5 - 4.5 tsf
7	34.3				X			Fat CLAY with SAND; very stiff, moist to very moist, light yellowish brown	#200 Wash Fines = 78% EI= 151 PP= 4.5 tsf
8 9	10.5				XX XX		SM	Silty SAND; fine to coarse, trace to little gravel, moist, light olive brown	#200 Wash Fines = 19%
								End of test pit @ 16'6" Ro groundwater encountered	

/	KOURY							Project No. 18-0158 Project Name : Borrow Site 4	Test Pit No	o.:7
(ENG & TE	INEE	RING		-				Sheet:1 of	:1
	(%	cf)	-e		tion	bo		Drilling Method : Backhoe Sampling Method : Bulk	Ground Elevat	ion:
mple N	loisture ntent (⁹	bry Unit ight (po	ws per	epth (ft)	ole Loca	aphic Lo	oil Type USCS)	Hammer Weight : Drop Height : Location : See Figure A-2	Drilling Co. : G	ilstrap 2-22-18
Sa	⊆ ⊆ C	Wei	Blo	ă	Sam	Gra	s, C	Description		Additional Tests
				0				Fill: Sandy Lean CLAY; stiff, dark brown.		
1	16.9			-	\mathbb{X}		CL	ALLUVIUM:		Fines = 76% El= 20
				_				Lean CLAY with SAND; concretions, stiff, moist,	brown	
2	19.2			5	X			Sandy Lean to Fat CLAY; abundant concretions	, stiff, moist,	#200 Wash Fines = 50%
								P		
0				-			CL/CH			
3				10	×			yellowish brown		PP= 3- 3.5 tsf
4	16.2				\mathbb{X}		CL	Sandy Lean CLAY; stiff to very stiff, moist, strong light yellowish brown and black	brown with	Fines = 60% PP= 3 - 3.5 tsf
5 6	17.2 20.2				XX XX		CL/CH	Sandy Lean to Fat CLAY; very stiff to hard, moist, brown to light olive brown	Fines = 63% PP= 4- 4.5 tsf Fines = 69%	
								End of test pit @ 15' No groundwater encountered		
l	<u> </u>			40				D Bulk CD	SPT	

KOURY								Project No. 18-0158 Project Test Pit N Name : Borrow Site 4 Test Pit N		o.: 8
	& TES	STING	, INC.						Sheet:1 of	:1
		<u> </u>	-		5 7			Sampling Method : Bulk	Ground Elevat	ion:
No.	ure : (%	nit (pcf	er 6	(ft)	- catio	be l	s)	Hammer Weight : Drop Height :	Drilling Co. : G	Gilstrap
nple	oistu itent ght (phic il Ty			oil T	usc	Location : See Figure A-2	Date Drilled :	2-22-18		
Sar	Cor	D Wei	Blov	ă	Samp	s S	0	Description		Additional Tests
				0				Fill: Lean CLAY with SAND; stiff, brown		
1	16.4				X		21	ALLUVIUM:		#200 Wash Fines = 82%
							.	Lean CLAY with SAND; trace of gravel, very brown	stiff, moist,	
2	16.0			5	*			Sandy Lean to Fat CLAY; concretions, moist	pale brown	#200 Wash Fines = 50% El = 76
3	21.9				8	CL	./CH			Fines = 71%
				10				pale brown with white		
4	22.2				8	c	сн	Sandy Fat CLAY; stiff, moist to very moist, lig with white and brown	ht olive brown	#200 Wash Fines = 55% PP = 2.5 tsf
5	17.7				×	CL/	СН	Sandy Lean to Fat CLAY; concretions, very s light yellowish brown with white concretions	tiff, moist,	Fines = 51% PP = 4 5 tsf
								End of test pit @ 15' No groundwater encountered		
				20						
				25						
				30						
				35						
				40				Bulk 🔀 CD	SPT	

ample No.	sture ent (%)		,					Name : Borrow Site 4 Sheet : 1 o Drilling Method : Backhoe	f:1	
	Moi	Dry Unit ight (pcf)	ows per 6")epth (ft)	ple Location	aphic Log	soil Type (USCS)	Sampling Method : BulkGround ElevaHammer Weight :Drop Height :Drilling Co. : (Location : See Figure A-2Date Drilled :	Ground Elevation: Drilling Co. : Gilstrap Date Drilled : 2-22-18	
Ň	- S	Me	Blc		Sam	ษ	0	Description	Additional Tests	
				0				Fill: Sandy Lean CLAY; stiff, brown		
1	14.2				8		CL	ALLUVIUM: Lean CLAY with SAND; concretions, stiff to very stiff, moist, brown	#200 Wash Fines = 76%	
2	17.8			5 <u>-</u> 	8			Fat CLAY with SAND; concretions, very stiff, moist to very moist, very pale brown with yellowish brown and white	#200 Wash Fines = 75% PP = 4 tsf	
3	31.4				×		СН		#200 Wash Fines = 79%	
4	30.5			10	X			Fat CLAY; very stiff, moist to very moist, light yellowish brown	#200 Wash Fines = 87% PP = 3.5-4 tsf EI = 158	
5	9.5				※		SM	Silty SAND; fine to coarse,trace to little gravel, light yellowish brown	Fines = 15%	
6	28.5				×		СН	Fat CLAY with SAND; thin layers of silty sand, stiff, moist to very moist, light yellowish brown	Fines = 67%	
7	12.5				×		SM	Silty SAND; fine to coarse, trace of gravel, moist, light yellowish brown	Fines = 22%	
8					\approx		SP-SM	Poorly Graded SAND with SILT; fine to coarse, concretions		
								End of test pit @ 17' 6" No groundwater encountered		
Q	(%)		, INC.				Name : Borrow Site 4 Drilling Method : Backhoe	Sheet:1 of	.: 10 :1	
--------	----------------------	------------------------	-----------	------------	------------	--------------------	--	---	---	
mple N	Aoisture ntent (%	Dry Unit ight (pcf)	ws per 6"	epth (ft)	aphic Log	oil Type (USCS)	Sampling Method : Bulk Hammer Weight : Drop Height : Location : See Figure A-2	Ground Elevat Drilling Co. : G Date Drilled :	ion: Silstrap 2-22-18	
Sa	C P	L We	Blc		Sam Gr;	ω -	Description		Additional Tests	
				0			Fill: Lean Clay with SAND			
1	14.5				×	CL	ALLUVIUM: Lean Clay with SAND; very stiff, moist, brown		#200 Wash Fines = 82% PP = 4-4.25 tsf	
2	19.2			5	X		Sandy Lean to Fat CLAY; concretions, very stiff, yellowish brown	moist, light	#200 Wash Fines = 70%	
3	20.7			 10	X	CL/CH	abundant concretions, very pale brown		#200 Wash Fines = 50% PP = 4.5 tsf	
4	27.1				×	СН	Sandy Fat CLAY; concretions, very stiff, light olive white	e brown with	#200 Wash Fines = 51% PP = 4.5 tsf	
5	17.2			15	*	CL/CH	Sandy Lean to Fat CLAY; very stiff to hard, moist brown	t, yellowish	#200 Wash Fines = 51% PP = 4.5 tsf	
				20			End of test pit @ 16' No groundwater encountered			

(ENGINEERING & TESTING, INC.						Project No. 18-0158 Project Test Pit N Name : Borrow Site 4 Sheet : 1 of Drilling Method : Backhoe Sheet : 1 of	l o.: 11 of:1
mple No.	Aoisture ntent (%) -	Dry Unit ight (pcf)	ws per 6"	epth (ft)	aphic Log	oil Type (USCS)	Sampling Method : BulkGround ElevHammer Weight :Drop Height :Drilling Co. :Location :See Figure A-2Date Drilled	ation: Gilstrap : 2-22-18
Sa	Co Co	Nei	Blo	Ŭ . Same	Gra) S	Description	Additional Tests
				0			Fill: Sandy Lean CLAY; stiff, brown	
1	16.4					CL	ALLUVIUM: Sandy Lean CLAY; stiff, moist, brown	#200 Wash Fines = 65% EI = 45
2	22.3			5 <u>-</u> -2		СН	Sandy Fat CLAY; trace of concretions, moist to very moist, brown with white	#200 Wash Fines = 70% El = 132 Corrosivity
3	24.9						very stiff, light yellowish brown Max Density 112.4 pcf Optimum 15.5%	#200 Wash Fines = 64% PP = 3.5-4.5 tsf EI = 180 LL=53 PL =23
4	11.9					SC	Clayey SAND; trace of gravel and cobbles, concretions, yellowish brown	#200 Wash Fines = 28%
5	12.1			15	8		light olive yellow	#200 Wash Fines = 30%
6	10.8						fine to medium, trace of gravel, light yellowish brown	Fines = 17%
							End of test pit @ 16' No groundwater encountered	
-							Bulk 🔀 CD SPT	3

$\left($	ENG & TE		RY RING					Project No. 18-0158 Project Test Pit No. Name : Borrow Site 4 Sheet : 1 of Sheet :	o.: 12 f:1
mple No.	Aoisture ntent (%)	Dry Unit ight (pcf)	ws per 6"	epth (ft)	ple Location	aphic Log	oil Type (USCS)	Sampling Method : Bulk Ground Eleva Hammer Weight : Drop Height : Drilling Co. : (Location : See Figure A-2 Date Drilled :	tion: Gilstrap 2-22-18
Sa	≥ ō C	Ne	Blo		Sam	Gré	s	Description	Additional Tests
1	13.7			0 5			CL	Fill: Lean CLAY with SAND; stiff to very stiff, moist, brown	#200 Wash Fines = 80% PP = 3.5-4.5 tsf Corrosivity
2	18.8				\otimes		CL/CH	ALLUVIUM: Sandy Lean to Fat CLAY; abundant concretions, moist, very pale brown	#200 Wash Fines = 64%
3	27.0			- 	X		СН	Fat CLAY with SAND; stiff, moist to very moist, pale brown	#200 Wash Fines = 83% EI=148
4 5 6	30.3 23.6 22.7						CL/CH	Sandy Lean to Fat CLAY; stiff, moist to very moist, yellowish brown	Fines = 50% LL= 54 PL= 29 Fines = 68% PP = 4-4.5 tsf #200 Wash Fines = 59%
7	14.7			15	※		CL	Sandy Lean CLAY; very stiff, moist, yellowish brown	Fines = 58%
								End of test pit @ 15' No groundwater encountered	

APPENDIX C

Laboratory Test Results

MAXIMUM DENSITY TEST REPORT

Curve No.: 4835 Series Project No.: 18-0158 **Date:** 3/5/18 Project: Borrow Site #4 **Client:** Location: TP-6 @ 10' - 11' Sample Number: 4835 Series **Remarks:** Less than 5% Material retained on the #4 Sieve. MATERIAL DESCRIPTION Description: Light Yellowish Brown to Pale Olive Silty Fat Clay **Classifications -**USCS: CH AASHTO: Nat. Moist. = Sp.G. = **Liquid Limit =** 54 Plasticity Index = 25 % < No.200 = **TEST RESULTS** Maximum dry density = 102.6 pcf Optimum moisture = 19.9 % 140 Test specification: ASTM D 1557-12 Method A Modified apply only to the samples tested and are not indicitive of apparently identical samples 130 120 **100% SATURATION CURVES** FOR SPEC. GRAV. EQUAL TO: 2.8 2.7 Dry density, pcf 2.6 110 100 90 80 70 5 10 15 20 25 30 35 40 0 Water content, % Figure

Tested By: Mathew F. Perry **Checked By:**

These results are for the exclusive use of the client for whom they were obtained. They

——Koury Engineering & Testing, Inc.—

MAXIMUM DENSITY TEST REPORT

Curve No.: 4835 Series **Date:** 3/1/18 Project No.: 18-0158 Project: Borrow Site #4 **Client:** Location: TP-11 @ 8' - 9' Sample Number: 4835 Series **Remarks:** Less than 5% Material retained on the #4 Sieve. MATERIAL DESCRIPTION Description: Light Yellowish Brown to Light Olive Brown Fat Clay with Sand **Classifications -**USCS: CH AASHTO: Nat. Moist. = Sp.G. = Liquid Limit = 53 Plasticity Index = 30 % < No.200 = **TEST RESULTS** Maximum dry density = 112.4 pcfOptimum moisture = 15.5 %140 Test specification: ASTM D 1557-12 Method B Modified apply only to the samples tested and are not indicitive of apparently identical samples 130 120 **100% SATURATION CURVES** FOR SPEC. GRAV. EQUAL TO: 2.8 2.7 Dry density, pcf 2.6 110 100 90 80 70 5 10 15 20 25 30 35 40 0 Water content, % Figure —Koury Engineering & Testing, Inc.—

Tested By: Mathew F. Perry **Checked By:**

These results are for the exclusive use of the client for whom they were obtained. They





EXPANSION INDEX TEST RESULTS ASTM D 4829

Client Name:Koury Geotechnical Services, Inc.AProject Name:Borrow Site 4IProject No.:18-0158

AP Job No.: <u>18-0309</u> Date: 03/09/18

Boring No.	Sample No.	Depth (ft)	Soil Description	Molded Dry Density (pcf)	Molded Moisture Content (%)	Init. Degree Saturation (%)	Measured Expansion Index	Corrected Expansion Index
TP-2	-	4-5	Silty Clay	84.8	19.0	52.0	36	57
TP-5	-	6-8	Silty Clay	92.4	14.7	48.1	30	49
TP-6	-	5.5-6.5	Clay	94.8	13.6	47.4	110	107
TP-6	-	13-14	Clay	90.3	15.3	47.8	153	151
TP-9	-	10-11	Clay	96.7	13.8	50.3	158	158
TP-11	-	5-6	Clay	96.7	13.7	49.7	133	132

ASTM EXPANSION CLASSIFICATION

Expansion Index	Classification
0-20	V. Low
21-50	Low
51-90	Medium
91-130	High
>130	V. High

				EXPANSIC	ON INDEX TESTS			
			DENSITY AN	D MOISTU	RE CONTENT DATA -	EI TEST		
Location/ Elevation	TP-3 @	@ 2' - 3'	TP-8 @	4.5' - 5'				
USCS Symbol	C	Ľ	С	L				
Normal Load (psf)	14	44	14	4				
SAMPLE CONDITION	Initial	Final	Initial	Final				
Wt Specimen & Ring (gr)	715.950		726.030					
Wt. of ring (gr)	366.67		<mark>364.16</mark>					
Wt. Specimen (gr)	349.280		361.870					
Specimen diameter (in)	4.010		4.010					
Specimen radius (cm)	5.09		5.09					
Area of Specimen (cm ²)	81.479	6	81.479					
Init. Spec. height (in)	1.0020	N/A	1.0005	N/A				
Height change (final)(in)	N/A	0.0279	N/A	0.0759				
Adjusted Spec.height(in)	1.00	0.9741	1.00	0.9246				
" " (cm)	2.545	2.474	2.541	2.348				
Specimen Volume (cm ³)	207.371		207.061					
Moist Density (pcf)	105.15		109.11					
MOISTURE CONTENT								
Wt. moist soil+tare(gr)	131.71	131.71	126.26	126.26				
Wt. dry soil+tare(gr)	116.99	116.99	113.10	113.10				
Wt. of tare(gr)	17.32	17.32	19.59	19.59				
Wt. dry soil (gr)	99.67	99.67	93.51	93.51				
Wt. of water (gr)	14.72	14.72	13.16	13.16				
M/C (%)	14.77	14.77	14.07	14.07				
DRY DENSITY (pcf)	91.6		95.6					
% Saturation* (48%-52%)	47.5		49.8	-				
*Assumes Gs =	2.7		2.7					
EXPANSION INDEX =	28		76					
Potential Expansion (per ASTM 4829-08)	Low		Medium					
KOURY			Project Name:			Project No.: 18-0158	Run by: MFP	Lab:
ENGINEERING & TESTING, INC.			-	Borrow S	Site #4	Date: 3/15/18	QA:	4835 Series

				EXPANSI	ON INDEX TE	STS			
			DENSITY AN	D MOISTU	JRE CONTEN	T DATA -	EI TEST		
Location/ Elevation	TP-5 @)) 1' - 2'	TP-6 @ 1	.5' - 2.5'	TP-7 @) 1' - 2'			
USCS Symbol	USCS Symbol CL		CL		С	L			
Normal Load (psf)	14	44	144		14	4			
SAMPLE CONDITION	Initial	Final	Initial	Final	Initial	Final			
Wt Specimen & Ring (gr)	758.510		762.780		<mark>748.810</mark>				
Wt. of ring (gr)	367.50		<u>364.17</u>		<u>366.67</u>				
Wt. Specimen (gr)	391.010		398.610		382.140				
Specimen diameter (in)	4.010		4.010		4.010				
Specimen radius (cm)	5.09		5.09		5.09				
Area of Specimen (cm ²)	81.479	6	81.479		81.479				
Init. Spec. height (in)	1.0020	N/A	1.0000	N/A	1.0015	N/A			
Height change (final)(in)	N/A	0.0310	N/A	0.0376	N/A	0.0200			
Adjusted Spec.height(in)	1.00	0.9710	1.00	0.9624	1.00	0.9815			
" " (cm)	2.545	2.466	2.540	2.444	2.544	2.493			
Specimen Volume (cm ³)	207.371		206.957		207.268				
Moist Density (pcf)	117.72		120.24		115.10				
MOISTURE CONTENT									
Wt. moist soil+tare(gr)	148.18	148.18	151.86	151.86	144.12	144.12			
Wt. dry soil+tare(gr)	135.32	135.32	139.40	139.40	132.94	132.94			
Wt. of tare(gr)	19.67	19.67	19.61	19.61	31.58	31.58			
Wt. dry soil (gr)	115.65	115.65	119.79	119.79	101.36	101.36			
Wt. of water (gr)	12.86	12.86	12.46	12.46	11.18	11.18			
M/C (%)	11.12	11.12	10.40	10.40	11.03	11.03			
DRY DENSITY (pcf)	105.9		108.9		103.7				
% Saturation* (48%-52%)	50.8		51.3	•	47.6		-		
*Assumes Gs =	2.7		2.7		2.7				
EXPANSION INDEX =	31		38		20				
Potential Expansion (per ASTM 4829-08)	Low		Low		Very Low				
KOURY			Project Name:				Project No.: 18-0158	Run by: MFP	Lab:
ENGINEERING & TESTING, INC.			_	Borrow	Site #4		Date: 3/14/18	QA:	4835 Series

			EXPANSION INDEX TES	STS			
			DENSITY AND MOISTURE CONTENT	DATA -	EI TEST		
Location/ Elevation	TP-11 (@ 1' - 2'					
USCS Symbol	C	L					
Normal Load (psf)	14	44					
SAMPLE CONDITION	Initial	Final					
Wt Specimen & Ring (gr)	751.570						
Wt. of ring (gr)	366.66						
Wt. Specimen (gr)	384.910						
Specimen diameter (in)	4.010						
Specimen radius (cm)	5.09						
Area of Specimen (cm ²)	81.479						
Init. Spec. height (in)	1.0020	N/A					
Height change (final)(in)	N/A	0.0446					
Adjusted Spec.height(in)	1.00	0.9574					
" " (cm)	2.545	2.432					
Specimen Volume (cm ³)	207.371						
Moist Density (pcf)	115.88						
MOISTURE CONTENT							
Wt. moist soil+tare(gr)	159.09	159.09					
Wt. dry soil+tare(gr)	145.93	145.93					
Wt. of tare(gr)	31.57	31.57					
Wt. dry soil (gr)	114.36	114.36					
Wt. of water (gr)	13.16	13.16					
M/C (%)	11.51	11.51					
DRY DENSITY (pcf)	103.9						
% Saturation* (48%-52%)	50.0		2				
*Assumes Gs =	2.7						
EXPANSION INDEX =	45						
Potential Expansion	Low						
			Project Name:		Project No · 18-0158	Run by: MFP	l ab:
ENGINE ERING			Derrow Cite #4		Dete: 2/46/49		1025 Carico
\rightarrow			Borrow Site #4		Date: 3/10/18	QA:	4030 Series

				EXPANSI	ON INDEX TESTS			
			DENSITY AN	D MOISTL	JRE CONTENT DATA -	EI TEST		
Location/ Elevation	TP-11 (@ 8' - 9'	TP-6 @	10' - 11'				
USCS Symbol	С	H	С	н				
Normal Load (psf)	14	44	14	14				
SAMPLE CONDITION	Initial	Final	Initial	Final				
Wt Specimen & Ring (gr)	716.690		706.920					
Wt. of ring (gr)	366.67		<u>367.49</u>					
Wt. Specimen (gr)	350.020		339.430					
Specimen diameter (in)	4.010		4.010					
Specimen radius (cm)	5.09		5.09					
Area of Specimen (cm ²)	81.479		81.479					
Init. Spec. height (in)	1.0015	N/A	1.0010	N/A				
Height change (final)(in)	N/A	0.1802	N/A	0.1080				
Adjusted Spec.height(in)	1.00	0.8213	1.00	0.8930				
" " (cm)	2.544	2.086	2.543	2.268				
Specimen Volume (cm ³)	207.268		207.164					
Moist Density (pcf)	105.43		102.29					
MOISTURE CONTENT								
Wt. moist soil+tare(gr)	196.18	196.18	145.08	145.08				
Wt. dry soil+tare(gr)	174.98	174.98	125.60	125.60				
Wt. of tare(gr)	31.57	31.57	19.61	19.61				
Wt. dry soil (gr)	143.41	143.41	105.99	105.99				
Wt. of water (gr)	21.20	21.20	19.48	19.48				
M/C (%)	14.78	14.78	18.38	18.38				
DRY DENSITY (pcf)	91.8		86.4					
% Saturation* (48%-52%)	47.8		52.2	:				
*Assumes Gs =	2.7		2.7					
EXPANSION INDEX =	180		108					
Potential Expansion (per ASTM 4829-08)	Very High		High					
KOURY			Project Name:			Project No.: 18-0158	Run by: MFP	Lab:
ENGINEERING & TESTING, INC.				Borrow	Site #4	Date: 2/28/18	QA:	4835 Series

			EXPANSION INDEX TESTS			
			DENSITY AND MOISTURE CONTENT DATA	EI TEST		
Location/ Elevation	TP12 @	8.5' - 9.5'				
USCS Symbol	С	Н				
Normal Load (psf)	14	14				
SAMPLE CONDITION	Initial	Final				
Wt Specimen & Ring (gr)	684.810					
Wt. of ring (gr)	357.47					
Wt. Specimen (gr)	327.340					
Specimen diameter (in)	4.010					
Specimen radius (cm)	5.09					
Area of Specimen (cm ²)	81.479					
Init. Spec. height (in)	1.0010	N/A				
Height change (final)(in)	N/A	0.1483				
Adjusted Spec.height(in)	1.00	0.8527				
" " (cm)	2.543	2.166				
Specimen Volume (cm ³)	207.164					
Moist Density (pcf)	98.65					
MOISTURE CONTENT						
Wt. moist soil+tare(gr)	122.69	122.69				
Wt. dry soil+tare(gr)	105.21	105.21				
Wt. of tare(gr)	19.60	19.60				
Wt. dry soil (gr)	85.61	85.61				
Wt. of water (gr)	17.48	17.48				
M/C (%)	20.42	20.42				
DRY DENSITY (pcf)	81.9					
% Saturation* (48%-52%)	52.1		<u>-</u>			
*Assumes Gs =	2.7					
EXPANSION INDEX =	148					
(per ASTM 4829-08)	Very High					
KOURY			Project Name:	Project No.: 18-0158	Run by: MFP	Lab:
ENGINEERING & TESTING, INC.			Borrow Site #4	Date: 3/6/18	QA:	4835 Series

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GEOTECHNICAL & SEISMIC ENGINEERING, CONSTRUCTION INSPECTION & MATERIALS TESTING SERVICES



April 16, 2019 Project No. 17-1025

Mr. John R. Burroughs, LEED AP, President Commerce Construction Co., L.P. 13191 Crossroads Parkway North 6th Floor City of Industry, CA 91746

Subject: Limited Borrow Site Feasibility Study Alternative Borrow Site 5 Southwest Corner of Hereford Drive and Hellman Avenue City of Chino, California

Dear Mr. Burroughs:

Presented herein are our preliminary findings and conclusions regarding the suitability of the Borrow Site 5 soils to be used as engineered fill to balance the grade for the 95 Acres OC Prado site construction located on the southeast corner of Bickmore Avenue and Mountain Avenue in the City of Chino.

Based on the conceptual grading plan, the proposed irregular-shaped Borrow Site 5 covers an area of about 723,000 square feet or roughly 16.6 acres. The site is bounded by Hereford Drive to the north, Walters Street to the west, Cucamonga Creek to the south and Hellman Avenue to the east. A Site Vicinity Map with approximate ground contour elevations is presented in Appendix A as Figure A-1.

Field Exploration and Laboratory Testing for Feasibility Study

The field exploration program for the feasibility study consisted of excavating ten test pits on March 13, 2019. A rubber tire mounted backhoe was used to excavate the 10 test pits ranging in depths from about 11 to 17 feet below the existing ground surface. The locations of the test pits are shown on the Field Exploration Map, Figure A-2, presented in Appendix A. Bulk samples were obtained from the test pits for laboratory testing.

Laboratory tests, including moisture content, #200 sieve wash, expansion index, maximum density, pocket penetrometer, and corrosivity were performed to aid in the classification of the materials encountered and to evaluate their engineering properties. Sulfates, chlorides, resistivity, and PH tests (corrosivity tests) were also performed on selected samples. The results of pertinent laboratory tests are presented on the boring logs in Appendix B, and/or in Appendix C.

Site Geology

The site is located within the Upper Santa Ana River Valley, which consists of a series of coalescing alluvial fans formed by streams flowing out of the San Gabriel Mountains to the north. The valley lies within the Peninsular Ranges geomorphic province, which is characterized by alluviated basins, elevated erosion surfaces, and northwest-trending mountain ranges bounded by northwest trending faults. The site, which is located within the Chino Basin, is underlain by sediments deposited by the Santa Ana River and its tributaries such as the Chino Creek.

Morton and Miller (2006) show the site to be underlain by very old alluvial-fan deposits (See Figure A-3 in Appendix A). The sediments encountered during the subsurface investigation consisted predominantly of clay.

Surface Site Conditions

Access to the site is presently via Hellman Avenue at the northeast corner of the site. The site is roughly rectangular in area: extending about 1200 feet in the east-west direction and 1250 feet in the northerly direction.

The site was previously used as dairy farm and cattle raising. The site is presently vacant, and the previously existing buildings and cattle shelters have been removed. However, few of the slabs on grade, foundations, fence posts, and most likely some underground utilities are still in place. At the time of the field exploration in March 2019, most of the site exposed bare ground. There was a few trees and shrubs along Hellman Ave and around the seasonal water ponds.

The south side of the site contains a 4 to 6-foot-deep water detention basin; the basin has an entry ramp in the northeast corner. Little vegetation and trash were found within the basin.

The site generally slopes gently from north to south with elevations ranging for the most part from about 555 to 545 feet. Along the east property line, within the southeast portion of the site, there is a gentle slope descending about 8 to 11 feet to the Cucamonga Creek.

In its present state, the site has been cleared of all past structures such as buildings, shelters, and above ground ancillary facilities; however, it appears that several foundations, slabs on grade, and underground conduits are still in place. There are overhead powerlines present onsite, trending north-south, west of Hellman Ave and roughly 60 feet into the property. The dominant features of the site are the many small berms and unpaved roads that were constructed across the site. Many of the berms appear to have been constructed by pushing onsite soils into piles. Most of the berms have heights in the range of 1 to 2 feet and consist of relatively loose undocumented fill.

Within the site area, there are several small piles of construction debris roughly 10 feet in diameter consisting of crushed concrete, rebar and trash.

Soil Conditions

The subsurface soil profile consists generally of artificial fill underlain by alluvial deposits. For the most part, the fill is generally on the order of 1 to 3 feet in thickness. The deeper fills appear to be associated with previous improvements that were demolished. The fill derived from onsite shallow soils consists predominantly of lean clay with sand and sandy lean clay, and includes fat clay. clayey sand, silty sand, and construction debris.

The alluvium soils consist predominantly of stiff to very stiff medium plastic to high plastic sandy clay and clay with sand. Some discrete layers of silty sand and poorly graded sand with silt were encountered in Test Pit 1 from $14\frac{1}{2}$ to 17 feet, Test Pit 3 from $12\frac{1}{2}$ to $14\frac{1}{2}$ feet, and Test Pit 8 from 14 to $16\frac{1}{2}$ feet.

The moisture contents of clay soils are highly variable, ranging from about $16\frac{1}{2}$ to $49\frac{1}{2}$ percent with an average of about 28 percent while the sand material moisture contents range from about 10 to 37 percent with an average of about 19 percent. Based on two maximum density tests performed and prior experience with similar soils, many of the clay sample moisture contents are about 7 to 20 percent above optimum for the soils sampled at depths between 4 and 13 feet below the ground surface.

Test Pit Number	TP8 @ 4-4.5	TP2 @ 1.5-2
Maximum Dry Density (pcf)	97.1	81.3
Optimum Moisture Content (%)	23.4	36.4

Table 1 – Maximum Density Test Results

The fine contents range from about 50 to 98 percent with an average of about 77 percent for clay and from about 8 to 42 percent with an average of about $25\frac{1}{2}$ percent for the sand. The average relatively low fine contents of the clay soils are attributed to the presence of concretions (hard matter formed by precipitation of mineral cement between particles), which was observed in many of the clay samples. The pocket penetrometer tests indicate unconfined compression strength on the order of 1 to 4.5 tsf with an average of about 2.6 tsf.

The site soil expansion potential ranges from very low to very high. Table 2 presents the data for 12 tests sampled at depths ranging from 1 to 5.5 feet. These tests indicate expansion index variation from 19 to 174. Within the upper 4 feet, the test data obtained to date indicate expansion indices ranging between 19 and 98 and moisture contents between about 12 and 47 percent with an average of about 30 percent. Except for Test Pit 2, at depths of 4 to $4\frac{1}{2}$ feet and Test Pit 4 at depths of 5 to $5\frac{1}{2}$ feet, all the expansion index tests performed on samples at depths greater than $3\frac{1}{2}$ feet indicated expansion indices greater than 65. The sample collected at Test Pit 3 between the depths of 4.8 and 5.2 feet indicated a very high expansion potential.

The moisture contents of the clay below a depth of 4 feet range predominantly between 24 and 49 percent with an average of about 30 percent. On average, this moisture content is about 6 to $12\frac{1}{2}$ percent above optimum.

Test Pit	TP-1	TP-1	TP-2	TP-2	TP-3	TP-4	TP-5	TP-5	TP-7	TP-7	TP-8	TP-10
Depth (ft)	0-1	3.7-4	1.5-2	4-4.5	4.8-5.2	5-5.5	1-1.5	2.5-3	1-1.5	3.5-4	4-4.5	4.5-5.5
Expansion	43	98	52	38	174	34	39	39	19	60	80	66
Moisture	23.4	19.1	42.0	49.4	33.1	42.9	22.0	24.0	26.0	22.0	31.7	44.0
Fines	54	83	89	93	95	77	83	77	87	85	59	89

Table 2 – Expansion Index Test Results

Groundwater

No groundwater was encountered in the excavated test pits.

Corrosivity

The corrosivity tests performed indicates that the site soils are generally severely corrosive to ferrous metal. In addition, test result from Test Pit 2 reveal that the soil has a moderate sulfate exposure or Class S1 exposure category in accordance with ACI 318-14, Table 19.3.1.1. The corrosivity test results are summarized in the following Table 3.

Table 3 -	Corrosion	Test Results
-----------	------------------	---------------------

Boring	Depth (ft)	Minimum Resistivity (ohm-cm)	рН	Soluble Sulfate Content (ppm)	Soluble Chloride Content (ppm)	
TP-2	1.5-2.0	304	8.2	1360	700	
TP-6	1.5-2.0	491	8.3	654	270	

The test results from Test Pit 2 reveal a moderate sulfate exposure, which if imported, will require concrete special design considerations in accordance with ACI 318, Table 19.3.2.1 if this soil is placed against concrete.

Conclusions and Recommendations

Based on the data collected from the field to date, it appears feasible to import some material from Borrow Site 5 to use at the OC Prado site. Soil with high expansion potential was encountered at all depths throughout the soil profile. However, with proper blending and processing, it appears that mainly the upper 4 feet of soils could be suitable for foundation support. The deeper soils generally have higher moisture contents, higher plasticity and are deemed to have higher expansion potential than the soil at 4 feet and shallower, and therefore are less desirable to be used as fill. If need be, after proper processing and dry back, these deeper materials could be used as general fill in parking lots and driveway areas at the OC Prado site.

CLOSURE

The findings and recommendations presented in this report were based on the results of our field and laboratory investigations, combined with professional engineering experience and judgment. The report was prepared in accordance with generally accepted engineering principles and practice. We make no other warranty, either expressed or implied. Subsurface variations between and beyond the test pits should be anticipated. Samples obtained during this investigation will be retained in our laboratory for a period of 45 days from the date of this report and will be disposed after this period.

Should you have any questions concerning this submittal, or the recommendations contained herewith, please do not hesitate to call our office.

Respectfully submitted,

KOURY ENGINEERING & TESTING, INC

ques B. Roy, PE

Jacques B. Roy, PE, Gl Principal Engineer

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APPENDICES

NO. 2077 Ex. Date 9/30

Appendix A: Maps and Plans

Vicinity Map – Figure A-1 Field Exploration Map – Figure A-2 Geology Map – Figure A-3

Appendix B: Field Exploratory Test Pits

Test Pits 1 through 10

Appendix C: Laboratory Test Results

REFERENCES

- 1. California Division of Mines and Geological Survey, 1998, Seismic Hazard Zone Report 045 for the Prado Dam 7.5 Minute Quadrangle, California.
- 2. California Division of Mines and Geological Survey, 2003, Earthquake Fault Zones, Prado Dam Quadrangle, May 1, 2003.
- 3. City of Chino General Plan, Safety Element, 2010, Final Report.
- 4. US Army Corps of Engineers, Geotechnical Investigations, Engineering Manual EM 1110-1-1804, dated 8/26/86.
- 5. US Army Corps of Engineers, Laboratory Soils Testing, Engineering Manual EM 1110-2-1906, dated 8/26/86.

APPENDIX A

Maps and Plans

			- KEMINUTUN AVE				JH ST	
			Chino Airport				MIX ARCAD	I AVE ON A
	0			g			ROLLING NET NORTHFORK	DAR CRE
(83	3 	600		KIMBALL AVE	E CO			65TH ST BLACK CO
ME ME	"IMBALL A	IVE AND	E PRE SPRE	ChNU2 DA		±7751	SERVALE DR	
					RIVER CONTRACTOR	TAK IN	WHISPERING HILLS OF	
SANA				SAN		ENTON P.		SUMNE
WE .		BICKMORETAVE		G.	SCHLEISMAN RD	花皮		Eastvale
FERN	0	PIN	E AVE	600 W		COGSDON DR		
	1	RD		CHINO HIT	ALDERGATE MEADON'S A NARCIS	EE OP		KEIL
		CORONA			VIVADR	DE DR		ASDEN LEAF-UN
NE	AR	CHINC			WALTERS ST	IER CREET	- The state	S CITRUS ST
ER AVE	NOSNHOL				LI AVE	FAIRCHILD DR	TROUT WIN	BBLECRE
NO			Site		SELL HAI	REDWOOD VALLEY RD	ALMOND GROVE CT	
	S XG		CHINO CORONA RD		SRT ARTHUR DR	POINTER	DELLBROOK ST	
						echio op	T	
83	\mathcal{A}	IGA AVE			AT	PINTAIL LOOP	DEARBORNSI	
Chino Cr	$\sqrt{2}$	Само			LIL Com		F sturs	
	N A	C T = f	$\langle \circ \rangle$		CPL TICEKIDR		1 Str	WONC
		S (A)		TT -				SHADOW CANTE T
Enci		- Stan			ITHICA DR	IENNA DR		
	\mathcal{M}			MCCARTY RD	RIVER RD	TO RAIL	X X	
SAR 12	SSUM				BARON			
Reference: USGS Topog	graphic Map,	Prado Dam & Corona Quadra	angles, California, 7.5 Minute	Series 2015 - Co	ntour Interval 20 feet, NA	AVD of 1988	0 1/2	2 1 Mile
KOUD	Pr	oject Name:		Project No.:	17-1025	Drawing Title:		Figure:
ENGINEERING & TESTING, INC	G C.	Alternative Bo	rrow Site # 5	Date:	April 2019	Vic	inity Map	A-1





APPENDIX B

Field Exploratory Test Pits

KEY TO LOGS

		SO	ILS CLA	SSIFICA	TION
	MAJOR DIVISIONS	6	GRAPHIC USCS LOG SYMBOL		TYPICAL NAMES
	GRAVELS	CLEAN GRAVELS		GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
COARSE	UNAVEED	LESS THAN 5% FINES		GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
SOILS	MORE THAN 50% OF COARSE	GRAVELS WITH FINES		GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
	LARGER THAN NO. 4 SIEVE	MORE THAN 12% FINES		GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
MORE THAN 50% OF MATERIAL IS	SANDS	CLEAN SANDS		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
	OANDO	LESS THAN 5% FINES		SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
LARGER THAN NO. 200 SIEVE SIZE	50% OR MORE OF COARSE	SANDS WITH FINES		SM	SILTY SANDS, SAND-SILT MIXTURES
	SMALLER THAN NO. 4 SIEVE	MORE THAN 12% FINES		SC	CLAYEY SANDS, SAND-CLAY MIXTURES
	SILTS AN	ND CLAYS		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
FINE GRAINED SOILS				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AN	ND CLAYS		МН	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR GRAVELLY ELASTIC SILTS
50% OR MORE OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE				СН	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
		S SU OR MORE		ОН	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGH		SOILS		PT	PEAT AND OTHER HIGHLY ORGANIC SOILS

GRAIN SIZES									
	SAND			GRA	VEL				
SILT AND CLAT	FINE	MEDIUM	COARSE	FINE	COARSE	COBBLES	BOOLDERS		
	#200	#40	#10	#4	3/4"	3"	12"		
SIEVE SIZES									

KEY TO LOGS (continued)

	SPT/CD BLOW COUNTS VS. CONSISTENCY/DENSITY										
FINE-GRAINED S	OILS (SILT	S, CLAYS, etc.)	GRANULAR SOILS (SANDS, GRAVELS, etc.)								
CONSISTENCY	*BLC	DWS/FOOT	RELATIVE DENSITY	*BLOWS/F	TOOT						
CONSISTENCT	SPT	CD	RELATIVE DENSIT	SPT	CD						
SOFT	0-4	0-4	VERY LOOSE	0-4	0-8						
FIRM	5-8	5-9	LOOSE	5-10	9-18						
STIFF	9-15	10-18	MEDIUM DENSE	11-30	19-54						
VERY STIFF	16-30	19-39	DENSE	31-50	55-90						
HARD	over 30	over 39	VERY DENSE	over 50	over 90						

* CONVERSION BETWEEN CALIFORNIA DRIVE SAMPLERS (CD) AND STANDARD PENETRATION TEST (SPT) BLOW COUNT HAS BEEN CALCULATED USING "FOUNDATION ENGINEERING HAND BOOK" BY H.Y. FANG. (VALUES ARE FOR 140 Lbs HAMMER WEIGHT ONLY)

DESCRIPTIVE ADJECTIVE VS. PERCENTAGE								
DESCRIPTIVE ADJECTIVE	PERCENTAGE REQUIREMENT							
TRACE	1 - 10%							
LITTLE	10 - 20%							
SOME	20 - 35%							
AND	35 - 50%							

*THE FOLLOWING "DESCRIPTIVE TERMINOLOGY/ RANGES OF MOISTURE CONTENTS" HAVE BEEN USED FOR MOISTURE CLASSIFICATION IN THE LOGS.

APPROXIMATE MOISTURE CONTENT DEFINITION							
DEFINITION	DESCRIPTION						
DRY	Dry to the touch; no observable moisture						
SLIGHTLY MOIST	Some moisture but still a dry appearance						
MOIST	Damp, but no visible water						
VERY MOIST	Enough moisture to wet the hands						
WET	Almost saturated; visible free water						

	STING	RING						
e %)	/						Sheet :	1 of : 1
e (%)							Drilling Method : Backhoe	
	t cf)		÷	ation	bo	e	Sampling Method : Bulk Ground	Elevation:
stur nt (t (p	per	th (fi	Loca	ic L	Typ (CS)	Hammer Weight : Drilling	Co.: Bill Bastedo
Mois onte	Dry eigh	swo	Dept	nple	raph	Soil (US	Location .See Figure A-2 Date Diff	Additional
S	3	B	0	Sar	U		Description	Tests
23.4			- - -				FILL: Sandy Lean CLAY; pockets of clayey sand, stiff, moist, ver dark brown	/ Fines = 54% EI = 43
19.3				~		CL	ALLUVIUM:	Pines = 81% PP = 2.5 tsf
19.1			5	8			Lean CLAY with SAND; stiff to very stiff, moist, dark yellow brown	ish Fines = 83% PP = 4.5 tsf EI = 98
23.0			-				Lean to Fat CLAY with SAND; stiff, moist, dark brown	Fines = 84% PP= 1.75-2.4 tsf
26.2				8		CL/CH	Lean to Fat CLAY ; very stiff, moist to very moist, dark yellowish brown	#200 Wash Fines = 93% PP=2.5-3 tsf
26.8			10 <u>-</u> 				Lean to Fat CLAY with SAND; stiff, moist to very moist, oli brown	/e #200 Wash Fines= 79% PP=2.0 tsf
40.0			-					#200 M/aab
40.0				Ê		СН	Fat CLAY; layers of silty sand, firm, moist to very moist, olive gray	#200 Wash Fines = 92% #200 Wash
11.3			15 <u>-</u>	×		SP-SM	Poorly Graded SAND with SILT ; fine to coarse, pockets of gray clay, moist to very moist, dark yellowish brown	Fines = 12% #200 Wash
17.0							End of test pit @ 16' 9" No groundwater encountered	
	23.4 19.3 19.1 23.0 26.2 26.8 40.0 11.3 17.0	C S 23.4 19.3 19.1 23.0 23.0 26.2 26.2 26.8 40.0 11.3 17.0 11.3	C S M 23.4 . . 19.3 . . . 19.1 . . . 23.0 . . . 23.0 . . . 26.2 . . . 40.0 . . . 11.3 . . . 17.0 . . . 140.0 . . . 11.3 . . . 17.0 . . . 17.0 	C S M 23.4 0 0 19.3 5 19.1 5 23.0 5 26.2 10 26.8 10 40.0 11.3 17.0 20 30 30 30 33 40.0 33	o s n \bar{s} 23.4 0 19.3 19.1 23.0 26.2 26.8 40.0 11.3 17.0 17.0 11.3 17.0 17.0 17.0 17.0 17.0 17.0 17.0 17.1 17.1 17.1 17.1 17.1 17.1	C \leq α a a a 23.4 19.3 19.3 19.1 23.0 26.2 26.8 10 40.0 15 11.3 15 17.0 10 11.3 20 31 10 <t< td=""><td>o s a \overline{a} \overline{a}</td><td>O S a B C Description 23.4 4 4 5 6 FIL: Sandy Lean CLAY; pockets of clayey sand, stiff, moist, very dark brown 19.3 4 5 6 CL ALLVUWi: Lean CLAY with SAND; stiff to very stiff, moist, dark yellow brown 23.0 5 7 7 CL ALLVUWi: Lean to Fat CLAY; very stiff, moist, dark brown 26.8 4 4 7 6 CL/CH Lean to Fat CLAY; very stiff, moist to very moist, dark yellowish brown 40.0 4 4 7 6 CL/CH Lean to Fat CLAY; layers of silty sand, firm, moist to very moist, dark yellowish brown 11.3 10 7 8 8 9 9 Poorty Graded SAND with SILT; fine to coarse, pockets of gray clay, moist to very moist, dark yellowish brown 11.3 15 7 8 8 9 9 Poorty Graded SAND with SILT; fine to coarse, pockets of gray clay, moist to very moist, dark yellowish brown 11.4 4 4 4 4 4 4 4 10 20 7</td></t<>	o s a \overline{a}	O S a B C Description 23.4 4 4 5 6 FIL: Sandy Lean CLAY; pockets of clayey sand, stiff, moist, very dark brown 19.3 4 5 6 CL ALLVUWi: Lean CLAY with SAND; stiff to very stiff, moist, dark yellow brown 23.0 5 7 7 CL ALLVUWi: Lean to Fat CLAY; very stiff, moist, dark brown 26.8 4 4 7 6 CL/CH Lean to Fat CLAY; very stiff, moist to very moist, dark yellowish brown 40.0 4 4 7 6 CL/CH Lean to Fat CLAY; layers of silty sand, firm, moist to very moist, dark yellowish brown 11.3 10 7 8 8 9 9 Poorty Graded SAND with SILT; fine to coarse, pockets of gray clay, moist to very moist, dark yellowish brown 11.3 15 7 8 8 9 9 Poorty Graded SAND with SILT; fine to coarse, pockets of gray clay, moist to very moist, dark yellowish brown 11.4 4 4 4 4 4 4 4 10 20 7

e No. ure Init (%) (pcf) ber 6" (ft)	aphic Log	e			
ample Moist Dry U eight ows p Depth		soil Typ (USCS)	Sampling Method : Bulk Hammer Weight : Location : See Figure A-2	Ground Elevati Drilling Co. : E Date Drilled : 3	ion: Bill Bastedo 8/13/19
	้อ	•,	Description		Tests
1 34.2 0 <u> </u>		CL/CH	Cobbles at the surface and 8 inches of sand FILL: Sandy Lean to Fat CLAY; organic inclusior moist, very dark brown	ns, stiff,	Fines = 64% PP = 3-4 tsf Corrosion EI = 52 Fines = 89% PP = 3.5 tsf
3 49.4		СН	ALLUVIUM: Fat CLAY; very stiff, moist, very dark gray		#200 Wash Fines = 93% PP = 4.5 tsf EI = 38
4 24.7		CL/CH	Lean to Fat CLAY; very stiff, moist, mottled gray v inclusions	with brown	Fines = 92% PP = 4.0 tsf
5 27 2			dark gray with rusty brown pockets		Fines = 83% PP = 2-2.5 tsf
			End of test pit @ 12' 6" No groundwater encountered		

-(RY RING , INC.					Project No. : 17-1025 Project Name : Borrow Site 5 S Drilling Method : Backhoe	Boring No. Sheet : 1 of	: TP-3 : 1
ample No.	Moisture Intent (%)	Dry Unit ight (pcf)	ows per 6")epth (ft)	ple Location	aphic Log	soil Type (USCS)	Sampling Method : BulkGHammer Weight :ELocation : See Figure A-2E	Ground Elevati Drilling Co. : B Date Drilled : 3	i on: Bill Bastedo B/13/19
ŝ	2 °	Ne I	Blo		Sam	Ģ	0	Description		Additional Tests
1	32.7			0 	8		CL	Gravel, cobbles, and construction debris FILL: Lean CLAY with SAND; some organic, stiff, r dark brown	moist,	#200 Wash Fines = 83% PP=2.5-2.75 tsf
2	22.7			-	×		CL/CH	ALLUVIUM: Lean to Fat CLAY with SAND; trace concretions, stiff, moist, dark brown		#200 Wash Fines = 80% PP = 1.5 tsf
3 4	33.1 28.1			5 <u>-</u> -	X X		СН	Fat CLAY ; firm to stiff, moist to very moist, mottled o yellowish brown with dark brown	dark	EI = 174 Fines = 95% PP = 1.0 tsf #200 Wash Fines = 90% PP=1.5-1.75 tsf
5	25.0			-	8		CL	Lean CLAY with SAND; firm, moist, dark grayish br (mostly silt)	rown	Fines = 83% PP = 0.5 tsf
6	38.0			10 <u> </u>	8		СН	Fat CLAY; stiff, moist to very moist, grayish brown		#200 Wash Fines = 98% PP = 1.75 tsf
7	10.3			 			SM	Silty SAND; fine to coarse, lumps of sandy clay, dar yellowish brown	rk	#200 Wash Fines = 13%
8	33.6			15	×		ML	SILT; very stiff, trace of organic, moist to very moist,	, pockets	Fines = 89% PP = 2.5 tsf
								End of test pit @ 15' 5" No groundwater encountered		

KOURY								Project No. : 17-1025	Boring No.	. : TP-4
(ENG							FIOJECT NAME : DOMON SILE S	Sheet: 1 of	: 1
	4	2						Drilling Method : Backhoe		
о.	(%	cf)	6"		tion	Бс	ē	Sampling Method : Bulk	Ground Elevat	ion:
e N	ture ht ('	Unit (p	per	ר (ft	-oca	сĽ	CS)	Hammer Weight :	Drilling Co. : 1	Bill Bastedo
Idme	Nois Inter	Dry I eight	SWC	beptl	ple L	aphi	L Ioŝ (USC)	Location : See Figure A-2	Date Drilled :	3/13/19
ŝ	- °	- %	Blc		Sam	Ģ	0	Description		Additional Tests
1	16.5			0	*		SC	Cobbles, boulders, and concrete at surface FILL: Clavey SAND: trace of concretions, trace	of gravel.	#200 Wash Fines = 19%
2	45.7				\mathbb{X}			moist, very dark brown		#200 Wash
				-			CL/CH	ALLUVIUM: Sandy Lean to Fat CLAY; trace o moist, stiff, very dark brown	f organic,	PP = 3-4 tsf Fines = 77%
3	42.9				×					PP = 2.5 tsf EI = 34
4	26.3			-				Lean CLAY with SAND; firm, moist, dark grayi	sh brown	#200 Wash Fines = 84% PP = 2.5-3 tsf
5	24.0			10			CL	(mosay sit)		#200 Wash Fines = 83% PP = 2.0 tsf
6	25.2				\otimes		CL/CH	Sandy Lean to Fat CLAY; trace of organics, ro very dark greenish gray	otlets, moist,	#200 Wash Fines = 73% PP = 2-2.5 tsf
6	25.2							End of test pit @ 13' 6" No groundwater encountered		PP = 2-2.5 tsf
				40	1			Bulk 🕅 C.D 🗖	SPT	

KOURY ENGINEERING & TESTING, INC.								Project No. : 17-1025 Project Name : Borrow Site 5	Boring No. : TP-5 Sheet : 1 of : 1		
mple No.	loisture ntent (%)	ry Unit ght (pcf) ws per 6" spth (ft)			ole Location	Iphic Log	oil Type USCS)	Drilling Method : BackhoeSampling Method : BulkGround ElerHammer Weight :Drilling Co.Location : See Figure A-2Date Drilled		vation: :Bill Bastedo I:3/13/19	
Sai	⊆ G C	D Wei	Blo	ŏ	Samp	Gra	S (Description		Additional Tests	
1	46.8			0	※		CL/CH	Topsoil; Sandy Lean to Fat CLAY; trace of org dark brown	anics, very	Fines = 50%	
2	22.0			-	※		CL	FILL: Lean CLAY with SAND; trace of concretion	ons, very	EI = 39 Fines = 83%	
3	24.0			 	8		CL/CH	ALLUVIUM: Lean to Fat CLAY with SAND; trace of concreti moist to very moist, pale brown	ons, stiff,	EI = 39 Fines = 77% PP = 2-2.5 tsf	
4	21.8			3 <u> </u>	8		СН	Fat CLAY; concretions, stiff, moist to very moist,	pale brown	#200 Wash Fines = 87% PP = 1.5 tsf	
5	30.0			10 <u>-</u> 	×		CL/CH	Lean to Fat CLAY with SAND; stiff, moist, dark brown	yellowish	#200 Wash Fines = 76% PP = 1.5 tsf	
6	16.6			_	※		CL	Sandy CLAY; firm, moist, yellowish brown to ver	y dark brown	Fines = 50%	
								End of test pit @ 13' 5" No groundwater encountered	SPT		

ENGINEERING ENGINEERING ESTING, INC.								Project No. : 17-1025 Project Name : Borrow Site 5 Drilling Method : Backhoe	Boring No. : TP-6 Sheet : 1 of : 1		
ample No.	Moisture Intent (%)	Dry Unit ⊧ight (pcf)	ows per 6")epth (ft)	ple Location	aphic Log	soil Type (USCS)	Sampling Method : BulkGround EleHammer Weight :Drilling Co.Location : See Figure A-2Date Driller		vation: : Bill Bastedo I: 3/13/19	
Sa	° °	I We	Blc		Sam	Gr	ω -	Description		Additional Tests	
				0			SM	Gravel, cobbles, concrete, wood, asphalt pieces a FILL: Silty SAND; trace of gravel and topsoil	at surface		
1	32.9				X		CL/CH	ALLUVIUM: Lean to Fat CLAY; pockets of silty sand, stiff, mo with pale brown	ist, brown	Corrosion Fines = 85% PP = 4.0 tsf	
2 3	20.3 21.0			5	X		2	Lean CLAY with SAND; very stiff, moist, mottled	brown	Fines = 75% PP = 3.5-4.5 tsf #200 Wash Fines = 77%	
4	23.2 23.1			- - - 10	X		UL	Sandy Lean CLAY; very stiff, moist, olive brown		Fines = 62% PP=2.75-4.2 tsf Fines = 61% PP=2 5-2 75 tef	
	20.1						End of test pit @ 11' No groundwater encountered	SPT			

KOURY ENGINEERING & TESTING, INC.								Project No. : 17-1025 Boring Project Name : Borrow Site 5 Sheet : 1 Drilling Method : Backhoe Sheet : 1		: TP-7
ample No.	Moisture ontent (%)	Dry Unit eight (pcf)	ows per 6"	Jepth (ft)	ple Location	aphic Log	soil Type (USCS)	Sampling Method : Bulk Hammer Weight : Location : See Figure A-2	Ground Elevation: Drilling Co. : Bill Bastedo Date Drilled : 3/13/19	
Š				Sam	ŋ	0)	Description		Additional Tests	
1	36.8			0	\otimes		SC	Patchy grass over clayey sand topsoil, trace of or	ganic	#200 Wash Fin <u>es = 42%</u>
2 3 4	26.0 22.0 25.8						CL	ALLUVIUM: Lean CLAY; abundant concretions, very stiff, mois	st, brown	EI = 19 Fines = 87% PP = 4.5 tsf Fines = 85% PP = 2.5-3 tsf EI = 60 Fines = 88%
5	27.3			10			CL/CH	Lean to Fat CLAY with SAND; firm to stiff, moist moist, light olive brown	to very	#200 Wash Fines = 77% PP = 1-1.25 tsf
6	19.7				×		CL	Sandy Lean CLAY; firm to stiff, moist, light olive b	prown	Fines = 54% Fines = 60%
								End of test pit @ 15' No groundwater encountered		
Boring Log

KOURY ENGINEERING TESTING, INC.								Project No. : 17-1025 Project Name : Borrow Site 5 Sheet : Drilling Method : Backhoe	i ng No.: TP-8 at:1 of:1	
ample No.	Moisture Intent (%)	Dry Unit eight (pcf)	ows per 6"	Jepth (ft)	ple Location	aphic Log	soil Type (USCS)	Sampling Method : BulkGround IHammer Weight :Drilling CLocation : See Figure A-2Date Drilling C	Elevation: Co. : Bill Bastedo led : 3/13/19	
Š	2 °	- M	Blo		Sam	ษั	07	Description	Additional Tests	
1 2 3	12.6 44.1			0 	XX X		SC	Retention basin slope FILL: Clayey SAND; layers of sandy clay, moist, trace of gravel, concretions and organic	#200 Wash Fines = 33% Fines = 74% Fines = 84% PP=-3 75 tef	
4	31.7			- - - 5 -			CL/CH	ALLUVIUM: Lean to Fat CLAY with SAND; trace of organic, stiff, moist, dark gray (max density 97.1 pcf @ 23.4% moisture)	EI = 80 Fines = 59% PP = 3.5-4 tsf Fines = 83% PP = 2.5-3 tsf	
5 6	27.8 26.3				XX XX				PP = 1-1.5 tsf Fines = 68%	
7 8	23.1 28.5			10 <u>-</u> 	×××		CL	Sandy Lean CLAY; stiff, moist to very moist, concretions, olive brown with dark brown inclusions	#200 Wash Fines = 50% PP = 2.0 tsf Fines = 71.3%	
									PP = 2-2.2 tsf	
9 10	16.1 17.5			15	×		SM	Silty SAND; fine to medium, lumps of clay, moist to very moist, dark yellowish brown	Fines = 40% Fines = 22%	
								End of test pit @ 16' 6" No groundwater encountered		

Boring Log

$\left($			RY RING				Project No. : 17-1025 Project Name : Borrow Site 5 Drilling Method : Backhoe	Boring No. Sheet : 1 of	: TP-9 : 1
mple No.	Aoisture ntent (%)	Dry Unit ight (pcf)	ws per 6"	lepth (ft)	aphic Log	oil Type (USCS)	Sampling Method : Bulk Hammer Weight : Location : See Figure A-2	Ground Elevat Drilling Co. : E Date Drilled :	ion: Bill Bastedo 3/13/19
Se	² ٥	I We	Blo		Gr	0	Description		Additional Tests
1	21.6						FILL: Sandy Lean CLAY		Einos - 76%
	31.0						ALLUVIUM: Lean CLAY with SAND; stiff, moist, yellowish brown	dark	PP = 2.5 tsf Fines = 85%
2 3	21.0 20.3			5		CL	Sandy Lean CLAY; concretions, stiff, moist to ve yellowish brown	ry moist,	Fines = 69%
4	18.5				8		Lean CLAY with SAND; concretions, moist, olive white	brown with	#200 Wash Fines = 82%
5	19.3			10	3		Sandy Lean CLAY; caliche stringers, very stiff, m olive brown with white specs	ıoist, light	Fines = 74% PP = 3-4 tsf
				$\begin{array}{c} 1 \\ - \\ - \\ - \\ - \\ - \\ - \\ - \\ - \\ - \\$			End of test pit @ 11'6" No groundwater encountered	SPT	

Boring Log

view	Project Name : Borrow Site 5 Borring No. NC. Sheet : 1 of Drilling Method : Backhoe	: TP-10 : 1	
image: bit image	Sampling Method : Bulk Ground Elevati Sampling Method : Bulk Drilling Co. : B Hammer Weight : Drilling Co. : B Location : See Figure A-2 Date Drilled : 3	tion: Bill Bastedo 3/13/19	
1 36.0 0 SC FILL: Clayey SAND; topsoil, trace of organics, moist, dark brown #200 2 30.8 CL/CH CL/CH Sandy Lean to Fat CLAY; trace of organic, very moist, very dark grayish brown #200 3 44.0 5 CL/CH Fat CLAY; stiff, moist to very moist, black #200 4 28.5 CL CH Fat CLAY; stiff, moist to very moist, black Fines 5 24.0 CL CL Lean CLAY with SAND; stiff, moist to very moist, dark grayish brown Fines 6 24.8 CL End of test pit @ 13' No groundwater encountered PP=1.	m Description	Additional Tests	
2 30.8 44.0 CL/CH ALLUVIUM: Sandy Lean to Fat CLAY; trace of organic, very moist, very dark grayish brown #200 Fine: pp: eline: eline:	0 SC FILL: Clayey SAND; topsoil, trace of organics, moist, dark	#200 Wash Fines = 41%	
3 44.0 5 Fat CLAY; stiff, moist to very moist, black #200 Fine: PP = EI 4 28.5 10 End CLAY with SAND; stiff, moist to very moist, dark grayish brown Fine: PP = 5 24.0 10 End of test pit @ 13' No groundwater encountered PP=1.	CL/CH ALLUVIUM: Sandy Lean to Fat CLAY; trace of organic, very moist, very dark grayish brown	#200 Wash Fines = 57%	
4 28.5 5 24.0 6 24.8 6 24.8 6 24.8 6 24.8 6 24.8 6 24.8 6 24.8 7 10 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	5 – CH Fat CLAY; stiff, moist to very moist, black	#200 Wash Fines = 89% PP = 4.0 tsf EI = 66	
5 24.0 10 Image: CL Lean CLAY with SAND; stiff, moist to very moist, dark grayish brown Fine: PP = 1 6 24.8 Image: CL End of test pit @ 13' No groundwater encountered PP=1. 15 Image: CL Image: CL End of test pit @ 13' No groundwater encountered PP=1. 20 Image: CL Image: CL Image: CL Image: CL Image: CL PP=1.		Fines = 88% PP = 1-1.5 tsf	
6 24.8 Image: Constraint of the set pit (0, 13') Image: Constraint of the set pit (0, 13') No groundwater encountered 15 1 15 1 15 1 14 14 14 14 14 15 1 14 14 16 14 14 14 17 14 14 14 18 14 14 14 19 14 14 14 14 14 14 14	Lean CLAY with SAND; stiff, moist to very moist, dark grayish CL brown	Fines = 76% PP = 2.0 tsf	
	End of test pit @ 13' No groundwater encountered	<u>PP=1./5-2.2 tst</u>	

APPENDIX C

Laboratory Test Results

EXPANSION INDEX TESTS										
			DENSITY AN	D MOISTU	IRE CONTEN	T DATA -	EI TEST			
Location/ Elevation	TP 1 (@ 0-1'	TP 1 @	3.75-4'	TP 2 @	ī) 1.5-2'	TP 5 @) 2.5-3'		
USCS Symbol										
Normal Load (psf)										
SAMPLE CONDITION	Initial	Final	Initial	Final	Initial	Final	Initial	Final	-	
Wt Specimen & Ring (gr)	726.100		753.180		657.110		720.710			
Wt. of ring (gr)	364.10		367.40		366.64		<u>367.31</u>			
Wt. Specimen (gr)	362.000		385.780		290.470		353.400			
Specimen diameter (in)	4.010		4.010		4.010		4.010			
Specimen radius (cm)	5.09		5.09		5.09		5.09			
Area of Specimen (cm ²)	81.479		81.479		81.479		81.479			
Init. Spec. height (in)	1.0005	N/A	1.0030	N/A	<u>1.0030</u>	N/A	1.0030	N/A		
Height change (final)(in)	N/A	0.0427	N/A	0.0983	N/A	0.0520	N/A	0.0389		
Adjusted Spec.height(in)	1.00	0.9578	1.00	0.9047	1.00	0.9510	1.00	0.9641		
" " (cm)	2.541	2.433	2.548	2.298	2.548	2.416	2.548	2.449		
Specimen Volume (cm ³)	207.061		207.578		207.578		207.578			
Moist Density (pcf)	109.15		116.02		87.36		106.29			
MOISTURE CONTENT										
Wt. moist soil+tare(gr)	445.45	445.45	482.74	482.74	276.47	276.47	442.91	442.91		
Wt. dry soil+tare(gr)	402.84	402.84	441.09	441.09	239.60	239.60	397.43	397.43		
Wt. of tare(gr)	83.45	83.45	96.96	96.96	96.96	96.96	90.02	90.02		
Wt. dry soil (qr)	319.39	319.39	344.13	344.13	142.64	142.64	307.41	307.41		
Wt. of water (gr)	42.61	42.61	41.65	41.65	36.87	36.87	45.48	45.48		
M/C (%)	13.34	13.34	12.10	12.10	25.85	25.85	14.79	14.79		
DRY DENSITY (pcf)	96.3		103.5		69.4		92.6			
% Saturation* (48%-52%)	48.0		52.0	i	48.9		48.7		4	
*Assumes Gs =	2.7		2.7		2.7		2.7			
EXPANSION INDEX =	43		98		52		39			
Potential Expansion (per ASTM 4829-08)	Low		High		Medium		Low			
KOURY			Project Name:				Project No.:	17-1025	Run by:	Lab:
THEYING, INC.				Borrow Site 5				2019	QA:	

	4			EXPANSIO	ON INDEX TE	STS				
			DENSITY AN		RE CONTEN	T DATA -	EI TEST			
Location/ Elevation	TP 2 @) 4-4.5'	TP 7 @	3.5-4'	TP 8 @	9 4-4.5'	TP 7 @	1-1.5'		
USCS Symbol									1	
Normal Load (psf)							1			
SAMPLE CONDITION	Initial	Final	Initial	Final	Initial	Final	Initial	Final		
Wt Specimen & Ring (gr)	649.030		744.340		705.390		700.250			
Wt. of ring (gr)	366.37		366.31		366.44		363.90			
Wt. Specimen (gr)	282.660		378.030		338.950		336.350			
Specimen diameter (in)	4.010		4.010		4.010		4.010			
Specimen radius (cm)	5.09		5.09		5.09		5.09			
Area of Specimen (cm ²)	81.479		81.479		81.479		81.479			
Init. Spec. height (in)	0.9955	N/A	1.0000	N/A	1.0020	N/A	1.0020	N/A	1	
Height change (final)(in)	N/A	0.0381	N/A	0.0598	N/A	0.0800	N/A	0.0189		
Adjusted Spec.height(in)	<mark>1.00</mark>	<mark>0.9574</mark>	1.00	0.9402	1.00	0.9220	1.00	0.9831		
" " (cm)	2.529	2.432	<mark>2.540</mark>	2.388	2.545	2.342	2.545	2.497		
Specimen Volume (cm ³)	206.026		206.957		207.371		207.371]	
Moist Density (pcf)	85.65		114.04		102.04		101.26			
MOISTURE CONTENT									1	
Wt. moist soil+tare(gr)	375.45	375.45	475.25	475.25	431.23	431.23	416.46	416.46		
Wt. dry soil+tare(gr)	315.22	315.22	435.34	435.34	382.96	382.96	367.22	367.22		
Wt. of tare(gr)	92.79	92.79	97.22	97.22	92.28	92.28	80.11	80.11		
Wt. dry soil (gr)	222.43	222.43	338.12	338.12	290.68	290.68	287.11	287.11	4	
Wt. of water (gr)	60.23	60.23	39.91	39.91	48.27	48.27	49.24	49.24		
M/C (%)	27.08	27.08	11.80	11.80	16.61	16.61	17.15	17.15		
DRY DENSITY (pcf)	67.4		102.0		87.5		86.4		T	
% Saturation* (48%-52%)	48.7		48.8	i	48.4		48.7		1	
*Assumes Gs =	2.7		2.7		2.7		2.7			
EXPANSION INDEX =	38		60		80		19			
Potential Expansion (per ASTM 4829-08)	Low		Medium		Medium		Very Low			
KOURY			Project Name:				Project No.:	17-1025	Run by:	Lab:
A TESTING INC				Borrow Site 5				2019	QA:	

EXPANSION INDEX TESTS										
			DENSITY AN	D MOISTU	RE CONTEN	T DATA -	EI TEST			
Location/ Elevation	TP 10 @	4.5-5.5'	TP 3 @	4.8-5.2	TP 4 @	5-5.5	TP 5 @	1-1.5'	-	
USCS Symbol									1	
Normal Load (psf)		••••••								
SAMPLE CONDITION	Initial	Final	Initial	Final	Initial	Final	Initial	Final		
Wt Specimen & Ring (gr)	688.900		714.510		665.470		744.140	************************		
Wt. of ring (gr)	366.61		366.48		366.64		364.14			
Wt. Specimen (gr)	322.290		348.030		298.830		380.000			
Specimen diameter (in)	4.010		4.010	1	4.010		4.010			
Specimen radius (cm)	5.09		5.09		5.09		5.09		141	
Area of Specimen (cm ²)	81.479		81.479		81.479		81.479			
Init. Spec. height (in)	1.0020	N/A	1.0000	N/A	1.0000	N/A	1.0030	N/A		
Height change (final)(in)	N/A	0.0659	N/A	0.1744	N/A	0.0339	N/A	0.0396		
Adjusted Spec.height(in)	1.00	0.9361	1.00	0.8256	1.00	0.9661	1.00	0.9634		
(cm)	2.545	2.378	2.540	2.097	2.540	2.454	2.548	2.447		
Specimen Volume (cm [*])	207.371		206.957		206.957		207.578		4	
Moist Density (pcf)	97.03		104.99		90.14		114.29			
MOISTURE CONTENT										
Wt. moist soil+tare(gr)	408.59	408.59	440.82	440.82	382.28	382.28	472.30	472.30		
Wt. dry soil+tare(gr)	355.77	355.77	390.75	390.75	325.40	325.40	429.76	429 76	-	
Wt. of tare(gr)	86.30	86.30	92.79	92.79	83,45	83.45	92.30	92.30		
Wt. dry soil (gr)	269.47	269.47	297.96	297.96	241.95	241.95	337.46	337.46		
Wt. of water (gr)	52.82	52.82	50.07	50.07	56.88	56.88	42.54	42.54	1	
M/C (%)	19.60	19.60	16.80	16.80	23.51	23.51	12.61	12.61		
DRY DENSITY (pcf)	81.1		89.9		73.0		101.5			
% Saturation* (48%-52%)	49.1		51.8		48.5		51.5	·	1	
*Assumes Gs =	2.7		2.7		2.7		2.7			
EXPANSION INDEX =	66		174		34		39			
Potential Expansion (per ASTM 4829-08)	Medium		Very High		Low		Low			
KOURY			Project Name:				Project No.:	17-1025	Run by:	Lab:
& TESTING, INC.				Borrow	Site 5		Date: 04-15-2	2019	QA:	

We are a key member of the construction team while safeguarding the public. We improve operational logistics and provide superior quality control through the continuing development of our engineering staff and technical expertise, utilization of classroom training and field supervisors, thus defining the industry standard.

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Appendix H

Traffic Impact Analysis



Majestic Chino Heritage

TRAFFIC IMPACT ANALYSIS CITY OF CHINO

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AUGUST 13, 2019

10349-04 TIA Report

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
CAMUTCD	California Manual on Uniform Traffic Control Devices
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CMP	Congestion Management Program
DIF	Development Impact Fee
E+P	Existing Plus Project
HCM	Highway Capacity Manual
HCS	Highway Capacity Software
ITE	Institute of Transportation Engineers
LOS	Level of Service
NCHRP	National Cooperative Highway Research Program
NP	No Project (or Without Project)
PCE	Passenger Car Equivalents
PeMS	Performance Measurement System
PHF	Peak Hour Factor
Project	Majestic Chino Heritage
RivTAM	Riverside Traffic Analysis Model
RTA	Riverside Transport Authority
RTP	Regional Transportation Plan
SBCTA	San Bernardino County Transportation Authority
SBTAM	San Bernardino Transportation Analysis Model
SCAG	Southern California Association of Governments
SCS	Sustainable Communities Strategy
sf	Square Feet
SHS	State Highway System
SR	State Route
TIA	Traffic Impact Analysis
v/c	Volume to Capacity Ratio
vphgpl	Vehicles Per Hour Green Per Lane
WP	With Project



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1 SUMMARY OF FINDINGS

This report presents the results of the traffic impact analysis (TIA) for the proposed Majestic Chino Heritage ("Project"), which is located on the southeast corner of Mountain Avenue and Bickmore Avenue in the City of Chino, as shown on Exhibit 1-1.

The purpose of this TIA is to evaluate the potential circulation system deficiencies that may result from the development of the proposed Project, and where necessary recommend improvements to achieve acceptable operations consistent with General Plan level of service goals and policies. This traffic study has been prepared in accordance with the San Bernardino County Congestion Management Program (CMP) <u>Guidelines for CMP Traffic Impact Analysis Reports</u> (Appendix B, 2016 Update), the California Department of Transportation (Caltrans) <u>Guide for the Preparation of Traffic Impact Studies</u> (December 2002), and consultation with City staff during the traffic study scoping process. (1) (2) The City approved Project Traffic Study Scoping agreement is provided in Appendix 1.1 of this TIA.

1.1 **PROJECT OVERVIEW**

Exhibit 1-1 illustrates the preliminary Project site plan. As indicated on Exhibit 1-1, the total development is proposed to consist of up to 2,082,750 square feet of industrial uses. For purposes of scoping the TIA, the following land uses are assumed:

- Building 1: 1,168,710 square feet of High-Cube Fulfillment Center Warehouse use
- Building 2: 814,040 square feet of High-Cube Fulfillment Center Warehouse use
- Remainder of Building 2: 100,000 square feet of High-Cube Warehouse with Cold Storage use
- Total of 2,082,750 square feet

The Project's anticipated Opening Year is 2022. Trips generated by the Project's proposed land uses have been estimated based on trip generation rates collected by the Institute of Transportation Engineers (ITE) <u>Trip Generation Manual</u>, (10th Edition, 2017) and the <u>DRAFT</u> <u>Transportation Uniform Mitigation Fee (TUMF) High-Cube Warehouse Trip Generation Study</u> (WSP, January 29, 2019). (3) (4) The Project is estimated to generate a net total of 4,440 trip-ends per day (actual vehicles) on a typical weekday with approximately 252 net AM peak hour trips and 338 net PM peak hour trips. The assumptions and methods used to estimate the Project's trip generation characteristics are discussed in greater detail in Section 4.1 *Project Trip Generation* of this report.



EXHIBIT 1-1: PRELIMINARY SITE PLAN

10349 - siteplan.dwg

1.2 ANALYSIS SCENARIOS

For the purposes of this traffic study, potential traffic impacts have been assessed for each of the following conditions:

- Existing (2019)
- Existing plus Project (E+P)
 - o E+P (Building 1)
 - E+P (Project Buildout)
- Opening Year Cumulative (2022) Without Project
- Opening Year Cumulative (2022) With Project
- Horizon Year (2040) Without Project
- Horizon Year (2040) With Project

1.2.1 EXISTING (2019) CONDITIONS

Information for Existing (2019) conditions is disclosed to represent the baseline traffic conditions as they existed at the time this report was prepared.

1.2.2 EXISTING PLUS PROJECT CONDITIONS

The Existing plus Project (E+P) analysis determines significant traffic impacts that would occur on the existing roadway system with the addition of Project traffic. E+P traffic conditions have been evaluated for Building 1 only and Project Buildout (Building 1 & Building 2) in order to determine any potential off-site improvements that may be applicable to Building 1 only. Building 1 and Building 2 have been evaluated independently as the Project is contemplating constructing Building 1 first. However, constructing Building 2 prior to Building 1 would not result in any additional or different traffic deficiencies or improvement needs.

1.2.3 OPENING YEAR CUMULATIVE (2022) CONDITIONS

The Opening Year Cumulative conditions analysis determines the potential near-term cumulative circulation system deficiencies. To account for background traffic growth, traffic associated with other known cumulative development projects in conjunction with an ambient growth factor from Existing conditions of 2% per year (compounded annually) are included for Opening Year Cumulative (2022) traffic conditions. This comprehensive list was compiled from information provided by the City of Chino and other near-by agencies.

1.2.4 HORIZON YEAR (2040) CONDITIONS

Traffic projections for Horizon Year (2040) with Project conditions were derived from the San Bernardino Transportation Analysis Model (SBTAM) modified to represent buildout of the City of Chino. The Horizon Year (2040) conditions analysis will be utilized to determine if improvements funded through regional transportation mitigation fee programs, such as the City's Development Impact Fee (DIF) program, or other approved funding mechanisms can accommodate the long-



range cumulative traffic at the target level of service (LOS) identified by the City of Chino (lead agency). It should be noted that the City of Chino has updated their DIF program to also include appropriate contributions towards regionally significant improvements that have been identified via the San Bernardino County CMP regional fee program study. If the planned and funded improvements can provide the target LOS, then the Project's payment into established fee programs will be considered as cumulative mitigation. Other improvements needed beyond the "funded" improvements (such as localized improvements to non-DIF facilities) are identified as such.

1.3 STUDY AREA

To ensure that this TIA satisfies the City of Chino's traffic study requirements, Urban Crossroads, Inc. prepared a project traffic study scoping package for review by City staff prior to the preparation of this report. The Agreement provides an outline of the Project study area, trip generation, trip distribution, and analysis methodology.

1.3.1 INTERSECTIONS

The following 43 study area intersections shown on Exhibit 1-2 and listed on Table 1-1 were selected for this TIA based on consultation with City of Chino staff.

ID	Intersection Location	Jurisdiction	CMP?				
1	SR-71 SB Ramps & Soquel Canyon Rd.	Chino Hills, Caltrans	No				
2	SR-71 SB Ramps & Pine Av. – 2040 Analysis Location Only	Chino Hills, Caltrans	No				
3	SR-71 SB Ramps & Butterfield Ranch Rd.	Chino Hills, Caltrans	No				
4	SR-71 NB Ramps & Central Av.	Chino Hills, Caltrans	No				
5	SR-71 NB Ramps & Pine Av. – 2040 Analysis Location Only Chino Hills, Caltra						
6	SR-71 NB Ramps & Euclid Av. (SR-83) Chino, Caltrans						
7	Central Av. & El Prado Rd. Chino						
8	El Prado Rd. & Kimball Av.	Chino	No				
9	Mountain Av. & Kimball Av.	Chino	No				
10	Mountain Av. & Bickmore Av.	Chino	No				
11	Mountain Av. & Driveway 1 – Future Intersection	Chino	No				
12	Mountain Av. & Driveway 2 – Future Intersection	Chino	No				
13	Mountain Av. & Driveway 3 – Future Intersection	Chino	No				
14	El Prado Rd. & Mountain Av.	Chino	No				
15	El Prado Rd. & Pine Av.	Chino	No				
16	Driveway 4 & Bickmore Avenue – Future Intersection	Chino	No				
17	Driveway 5 & Bickmore Avenue – Future Intersection	Chino	No				
18	Driveway 6 & Bickmore Avenue – Future Intersection	Chino	No				
19	Euclid Av. (SR-83) & SR-60 WB Ramps	Ontario, Caltrans	Yes				
20	Euclid Av. (SR-83) & SR-60 EB Ramps	Ontario, Caltrans	Yes				

TABLE 1-1: INTERSECTION ANALYSIS LOCATIONS



ID	Intersection Location	Jurisdiction	CMP?
21	Euclid Av. (SR-83) & Walnut Av.	Ontario	Yes
22	Euclid Av. (SR-83) & Riverside Dr.	Caltrans, Chino, Ontario	Yes
23	Euclid Av. (SR-83) & Chino Av.	Caltrans, Chino, Ontario	No
24	Euclid Av. (SR-83) & Schaefer Av.	Caltrans, Chino, Ontario	No
25	Euclid Av. (SR-83) & Edison Av.	Caltrans, Chino, Ontario	Yes
26	Euclid Av. (SR-83) & Eucalyptus Av.	Caltrans, Chino, Ontario	No
27	Euclid Av. (SR-83) & Merrill Av.	Caltrans, Chino, Ontario	No
28	Euclid Av. (SR-83) & Kimball Av.	Caltrans, Chino	No
29	Euclid Av. (SR-83) & Bickmore Av.	Caltrans, Chino	No
30	Euclid Av. (SR-83) & Pine Av.	Caltrans, Chino	No
31	Rincon Meadows Av. & Kimball Av. – 2040 Analysis Location Only	Chino	No
32	Rincon Meadows Av. & Pine Av.	Chino	No
33	Mill Creek Av. & Kimball Av. – 2040 Analysis Location Only	Chino	No
34	Mill Creek Av./Chino-Corona Rd. & Pine Av.	Chino	No
35	Cucamonga Av. & Chino-Corona Rd. – Construction Only	Chino	No
36	W. Preserve Loop & Pine Av.	Chino	No
37	Main St. & Kimball Av. – 2040 Analysis Location Only	Chino	No
38	Flight Av. & Kimball Av. – 2040 Analysis Location Only	Chino	No
39	E. Preserve Loop & Pine Av.	Chino	No
40	Hellman Av. & Kimball Av. – 2040 Analysis Location Only	Chino, Eastvale	No
41	Hellman Av. & Pine Av./Schleisman Rd.	Chino, Eastvale	No
42	Archibald Av. & Limonite Av.	Eastvale	No
43	Archibald Av. & Schleisman Rd.	Eastvale	No

The "50 peak hour trip" criterion utilized by the City of Chino is consistent with the methodology employed by the County of San Bernardino, and generally represents a minimum number of trips at which a typical intersection would have the potential to be substantively impacted by a given development proposal. Although each intersection may have unique operating characteristics, this traffic engineering rule of thumb is a widely utilized tool for estimating a potential area of impact (i.e., study area). The "50 peak hour trip" criterion is also utilized by the County of Riverside, including the City of Eastvale. Other intersections within the adjacent cities were not selected for evaluation as the Project is anticipated to contribute less than 50 peak hour trips at these non-Chino intersections.

The intent of a CMP is to more directly link land use, transportation, and air quality, thereby prompting reasonable growth management programs that will effectively utilize new transportation funds, alleviate traffic congestion and related impacts, and improve air quality. Counties within California have developed CMPs with varying methods and strategies to meet the intent of the CMP legislation. Study area intersections that are identified as CMP facilities in the County of San Bernardino per the San Bernardino County Transportation Authority (SBCTA) CMP are indicated in Table 1-1. (1)



EXHIBIT 1-2: LOCATION MAP

10349 - locmap.dwg



1.3.2 FREEWAY MAINLINE AND RAMP JUNCTION ANALYSIS

Study area freeway mainline analysis locations were selected based on Caltrans traffic study guidelines, which may require the analysis of State highway facilities. (2) Consistent with recent Caltrans guidance, and because impacts to freeway segments tend to dissipate with distance from the point of State Highway System (SHS) entry, quantitative study of freeway segments beyond those immediately adjacent to the point of entry typically is not required. As such, this study conservatively evaluates the following freeway segments adjacent to the point of entry to the SHS, even where the Project is anticipated to contribute less than 50 one-way peak hour trips (see Table 1-2 and Exhibit 1-3):

ID	Freeway Mainline Segments
1	SR-71 Southbound, North of Central Av.
2	SR-71 Southbound, Central Av. Off-Ramp
3	SR-71 Southbound, Central Av. Loop On-Ramp
4	SR-71 Southbound, Central Av. On-Ramp
5	SR-71 Southbound, Central Av. to Pine Av.
6	SR-71 Southbound, Pine Av. Off-Ramp
7	SR-71 Southbound, Pine Av. On-Ramp
8	SR-71 Southbound, Pine Av. to Euclid Av. (SR-83)
9	SR-71 Southbound, Euclid Av. (SR-83) Off-Ramp
10	SR-71 Southbound, Euclid Av. (SR-83) Loop On-Ramp
11	SR-71 Southbound, Euclid Av. (SR-83) On-Ramp
12	SR-71 Southbound, South of Euclid Av. (SR-83)
13	SR-71 Northbound, North of Central Av.
14	SR-71 Northbound, Central Av. On-Ramp
15	SR-71 Northbound, Central Av. Loop On-Ramp
16	SR-71 Northbound, Central Av. Off-Ramp
17	SR-71 Northbound, Central Av. to Pine Av.
18	SR-71 Northbound, Pine Av. On-Ramp
19	SR-71 Northbound, Pine Av. Off-Ramp
20	SR-71 Northbound, Pine Av. to Euclid Av. (SR-83)
21	SR-71 Northbound, Euclid Av. (SR-83) On-Ramp
22	SR-71 Northbound, Euclid Av. (SR-83) Off-Ramp
23	SR-71 Northbound, South of Euclid Av. (SR-83)
24	SR-60 Westbound, West of Euclid Av. (SR-83)
25	SR-60 Westbound, Euclid Av. (SR-83) On-Ramp
26	SR-60 Westbound, Euclid Av. (SR-83) Off-Ramp
27	SR-60 Westbound, East of Euclid Av. (SR-83)
28	SR-60 Eastbound, West of Euclid Av. (SR-83)
29	SR-60 Eastbound, Euclid Av. (SR-83) Off-Ramp

TABLE 1-2: FREEWAY FACILITY ANALYSIS LOCATIONS



ID	Freeway Mainline Segments
30	SR-60 Eastbound, Euclid Av. (SR-83) On-Ramp
31	SR-60 Eastbound, East of Euclid Av. (SR-83)

1.4 PROJECT IMPACTS

This section provides a summary of Project impacts. Section 2 *Methodologies* provides information on the methodologies used in the analysis and Section 6 *E+P Traffic Analysis*, Opening Year Cumulative (2022), Horizon Year (2040) traffic conditions includes the detailed analysis. A summary of LOS results for all analysis scenarios is presented on Exhibit 1-4.

E+P (Building 1) Conditions:

Based on a comparison of Existing to E+P traffic conditions, the addition of Building 1 traffic is anticipated to contribute to an existing deficiency and would worsen the LOS at the following intersections.

Central Avenue & El Prado Road (#7) – This intersection was found to operate at an unacceptable LOS (LOS E or worse) during the peak hours under Existing traffic conditions, and is anticipated to continue to operate at an unacceptable LOS during the one or more peak hours with the addition of Project (Building 1) traffic. As such, the impact is considered cumulatively significant.

El Prado Road & Kimball Avenue (#8) – This intersection was found to operate at an unacceptable LOS (LOS E or worse) during the peak hours under Existing traffic conditions, and is anticipated to continue to operate at an unacceptable LOS during the one or more peak hours with the addition of Project (Building 1) traffic. As such, the impact is considered cumulatively significant.

Euclid Avenue (SR-83) & Pine Avenue (#30) – This intersection was found to operate at an unacceptable LOS (LOS E or worse) during the peak hours under Existing traffic conditions, and is anticipated to continue to operate at an unacceptable LOS during the one or more peak hours with the addition of Project (Building 1) traffic. As such, the impact is considered cumulatively significant.





EXHIBIT 1-3: FREEWAY FACILITY LOCATION MAP

#	Intersection	Existing (2019)	E+P (Building 1)	E+P (Project Buildout)	Opening Year Cumulative (2022) Without Project	Opening Year Cumulative (2022) With Project	Horizon Year (2040) Without Project	Horizon Year (2040) With Project
1	SR-71 SB Ramps & Soquel Canyon Rd.	\bigcirc	\bigcirc			\bigcirc	\bigcirc	
2	SR-71 SB Ramps & Pine Av.	\bigcirc	NA	NA	NA	NA		
3	SR-71 SB Ramps & Butterfield Ranch Rd.	\bigcirc	\bigcirc			\bigcirc	\bigcirc	
4	SR-71 NB Ramps & Central Av.	\bigcirc	\bigcirc				\bigcirc	
5	SR-71 NB Ramps & Pine Av.	\bigcirc	NA	NA	NA	NA		
6	SR-71 NB Ramps & Euclid Av. (SR-83)	\bigcirc	\bigcirc				\bigcirc	
7	Central Av. & El Prado Rd.							
8	El Prado Rd. & Kimball Av.							
9	Mountain Av. & Kimball Av.	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
10	Mountain Av. & Bickmore Av.	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	
11	Mountain Av. & Dwy. 1	NA	\bigcirc		NA	\bigcirc	NA	
12	Mountain Av. & Dwy. 2	NA	\bigcirc	\bigcirc	NA	\bigcirc	NA	\bigcirc
13	Mountain Av. & Dwy. 3	NA	NA	\bigcirc	NA	\bigcirc	NA	
14	El Prado Rd. & Mountian Av.	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	
15	El Prado Rd. & Pine Av.	\bigcirc	\bigcirc		\bigcirc	\bigcirc	\bigcirc	
16	Dwy. 4 & Bickmore Av.	NA	\bigcirc		NA	\bigcirc	NA	
17	Dwy. 5 & Bickmore Av.	NA	\bigcirc	\bigcirc	NA	\bigcirc	NA	\bigcirc
18	Dwy. 6 & Bickmore Av.	NA	\bigcirc		NA	\bigcirc	NA	
19	Euclid Av. (SR-83) & SR-60 WB Ramps	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	
20	Euclid Av. (SR-83) & SR-60 EB Ramps	\bigcirc						
21	Euclid Av. (SR-83) & Walnut Av.	\bigcirc						
22	Euclid Av. (SR-83) & Riverside Dr.							

EXHIBIT 1-4 (10F2): SUMMARY OF DEFICIENT INTERSECTIONS BY ANALYSIS SCENARIO



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#	Intersection	Existing (2019)	E+P (Building 1)	E+P (Project Buildout)	Opening Year Cumulative (2022) Without Project	Opening Year Cumulative (2022) With Project	Horizon Year (2040) Without Project	Horizon Year (2040) With Project
23	Euclid Av. (SR-83) & Chino Av.	\bigcirc	\bigcirc	\bigcirc				
24	Euclid Av. (SR-83) & Schaefer Av.	\bigcirc						
25	Euclid Av. (SR-83) & Edison Av.	\bigcirc						
26	Euclid Av. (SR-83) & Eucalyptus Av.	\bigcirc		\square				
27	Euclid Av. (SR-83) & Merrill Av.	\bigcirc						
28	Euclid Av. (SR-83) & Kimball Av.	\bigcirc	\bigcirc					
29	Euclid Av. (SR-83) & Bickmore Av.	\bigcirc	\bigcirc	\bigcirc				\bigcirc
30	Euclid Av. (SR-83) & Pine Av.							
31	Rincon Meadows Av. & Kimball Av.	\bigcirc	NA	NA	NA	NA	\bigcirc	\bigcirc
32	Rincon Meadows Av. & Pine Av.	NA	NA	NA				
33	Mill Creek Av. & Kimball Av.	\bigcirc	NA	NA	NA	NA	\bigcirc	\bigcirc
34	Mill Creek Av./Chino-Corona Rd. & Pine Av.	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc		
35	Cucamonga Av. & Chino-Corona Rd.	\bigcirc	NA	NA	NA	NA	NA	NA
36	W. Preserve Loop & Pine Av.	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc		
37	Main St. & Kimball Av.	\bigcirc	NA	NA	NA	NA	\bigcirc	\bigcirc
38	Flight Av. & Kimball Av.	\bigcirc	NA	NA	NA	NA		
39	E. Preserve Loop & Pine Av.	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc		
40	Hellman Av. & Kimball Av.		NA	NA	NA	NA		
41	Hellman Av. & Pine Av./Schleisman Rd.		\bigcirc	\bigcirc				
42	Archibald Av. & Limonite Av.	\bigcirc	\bigcirc	\bigcirc		\bigcirc		
43	Archibald Av. & Schleisman Rd.							

EXHIBIT 1-4 (20F2): SUMMARY OF DEFICIENT INTERSECTIONS BY ANALYSIS SCENARIO



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E+P (Project Buildout) Conditions:

Based on a comparison of Existing to E+P traffic conditions, the addition of Project Buildout traffic is anticipated to contribute to an existing deficiency and would worsen the LOS at the following intersections.

Central Avenue & El Prado Road (#7) – This intersection was found to operate at an unacceptable LOS (LOS E or worse) during the peak hours under Existing traffic conditions, and is anticipated to continue to operate at an unacceptable LOS during the one or more peak hours with the addition of Project (Project Buildout) traffic. As such, the impact is considered cumulatively significant.

El Prado Road & Kimball Avenue (#8) – This intersection was found to operate at an unacceptable LOS (LOS E or worse) during the peak hours under Existing traffic conditions, and is anticipated to continue to operate at an unacceptable LOS during the one or more peak hours with the addition of Project (Project Buildout) traffic. As such, the impact is considered cumulatively significant.

Euclid Avenue (SR-83) & Riverside Drive (#22) – This intersection was found to operate at an unacceptable LOS (LOS E or worse) during the peak hours under Existing traffic conditions, and is anticipated to continue to operate at an unacceptable LOS during the one or more peak hours with the addition of Project (Project Buildout) traffic. As such, the impact is considered cumulatively significant.

Euclid Avenue (SR-83) & Pine Avenue (#30) – This intersection was found to operate at an unacceptable LOS (LOS E or worse) during the peak hours under Existing traffic conditions, and is anticipated to continue to operate at an unacceptable LOS during the one or more peak hours with the addition of Project (Project Buildout) traffic. As such, the impact is considered cumulatively significant.

Archibald Avenue & Schleisman Road (#43) – This intersection was found to operate at an unacceptable LOS (LOS E or worse) during the peak hours under Existing traffic conditions, and is anticipated to continue to operate at an unacceptable LOS during the one or more peak hours with the addition of Project (Project Buildout) traffic. As such, the impact is considered cumulatively significant.

Opening Year Cumulative (2022) Conditions:

The following study area intersections are anticipated to operate at a deficient LOS during one or both peak hours for Opening Year Cumulative (2022) Without Project traffic conditions. The Project is anticipated to contribute to these deficiencies by adding traffic (as measured by 50 or more peak hours trips) to already deficient intersections resulting in an increase to peak hour delays. Cumulative impacts are deficiencies that would not be directly caused by the Project. The Project would, however, contribute traffic to these deficient facilities along with other cumulative development projects, resulting in a cumulatively considerable impact.

- Central Avenue & El Prado Road (#7) LOS F PM peak hour only
- El Prado Road & Kimball Avenue (#8) LOS F PM peak hour only



- Euclid Avenue (SR-83) & Riverside Drive (#22) LOS E AM peak hour; LOS F PM peak hour
- Euclid Avenue (SR-83) & Edison Avenue (#25) LOS E PM peak hour only
- Euclid Avenue (SR-83) & Merrill Avenue (#27) LOS E PM peak hour only
- Euclid Avenue (SR-83) & Pine Avenue (#30) LOS F PM peak hour only
- Archibald Avenue & Limonite Avenue (#42) LOS E AM and PM peak hour
- Archibald Avenue & Schleisman Road (#43) LOS F AM peak hour; LOS E PM peak hour

The following study area intersection is anticipated to operate at a deficient LOS during one or both peak hours for Opening Year Cumulative (2022) With Project traffic conditions with the addition of Project traffic, in addition to the locations identified above for Opening Year Cumulative (2022) Without Project traffic conditions.

• Euclid Avenue (SR-83) & Kimball Avenue (#28) – LOS E PM peak hour only

Horizon Year (2040) Conditions:

The following study area intersections are anticipated to operate at a deficient LOS during one or both peak hours for Horizon Year (2040) Without Project traffic conditions. The Project is anticipated to contribute to these deficiencies by adding traffic (as measured by 50 or more peak hours trips) to already deficient intersections resulting in an incase to peak hour delays. Cumulative impacts are deficiencies that would not be directly caused by the Project. The Project would, however, contribute traffic to these deficient facilities along with other cumulative development projects, resulting in a cumulatively considerable impact.

- SR-71 Southbound Ramps & Pine Avenue (#2) LOS F AM peak hour only
- SR-71 Northbound Ramps & Pine Avenue (#5) LOS F AM and PM peak hours
- El Prado Road & Pine Avenue (#15) LOS F AM and PM peak hours
- Euclid Avenue (SR-83) & SR-60 Eastbound Ramps (#20) LOS F AM and PM peak hours
- Euclid Avenue (SR-83) & Riverside Drive (#22) LOS F AM and PM peak hours
- Euclid Avenue (SR-83) & Chino Avenue (#23) LOS E AM peak hour; LOS F PM peak hour
- Euclid Avenue (SR-83) & Schaefer Avenue (#24) LOS F AM and PM peak hours
- Euclid Avenue (SR-83) & Edison Avenue (#25) LOS F AM and PM peak ours
- Euclid Avenue (SR-83) & Eucalyptus Avenue (#26) LOS E AM peak hour; LOS F PM peak hour
- Euclid Avenue (SR-83) & Merrill Avenue (#27) LOS F AM and PM peak hours
- Euclid Avenue (SR-830 & Kimball Avenue (#28) LOS F AM and PM peak hours
- Flight Avenue & Kimball Avenue (#38) LOS F AM and PM peak hours
- Helman Avenue & Kimball Avenue (#40) LOS F PM peak hour only
- Archibald Avenue & Limonite Avenue (#42) LOS F AM and PM peak hours



The following study area intersection is anticipated to operate at a deficient LOS during one or both peak hours for Horizon Year (2040) With Project traffic conditions with the addition of Project traffic, in addition to the locations identified above for Horizon Year (2040) Without Project traffic conditions.

• El Prado Road & Mountain Avenue (#14) – LOS F PM peak hour only

1.5 RECOMMENDED IMPROVEMENTS TO ADDRESS CIRCULATION DEFICIENCIES

Table 1-3 lists the incremental improvements that are required for each analysis scenario from Existing to Horizon Year (2040) traffic conditions to alleviate circulation system deficiencies. The regional and local transportation impact fee programs have each been reviewed and compared to the recommended improvements for each impacted facility. Recommended improvements already identified and included in the City of Chino DIF are clearly denoted. If an impacted facility was found to require improvements to transportation facilities not identified in the fee program, the Project would be required to contribute to the associated intersection or roadway a fair-share percentage toward the costs of the recommended improvements. The fair-share calculations presented on Table 1-3 indicate that the Project contributes 0.5% to 9.6% of new vehicle trips to these intersections. The construction of facilities by the Project Applicant would be eligible for DIF credit and reimbursement (if the costs of construction exceed the Project's fair share contribution or amount of DIF payment), as identified on Table 1-3. These fees (both to the City of Chino, and as determined, to surrounding agencies as fair-share contributions) are collected as part of a funding mechanism aimed at ensuring that regional highways and arterial expansions keep pace with the projected vehicle trip increases.

The improvements listed on Table 1-3 comprise lane additions/modifications, installation of signals and signal modifications. As noted, the identified improvements are covered either by the City of Chino DIF Program or as a fair-share contribution, if not covered by a fee program. Depending on the width of the existing pavement and right-of-way, these improvements may involve only striping modifications, or they may involve construction of additional pavement width. Additional discussion of the relevant pre-existing transportation impact fee programs is provided below.

Table 1-3 also summarizes the applicable cost associated with each of the recommended improvements based on the preliminary construction cost estimates found in Appendix G of the San Bernardino County CMP in conjunction with a cost escalation factor of 1.484 to reflect current (2019) costs. A rough order of magnitude cost has been prepared to determine the appropriate contribution value based upon the Project's fair share of traffic as part of the project approval process. Based on the Project fair share percentages, the Project's fair share cost is estimated at \$139,596. These estimates are a rough order of magnitude only as they are intended only for disclosure purposes and do not imply any legal responsibility or formula for contributions or mitigation.



Table 1-3

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Summary of Improvements Recommended to Meet City of Chino or Surrounding Agency LOS Requirements

#	Intersection Location	Jurisdiction	Existing (2019)	E+P (Building 1)	E+P (Project Buildout)	2022 Without Project	2022 With Project	2040 Without/With Project	Improvements in City DIF? ¹	DIF Project #	Project Responsibility ⁷	Total Cost ^{2,3,4}	Fair Share % ⁴	Fair Share Cost ⁵
2	SR-71 SB Ramps & Pine Av.	Chino Hills, Caltrans	None	None	None	None	None	Restripe the EB approach to provide one through lane and one shared through-right turn lane	No		Fair Share	\$37,100	7.579%	\$2,812
								Restripe the SB approach to provide one through lane and one shared through-right turn lane	No		Fair Share	\$37,100		\$2,812
											Total	\$74,200		\$5,623
5	SR-71 NB Ramps & Pine Av.	Chino Hills, Caltrans	None	None	None	None	None	Install a traffic signal	No		Fair Share	\$250,000	6.784%	\$16,960
								Restripe the NB approach to provide one left-through and one right turn lane	No		Fair Share	\$37,100		\$2,517
								2nd EB left turn lane	No		Fair Share	\$74,200		\$5,034
								2nd WB through lane	Yes	TR-035	Fees	\$0		\$0
											Total	\$361,300		\$24,511
7	Central Av. & El Prado Rd.	Chino	2nd SB left turn lane	Same	Same	Same	Same	Same	Yes	TR-31	Fees	\$0		\$0
											Total	\$0		\$0
8	El Prado Rd. & Kimball Av.	Chino, Chino Hills	Restripe the SB approach to provide dual left turns and one shared through-right turn lane	Same	Same	Same	Same	Same	No		Fair Share	\$37,100	9.585%	\$3,556
											Total	\$37,100		\$3,556
14	El Prado Rd. & Mountain Av.	Chino	None	None	None	None	None	Install a traffic signal	Yes	TR-023	Fees	\$0		\$0
											Total	\$0		\$0
15	El Prado Rd. & Pine Av.	Chino, Chino Hills	None	None	None	None	None	Install a traffic signal	Yes	TR-124	Fees	\$0		\$0
											Total	\$0		\$0
20	Euclid Av. (SR-83) & SR-60 EB Ramps	Ontario, Caltrans	None	None	None	None	None	Add EB right turn lane	Yes	TR-039	Fees	\$0		\$0
								Add 2nd SB left turn lane	Yes	TR-039	Fees	\$0		\$0
											Total	\$0		\$0
22	Euclid Av. (SR-83) & Riverside Dr.	Caltrans, Chino, Ontario	EB right turn lane	Not Applicable	Same	Same	Same	Same	No		Fair Share	\$74,200	3.611%	\$2,679
						3rd NB through lane	Same	Same	No		Fair Share	\$267,120		\$9,646
						3rd SB through lane	Same	Same	Yes	TR-125	Fees	\$0		\$0
								2nd NB left turn lane	No		Fair Share	\$74,200		\$2,679
								2nd SB left turn lane	No	TD 042	Fair Share	\$74,200		\$2,679
								2nd EB through lane	Yes	TR-042	Fees	\$0 ¢0		\$0 ¢0
									Tes	18-042	Total	ېن \$489 720		ېن 17 684
23	Euclid Av. (SR-83) & Chino Av.	Caltrans, Chino,	None	None	None	None	None	3rd NB through lane	No		Fair Share	\$267 120	4 108%	\$10,974
		Ontario						3rd SB through lane	No		Fair Share	\$267.120		\$10.974
								WB left turn lane	No		Fair Share	\$74,200		\$3,048
											Total	\$608,440		\$24,996
24	Euclid Av. (SR-83) & Schaefer Av.	Caltrans, Chino,	None	None	None	None	None	2nd NB left turn lane	No		Fair Share	\$74,200	3.054%	\$2,266
		Ontario						3rd NB through lane	No		Fair Share	\$267,120		\$8,157
								2nd SB left turn lane	No		Fair Share	\$111,300		\$3,399
								3rd SB through lane	No		Fair Share	\$267,120		\$8,157
								2nd EB left turn lane	No		Fair Share	\$267,120		\$8,157
											Total	\$986,860		\$30,137


Table 1-3

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Summary of Improvements Recommended to Meet City of Chino or Surrounding Agency LOS Requirements

#	Intersection Location	Jurisdiction	Existing (2019)	E+P (Building 1)	E+P (Project Buildout)	2022 Without Project	2022 With Project	2040 Without/With Project	Improvements in City DIF? ¹	DIF Project #	Project Responsibility ⁷	Total Cost ^{2,3,4}	Fair Share % ⁴	Fair Share Cost ⁵
25	Euclid Av. (SR-83) & Edison Av.	Caltrans, Chino,	None	None	None	3rd NB through lane	Same	Same	Yes	TR-126	Fees	\$0	2.329%	\$0
		Ontario				3rd SB through lane	Same	Same	Yes	TR-126	Fees	\$0		\$0
								2nd NB left turn lane	No		Fair Share	\$74,200		\$1,728
								2nd SB left turn lane	Yes	TR-126	Fees	\$0		\$0
								2nd EB left turn lane	Yes	TR-126	Fees	\$0		\$0
								2nd EB through lane	Yes	TR-126	Fees	\$0		\$0
								3rd FB through lane	Yes	TR-126	Fees	\$0		\$0
								2nd WB left turn lane	No	11120	Fair Share	\$74 200		\$1 728
								2nd WB through lane	No		Fair Share	\$267.120		\$6.222
								WB right turn lane	No		Fair Share	\$74,200		\$1,728
								Modify the traffic signal to implement overlap phasing for the WB and SB right turn lanes	No		Fair Share	\$111,300		\$2,592
											Total	\$601,020		\$13,999
26	Euclid Av. (SR-83) & Eucalyptus Av.	Caltrans, Chino,	None	None	None	None	None	3rd NB through lane	Yes	TR-166	Fees	\$0	3.865%	\$0
		Ontario						3rd SB through lane	Yes	TR-028	Fees	\$0		\$0
								2nd WB left turn lane	No		Fair Share	\$74,200		\$2,868
								WB right turn lane	No		Fair Share	\$74,200		\$2,868
27	Fuclid Av. (SR-83) & Merrill Av	Caltrans Chino	None	None	None	3rd NB through lane	Same	Same	Yes	TR-166	Fees	\$ 148,400 \$0	4 561%	\$ 5,736 \$0
		Ontario	None	None	None	3rd SB through lane	Same	Same	Yes	TR-028	Fees	\$0	4.50170	\$0 \$0
								EB left turn lane	No		Fair Share	\$74,200		\$3,384
								2 WB left turn lanes	Yes	TR-028	Fees	\$0		\$0
								WB right turn lane	Yes	TR-028	Fees	\$0		\$0
								Modify the traffic signal to implement overlap phasing for the NB and WB right	No		Fair Share	\$111,300		\$5,076
								turniaries			Total	\$185.500		\$8.460
28	Euclid Av. (SR-83) & Kimball Av.	Caltrans, Chino	None	None	None	None	3rd NB through lane	Same	Yes	TR-166	Fees	\$0		\$0
							3rd SB through lane	Same	Yes	TR-166	Fees	\$0		\$0
							-	2nd WB left turn lane	Yes	TR-166	Fees	\$0		\$0
											Total	\$0		\$0
30	Euclid Av. (SR-83) & Pine Av.	Caltrans, Chino	NB free right turn lane	Same	Same	Same	Same	Same	Yes	TR-166	Fees	\$0		\$0
						3rd NB through lane	Same	Same	Yes	TR-166	Fees	\$0		\$0
						3rd SB through lane	Same	Same	Yes	TR-130	Fees	\$0		\$0
						-					Total	\$0		\$0
38	Flight Av. & Kimball Av.	Chino	None	None	None	None	None	Install a traffic signal	Yes	TR-148	Fees	\$0	5.771%	\$0
								SB left turn lane	Yes	TR-107	Fees	Śŋ		Śŋ
								and W/D through land	Ves	TR 107	Fees	\$0 \$0		0¢
									res	18-121	Fees	ŞU		ŞU 64.202
								WB right turn lane	No		Fair Share	\$74,200		\$4,282
								_			Total	\$74,200		\$4,282
40	Heliman Av. & Kimball Av.	Chino, Eastvale	Operation of the traffic signal ⁶	2040 Analysis Location	2040 Analysis Location	2040 Analysis Location	2040 Analysis Location	Same	Yes	TR-131	Fees	\$0		\$0
			2nd NB left turn lane					Same	Yes	TR-131	Fees	\$0 \$0		\$0 \$0
								SB left turn lane	res	1K-131 TR-121	Fees	ο S		şu ¢n
								2 WB left turn lanes	Yes	TR-131	Fees	\$0		\$0 \$0
								2 WB through lanes	Yes	TR-131	Fees	\$0		\$0
								WB right turn lane	Yes	TR-131	Fees	\$0		\$0
											Total	\$0		\$0



Table 1-3

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Summary of Improvements Recommended to Meet City of Chino or Surrounding Agency LOS Requirements

#	Intersection Location	Jurisdiction	Existing (2019)	E+P (Building 1)	E+P (Project Buildout)	2022 Without Project	2022 With Project	2040 Without/With Project	Improvements in City DIF? ¹	DIF Project #	Project Responsibility ⁷	Total Cost ^{2,3,4}	Fair Share % ⁴	Fair Share Cost ⁵
42	Archibald Av. & Limonite Av.	Eastvale	None	None	None	2nd NB through lane	Same	Same	Yes	TR-304	Fees	\$0		\$0
								NB left turn lane	Yes	TR-304	Fees	\$0		\$0
								3rd NB through lane	Yes	TR-304	Fees	\$0		\$0
								2nd SB left turn lane	Yes	TR-304	Fees	\$0		\$0
								2nd SB through lane	Yes	TR-304	Fees	\$0		\$0
								3rd SB through lane	Yes	TR-304	Fees	\$0		\$0
								2nd EB left turn lane	Yes	TR-304	Fees	\$0		\$0
								2nd EB through lane	Yes	TR-304	Fees	\$0		\$0
								2nd WB left turn lane	Yes	TR-304	Fees	\$0		\$0
								2nd WB through lane	Yes	TR-304	Fees	\$0		\$0
											Total	\$0		\$0
43	Archibald Av. & Schleisman Rd.	Eastvale	Modify the traffic signal to extend the cycle length to 130 seconds	Not Applicable	Same	Same	Same	Same	No		Fair Share	\$111,300	0.549%	\$612 \$612
	1			1				1	Total Costs f	or Horizon Year (2	040) Improvements	\$3,678,040		\$139,596
Total Project Fair Share Contribution to the City of Chino (non-DIF/other) ⁸								\$48,909						
Total Project Fair Share Contribution to the City of Ontario ⁹								\$59,941						
Total Project Fair Share Contribution to the City of Chino Hills ¹⁰								\$24,805						
Total Project Fair Share Contribution to the City of Eastvale ¹¹								\$612						
Total Project Fair Share Contribution to Caltrans ¹²								\$5,329						

¹ Improvements included in City of Chino DIF program for local, regional and specific plan components (City of Chino Development Impact Fee Nexus and Calculation Report, December 28, 2017).

² Costs have been estimated using the data provided in Appendix "G" of the CMP (2003 Update) for preliminary construction costs.

³ Appendix "G" costs escalated by a factor of 1.484 per City direction except Traffic Signals.

⁴ Program improvements constructed by project may be eligible for fee credit, at discretion of City. See Table 1-5 for Fair Share Calculations.

⁵ Rough order of magnitude cost estimate.

⁶ Traffic signal is currently flashing red. As such, an all-way stop controlled intersection was assumed for Existing traffic conditions only.

⁷ Identifies the Project's responsibility to construct an improvement or contribute fair share or fee payment towards the implementation of the improvement shown.

⁸ Total project fair share contribution consists of the improvements which are not already included in the City-wide DIF for those intersections wholly or partially within the City of Chino.

⁹ Total project fair share contribution consists of the improvements which are not already included in a fee program for those intersections wholly or partially within the City of Ontario.

¹⁰ Total project fair share contribution consists of the improvements which are not already included in a fee program for those intersections wholly or partially within the City of Chino Hills.

¹¹ Total project fair share contribution consists of the improvements which are not already included in a fee program for those intersections wholly or partially within the City of Eastvale.

¹² Total project fair share contribution consists of the improvements which are not already included in a fee program for those intersections wholly or partially within Caltrans' jurisdiction.



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1.6 MITIGATION MEASURES

The following mitigation measures are based on the improvements needed under Opening Year Cumulative (2022) and Horizon Year (2040) traffic conditions. The improvements needed to address Opening Year Cumulative deficiencies are typically a sub-set of those improvements recommended under Horizon Year (2040) traffic conditions.

Mitigation Measure 1.1 – Prior to the issuance of each building's certificate of occupancy, the Project Applicant shall participate in the City's city-wide DIF program by paying the requisite DIF fee on a per building basis for Building 1 and Building 2, DIF fees may be reduced or off-set based on the cost DIF eligible facilities constructed by the Project Applicant.

Mitigation Measure 2.1 – Prior to the issuance of each building's certificate of occupancy, the Project Applicant shall pay the Project's fair share amount of \$27,445 for Building 1 and \$21,464 for Building 2 (total of \$48,909) for the improvements identified on Table 1-3 at intersections located within the City of Chino.

Mitigation Measure 3.1 – Table 1-3 of the TIA includes intersections that either share a mutual border with or are wholly located within the City of Ontario, City of Chino Hills and City of Eastvale, or are subject to the jurisdiction of Caltrans that have recommended improvements which are not covered by DIF. Because the City of Chino does not have plenary control over intersections that share a border with these other agencies, the City cannot guarantee that such improvements will be constructed. Thus, the following additional mitigation measure is required: The City of Chino shall participate in a multi-jurisdictional effort with the City of Ontario, City of Chino Hills, City of Eastvale, and Caltrans to develop a study to identify fair share contribution funding sources attributable to and paid from private and public development to supplement other regional and State funding sources necessary to implement the improvements identified on Table 1-3 of the TIA, that are located in these other jurisdictions. The study shall include fairshare contributions related to private and or public development based on nexus requirements contained in the Mitigation Fee Act (Govt. Code § 66000 et seq.) and 14 Cal. Code of Regs. § 15126.4(a)(4) and, to this end, the study shall recognize that impacts attributable to the City of Ontario, City of Chino Hills, City of Eastvale, and Caltrans facilities that are not attributable to development located within the City of Chino are not paying in excess of such developments' fair share obligations. The fee study shall also be compliant with Government Code § 66001(g) and any other applicable provisions of law. The study shall set forth a timeline and other agreedupon relevant criteria for implementation of the recommendations contained within the study to the extent the other agencies agree to participate in the fee study program. Because the City of Chino and these other agencies are responsible to implement this mitigation measure, Developer shall have no compliance obligations with respect to this Mitigation Measure.

Mitigation Measure 3.2 – The Developer's fair-share amount for the intersections that either share a mutual border with or are wholly located within the City of Ontario, City of Chino Hills, and the City of City of Eastvale or are subject to the jurisdiction of Caltrans that have recommended improvements which are not covered by DIF are as follows:

- City of Ontario: \$33,635 for Building 1 and \$26,306 for Building 2 (total of \$59,941)
- City of Chino Hills: \$13,919 for Building 1 and \$10,886 for Building 2 (total of \$24,805)
- City of Eastvale: \$344 for Building 1 and \$268 for Building 2 (total of \$612)
- Caltrans: \$2,991 for Building 1 and \$2,338 for Building 2 (total of \$5,329)

Developer shall be required to pay the amount shown above to the City of Chino prior to the issuance of the Project's final certificate of occupancy. The City of Chino shall hold Developer's Fair Share contribution in trust and shall apply Developer's Fair Share Contribution to any fee program adopted or agreed upon by the City of Chino and other agencies as a result of implementation of Mitigation Measure 3.1. If, within five years of the date of collection of Developer's Fair Share Contribution, the City of Chino and other agencies do not comply with Mitigation Measure 3.1, then Developer's Fair Share Contribution shall be returned to the Developer.

Mitigation Measure 4.1 – The Project Applicant will be required to develop and implement a City-approved Construction Traffic Management Plan addressing potential construction-related traffic detours and disruptions. In general, the Construction Traffic Management Plan would ensure that to the extent practical, construction traffic would access the Project site during off-peak hours or limited access during the peak hours; and that construction traffic would be routed to avoid travel through, or proximate to, sensitive land uses.

Mitigation Measure 5.1 – The delivery and removal of heavy equipment is recommended to minimize the heavy truck activity during the morning and evening peak periods (6:00 AM to 9:00 AM and 3:00 PM to 6:00 PM) in order to have nominal impacts to traffic and circulation near the vicinity of the Project.

Mitigation Measure 6.1 – During the site grading, the Project shall limit soil import activity between the Project site and excess dirt fill sites during the hours of 6:00 AM - 9:00 AM (morning peak period) and 3:00 PM - 6:00 PM (evening peak period) to fewer than the equivalent of 50 passenger car equivalent (PCE) truck trips per hour. 50 PCE truck trips equates to approximately 16 total trucks (8 trucks in and 8 trucks out) during the peak periods specified above in order to limit the potential impacts of haul truck activity during these busy commute times:

50 PCE truck trips / 3.0 PCE factor = 16 total trucks during the peak hour



1.7 RECOMMENDED ON-SITE ROADWAY AND SITE ACCESS IMPROVEMENTS

This section summarizes Project site access and on-site circulation recommendations. The Project is proposed to have access on Mountain Avenue and Bickmore Avenue. All Project access points are assumed to allow full-access. Regional access to the Project site is provided via the SR-60 Freeway and the SR-71 Freeway. Roadway improvements necessary to provide site access and on-site circulation are assumed to be constructed in conjunction with site development and are described below. These improvements are required to be in place prior to occupancy.

1.7.1 RECOMMENDED SITE ADJACENT ROADWAY IMPROVEMENTS

The recommended site-adjacent roadway improvements for the Project are described below. These improvements need to be incorporated into the Project description prior to Project approval or imposed as conditions of approval as part of the Project approval. Construction of on-site and site adjacent improvements are recommended to occur in conjunction with adjacent Project development activity or as needed for Project access purposes. Ultimate improvements along Mountain Avenue and Bickmore Avenue and the intersection of Mountain Avenue at Bickmore Avenue are consistent with the City of Chino General Plan and are shown on Exhibit 1-5.

Mountain Avenue – Mountain Avenue is a north-south oriented roadway located along the Project's western boundary. Construct Mountain Avenue from Bickmore Avenue to the southern Project boundary at its ultimate half-section width as an urban industrial collector (66-foot ultimate right-of-way) in compliance with the circulation recommendations found in City of Chino General Plan.

Bickmore Avenue – Bickmore Avenue is an east-west oriented roadway located along the Project's northern boundary. Bickmore Avenue from Mountain Avenue to the eastern Project boundary is currently constructed to its ultimate full-section width as an urban industrial collector (66-foot ultimate right-of-way), consistent with the circulation recommendations found in the City of Chino General Plan. However, the Project should modify the curb and gutter and sidewalk improvements along the Project's frontage to accommodate the proposed Project driveways.

On-site traffic signing and striping should be implemented agreeable with the provisions of the California Manual on Uniform Traffic Control Devices (CA MUTCD) and in conjunction with detailed construction plans for the Project site.

Sight distance at each project access point should be reviewed with respect to standard Caltrans and City of Chino sight distance standards at the time of preparation of final grading, landscape and street improvement plans.



1.7.2 RECOMMENDED SITE ACCESS IMPROVEMENTS

Exhibit 1-5 also shows the site access improvements at each applicable Project driveway. Construction of on-site and site adjacent improvements shall occur in conjunction with adjacent Project development activity or as needed for Project access purposes. The two driveways serving trucks (Driveway 5 and Driveway 6) on Bickmore Avenue should be signed prohibiting trucks from turning left onto Bickmore Avenue.

A queuing analysis was conducted along the site adjacent roadways of Mountain Avenue and Bickmore Avenue for Horizon Year (2040) traffic conditions to determine the turn pocket lengths necessary to accommodate near term 95th percentile queues. The analysis was conducted for the weekday AM and weekday PM peak hours. The storage length recommendations for the turning movements at the Project were shown previously on Exhibit 1-5. The Horizon Year (2040) queuing results are provided in Appendix 1.2 of this report.

Wherever necessary, roadways adjacent to the Project, site access points and site-adjacent intersections will be constructed to be consistent with the identified roadway classifications and respective cross-sections in the City of Chino General Plan Circulation Element.

1.8 TRUCK ACCESS AND CIRCULATION

Due to the typical wide turning radius of large trucks, a truck turning template has been overlaid on the site plan at each applicable Project driveway and site adjacent intersection anticipated to be utilized by heavy trucks in order to determine appropriate curb radii and to verify that trucks will have sufficient space to execute turning maneuvers (see Exhibit 1-6). As shown, all driveways that would be utilized by heavy trucks are anticipated to accommodate the wide turning radius of the heavy trucks (WB-67).

At the request of City of Chino staff, Exhibit 1-6 identifies the interim and ultimate right-of-way needs at the intersection of El Prado Road and Mountain Avenue (see pages 3 and 4 of Exhibit 1-6). The Project Applicant will make a good-faith effort to obtain the necessary right-of-way shown on Exhibit 1-6 for the intersection of El Prado Road and Mountain Avenue. However, for purposes of this TIA, to provide a conservative analysis and full disclosure of impacts, acquisition of this right-of-way and improvement of this intersection is not assumed to be accomplished.

1.9 PEDESTRIAN AND BICYCLE ACCOMMODATIONS

The Project will construct its ultimate half-section of Mountain Avenue and Bickmore Avenue including curb and gutter and sidewalk improvements. Some of these sections will also include sidewalks. Consistent with the City's General Plan Circulation Element, Pine Avenue is proposed to have Class I off-street bike lanes in close proximity to the Project.



EXHIBIT 1-5 (1 OF 2): CONCEPT STRIPING PLAN











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EXHIBIT 1-6 (2 OF 4): WB-67 TRUCK TURNING TEMPLATES



INBOUND







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EXHIBIT 1-6 (3 OF 4): WB-67 TRUCK TURNING TEMPLATES MOUNTAIN AVE. / EL PRADO RD. INTERIM CONFIGURATION



INTERIM DESIGN CONCEPT





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TRUCK TURNS





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LEGEND:

= WB-67 FRONT TIRE PATHS = WB-67 REAR TIRE PATHS

6' SHIFT @ 50MPH = 300' 6' SHIFT @ 50MPH = 300' **CURBAN**

2 METHODOLOGIES

This section of the report presents the methodologies used to perform the traffic analyses summarized in this report. The methodologies described are generally consistent with City of Chino traffic study guidelines.

2.1 LEVEL OF SERVICE

Traffic operations of roadway facilities are described using the term "Level of Service" (LOS). LOS is a qualitative description of traffic flow based on several factors such as speed, travel time, delay, and freedom to maneuver. Six levels are typically defined ranging from LOS A, representing completely free-flow conditions, to LOS F, representing breakdown in flow resulting in stop-and-go conditions. LOS E represents operations at or near capacity, an unstable level where vehicles are operating with the minimum spacing for maintaining uniform flow.

2.2 INTERSECTION CAPACITY ANALYSIS

The definitions of LOS for interrupted traffic flow (flow restrained by the existence of traffic signals and other traffic control devices) differ slightly depending on the type of traffic control. The LOS is typically dependent on the quality of traffic flow at the intersections along a roadway. The <u>Highway Capacity Manual</u> (HCM) (6th Edition) methodology expresses the LOS at an intersection in terms of delay time for the various intersection approaches. (5) The HCM uses different procedures depending on the type of intersection control.

2.2.1 SIGNALIZED INTERSECTIONS

City of Chino, City of Ontario, City of Eastvale, City of Chino Hills

The City of Chino, City of Ontario, City of Eastvale, and City of Chino Hills require signalized intersection operations analysis based on the methodology described in the HCM. (5) Intersection LOS operations are based on an intersection's average control delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. For signalized intersections LOS is directly related to the average control delay per vehicle and is correlated to a LOS designation as described on Table 2-1.

Description	Average Control Delay (Seconds), V/C ≤ 1.0	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Operations with very low delay occurring with favorable progression and/or short cycle length.	0 to 10.00	А	F
Operations with low delay occurring with good progression and/or short cycle lengths.	10.01 to 20.00	В	F

TABLE 2-1: SIGNALIZED INTERSECTION LOS THRESHOLDS



Description	Average Control Delay (Seconds), V/C ≤ 1.0	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.01 to 35.00	С	F
Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.01 to 55.00	D	F
Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	55.01 to 80.00	E	F
Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.	80.01 and up	F	F

Source: HCM (6th Edition)

Consistent with Appendix B of the San Bernardino County CMP, the following saturation flow rates, in vehicles per hour green per lane (vphgpl), will be utilized in the traffic analysis for signalized intersections:

Existing and Opening Year Cumulative Traffic Conditions:

- Exclusive through: 1800 vphgpl
- Exclusive left: 1700 vphgpl
- Exclusive right: 1800 vphgpl
- Exclusive dual left: 1600 vphgpl
- Exclusive triple left: 1500 vphgpl

Horizon Year Traffic Conditions:

- Exclusive through: 1900 vphgpl
- Exclusive left: 1800 vphgpl
- Exclusive right: 1900 vphgpl
- Exclusive dual left: 1700 vphgpl
- Exclusive triple left: 1600 vphgpl

The traffic modeling and signal timing optimization software package Synchro (Version 10) has been utilized to analyze signalized intersections within the City of Chino, City of Ontario, City of Chino Hills, and City of Eastvale. Synchro is a macroscopic traffic software program that is based on the signalized intersection capacity analysis as specified in the HCM. Macroscopic level models represent traffic in terms of aggregate measures for each movement at the study intersections. Equations are used to determine measures of effectiveness such as delay and queue length. The level of service and capacity analysis performed by Synchro takes into consideration optimization and coordination of signalized intersections within a network. The peak hour traffic volumes have been adjusted using a peak hour factor (PHF) to reflect peak 15minute volumes. Common practice for LOS analysis is to use a peak 15-minute rate of flow. However, flow rates are typically expressed in vehicles per hour. The PHF is the relationship between the peak 15-minute flow rate and the full hourly volume (e.g. PHF = [Hourly Volume] / [4 x Peak 15-minute Flow Rate]). The use of a 15-minute PHF produces a more detailed analysis as compared to analyzing vehicles per hour. Existing PHFs have been used for all analysis scenarios. Per the HCM, PHF values over 0.95 often are indicative of high traffic volumes with capacity constraints on peak hour flows while lower PHF values are indicative of greater variability of flow during the peak hour. (5)

California Department of Transportation (Caltrans)

Per the Caltrans <u>Guide for the Preparation of Traffic Impact Studies</u>, the traffic modeling and signal timing optimization software package Synchro (Version 10) has also been utilized to analyze signalized intersections under Caltrans' jurisdiction, which include interchange to arterial ramps (i.e. SR-60 Freeway ramps at Euclid Avenue (SR-83), SR-71 Freeway ramps at Central Avenue, SR-71 Freeway ramps at Pine Avenue, and SR-71 Freeway ramps at Euclid Avenue (SR-83)). (2) Signal timing for the freeway arterial-to-ramp intersections have been obtained from Caltrans District 8 and were utilized for the purposes of this analysis.

2.2.2 UNSIGNALIZED INTERSECTIONS

The City of Chino, City of Ontario, City of Eastvale, and City of Chino Hills require the operations of unsignalized intersections be evaluated using the methodology described in the HCM (6th Edition). (5) The LOS rating is based on the weighted average control delay expressed in seconds per vehicle (see Table 2-2).

Description	Average Control Delay Per Vehicle (Seconds)	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Little or no delays.	0 to 10.00	А	F
Short traffic delays.	10.01 to 15.00	В	F
Average traffic delays.	15.01 to 25.00	С	F
Long traffic delays.	25.01 to 35.00	D	F
Very long traffic delays.	35.01 to 50.00	E	F
Extreme traffic delays with intersection capacity exceeded.	> 50.00	F	F

Source: HCM (6th Edition)

At two-way or side-street stop-controlled intersections, LOS is calculated for each controlled movement and for the left turn movement from the major street, as well as for the intersection as a whole. For approaches composed of a single lane, the delay is computed as the average of all movements in that lane. For all-way stop controlled intersections, LOS is computed for the intersection as a whole.



2.3 TRAFFIC SIGNAL WARRANT ANALYSIS METHODOLOGY

The term "signal warrants" refers to the list of established criteria used by Caltrans and other public agencies to quantitatively justify or ascertain the potential need for installation of a traffic signal at an otherwise unsignalized intersection. This TIA uses the signal warrant criteria presented in the latest edition of the Caltrans' <u>California Manual on Uniform Traffic Control Devices</u> (CA MUTCD), for all study area intersections. (6)

The signal warrant criteria for Existing study area intersections are based upon several factors, including volume of vehicular and pedestrian traffic, frequency of accidents, and location of school areas. The CA MUTCD indicates that the installation of a traffic signal should be considered if one or more of the signal warrants are met. (6) Specifically, this TIA utilizes the Peak Hour Volume-based Warrant 3 as the appropriate representative traffic signal warrant analysis for existing traffic conditions. Warrant 3 is appropriate to use for this TIA because it provides specialized warrant criteria for intersections with rural characteristics (e.g. located in communities with populations of less than 10,000 persons or with adjacent major streets operating above 40 miles per hour). For the purposes of this study, the speed limit was the basis for determining whether Urban or Rural warrants were used for a given intersection.

Future unsignalized intersections, that currently do not exist, have been assessed regarding the potential need for new traffic signals based on future average daily traffic (ADT) volumes, using the Caltrans planning level ADT-based signal warrant analysis worksheets.

As shown on Table 2-3, traffic signal warrant analyses were performed for the following unsignalized study area intersections during the peak weekday conditions wherein the Project is anticipated to contribute the highest trips:

ID	Intersection Location	Jurisdiction		
5	SR-71 NB Ramps & Pine Av. – 2040 Analysis Location Only	Chino Hills, Caltrans		
10	Mountain Av. & Bickmore Av.	Chino		
11	1 Mountain Av. & Driveway 1 – Future Intersection Chino			
12	Mountain Av. & Driveway 2 – Future Intersection	Chino		
13	Mountain Av. & Driveway 3 – Future Intersection	Chino		
14	El Prado Rd. & Mountain Av.	Chino		
15	El Prado Rd. & Pine Av.	Chino		
16	Driveway 4 & Bickmore Avenue – Future Intersection	Chino		
17	Driveway 5 & Bickmore Avenue – Future Intersection	Chino		
18	Driveway 6 & Bickmore Avenue – Future Intersection	Chino		
32	Rincon Meadows Av. & Pine Av.	Chino		
38	Flight Av. & Kimball Av. – 2040 Analysis Location Only	Chino		



The Existing conditions traffic signal warrant analysis is presented in the subsequent section, Section 3 *Area Conditions* of this report. The traffic signal warrant analyses for future conditions are presented in Section 6 *E+P Traffic Analysis*, Section 7 *Opening Year Cumulative (2022) Traffic Analysis*, and Section 8 *Horizon Year (2040) Traffic Analysis* of this report.

It is important to note that a signal warrant defines the minimum condition under which the installation of a traffic signal might be warranted. Meeting this threshold condition does not require that a traffic control signal be installed at a particular location, but rather, that other traffic factors and conditions be evaluated in order to determine whether the signal is truly justified. It should also be noted that signal warrants do not necessarily correlate with LOS. An intersection may satisfy a signal warrant condition and operate at or above acceptable LOS or operate below acceptable LOS and not meet a signal warrant.

2.4 FREEWAY OFF-RAMP QUEUING ANALYSIS

The study area for this TIA includes the freeway-to-arterial interchanges of the SR-71 Freeway at Central Avenue, SR-71 Freeway at Pine Avenue, SR-71 Freeway at Euclid Avenue (SR-83) off-ramps, and SR-60 Freeway at Euclid Avenue (SR-83) off-ramps. Consistent with Caltrans requirements, the 95th percentile queuing of vehicles has been assessed at the off-ramps to determine potential queuing impacts at the freeway ramp intersections on Central Avenue, Pine Avenue, and Euclid Avenue (SR-83). Specifically, the queuing analysis is utilized to identify any potential queuing and "spill back" onto the SR-71 Freeway or SR-60 Freeway mainline from the off-ramps.

The traffic progression analysis tool and HCM intersection analysis program, Synchro, has been used to assess the potential impacts/needs of the intersections with traffic added from the proposed Project. Storage (turn-pocket) length recommendations at the ramps have been based upon the 95th percentile queue resulting from the Synchro progression analysis. There are two footnotes which appear on the Synchro outputs. One footnote indicates if the 95th percentile cycle exceeds capacity. Traffic is simulated for two complete cycles of the 95th percentile traffic in Synchro in order to account for the effects of spillover between cycles. In practice, the 95th percentile queue shown will rarely be exceeded and the queues shown with the footnote are acceptable for the design of storage bays. The other footnote indicates whether or not the volume for the 95th percentile queue is metered by an upstream signal. In many cases, the 95th percentile queue due to upstream metering. If the upstream intersection is at or near capacity, the 50th percentile queue represents the maximum queue experienced.

A vehicle is considered queued whenever it is traveling at less than 10 feet/second. A vehicle will only become queued when it is either at the stop bar or behind another queued vehicle. Although only the 95th percentile queue has been reported in the tables, the 50th percentile queue can be found in the appendix alongside the 95th percentile queue for each ramp location. The 50th percentile maximum queue is the maximum back of queue on a typical cycle during the peak hour, while the 95th percentile queue is the maximum back of queue with 95th percentile traffic volumes during the peak hour. The queue length reported is for the lane with the highest queue in the lane group. The 50th percentile or average queue represents the typical queue

length for peak hour traffic conditions, while the 95th percentile queue is derived from the average queue plus 1.65 standard deviations. The 95th percentile queue is not necessarily ever observed it is simply based on statistical calculations.

2.5 FREEWAY MAINLINE SEGMENT ANALYSIS METHODOLOGY

Consistent with recent Caltrans guidance and because impacts to freeway segments dissipate with distance from the point of SHS entry, quantitative study of freeway segments beyond those immediately adjacent to the point of entry is not required. The traffic study has conservatively evaluated the freeway segments along the SR-71 Freeway and SR-60 Freeway although the Project is anticipated to contribute less than 50 one-way peak hour trips (or 100 two-way peak hour trips), with the exception of the SR-71 Freeway Northbound, north of Central Avenue during the PM peak hour where the Project is anticipated to contribute 50 one-way peak hour trips.

The freeway system in the study area has been broken into segments defined by the freeway-toarterial interchange locations. The freeway segments have been evaluated in this TIA based upon peak hour directional volumes. The freeway segment analysis is based on the methodology described in the HCM and performed using HCS7 (Highway Capacity Software, HCM 6th Edition). The performance measure preferred by Caltrans to calculate LOS is density. Density is expressed in terms of passenger cars per mile per lane. Table 2-4 illustrates the freeway segment LOS descriptions for each density range utilized for this analysis.

The number of lanes for existing baseline conditions has been obtained from field observations conducted by Urban Crossroads in March 2019. These existing freeway geometrics have been utilized for Existing, E+P, Opening Year Cumulative Without and With Project, and Horizon Year Without and With Project conditions.

The SR-71 Freeway and SR-60 Freeway mainline volume data were obtained from the Caltrans Performance Measurement System (PeMS) website for the segments of the SR-71 Freeway north of Central Avenue and SR-60 Freeway west of Euclid Avenue (SR-83). The data was obtained from January 2019. In an effort to conduct a conservative analysis, the maximum value observed within the three-day period was utilized for the weekday morning (AM) and weekday evening (PM) peak hours. In addition, truck traffic, represented as a percentage of total traffic, has been utilized for the purposes of this analysis in an effort to not overstate traffic volumes and peak hour deficiencies. As such, actual vehicles (as opposed to passenger-car-equivalent volumes) have been utilized for the purposes of the basic freeway segment analysis. (7)

Level of Service	Description	Density Range (pc/mi/ln) ¹
А	Free-flow operations in which vehicles are relatively unimpeded in their ability to maneuver within the traffic stream. Effects of incidents are easily absorbed.	0.0-11.0
В	Relative free-flow operations in which vehicle maneuvers within the traffic stream are slightly restricted. Effects of minor incidents are easily absorbed.	11.1 – 18.0
С	Travel is still at relative free-flow speeds, but freedom to maneuver within the traffic stream is noticeably restricted. Minor incidents may be absorbed, but local deterioration in service will be substantial. Queues begin to form behind significant blockages.	18.1 – 26.0
D	Speeds begin to decline slightly and flows, and densities begin to increase more quickly. Freedom to maneuver is noticeably limited. Minor incidents can be expected to create queuing as the traffic stream has little space to absorb disruptions.	26.1 - 35.0
E	Operation at capacity. Vehicles are closely spaced with little room to maneuver. Any disruption in the traffic stream can establish a disruption wave that propagates throughout the upstream traffic flow. Any incident can be expected to produce a serious disruption in traffic flow and extensive queuing.	35.1 – 45.0
F	Breakdown in vehicle flow.	>45.0

TABLE 2-4: DESCRIPTION OF FREEWAY MAINLINE LOS

¹ pc/mi/ln = passenger cars per mile per lane. Source: HCM (6th Edition)

2.6 FREEWAY MERGE/DIVERGE RAMP JUNCTION ANALYSIS

The freeway system in the study area has been broken into segments defined by freeway-toarterial interchange locations resulting in two existing on and off ramp locations. Although the HCM indicates the influence area for a merge/diverge junction is 1,500 feet, the analysis presented in this traffic study has been performed at all ramp locations with respect to the nearest on or off ramp at each interchange in an effort to be consistent with Caltrans guidance/comments on other projects Urban Crossroads has worked on in the region.

The merge/diverge analysis is based on the HCM Ramps and Ramp Junctions analysis method and performed using HCS7 software. The measure of effectiveness (reported in passenger car/mile/lane) are calculated based on the existing number of travel lanes, number of lanes at the on and off ramps both at the analysis junction and at upstream and downstream locations (if applicable) and acceleration/deceleration lengths at each merge/diverge point. Table 2-5 presents the merge/diverge area level of service descriptions for each density range utilized for this analysis.

Similar to the basic freeway segment analysis, the SR-71 and SR-60 Freeway mainline volume data were obtained from the Caltrans PeMS website for the segments of the SR-71 Freeway north of Central Avenue and SR-60 Freeway west of Euclid Avenue (SR-83). The ramp data (per the count data presented in Appendix 3.1) were then utilized to flow conserve the mainline volumes to determine the remaining SR-71 and SR-60 Freeway mainline segment volumes. Flow conservation checks ensure that traffic flows from east to west and north to south (and vice versa) of the interchange area with no unexplained loss of vehicles. The data was obtained from January 2019. In an effort to conduct a conservative analysis, the maximum value observed within the three-day period was utilized for the weekday morning (AM) and weekday evening

(PM) peak hours. In addition, truck traffic, represented as a percentage of total traffic, has been utilized for the purposes of this analysis in an effort to not overstate traffic volumes and peak hour deficiencies. (7) As such, actual vehicles (as opposed to passenger-car-equivalent volumes) have been utilized for the purposes of the freeway ramp junction (merge/diverge) analysis.

Level of Service	Density Range (pc/mi/ln) ¹
А	≤10.0
В	10.0 - 20.0
С	20.0 - 28.0
D	28.0 - 35.0
E	>35.0
F	Demand Exceeds Capacity

TABLE 2-5: DESCRIPTION OF FREEWAY MERGE AND DIVERGE LOS

¹ pc/mi/ln = passenger cars per mile per lane. Source: HCM (6th Edition)

2.7 MINIMUM ACCEPTABLE LEVELS OF SERVICE (LOS) AND INTERSECTION DEFICIENCY CRITERIA

Minimum Acceptable LOS and associated definitions of intersection deficiencies has been obtained from each of the applicable surrounding jurisdictions.

2.7.1 CITY OF CHINO

According to the City of Chino, LOS D is the minimum acceptable condition that should be maintained during the peak commute hours, where feasible. Therefore, any intersection operating at LOS E or F is considered deficient. A higher LOS standard of LOS C has been applied to the Project driveways.

2.7.2 CITY OF ONTARIO

The City of Ontario utilizes a minimum acceptable LOS of LOS E, where feasible.

2.7.3 CITY OF EASTVALE

The City of Eastvale General Plan Policy C-10 sets a standard of LOS C with LOS D as acceptable in commercial and employment areas and at intersections of any combination of major highways, urban arterials, secondary highways, or freeway ramps. Based on this criterion, where feasible, LOS D is the minimum acceptable LOS at each of the study intersections within the City of Eastvale.

2.7.4 CITY OF CHINO HILLS

The <u>Traffic Impact Study Guidelines for Development Projects in the City of Chino Hills</u> (dated October 15, 2001) indicates LOS D shall be the minimum acceptable LOS to be used for all City of Chino Hills roadways and intersections. Therefore, any intersection operating at LOS E or LOS F will be considered deficient.



2.7.5 CMP

The CMP definition of deficiency is based on maintaining a level of service standard of LOS E or better, where feasible, except where an existing LOS F condition is identified in the CMP document. However, in an effort to overstate as opposed to understate potential impacts, LOS D has been utilized for the CMP intersections for the purposes of this analysis, unless the intersection is located in the City of Ontario (which uses LOS E).

2.7.6 CALTRANS

Caltrans endeavors to maintain a target LOS at the transition between LOS C and LOS D on SHS facilities, however, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. If an existing State highway facility is operating at less than this target LOS, the existing LOS should be maintained. In general, the region-wide goal for an acceptable LOS on all freeways and intersections is LOS D. Consistent with the City of Chino LOS threshold of LOS D and in excess of the City of Ontario stated LOS threshold of LOS E, LOS D will be used as the target LOS for freeway ramps, freeway segments, and freeway merge/diverge ramp junctions.

2.8 THRESHOLDS OF SIGNIFICANCE

This section outlines the methodology used in this analysis related to identifying circulation system deficiencies.

2.8.1 INTERSECTIONS

To determine whether the addition of project traffic (as defined through the comparison of Existing traffic conditions to E+P traffic conditions) at a study intersection would result in a project-specific traffic impact, the following will be utilized:

• When the pre-Project condition is at or better than LOS D (or LOS E for CMP intersections and intersections located in the City of Ontario) (i.e., acceptable LOS), and project-generated traffic, as measured by 50 or more peak hour trips, causes deterioration below LOS D/LOS E (i.e., unacceptable LOS), a deficiency is deemed to occur.

However, when the pre-Project condition is already below LOS D/LOS E (i.e., unacceptable LOS), the Project will be responsible for mitigating its impact to a level of service equal to or better than it was without the Project for intersections that receive 50 or more peak hour project-related trips. This is a standard protocol in many urban jurisdictions because to require a Project to mitigate to LOS D/LOS E or better would in effect force the Project to mitigate beyond its Project impacts, which is prohibited under California law. Thus, for intersections currently operating at unacceptable LOS during either the AM and/or PM peak hour under Existing traffic conditions, improvements have been identified to mitigate the impacts of the Project to an intersection LOS that is equal to or better than pre-Project conditions (see Table 2-6).

Cumulative traffic impacts are created as a result of a combination of the proposed Project together with other future developments contributing to the overall traffic impacts requiring additional improvements to maintain acceptable level of service operations with or without the



Project. A Project's contribution to a significant cumulative impact can be reduced to less than significant if the Project is required to implement or fund its fair share of improvements designed to alleviate its cumulatively considerable contribution to the impact. Cumulatively considerable is defined as the addition of 50 or more peak hour trips, and all facilities that would receive 50 or more peak hour trips from the Project are evaluated in this report.

In the event that an intersection is operating at or is forecast to operate at a deficient LOS, the CMP guidelines have defined a series of steps to be completed to determine the Project's contribution to the deficiency of intersections, which has been applied to both CMP and non-CMP study area intersections. The steps are as follows:

- Determine the mitigation measures necessary to achieve an acceptable service level,
- Calculate the Project's share in the future traffic volume projections for the peak hours,
- Estimate the cost to implement recommended mitigation measures, and
- Calculate the Project's fair-share contribution to mitigate the Project's traffic impacts

Pre-Project Level of Service	Level of Service with 50 or more Project trips	Significant Impact?	Mitigation Required?								
	City of Chino, City of Eastvale, City of Chino Hills, City of Jurupa Valley, CMP										
А	A-D	No	No								
В	B-D	No	No								
С	C-D	No	No								
D	D	No	No								
A-D	E or F	Yes	Yes, bring LOS to D or better								
E	E	Yes	Yes, bring LOS to D or better								
E	F	Yes	Yes, bring LOS to D or better								
F	F	Yes	Yes, bring LOS to D or better								
	City of C	Ontario, CMP (in Ontario	b)								
A	A-D	No	No								
В	B-D	No	No								
С	C-D	No	No								
D	D-E	No	No								
E	E	No	No								
A-E	F	Yes	Yes, bring LOS to E or better								
F	F	Yes	Yes, bring LOS to E or better								

TABLE 2-6: THRESHOLD OF SIGNIFICANCE



2.8.2 CALTRANS FACILITIES

To determine whether the addition of project traffic to the SHS freeway segments would result in a deficiency, the following will be utilized:

- The traffic study finds that the LOS of a segment will degrade from D or better to E or F.
- The traffic study finds that the project will exacerbate an already deficient condition by contributing 50 or more one-way peak hour trips. A segment that is operating at or near capacity is deemed to be deficient.

2.9 PROJECT FAIR SHARE CALCULATION METHODOLOGY

In cases where this TIA identifies that the Project would contribute additional traffic volumes to cumulative traffic deficiencies, Project fair share costs of improvements necessary to address deficiencies have been identified. The Project's fair share cost of improvements is determined based on the following equation, which is the ratio of Project traffic to new traffic, and new traffic is total future (Horizon Year) traffic less existing baseline traffic:

Project Fair Share % = Project (2040) AM/PM Traffic / (2040 With Project AM/PM Total Traffic – Existing AM/PM Traffic)

The project fair share percentage has been calculated for both the AM peak hour and PM peak hour and the highest of the two has been selected. The Project fair share contribution calculations are presented in Section 9 *Local and Regional Funding Mechanisms* of this TIA. The cost of implementing the improvements shown on Table 1-3 have been estimated based on the preliminary construction cost estimates found in Appendix G of the San Bernardino County CMP in conjunction with a total cost escalation factor of 1.484 to more closely approximate current (2019) costs. These cost estimates have been utilized in conjunction with the Project fair share percentages to determine the Project's fair share cost of the recommended cumulative improvements (see Table 9-2). These estimates are a rough order of magnitude only as they are intended only for discussion purposes and do not imply any legal responsibility or formula for contributions or mitigation.



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3 AREA CONDITIONS

This section provides a summary of the existing circulation network, the City of Chino General Plan Circulation Network, and a review of existing peak hour intersection operations, freeway mainline operations, and traffic signal warrant analyses.

3.1 EXISTING CIRCULATION NETWORK

Pursuant to the agreement with City of Chino staff (Appendix 1.1), the study area includes a total of 43 existing and future intersections as shown previously on Exhibit 1-2. Exhibit 3-1 illustrates the study area intersections located near the proposed Project and identifies the number of through traffic lanes for existing roadways and intersection traffic controls.

3.2 CITY OF CHINO GENERAL PLAN CIRCULATION ELEMENT

As noted previously, the Project site is located within the City of Chino. The roadway classifications and planned (ultimate) roadway cross-sections of the major roadways within the study area, as identified on the City of Chino General Plan Circulation Element, are described subsequently. Exhibit 3-2 shows the City of Chino General Plan Circulation Element and Exhibit 3-3 illustrates the City of Chino General Plan roadway cross-sections. The two streets adjacent to the Project (Merrill Avenue and Flight Avenue) have been identified in **bold** text.

The study area roadway that is classified as an Expressway is identified as having a 142-foot rightof-way and 104-foot curb-to-curb measurement. Expressways include four lanes of travel in each direction and a 64-foot curbed and/or landscaped median. The following study area roadway within the City of Chino is classified as an Expressway:

• Euclid Avenue (SR-83) from SR-71 Freeway to Riverside Drive

The study area roadway that is classified as a Major Arterial is identified as having a 120-foot right-of-way and 100-foot curb-to-curb measurement. Major Arterials include three lanes of travel in each direction and a 14-foot curbed and/or landscaped median. The following study area roadway within the City of Chino is classified as a Major Arterial:

- Central Avenue from the City Limit to Phillips Boulevard
- Riverside Drive from Reservoir Street to Fern Avenue
- Edison Avenue from the City Limit to Euclid Avenue (SR-83)
- Pine Avenue from Euclid Avenue (SR-83) to Hellman Avenue



EXHIBIT 3-1 (10F3): EXISTING NUMBER OF THROUGH LANES AND INTERSECTION CONTROLS

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 = UNDIVIDED

= SPEED LIMIT (MPH)





EXHIBIT 3-1 (20F3): EXISTING NUMBER OF THROUGH LANES AND INTERSECTION CONTROLS





EXHIBIT 3-1 (30F3): EXISTING NUMBER OF THROUGH LANES AND INTERSECTION CONTROLS





EXHIBIT 3-2: CITY OF CHINO GENERAL PLAN CIRCULATION ELEMENT

* Potential Alternative Hellman Avenue Alignment

EXHIBIT 3-3 (1 of 2): CITY OF CHINO GENERAL PLAN ROADWAY CROSS-SECTIONS

Major Arterial (Expressway): Typical 8 Lane Provides 8 traffic lanes and a wide median without parking



Major Arterial: Minimum 8 Lane

Provides 8 traffic lanes and 2 bicycle lanes separated by a median without parking



Major Arterial: Minimum 6 Lane

Provides 6 traffic lanes and 2 bicycle lanes separated by a median without parking





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EXHIBIT 3-3 (2 of 2): CITY OF CHINO GENERAL PLAN ROADWAY CROSS-SECTIONS

Primary Arterial: Typical 4 Lane

Provides 4 traffic lanes and 2 bicycle lanes separated by a median without parking

Secondary Arterial Provides 4 traffic lanes with parking







Urban Residential/Rural Collector Provides 2 traffic lanes with parking and shared bicycle access



Urban Industrial Collector Provides 2 traffic lanes

22'

11'

Sidewalk/

Parkway*

Urban Residential/Rural Collector with Equestrian Trails Provides 2 traffic lanes and 2 equestrian trails with parking and shared bicycle access









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22'

The study area roadway that is classified as a Primary Arterial is identified as having a 98-foot right-of-way and 74-foot curb-to-curb measurement. Primary Arterials include two lanes of travel in each direction and a 14-foot curbed and/or landscaped median. The following study area roadways within the City of Chino are classified as a Primary Arterial:

- Riverside Drive from Fern Avenue to Euclid Avenue (SR-83)
- Schaefer Avenue from Benson Avenue to Euclid Avenue (SR-83)
- Eucalyptus Avenue from Central Avenue to Euclid Avenue (SR-83)
- Kimball Avenue from Euclid Avenue (SR-83) to Hellman Avenue
- Pine Avenue from the City Limit to Euclid Avenue (SR-83)
- Hellman Avenue south of Merrill Avenue

The study area roadway that is classified as a Secondary Arterial is identified as having an 88-foot right-of-way and 64-foot curb-to-curb measurement. Secondary Arterials include two lanes of travel in each direction and 8-feet of parking in both directions. The following study area roadways within the City of Chino are classified as a Secondary Arterial:

- El Prado Road from Central Avenue to Pine Avenue
- Chino Avenue from Pipeline Avenue to Euclid Avenue (SR-83)
- Merrill Avenue from Euclid Avenue (SR-83) to Flight Avenue
- Kimball Avenue from El Prado Road to Euclid Avenue (SR-83)

The study area roadway that is classified as an Urban Residential Collector, Rural Collector, or Urban Industrial Collector are identified as having a 60-66-foot right-of-way and 40-44-foot curbto-curb measurement. Urban Residential Collector and Rural Collectors include one lane of travel in each direction and 8-feet of parking in both directions. Urban Industrial Collectors include a painted median that separates the two directions of travel. The following study area roadways within the City of Chino are classified as an Urban Residential Collector, Urban Industrial Collector, or Rural Collector:

- Mountain Avenue between Kimball Avenue to El Prado Road
- Bickmore Avenue from Mountain Avenue to Hellman Avenue
- Rincon Meadows Avenue from Kimball Avenue to Pine Avenue
- Mill Creek Road from Kimball Avenue to Pine Avenue
- West Preserve Loop
- Main Street from Kimball Avenue to Chino Corona Road
- East Preserve Loop
- Flight Avenue from Merrill Avenue to East Preserve Loop



3.3 CITY OF ONTARIO, CITY OF EASTVALE, CITY OF CHINO HILLS, AND CITY OF JURUPA VALLEY GENERAL PLAN CIRCULATION ELEMENT

Exhibits 3-4 and 3-5 show the City of Ontario General Plan Circulation Element and roadway cross-sections, respectively. Exhibits 3-6 and 3-7 show the City of Eastvale General Plan Circulation Element and roadway cross-sections, respectively. Exhibits 3-8 and 3-9 show the City of Chino Hills General Plan Circulation Element and roadway cross-sections, respectively. These classifications and cross-sections have been utilized for the purposes of determining the ultimate planned improvements along these study area roadways/intersections.

3.4 TRUCK ROUTES

The City of Chino designated truck route map is shown on Exhibit 3-10. There are State truck routes and other truck routes throughout the City of Chino. El Prado Road, Mountain Avenue, Bickmore Avenue, Riverside Drive, Kimball Avenue, Flight Avenue, Merrill Avenue, Hellman Avenue, and Pine Avenue are the designated City of Chino truck routes within the study area while Euclid Avenue (SR-83) is designated as a State Truck Route. Other large truck routes in the study area include Central Avenue and Edison Avenue. The designated truck route map has been utilized to route truck traffic from both the proposed Project and future cumulative development projects throughout the study area. The City of Ontario designated truck route map is shown on Exhibit 3-11. Euclid Avenue (SR-83), Edison Avenue/Ontario Ranch Road, Merrill Avenue, and Archibald Avenue are designated as a Truck Route in the City of Ontario. The designated truck route map has been utilized to route truck traffic from both the proposed Project and future cumulative development projects throughout the study area. The City of Ontario Ranch Road, Merrill Avenue, and Archibald Avenue are designated as a Truck Route in the City of Ontario. The designated truck route map has been utilized to route truck traffic from both the proposed Project and future cumulative development projects throughout the study area.

3.5 BICYCLE, EQUESTRIAN, & PEDESTRIAN FACILITIES

Field observations conducted in March 2019 indicate nominal pedestrian and bicycle activity within the study area. Exhibit 3-12 illustrates the City of Chino future planned bicycle facilities, which proposes Class I bike lanes along Pine Avenue in the vicinity of the Project site. Euclid Avenue (SR-83) is planned to have Class II bike lanes in the vicinity of the Project site.

Exhibit 3-13 illustrates the City of Ontario General Plan trails and bikeway systems. Euclid Avenue (SR-83) is identified as a bicycle corridor. Exhibit 3-14 illustrates the City of Eastvale trails and bikeway systems. Existing pedestrian facilities within the study area are shown on Exhibit 3-15.







EXHIBIT 3-4: CITY OF ONTARIO GENERAL PLAN CIRCULATION ELEMENT

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EXHIBIT 3-5: CITY OF ONTARIO GENERAL PLAN ROADWAY CROSS-SECTIONS


EXHIBIT 3-6: CITY OF EASTVALE GENERAL PLAN CIRCULATION ELEMENT

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= = = CORRIDOR (EXACT ALIGNMENT AND SIZE TO BE DETERMINED)

- STATE ROUTE
- PRINCIPAL ARTERIAL
- MINOR ARTERIAL

COLLECTOR

NUMBER OF LANES





EXHIBIT 3-9: CITY OF CHINO HILLS GENERAL PLAN ROADWAY CROSS-SECTIONS



EXHIBIT 3-10: CITY OF CHINO TRUCK ROUTES

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EXHIBIT 3-11: CITY OF ONTARIO TRUCK ROUTES

10349 - ontario truck routes.dwg













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EXHIBIT 3-14: EASTVALE AREA TRAILS AND BIKEWAYS SYSTEM

Exhibit 2.8-2 Planned Trails

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EXHIBIT 3-15: EXISTING PEDESTRIAN FACILITIES

3.6 TRANSIT SERVICE

The study area within the City of Chino is currently served by Omnitrans, a public transit agency serving various jurisdictions within San Bernardino County. Based on a review of the existing transit routes within the vicinity of the proposed Project, there are no existing Omnitrans routes that operate near the vicinity of the site. The Riverside Transit Authority (RTA) serves the City of Eastvale. However, transit service is reviewed and updated by Omnitrans periodically to address ridership, budget and community demand needs. Changes in land use can affect these periodic adjustments which may lead to either enhanced or reduced service where appropriate. As such, it is recommended that the applicant work in conjunction with Omnitrans and RTA to potentially provide bus service to the site. Existing transit routes in the vicinity of the study area are illustrated on Exhibit 3-16.

The Project Applicant shall encourage vanpool, shuttle service, and carpool to maintain the parking demand, reduce trips, and potentially provide incentives for employees by designating near and "shaded" preferential parking spaces for high occupancy vehicles.

3.7 EXISTING (2019) TRAFFIC COUNTS

The intersection LOS analysis is based on the traffic volumes observed during the peak hour conditions using traffic count data collected in January 2019. The following peak hours were selected for analysis:

- Weekday AM Peak Hour (peak hour between 7:00 AM and 9:00 AM)
- Weekday PM Peak Hour (peak hour between 4:00 PM and 6:00 PM)

The weekday AM and weekday PM peak hour count data is representative of typical weekday peak hour traffic conditions in the study area. There were no observations made in the field that would indicate atypical traffic conditions on the count dates, such as construction activity or detour routes and near-by schools were in session and operating on normal schedules. The raw manual peak hour turning movement traffic count data sheets are included in Appendix 3.1.

The traffic counts collected in January 2019 include the following vehicle classifications: Passenger Cars, 2-Axle Trucks, 3-Axle Trucks, and 4 or More Axle Trucks. To represent the impact large trucks, buses and recreational vehicles have on traffic flow; all trucks were converted into PCE. By their size alone, these vehicles occupy the same space as two or more passenger cars. In addition, the time it takes for them to accelerate and slow-down is much longer than for passenger cars and varies depending on the type of vehicle and number of axles. For the purpose of this analysis, a PCE factor of 1.5 has been applied to 2-axle trucks, 2.0 for 3-axle trucks, and 3.0 for 4+-axle trucks to estimate each turning movement. These factors are consistent with the values recommended for use in the CMP.



EXHIBIT 3-16: EXISTING TRANSIT ROUTES



Consistent with standard engineering practice, the traffic counts were collected on either a typical Tuesday, Wednesday, or Thursday on a non-holiday. Traffic counts were also conducted when local schools were in session and operating on normal bell schedules. The purpose of this TIA is to evaluate the peak hour operations for the typical weekday peak hour. Existing weekday ADT volumes are shown on Exhibit 3-17. Where actual 24-hour tube count data was not available, Existing ADT volumes were based upon factored intersection peak hour counts collected by Urban Crossroads, Inc. using the following formula for each intersection leg:

```
Weekday PM Peak Hour (Approach Volume + Exit Volume) x 12.55 = Leg Volume
```

A comparison of the PM peak hour and daily traffic volumes of various roadway segments within the study area indicated that the peak-to-daily relationship is approximately 7.97 percent. As such, the above equation utilizing a factor of 12.55 estimates the ADT volumes on the study area roadway segments assuming a peak-to-daily relationship of approximately 7.97 percent (i.e., 1/0.0797 = 12.55) and was assumed to sufficiently estimate average daily traffic (ADT) volumes for planning-level analyses. Existing weekday AM and weekday PM peak hour intersection volumes (in PCE) are shown on Exhibit 3-18.

3.8 INTERSECTION OPERATIONS ANALYSIS

Existing peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2.2 *Intersection Capacity Analysis* of this report. The intersection operations analysis results are summarized on Table 3-1, which indicates that all existing study area intersections are currently operating at an acceptable LOS during the peak hours with exception to the following:

- Central Avenue & El Prado Road (#7) LOS E PM peak hour only
- El Prado Road & Kimball Avenue (#8) LOS F PM peak hour only
- Euclid Avenue (SR-83) & Riverside Drive (#22) LOS E PM peak hour only
- Euclid Avenue (SR-83) & Pine Avenue (#30) LOS E PM peak hour only
- Hellman Avenue & Kimball Avenue (#40) LOS F AM and PM peak hours
- Archibald Avenue & Schleisman Road (#43) LOS F AM peak hour only

Consistent with Table 3-1, a summary of the peak hour intersection LOS for Existing conditions are shown on Exhibit 3-19. The intersection operations analysis worksheets are included in Appendix 3.2 of this TIA.







EXHIBIT 3-17: EXISTING (2019) AVERAGE DAILY TRAFFIC (ADT) (IN PCE)

LEGEND:

- **10.0** = ACTUAL (COUNT-BASED) VEHICLES PER DAY (1000'S)
- **10.0** = ESTIMATED VEHICLES PER DAY (1000'S)

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1	SR-71 SB Ramps & Soquel Canyon Pkwy	2 SR-	71 SB Ramps & Pine Av.	3	SR Shao Butterfi	71 SB Ramps/ dy View Dr. & ield Ranch Rd.	4	SR-7	I NB Ramps & Central Av.	5 SR-7	'1 NB Ramps & Pine Av.
	(978) 980(876) 98700 9870 98700 9870 9870 9870 9870 9870 9870	↓ 179(1000) ↓ 1(7) ↓ 6(13)	57(105) 		←40(67) ←26(66) ←628(629)	[↓] _0(0) <i>↓</i> 275(253) <i>↓</i> 195(121)			4—975(671) ≁-802(909)		
1399 9	9(959) → 93(67)—,	439(311)→ 32(41)—		685 3	0(0) 5(841)→ 31(58)	19(17) → 0(0) → 288(147) →	1101(1 778(383)→ (425)	65(141)_⁴ 390(343)_ <mark>↑</mark>	445(324) <i>—</i> ́	60(111)_∮ 6(3)→
6	SR-71 NB Ramps & Euclid Av. (SR-83	7	Central Av. & El Prado Rd.	8	E	i Prado Rd. & Kimball Av.	9	М	ountain Av. & Kimball Av.	10 м	lountain Av. & Bickmore Av.
657(289)	-917(938) 740(355) (150) ((212) (113) (1	$\begin{array}{c} -512(462) \\ +4(3) \\ -755(556) \\ +(25L) \\ (9)7 \\ 180 \\$	2	(11) (11)	√759(712) + 16(5) - 31(25) - 4(25) - 4(25)	320(83	907)→ \$(39)→	←716(651) ←66(22) ←(08)17 ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	5(5) 37(46)	-176(57) 53(14) - + -(GE) (11))1 (11)1
11	Mountain Av. & Dwy.	12	lountain Av. & Dwy. 2	13	М	ountain Av. & Dwy. 3	14	E	i Prado Rd. & Mountain Av.	15	El Prado Rd. & Pine Av.
	Future Intersection	Fu	iture section		Fu Inters	ture section		←112(475) ←12(33)	259(115)→ 4(13)→ 4(13)→ (13))→ (13)→ (13)→ (13)→ (13)→ (13)→ (13))→ (13)→ (13))→ (13)→ (13))→ (13)→ (13))→ (13)→ (13))→	(1) (1) (1) (1) (1) (1) (1) (1)	4—320(103) - ←0(0)
16	Dwy. 4 8 Bickmore Av	17	Dwy. 5 & Bickmore Av.	18		Dwy. 6 & Bickmore Av.	19	Euclid SR-6	Av. (SR-83) & 50 WB Ramps	20 Euclid SR	Av. (SR 83) & 60 EB Ramps
	Future Intersection	Fu Inter	iture section		Fut	ture section		▲470(473) ←_947(967)	408(392) ←6(6) ₁ ~591(580)	+	
									333(233)_∮ 902(1034)→	404(400)→ 2(3)→ 288(306)→	832(868) → 656(551) →
21	Euclid Av. (SR-83) & Walnut Av	22 Euclid	I Av. (SR-83) & Riverside Dr.								
113 289 109	$\begin{array}{c c} (1901) \\ (19$	(581) (581)			LE(10(1	JEND: 10) - AM(PM) PEA	k houi	R INTERSECT	ION VOLUM	ES
	11220		10.0								

EXHIBIT 3-18 (10F2): EXISTING (2019) TRAFFIC VOLUMES (IN PCE)



23	Euclid	Av. (SR-83) & Chino Av.	24	Euclid	Av. (SR-83) & Schaefer Av.	25	Euclid	Av. (SR-83) & Edison Av.	26	Euclid E	Av. (SR-83) & ucalyptus Av.	27	Euclid Av. (SR-83) & E. Facility Dr./ Merrill Av.
	←92(69) ←1007(999) ←56(24)	-51(9) 151(108) 71(75)		↓122(111) →_914(1016) ↓_29(28)	-11(25) ←177(64) ←140(76)		← 167(175) ← 799(1092) ← 63(82)	4—63(34) ←416(252) √ 33(39)		←40(62) ←954(1239) ←22(44)	4—37(9) ←151(21) f [—] 32(8)		(1)52)071 → 48(2) → +
10 16	04(93)→ 5(273)→ 37(47)→	46(39) → 971(1163) → 129(219) →	15 7 5	i3(280) '3(276)→ i8(178)→	102(82)	156 237 97	5(265) 7(463)→ 7(279)	208(139)	2! 15	67(37) 5(157)→ 0(202)	169(102) → 1060(1076) → 12(17) →		4(11) 10(12) 17(12) 17(12) 17(12) 17(12) 10(12)
28	Euclid	Av. (SR-83) & Kimball Av.	29	Euclid	Av. (SR-83) & Bickmore Av.	30	Euclid	Av. (SR-83) & Pine Av.	31	Rincon	Meadows Av. & Kimbali Av.	32	Rincon Meadows Av. & Pine Av.
	←377(228) ←586(725) ←190(412)	-295(165) -721(305) -√44(58)		←142(134) ←575(631) ←34(75)	-131(49) 195(21) 166(35)		↓16(4) ↓_617(689) ↓_34(50)	-25(22) -306(64) -981(517)			←936(452) ,		Future Intersection
124 223 3	(344) (743)→ 22(45)	84(60) - 4 704(802) - 4 28(36) -	4	7(115)— [▲] 8(96)→ 23(55)—	27(22) → 546(617) → 20(73) →	173 4	8(5) (424)→ 7(90)	51(54)→ 612(661)→ 650(1061)→	408(3	1006) → 5(73)—	75(40)		
33	Mi	l Creek Av. & Kimball Av.	34	M Chino	/ill Creek Av./ Corona Rd. & Pine Av.	35	Chino Cuca Chir) Corona Rd. / amonga Av. & no Corona Rd.	36	W. Pre	serve Loop & Pine Av.	37	Main St. & Kimball Av.
		←770(370) ∲─21(43)		←44(34) ←32(9) ←27(31)	-122(30) -1239(519) -61(15)		←_0(0) ←4(1) ←_25(42)	-92(15) 0(0) 0(1)		↓11(24) ↓75(114)	⁴ —229(49) <i>→</i> 1411(539)		→ -606(364) √- 83(77)
366 71	i(903)→ (117)→	178(89)_4 55(20)_ ₇	741	34(37)— [▲] (1452) → 72(23)—	63(43)_∮ 12(25)→ 14(44)		0(0) 0(0)→ 0(0)→	0(0) 1(0) 0(1)	2 760(2(25) 1502)→		310 111)(802) 1(132) 1(132) 1282(41) 1(132) 1282(10) 1
38		Flight Av. & Kimball Av.	39	E. Pre	serve Loop & Pine Av.	40	ŀ	leliman Av. & Kimball Av.	41	l S/	Hellman Av. & Pine Av./ chleisman Rd.	42	Archibald Av. & Limonite Av.
	←112(174) ←11(15) ←23(60)	4—93(41) ←584(256) _{\$} —15(16)					←13(91) ←28(45) ←0(0)	ڈ0(0) ←0(0) ਆ0(0)		←14(33) ←145(300) ←90(380)	[≰] —287(131) <i>←</i> 986(455) _¥ —78(36)		(076) 898 40(227) 40(
162 250 2	2(137)—* 9(670)→ 21(37)—	6(1) → 11(13) → 24(21) →	806	(1566) ~ 28(49)	52(20)	288	8(14)—* 0(0)→ (733)—	880(288) + 49(19) + 0(0)	3 441(458	2(21)—* 1124)→ \$(421)—	541(142)→ 441(125)→ 85(56)→		788(516) → 279(328)]
43	Ai Si	chibald Av. & chleisman Rd.				1		I			1		
383 375 113	(000) = -440(641)	↓ 137(55) + 701(308) ↓ 248(108) + (601)212 512		LE(10(1	JEND: 10) - AM(PM) PEA	K HOU	R INTERSECT	'ION '	VOLUM	ΞS		

EXHIBIT 3-18 (20F2): EXISTING (2019) TRAFFIC VOLUMES (IN PCE)





EXHIBIT 3-19: EXISTING (2019) SUMMARY OF LOS





Table 3-1

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Intersection Analysis for Existing (2019) Conditions

			Intersection Approach Lanes ¹				Delay ² Level of		Accontable														
		Traffic	Nor	thbo	ound	Sou	thbc	ound	Ea	stbo	und	We	stbo	ound	(sec	s.)	Ser	vice	Acceptable				
#	Intersection	Control ³	L	т	R	L	Т	R	L	т	R	L	LTR		LTR		TR		AM	PM	AM	PM	LOS
1	SR-71 SB Ramps & Soquel Canyon Rd.	TS	0	0	0	1	1	0	0	3	1>>	0	3	1>>	13.3	23.2	В	С	D				
2	SR-71 SB Ramps & Pine Av.	TS	0	0	0	0	1	1	0	1	1	1	2	0	31.2	26.7	С	С	D				
3	SR-71 SB Ramps & Butterfield Ranch Rd.	TS	1	0	1	1	1	1	0	2	0	1	2	1>>	40.0	39.6	D	D	D				
4	SR-71 NB Ramps & Central Av.	TS	1	1	0	0	0	0	0	3	1>>	0	3	1>>	8.6	7.7	А	А	D				
5	SR-71 NB Ramps & Pine Av.	AWS	1	1	0	0	0	0	2	0	0	0	0	0	9.3	8.9	А	А	D				
6	SR-71 NB Ramps & Euclid Av. (SR-83)	TS	2	0	1>>	0	0	0	0	2	1>>	1	2	0	27.2	42.5	С	D	D				
7	Central Av. & El Prado Rd.	TS	1	2	1>	1	3	0	1	1	0	1	1	1>	29.0	61.2	С	Ε	D				
8	El Prado Rd. & Kimball Av.	TS	1	1	1	1	2	0	1	1	0	0	1	1>	28.1	86.2	С	F	D				
9	Mountain Av. & Kimball Av.	TS	1	0	1	0	0	0	0	2	0	1	2	0	7.4	9.7	А	А	D				
10	Mountain Av. & Bickmore Av.	CSS	0	1	0	1	1	0	0	0	0	1	0	1	9.8	9.6	А	А	D				
11	Mountain Av. & Driveway 1			Future Intersection							D												
12	Mountain Av. & Driveway 2			Future Intersection						D													
13	Mountain Av. & Driveway 3				_		Futu	re Int	terse	ectio	n	_					_	_	D				
14	El Prado Rd. & Mountain Av.	CSS	0	1	0	0	1	0	0	0	0	0	1	0	10.4	13.6	В	В	D				
15	El Prado Rd. & Pine Av.	AWS	0	0	0	0	1	0	0	1	0	0	1	0	9.8	13.5	А	В	D				
16	Driveway 4 & Bickmore Av.						Futu	re Int	terse	ectio	n							_	D				
17	Driveway 5 & Bickmore Av.						Futu	re Int	terse	ectio	n								D				
18	Driveway 6 & Bickmore Av.						Futu	re Int	terse	ectio	n								D				
19	Euclid Av. (SR-83) & SR-60 WB Ramps	TS	1	2	0	0	2	1	0	0	0	1	1	1	22.3	18.6	С	В	D				
20	Euclid Av. (SR-83) & SR-60 EB Ramps	TS	0	2	1	1	2	0	1	1	0	0	0	0	25.3	21.9	С	С	D				
21	Euclid Av. (SR-83) & Walnut Av.	TS	1	3	d	2	3	1	1	2	0	1	2	0	30.1	32.5	С	С	E				
22	Euclid Av. (SR-83) & Riverside Dr.	TS	1	2	1	1	2	1>	1	1	0	1	2	d	47.0	55.5	D	Е	D				
23	Euclid Av. (SR-83) & Chino Av.	TS	1	2	1	1	2	1	1	1	1	0	1	0	21.5	23.2	С	С	D				
24	Euclid Av. (SR-83) & Schaefer Av.	TS	1	2	1	1	2	1	1	1	1	1	1	0	23.6	26.2	С	С	D				
25	Euclid Av. (SR-83) & Edison Av.	TS	1	2	1	1	2	1	1	1	1	1	1	0	38.1	39.7	D	D	D				
26	Euclid Av. (SR-83) & Eucalyptus Av.	TS	1	2	1	1	2	1	1	1	1	1	1	0	13.8	13.2	В	В	D				
27	Euclid Av. (SR-83) & Merrill Av.	TS	1	2	1	1	2	0	0	1	0	0	1	0	26.4	29.9	С	С	D				
28	Euclid Av. (SR-83) & Kimball Av.	TS	1	2	1>	2	2	1>	2	2	0	1	2	0	32.4	38.3	С	D	D				
29	Euclid Av. (SR-83) & Bickmore Av.	TS	1	2	0	1	2	1	1	1	1	1	1	0	16.3	14.0	В	В	D				
30	Euclid Av. (SR-83) & Pine Av.	TS	1	2	1>	1	2	0	1	1	1	2	1	0	31.9	61.5	С	Е	D				
31	Rincon Meadows Av. & Kimball Av.	TS	1	0	1	0	0	0	0	2	0	1	1	0	15.4	12.8	В	В	D				
32	Rincon Meadows Av. & Pine Av.						Futu	re Int	terse	ectio	n	-					-	-	D				
33	Mill Creek Av. & Kimball Av.	TS	1	0	1	0	0	0	0	2	0	1	1	0	14.5	12.9	В	В	D				
34	Mill Creek Av./Chino-Corona Rd. & Pine Av.	TS	1	1	0	1	1	0	1	2	1	1	1	1	27.1	12.2	С	В	D				
35	Cucamonga Av. & Chino Corona Rd.	AWS	0	1	0	0	1	0	0	1	0	0	1	0	7.0	7.3	А	А	D				
36	W. Preserve Loop & Pine Av.	TS	0	0	0	1	0	1	1	2	0	0	2	0	9.4	8.0	А	А	D				
37	Main St. & Kimball Av.	TS	1	0	1	0	0	0	0	2	0	1	1	0	13.4	12.5	В	В	D				
38	Flight Av. & Kimball Av.	CSS	0	1	0	0	1	0	1	2	0	1	1	0	21.0	20.5	С	С	D				
39	E. Preserve Loop & Pine Av.	TS	2	0	1	0	0	0	0	2	1	1	2	0	8.5	7.2	А	А	D				
40	Hellman Av. & Kimball Av.	TS	1	2	0	0	2	d	1	0	1>	0	0	0	>200.0	77.9	F	F	D				



Table 3-1

Page 2 of 2

Intersection Analysis for Existing (2019) Conditions

			Intersection Approach Lanes ¹						5			Delay ²			el of	Accentable			
		Traffic	No	Northbound			Southbound			Eastbound			stbo	ound	(secs.)		Service		Acceptable
#	Intersection	Control ³	L	Т	R	L	Т	R	L	Т	R	L	Т	R	AM	PM	AM	PM	LOS
41	Hellman Av. & Pine Av./Schleisman Rd.	TS	2	2	1	2	2	1	2	3	1>	2	3	1>	37.7	38.6	D	D	D
42	Archibald Av. & Limonite Av.	TS	0	1	1>	1	1	0	0	0	0	1	0	1>	48.0	29.6	D	С	D
43	Archibald Av. & Schleisman Rd.	TS	2	3	1	2	3	1	2	3	1	2	3	1	80.1	46.5	F	D	D

* BOLD = Level of Service (LOS) does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

¹ When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; > = Right-Turn Overlap Phasing; >> = Free-Right Turn Lane; d = Defacto Right Turn LanePer the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or

movements sharing a single lane) are shown.

2

³ CSS = Cross-street Stop; AWS = All-Way Stop; TS = Traffic Signal

⁴ Minimum acceptable LOS for each applicable jurisdiction.



3.9 TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants for Existing traffic conditions are based on existing peak hour intersection turning volumes. The following study area intersection currently warrants a traffic signal for Existing traffic conditions:

- El Prado Road & Mountain Avenue (#14)
- El Prado Road & Pine Avenue (#15)
- Flight Avenue & Kimball Avenue (#38)

However, all three intersections are currently operating at an acceptable LOS with current traffic controls and the installation of a traffic signal does not appear necessary with respect to peak hour operations. Existing conditions traffic signal warrant analysis worksheets are provided in Appendix 3.3.

3.10 OFF-RAMP QUEUING ANALYSIS

A queuing analysis was performed for the off-ramps at the SR-71 Freeway at Central Avenue, Pine Avenue, and Euclid Avenue (SR-83) and the SR-60 Freeway and Euclid Avenue (SR-83) interchanges to assess vehicle queues for the off ramps that may potentially result in deficient peak hour operations at the ramp-to-arterial intersections and may potentially "spill back" onto the SR-71 and SR-60 Freeway mainlines. Queuing analysis findings are presented on Table 3-2. It is important to note that off-ramp lengths are consistent with the measured distance between the intersection and the freeway mainline. As shown on Table 3-2, there are no movements that are currently experiencing queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows. Worksheets for Existing traffic conditions off-ramp queuing analysis are provided in Appendix 3.4.

3.11 FREEWAY FACILITY ANALYSIS

Existing (2019) mainline directional volumes for the AM and PM peak hours are provided on Exhibit 3-20. As shown on Table 3-3, the SR-71 and SR-60 Freeway segments and merge/diverge ramp junctions analyzed for this study were found to operate at an acceptable LOS (i.e., LOS D or better) during the peak hours for Existing (2019) traffic conditions, with exception of the following diverge ramp junction:

• SR-60 Freeway Westbound, Euclid Avenue (SR-83) Off-Ramp (#26) – LOS E AM and PM peak hours

Existing (2019) freeway facility analysis worksheets are provided in Appendix 3.5.



Table 3-2

		Available Stacking	95th Percentil	e Queue (Feet)	Accept	able? ¹
Intersection	Movement	Distance (Feet)	AM Peak Hour	PM Peak Hour	AM	PM
SR-71 SB Ramps & Central Avenue	SBL	1,530	245	516 ²	Yes	Yes
	SBL/R	740	0	698 ²	Yes	Yes
	/					
SR-71 SB Ramps & Pine Avenue	SBL/T	1,370	8	16	Yes	Yes
	SBR	725	29	456 ²	Yes	Yes
SR-71 SB Ramps & Euclid Avenue (SR-83)	SBL	1,100	215	230	Yes	Yes
	SBL/T	1,560	215	232	Yes	Yes
	SBR	255	0	1	Yes	Yes
SR-71 NB Ramps & Central Avenue	NBL	1,485	34	75	Yes	Yes
	NBL/R	1,070	0	0	Yes	Yes
SR-71 NB Ramps & Pine Avenue	NBL	1.375	5	10	Yes	Yes
	NBL/T	815	5	10	Yes	Yes
SR-71 NB Ramps & Euclid Avenue (SR-83)	NBL	1,745	27	44	Yes	Yes
	NBR	420	203 ²	732 ²	Yes	Yes ³
Fuclid Av. (SR-83) & SR-60 WB Ramps	WBI	400	206	276	Voc	Voc
		1 / 30	300 216 ²	270	Vec	Vec
		1,430	310	284	Yes	Yes
	VVBK	400	202	207	res	res
Euclid Av. (SR-83) & SR-60 EB Ramps	EBL	900	363 ²	352 ²	Yes	Yes
	EBT/R	1,270	260 ²	288 ²	Yes	Yes

Peak Hour Freeway Off-Ramp Queuing Summary Existing (2019) Conditions

¹ Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

 $^{2}\,$ 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

³ Although the 95th percentile queue is anticipated to exceed the available storage for the turn lane, the adjacent through lane has sufficient storage to accommodate any spillover without spilling back and affecting the SR-71 Freeway mainline.



Table 3-3

Freeway Facility Analysis for Existing (2019) Conditions

way	ction	Pamp or Sogmont	Lanes on	AM Pea	ak Hour	PM Pea	ık Hour
Free	Dire	Kamp of Segment	Freeway ¹	Density ²	LOS ³	Density ²	LOS ³
		North of Central Avenue	3	9.6	А	18.4	С
		Central Avenue Off-Ramp	3	16.4	В	28.0	С
		Central Avenue Loop On-Ramp	3	9.5	А	13.9	В
		Central Avenue On-Ramp	3	10.0	А	14.0	В
	pu	Central Avenue to Pine Avenue	3	10.4	А	17.1	В
	noc	Pine Avenue Off-Ramp	2	14.5	В	22.2	С
	lthl	Pine Avenue On-Ramp	2	12.5	В	12.3	В
	Sol	Pine Avenue to Euclid Avenue (SR-83)	2	9.2	А	9.0	А
		Euclid Avenue (SR-83) Off-Ramp	2	13.4	В	13.2	В
ay		Euclid Avenue (SR-83) Loop On-Ramp	2	9.7	А	10.4	В
ew .		Euclid Avenue (SR-83) On-Ramp	2	15.8	В	16.5	В
Fre		South of Euclid Avenue (SR-83)	2	15.0	В	16.3	В
-71		North of Central Avenue	3	20.3	С	17.8	В
SR		Central Avenue On-Ramp	3	24.6	С	21.2	С
		Central Avenue Loop On-Ramp	3	18.7	В	16.5	В
	q	Central Avenue Off-Ramp	3	20.4	С	21.7	С
	unc	Central Avenue to Pine Avenue	3	13.6	В	14.9	В
	hba	Pine Avenue On-Ramp	2	15.8	В	18.5	С
	lort	Pine Avenue Off-Ramp	2	22.7	С	26.4	С
	Z	Pine Avenue to Euclid Avenue (SR-83)	2	17.2	В	20.4	С
		Euclid Avenue (SR-83) On-Ramp	2	18.6	В	22.2	С
		Euclid Avenue (SR-83) Off-Ramp	3	8.9	А	15.6	В
		South of Euclid Avenue (SR-83)	3	10.8	А	19.0	С
	pur	West of Euclid Avenue (SR-83)	4	33.9	D	31.5	D
>	loq	Euclid Avenue (SR-83) On-Ramp	4	28.6	D	27.3	С
way	/est	Euclid Avenue (SR-83) Off-Ramp	4	36.3	Е	35.7	E
ree	3	East of Euclid Avenue (SR-83)	4	34.6	D	33.3	D
0 F	pu	West of Euclid Avenue (SR-83)	4	31.2	D	25.7	С
R-6	ino	Euclid Avenue (SR-83) Off-Ramp	4	32.2	D	28.5	D
S	Istb	Euclid Avenue (SR-83) On-Ramp	4	28.9	D	24.7	С
	E3	East of Euclid Avenue (SR-83)	4	32.9	D	26.4	D

BOLD = Unacceptable Level of Service

¹Number of lanes are in the specified direction and is based on existing conditions.

² Density is measured by passenger cars per mile per lane (pc/mi/ln).

³ LOS = Level of Service





EXHIBIT 3-20: EXISTING (2019) FREEWAY MAINLINE VOLUMES



LEGEND:



N



3.12 RECOMMENDED IMPROVEMENTS

Improvement strategies have been recommended at intersections and freeway segments that have been identified as impacted under Existing (2019) traffic conditions in an effort to achieve an acceptable LOS (i.e., LOS D or better).

3.12.1 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES AT INTERSECTIONS

Table 3-4 indicates the physical improvements needed to address LOS deficiencies at each of the study area intersections under Existing (2019) traffic conditions. The following improvements are recommended to improve the Existing (2019) deficiencies back to acceptable levels.

Central Avenue & El Prado Road (#7) – The following improvement is necessary to improve the existing deficiency to acceptable levels:

• Add a 2nd southbound left turn lane

El Prado Road & Kimball Avenue (#8) – The following improvement is necessary to improve the existing deficiency to acceptable levels:

• Restripe the southbound approach to accommodate two southbound left turn lanes and a shared through-right turn lane.

Euclid Avenue (SR-83) & Riverside Drive (#22) – The following improvement is necessary to improve the existing deficiency to acceptable levels:

• Add an eastbound right turn lane.

Euclid Avenue (SR-83) & Pine Avenue (#30) – The following improvement is necessary to improve the existing deficiency to acceptable levels:

• Add a northbound free right turn lane.

Hellman Avenue & Kimball Avenue (#40) – The following improvements are necessary to improve the existing deficiency to acceptable levels:

- Operation of the traffic signal.
- Add a 2nd northbound left turn lane.

Archibald Avenue & Schleisman Road (#43) – The following improvement is necessary to improve the existing deficiency to acceptable levels:

• Modify the traffic signal to extend the cycle length to 130 seconds.

3.12.2 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES ON OFF-RAMP QUEUES

As shown previously on Table 3-2, there are no peak hour queuing issues at the SR-71 Freeway at Central Avenue, Pine Avenue, or Euclid Avenue (SR-83) and SR-60 Freeway and Euclid Avenue (SR-83) interchanges. As such, no improvements have been recommended.

Table 3-4

			Intersection Approach Lanes ¹							Delay ²		Level of						
		Traffic	Nor	thbo	ound	Sou	thbo	ound	Eas	stbou	und	We	stbo	und	(see	cs.)	Service	
#	Intersection	Control ³	L	Т	R	L	Т	R	L	Т	R	L	Т	R	AM	PM	AM	PM
7	Central Av. & El Prado Rd.																	
	-Without Improvements	TS	1	2	1>	1	3	0	1	1	0	1	1	1>	29.0	61.2	С	Е
	-With Improvements	TS	1	2	1>	<u>2</u>	3	0	1	1	0	1	1	1>	27.8	31.5	С	С
8	El Prado Rd. & Kimball Av.																	
	-Without Improvements	TS	1	1	1	1	2	0	1	1	0	0	1	1>	28.1	86.2	С	F
	-With Improvements	TS	1	1	1	<u>2</u>	<u>1</u>	0	1	1	0	0	1	1>	24.4	25.7	С	С
22	Euclid Av. (SR-83) & Riverside Dr.																	
	-Without Improvements	TS	1	2	1	1	2	1>	1	1	0	1	2	d	47.0	55.5	D	Е
	-With Improvements	TS	1	2	1	1	2	1>	1	1	<u>1</u>	1	2	d	45.3	49.8	D	D
30	Euclid Av. (SR-83) & Pine Av.																	
	-Without Improvements	TS	1	2	1>	1	2	0	1	1	1	2	1	0	31.9	61.5	С	Е
	-With Improvements	TS	1	2	<u>1>></u>	1	2	0	1	1	1	2	1	0	39.1	36.1	С	D
40	Hellman Av. & Kimball Av.																	
	-Without Improvements	TS ⁴	1	2	0	0	2	d	1	0	1>	0	0	0	>200.0	77.9	F	F
	-With Improvements	<u>TS</u>	<u>2</u>	2	0	0	2	d	1	0	1>	0	0	0	53.3	39.7	D	D
43	Archibald Av. & Schleisman Rd.																	
	-Without Improvements	TS	2	3	1	2	3	1	2	3	1	2	3	1	80.1	46.5	F	D
	-With Improvements ⁵	TS	2	3	1	2	3	1	2	3	1	2	3	1	32.8	29.6	С	С
1	When a right turn is designated, the lane can	aithar ba str	rinod c	or une	tripod	Tof	unctio	<u> </u>	right	turn	ano th	oro m	uct be	o cuffi	ciont widt	h for rig	ht	

Intersection Analysis for Existing (2019) Conditions With Improvements

When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; > = Right-Turn Overlap Phasing; d= Defacto Right Turn Lane; <u>1</u> = Improvement

² Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

³ TS = Traffic Signal; <u>TS</u> = Improvement

⁴ Traffic signal is currently flashing red. As such, an all-way stop controlled intersection was assumed for Existing traffic conditions only.

⁵ Improvement consists of modifying the traffic signal to extend the cycle length to 130 seconds.



3.12.3 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES ON FREEWAY FACILITIES

At this time, Caltrans has no fee programs or other improvement programs in place to address the deficiencies caused by development projects in the City of Chino (or other neighboring jurisdictions) on SHS roadway segments. As such, no improvements have been recommended to address the Existing (2019) deficiencies on the SHS, because there is no feasible mitigation available.



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4 **PROJECTED FUTURE TRAFFIC**

This section presents the traffic volumes estimated to be generated by the Project, as well as the Project's trip assignment onto the study area roadway network. The Project is proposed to consist of up to 2,082,750 square feet of industrial uses. For purposes of the TIA, the following land uses are assumed:

- Building 1: 1,168,710 square feet of High-Cube Fulfillment Center Warehouse use
- Building 2: 814,040 square feet of High-Cube Fulfillment Center Warehouse use
- Remainder of Building 2: 100,000 square feet of High-Cube Warehouse with Cold Storage use
- Total of 2,082,750 square feet

The Project's anticipated Opening Year is 2022. Although the Project is anticipated to be developed in a single phase, Building 1 has been evaluated separately for E+P traffic conditions for the purpose of identifying potential traffic impacts for Building 1 only.

4.1 **PROJECT TRIP GENERATION**

Trip generation represents the amount of traffic which is both attracted to and produced by a development. Determining traffic generation for a specific project is therefore based upon forecasting the amount of traffic that is expected to be both attracted to and produced by the specific land uses being proposed for a given development.

Trip generation rates for the Project are shown on Table 4-1 for both actual vehicles and PCE. The trip generation summary illustrating daily, and peak hour trip generation estimates for the proposed Project in actual vehicles and PCE are shown on Table 4-2. The trip generation rates used for this analysis are based upon information collected by the Institute of Transportation Engineers (ITE) as provided in their <u>Trip Generation Manual</u> (10th Edition, 2017) and the <u>DRAFT</u> <u>TUMF High-Cube Warehouse Trip Generation Study</u> (WSP, November 6, 2018).



Table 4-1

Project Trip Generation Rates

		ITE LU	A	VI Peak Ho	our	PM Peak Hour					
Land Use ¹	Units ²	Code	In	Out	Total	In	Out	Total	Dally		
Act	ual Veh	icle Trip	Generati	on Rates							
High-Cube Fulfillment Center Warehouse	TSF	3	0.094	0.028	0.122	0.046	0.119	0.165	2.129		
Passenger Cars (AM-84.3%; PM-87.2)	%; Daily	-82.2%)	0.079	0.024	0.103	0.040	0.104	0.144	1.750		
2-4 Axle Trucks (AM-6.3%; PM-6.4	4%; Dail	y-7.6%)	0.006	0.002	0.008	0.003	0.008	0.011	0.162		
5+-Axle Trucks (AM-9.4%; PM-6.4	%; Daily	-10.2%)	0.008	0.003	0.011	0.003	0.007	0.010	0.217		
High-Cube Cold Storage Warehouse (With Cold	TOF	453	0.005	0.005	0.440			0.400			
Storage) ⁴	ISF	157	0.085	0.025	0.110	0.032	0.088	0.120	2.120		
Passenger Cars (AM-69.2%; PM-78.3)	; Daily	-67.8%)	0.059	0.018	0.077	0.025	0.069	0.094	1.437		
2-Axle Trucks (AM-10.7%; PM-7.5	%; Daily	-11.2%)	0.009	0.003	0.012	0.002	0.007	0.009	0.237		
3-Axle Trucks (AM-3.4%; PM-2.4	4%; Dail	y-3.5%)	0.003	0.001	0.004	0.001	0.002	0.003	0.075		
4-Axle+ Trucks (AM-16.7%; PM-11.8	%; Daily	-17.5%)	0.014	0.004	0.018	0.004	0.010	0.014	0.371		
Passenger C	ar Equiv	valent (P	CE) Trip G	eneration	Rates ⁵						
High-Cube Fulfillment Center Warehouse	TSF	3	0.094	0.028	0.122	0.046	0.119	0.165	2.129		
Passenger Cars (AM-84.3%; PM-87.2)	%; Daily	-82.2%)	0.079	0.024	0.103	0.040	0.104	0.144	1.750		
2-4 Axle Trucks (AM-6.3%; PM-6.4%; Daily-7.	6%) (PC	E = 2.0)	0.012	0.004	0.016	0.006	0.016	0.022	0.324		
5+-Axle Trucks (AM-9.4%; PM-6.4%; Daily-10.	2%) (PC	E = 3.0)	0.025	0.008	0.033	0.008	0.022	0.030	0.651		
High-Cube Cold Storage Warehouse (With Cold	тог	457	0.005	0.025	0.110	0.022	0.000	0.420	2 4 2 0		
Storage) ⁴	124	157	0.085	0.025	0.110	0.032	0.088	0.120	2.120		
Passenger Cars (AM-69.2%; PM-78.3)	%; Daily	-67.8%)	0.059	0.018	0.077	0.025	0.069	0.094	1.437		
2-Axle Trucks (AM-10.7%; PM-7.5%; Daily-11.	2%) (PC	E = 1.5)	0.014	0.004	0.018	0.004	0.010	0.014	0.355		
3-Axle Trucks (AM-3.4%; PM-2.4%; Daily-3.	5%) (PC	E = 2.0)	0.006	0.002	0.008	0.002	0.004	0.006	0.150		
4-Axle+ Trucks (AM-16.7%; PM-11.8%; Daily-17.	5%) (PC	E = 3.0)	0.043	0.013	0.056	0.011	0.031	0.042	1.114		

¹ Trip Generation Source: Institute of Transportation Engineers (ITE), <u>Trip Generation Manual</u>, Tenth Edition (2017).

 $^2\,$ TSF = thousand square feet; VFP = Vehicle Fueling Position

³ Trip Generation Source: <u>High Cube Warehouse Trip Generation Study</u>, WSP, January 29, 2019.

Inbound and outbound split source: High Cube Warehouse Vehicle Trip Generation Analysis, October 2016, ITE.

⁴ Vehicle Mix Source: <u>High Cube Warehouse Vehicle Trip Generation Analysis</u>, October 2016, ITE.

Truck Mix: South Coast Air Quality Management District's (SCAQMD) recommended truck mix, by axle type for high-cube warehouse. PCE rates are per SBCTA.



Table 4-2

Project Trip Generation Summary

			AM	Peak H	lour	PM	Peak H	lour	
Land Use	Quantity	Units⁺	In	Out	Total	In	Out	Total	Daily
Project Trip Generat	ion Summar	y (Actua	l Vehi	cles)					
High-Cube Fulfillment Center Warehouse (Building 1)	1,168.710	TSF	~ ~						~ ~ ~ ~ ~
Passenger Cars:			93	28	121	47	121	168	2,046
			_			-	_	10	100
Z-4 axle:			/	2	9	4	9	13	190
5+-axie:			10	3 Г	13	3 7	8	11	254
- Net Truck Trips	814.040	тсг	17	5	22	/	1/	24	444
Pacconger Care:	814.040	135	6E	10	01	22	01	117	1 1 2 6
Passenger Cars.			60	19	84	33	84	11/	1,420
			Г	1	e	r	c	~	177
			5	1 2	<u>ь</u>	3 7	b C	9	132
			12	2	9 15	Z E	0 12	0 17	210
- Net Truck Trips	100.000	тсе	12	5	15	5	12	17	210
Passanger Care:	100.000	ТЭГ	E	้า	0	`	7	10	111
Truck Trince			0	Ζ	0	3	/	10	144
			1	0	1	0	1	1	24
2-axie. 2-avie:						0			24 Q
			1	0	1	0	1	1	0 20
- Net Truck Trips			1 2		1 2	0	т Э	 Э	 70
Total Passenger Cars			16/	19	213	83	2	295	3 616
Total Trucks			21	49 8	212	12	212	295 //3	824
Truck %			19%	16%	18%	14%	15%	15%	23%
TOTAL NET TRIPS (Actual Vehicles) ²			105	57	257	05	2/2	220	1 1 10
Project Trin Ge	neration Su	mmary	PCF)	57	232	33	243	330	4,440
High-Cube Fulfillment Center Warehouse (Building 1)	1 168 710	TSF	,						
Passenger Cars:			93	28	121	47	121	168	2.046
Truck Trips:									_,0.0
2-4 axle:			14	4	18	7	19	26	380
5+-axle:			30	9	39	10	25	35	762
- Net Truck Trips			44	13	57	 17	 44	61	1.142
High-Cube Fulfillment Center Warehouse (Building 2)	814.040	TSF			0.				_,
Passenger Cars:			65	19	84	33	84	117	1,426
Truck Trips:									
2-4 axle:			10	3	13	5	13	18	264
5+-axle:			21	6	27	7	18	25	530
- Net Truck Trips			31	9	40	12	31	43	794
High-Cube Warehouse (With Cold Storage) (Building 2)	100.000	TSF							
Passenger Cars:			6	2	8	3	7	10	144
Truck Trips:									
2-axle:			1	0	1	0	1	1	36
3-axle:			1	0	1	0	0	0	16
4+-axle:			4	1	5	1	3	4	112
- Net Truck Trips			6	1	7	1	4	5	164
Total Passenger Cars (PCE)			164	49	213	83	212	295	3,616
Total Trucks (PCE)			81	23	104	30	79	109	2,100
TOTAL NET TRIPS (PCE) ²			245	72	317	113	291	404	5,716

¹ TSF = thousand square feet

² TOTAL NET TRIPS = Passenger Cars + Net Truck Trips.



The following land uses, and vehicle mixes have been utilized:

- High-Cube Fulfillment Center Warehouse has been used to derive site specific trip generation estimates for up to 1,982,700 square feet of the proposed Project. The ITE <u>Trip Generation Manual</u> (2017) has trip generation rates for high-cube fulfillment center use (ITE land use code 155), however, these rates are unreliable because they are based on limited data (i.e., one to two surveyed sites) and the ITE <u>Trip Generation Manual</u> recommends the use of local data sources where available. As such, the trip-generation statistics published in the <u>High-Cube Warehouse Trip Generation Study</u> (WSP, November 6, 2018) which was commissioned by the Western Riverside Council of Governments (WRCOG) in support of the Transportation Uniform Mitigation Fee (TUMF) update, has been utilized for the high-cube fulfillment center use. (4) The WSP trip generation rates were published in November 2018 and are based on data collected at 11 local high-cube fulfillment center sites. However, the WSP study does not include a split for inbound and outbound vehicles, as such, the inbound and outbound splits per the ITE <u>High-Cube Warehouse Warehouse Vehicle Trip Generation Analysis</u> (October 2016) have been utilized.
- ITE land use code 157 (High-Cube with Cold Storage Warehouse) has been used to derive site specific trip generation estimates for up to 100,000 square feet of the proposed Project. The truck percentage was obtained from the ITE's High Cube Warehouse Vehicle Trip Generation Analysis (October 2016). The vehicle mix varies by peak hour and overall daily: 69.2% passenger cars in the AM peak hour, 78.3% passenger cars in the PM peak hour, and 67.8% passenger cars weekday daily, with the remaining percentages associated with heavy trucks. Trip generation for heavy trucks was further broken down by truck type (or axle type). The total truck percentage is comprised of 3 different truck types: 2-axle, 3-axle, and 4+-axle trucks. For the purposes of this analysis, the percentage of trucks, by axle type, were obtained from the SCAQMD Warehouse Truck Trip Study Data Results and Usage (2014) recommended truck mix. The SCAQMD has recently performed surveys of existing facilities and compiled the data to provide interim guidance on the mix of heavy trucks for these types of high-cube warehousing/distribution facilities. Based on this interim guidance from the SCAQMD, the following truck fleet mix was utilized for the purposes of estimating the truck trip generation for the site (with cold storage): 34.7% of the total trucks as 2-axle trucks, 11.0% of the total trucks as 3-axle trucks, and 54.3% of the total trucks as 4+-axle trucks.

Trip generation for heavy trucks was further broken down by truck type (or axle type). The total truck percentage is comprised of 2 different truck types: 2-4 axle, and 5+-axle trucks. PCE factors were applied to the trip generation rates for heavy trucks (large 2-4 axles, 5+-axles). PCEs allow the typical "real-world" mix of vehicle types to be represented as a single, standardized unit, such as the passenger car, to be used for the purposes of capacity and level of service analyses. A PCE factor was applied to the trip generation for heavy trucks (large 2-axles, 3-axles, and 4+-axles). PCEs allow the typical "real-world" mix of vehicle types to be represented as a single, standardized unit, such as the passenger car, to be used for the purposes of capacity and level of service analyses. A PCE factor was applied to the trip generation for heavy trucks (large 2-axles, 3-axles, and 4+-axles). PCEs allow the typical "real-world" mix of vehicle types to be represented as a single, standardized unit, such as the passenger car, to be used for the purposes of capacity and level of service analyses. The PCE factors are consistent with the recommended PCE factors in Appendix B of the San Bernardino County CMP, 2016 Update. (1)

As shown on Table 4-2, the proposed Project is anticipated to generate a net total of 5,716 PCE trip-ends per day, 317 PCE AM peak hour trips and 404 PCE PM peak hour trips. In comparison, the proposed Project is anticipated to generate a net total of 4,440 actual vehicle trip-ends per day with 252 AM peak hour trips and 338 PM peak hour trips.



4.2 **PROJECT TRIP DISTRIBUTION**

The Project trip distribution and assignment process represents the directional orientation of traffic to and from the Project site. The trip distribution pattern of passenger cars is heavily influenced by the geographical location of the site, the location of surrounding uses, and the proximity to the regional freeway system. The trip distribution pattern for truck traffic is also influenced by the local truck routes approved by the City of Chino. Given these differences, separate trip distributions were generated for both passenger cars and truck trips, for each analysis scenario.

Both the near-term and Horizon Year trip distribution patterns are primarily based on the existing roadway system in relation to the Horizon Year trip distribution patterns. The Project trip distribution patterns are also affected by near-term development patterns in the vicinity of the Project site. It is our understanding that the Pine Avenue Extension west of El Prado Road is anticipated to occur after the Project's anticipated Opening Year. As such, the Pine Avenue Extension would only be assumed to be in place for Horizon Year traffic conditions. As funding has not yet been secured, other roadway network changes within the study area, such as the Limonite Avenue/Kimball Avenue extension between Hellman Avenue and Archibald Avenue, will be evaluated as part of Horizon Year traffic conditions only.

Exhibit 4-1 shows the near-term passenger car trip distribution patterns, which utilizes the existing roadway network. Similarly, Exhibit 4-2 shows the near-term truck trip distribution patterns. Both these distributions will be utilized for E+P (Building 1), E+P (Project Buildout), and Opening Year Cumulative (2022) traffic conditions. As shown on Exhibit 4-2, trucks are anticipated to utilize designated truck routes such as Euclid Avenue (SR-83), Mountain Avenue, Kimball Avenue, Bickmore Avenue, Pine Avenue, Central Avenue, Limonite Avenue, and Archibald Avenue to reach regional freeways such as the SR-71, SR-60, and I-15 Freeways.

Exhibit 4-3 shows the Horizon Year passenger car trip distribution patterns, which utilize future long-range connections such as the Pine Avenue extension between El Prado Road and the SR-71 Freeway and the extension of Kimball Avenue between Hellman Avenue and Limonite Avenue into the City of Eastvale. The passenger car trip distribution patterns are consistent with other proposed industrial/non-residential uses within the immediate area. Exhibit 4-4 shows the Horizon Year truck trip distribution patterns. The distributions shown on Exhibits 4-3 and 4-4 will be utilized for Horizon Year (2040) traffic conditions.

4.3 MODAL SPLIT

The potential for Project trips (non-truck) to be reduced by the use of public transit, walking or bicycling have not been included as part of the Project's estimated trip generation. Essentially, the Project's traffic projections are "conservative" in that these alternative travel modes would reduce the forecasted traffic volumes (non-truck trips only).





EXHIBIT 4-1: PROJECT (NEAR-TERM PASSENGER CAR) TRIP DISTRIBUTION



EXHIBIT 4-2: PROJECT (NEAR-TERM TRUCKS) TRIP DISTRIBUTION



EXHIBIT 4-3: PROJECT (HORIZON YEAR PASSENGER CAR) TRIP DISTRIBUTION



EXHIBIT 4-4: PROJECT (HORIZON YEAR TRUCKS) TRIP DISTRIBUTION
4.4 PROJECT TRIP ASSIGNMENT

The assignment of traffic from the Project area to the adjoining roadway system is based upon the Project trip generation, trip distribution, and the arterial highway and local street system improvements that would be in place by the time of initial occupancy of the Project. Based on the identified Project traffic generation and trip distribution patterns, Project ADT and peak hour intersection turning movement volumes are shown on Exhibits 4-5 and 4-6 for E+P (Building 1), Exhibits 4-7 and 4-8 for E+P (Project Buildout) and Opening Year Cumulative (2022), and Exhibits 4-9 and 4-10 for Horizon Year (2040) traffic conditions.

4.5 BACKGROUND TRAFFIC

4.5.1 OPENING YEAR CUMULATIVE CONDITIONS

Future year traffic forecasts have been based upon background (ambient) growth at 2% per year for 2022 traffic conditions. The ambient growth factor is intended to approximate regional traffic growth. The total ambient growth is 6.12% for 2022 traffic conditions (compounded growth of 2 percent per year over 3 years or $1.02^{3 \text{ years}}$). This ambient growth rate is added to existing traffic volumes to account for area-wide growth not reflected by cumulative development projects. Ambient growth has been added to daily and peak hour traffic volumes on surrounding roadways, in addition to traffic generated by the development of future projects that have been approved but not yet built and/or for which development applications have been filed and are under consideration by governing agencies. Opening Year Cumulative (2022) traffic volumes are provided in Section 7 *Opening Year Cumulative (2022) Traffic Conditions* of this report. The traffic generated by the proposed Project was then manually added to the base volume to determine Opening Year Cumulative With Project forecasts.

4.5.2 HORIZON YEAR (2040) CONDITIONS

The adopted Southern California Association of Governments (SCAG) <u>2016 Regional</u> <u>Transportation Plan/Sustainable Communities Strategy (RTP/SCS)</u> (April 2016) growth forecasts for the City of Chino identifies projected growth in population of 79,400 in 2012 to 120,400 in 2040, or a 51.64% increase over the 28-year period. (8) The change in population equates to roughly a 1.50% growth rate, compounded annually. Similarly, growth over the same 28-year period in households is projected to increase by 61.90%, or a 1.74% annual growth rate. Finally, growth in employment over the same 28-year period is projected to increase by 18.78%, or a 0.62% annual growth rate.





EXHIBIT 4-5: PROJECT (BUILDING 1) ONLY AVERAGE DAILY TRAFFIC (ADT) (IN PCE)

10.0= VEHICLES PER DAY (1000'S)NOM= NOMINAL, LESS THAN 50
VEHICLES PER DAY



1	SR-7 Soquel (1 SB Ramps & Canyon Pkwy.	2	SR-7	1 SB Ramps & Pine Av.	3	SR Sha	71 SB Ramps/ dy View Dr. &	4	SR-7	I NB Ramps & Central Av.	5	SR-71	NB Ramps & Pine Av
							Butterfi	eld Ranch Rd.						
	0) (14)			666			666	↓ _0(0)						
	- 00 - 00 -	•0(0) 1(5)		<u> </u>	←0(0) r─0(0)		<u> </u>	0(1) r0(0)			*—9(35) <i>◄</i> -1(5)			
	4(2) → 0(0)—,			0(0)→ 0(0)→			0(0) [▲] 1(0)- -			33(16)→ 0(0)→			0(0)-*	
							0(0)	000			00			00
6	SR-7	NB Ramps &	7		Central Av. &	8	E	El Prado Rd. &	9	м	ountain Av. &	10	М	ountain Av. & Bickmore Av
	Luci	ia AV. (517 05)												Dicknore Av.
					4 3(11)		2	+ 10(42)					(2	
		- -8(30) ∠0(0)		+0(0) -8(4)	←0(0) ←10(40)		+ 7(3) - 35(1				≺ −0(0) ∠−2(1)		+−37(1 −−0(0)	[▲] _0(0) 38(18)
	1(0)→ 0(0)→						<u>~ , ~</u> 0(0)→		-	0(0)→				
	0(0)-+	0(0 25(11		0(0)-	0(0 33(16		0(0)-	525		, (, i) ,	10(43 1(2			11(4: 11(4:
11	м	ountain Av. &	12	м	ountain Av. &	13	м	ountain Av. &	14	E	I Prado Rd. &	15	E	il Prado Rd. &
		Dwy. 1			Dwy. 2			Dwy. 3			Mountain Av.			Pine Av.
	~~													
	-52(23 -23(12	↓ _7(30)		-0(0) -52(23	↓ _15(60)		Do	bes		-7(3)	4 _2(8)		-0(0) -6(25)	↓ _21(10)
	+ _	vr−0(0)		+ _	<u>√</u> -8(33) ↑ ([*]		N Ex	ot list		* _	<u>,</u> 6(25) ↑ ([*]		<u>مالہ</u> •(0)	- -0(0)
		0(0)			0(0)						0(0)		0(0)→	
16		Dwy. 4 & Bickmore Av.	17		Dwy. 5 & Bickmore Av.	18		Dwy.6& Bickmore Av.	19	Euclid SR-6	Av. (SR-83) & 50 WB Ramps	20	Euclid SR	Av. (SR 83) & 60 EB Ramps
								- 6 7(32)		ΘĒ	↓ _0(0)		8(8) (0)	
		-23(12)			-6(2)			-6(2) 		Ĵţ	-0(0) -15(6)		<u> </u>	
1	1(45)→ 0(0)→	00		8(76)→ 0(0)→	5(e) (0)		0(81)→ 0(0)→) (0) (0)			2(7) 1(4)→		0(0)→ 0(0)→ 7(3)→	(10) (16) (16)
					U.N.								/(J) ¥	ω 4
21	Euclid	Av. (SR-83) & Walnut Av.	22	Euclid	Av. (SR-83) & Riverside Dr.				I					
							1 6/	CIND.						
	() () () () () () () ()	↓ _0(0)		ຣີ້ຣ	↓ _0(0)					AK HOU				.c
	 	←0(0) ←0(0)			←0(0) ←1(0)			- AM(PM	,					
	0(0)→ 0(0)→			0(0)→ 0(0)→										
	1(0)	020		2(1)	120									

EXHIBIT 4-6 (10F2): PROJECT (BUILDING 1) ONLY TRAFFIC VOLUMES (IN PCE)



23	Euclid Av. (SR-83) & Chino Av.	24 Euclid Av. (SR-83) & Schaefer Av.	25 Euclid Av. (SR-83) & Edison Av.	26 Euclid Av. (SR-83) & Eucalyptus Av.	27 Euclid Av. (SR-83) & E. Facility Dr./ Merrill Av.
	$(0)0^{-4} (0)0$	$ \begin{array}{c} (0)0^{-4} \\ (0)0^{-4} \\ (0)0^{-7} $	$\begin{array}{c} (2) \\ (1) \\ (1) \\ (2) \\ (1) \\ (2) \\$	$\begin{array}{c} & & & \\ & & & & \\ & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ &$	$ \begin{array}{c} (G) \\ (G) $
		0(0) → 0(0)	0(0) → 1(0) → 1(0) → 1(0) →		1(2) 1(2)
28	Euclid Av. (SR-83) & Kimball Av.	29 Euclid Av. (SR-83) & Bickmore Av.	30 Euclid Av. (SR-83) & Pine Av.	31 Rincon Meadows Av. & KImball Av.	32 Rincon Meadows Av. & Pine Av.
	$ \begin{array}{c} \widehat{(1,1)} \\ ($	$ \begin{array}{c} & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & &$	$ \begin{array}{c} \widehat{(2,2)} \\ ($	2040 Analysis Location	Future Intersection
	$\begin{array}{c c} & & & & \\ & & & & \\ & & & & \\ & & & & $	1(6)→ 10(40)→ 10(40)→	4(17)→ 2(8)→ 2(8)→	Only	
33	Mill Creek Av. & Kimball Av.	34 Mill Creek Av./ Chino Corona Rd. & Pine Av.	35 Chino Corona Rd. / Cucamonga Av. & Chino Corona Rd.	36 W. Preserve Loop & Pine Av.	37 Main St. & Kimball Av.
	2040 Analysis Location Only	$ \begin{array}{c} $	Construction Analysis Only	©© ↓ ↓ ↓ →27(13) 0(0) → 8(33) →	2040 Analysis Location Only
38	Flight Av. & Kimball Av.	39 E. Preserve Loop & Pine Av.	40 Hellman Av. & Kimball Av.	41 Hellman Av. & Pine Av./ Schleisman Rd.	42 Archibald Av. & Limonite Av.
	2040 Analysis Location Only	+-27(13) (00) 8(33)-+ 1 0(0) 0(0) 0(0) 0(0) 0(0) 0(0) 0(0) 0(0) 0(0)	2040 Analysis Location Only	$\begin{array}{c} 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 $	$5(20) \xrightarrow{+}{(0)} 6(0)$
43	Archibald Av. & Schleisman Rd.		1		
	$ \begin{array}{c} 0 \\ 0 \\ $	LEGEND: 10(10) - AM(PM	I) PEAK HOUR INTERSECTI	ON VOLUMES	
	0(1)→ 1(5)→ 1(5)→				

EXHIBIT 4-6 (20F2): PROJECT (BUILDING 1) ONLY TRAFFIC VOLUMES (IN PCE)





EXHIBIT 4-7: PROJECT (PROJECT BUILDOUT) ONLY AVERAGE DAILY TRAFFIC (ADT) (IN PCE)

10.0= VEHICLES PER DAY (1000'S)NOM= NOMINAL, LESS THAN 50
VEHICLES PER DAY



1	SR-7 Soquel (I SB Ramps & Canyon Pkwy.	2	SR-7	I SB Ramps & Pine Av.	3	SR Shad Butterfi	71 SB Ramps/ dy View Dr. & ield Ranch Rd.	4	SR-7	I NB Ramps & Central Av.	5	SR-71	NB Ramps & Pine Av.
	↓0(0) ↓53(24)	▲0(0) <i>↓</i> _2(8)		(0)0 ↓ ↓	←0(0) ←0(0)		(0)0 (0)0	40(0) ←0(2) ←0(0)			≜16(62) <i>-</i> 2(8)			
	7(3)→ 0(0)→			0(0)→ 0(0)→			0(0) 2(1)→ 0(0)	↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑		60(27)→ 0(0)→	↑ (0)0		0(0)—*	↑ (0)0
6	SR-7 Eucl	NB Ramps & id Av. (SR-83)	7		Central Av. & El Prado Rd.	8	E	i Prado Rd. & Kimball Av.	9	М	ountain Av. & Kimball Av.	10	M	ountain Av. & Bickmore Av.
	2(1)	←14(54) ←0(0)		$\begin{array}{c} & & \\$	4(19) ←0(0) ←18(71)		$\left \begin{array}{c} -0(0) \\ -12(6) \\ -62(29) \end{array} \right $	▲-18(75) ←0(0) ←0(0)		0(0)	←0(0) ←4(2)		+-66(31) ∳ 0(0)	▲_0(0) ←73(33)
	2(1)→ 0(0)	0(0) 45(20)		0(0) <i>—</i> 0(0)→ 0(0)→	0(0) 0(0) 60(27)		0(0) <i>—</i> 0(0)→ 0(0)→	0(0) 4(15)→ 0(0)	(0(0) → 52(29)	18(75) 1(4)			19(79)→ 21(85)—
11	м	ountain Av. & Dwy. 1	12	М	ountain Av. & Dwy. 2	13	М	ountain Av. & Dwy. 3	14	. Е	il Prado Rd. & Mountain Av.	15	E	I Prado Rd. & Pine Av.
	←106(47) ←33(17)	€10(42) 0(0)		←16(7) ←90(40)	4—26(103) ∲_7(29)		←7(29) ←16(7)	€_5(19) , ~7(29)		←0(0) ←12(6)	€4(15) r11(44)		←0(0) ←11(44)	€37(17) 0(0)
		31(122) + 0(0)			5(19)→ 24(11) 			24(11) 25(11)			a7(17)→ 37(17)		0(0)→ 0(0)→	
16		Dwy. 4 & Bickmore Av.	17		Dwy. 5 & Bickmore Av.	18		Dwy. 6 & Bickmore Av.	19	Euclid SR-6	Av. (SR-83) & 60 WB Ramps	20	Euclid SR-	Av. (SR-83) & 60 EB Ramps
		←73(33) ç—41(21)			←114(54) ∲─8(3)			←122(57) ←8(3)		<u>↓</u> 0(0) ≁_5(2)	€0(0) ←0(0) ∳27(11)		+-32(13) +-0(0)	
2	:1(85)→ 0(0)→	0(0) 12(53)	34	(138) → 0(0)— ₇	0(0) 2(8)	36((146) → 0(0)— ₇	0(0) 2(8)			3(12)		0(0)⊸ 0(0)→ 12(5)→	5(18)→ 8(28)→
21	Euclid	Av. (SR-83) & Walnut Av.	22	Euclid	Av. (SR-83) & Riverside Dr.				-			-		
	$\begin{array}{c} (0)0 \\ (81) \\ (0)0 \\ (0)0 \\ (0)0 \\ (0)0 \\ (0)0 \\ (1) $	0(2) ↓ 0(2) ↓ 1 13(46) ↓ 0,000 0 0(0) ↓ 0000 0 0(0) ↓ 0000 0		$ \begin{array}{c} (0)0 \\ ($	$\begin{array}{c} 11(0) \\ 11(0) \\ 12(1) \\$		LE(10(1	JEND: 10) - AM(PM) PE	- Ak houi	RINTERSECT	ION V	VOLUME	S
]								

EXHIBIT 4-8 (10F2): PROJECT (PROJECT BUILDOUT) ONLY TRAFFIC VOLUMES (IN PCE)



23	Euclid Av. (SR-83) & Chino Av.	24 Euclid Av. (SR-83) & Schaefer Av.	25 Euclid Av. (SR-83) & Edison Av.	26 Euclid Av. (SR-83) & Eucalyptus Av.	27 Euclid Av. (SR-83) & E. Facility Dr./ Merrill Av.
	$ \begin{array}{c} \widehat{(2)} \\ \widehat{(2)} $	$ \begin{array}{c} (0)0^{-4} \\ (0)0^{-4} $	$ \begin{array}{c} (7,7) \\ (7,7) $	$\begin{array}{c} (0)0^{-1} \\$	$ \begin{array}{c} (9 \\ (0) \\$
	$(0) \rightarrow (0) $	0(0) 15(57) 0(0	0(0) 2(1) 2(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	0(0) → 3(2) → -(100) -(10) -(100)	(0)0 (0)0
28	Euclid Av. (SR-83) & Kimball Av.	29 Euclid Av. (SR-83) & Bickmore Av.	30 Euclid Av. (SR-83) & Pine Av.	31 Rincon Meadows Av. & Kimball Av.	32 Rincon Meadows Av. & Pine Av.
	$\begin{array}{c} (0) & (0) \\$	$ \begin{array}{c} & & & & \\ & & & & \\ & & & & \\ & & & &$	$ \begin{array}{c} & & & & \\ & & & & \\ & & & & \\ & & & &$	2040 Analysis Location Only	Future Intersection
	0(0) (0) (0) (0) (0) (0) (0) (0)	2(11)→ 17(71)→ 65	7(29)→ 4(14)→ 4(14)→	Uniy	
33	Mill Creek Av. & Kimball Av.	34 Mill Creek Av./ Chino Corona Rd. & Pine Av.	35 Chino Corona Rd. / Cucamonga Av. & Chino Corona Rd.	36 W. Preserve Loop & Pine Av.	37 Main St. & Kimball Av.
	2040 Analysis Location Only	$ \begin{array}{c} $	Construction Analysis Only	⊕ ⊕ ⊕ ← 0(0) ← 47(23) 0(0)→ 14(59)→	2040 Analysis Location Only
38	Flight Av. & Kimball Av.	39 E. Preserve Loop & Pine Av.	40 Hellman Av. & Kimball Av.	41 Hellman Av. & Pine Av./ Schlelsman Rd.	42 Archibald Av. & Limonite Av.
	2040 Analysis Location Only	-47(23) -0(0) 14(59)→ 0(0)→ 0(0)→ 000→ 00	2040 Analysis Location Only	$ \begin{array}{c} \widehat{0} & \widehat{0} & \widehat{0} & \widehat{0} \\ \widehat{0} & \widehat{0} & \widehat{0} & \widehat{0} \\ \overline{-} & -44(21) \\ \overline{-} & -44(21) \\ \overline{-} & -600 \\ \overline{-} & -46(21) \\ \overline{-} & -600 \\$	$(0)) \xrightarrow{1}{(0)} (0) \xrightarrow{1} (0) $
43	Archibald Av. & Schleisman Rd.				
	$\begin{array}{c c} (0) & -0(0) \\ \hline (0) & +2(1) \\ \hline (0) & + \\ 0(2) & - \\ 2(9) & - \\ \hline \end{array}$	LEGEND: 10(10) - ам(рм) PEAK HOUR INTERSECT	TION VOLUMES	

EXHIBIT 4-8 (20F2): PROJECT (PROJECT BUILDOUT) ONLY TRAFFIC VOLUMES (IN PCE)





EXHIBIT 4-9: PROJECT ONLY (HORIZON YEAR) AVERAGE DAILY TRAFFIC (ADT) (IN PCE)

10.0= VEHICLES PER DAY (1000'S)NOM= NOMINAL, LESS THAN 50
VEHICLES PER DAY



1	SR-7 Soquel (1 SB Ramps & Canyon Pkwy.	2	SR-7	I SB Ramps & Pine Av.	3	SR Sha Butterfi	71 SB Ramps/ dy View Dr. & eld Ranch Rd.	4	SR-71	I NB Ramps & Central Av.	5	SR-71	NB Ramps & Pine Av.
	$(0)0 \rightarrow (2)S \rightarrow (3)$ $(0)0 \rightarrow (3)$ $(2) \rightarrow (3)$ $(3)(2) \rightarrow (3)$	≹_0(0) ←1(4)		(0) = (0)	+-1(6) ∲-13(52)		$ \begin{array}{c} 0 \\ 0 \\ $	↓_0(0) + 0(0) ↓ 0(0) ↓ (0) 000		8(4)→ 0(0)→	4_1(6) ←1(4) 1 (4) 0 00 0 00	5:	0(0) <i>—</i> ⁴ 3(24)→	000 ↓ 15(58) ↓ (00) + (20) + (20)
6	SR-7 Euc	I NB Ramps & Id Av. (SR-83)	7		Central Av. & El Prado Rd.	8	E	i Prado Rd. & Kimbali Av.	9	M	ountain Av. & Kimball Av.	10	M	ountain Av. & Bickmore Av.
	0(0)→ 0(0)→	←0(0) ←0(0) ←0(0) ←(0) 0)0 0)0		$\begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} $	$\begin{array}{c} 4(19) \\ + 0(0) \\ \hline 2(11) \\ \hline (0) \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\$		$ \begin{array}{c} 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 $	<pre></pre>	23	0(0)→ 3(12)→	2(30) (0)0		+-23(12) +-0(0)	↓ 0(0) ↓ 51(23) + (09) ↓ (00) ↓ (
11	М	ountain Av. & Dwy. 1	12	М	ountain Av. & Dwy. 2	13	М	ountain Av. & Dwy. 3	14	E	i Prado Rd. & Mountain Av.	15	E	l Prado Rd. & Pine Av.
	+-50(22) ∱-25(12)	€_7(32) €_2(11) ↑ (*)8 (7)8 (85)9) (85)9 (85)9) (8)) (8)) (8)) (8)) (8)) (8)) (8)) (+-20(19) 33(14)	↓ 10(37) ↓ 24(95) ↓ (52)E1 10(37) ↓ (21) 10(37) ↓ (21) 10(37) ↓ (21) 10(37) ↓ (21) ↓ (21)		+-26(106) +-17(8)	90(41) -5(21) -4(10) -7(27) -1(27) -7(27		(0)0-+	↓_0(0) ↓_33(132) ↓ (15) 11 12 132 132 132 132 132 132	98	00 € 0 € 6 0 € 6 0 € 7 0 € 29(114)	-16(7) 0(0)
16		Dwy. 4 & Bickmore Av.	17		Dwy. 5 & Bickmore Av.	18		Dwy. 6 & Bickmore Av.	19	Euclid SR-6	Av. (SR-83) & 50 WB Ramps	20	Euclid SR-	Av. (SR-83) & 60 EB Ramps
	I5(60)→	←51(23) √─41(21)	27	(113)-+	<-92(44) √-8(3)	30((121)→	←100(47) √─8(3)		⁴ −−0(0) +−5(2)	 4—0(0) 4→0(0) 4→0(0) 7→1 		() () () () () () () () () () () () () (
	0(0) _	0(0) 12(53)		0(0)	0(0) 2(8)		0(0)	0(0) 2(8)			3(12) 1(6)		0(0)→ 12(5)→	5(18) 8(28)
21	Euclid	Av. (SR-83) & Walnut Av.	22	Euclid	Av. (SR-83) & Riverside Dr.									
	$\begin{array}{c} (0)0 \\ (0)0 \\ (0)0 \\ (0)0 \\ (0)0 \\ (0)0 \\ (0)0 \\ (1) $	0(2) 13(46) 0(0)		$(0) 0 \xrightarrow{1} (0) 0 1$	$\begin{array}{c} 13(49) \\ -0(0) \\ -0(0) \\ -2(1) \\ -2(1) \\ -13(49) \\ -2(1) \\ -13(49) \\ -2(1) \\ -2$		LE(10(1	jend: 10) - am(pm) PEA	k houf	R INTERSECT	ION \	(OLUME	S

EXHIBIT 4-10 (10F2): PROJECT ONLY (HORIZON YEAR) TRAFFIC VOLUMES (IN PCE)



23	Euclid	Av. (SR-83) & Chino Av.	24	Euclid	Av. (SR-83) & Schaefer Av.	25	Euclid	Av. (SR-83) & Edison Av.	26	Euclid E	Av. (SR-83) & Sucalyptus Av.	27	Euclid I	Av. (SR-83) & 5. Facility Dr./ Merrill Av.
	$ \begin{array}{c c} 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 $	$\begin{array}{c} (0) \\ (0) \\ (0) \\ (0) \\ (2) \\$		$ \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} $	0(0) → → → 0 15(57) → 00 → (0)0 0(0) → (0)0 → (0)0 0(0) → (0)0		$ \begin{array}{c} (0) \\ (72) \\ (7$	$\begin{array}{c} 0(0) \\ 0(0) \\ -0(0) \\ -3(2) \\ -1(4) \\ -$		$\begin{array}{c} & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & &$	1(4) 17(63) 0(0) 0(0) 0(0) 0(0)		$ \begin{array}{c} & & & & \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0$	$\begin{array}{c} 0(0) \\ 0(0) \\ 3(2) \\ 1(4) \\ 1($
28	Euclid	Av. (SR-83) & Kimball Av.	29	Euclid	Av. (SR-83) & Bickmore Av.	30	Euclid	Av. (SR-83) & Pine Av.	31	Rincon	Meadows Av. & Kimbali Av.	32	Rincon	Meadows Av. & Pine Av.
	$ \begin{array}{c} 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 $	$\begin{array}{c} 0(0) \\ -0(0) \\ -0(0) \\ -37(18) \\ -11(46$	29	(0) = (0)	↓_0(0) +-8(4) ↓_0(0) ↑ ↓ ↓ 000 0000		$ \begin{array}{c} (0) & (0) & (0) \\ (0) & (0) & (0) & (0) \\ \hline 0(0) & (0) & (0) & (0) \\ \hline 0(0) & (0) & (0) & (0) \\ \end{array} $	↓_0(0) + 16(7)	1	1(46)→ 0(0)→	37(18) 0(0) 		$ \begin{array}{c} (0) \\ (0) $	↓_0(0) + 16(7) ↓ 0(0) ↑ ↓ (0) 000
33	Mil	l Creek Av. & Kimball Av.	34	N Chino	/ill Creek Av./ Corona Rd. &	35	Chino Cuca) Corona Rd. / amonga Av. &	36	W. Pre	serve Loop & Pine Av.	37		Main St. & Kimball Av.
1	11(46)→ 0(0)→			000 000 000 4(17) 0(2) 000 0(2) 0(2) 0(2) 0(2) 0(2) 0(2)	Pine Av. ↓_0(0) ↓_14(6) ↓_0(0) ↓ ↓ ↓ ↓ ↓ ↓ 0(0) ↓ 0(0) ↓ 0(0) ↓ 0(0)		Chir Consti Ana Or	no Corona Rd. ruction lysis nly		000 0(0) 0(0) 4(17)→	∔_0(0) +-14(6)	1	0(44)→ 0(2)→	+-35(17) ←0(0) ←(0) (1) 7 (1) 7 (1) 7 (1) 7 (1) 7 (1) 7 (1) (1) (1) (1) (1) (1) (1) (1)
38		Flight Av. & Kimball Av.	39	E. Pre	serve Loop & Pine Av.	40	ŀ	leliman Av. & Kimball Av.	41	ł	Hellman Av. & Pine Av./	42	Aı	chibald Av. & Limonite Av.
	$ \begin{array}{c} (0)0 \\ (0)0 \\ (1)2 \\ ($	<pre>4_0(0) +34(16) f 0(0) 1 + ∫ 000 0 00 0 00 0 00 0 00 0 00</pre>		4(17)→ 0(0)→	+-14(6) 0(0) 	1	$ \begin{array}{c} (0) \\ (0) $	<pre></pre>		$ \begin{array}{c} (0) \\ (0) $	↓_0(0) +11(5) +0(0) 1 ↓ (+ 2 0) 2 00 2 00 2 00 2 00		(0)0→ (0)0→	€_0(0) €_2(1) ↑(2)0 ↑(0)0
43	Ar So	chibald Av. & chleisman Rd.												
	(1) = (1)	 ↓ 0(0) + 2(1) ↓ 0(0) ↓ (0)0 ↓ (0)0 ↓ (0)0 		LE(10(1	jend: 10) - am(pm) PE#	ak hour	R INTERSECT	ION '	VOLUME	ES			

EXHIBIT 4-10 (20F2): PROJECT ONLY (HORIZON YEAR) TRAFFIC VOLUMES (IN PCE)



Based on a comparison of Existing (2019) traffic volumes to the Horizon Year (2040) forecasts, the average growth rate is estimated at approximately 2.73%, compounded annually between Existing (2019) and 2040 traffic conditions. The annual growth rate at each individual intersection is not lower than 0.92% compounded annually to as high as 9.18% compounded annually over the same time period. Therefore, the annual growth rate utilized for the purposes of this analysis would appear to conservatively approximate the anticipated regional growth in traffic volumes in the City of Chino for Opening Year Cumulative and Horizon Year (2040) traffic conditions, especially when considered along with the addition of project-related traffic, which would tend to overstate as opposed to understate the potential impacts to traffic and circulation.

4.6 CUMULATIVE DEVELOPMENT TRAFFIC

California Environmental Quality Act (CEQA) guidelines require that other reasonably foreseeable development projects which are either approved or being processed concurrently in the study area also be included as part of a cumulative analysis scenario. A cumulative project list was developed for the purposes of this analysis through consultation with planning and engineering staff from the City of Chino. The neighboring jurisdiction of Chino Hills has also been contacted to include key projects in their respective cities.

Exhibit 4-11 illustrates the cumulative development location map. A summary of cumulative development projects and their proposed land uses are shown on Table 4-3. If applicable, the traffic generated by individual cumulative projects was manually added to the Opening Year Cumulative forecasts to ensure that traffic generated by the listed cumulative development projects on Table 4-3 are reflected as part of the background traffic. Cumulative only ADT and peak hour intersection turning movement volumes are shown on Exhibits 4-12 and 4-13, respectively.

4.7 HORIZON YEAR (2040) VOLUME DEVELOPMENT

Traffic projections for Horizon Year (2040) without Project conditions were derived from the San Bernardino Transportation Analysis Model (SBTAM) using accepted procedures for model forecast refinement and smoothing for study area intersections located within the County of San Bernardino. The current version of the SBTAM (Version 2.20, March 2019) reflects the local input in the adopted 2016 SCAG RTP within the County of San Bernardino.

The traffic forecasts reflect the area-wide growth anticipated between Existing (2019) conditions and Horizon Year (2040) traffic conditions. In most instances the traffic model zone structure is not designed to provide accurate turning movements along arterial roadways unless refinement and reasonableness checking is performed. Therefore, the Horizon Year (2040) peak hour forecasts were refined using the model derived long range forecasts, base (validation) year model forecasts, along with existing peak hour traffic count data collected at each analysis location in January 2019. The SBTAM has a base (validation) year of 2012 and a horizon (future forecast) year of 2040. The difference in model volumes (2040-2012) defines the growth in traffic over the 28-year period. Similarly, the Riverside Transportation Analysis Model (RivTAM) has a base (validation) year of 2012 and a horizon (future forecast) year of 2040.

OURBAN CROSSROADS



EXHIBIT 4-11: CUMULATIVE DEVELOPMENT LOCATION MAP



EXHIBIT 4-12: CUMULATIVE ONLY AVERAGE DAILY TRAFFIC (ADT) (IN PCE)

10.0 - VEHICLES PER DAY (1000'S) NOM = NOMINAL, LESS THAN 50 VEHICLES PER DAY



1	SR-71 SB Ramps & Soquel Canyon Pkwy.	2 SR-71 SB Ramps & Pine Av.	3 SR-71 SB Ramps/ Shady View Dr. & Butterfield Ranch Rd.	4 SR-71 NB Ramps & Central Av.	5 SR-71 NB Ramps & Pine Av.
:	(50) (50) (50) (50) (50) (14(11)) (14(11)) (14(11)) (14(11)) (14(11)) (14(11)) (14(11)) (14(11)) (14(11)) (15(1))	$ \begin{array}{c} \widehat{\bigcirc} \ \widehat{\bigcirc} \ \\ \widehat{ \ } \ \\ \widehat \widehat{ \ } \ \\ \widehat $	$\begin{array}{c} & & & & \\ & & & & \\ & & & & \\ & & & & $	ل44(65) 32(40) 57(133)→ ↑ ۲ 5(3)→ ↑ ۲ 5(3)→	0(0) ↑ (0)0 000
6	SR-71 NB Ramps & Euclid Av. (SR-83)	7 Central Av. & El Prado Rd.	8 El Prado Rd. & Kimbali Av.	9 Mountain Av. & Kimball Av.	10 Mountain Av. & Bickmore Av.
3	$\begin{array}{c} + 123(221) \\ \hline 33(25) \\ \hline 1(58) + 0(0) \\ \hline 0(0) \\ \hline \\ 0 \\ \hline \hline \\ 0 \\ \hline \\ 0 \\ \hline \\ 0 \\ \hline \hline \hline \hline$	$\begin{array}{c} (0) \\$	$\begin{array}{c} (251) \\ (251) \\ (21) \\ $	-71(91) ,	$\begin{array}{c} +0(66) \\ +2(6) \\ -2(6) $
11	Mountain Av. & Dwy. 1	12 Mountain Av. & Dwy. 2	13 Mountain Av. & Dwy. 3	14 El Prado Rd. & Mountain Av.	15 El Prado Rd. & Pine Av.
	Future Intersection	Future Intersection	Future Intersection	$(0)0^{+} (1)^{-} (1)^{-} (0)0^{+} (0)0^{-} (11)^{-} (0)0^{-} (11)^{-} (0)0^{-} (11)^{-} (0)0^{-} (11)^{-} (0)0^{-} (11)^{-} (10$	(0) 0(0)
16	Dwy. 4 & Bickmore Av.	17 Dwy. 5 & Bickmore Av.	18 Dwy. 6 & Bickmore Av.	19 Euclid Av. (SR-83) & SR-60 WB Ramps	20 Euclid Av. (SR-83) & SR-60 EB Ramps
	Future Intersection	Future Intersection	Future Intersection	$ \begin{array}{c} (0)\\ (0)\\ (0)\\ (0)\\ (0)\\ (0)\\ (0)\\ (0)\\$	2 ← 1(81)
				-(193)- 8(17)-	0(0) 0(0) 174(127) 174
21	Euclid Av. (SR-83) & Walnut Av.	22 Euclid Av. (SR-83) & Riverside Dr.			
	$\begin{array}{c c} & & & & & & \\ & & & & & & & \\ & & & & $	$\begin{array}{c} \begin{array}{c} & & & \\ & & & & \\ & & & \\ & & & & \\ & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & $	LEGEND: 10(10) - AM(PM)	PEAK HOUR INTERSECT	ION VOLUMES

EXHIBIT 4-13 (10F2): CUMULATIVE ONLY TRAFFIC VOLUMES (IN PCE)



23	Euclid Av. (SR-83) & Chino Av.	24 Euclid	Av. (SR-83) & Schaefer Av.	25	Euclid	Av. (SR-83) & Edison Av.	26	Euclid / Ei	Av. (SR-83) & ucalyptus Av.	27	Euclid I	Av. (SR-83) & E. Facility Dr./ Merrill Av
	$\begin{array}{c c} & 0(0) \\ \hline & 0(0) \\ \hline & 0(0) \\ 155(329) \\ 0(0) \\ \hline \\ & 0(0) \\ \hline \end{array} \begin{array}{c} 0(0) \\ \hline \\ & 0(0) \\ \hline \\ & 0(0) \\ \hline \end{array} \begin{array}{c} 0(0) \\ \hline \\ & 0(0) \\ \hline \\ & 0(0) \\ \hline \end{array} \begin{array}{c} 0(0) \\ \hline \\ & 0(0) \\ \hline \end{array} \begin{array}{c} 0(0) \\ \hline \\ & 0(0) \\ \hline \end{array} \begin{array}{c} 0(0) \\ \hline \\ & 0(0) \\ \hline \end{array} \begin{array}{c} 0(0) \\ \hline \\ & 0(0) \\ \hline \end{array} \begin{array}{c} 0(0) \\ \hline \end{array} \begin{array}{c} 0(0) \\ \hline \end{array} \begin{array}{c} 0(0) \\ \hline \end{array} \end{array}$	(5)0 (0)0 (0)0 (0)0 (0)0 (0)0 (1) (1)(8) (1)(8) (1)(8) (1)(8) (1)(8) (1)(8) (1)(8) (1)(8) (1)(8) (1)(8) (1)(8) (1)(8) (1)(8) (1)(1)(1)(1)(1)(1)(1)(1)(1)(1)(1)(1)(1)($\begin{array}{c} 7(12) \\ 162(340) + \\ 0(0) \\ 0(0) \\ 0(0) \\ \end{array}$		(1) (0) (0) (0) (0) (0) (0) (0) (0) (0) (0	$\begin{array}{c} 20(52) \\ 7(23) \\ 161(223) \\ 162(33) \\ 2(3) \\ 161(22) \\ 161($		$\begin{array}{c} \begin{array}{c} \begin{array}{c} -1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 $			$\begin{array}{c c} 0 & 0 \\ 0 & 0$	122(120) + 0(0) + 0
28	; Euclid Av. (SR-83) & Kimball Av.	29 Euclid	Av. (SR-83) & Bickmore Av.	30	Euclid	Av. (SR-83) & Pine Av.	31	Rincon	Meadows Av. & Kimbali Av.	32	Rincon	Meadows Av. & Pine Av.
	$\begin{array}{c c} (6) & & & & \\ \hline (7) & & & \\$	(222)(24) = (200)(200)(200)(200)(200)(200)(200)(200	4_56(38) + 13(17) - 35(29) + (66) 18(30) + (65) 18(60) + (65) 18(60) + (65) +		$\begin{array}{c} 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 $			204 Anal Loca On	40 lysis ltion lly		Fut Inters	ure ection
33	Mill Creek Av. & Kimball Av.	34 ^N Chino	/ill Creek Av./ Corona Rd. & Pine Av	35	Chino Cuca Chir	Corona Rd. / amonga Av. &	36	W. Pres	serve Loop & Pine Av.	37		Main St. & Kimball Av.
	2040 Analysis Location Only	(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	 2(6) -2(6) -20(57) -(9)/ -(9)/ -(10)/ -(10)/	Construction Analysis Only		140	(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	€_0(1) - 102(227)		20 Ana Loca Or	40 lysis ition ily	
38	Flight Av. & Kimball Av.	39 E. Pre	eserve Loop & Pine Av.	40	F	leliman Av. & Kimball Av.	41	H Sc	lellman Av. & Pine Av./ chleisman Rd.	42	Aı	chibald Av. & Limonite Av.
	2040 Analysis Location Only	140(167)→ 0(0)→	←102(228) ←0(0) 1 ← 000 000	2040 Analysis Location Only		109 1	$\begin{array}{c} 1 \\ -5 \\ -5 \\ -5 \\ -5 \\ -5 \\ -5 \\ -5 \\ $	$\begin{array}{c} 4 \\ -25(24) \\ +47(176) \\ -4(12) \\ -4(12) \\ -1(12) $		+-23(86) 47(177)	↓ 162(67) ↓ 50(130) ↓ (07) ↓ (07)	
43	Archibald Av. & Schleisman Rd.											
	$\begin{array}{c c} (1,1) \\ (1,1)$	LE(10(*	GEND: 10) - AM(PM) PE#	ak houf	RINTERSECT	'ION '	VOLUME	S			

EXHIBIT 4-13 (20F2): CUMULATIVE ONLY TRAFFIC VOLUMES (IN PCE)



Table 4-3

Page 1 of 3

Cumulative Development Land Use Summary

		1		2
#	Project/Location	Land Use	Quantity	Units ²
	City of the second	Chino I		
C1	Bickmore Street Residential (TM 18858) (30% complete)	SFDR	185	DU
C2	TM17574 (80% complete)	Condo/Townhouse	108	DU
		SFDR	210	DU
		Condo/Townhouse	786	DU
C3	Falloncrest at the Preserve	Apartments	412	DU
		Shopping Center	77.597	TSF
		General Office	77.597	TSF
	Tract 19980 (Homecoming Phase 4)	Apartments	454	DU
C4	TTM No. 20166 & 20167	SFDR	148	DU
	Brio & TTM No. 21065 & 20168 (Orchards)	SFDR	239	DU
C5	Farmer Boys	Fast-food w/ Drive-Thru	3.218	TSF
0.5		Shopping Center	2.300	TSF
		Warehousing	205.820	TSF
C6	Euclid & Bickmore Warehouse	General Light Industrial	51.030	TSF
		Business Park	110.620	TSF
C7	Kimball Business Park	Business Park	146.550	TSF
60	Chaffey College Expansion	Junior/Community College	93.50	AC
0	College Park Commercial	Shopping Center	7.50	AC
C9	Chino Parcel Delivery	Parcel Delivery Facility	765.274	TSF
		Warehousing	715.000	TSF
C10	Altitude Dusiness Cantus	Light Industrial	255.000	TSF
C10	Altitude Business Centre	Business Park	233.000	TSF
		Self-Storage	110.000	TSF
		Specialty Retail	25.000	TSF
C11	Majestic Gateway	Pharmacy/Drugstore with Drive-Thru	13.000	TSF
		Fast-Food with Drive-Thru	8.600	TSF
		SFDR	106	DU
C12	Bouma Residential	Condo/Townhouse	94	DU
C13	Fairfield Inn & Suites (PL 17-0060 & PL 17-0061)	Hotel	111	RM
C14	Watson Industrial Park (40% complete)	High-Cube Warehouse	3,889.900	TSF
		General Light Industrial	165.500	TSF
C15	Chino Business Park	Business Park	21.500	TSF
		Shopping Center	4.000	TSF
C16	Flores Site	Gas Station w/ convenience store	16	VFP
		Express Car Wash	5.000	TSF
C17	Brewart Residential (Stonebrook - TM 18923)	SEDR	127	DU
C18	Archibald's (PL 17-0037)	Fast-Food with Drive-Thru	3.147	TSF
C19	TM 18972 (80% complete)	SEDR	147	יוס. ווס
		SEDR	601	
		Condo/Townhouse	127	
C20	Rancho Miramonte	Noighborhood Potail	21 720	TSE
		Church	21.780	
		Church	400	SEAT



Table 4-3

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Cumulative Development Land Use Summary

#	Project/Location	Land Use ¹	Quantity	Units ²
		SFDR	552	DU
624		Public Park	3.0	AC
C21	Pines Community	Sports Park	41.8	AC
		Self-Storage & RV Storage	120.000	TSF
C 22	Church	Church	47.979	TSF
CZZ	church	Daycare	190	STU
C 22	Appacatche Pacidential	SFDR	60	DU
C23	Appesetche Residential	Condo/Townhouse	160	DU
C24	Tract 10051 10052 10052 10025 & 18470	SFDR	151	DU
C24	11aCt 19951, 19952, 19953, 19935 & 18479	Condo/Townhouse	150	DU
C25	Ag. Buffer, Bungalow, Lic. Product, Liberty Deluxe, Lyon 2 & 3	SFDR	474	DU
	City of Ea	istvale		
		Warehousing	336.501	TSF
		Shopping Center	4.750	TSF
		Supermarket	30.000	TSF
		Gas Station w/ convenience store	16	VFP
E1	The Merge	Pharmacy/Drugstore with Drive-Thru	14.600	TSF
		Fast-Food with Drive-Thru	6.000	TSF
		Automated Car Wash	4.000	TSF
		Fast-Food Without Drive-Thru	7.750	TSF
		Coffee/Donut Shop With Drive-Thru	2.500	TSF
E2	TR29997	SFDR	122	DU
E3	13-0632 - Sumner Residential (Stratham Homes)	SFDR	129	DU
E4	TR35751	Condo/Townhouse	243	DU
E5	PP23219 (PM35865) (50% complete)	General Light Industrial	738.430	TSF
		Free-Standing Discount Superstore	192.000	TSF
		Specialty Retail	9.200	TSF
		Fast-Food Without Drive-Thru	7.200	TSF
E6	Eastvale Shopping Center	Coffee/Donut Shop w/ Drive Thru	2.000	TSF
		Fast-Food with Drive-Thru	3.500	TSF
		Gas Station w/ convenience store and car wash	16	VFP
E7	Van Leeuwen	SFDR	224	DU
		Shopping Center	267.200	TSF
E8	SP00358 - The Ranch at Eastvale	General Light Industrial	801.500	TSF
		Business Park	1,121.100	TSF
E9	SC Limonite, LLC	SFDR	330	TSF
	City of O	ntario		
		SFDR	437	DU
01	Parkside	Multi-Family Attached (Apartments)	1,510	DU
		Shopping Center	115.000	TSF
0.2	Subarra 20.8 Amondar and (400/ some lists)	SFDR	2,149	DU
02	subarea 29 & Amendment (40% complete)	Shopping Center	87.000	TSF
02	Colony Commence West	High-Cube Warehouse	2213.360	TSF
03	Colony Commerce West	Manufacturing	737.786	TSF
		High-Cube Warehouse	1976.535	TSF
04	West Ontario Commerce Center SP	Manufacturing	658.845	TSF
		Business Park	548.856	TSF



Table 4-3

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Cumulative Development Land Use Summary

#	Project/Location	Land Use ¹	Quantity	Units ²
		High-Cube Warehouse	998.680	TSF
05	Colony Commerce East	Manufacturing	233.129	TSF
		Warehousing	699.387	TSF
06	Marrill Commarca Cantor	High-Cube Fulfillment Warehouse	7014.000	TSF
00		Business Park	1441.000	TSF
		SFDR	270	DU
07	Paranta Home Panch SP	Condo/Townhouse	1,872	DU
07		General Office	462.281	TSF
		Shopping Center	194.278	TSF
		High-Cube Cold Storage Warehouse	1159.200	TSF
08	Ontario Ranch Commerce Center	Warehousing	337.600	TSF
		Business Park	290.200	TSF
	City of Chi	ino Hills		
CH1	Vila Borba Specific Plan (TR 16414)	SFDR	172	DU
CH2	Country Club Villas	Condo/Townhouse	46	DU
CH3	Crossings at Chino Hills	Apartments	346	DU
CH4	The Goddard School	Daycare	10.587	TSF
CH5	Indus Light Industrial	General Light Industrial	100.330	TSF
		Condo/Townhouse - Low Rise	138	DU
CH6	The Santa Barbara	Condo/Townhouse - Mid Rise	186	DU
		Shopping Center	15.700	TSF
		Hospital	55.000	TSF
		Medical Office Building	86.952	TSF
CH7	Heritage Professional Center	Hotel	120	RM
		Shopping Center	38.848	TSF
		Restaurant	7.200	TSF

¹ SFDR = Single Family Detached Residential

 2 TSF = Thousand Square Feet; DU = Dwelling Unit; VFP = Vehicle Fueling Position ; AC = Acres

³ Source: Altfillisch Residential Project TIA Memorandum, LSA Associates, Inc., July 25, 2011.



The refined future peak hour approach and departure volumes obtained from the model output data are then entered into a spreadsheet program consistent with the National Cooperative Highway Research Program (NCHRP Report 255), along with initial estimates of turning movement proportions. A linear programming algorithm is used to calculate individual turning movements which match the known directional roadway segment forecast volumes computed in the previous step. This program computes a likely set of intersection turning movements from intersection approach counts and the initial turning proportions from each approach leg.

The SBTAM uses an AM peak period-to-peak hour factor of 0.35 and a PM peak period-to-peak hour factor of 0.27. These factors represent the relationship of the highest single AM peak hour to the modeled 3-hour AM peak period (an even distribution would result in a factor of 0.33) and the highest single PM peak hour to the modeled 4-hour PM peak period (an even distribution would result in a factor of 0.25). The model data from RivTAM represents peak hour data and therefore did not require adjustments.

Typically, the model growth is prorated and is subsequently added to the existing (base validation) traffic volumes to represent Horizon Year traffic conditions. In an effort to conduct a conservative analysis, reductions to traffic forecasts from either Existing or Opening Year Cumulative traffic conditions were not assumed as part of this analysis. As such, in conjunction with the addition of cumulative projects that are not consistent with the General Plan, additional growth has also been applied on a movement-by-movement basis, where applicable, to estimate reasonable Horizon Year (2040) forecasts. Horizon Year (2040) turning volumes were compared to Opening Year Cumulative (2022) volumes in order to ensure a minimum growth as a part of the refinement process. The minimum growth includes any additional growth between Opening Year Cumulative (2022) and Horizon Year (2040) traffic conditions that is not accounted for by the traffic generated by cumulative development projects and ambient growth rates assumed between Existing (2019) and Opening Year Cumulative (2022) conditions. Adjustments have not been made to study area intersections that may be affected by new future roadway connections (such as the extension of Pine Avenue or the extension of Kimball Avenue/Limonite Avenue), where travel patterns would likely get affected and forecasts may potentially decrease from the Opening Year Cumulative conditions. Future estimated peak hour traffic data was used for new intersections and intersections with an anticipated change in travel patterns to further refine the Horizon Year (2040) peak hour forecasts.

The future Horizon Year (2040) Without Project peak hour turning movements were then reviewed by Urban Crossroads, Inc. for reasonableness, and in some cases, were adjusted to achieve flow conservation, reasonable growth, and reasonable diversion between parallel routes. Flow conservation checks ensure that traffic flow between two closely spaced intersections, such as two adjacent driveway locations, is verified in order to make certain that vehicles leaving one intersection are entering the adjacent intersection and that there is no unexplained loss of vehicles. The result of this traffic forecasting procedure is a series of traffic volumes which are suitable for traffic operations analysis.



The SBTAM and RivTAM do not include a truck component or have data that is unusually low. As such, in an effort to conduct a conservative analysis, the presence of trucks has been accounted for based on the manual volume adjustments made to demonstrate growth above Opening Year Cumulative (2022) traffic forecasts, which are presented and evaluated in PCE (see Section 3.7 *Existing (2019) Traffic Counts* for discussion on PCE). As such, the Horizon Year (2040) forecasts are also assumed to be in PCE for the purposes of this analysis. Post-processing worksheets for Horizon Year (2040) without Project traffic conditions are provided in Appendix 4.1.



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5 CONSTRUCTION TRAFFIC

Traffic operations during the proposed construction phase of the Project may result localized short-term traffic impacts caused by vehicle trips associated with construction employees, import of soil, import of construction materials, etc.

5.1 EMPLOYEE TRIPS

Employee trips are estimated based on the number of employees anticipated to be on-site throughout the various stages of construction. Each employee is assumed to drive to and from the construction site each day. It has been assumed that employees will arrive up to 30 minutes prior to the workday and will leave up to 30 minutes after the workday ends. Initially, parking for employees and non-employee vehicles can be accommodated on-site near the construction staging area. Once the on-site roadway network is constructed, employee parking can be accommodated on-site.

It is anticipated that the majority of employees would arrive and depart from the site between 5:00 and 6:00 PM for nighttime hauling or between 6:00 and 7:00 AM for daytime hauling. Employee trips are based on the number of employees estimated to be on site during different points throughout the project. The potential impacts resulting from construction-related parking and employee trips are considered less than significant during the peak hours.

5.2 EXCESS FILL DIRT SITES

The 96.9-acre Project site is located at the southeast corner of Mountain Avenue and Bickmore Avenue in the City of Chino and is generally below the 566 Elevation. In order for the Project to be able to be constructed and occupied, it requires that dirt be imported to raise the proposed building Finish Floor elevations so that they are 567-feet above mean sea level. To accomplish this, five nearby borrow sites (or "Excess Fill Dirt Sites") have been identified that can provide export to be used as import for the Project. The order in which soil will be imported from the Excess Fill Dirt Sites is as follows (see Exhibit 5-1):

- Excess Fill Dirt Site #1
- Excess Fill Dirt Site #3
- Excess Fill Dirt Site #4
- Excess Fill Dirt Site #5
- Excess Fill Dirt Site #2

It is our understanding, based on information from the Project Applicant, that import activities from the Excess Fill Dirt Sites will not overlap with another (i.e., hauling activity at one site is independent from other sites). Soil import activity could occur during typical construction daytime (7:00 AM - 3:00 PM) or off-peak/nighttime (6:00 PM - 2:00 AM) hours. Notwithstanding, the off-road construction equipment is not anticipated to operate for more than 8 hours per day.





EXHIBIT 5-1: EXCESS FILL DIRT SITE LOCATION MAP



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Construction of the Project will require the import of approximately 852,021 cubic yards of soil from nearby Excess Fill Dirt Sites. It is estimated that 522-600 haul truck loads will be required per day for the duration of soil import activities. Each truck will generate one inbound and one outbound trip, accounting for a total of two truck trips per load of material imported. Thus, a total of 1,044 to 1,200 haul trucks (two-way) per day will be generated, which translates to approximately 131-150 haul trips (two-way) per hour (see Table 5-1). In the event that soil import activity is to occur during peak periods, hauling activity should be limited to no more than 16 trucks trips per hour (8 trucks in and 8 trucks out) during the hours of 6:00 AM to 9:00 AM and 3:00 PM to 6:00 PM to ensure that haul activity would not significantly impact study area intersections along the haul route.

As shown on Table 5-1, the following cubic yards of soil will be imported to the site from each of the Excess Fill Dirt Sites:

- Excess Fill Dirt Site #1: 437,680 cubic yards of soil over 55 days
- Excess Fill Dirt Site #3: 161,228 cubic yards of soil over 22 days
- Excess Fill Dirt Site #4: 168,261 cubic yards of soil over 21 days
- Excess Fill Dirt Site #5: 42,558 cubic yards of soil over 6 days
- Excess Fill Dirt Site #2: 42,294 cubic yards of soil over 6 days

The soil import values shown above are the maximum that have been considered for the purposes of this TIA. Actual import of soil may be less than those shown above.

5.3 HEAVY EQUIPMENT

Heavy equipment to be utilized on-site during construction include, but is not limited to: flat beds, dozers, scrapers, graders, track hoes, dump trucks, forklifts, cranes, cement trucks, pavers, rollers, water trucks, rolling container trucks and bobcats. Heavy equipment will be delivered and removed from the site throughout the construction phase. As most heavy equipment is typically not an authorized vehicle to be driven on a public roadway, most of the equipment will be delivered and removed from the site via large flatbed trucks. It is anticipated that delivery of heavy equipment would not occur on a daily basis, but rather periodically throughout the construction phase based on need.

The delivery and removal of heavy equipment is recommended to occur outside of the morning and evening peak hours in order to have nominal impacts to traffic and circulation near the vicinity of the Project. In order to minimize the impact of construction truck traffic to the surrounding roadway network, it is recommended that trucks utilize the most direct route between the site and the SR-71 Freeway via Euclid Avenue (SR-83). With the application of these measures, it is anticipated that traffic impacts associated with the delivery and removal of heavy equipment are less than significant.



Table 5-1

Import Operation by Excess Fill Dirt Site

	Nighttime Ha	auling	Daytime Ha	uling	Excess Fill Dirt (CY of	Trucks Per Day	Total Trucks per	Two-way Truck
Site	Hours	Duration	Hours ⁴	Duration	Import)	(one-way) ¹	Hour ²	Trips per Hour ³
1	6:00 PM to 2:00 AM	55 Nights	7:00 AM to 3:00 PM	55 Days	437,680	589	74	147
3	6:00 PM to 2:00 AM	22 Nights	7:00 AM to 3:00 PM	22 Days	161,228	543	68	136
4	6:00 PM to 2:00 AM	21 Nights	7:00 AM to 3:00 PM	21 Days	168,261	594	74	148
5	6:00 PM to 2:00 AM	6 Nights	7:00 AM to 3:00 PM	6 Days	42,558	525	66	131
2	6:00 PM to 2:00 AM	6 Nights	7:00 AM to 3:00 PM	6 Days	42,294	522	65	131

¹ [Excess Fill Dirt / Duration] / 13.5 cubic yards per truck

² [Trucks Per Day / 8 hours]

 $^{\rm 3}$ [Trucks Per Day / 8 hours] x 2 trips (one trip in and one trip out)

⁴ In order to keep traffic impacts to less than significant during the AM peak hour, the Project shall limit trips to less than 50 two-way peak hour trips during the hours of 7:00 AM to 9:00 AM.



5.4 CONSTRUCTION MITIGATION MEASURES

Based on the haul routes between the Project site and each of the Excess Fill Dirt Sites (see Exhibit 5-2), if hauling activity is not limited during normal construction hours (outside of the morning and evening peak periods), the following intersections may potentially be impacted by haul trucks during the soil import phase:

- El Prado Road & Mountain Avenue (#14)
- El Prado Road & Pine Avenue (#15)
- Euclid Avenue (SR-83) & Pine Avenue (#30)
- Rincon Meadows Avenue & Pine Avenue (#32)
- Mill Creek Avenue/Chino Corona Road & Pine Avenue (#34)
- Cucamonga Avenue & Chino Corona Road (#35)
- W. Preserve Loop & Pine Avenue (#36)
- E. Preserve Loop & Pine Avenue (#39)
- Hellman Avenue & Pine Avenue (#41)

However, the following mitigation measures would ensure that traffic impacts at the aforementioned intersections would be less than significant for the morning and evening peak periods (6:00 AM - 9:00 AM and 3:00 PM - 6:00 PM) during hauling activity:

Mitigation Measure 4.1 – The Project Applicant will be required to develop and implement a City-approved Construction Traffic Management Plan addressing potential construction-related traffic detours and disruptions. In general, the Construction Traffic Management Plan would ensure that to the extent practical, construction traffic would access the Project site during off-peak hours or limited access during the peak hours; and that construction traffic would be routed to avoid travel through, or proximate to, sensitive land uses.

Mitigation Measure 5.1 – The delivery and removal of heavy equipment is recommended to minimize the heavy truck activity during the morning and evening peak periods (6:00 AM to 9:00 AM and 3:00 PM to 6:00 PM) in order to have nominal impacts to traffic and circulation near the vicinity of the Project.

Mitigation Measure 6.1 – During the site grading, the Project shall limit soil import activity between the Project site and excess dirt fill sites during the hours of 6:00 AM - 9:00 AM (morning peak period) and 3:00 PM - 6:00 PM (evening peak period) to fewer than the equivalent of 50 passenger car equivalent (PCE) truck trips per hour. 50 PCE truck trips equates to approximately 16 total trucks (8 trucks in and 8 trucks out) during the peak periods specified above in order to limit the potential impacts of haul truck activity during these busy commute times:

50 PCE truck trips / 3.0 PCE factor = 16 total trucks during the peak hour





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EXHIBIT 5-2 (10F2): HAUL ROUTES BETWEEN THE PROJECT AND EXCESS FILL DIRT SITES

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6 E+P TRAFFIC CONDITIONS

This section discusses the traffic forecasts for Existing plus Project (E+P) conditions and the resulting intersection operations, freeway mainline operations, and traffic signal warrant analyses.

6.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for E+P conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

• Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for E+P conditions only (e.g., intersection and roadway improvements at the Project's frontage and driveways).

6.2 E+P TRAFFIC VOLUME FORECASTS

This scenario includes Existing traffic volumes plus Project traffic. Although the Project is anticipated to be developed in a single phase, Building 1 has been evaluated separately for E+P traffic conditions for the purpose of identifying potential traffic impacts for Building 1 only.

The ADT volumes which can be expected for E+P (Building 1) traffic conditions are shown on Exhibits 6-1. E+P (Building 1) weekday AM and PM peak hour intersection turning movement volumes are shown on Exhibits 6-2.

The ADT volumes which can be expected for E+P (Project Buildout) traffic conditions are shown on Exhibits 6-3. E+P (Project Buildout) weekday AM and PM peak hour intersection turning movement volumes are shown on Exhibits 6-4.

6.3 INTERSECTION OPERATIONS ANALYSIS

E+P (Building 1) peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2 *Methodologies* of this TIA. The intersection analysis results are summarized on Table 6-1, which indicate that there are no additional study area intersections that are anticipated to operate at an unacceptable LOS, in addition to those identified for Existing traffic conditions. However, the Project (Building 1) is anticipated to contribute less than 50 peak hour trips to the following locations, resulting in a less than significant impact:

- Euclid Avenue (SR-83) & Riverside Drive (#22)
- Archibald Avenue & Schleisman Road (#43)

The intersection of Hellman Avenue and Kimball Avenue was not evaluated for E+P (Building 1) traffic conditions. Consistent with Table 6-1, a summary of the peak hour intersection LOS for E+P conditions is shown on Exhibit 6-5 for E+P (Building 1) traffic conditions. The intersection operations analysis worksheets for E+P (Building 1) traffic conditions are included in Appendix 6.1 of this TIA.





EXHIBIT 6-1: E+P (BUILDING 1) AVERAGE DAILY TRAFFIC (ADT) (IN PCE)

10.0 = VEHICLES PER DAY (1000'S)



1	SR-7 Soquel (l SB Ramps & Canyon Pkwy.	2	SR-7	1 SB Ramps & Pine Av.	3 SR-71 SB Ramps/ Shady View Dr. & Butterfield Ranch Rd.		4	4 SR-71 NB Ramps & Central Av.		5 SR [.]	71 NB Ramps & Pine Av.		
1403	↓ + 16(826) + 1	السي 182(270) ←686(785)	2040 Analysis Location Only			686	$(82) = \frac{-40(67)}{-40(67)} + \frac{-40(67)}{-60} + \frac{-26(66)}{-60} + \frac{-26(66)}{-60} + \frac{-26(66)}{-60} + \frac{-26}{-60} + \frac{-26}{-60}$	$\begin{array}{c} 13(17) \\ -13(17) \\ $	-984(706) 803(914) 1134(1399)→ ↑ ↑ 778(425) ↑ 150 500 500			2040 Analysis Location Only		
6	SR-7 Eucl	NB Ramps & id Av. (SR-83)	7	r Central Av. & El Prado Rd.		8 El Prado Rd. & Kimbali Av.		9 Mountain Av. & Kimball Av.			10 Mountain Av. & Bickmore Av.			
658 289	(806) → (150)→	+ 925(968) + 740(355) + (121) + (122) + (12		$\begin{array}{c c} & -11(18) \\ \hline & -11(18) \\ \hline & -695(847) \\ \hline & -695(847) \\ \hline & -259(617) \\ \hline \end{array}$	$\begin{array}{c} -515(473) \\ +4(3) \\ -765(596) \\ +(252)118 \\ -765(296) \\ +(252)118 \\ -765(296) \\ -766(296) \\ -76$	2	(11) (11)	-769(755) +16(5) -31(25) -(192)922 (7)922	320(118	907)→ (56)→	+ 716(651) €8(23) (85	+ 42(22)	(0+) (c → 176(57) (95)22 (95)21 (
11	М	ountain Av. & Dwy. 1	12	М	ountain Av. & Dwy. 2	13	М	ountain Av. & Dwy. 3	14	E	l Prado Rd. & Mountain Av.	15	El Prado Rd. & Pine Av.	
	←110(42) ←23(12)	↓_7(30) ↓_0(0) ↓_(00) ↓_(00) ↓ (901))E		+-58(19) f-52(23)	16(46) 12((13) 12((13))		Do N Ex	oes ot ist		←112(475) ←19(36)	53(14) 13(38) → (12) - (12	(i)0 0(0)- 0(1)-	 	
16		Dwy.4& Bickmore Av.	17		Dwy. 5 & Bickmore Av.	18		Dwy. 6 & Bickmore Av.	19	Euclid SR-6	Av. (SR-83) & 0 WB Ramps	20 Eucli S	d Av. (SR-83) & R-60 EB Ramps	
		← 267(89) _f —23(12)			←290(100) r6(2)			←296(103) r6(2)		⁴ —470(473) ≁−950(968)	4—408(392) 4—6(6) ∲—606(586)	+-1193(1195)	(loc)coc J	
53	(126) → 0(0)—,	0(0)_≁ √_(30)_	60	(157) → 0(0)	0(0) 2(6)	62	(162) → 0(0)—,	0(0)_4 2(6)_			335(240)	404(400)– 2(3)– 295(309)–	835(878)+ 660(567)-	
21	Euclid	Av. (SR-83) & Wainut Av.	22	Euclid	Av. (SR-83) & Riverside Dr.									
113 289 110	$\begin{array}{c} -1152(100) \\ -1152(1071) \\ -1152(1071) \\ -1152(1071) \\ -150(253) \end{array}$	7264(132) + 126(1784) + 126(1784) + 126(1784) + 126(1784) + 126(1784) + 126(1766) + 126(153 311 5	(+) (+) (+) (+) (+) (+) (+) (+) (+) (+)	↓ 115(62) ↓ 488(393) ↓ 188(178) ↓ (2001)916 ↓ (2001)916 ↓ (2011)916 ↓ (2011)		LE(10(1	jend: 10) - Am(pm) PEA	k houf	RINTERSECT	'ION VOLU	IES	

EXHIBIT 6-2 (10F2): E+P (BUILDING 1) TRAFFIC VOLUMES (IN PCE)



23	Euclid A	Av. (SR-83) & Chino Av.	24	Euclid	Av. (SR-83) & Schaefer Av.	25 Euclid Av. (SR-83) & Edison Av.		26	Euclid Av. (SR-83) Eucalyptus A	& 27	/ Euclid Av. (SR-83) & E. Facility Dr./ Merrill Av.			
10	$\begin{array}{c c} & -92(69) \\ \hline & -1035(1011) \\ \hline & -56(24) \\ \hline & -66(24) \\ \hline & -$	-51(9) -151(108) -72(75)	153	$ \begin{array}{c c} & & & \\ & & & \\ & & & \\ & & & \\ $	 ▲ 11(25) ▲ 177(64) ✓ 140(76) ▲ ▲ 	156	$\begin{array}{c c} \hline \hline \\ $	 €-63(34) €-416(252) €-35(40) € 	6	(29) (29) (29) (21)		$\begin{array}{c c} (0) & (1) & (1) \\ (1) & (1) & (1) \\ (1) & (1) \\ (1) & (1) \\ (1) & (1) \\ (1) & (1) \\ (1)$		
165	(273)→ 7(47)→	46(39) 979(1194) 129(220)	73 58	8(276)→ 8(178)→	102(82) 943(1122) 35(80)	237 98	(463)→ (279)→	208(140) 878(1074) 38(70)	25 152	25(157)→ 152(203) (*01)021 (*01)0		8(29) → 10(12) 10(1) 11(122) 11(1276) 141(226)		
28	Euclid A	v. (SR-83) & Kimball Av.	29	Euclid	Av. (SR-83) & Bickmore Av.	30	Euclid	Av. (SR-83) & Pine Av.	31	Rincon Meadows A & Kimball A	.v. 32 .v.	Rincon Meadows Av. & Pine Av.		
125	(072) ((05 1) (15 1		$\begin{array}{c} \widehat{(1)} \\ \widehat{(2)} \\ (2)$			2040 Analysis Location			Future Intersection			
223	(743)→ (743)→ (2(45)→	84(60) 714(840)→ 29(38)	97 27 27	0(156) 0(102)→ 33(95)→	60(38)− 546(617)→ 20(73)−	177 4	8(5)— (441) — 9(98)—	58(57)- 631(670)→ 650(1061)-		Only				
33	Mill	Creek Av. & Kimball Av.	34	N Chino	/ill Creek Av./ Corona Rd. & Pine Av.	35	Chino Cuca Chir	Corona Rd. / amonga Av. & 10 Corona Rd.	36	W. Preserve Loop Pine A	& 37	/ Main St. & Kimball Av.		
2040 Analysis Location Only		$\begin{array}{c} \left(\begin{array}{c} \widehat{\mathbf{E}} & \widehat{\mathbf{G}} & \widehat{\mathbf{E}} \\ \widehat{\mathbf{E}} & \widehat{\mathbf{G}} & \widehat{\mathbf{E}} \\ \widehat{\mathbf{E}} & \widehat{\mathbf{E}} & \widehat{\mathbf{E}} \\ \widehat{\mathbf{E}} & \widehat{\mathbf{E}} & \widehat{\mathbf{E}} \\ \widehat{\mathbf{E}} & \widehat{\mathbf{E}} & \widehat{\mathbf{E}} \\ \widehat{\mathbf{F}} & \widehat{\mathbf{E}} & \widehat{\mathbf{E}} \\ \widehat{\mathbf{F}} & \widehat{\mathbf{E}} & \widehat{\mathbf{E}} \\ \widehat{\mathbf{F}} & \widehat{\mathbf{F}} & \widehat{\mathbf{E}} \\ \widehat{\mathbf{F}} & \widehat{\mathbf{F}} & \widehat{\mathbf{E}} \\ \widehat{\mathbf{F}} & \widehat{\mathbf{E}} & \widehat{\mathbf{E}} \\ \widehat{\mathbf{F}} & \widehat{\mathbf{E}} & \widehat{\mathbf{E}} \\ \widehat{\mathbf{F}} & \widehat{\mathbf{F}} & \widehat{\mathbf{E}} \\ \widehat{\mathbf{F}} & \widehat{\mathbf{E}} \\ \widehat$		Construction Analysis Only			2 760((7) (7) (7) (7) (7) (7) (7) (7)	2)	2040 Analysis Location Only				
38		Flight Av. & Kimball Av.	39	E. Pre	serve Loop & Pine Av.	40	ŀ	lellman Av. & Kimball Av.	41	Hellman Av. Pine Av Schleisman R	& 42 ./ d.	Archibald Av. & Limonite Av.		
2040 Analysis Location Only		814(1599)→ 28(49)→	+1615(581) -17(17) -(02)25 -1002	2040 Analysis Location Only		40 Iysis ation Ily	3 448(459	$\begin{array}{c} (0) \\ (0) \\ (0) \\ (1) \\$) 7)	-472(842) -189(519) -284(348) -284(348) -1275)652 -1275 -127			
43	Arc Sci	:hibald Av. & hleisman Rd.												
389 375 114	(000000000000000000000000000000000000	↓ 137(55)		LE(10(1	јенд: 10) - ам(рм) PEA	ik houf	RINTERSECT	'ION '	VOLUMES				

EXHIBIT 6-2 (20F2): E+P (BUILDING 1) TRAFFIC VOLUMES (IN PCE)





EXHIBIT 6-3: E+P (PROJECT BUILDOUT) AVERAGE DAILY TRAFFIC (ADT) (IN PCE)

10.0 = VEHICLES PER DAY (1000'S)



1	SR-7 Soquel (1 SB Ramps & Canyon Pkwy.	2	SR-7	1 SB Ramps & Pine Av.	3 SR-71 SB Ramps/ Shady View Dr. & Butterfield Ranch Rd.		4	4 SR-71 NB Ramps & Central Av.		5 SR-7	1 NB Ramps & Pine Av.	
14	(£28) (928) 91£↓↓ 93(67) 93(67)	€_182(270) - 6 87(788)		20 Ana Loca Oi	140 Iysis ation niy	687 3	$\begin{array}{c} -40(67) \\ -40(67) \\ -40(67) \\ -40(67) \\ -40(66) \\ -26(66) \\ -628(629) \\$	$\begin{array}{c} & 0(0) \\ + 275(255) \\ \hline 195(121) \\ \hline 195(121) \\ \hline 195(121) \\ \hline 1000 $	1161(⁷ 778	1410)→ (425)→	-991(733) +804(917) -14 -14 -14 -14 -14 -14 -14 -14 -14 -14	20 Ana Loca Oi	140 Iysis ation niy
6	SR-7 Euc	I NB Ramps & IId Av. (SR-83)	7		Central Av. & El Prado Rd.	8	E	i Prado Rd. & Kimball Av.	9	М	ountain Av. & Kimball Av.	10 ^M	ountain Av. & Bickmore Av.
65 28	9(807)→ 9(150)→	←931(992) ←740(355) ←(ZZ6)ZL9		$ \begin{array}{c} \begin{array}{c} & -11(18) \\ (8)1 & -695(847) \\ (2)1 & -695(847) \\ (2)1 & -266(620) \end{array} \end{array} $	↓_516(481) ↓ 4(3) ↓ 773(627) ↓ (252)118 (9)2	2	$(1) = \frac{1}{2} + \frac{1}{2} $	-7777(787) + 16(5) - 31(25) - (892)8(28) - (892)8(28) - (892)8(28) - (900) - (900) - (900) - (100) -	320(1 145	907) → (68)— _¥	←716(651) ←70(24) ←(88) 75 75 75 75 75 75 75 75 75 75	+-71(36) }-37(46)	↓ 176(57) ↓ 126(47) ↓ (07) ↓ (07) 06)0E
11	М	ountain Av. & Dwy. 1	12	М	ountain Av. & Dwy. 2	13	М	ountain Av. & Dwy. 3	14	E	i Prado Rd. & Mountain Av.	15 ⁱ	I Prado Rd. & Pine Av.
	+-164(66) +-33(17)	↓_10(42) ↓_0(0) ↓_(100) ↓_		+-74(26) 90(40)	21(65) 21(65) 24(11) 24(11) 24(11) 25		+-65(48) +-16(7)	40(57)→ 25(11)→ 25(11)→ 25(11)→ 25(11)→ 25(11)→ 25(11)→ 25(11)→ 25(11)→ 25(12))→ 25(12)→ 25(12))> 25		+-112(475) +-24(39)	259(115) 259(115) 118(22) 1	000 (1)00 + ↓ ← 240(532)	€_357(120) - 0(0)
16	5	Dwy. 4 & Bickmore Av.	17		Dwy. 5 & Bickmore Av.	18		Dwy. 6 & Bickmore Av.	19	Euclid SR-6	Av. (SR-83) & O WB Ramps	20 Euclid SR	Av. (SR-83) & 60 EB Ramps
		←302(104) √─41(21)			343(125) √8(3)			←351(128) √─8(3)		▲470(473) ≁-952(969)	4—408(392) - 6 (6) ∳—618(591)		
6	3(166)→ 0(0)→	0(0) 12(53)	76	(219)→ 0(0)→	0(0) 2(8)	78((227) → 0(0)—	0(0) 2(8)			336(245)_∮ 903(1040)→	404(400)→ 2(3)→ 300(311)→	837(886) - 664(579) ₇
21	Euclid	Av. (SR-83) & Walnut Av.	22	Euclid	Av. (SR-83) & Riverside Dr.								
1 ⁷ 28 1 ⁷	$(+1172(1079)) \xrightarrow{-1}{-1} (-1172(1079)) \xrightarrow{-1} (-1172(1079)$	204(135) + 307(356) + 71(67) + (1021)54 (102)554 (102)554 (102)555 (102)555 (102)555 (102)55	153 31 ⁴	$(132) \xrightarrow{+}{-} (132) \xrightarrow{+}{-} (132) \xrightarrow{+}{-} (132) \xrightarrow{+}{-} (132) \xrightarrow{+}{-} (132) \xrightarrow{+}{-} (133) \xrightarrow{+} (1$	(22) (22)		LE(10(1	JEND: 10) - ам(рм) PEA	k houi	RINTERSECT	ION VOLUM	ES

EXHIBIT 6-4 (10F2): E+P (PROJECT BUILDOUT) TRAFFIC VOLUMES (IN PCE)



23	Euclid Av. (SR-83) & Chino Av		24 Euclid Av. (SR-83) & Schaefer Av.		Av. (SR-83) & Schaefer Av.	25 Euclid Av. (SR-83) & Edison Av.		26	26 Euclid Av. (SR-83) & Eucalyptus Av.			27 Euclid Av. (SR-8 E. Facility Merri			
	+ −92(69) + 1057(1020) + −56(24)	-51(9) -151(108) -73(76)		← 122(111) ← 966(1038) ← 29(28)	←11(25) ←177(64) ←140(76)		<pre></pre>	€-63(34) -416(252) -36(41)		← 40(62) + -1011(1263) 22(44)	4_37(9) ←151(21) ←32(8)		-39(1) -1041(1181) -120(251)	←228(136) ←48(2) ←228(185)	
10 165 3	4(93) <i>→</i> (273)→ 7(47)→	46(39) 986(1218)→ 129(221)	153 73 58	(280) <i>-</i> -≯ (276)→ (178)	102(82) 949(1147) 35(80)	156 237 99	(265) <i>→</i> (463)→ (280)→	208(141) 	6 25 153	67(37) 25(157)→ 153(204)→ (901)021 (911)21			4(11) 8(29)→ 17(12)	1031(1204)→ 1031(1204)→ 141(228)	
28	Euclid /	Av. (SR-83) & Kimball Av.	29	Euclid	Av. (SR-83) & Bickmore Av.	30	Euclid	Av. (SR-83) & Pine Av.	31	Rincon	Meadows Av. & Kimbali Av.	32	Rincon	Meadows Av. & Pine Av.	
125	(0225) (022)		$ \begin{array}{c} \widehat{(25)} \\ \widehat{(25)} $		$\begin{array}{c} \begin{array}{c} & & & \\ & & & & \\ & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & \\ & & & & \\ & & & \\ & & & & \\ & & & & \\ & & & & \\ & $			2040 Analysis Location				Fut Inters	ture section		
223	(743) → 2(45) →	84(60)- 721(870)- 29(40)-	10 40	(107) → (107) → (126)—	86(50)- 546(617)- 20(73)-	180 51	(453) → (104) →	63(60)- 646(676)- 650(1061)-		O	nly				
33	33 Mill Creek Av. & Kimball Av.		34	N Chino	/ill Creek Av./ Corona Rd. & Pine Av.	35 Chino Corona Rd. / Cucamonga Av. & Chino Corona Rd.		36 W. Preserve Loop & Pine Av.		37	7 Main St. Kimball A				
2040 Analysis Location Only			$\begin{array}{c} \widehat{(1,0)} \\ (1$			Construction Analysis Only			(† 1) († 2) († 2) (2040 Analysis Location Only		
38		Flight Av. & Kimball Av.	39 E. Preserve Loop & Pine Av.			40 Hellman Av. & Kimball Av.			41 Hellman Av. & Pine Av./ Schleisman Rd.			42	Ar	chibald Av. & Limonite Av.	
	2040 Analysis Location Only		+-1635(591) r −17(17) 820(1625)+ 28(49) 28(49) 28(5) 28(49) 30 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		2040 Analysis Location Only		3 454(459	(000) = 142(33) $(117) = 142(380)$ $(117) = 142(380)$ $(117) = 142(380)$ $(117) = 142(380)$	287(131) ← 1030(476) ← 778(36) ← (152)) 58 58 58 58 58 58 58 58 58 58		+-475(843) +180(519)	↓ 729(227) ↓ 297(347) ↓ (£95)/82 182 4 (£75) 182 182 182 182 182 182 182 182			
43	Ar Sc	chibald Av. & :hleisman Rd.													
393 375 115	(103) $(103$	↓ 137(55) + 703(309) ↓ 248(108) ↓ (601) 12(601) 12(601) 12(601) 12(601) 12(7)		LE(10(1	GEND: 10) - ам(рм) PEA	k houi	R INTERSECT	ION V	VOLUM	ES				

EXHIBIT 6-4 (20F2): E+P (PROJECT BUILDOUT) TRAFFIC VOLUMES (IN PCE)




EXHIBIT 6-5: E+P (BUILDING 1) SUMMARY OF LOS



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Intersection Analysis for E+P (Building 1) Conditions

			E	xisting (2019)		E	+P - Buil	ding 1		
			De	ay ¹	Leve	el of	De	lay ¹	Lev	el of	Acceptable
		Traffic	(se	cs.)	Ser	vice	(se	cs.)	Ser	vice	LOS
#	Intersection	Control ²	AM	РМ	AM	PM	AM	PM	AM	PM	
1	SR-71 SB Ramps & Soquel Canyon Rd.	TS	13.3	23.2	В	С	13.9	23.7	В	С	D
2	SR-71 SB Ramps & Pine Av.	TS	31.2	26.7	С	С	2040	Analysis	s Locat	ion	D
3	SR-71 SB Ramps & Butterfield Ranch Rd.	TS	40.0	39.6	D	D	40.0	39.7	D	D	D
4	SR-71 NB Ramps & Central Av.	TS	8.6	7.7	А	А	8.6	7.7	А	А	D
5	SR-71 NB Ramps & Pine Av.	AWS	9.3	8.9	А	А	2040	Analysis	s Locat	ion	D
6	SR-71 NB Ramps & Euclid Av. (SR-83)	TS	27.2	42.5	С	D	29.8	42.5	С	D	D
7	Central Av. & El Prado Rd.	TS	29.0	61.2	С	Е	29.8	64.6	С	Е	D
8	El Prado Rd. & Kimball Av.	TS	28.1	86.2	С	F	30.3	90.4	С	F	D
9	Mountain Av. & Kimball Av.	TS	7.4	9.7	А	А	7.8	10.4	А	В	D
10	Mountain Av. & Bickmore Av.	CSS	9.8	9.6	А	А	10.4	10.2	В	В	D
11	Mountain Av. & Driveway 1	<u>CSS</u>	Fut	ure Inte	rsectio	n	8.5	9.0	А	А	D
12	Mountain Av. & Driveway 2	<u>CSS</u>	Fut	ure Inte	rsectio	n	9.0	9.3	А	А	D
13	Mountain Av. & Driveway 3	<u>CSS</u>	Fut	ure Inte	rsectio	n	Fut	ure Inte	rsectio	n	D
14	El Prado Rd. & Mountain Av.	CSS	10.4	13.6	В	В	10.7	15.0	В	С	D
15	El Prado Rd. & Pine Av.	AWS	9.8	13.5	А	В	10.1	14.6	В	В	D
16	Driveway 4 & Bickmore Av.	<u>CSS</u>	Fut	ure Inte	rsectio	n	8.6	9.1	А	А	D
17	Driveway 5 & Bickmore Av.	<u>CSS</u>	Fut	ure Inte	rsectio	n	8.6	9.1	А	А	D
18	Driveway 6 & Bickmore Av.	<u>CSS</u>	Fut	ure Inte	rsectio	n	8.6	9.2	А	А	D
19	Euclid Av. (SR-83) & SR-60 WB Ramps	TS	22.3	18.6	С	В	22.6	18.9	С	В	D
20	Euclid Av. (SR-83) & SR-60 EB Ramps	TS	25.3	21.9	С	С	25.5	22.0	С	С	D
21	Euclid Av. (SR-83) & Walnut Av.	TS	30.1	32.5	С	С	30.2	32.6	С	С	E
22	Euclid Av. (SR-83) & Riverside Dr.	TS	47.0	55.5	D	Е	47.6	57.5	D	Е	D
23	Euclid Av. (SR-83) & Chino Av.	TS	21.5	23.2	С	С	21.6	23.3 C		С	D
24	Euclid Av. (SR-83) & Schaefer Av.	TS	23.6	26.2	С	С	24.0	26.6	С	С	D
25	Euclid Av. (SR-83) & Edison Av.	TS	38.1	39.7	D	D	38.8	40.4	D	D	D
26	Euclid Av. (SR-83) & Eucalyptus Av.	TS	13.8	13.2	В	В	14.0	13.3	В	В	D
27	Euclid Av. (SR-83) & Merrill Av.	TS	26.4	29.9	С	С	27.0	31.5	С	С	D
28	Euclid Av. (SR-83) & Kimball Av.	TS	32.4	38.3	С	D	32.8	39.6	С	D	D
29	Euclid Av. (SR-83) & Bickmore Av.	TS	16.3	14.0	В	В	17.3	15.3	В	В	D
30	Euclid Av. (SR-83) & Pine Av.	TS	31.9	61.5	С	Е	33.3	67.5	С	Е	D
31	Rincon Meadows Av. & Kimball Av.	TS	15.4	12.8	В	В	2040	Analysis	s Locat	ion	D
32	Rincon Meadows Av. & Pine Av.		Fut	ure Inte	rsectio	n	Fut	ure Inte	rsectio	n	D
33	Mill Creek Av. & Kimball Av.	TS	14.5	12.9	В	В	2040	Analysis	s Locat	ion	D
34	Mill Creek Av./Chino-Corona Rd. & Pine Av.	TS	27.1	12.2	С	В	27.1	12.3	С	В	D
35	Cucamonga Av. & Chino Corona Rd.	AWS	7.0	7.3	А	А	Constru	uction Lo	catior	Only	D
36	W. Preserve Loop & Pine Av.	TS	9.4	8.0	А	А	9.4	8.0	А	А	D
37	Main St. & Kimball Av.	TS	13.4	12.5	В	В	2040	Analysis	s Locat	ion	D
38	Flight Av. & Kimball Av.	CSS	21.0	20.5	С	С	2040	Analysis	s Locat	ion	D
39	E. Preserve Loop & Pine Av.	TS	8.5	7.2	А	А	8.5	7.2	А	А	D
40	Hellman Av. & Kimball Av.	TS	>200.0	77.9	F	F	2040	Analysis	s Locat	ion	D



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Intersection Analysis for E+P (Building 1) Conditions

			E	xisting (2019)		E	+P - Buil	ding 1		
			De	lay ¹	Lev	el of	De	ay ¹	Lev	el of	Acceptable
		Traffic	(se	cs.)	Ser	vice	(se	cs.)	Ser	vice	LOS
#	Intersection	Control ²	AM	PM	AM	PM	AM	PM	AM	PM	
41	Hellman Av. & Pine Av./Schleisman Rd.	TS	37.7	38.6	D	D	37.7	39.0	D	D	D
42	Archibald Av. & Limonite Av.	TS	48.0	29.6	D	С	48.0	30.8	D	С	D
43	Archibald Av. & Schleisman Rd.	TS	80.1	46.5	F	D	80.1	50.9	F	D	D

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

¹ Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

² CSS = Cross-street Stop; AWS = All-Way Stop; TS = Traffic Signal; <u>CSS</u> = Improvement



E+P (Project Buildout) peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2 *Methodologies* of this TIA. The intersection analysis results are summarized on Table 6-2, which indicate that there are no additional study area intersections that are anticipated to operate at an unacceptable LOS, in addition to those identified for Existing traffic conditions.

The intersection of Hellman Avenue and Kimball Avenue was not evaluated for E+P (Project Buildout) traffic conditions. Consistent with Table 6-2, a summary of the peak hour intersection LOS for E+P conditions is shown on Exhibit 6-6 for E+P (Project Buildout) traffic conditions. The intersection operations analysis worksheets for E+P (Project Buildout) traffic conditions are included in Appendix 6.2 of this TIA.

6.4 TRAFFIC SIGNAL WARRANTS ANALYSIS

There are no study area intersections anticipated to meet either peak hour or planning level (ADT) volume-based traffic signal warrants for E+P (Building 1) and E+P (Project Buildout) traffic conditions, in addition to those previously warranted under Existing (2019) traffic conditions (see Appendix 6.3 and Appendix 6.4).

6.5 OFF-RAMP QUEUING ANALYSIS

Queuing analysis findings for E+P traffic conditions are presented on Table 6-3. As shown on Table 6-3, there are no movements that are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows with addition of Project traffic (for both Building 1 and Project Buildout traffic conditions). Worksheets for E+P (Building 1) and E+P (Project Buildout) traffic conditions off-ramp queuing analysis are provided in Appendix 6.5 and Appendix 6.6, respectively.

6.6 FREEWAY FACILITY ANALYSIS

E+P (Building 1) mainline directional volumes for the AM and PM peak hours are provided on Exhibit 6-7. E+P (Project Buildout) mainline directional volumes for the AM and PM peak hours are provided on Exhibit 6-8. As shown on Table 6-4, no additional freeway segments or merge/diverge ramp junctions analyzed for this TIA were found to operate at an unacceptable LOS (i.e., LOS E or worse) during the peak hours for E+P traffic conditions, in addition to those previously identified under Existing (2019) traffic conditions. E+P (Building 1) and E+P (Project Buildout) freeway facility analysis worksheets are provided in Appendix 6.7 and Appendix 6.8, respectively.



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Intersection Analysis for E+P (Project Buildout) Conditions

			E	xisting (2019)		E+P	· Project	Build	out	
			De	ay ¹	Leve	el of	De	ay ¹	Lev	el of	Acceptable
		Traffic	(se	cs.)	Ser	vice	(se	cs.)	Ser	vice	LOS
#	Intersection	Control ²	AM	PM	AM	PM	AM	PM	AM	PM	
1	SR-71 SB Ramps & Soquel Canyon Rd.	TS	13.3	23.2	В	С	14.3	24.0	В	С	D
2	SR-71 SB Ramps & Pine Av.	TS	31.2	26.7	С	С	2040	Analysis	Locat	ion	D
3	SR-71 SB Ramps & Butterfield Ranch Rd.	TS	40.0	39.6	D	D	40.0	39.8	D	D	D
4	SR-71 NB Ramps & Central Av.	TS	8.6	7.7	А	А	8.6	7.7	А	А	D
5	SR-71 NB Ramps & Pine Av.	AWS	9.3	8.9	А	А	2040	Analysis	Locat	ion	D
6	SR-71 NB Ramps & Euclid Av. (SR-83)	TS	27.2	42.5	С	D	32.7	42.6	С	D	D
7	Central Av. & El Prado Rd.	TS	29.0	61.2	С	Е	30.5	67.2	С	Е	D
8	El Prado Rd. & Kimball Av.	TS	28.1	86.2	С	F	34.7	93.2	С	F	D
9	Mountain Av. & Kimball Av.	TS	7.4	9.7	А	А	8.1	10.8	А	В	D
10	Mountain Av. & Bickmore Av.	CSS	9.8	9.6	А	А	11.2	10.8	В	В	D
11	Mountain Av. & Driveway 1	<u>CSS</u>	Fut	ure Intei	rsectio	n	8.6	9.4	А	А	D
12	Mountain Av. & Driveway 2	<u>CSS</u>	Fut	ure Intei	rsectio	n	9.1	9.6	А	А	D
13	Mountain Av. & Driveway 3	<u>CSS</u>	Fut	ure Inter	rsectio	n	9.2	9.3	А	А	D
14	El Prado Rd. & Mountain Av.	CSS	10.4	13.6	В	В	11.0	16.2	В	С	D
15	El Prado Rd. & Pine Av.	AWS	9.8	13.5	А	В	10.3	16.0	В	С	D
16	Driveway 4 & Bickmore Av.	<u>CSS</u>	Fut	ure Intei	rsectio	n	8.6	9.4	А	А	D
17	Driveway 5 & Bickmore Av.	<u>CSS</u>	Fut	ure Intei	rsectio	n	8.7	9.5	А	А	D
18	Driveway 6 & Bickmore Av.	<u>CSS</u>	Fut	ure Intei	rsectio	n	8.7	9.6	А	А	D
19	Euclid Av. (SR-83) & SR-60 WB Ramps	TS	22.3	18.6	С	В	22.8	19.1	С	В	D
20	Euclid Av. (SR-83) & SR-60 EB Ramps	TS	25.3	21.9	С	С	25.6	22.1	С	С	D
21	Euclid Av. (SR-83) & Walnut Av.	TS	30.1	32.5	С	С	30.2	32.6	С	С	E
22	Euclid Av. (SR-83) & Riverside Dr.	TS	47.0	55.5	D	Е	48.0	59.4	D	Е	D
23	Euclid Av. (SR-83) & Chino Av.	TS	21.5	23.2	С	С	21.8	23.5	С	С	D
24	Euclid Av. (SR-83) & Schaefer Av.	TS	23.6	26.2	С	С	24.4	26.9	С	С	D
25	Euclid Av. (SR-83) & Edison Av.	TS	38.1	39.7	D	D	39.5	41.0	D	D	D
26	Euclid Av. (SR-83) & Eucalyptus Av.	TS	13.8	13.2	В	В	14.2	13.4	В	В	D
27	Euclid Av. (SR-83) & Merrill Av.	TS	26.4	29.9	С	С	27.3	33.0	С	С	D
28	Euclid Av. (SR-83) & Kimball Av.	TS	32.4	38.3	С	D	33.1	40.7	С	D	D
29	Euclid Av. (SR-83) & Bickmore Av.	TS	16.3	14.0	В	В	18.1	16.2	В	В	D
30	Euclid Av. (SR-83) & Pine Av.	TS	31.9	61.5	С	Е	34.6	71.3	С	Е	D
31	Rincon Meadows Av. & Kimball Av.	TS	15.4	12.8	В	В	2040	Analysis	s Locat	ion	D
32	Rincon Meadows Av. & Pine Av.		Fut	ure Intei	rsectio	n	Fut	ure Intei	rsectio	n	D
33	Mill Creek Av. & Kimball Av.	TS	14.5	12.9	В	В	2040	Analysis	Locat	ion	D
34	Mill Creek Av./Chino-Corona Rd. & Pine Av.	TS	27.1	12.2	С	В	32.3	12.3	С	В	D
35	Cucamonga Av. & Chino Corona Rd.	AWS	7.0	7.3	А	А	Constru	uction Lo	catior	Only	D
36	W. Preserve Loop & Pine Av.	TS	9.4	8.0	А	А	9.6	8.0	А	А	D
37	Main St. & Kimball Av.	TS	13.4	12.5	В	В	2040	Analysis	S Locat	ion	D
38	Flight Av. & Kimball Av.	CSS	21.0	20.5	С	С	2040	Analysis	Locat	ion	D
39	E. Preserve Loop & Pine Av.	TS	8.5	7.2	А	А	8.8	7.2	А	А	D
40	Hellman Av. & Kimball Av.	TS	>200.0	77.9	F	F	2040	Analysis	s Locat	ion	D



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Intersection Analysis for E+P (Project Buildout) Conditions

			E	xisting (2019)		E+P ·	- Project	Builde	out	
			De	lay ¹	Lev	el of	De	lay ¹	Lev	el of	Acceptable
		Traffic	(se	cs.)	Ser	vice	(se	cs.)	Ser	vice	LOS
#	Intersection	Control ²	AM	PM	AM	PM	AM	PM	AM	PM	
41	Hellman Av. & Pine Av./Schleisman Rd.	TS	37.7	38.6	D	D	38.3	39.4	D	D	D
42	Archibald Av. & Limonite Av.	TS	48.0	29.6	D	С	48.0	31.6	D	С	D
43	Archibald Av. & Schleisman Rd.	TS	80.1	46.5	F	D	88.1	55.0	F	D	D

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

¹ Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

² CSS = Cross-street Stop; AWS = All-Way Stop; TS = Traffic Signal; <u>CSS</u> = Improvement



		Available		Existing (2019)				E+P - Building 1			1+3	 Project Builde 	out	
Intersection	Movement	Stacking Distance	95th Percentile	: Queue (Feet) ³	Accept	able? ¹	95th Percentile	: Queue (Feet) ³	Accept	able? ¹	95th Percentil	e Queue (Feet) ³	Accep	table? ¹
		(Feet)	AM Peak Hour	PM Peak Hour	AM	PM	AM Peak Hour	PM Peak Hour	AM	ΡM	AM Peak Hour	PM Peak Hour	AM	ΡM
SR-71 SB Ramps & Central Avenue	SBL	1,530	245	516 ²	Yes	Yes	257	528 ²	Yes	Yes	265	538 ²	Yes	Yes
	SBL/R	740	0	698 ²	Yes	Yes	0	0	Yes	Yes	0	0	Yes	Yes
	1		c	,	:	:								
SK-/1 SB Ramps & Pine Avenue	SBL/I	1,3/0	×	16	Yes	Yes	204	0 Analysis Locat	noi		202	0 Analysis Locat	ion	
	SBR	725	29	456 ²	Yes	Yes		_				_	_	_
SR-71 SB Ramps & Euclid Avenue (SR-83)	SBL	1,100	215	230	Yes	Yes	215	230	Yes	Yes	215	230	Yes	Yes
	SBL/T	1,560	215	232	Yes	Yes	215	232	Yes	Yes	215	232	Yes	Yes
	SBR	255	0	1	Yes	Yes	0	Ч	Yes	Yes	0	1	Yes	Yes
SR-71 NB Ramps & Central Avenue	NBL	1,485	34	75	Yes	Yes	34	75	Yes	Yes	34	75	Yes	Yes
	NBL/R	1,070	0	0	Yes	Yes	0	0	Yes	Yes	0	0	Yes	Yes
SR-71 NB Ramps & Pine Avenue	NBL	1,375	ŋ	10	Yes	Yes	204	0 Analvsis Locati	ion		204	0 Analvsis Locat	ion	
	NBL/T	815	5	10	Yes	Yes							_	
SR-71 NB Ramps & Euclid Avenue (SR-83)	NBL	1,745	27	44	Yes	Yes	27	44	Yes	Yes	27	44	Yes	Yes
	NBR	420	203 ²	732 ²	Yes	Yes ³	235 ²	745 ²	Yes	Yes ³	259 ²	757 ²	Yes	Yes ³
Euclid Av. (SR-83) & SR-60 WB Ramps	WBL	400	306	276	Yes	Yes	312 ²	280	Yes	Yes	326 ²	283	Yes	Yes
	WBL/T/R	1,430	316 ²	284	Yes	Yes	342 ²	281	Yes	Yes	346 ²	284	Yes	Yes
	WBR	400	202	207	Yes	Yes	206	209	Yes	Yes	209	209	Yes	Yes
Euclid Av. (SR-83) & SR-60 EB Ramps	EBL	006	363 ²	352 ²	Yes	Yes	363 ²	352 ²	Yes	Yes	363 ²	352 ²	Yes	Yes
	EBT/R	1,270	260 ²	288 ²	Yes	Yes	289 ²	294 ²	Yes	Yes	300 ²	298 ²	Yes	Yes
: - - - - - - - - - - - - - - - - - - -								-		1				

Peak Hour Freeway Off-Ramp Queuing Summary for E+P Conditions

* Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

³ Although 95th percentile queue is anticipated to exceed the available storage for the turn lane, the adjacent through lane has sufficient storage to accommodate any spillover without spilling back and affecting the SR-71 Freeway mainline. ² 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Freeway Facility Analysis for E+P Conditions

	c			E	xisting	g (2019)		E	+P - Bı	uilding 1		E+P	- Proje	ct Buildou	ıt
eewa)	rectio	Ramp or Segment	Lanes on Freeway ¹	AM Peak	Hour	PM Peak	Hour	AM Peak	Hour	PM Peak	Hour	AM Peak	Hour	PM Peak	Hour
Fr	Di		Treeway	Density ²	LOS ³										
		North of Central Avenue	3	9.6	А	18.4	С	9.7	А	18.5	С	9.8	А	18.6	С
		Central Avenue Off-Ramp	3	16.4	В	28.0	С	16.6	В	28.1	D	16.7	В	28.1	D
		Central Avenue Loop On-Ramp	3	9.5	Α	13.9	В	9.5	Α	13.9	В	9.5	А	13.9	В
		Central Avenue On-Ramp	3	10.0	Α	14.0	В	10.0	Α	14.0	В	10.0	А	14.0	В
	pu	Central Avenue to Pine Avenue	3	10.4	Α	17.1	В	10.4	Α	17.1	В	10.4	А	17.1	В
	poq	Pine Avenue Off-Ramp	2	14.5	В	22.2	С	14.5	В	22.2	С	14.5	В	22.2	С
	uth	Pine Avenue On-Ramp	2	12.5	В	12.3	В	12.5	В	12.3	В	12.5	В	12.3	В
	So	Pine Avenue to Euclid Avenue (SR-83)	2	9.2	Α	9.0	А	9.2	Α	9.0	А	9.2	А	9.0	Α
		Euclid Avenue (SR-83) Off-Ramp	2	13.4	В	13.2	В	13.4	В	13.2	В	13.4	В	13.2	В
ay		Euclid Avenue (SR-83) Loop On-Ramp	2	9.7	Α	10.4	В	9.8	Α	10.6	В	9.8	А	10.8	В
e w		Euclid Avenue (SR-83) On-Ramp	2	15.8	В	16.5	В	15.8	В	16.8	В	15.9	В	17.0	В
. Fre		South of Euclid Avenue (SR-83)	2	15.0	В	16.3	В	15.0	В	16.1	В	15.0	В	16.3	В
-71		North of Central Avenue	3	20.3	С	17.8	В	20.4	С	17.9	В	20.4	С	18.1	С
SF		Central Avenue On-Ramp	3	24.6	С	21.2	С	24.6	С	21.4	С	24.7	С	21.6	С
		Central Avenue Loop On-Ramp	3	18.7	В	16.5	В	18.7	В	16.9	В	18.7	В	16.9	В
	q	Central Avenue Off-Ramp	3	20.4	С	21.7	С	20.4	С	21.7	С	20.4	С	21.7	С
	unc	Central Avenue to Pine Avenue	3	13.6	В	14.9	В	13.6	В	14.9	В	13.6	В	14.9	В
	thb	Pine Avenue On-Ramp	2	15.8	В	18.5	С	15.8	В	18.5	С	15.8	В	18.5	С
	Nor	Pine Avenue Off-Ramp	2	22.7	С	26.4	С	22.7	С	26.4	С	22.7	С	26.4	С
		Pine Avenue to Euclid Avenue (SR-83)	2	17.2	В	20.4	С	17.2	В	20.4	С	17.2	В	20.4	С
		Euclid Avenue (SR-83) On-Ramp	2	18.6	В	22.2	С	18.8	В	22.5	С	18.8	В	22.5	С
		Euclid Avenue (SR-83) Off-Ramp	3	8.9	А	15.6	В	9.1	А	15.7	В	9.2	А	15.7	В
		South of Euclid Avenue (SR-83)	3	10.8	Α	19.0	С	11.0	Α	19.0	С	11.1	В	19.1	С
	pu	West of Euclid Avenue (SR-83)	4	33.9	D	31.5	D	34.0	D	31.5	D	343.0	D	32.2	D
	poq	Euclid Avenue (SR-83) On-Ramp	4	28.6	D	27.3	С	33.4	D	32.0	С	33.4	D	32.3	С
way	'est	Euclid Avenue (SR-83) Off-Ramp	4	36.3	Е	35.7	E	36.4	Е	35.7	Ε	36.5	Е	35.7	Е
ree	3	East of Euclid Avenue (SR-83)	4	34.6	D	33.3	D	34.7	D	33.4	D	34.7	D	33.4	D
50 F	рс	West of Euclid Avenue (SR-83)	4	31.2	D	25.7	С	31.2	D	25.7	С	31.2	D	25.8	С
SR-(nou	Euclid Avenue (SR-83) Off-Ramp	4	32.2	D	28.5	D	32.2	D	28.6	D	32.3	D	28.7	D
	astb	Euclid Avenue (SR-83) On-Ramp	4	28.9	D	24.7	С	33.1	D	24.8	С	33.1	D	27.6	С
	ш	East of Euclid Avenue (SR-83)	4	32.9	D	26.4	D	32.9	D	26.5	D	33.0	D	26.5	D

* BOLD = Unacceptable Level of Service

¹Number of lanes are in the specified direction and is based on existing conditions.

 $^{2}\,\mathrm{Density}$ is measured by passenger cars per mile per lane (pc/mi/ln).

³ LOS = Level of Service





EXHIBIT 6-6: E+P (PROJECT BUILDOUT) SUMMARY OF LOS

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EXHIBIT 6-7: E+P (BUILDING 1) FREEWAY MAINLINE VOLUMES



LEGEND:





N



EXHIBIT 6-8: E+P (PROJECT BUILDOUT) FREEWAY MAINLINE VOLUMES



LEGEND:





N

6.7 PROJECT IMPACTS AND RECOMMENDED IMPROVEMENTS

This section provides a summary of Project impacts and recommended improvements. Based on the City of Chino significance criteria discussed in Section 2.9 *Thresholds of Significance*, the following intersections were found to be impacted by Project. Improvements necessary to reduce project-related traffic impacts to less than significant are also discussed below.

6.7.1 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES AT INTERSECTIONS

The effectiveness of the proposed recommended mitigation measures is presented on Table 6-5 for E+P traffic conditions. The recommended mitigation measures necessary to reduce Project impacts to less than significant are discussed below. The intersection operations analysis worksheets for E+P (Building 1) and E+P (Project Buildout) traffic conditions, with improvements, are included in Appendix 6.9 and Appendix 6.10, respectively.

E+P (Building 1) Conditions:

Central Avenue & El Prado Road (#7) – This intersection was found to operate at an unacceptable LOS (LOS E or worse) during the peak hours under Existing traffic conditions, and is anticipated to continue to operate at an unacceptable LOS during the one or more peak hours with the addition of Project (Building 1) traffic. As such, the impact is considered cumulatively significant.

The following improvement is necessary to reduce the Project's proportionate increase in delay to pre-project levels or better, thus reducing the Project's cumulative impact to less than significant:

• Payment of the Project's DIF fees to be applied towards the addition of a 2nd southbound left turn lane to improve the existing deficiency.

El Prado Road & Kimball Avenue (#8) – This intersection was found to operate at an unacceptable LOS (LOS E or worse) during the peak hours under Existing traffic conditions, and is anticipated to continue to operate at an unacceptable LOS during the one or more peak hours with the addition of Project (Building 1) traffic. As such, the impact is considered cumulatively significant.

The following improvement is necessary to reduce the Project's proportionate increase in delay to pre-project levels or better, thus reducing the Project's cumulative impact to less than significant:

• Contribute fair share towards restriping the southbound approach to accommodate two left turn lanes and one shared through-right turn lane to improve the existing deficiency.



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Intersection Analysis for E+P Conditions With Improvements

					I	nters	ectio	on Aj	ppro	ach L	anes	1			De	lay²	Leve	el of
		Traffic	Nor	thbo	ound	Sou	thbo	und	Eas	stbou	Ind	We	stbo	und	(se	cs.)	Ser	vice
#	Intersection	Control ³	L	Т	R	L	Т	R	L	Т	R	L	Т	R	AM	PM	AM	PM
7	Central Av. & El Prado Rd.																	
	Existing:																	
	-Without Improvements	TS	1	2	1>	1	3	0	1	1	0	1	1	1>	29.0	61.2	С	Е
	-With Improvements	TS	1	2	1>	2	3	0	1	1	0	1	1	1>	27.8	31.5	С	С
	E+P (Building 1):																	
	-Without Improvements	TS	1	2	1>	1	3	0	1	1	0	1	1	1>	29.8	64.6	С	Е
	-With Improvements	TS	1	2	1>	<u>2</u>	3	0	1	1	0	1	1	1>	28.0	32.9	С	С
	E+P (Project Buildout):																	
	-Without Improvements	TS	1	2	1>	1	3	0	1	1	0	1	1	1>	30.5	67.2	С	Е
	-With Improvements	TS	1	2	1>	2	3	0	1	1	0	1	1	1>	28.2	34.1	С	С
8	El Prado Rd. & Kimball Av.																	
	Existing:																	
	-Without Improvements	TS	1	1	1	1	2	0	1	1	0	0	1	1>	28.1	86.2	С	F
	-With Improvements	TS	1	1	1	2	<u>1</u>	0	1	1	0	0	1	1>	24.4	25.7	С	С
	E+P (Building 1):																	
	-Without Improvements	TS	1	1	1	1	2	0	1	1	0	0	1	1>	30.3	90.4	С	F
	-With Improvements	TS	1	1	1	2	<u>1</u>	0	1	1	0	0	1	1>	24.4	26.2	С	С
	E+P (Project Buildout):																	
	-Without Improvements	TS	1	1	1	1	2	0	1	1	0	0	1	1>	34.7	93.2	С	F
	-With Improvements	TS	1	1	1	2	<u>1</u>	0	1	1	0	0	1	1>	24.5	26.7	С	С
22	Euclid Av. (SR-83) & Riverside Dr.																	
	Existing:																	
	-Without Improvements	TS	1	2	1	1	2	1>	1	1	0	1	2	d	47.0	55.5	D	Е
	-With Improvements	TS	1	2	1	1	2	1>	1	1	<u>1</u>	1	2	d	45.3	49.8	D	D
	E+P (Building 1):																	
	-Without Improvements	TS	1	2	1	1	2	1>	1	1	0	1	2	d	47.6	57.5	D	Е
	-With Improvements						Nc	ot Ap	plica	ble								
	E+P (Project Buildout):																	
	-Without Improvements	TS	1	2	1	1	2	1>	1	1	0	1	2	d	48.0	59.4	D	Е
	-With Improvements	TS	1	2	1	1	2	1>	1	1	<u>1</u>	1	2	d	45.8	51.5	D	D
30	Euclid Av. (SR-83) & Pine Av.																	
	Existing:																	
	-Without Improvements	TS	1	2	1>	1	2	0	1	1	1	2	1	0	31.9	61.5	С	Е
	-With Improvements	TS	1	2	<u>1>></u>	1	2	0	1	1	1	2	1	0	39.1	36.1	С	D
	E+P (Building 1):																	
	-Without Improvements	TS	1	2	1>	1	2	0	1	1	1	2	1	0	33.3	67.5	С	Е
	-With Improvements	TS	1	2	<u>1>></u>	1	2	0	1	1	1	2	1	0	40.4	39.7	D	D
	E+P (Project Buildout):																	
	-Without Improvements	TS	1	2	1>	1	2	0	1	1	1	2	1	0	34.6	71.3	С	Е
	-With Improvements	TS	1	2	<u>1>></u>	1	2	0	1	1	1	2	1	0	41.8	42.9	D	D



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Intersection Analysis for E+P Conditions With Improvements

					I	nters	ectio	on Aj	opro	ach L	anes	1			De	ay²	Lev	el of
		Traffic	Nor	thbo	und	Sou	thbo	und	Eas	stbou	ind	We	stbo	und	(se	cs.)	Ser	vice
#	Intersection	Control ³	L	Т	R	L	Т	R	L	Т	R	L	Т	R	AM	PM	AM	PM
43	Archibald Av. & Schleisman Rd.																	
	Existing:																	
	-Without Improvements	TS	2	3	1	2	3	1	2	3	1	2	3	1	80.1	46.5	F	D
	-With Improvements ⁴	TS	2	3	1	2	3	1	2	3	1	2	3	1	32.8	29.6	С	С
	E+P (Building 1):																	
	-Without Improvements	TS	2	3	1	2	3	1	2	3	1	2	3	1	80.1	50.9	F	D
	-With Improvements					_	No	t Ap	plica	ble								
	E+P (Project Buildout):																	
	-Without Improvements	TS	2	3	1	2	3	1	2	3	1	2	3	1	88.1	55.0	F	D
	-With Improvements ⁴	TS	2	3	1	2	3	1	2	3	1	2	3	1	34.5	30.1	С	С

When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; > = Right-Turn Overlap Phasing; >> = Free Right Turn Lane; d= Defacto Right Turn Lane; <u>1</u> = Improvement

² Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

³ TS = Traffic Signal

⁴ Improvement consists of modifying the traffic signal to extend the cycle length to 130 seconds.



Euclid Avenue (SR-83) & Pine Avenue (#30) – This intersection was found to operate at an unacceptable LOS (LOS E or worse) during the peak hours under Existing traffic conditions, and is anticipated to continue to operate at an unacceptable LOS during the one or more peak hours with the addition of Project (Building 1) traffic. As such, the impact is considered cumulatively significant.

The following improvement is necessary to reduce the Project's proportionate increase in delay to pre-project levels or better, thus reducing the Project's cumulative impact to less than significant:

• Payment of Project's DIF fees to be applied towards the addition of a northbound free-right turn lane to improve the existing deficiency.

E+P (Project Buildout) Conditions:

Central Avenue & El Prado Road (#7) – This intersection was found to operate at an unacceptable LOS (LOS E or worse) during the peak hours under Existing traffic conditions, and is anticipated to continue to operate at an unacceptable LOS during the one or more peak hours with the addition of Project (Project Buildout) traffic. As such, the impact is considered cumulatively significant.

The following improvement is necessary to reduce the Project's proportionate increase in delay to pre-project levels or better, thus reducing the Project's cumulative impact to less than significant:

• Payment of the Project's DIF fees to be applied towards the addition of a 2nd southbound left turn lane to improve the existing deficiency.

El Prado Road & Kimball Avenue (#8) – This intersection was found to operate at an unacceptable LOS (LOS E or worse) during the peak hours under Existing traffic conditions, and is anticipated to continue to operate at an unacceptable LOS during the one or more peak hours with the addition of Project (Project Buildout) traffic. As such, the impact is considered cumulatively significant.

The following improvement is necessary to reduce the Project's proportionate increase in delay to pre-project levels or better, thus reducing the Project's cumulative impact to less than significant:

• Contribute fair share towards restriping the southbound approach to accommodate two left turn lanes and one shared through-right turn lane to improve the existing deficiency.

Euclid Avenue (SR-83) & Riverside Drive (#22) – This intersection was found to operate at an unacceptable LOS (LOS E or worse) during the peak hours under Existing traffic conditions, and is anticipated to continue to operate at an unacceptable LOS during the one or more peak hours with the addition of Project (Project Buildout) traffic. As such, the impact is considered cumulatively significant.



The following improvement is necessary to reduce the Project's proportionate increase in delay to pre-project levels or better, thus reducing the Project's cumulative impact to less than significant:

• Contribute fair share towards an eastbound right turn lane to improve the existing deficiency.

Euclid Avenue (SR-83) & Pine Avenue (#30) – This intersection was found to operate at an unacceptable LOS (LOS E or worse) during the peak hours under Existing traffic conditions, and is anticipated to continue to operate at an unacceptable LOS during the one or more peak hours with the addition of Project (Project Buildout) traffic. As such, the impact is considered cumulatively significant.

The following improvement is necessary to reduce the Project's proportionate increase in delay to pre-project levels or better, thus reducing the Project's cumulative impact to less than significant:

• Payment of Project's DIF fees to be applied towards the addition of a northbound free-right turn lane to improve the existing deficiency.

Archibald Avenue & Schleisman Road (#43) – This intersection was found to operate at an unacceptable LOS (LOS E or worse) during the peak hours under Existing traffic conditions, and is anticipated to continue to operate at an unacceptable LOS during the one or more peak hours with the addition of Project (Project Buildout) traffic. As such, the impact is considered cumulatively significant.

The following improvement is necessary to reduce the Project's proportionate increase in delay to pre-project levels or better, thus reducing the Project's cumulative impact to less than significant:

• Contribute fair share towards modifying the traffic signal to extend the cycle length to 130seconds to improve the existing deficiency.

6.7.2 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES ON OFF-RAMP QUEUES

As shown previously on Table 6-3, there are no peak hour queuing issues at the SR-71 Freeway at Euclid Avenue (SR-83) and Euclid Avenue (SR-83) at SR-60 Freeway interchanges. As such, no improvements have been recommended.

6.7.3 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES ON FREEWAY FACILITIES

At this time, Caltrans has no fee programs or other improvement programs in place to address the deficiencies caused by development projects in the City of Chino (or other neighboring jurisdictions) on SHS roadway segments. As such, no improvements have been recommended to address the E+P deficiencies on the SHS, because there is no feasible mitigation available.



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7 OPENING YEAR CUMULATIVE (2022) TRAFFIC CONDITIONS

This section discusses the methods used to develop Opening Year Cumulative (2022) Without and With Project traffic forecasts, and the resulting intersection operations, freeway mainline operations, and traffic signal warrant analyses.

7.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for Opening Year Cumulative (2022) conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for Opening Year Cumulative conditions only (e.g., intersection and roadway improvements along the Project's frontage and driveways).
- Driveways and those facilities assumed to be constructed by cumulative developments to provide site access are also assumed to be in place for Opening Year Cumulative conditions only (e.g., intersection and roadway improvements along the cumulative development's frontages and driveways such as the southern extension of Rincon Meadows Avenue on Pine Avenue).

7.2 OPENING YEAR CUMULATIVE (2022) WITHOUT PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes Existing traffic volumes plus an ambient growth factor of 6.12% plus traffic from pending and approved but not yet constructed known development projects in the area. The weekday ADT and weekday AM and PM peak hour volumes which can be expected for Opening Year Cumulative (2022) Without Project traffic conditions are shown on Exhibits 7-1 and 7-2.

7.3 OPENING YEAR CUMULATIVE (2022) WITH PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes Opening Year Cumulative (2022) Without Project traffic in conjunction with the addition of Project traffic. The weekday ADT and weekday AM and PM peak hour volumes which can be expected for Opening Year Cumulative (2022) With Project traffic conditions are shown on Exhibits 7-3 and 7-4.





EXHIBIT 7-1: OPENING YEAR CUMULATIVE (2022) WITHOUT PROJECT AVERAGE DAILY TRAFFIC (ADT) (IN PCE)

LEGEND:

10.0 – VEHICLES PER DAY (1000'S)

10349 - adt.dwg





EXHIBIT 7-2 (10F2): OPENING YEAR CUMULATIVE (2022) WITHOUT PROJECT TRAFFIC VOLUMES (IN PCE)



23	Euclid Av. (SR-83) & Chino Av.	24 Euclid Av. (SR-83) & Schaefer Av.	25 Euclid	Av. (SR-83) & Edison Av.	26 Euclid	Av. (SR-83) & Eucalyptus Av.	27 Eucl	id Av. (SR-83) & E. Facility Dr./ Merrill Av.
	(9 (£L))(52) 86 + -160(115) ↓ ↓ ↓ ↓ ↓ 75(81)	(000 (118) (000 (000 (118) (1	↓177(185) ↓989(1278) ↓79(92)		└─_42(65) +-1135(1436) ↓─63(61)	€—50(54) ←161(23) ←34(8)	←_41(1) +-1090(1323)	887 1 → 259(204) 4 → 50(2) 4 → 50(2) 4 → 50(2) 4 → 254(254)
11 175 4	0(98) 52(46) 1107(1399) 136(233) 136(232)	162(297)→ 78(293)→ 67(192)→ 67(192)→ 10101 10001 10001 100000 1000000	165(281) 284(505)→ 125(309)	$231(173) {} 1002(1267) {} 40(74) {} $	71(39) 28(167)→ 166(221)→	183(117)_▲ 1205(1287)- + 13(18)_ _↑	4(12)- 8(31)- 18(13)-	<u> </u>
28	Euclid Av. (SR-83) & Kimball Av.	29 Euclid Av. (SR-83) & Bickmore Av.	30 Euclid	I Av. (SR-83) & Pine Av.	31 Rincon	Meadows Av. & Kimbali Av.	32 Rinco	on Meadows Av. & Pine Av.
	(667) 400(52) 400(352)	(521) (11)	←17(4) ←51(9)	-63(63) 326(81) 1080(581)	20 Ana)40 Ilysis	<u>+</u> _23(18) +_2(5)	(77) ↓ 67(25) ↓ 1408(693) ↓ ↓ 5(15)
134(259(4(8551(919) ↓ ↓ (-(295) 851(919) ↓ ↓ (-(208) 88(45) ↓ ↓ (-(292)	52(133)→ 10(109)→ 24(66)→ 24(66)→ 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	8(5)→ 184(454)→ 49(97)→	54(63) → 726(765) → 707(1172) →	0	nly	18(20)- 924(1652)- 12(38)-	33(23) 5(3) 13(9)
33	Mill Creek Av. & Kimball Av.	34 Mill Creek Av./ Chino Corona Rd. & Pine Av.	35 Chin Cuc Chi	o Corona Rd. / amonga Av. & no Corona Rd.	36 ^{W. Pre}	eserve Loop & Pine Av.	37	Main St. & Kimball Av.
	2040 Analysis Location Only	$\begin{array}{c} (1,0) \\$	Const Ana O	ruction alysis nly	(LZ))8- 24(27)- 876(1676)-	4—243(52) 1548(685)	Ar Lo	2040 nalysis cation Only
38	Flight Av. & Kimball Av.	39 E. Preserve Loop & Pine Av.	40	Hellman Av. & Kimball Av.	41 s	Hellman Av. & Pine Av./ chleisman Rd.	42	Archibald Av. & Limonite Av.
	2040 Analysis Location Only	+-1736(717) (-18(18) 925(1745)→ 30(52)→ 10(20 Ana Loc O	040 alysis ation nly	(6817) (662) (662) (100) (10)	→ 317(151) + 1070(571) + 85(44) + (29) 56 56 56 56 56 56 56 56 56 56	+-508(934)	(650)+7-J 855(274) 309(418) ↓ (16E)SEE ↓ (16E)SEE
43	Archibald Av. & Schleisman Rd.							
450(409(1 133((198) = 100000000000000000000000000000000000	LEGEND: 10(10) - AM(PN	I) PEAK HOU	R INTERSECT	ION VOLUM	ES		

EXHIBIT 7-2 (20F2): OPENING YEAR CUMULATIVE (2022) WITHOUT PROJECT TRAFFIC VOLUMES (IN PCE)





EXHIBIT 7-3: OPENING YEAR CUMULATIVE (2022) WITH PROJECT AVERAGE DAILY TRAFFIC (ADT) (IN PCE)

LEGEND:

10.0 = VEHICLES PER DAY (1000'S)

10349 - adt.dwg





EXHIBIT 7-4 (10F2): OPENING YEAR CUMULATIVE (2022) WITH PROJECT TRAFFIC VOLUMES (IN PCE)



23	Euclid Av. (SR-83) & Chino Av.	24 Euclid Av. (SR-83) & Schaefer Av	25	Euclid Av. (SR-83) & Edison Av.	26 Euclid	Av. (SR-83) & Eucalyptus Av.	27 Eucli	d Av. (SR-83) & E. Facility Dr./ Merrill Av.
	(£611) (£1)(52)65 ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	(811) (811) (1120) (1223) (1120)	<u>+</u> _177(185)	(0010) + 451(303) + 38(46)	↓42(65) +1192(1460) +663(61)	-50(54) -161(23) -√-34(8)	←41(1) ←1150(1349) 	259(204) ←259(204) ←50(2) ←257(256)
17	10(98) 25(290) 1125(1454) 1125(1454) 1125(1454) 1125(1454) 1125(1454) 1125(1454) 1125(1454) 1125(1454) 1125(1454) 1126(1454)	162(297) 78(293) 67(192) 67(192) 162(1	165(2 284(5 127(3	$\begin{array}{c} 100 \\ 1017 \\ 101$	71(39)→ 28(167)→ 169(223)	184(121)	4(12)– 8(31)⊣ 18(13)–	1153(1345)
28	Euclid Av. (SR-83) & Kimball Av.	29 Euclid Av. (SR-83) & Bickmore Av	30	Euclid Av. (SR-83) & Pine Av.	31 Rincor	ı Meadows Av. & Kimbali Av.	32 Rinco	n Meadows Av. & Pine Av.
	(a) (a) (b) (c) (c) (c) (c) (c) (c) (c) (c	(00) (102) (1	<u>↓</u> _17(4)	(658) (658)	20 Ana	040 Nysis	+23(18) +_2(5) 22(5)	
13 25	$5(370) \rightarrow 9(807) \rightarrow 1000 (65) $	70(205)→ 12(120)→ 41(137)→ 41(137)→ 8888 89	8 191(48 53(1 ⁷	$(5) = \frac{1}{2} + \frac{1}{2} $	0	níy	18(20)– 939(1713)⊣ 12(38)–	33(23) → 5(3) → 13(9) →
33	Mill Creek Av. & Kimball Av.	34 Mill Creek Av. Chino Corona Rd. & Pine Av	35	Chino Corona Rd. / Cucamonga Av. & Chino Corona Rd.	36 W. Pro	eserve Loop & Pine Av.	37	Main St. & Kimball Av.
	2040 Analysis Location Only	$\begin{array}{c} (1,1) \\$	C	Construction Analysis Only	(L21)08 24(27) 890(1735) →	4—243(52) - ←1595(708)	2 An Loi	040 alysis cation Dnly
38	Flight Av. & Kimball Av.	39 E. Preserve Loop & Pine Av	40	Hellman Av. & Kimball Av.	41	Hellman Av. & Pine Av./ Schleisman Rd.	42	Archibald Av. & Limonite Av.
	2040 Analysis Location Only	+ 1783(740 - 18(18) 939(1804)+ 30(52)- 30(52)- 50 m	-	2040 Analysis Location Only	(8119)501.→ (622)851.→ 36(225) 3535(1292) 493(456)	→ 317(151) + 1114(592) - 85(44) - (191)56 - (191)56 - (191)625	-515(937) 	100 100 100 100 100 100 100 100
43	Archibald Av. & Schleisman Rd.							
46 409 13	$\begin{array}{c c} & (1067) \\ (1067) + & (1067) \\ (1067)$	LEGEND: 10(10) - AM(P)		HOUR INTERSECT	ION VOLUM	ES		

EXHIBIT 7-4 (20F2): OPENING YEAR CUMULATIVE (2022) WITH PROJECT TRAFFIC VOLUMES (IN PCE)



7.4 INTERSECTION OPERATIONS ANALYSIS

7.4.1 OPENING YEAR CUMULATIVE (2022) WITHOUT PROJECT TRAFFIC CONDITIONS

LOS calculations were conducted for the study intersections to evaluate their operations under Opening Year Cumulative (2022) Without Project conditions with roadway and intersection geometrics consistent with Section 7.1 *Roadway Improvements*. As shown on Table 7-1, the following study area intersections are anticipated to operate at an unacceptable LOS under Opening Year (2022) Without Project traffic conditions:

- Central Avenue & El Prado Road (#7) LOS F PM peak hour only
- El Prado Road & Kimball Avenue (#8) LOS F PM peak hour only
- Euclid Avenue (SR-83) & Riverside Drive (#22) LOS E AM peak hour; LOS F PM peak hour
- Euclid Avenue (SR-83) & Edison Avenue (#25) LOS E PM peak hour only
- Euclid Avenue (SR-83) & Merrill Avenue (#27) LOS E PM peak hour only
- Euclid Avenue (SR-83) & Pine Avenue (#30) LOS F PM peak hour only
- Archibald Avenue & Limonite Avenue (#42) LOS E AM and PM peak hour
- Archibald Avenue & Schleisman Road (#43) LOS F AM peak hour; LOS E PM peak hour

A summary of the peak hour intersection LOS for Opening Year Cumulative (2022) Without Project conditions is shown on Exhibit 7-5. The intersection operations analysis worksheets for Opening Year Cumulative (2022) Without Project traffic conditions are included in Appendix 7.1 of this TIA.

7.4.2 OPENING YEAR CUMULATIVE (2022) WITH PROJECT TRAFFIC CONDITIONS

As shown on Table 7-1 and illustrated on Exhibit 7-6, the following study area intersection is anticipated to operate at a deficient LOS during one or both peak hours for Opening Year Cumulative (2022) With Project traffic conditions with the addition of Project traffic, in addition to the locations identified above for Opening Year Cumulative (2022) Without Project traffic conditions:

• Euclid Avenue (SR-830 & Kimball Avenue (#28) – LOS E PM peak hour only

The intersection operations analysis worksheets for Opening Year Cumulative (2022) With Project traffic conditions are included in Appendix 7.2 of this TIA.

7.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

There are no study area intersections anticipated to meet either peak hour or planning level (ADT) volume-based traffic signal warrants for Opening Year Cumulative (2022) Without and With Project traffic conditions, in addition to those previously warranted under Existing (2019) traffic conditions (see Appendix 7.3 and Appendix 7.4).



Table 7-1

Page 1 of 2

Intersection Analysis for Opening Year Cumulative (2022) Conditions

			202	2 Withou	it Proje	ct	20	22 With	Project		
			Del	ay ¹	Lev	el of	Del	ay ¹	Leve	el of	Acceptable
		Traffic	(se	cs.)	Ser	vice	(se	cs.)	Ser	vice	LOS
#	Intersection	Control ²	AM	PM	AM	PM	AM	PM	AM	PM	
1	SR-71 SB Ramps & Soquel Canyon Rd.	TS	14.8	30.5	В	С	16.0	32.0	В	С	D
2	SR-71 SB Ramps & Pine Av.	TS	2040) Analysis	Locati	on	2040) Analysis	s Locatio	on	D
3	SR-71 SB Ramps & Butterfield Ranch Rd.	TS	43.6	46.7	D	D	43.6	46.7	D	D	D
4	SR-71 NB Ramps & Central Av.	TS	9.2	8.2	А	Α	9.2	8.2	А	А	D
5	SR-71 NB Ramps & Pine Av.	AWS	2040) Analysis	Locati	on	2040) Analysis	s Locatio	on	D
6	SR-71 NB Ramps & Euclid Av. (SR-83)	TS	33.7	49.0	С	D	37.1	49.1	D	D	D
7	Central Av. & El Prado Rd.	TS	35.0	81.1	D	F	36.9	87.7	D	F	D
8	El Prado Rd. & Kimball Av.	TS	35.0	124.9	С	F	48.8	132.4	D	F	D
9	Mountain Av. & Kimball Av.	TS	7.7	11.0	А	В	8.3	12.2	А	В	D
10	Mountain Av. & Bickmore Av.	CSS	9.9	10.3	А	В	11.3	11.7	В	В	D
11	Mountain Av. & Driveway 1	CSS	Fu	ture Inte	rsectior	1	8.6	9.5	А	А	D
12	Mountain Av. & Driveway 2	CSS	Fu	ture Inte	rsectior	٦	9.1	10.0	А	В	D
13	Mountain Av. & Driveway 3	CSS	Fu	ture Inte	rsectior	า	9.2	9.5	А	А	D
14	El Prado Rd. & Mountain Av.	CSS	10.5	14.9	В	В	11.2	18.1	В	С	D
15	El Prado Rd. & Pine Av.	AWS	10.2	15.7	В	С	10.7	18.4	В	С	D
16	Driveway 4 & Bickmore Av.	CSS	Fu	ture Inte	rsectior	1	8.7	9.6	А	А	D
17	Driveway 5 & Bickmore Av.	CSS	Fu	ture Inte	rsectior	า	8.7	9.7	А	А	D
18	Driveway 6 & Bickmore Av.	CSS	Fu	ture Inte	rsectior	۱	8.7	9.7	А	А	D
19	Euclid Av. (SR-83) & SR-60 WB Ramps	TS	26.4	22.7	С	С	27.6	23.3	С	С	D
20	Euclid Av. (SR-83) & SR-60 EB Ramps	TS	35.3	25.2	D	С	36.4	25.6	D	С	D
21	Euclid Av. (SR-83) & Walnut Av.	TS	32.3	35.5	С	D	32.4	35.7	С	D	E
22	Euclid Av. (SR-83) & Riverside Dr.	TS	59.0	83.7	Е	F	61.2	91.8	Е	F	D
23	Euclid Av. (SR-83) & Chino Av.	TS	23.9	27.3	С	С	24.3	28.2	С	С	D
24	Euclid Av. (SR-83) & Schaefer Av.	TS	30.1 33.4		С	С	31.5	35.2	С	D	D
25	Euclid Av. (SR-83) & Edison Av.	TS	51.6	60.6	D	Е	56.3	64.8	Е	Е	D
26	Euclid Av. (SR-83) & Eucalyptus Av.	TS	17.1	16.7	В	В	17.8	17.4	В	В	D
27	Euclid Av. (SR-83) & Merrill Av.	TS	45.5	71.5	D	Е	47.6	81.6	D	F	D
28	Euclid Av. (SR-83) & Kimball Av.	TS	42.4	52.2	D	D	43.2	57.1	D	Е	D
29	Euclid Av. (SR-83) & Bickmore Av.	TS	18.9	16.1	В	В	20.8	18.5	С	В	D
30	Euclid Av. (SR-83) & Pine Av.	TS	45.3	101.0	D	F	50.0	114.4	D	F	D
31	Rincon Meadows Av. & Kimball Av.	TS	2040) Analysis	Locati	on	2040) Analysis	s Locatio	on	D
32	Rincon Meadows Av. & Pine Av.	<u>TS</u>	10.7	11.3	В	В	11.0	11.9	В	В	D
33	Mill Creek Av. & Kimball Av.	TS	2040) Analysis	Locati	on	2040) Analysis	s Locatio	on	D
34	Mill Creek Av./Chino-Corona Rd. & Pine Av.	TS	42.1	15.9	D	В	49.6	16.2	D	В	D
35	Cucamonga Av. & Chino Corona Rd.	AWS	Constr	uction Lo	cation	Only	Constr	uction Lo	cation	Only	D
36	W. Preserve Loop & Pine Av.	TS	10.3	8.2	В	Α	10.6	8.2	В	А	D
37	Main St. & Kimball Av.	TS	2040) Analysis	Locati	on	2040) Analysis	s Locatio	on	D
38	Flight Av. & Kimball Av.	CSS	2040) Analysis	Locati	on	2040) Analysis	s Locatio	on	D
39	E. Preserve Loop & Pine Av.	TS	8.5	7.3	А	А	8.6	7.4	А	А	D
40	Hellman Av. & Kimball Av.	TS	2040) Analysis	Locati	on	2040) Analysis	s Locatio	on	D



Table 7-1

Page 2 of 2

Intersection Analysis for Opening Year Cumulative (2022) Conditions

			202	2 Withou	ıt Proje	ct	20	22 With	Project		
			Del	ay¹	Leve	el of	Del	ay ¹	Leve	el of	Acceptable
		Traffic	(se	cs.)	Ser	vice	(se	cs.)	Ser	vice	LOS
#	Intersection	Control ²	AM	PM	AM	PM	AM	PM	AM	PM	
41	Hellman Av. & Pine Av./Schleisman Rd.	TS	39.8	42.0	D	D	40.7	43.7	D	D	D
42	Archibald Av. & Limonite Av.	TS	76.8	63.6	Е	Е	77.2	66.5	Е	Е	D
43	Archibald Av. & Schleisman Rd.	TS	106.7	66.0	F	Е	116.0	77.8	F	Е	D

* **BOLD** = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

² CSS = Cross-street Stop; AWS = All-Way Stop; TS = Traffic Signal; <u>CSS</u> = Improvement

³ Intersection geometrics reflect the completion of Pine Avenue Stages 1-3.





EXHIBIT 7-5: OPENING YEAR CUMULATIVE (2022) WITHOUT PROJECT SUMMARY OF LOS



EXHIBIT 7-6: OPENING YEAR CUMULATIVE (2022) WITH PROJECT SUMMARY OF LOS





7.6 OFF-RAMP QUEUING ANALYSIS

Queuing analysis findings for Opening Year Cumulative (2022) Without and With Project traffic conditions are shown on Table 7-2. As shown on Table 7-2, there are no movements that are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows with addition of Project traffic. Worksheets for Opening Year Cumulative (2022) Without and With Project traffic conditions off-ramp queuing analysis are provided in Appendices 7.5 and 7.6, respectively.

7.7 FREEWAY FACILITY ANALYSIS

Opening Year Cumulative (2022) Without and With Project mainline directional volumes for the AM and PM peak hours are provided on Exhibits 7-7 and 7-8, respectively. As shown on Table 7-3, the following freeway segments and merge/diverge ramp junctions are anticipated to operate at an unacceptable LOS (i.e., LOS E or worse) for Opening Year Cumulative (2022) Without Project:

- SR-60 Freeway Westbound, West of Euclid Avenue (SR-83) (#24) LOS E AM and PM peak hours
- SR-60 Freeway Westbound, Euclid Avenue (SR-83) Off-Ramp (#26) LOS E AM and PM peak hours
- SR-60 Freeway Westbound, East of Euclid Avenue (SR-83) (#27) LOS E AM and PM peak hours
- SR-60 Freeway Eastbound, East of Euclid Avenue (SR-83) (#31) LOS E AM peak hour only

With the addition of Project traffic, there are no additional freeway segments or merge/diverge ramp junctions anticipated to operate at an unacceptable LOS during the peak hours, in addition to those previously identified under Opening Year Cumulative (2022) Without Project traffic conditions.

Opening Year Cumulative (2022) Without and With Project basic freeway segment analysis worksheets are provided in Appendix 7.7 and 7.8, respectively.



Table 7-2

		Available	20	122 Without Pro	ject		2	022 With Project	t	
Intersection	Movement	Stacking Distance	95th Percentile	e Queue (Feet) ³	Accept	able? ¹	95th Percentile	Queue (Feet) ³	Accept	able? ¹
		(Feet)	AM Peak Hour	PM Peak Hour	AM	PM	AM Peak Hour	PM Peak Hour	AM	PM
SR-71 SB Ramps & Central Avenue	SBL	1,530	273	613 ²	Yes	Yes	297 ²	636 ²	Yes	Yes
	SBL/R	740	0	0	Yes	Yes	0	0	Yes	Yes
SR-71 SB Ramps & Pine Avenue	SBL/T SBR	1,370 725	20	l 40 Analysis Loca	tion		202	l 40 Analysis Locat	tion	
SR-71 SB Ramps & Euclid Avenue (SR-83)	SBL	1,100	233	256	Yes	Yes	233	256	Yes	Yes
	SBL/T	1,560	233	255	Yes	Yes	233	255	Yes	Yes
	SBR	255	0	3	Yes	Yes	0	ε	Yes	Yes
SR-71 NB Ramps & Central Avenue	NBL	1,485	35	81	Yes	Yes	35	81	Yes	Yes
	NBL/R	1,070	0	0	Yes	Yes	0	0	Yes	Yes
SR-71 NB Ramps & Pine Avenue	NBL NBL/T	1,375 815	20	 40 Analysis Loca 			202	 40 Analysis Locat	tion	
SR-71 NB Ramps & Euclid Avenue (SR-83)	NBL	1,745	28	49	Yes	Yes	28	49	Yes	Yes
	NBR	420	355 ²	941 ²	Yes	Yes ³	412 ²	967 ²	Yes	Yes ³
Euclid Av. (SR-83) & SR-60 WB Ramps	WBL	400	375 ²	308	Yes	Yes	388 ²	308	Yes	Yes
	WBL/T/R	1,430	384 ²	315	Yes	Yes	401 ²	328 ²	Yes	Yes
	WBR	400	241	236	Yes	Yes	250	238	Yes	Yes
Euclid Av. (SR-83) & SR-60 EB Ramps	EBL	006	396 ²	386 ²	Yes	Yes	396 ²	386 ²	Yes	Yes
	EBT/R	1,270	457 ²	433 ²	Yes	Yes	477 ²	442 ²	Yes	Yes
¹ Stacking Distance is acceptable if the required stacking pockets is reflected in the stacking distance shown on th	distance is less tha nis table, where app	an or equal to th blicable.	ne stacking distance	L provided. An additi	onal 15 fee	t of stackir	g which is assumed	L to be provided in th	e transitio	ר for turn

Peak Hour Freeway Off-Ramp Queuing Summary for Opening Year Cumulative (2022) Conditions

³ Although 95th percentile queue is anticipated to exceed the available storage for the turn lane, the adjacent through lane has sufficient storage to accommodate any spillover without spilling back and affecting the SR-71 Freeway mainline.

² 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Table 7-3

Freeway Facility Analysis for Opening Year Cumulative (2022) Conditions

_	E			2022	2 With	out Projec	t	2022 With Project				
ewa)	ectio	Ramp or Segment	Lanes on	AM Peak	Hour	PM Peak	Hour	AM Peak	Hour	PM Peak	Hour	
Fre	Dir		Freeway	Density ²	LOS ³							
		North of Central Avenue	3	9.9	А	19.4	С	10.2	А	19.5	С	
		Central Avenue Off-Ramp	3	16.7	В	29.1	D	17.2	В	29.3	D	
		Central Avenue Loop On-Ramp	3	9.9	А	14.6	В	9.9	Α	14.6	В	
		Central Avenue On-Ramp	3	10.4	В	14.6	В	10.4	В	14.6	В	
	pu	Central Avenue to Pine Avenue	3	11.1	В	18.2	С	11.1	В	18.2	С	
	noc	Pine Avenue Off-Ramp	2	15.3	В	23.4	С	15.3	В	23.4	С	
	uthl	Pine Avenue On-Ramp	2	13.1	В	12.9	В	13.1	В	12.9	С	
	So	Pine Avenue to Euclid Avenue (SR-83)	2	9.8	А	9.6	Α	9.8	Α	9.6	Α	
		Euclid Avenue (SR-83) Off-Ramp	2	14.2	В	13.9	В	14.2	В	13.9	В	
γ		Euclid Avenue (SR-83) Loop On-Ramp	2	10.3	В	10.9	В	10.3	В	11.3	В	
ewa		Euclid Avenue (SR-83) On-Ramp	2	16.7	В	17.4	В	16.8	В	17.8	В	
Fre		South of Euclid Avenue (SR-83)	2	16.0	В	16.9	В	16.0	В	17.3	В	
-71		North of Central Avenue	3	21.6	С	18.6	С	8.0	Α	18.9	С	
SF		Central Avenue On-Ramp	3	25.8	С	21.9	С	10.3	В	22.3	С	
	Northbound	Central Avenue Loop On-Ramp	3	19.7	В	17.8	В	14.2	В	17.8	В	
		Central Avenue Off-Ramp	3	21.3	С	22.9	С	13.1	В	22.9	С	
		Central Avenue to Pine Avenue	3	14.5	В	15.9	В	9.5	Α	15.9	В	
		Pine Avenue On-Ramp	2	16.8	В	20.0	С	15.3	В	20.0	С	
		Pine Avenue Off-Ramp	2	24.0	С	28.2	D	10.4	В	28.2	D	
		Pine Avenue to Euclid Avenue (SR-83)	2	18.2	С	22.1	С	6.8	Α	22.1	С	
		Euclid Avenue (SR-83) On-Ramp	2	20.0	В	24.4	С	9.9	Α	24.4	С	
		Euclid Avenue (SR-83) Off-Ramp	3	9.5	А	16.8	В	17.2	В	16.9	В	
		South of Euclid Avenue (SR-83)	3	11.6	В	20.4	С	10.2	А	20.5	С	
	pu	West of Euclid Avenue (SR-83)	4	38.0	E	35.9	E	38.0	E	35.9	E	
	estboui	Euclid Avenue (SR-83) On-Ramp	4	36.3	D	35.0	D	36.3	D	35.1	D	
way		Euclid Avenue (SR-83) Off-Ramp	4	38.6	E	38.0	E	38.8	E	38.1	E	
ree	\geq	East of Euclid Avenue (SR-83)	4	38.6	E	37.2	E	38.7	E	37.2	E	
30 F	pc	West of Euclid Avenue (SR-83)	4	34.8	D	28.1	D	34.8	D	28.1	D	
SR-6	our	Euclid Avenue (SR-83) Off-Ramp	4	34.9	D	30.8	D	34.9	D	30.8	D	
	astb	Euclid Avenue (SR-83) On-Ramp	4	35.8	D	29.7	С	35.9	D	29.8	D	
	ш	East of Euclid Avenue (SR-83)	4	36.6	Е	28.8	D	36.6	Е	28.9	D	

* **BOLD** = Unacceptable Level of Service

 $^{1}\,\mathrm{Number}$ of lanes are in the specified direction and is based on existing conditions

² Density is measured by passenger cars per mile per lane (pc/mi/ln).

³ LOS = Level of Service





EXHIBIT 7-7: OPENING YEAR CUMULATIVE (2022) WITHOUT PROJECT FREEWAY MAINLINE VOLUMES



LEGEND:





N



EXHIBIT 7-8: OPENING YEAR CUMULATIVE (2022) WITH PROJECT FREEWAY MAINLINE VOLUMES



LEGEND:



N



7.8 RECOMMENDED IMPROVEMENTS

7.8.1 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES AT INTERSECTIONS

Improvement strategies have been recommended at intersections that have been identified as deficient in an effort to reduce each location's peak hour delay and improve the associated LOS grade to an acceptable LOS (LOS D or better). The effectiveness of the recommended improvement strategies discussed below to address Opening Year Cumulative (2022) traffic deficiencies is presented on Table 7-4. Worksheets for Opening Year Cumulative (2022) Without and With Project conditions, with improvements, HCM calculation worksheets are provided in Appendix 7.9 and Appendix 7.10.

7.8.2 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES ON OFF-RAMP QUEUES

As shown previously on Table 7-2, there are no peak hour queuing issues at the SR-71 Freeway at Euclid Avenue (SR-83) and Euclid Avenue (SR-83) at SR-60 Freeway interchanges for Opening Year Cumulative (2022) Without and With Project traffic conditions. As such, no improvements have been recommended.

7.8.3 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES ON FREEWAY FACILITIES

At this time, Caltrans has no fee programs or other improvement programs in place to address the deficiencies caused by development projects in the City of Chino (or other neighboring jurisdictions) on SHS roadway segments. As such, no improvements have been recommended to address the Opening Year Cumulative (2022) Without and With Project deficiencies on the SHS, because there is no feasible mitigation available.

Table 7-4

Page 1 of 2

Intersection Analysis for Opening Year Cumulative (2022) Conditions With Improvements

			Intersection Approach Lanes											Delay ²		Level of		
		Traffic	Northbound Southbou					ound	Eastbound Westbound						(secs.)		Service	
#	Intersection	Control ³	L	Т	R	L	Т	R	L	Т	R	L	Т	R	AM	PM	AM	PM
7	Central Av. & El Prado Rd.																	
	2022 Without Project:																	
	-Without Improvements	TS	1	2	1>	1	3	0	1	1	0	1	1	1>	35.0	81.1	D	F
	-With Improvements	TS	1	2	1>	<u>2</u>	3	0	1	1	0	1	1	1>	30.1	37.5	С	D
	2022 With Project:																	
	-Without Improvements	TS	1	2	1>	1	3	0	1	1	0	1	1	1>	36.9	87.7	D	F
	-With Improvements	TS	1	2	1>	<u>2</u>	3	0	1	1	0	1	1	1>	30.6	40.9	С	D
8	El Prado Rd. & Kimball Av.																	
	2022 Without Project:																	
	-Without Improvements	TS	1	1	1	1	2	0	1	1	0	0	1	1>	35.0	124.9	С	F
	-With Improvements	TS	1	1	1	<u>2</u>	<u>1</u>	0	1	1	0	0	1	1>	25.4	27.9	С	С
	2022 With Project:																	
	-Without Improvements	TS	1	1	1	1	2	0	1	1	0	0	1	1>	48.8	132.4	D	F
	-With Improvements	TS	1	1	1	<u>2</u>	<u>1</u>	0	1	1	0	0	1	1>	25.6	29.4	С	С
22	Euclid Av. (SR-83) & Riverside Dr.																	
	2022 Without Project:																	
	-Without Improvements	TS	1	2	1	1	2	1>	1	1	0	1	2	d	59.0	83.7	E	F
	-With Improvements	TS	1	<u>3</u>	1	1	<u>3</u>	1>	1	1	<u>1</u>	1	2	d	39.9	47.8	D	D
	2022 With Project:																	
	-Without Improvements	TS	1	2	1	1	2	1>	1	1	0	1	2	d	61.2	91.8	E	F
	-With Improvements	TS	1	<u>3</u>	1	1	<u>3</u>	1>	1	1	<u>1</u>	1	2	d	40.2	48.7	D	D
25	Euclid Av. (SR-83) & Edison Av.																	
	2022 Without Project:																	
	-Without Improvements	TS	1	2	1	1	2	1	1	1	1	1	1	0	51.6	60.6	D	E
	-With Improvements	TS	1	<u>3</u>	1	1	<u>3</u>	1	1	1	1	1	1	0	38.5	41.3	D	D
	2022 With Project:																_	_
	-Without Improvements		1	2	1	1	2	1	1	1	1	1	1	0	56.3	64.8	E	E
27	-With Improvements	15	1	3	1	1	3	1	1	1	1	1	1	0	39.3	42.1	D	D
27	Euclid AV. (SR-83) & Merrill AV.																	
	-Without Improvements	тс	1	c	1	1	2	0	0	1	0	0	1	0	15 5	71 5	П	E
	-With Improvements	т	1	2	1	1	2	0	0	1	0	0	1	0	29.2	39.9	c	
	2022 With Project ¹	15	-	2	1	-	2	U	Ŭ	1	0	U	-	0	23.2	55.5	C	U
	-Without Improvements	TS	1	2	1	1	2	0	0	1	0	0	1	0	47.6	81.6	D	F
	-With Improvements	TS	1	3	1	1	3	0	0	1	0	0	1	0	29.9	42.5	C	D
28	Euclid Av. (SR-83) & Kimball Av.	-						-	-		-	-		-				
	2022 Without Project:																	
	- Without Improvements	тs	1	2	1>	2	2	1>	2	2	0	1	2	0	42.4	52.2	D	D
	-With Improvements						No	t App	olica	ble								
	2022 With Project:							-										
	-Without Improvements	TS	1	2	1>	2	2	1>	2	2	0	1	2	0	43.2	57.1	D	Е
	-With Improvements	TS	1	<u>3</u>	1>	2	<u>3</u>	1>	2	2	0	1	2	0	34.5	41.5	С	D


Table 7-4

Page 2 of 2

Intersection Analysis for Opening Year Cumulative (2022) Conditions With Improvements

					In	terse	ectio	n Ap	pro	ach I	ane	s ¹			De	lay ²	Lev	el of
		Traffic	Nor	thbo	ound	Sou	thbc	ound	Eas	stbou	und	We	stbo	und	(se	cs.)	Ser	vice
#	Intersection	Control ³	L	Т	R	L	Т	R	L	Т	R	L	Т	R	AM	PM	AM	PM
30	Euclid Av. (SR-83) & Pine Av.																	
	2022 Without Project:																	
	-Without Improvements	TS	1	2	1>	1	2	0	1	1	1	2	1	0	45.3	101.0	D	F
	-With Improvements	TS	1	<u>3</u>	<u>1>></u>	1	<u>3</u>	0	1	1	1	2	1	0	35.8	39.3	D	D
	2022 With Project:																	
	-Without Improvements	TS	1	2	1>	1	2	0	1	1	1	2	1	0	50.0	114.4	D	F
	-With Improvements	TS	1	<u>3</u>	<u>1>></u>	1	<u>3</u>	0	1	1	1	2	1	0	38.6	46.6	D	D
42	Archibald Av. & Limonite Av.																	
	2022 Without Project:																	
	-Without Improvements	TS	0	1	1>	1	1	0	0	0	0	1	0	1>	76.8	63.6	Е	Е
	-With Improvements	TS	0	2	1>	1	1	0	0	0	0	1	0	1>	31.7	37.4	С	D
	2022 With Project:																	
	-Without Improvements	TS	0	1	1>	1	1	0	0	0	0	1	0	1>	77.2	66.5	Е	Е
	-With Improvements	TS	0	<u>2</u>	1>	1	1	0	0	0	0	1	0	1>	32.1	41.4	С	D
43	Archibald Av. & Schleisman Rd.																	
	2022 Without Project:																	
	-Without Improvements	TS	2	3	1	2	3	1	2	3	1	2	3	1	106.7	66.0	F	Е
	-With Improvements ⁴	TS	2	3	1	2	3	1	2	3	1	2	3	1	38.3	33.9	D	С
	2022 With Project:																	
	-Without Improvements	TS	2	3	1	2	3	1	2	3	1	2	3	1	116.0	77.8	F	Е
	-With Improvements ⁴	TS	2	3	1	2	3	1	2	3	1	2	3	1	41.8	35.4	D	D

When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; > = Right-Turn Overlap Phasing; >> = Free Right Turn Lane; d = Defacto Right Turn Lane; <u>1</u> = Improvement
 Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

³ TS = Traffic Signal

⁴ Improvement consists of modifying the traffic signal to extend the cycle length to 130 seconds.



8 HORIZON YEAR (2040) TRAFFIC CONDITIONS

This section discusses the methods used to develop Horizon Year (2040) Without and With Project traffic forecasts, and the resulting intersection operations, freeway mainline operations, and traffic signal warrant analyses.

8.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for Horizon Year (2040) conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for Horizon Year conditions only (e.g., intersection and roadway improvements along the Project's frontage and driveways).
- Driveways and those facilities assumed to be constructed by cumulative developments to provide site access are also assumed to be in place for Horizon Year conditions only (e.g., intersection and roadway improvements along the cumulative development's frontages and driveways such as the southern extension of Rincon Meadows Avenue on Pine Avenue).
- The Pine Avenue extension between El Prado Road and the SR-71 Freeway is assumed to be in place.
- Other parallel facilities, that although not evaluated for the purposes of this analysis, are anticipated to be in place for Horizon Year traffic conditions and would affect the travel patterns within the study area (e.g., The Preserve Specific Plan roadway network, extension of Kimball Avenue between Hellman Avenue and Archibald Avenue, etc.).

8.2 HORIZON YEAR (2040) TRAFFIC VOLUME FORECASTS

The Horizon Year (2040) Without Project analysis scenario includes the refined post-process volumes obtained from the SBTAM or RivTAM (see Section 4.7 *Horizon Year (2040) Volume Development* of this TIA for a detailed discussion on the post-processing methodology). The weekday ADT and weekday AM and PM peak hour volumes which can be expected for Horizon Year (2040) Without Project traffic conditions are shown on Exhibits 8-1 and 8-2.

The Horizon Year (2040) With Project analysis scenario includes the refined post-process volumes obtained from the SBTAM or RivTAM, plus the traffic generated by the proposed Project (see Section 4.7 *Horizon Year (2040) Volume Development* of this TIA for a detailed discussion on the post-processing methodology). The weekday ADT and weekday AM and PM peak hour volumes which can be expected for Horizon Year (2040) With Project traffic conditions are shown on Exhibits 8-3 and 8-4.





EXHIBIT 8-1: HORIZON YEAR (2040) WITHOUT PROJECT AVERAGE DAILY TRAFFIC (ADT) (IN PCE)

LEGEND:

10.0 – VEHICLES PER DAY (1000'S)

10349 - adt.dwg



1	SR-7 Soquel (l SB Ramps & Canyon Pkwy.	2	SR-7	I SB Ramps & Pine Av.	3	SR Shao Butterfi	71 SB Ramps/ dy View Dr. & eld Ranch Rd.	4	SR-71	I NB Ramps & Central Av.	5 SR-	71 NB Ramps & Pine Av.
1573 1	+ + + + + + + + + + + + + + + + + + +	€—251(307) - 773(887)	70	(120) = (120	264(513) ∳50(121)	819	$\begin{array}{c c} & -14(37) \\ \hline & -14(37) \\ \hline & -30(75) \\ \hline & -669(1040) \end{array}$	 ▲_0(0) ▲ 404(308) ✓ 234(170) ▲ ▲ ▲ ④ ⊕ ⊕ ④ ⊕ ⊕ 	1257(870	1610)→ (475)→	-1110(782) +910(1034) 1 [20 8	495(360)—	
				·		3	6(67)	21(2 0(330(16			114(1) 437(39		67(12 6(
6	SR-7 Eucl	NB Ramps & id Av. (SR-83)	7		Central Av. & El Prado Rd.	8	E	i Prado Rd. & Kimbali Av.	9	M	ountain Av. & Kimball Av.	10	Mountain Av. & Bickmore Av.
526	(1025) → 49(6)→	+ 1659(1632) + 1659(1632) ↓ 401(54) ↓ (2∠21)09 951		$\begin{array}{c c} & -14(21) \\ \hline & -14(21) \\ \hline & -781(949) \\ \hline & -1815(622) \\ \hline & -315(622) \\ \hline \end{array}$	$\begin{array}{c} 4 \\ -587(550) \\ -4(3) \\ -668(495) \\ -4(868) \\ -668(495) \\ -4(868) \\ -688(495) \\ -4(868) \\ -688(495) \\ -688($	2	$\begin{array}{c} \begin{array}{c} & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ \end{array} \begin{array}{c} & & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ \end{array} \begin{array}{c} & & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ \end{array} \begin{array}{c} & & & \\ & & \\ & & \\ & & \\ & & \\ \end{array} \begin{array}{c} & & \\ & & \\ & & \\ & & \\ \end{array} \begin{array}{c} & & \\ & & \\ & & \\ & & \\ \end{array} \begin{array}{c} & & \\ & & \\ & & \\ & & \\ \end{array} \begin{array}{c} & & \\ & & \\ & & \\ \end{array} \begin{array}{c} & & \\ & & \\ & & \\ \end{array} \begin{array}{c} & & \\ & & \\ & & \\ & & \\ \end{array} \begin{array}{c} & & \\ & & \\ & & \\ & & \\ \end{array} \begin{array}{c} & & \\ & & \\ & & \\ & & \\ \end{array} \begin{array}{c} & & \\ & & \\ & & \\ \end{array} \begin{array}{c} & & \\ & & \\ & & \\ & & \\ \end{array} \begin{array}{c} & & \\ & & \\ & & \\ \end{array} \begin{array}{c} & & \\ & & \\ & & \\ \end{array} \begin{array}{c} & & \\ & & \\ & & \\ \end{array} \begin{array}{c} & & \\ & & \\ & & \\ & & \\ \end{array} \begin{array}{c} & & \\ & & \\ & & \\ \end{array} \begin{array}{c} & & \\ & & \\ & & \\ \end{array} \begin{array}{c} & & \\ & & \\ & & \\ \end{array} \begin{array}{c} & & \\ & & \\ & & \\ \end{array} \begin{array}{c} & & \\ & & \\ & & \\ \end{array} \begin{array}{c} & & \\ & & \\ & & \\ \end{array} \begin{array}{c} & & \\ & & \\ & & \\ \end{array} \begin{array}{c} & & \\ & & \\ & & \\ \end{array} \begin{array}{c} & & \\ & & \\ & & \\ \end{array} \begin{array}{c} & & \\ & & \\ & & \\ \end{array} \begin{array}{c} & & \\ & & \\ & & \\ \end{array} \begin{array}{c} & & \\ & & \\ & & \\ \end{array} \begin{array}{c} & & \\ & & \\ & & \\ \end{array} \begin{array}{c} & & \\ & & \\ & & \\ \end{array} \begin{array}{c} & & \\ & & \\ & & \\ \end{array} \begin{array}{c} & & \\ & & \\ \end{array} \begin{array}{c} & & \\ & & \\ & & \\ \end{array} \begin{array}{c} & & \\ & & \\ & & \\ \end{array} \end{array} \begin{array}{c} & & \\ & & \\ \end{array} \end{array} \begin{array}{c} & & \\ & & \\ \end{array} \begin{array}{c} & & \\ & & \\ \end{array} \end{array} \begin{array}{c} & & \\ & & \\ \end{array} \end{array} \begin{array}{c} & & \\ & & \\ \end{array} \end{array} \begin{array}{c} & & \\ & & \\ \end{array} \end{array} \begin{array}{c} & & \\ & & \\ \end{array} \end{array} \begin{array}{c} & & \\ & & \\ \end{array} \end{array} \begin{array}{c} & & \\ & & \\ \end{array} \end{array} \end{array} \begin{array}{c} & & \\ & & \\ \end{array} \end{array} \begin{array}{c} & & \\ & & \\ \end{array} \end{array} \end{array} \begin{array}{c} & & \\ & & \\ \end{array} \end{array} \end{array} \begin{array}{c} & & \\ \end{array} \end{array} \begin{array}{c} & & \\ & & \\ \end{array} \end{array} \end{array} \end{array} \begin{array}{c} & & \\ \end{array} \end{array} \end{array} \end{array} \begin{array}{c} & & \\ & & \\ \end{array} \end{array} \end{array} \end{array} \end{array} \end{array} \begin{array}{c} & & \\ & & \\ \end{array} \end{array} \end{array} \end{array} \end{array} \begin{array}{c} & & \\ & & \\ \end{array} \begin{array}{c} & & \\ \end{array} \end{array}$	€886(868) +17(7) 34(27) (3(3)) (4)(9)) (4)(9)) (4)(9)) (50) (5	407(1 93	235)→ 3(79)→	+1281(775) 132(56) (102) 132(56) (102) 132(56) 132(+ - 73(40)	199(103) ↓ 199(103) ↓ ↓ ↓ ↓ (05)) ↓ ↓ ↓ (05)) (5)
11	М	ountain Av. & Dwy. 1	12	М	ountain Av. & Dwy. 2	13	М	ountain Av. & Dwy. 3	14	E	i Prado Rd. & Mountain Av.	15	El Prado Rd. & Pine Av.
	Fut Inters	ure ection		Fut Inters	ure ection		Fu: Inters	ture section		←124(529) ←13(43)	↓_56(19) ↓100(75) ↓(821)682 ↓(821)682	(65)288 → 92(48) – 92(48) – 590(1233) →	-317(143) 1288(1046)
16		Dwy. 4 & Bickmore Av.	17		Dwy. 5 & Bickmore Av.	18		Dwy. 6 & Bickmore Av.	19	Euclid SR-6	Av. (SR-83) & 60 WB Ramps	20 Eucli SI	d Av. (SR 83) & R 60 EB Ramps
	Fut Inters	ture section		Fut Inters	ture section		Fut Inters	ture section		↓593(598) ≁-1216(1244)	 4—516(495) 4—7(8) √—810(768) 		
											545(601) 1183(1329)→	520(505)— 3(4)→ 653(535)—	1206(1426)
21	Euclid	Av. (SR-83) & Walnut Av.	22	Euclid	Av. (SR-83) & Riverside Dr.								
25 36 14	$\begin{array}{c} -123(265) \\ -123(265) \\ -1796(1537) \\ -1796(1537) \\ -189(320) \\ -189(32$	↓ 258(170) + 388(449) ↓ 1(85) + (06)85 (85)285 (85)291 (85)291	19 45 12	$\begin{array}{c} -102(345) \\ -102(345) \\ -1574(1315) \\ -1574(1315) \\ -1574(1315) \\ -1274(1315) \\$	↓ 145(78) + 616(499) ↓ 239(228) + (1667)102 1145(78) + (1667)102 1145(78) + (1667)102		LE(10(1	jend: 10) - ам(рм) PEA	k houf	RINTERSECT	TON VOLUN	IES

EXHIBIT 8-2 (10F2): HORIZON YEAR (2040) WITHOUT PROJECT TRAFFIC VOLUMES (IN PCE)



23	Euclid	Av. (SR-83) & Chino Av.	24	Euclid	Av. (SR-83) & Schaefer Av.	25	Euclid	Av. (SR-83) & Edison Av.	26	Euclid E	Av. (SR-83) & ucalyptus Av.	27	Euclid I	Av. (SR-83) & E. Facility Dr./ Merrill Av.
	←116(87) ←1705(1490) ←70(35)	-80(18) -285(223) -103(136)		↓457(455) ↓_1605(1522) ↓_39(199)	-186(73) 377(158) 177(95)		←211(220) ←1381(1589) ←286(201)	-336(340) -1121(723) 		←51(78) ←1530(1770) ←114(260)	-187(237) 194(157) 385(413)		←49(1) ←1450(1621) ←364(392)	-458(421) 60(3) ∳-385(631)
13 24	1(134)— [♪] 3(487)→ 63(69)—	67(68)→ 1415(1937)→ 180(276)→	19 9 9	93(487) 92(463)→ 98(264)	229(239) → + 1376(1864) + 44(100) →	196 971(160	5(334) 1195)→ 9(376)→	282(221)→ 1277(1714)→ 151(277)→	4: 20:	84(47) 2(202)→ 2(264)→	220(144)		10(14)— ⁴ 10(37)→ 21(15)—	13(5)→ 1282(1509)→ 442(797)→
28	Euclid	Av. (SR-83) & Kimball Av.	29	Euclid	Av. (SR-83) & Bickmore Av.	30	Euclid	Av. (SR-83) & Pine Av.	31	Rincon	Meadows Av. & Kimball Av.	32	Rincon	Meadows Av. & Pine Av.
	←483(419) ←1209(1391) ←280(541)	←418(293) ←941(435) ←189(87)		<pre></pre>	←215(166) ←256(33) ←241(70)		←130(122) ←1032(1203) ←163(391)	4—341(247) ←964(604) ←1319(712)					←227(194) ←2(6) ←134(336)	- -280(264) -1963(1146) -5(16)
21: 32: 10:	3(591)— [↓] 2(975)→ 9(206)—	178(147)	5 1 4	52(101)— [↓] 4(132)→ 7(138)	92(55) → 1098(1385) → 40(126) →	84 298 204	H(115)— ⁴ 8(892)→ H(224)—,	171(278)	709(39	1155)→ (179)	220(79) 221(131)	13 998	5(256) (2072)→ 12(39)	34(24)
33	Mi	l Creek Av. & Kimball Av.	34	M Chino	/iill Creek Av./ Corona Rd. & Pine Av.	35	Chino Cuca Chir	Corona Rd. / amonga Av. & no Corona Rd.	36	W. Pre	serve Loop & Pine Av.	37		Main St. & Kimball Av.
789(1140)→ (146)→	←1064(699) ←46(64)	916	$\begin{array}{c} \leftarrow \\ \leftarrow $	 ↓ 137(37) ↓ 2090(1100) ↓ 109(46) ↓ 100(46) 		Consti Ana Or	ruction lysis nly	4	$(250) \xrightarrow{-153(109)} -2(5) \xrightarrow{-2(5)} -2(7)$	4-339(126) ←2060(981) ←190(25)	878	3(923)→ 3(323)→	←763(621) ←94(227)
	(110) 🕴	201(105	1	85(52)	108(14 16(3 39(8				26	(101)	123(9) 2(4) 31(19		(525) ¥	347(14) 273(130
38		Flight Av. & Kimball Av.	39	E. Pre	serve Loop & Pine Av.	40	ŀ	lellman Av. & Kimball Av.	41	H Si	lellman Av. & Pine Av./ chleisman Rd.	42	Aı	chibald Av. & Limonite Av.
	← 134(225) ← 12(17) ← 176(193)	[↓] 147(221) <i>↓</i> 715(614) _∲ 17(67)		←192(51) ←165(211) ←133(68)	-45(165) -1822(960) -121(438)		←25(148) ←45(98) ←40(123)	[≜] 119(62) ←791(793) _₹ _331(483)		←37(293) ←166(344) ←111(439)	4—332(159) ←1123(1020) ←107(264)		766(1480) 406(655)	-656(686) -364(469)
608 519 2	8(279)—∮ 9(732)→ 24(42)—	7(10) → 12(14) → 176(23) →	2 972 5	0(166)— [▲] (1833)→ 3(441)—	575(121) → 185(188) → 400(160) →	591 591 376	5(30)—* (925)— (258)—	163(326) → 265(93) → 298(430) →	24: 556(51(3(186)→ (1305)→ 5(614)→	605(237) → 499(145) → 146(69) →			1108(1155) - 372(482) - }
43	Ai Si	chibald Av. & chleisman Rd.				•			•					
574 778(162	$(1220) \xrightarrow{1}{2} (120) \xrightarrow{1}{2}$	284(232) → 1065(869) → 496(329) → 496(329) → 496(329) → 1065(869) → 1065(869		LE(10(1	jend: 10) - am(pm) PEA	k houf	R INTERSECT	'ION '	VOLUME	ΞS			

EXHIBIT 8-2 (20F2): HORIZON YEAR (2040) WITHOUT PROJECT TRAFFIC VOLUMES (IN PCE)





EXHIBIT 8-3: HORIZON YEAR (2040) WITH PROJECT AVERAGE DAILY TRAFFIC (ADT) (IN PCE)

LEGEND:

10.0 = VEHICLES PER DAY (1000'S)

10349 - adt.dwg



1	SR-7 Soquel (1 SB Ramps & Canyon Pkwy.	2	SR-7	1 SB Ramps & Pine Av.	3	SR• Shac Butterfi	71 SB Ramps/ Iy View Dr. & eld Ranch Rd.	4	SR-71	I NB Ramps & Central Av.	5 SR-7	'1 NB Ramps & Pine Av.
	←352(922) ←558(1003)	[≜] 251(307) → 774(891)		←199(557) ←1(8) ←478(819)	≁-265(519) ∲63(173)		←14(37) ←30(75) ←669(1040)	€0(0) ←404(308) ∲234(170)			⁴ —1111(788) → 911(1038)		4—934(556) ∢ -262(569)
1576 1	(1086)→ 06(76)→		710 3	(443)→ 6(45)→		819 3	0(0)→ (987)→ 6(67)→	21(20)— [↓] 0(0)→ 330(169)— _↑	1265(1 870(614) → (475),	114(159)	495(360) 692(902)→	67(123) 6(3)→ 116(252)→
6	SR-7 Eucl	I NB Ramps & Id Av. (SR-83)	7		Central Av. & El Prado Rd.	8	E	l Prado Rd. & Kimball Av.	9	M	ountain Av. & Kimball Av.	10 №	lountain Av. & Bickmore Av.
		←1659(1632) ↓ ←401(54)		↓ 14(21) +781(949) +330(629)	€591(569)		<pre></pre>	€-893(898) ←17(7) ∲-34(27)			←1281(775) ←132(56)	+-96(52) +-63(77)	↓_199(103) ↓_134(77)
526	49(6)→	156(1272) 560(1272)		3(22)→ 7(13)→ 1(9)→	2(7) 930(898) → 506(661)]	2	4(36)→ 5(15)→ 3(6)→	6(4) 305(283) → 33(36)]	407(1)	235) ~ (91) ~	94(156) 43(105)		103(85)-+ 52(110)
11	М	ountain Av. & Dwy. 1	12	М	ountain Av. & Dwy. 2	13	M	ountain Av. & Dwy. 3	14	E	i Prado Rd. & Mountain Av.	15	El Prado Rd. & Pine Av.
	+-206(116) +-25(12)	-7(32) <u>←</u> 2(11) ↑ ↑ m •		←176(113) ←_33(14)	↓ 10(37)		+−182(200) +−17(8)	€_5(21) €_7(27) ↓ ↓ © ©		←124(529) ←13(43)	-56(19) ←133(207) ↑ ↑ ∞ ↑	(EL) (1233) (1233) (1233) (1233)	333(150) 1288(1046)
		148(16 8(146(13 81(3			223(14 24(1			289(12 233(11		
16		Dwy. 4 & Bickmore Av.	17		Dwy. 5 & Bickmore Av.	18		Dwy. 6 & Bickmore Av.	19	Euclid SR-6	Av. (SR-83) & 50 WB Ramps	20 Euclid SR	Av. (SR-83) & 60 EB Ramps
		←333(180) 41(21)			←374(201) ∲─8(3)			 382(204) ∳──8(3)		↓593(598) +-1221(1246)	▲_516(495) ←7(8) ∲─837(779)	+-1599(1568) 459(458)	
115	(187)→ 0(0)→	0(0)_ ⁴ 12(53)_ ₁	127((240) → 0(0)—,	0(0) 2(8)	130((248) → 0(0)—	0(0) 2(8)}			548(613)	520(505) 3(4)→ 665(540)	1211(1444) → 867(793) →
21	Euclid	Av. (SR-83) & Wainut Av.	22	Euclid	Av. (SR-83) & Riverside Dr.				-				
25 36 15	$\begin{array}{c} -123(265) \\ -123(265) \\ -1840(1555) \\ -1840(1555) \\ -1840(1555) \\ -188(320) \\ -188($	↓_258(170) +388(449) ↓ 91(85) ↑ (06)85 ↑ (06)85 1072)291	193 453 129	$\begin{array}{c} -102(345) \\ -102(345) \\ -1020(1334) \\ -1020(1334) \\ -1020(1334) \\ -1020(1661) \\ -1020(166$	↓ 145(78) + 616(499) - 241(229) - 100(1000) - 100(10		LEC 10(1	јЕНД: о) - ам(рм) PEA	(HOUF	RINTERSECT	ION VOLUM	ES
		- 			1								

EXHIBIT 8-4 (10F2): HORIZON YEAR (2040) WITH PROJECT TRAFFIC VOLUMES (IN PCE)



2	3 Euclid	Av. (SR-83) & Chino Av.	24 Euclid	Av. (SR-83) & Schaefer Av.	25	Euclid	Av. (SR-83) & Edison Av.	26	Euclid E	Av. (SR-83) & ucalyptus Av.	27	Euclid	Av. (SR-83) & 5. Facility Dr./ Merrill Av.
	↓116(87) ↓_1755(1511) ↓_70(35)	[€] —80(18) ← 285(223) _€ —105(137)	↓457(455) ↓_1657(1544) ↓39(199)	- 186(73) - 377(158) - 177(95)		←_211(220) ←1433(1611) ←_286(201)	4—336(340) ←1121(723) ←210(428)		←51(78) ←1587(1794) ←114(260)	4—187(237) ←194(157) ←385(413)		▲49(1) →1510(1647) ↓364(392)	€_458(421) 60(3) 388(633)
:	131(134) 243(487) 63(69) ,	67(68) → 1430(1992) → 180(278) →	193(487) 92(463)→ 98(264)	229(239) 	196 971(162	5(334) 1195)→ 2(377)	282(223)→ 1292(1771)→ 152(281)→	42 20!	84(47) 2(202)→ 5(266)	221(148) → 1533(1772) → 133(383) →		10(14) 10(37)→ 21(15)→	13(5)→ 1300(1577)→ 443(801)→
2	8 Euclid	Av. (SR-83) & Kimball Av.	29 Euclid	Av. (SR-83) & Bickmore Av.	30	Euclid	Av. (SR-83) & Pine Av.	31	Rincon	Meadows Av. & Kimbali Av.	32	Rincon	Meadows Av. & Pine Av.
	▲−483(419) ←1273(1419) ←280(541)	-418(293) 941(435) 226(105)	+245(199) +-1265(1468) ↓-107(187)	←215(166) ←264(37) ←241(70)		←130(122) ←1032(1203) ←163(391)	-341(247) -980(611) -1319(712)					←227(194) ←2(6) ←134(336)	-280(264) -1979(1153) f-5(16)
	213(591)→ 322(975)→ 109(206)→	178(147)	81(219)⊸ 16(143)→ 47(138)⊸	92(55) 92(55) + 1098(1385) + 40(126)	84 303 204	H(115)— ⁴ B(911)→ H(224)—,	171(278)	720(⁻ 39	1201) → (179) →	220(79) 221(131)	13! 1003(5(256)— [▲] (2091)→ 12(39)—	34(24)
3	3 Мі	ll Creek Av. & Kimball Av.	34 Chino	//Mill Creek Av. Corona Rd. & Pine Av.	35	Chino Cuca Chir	Corona Rd. / amonga Av. & no Corona Rd.	36	W. Pre	serve Loop & Pine Av.	37		Main St. & Kimball Av.
	0(1105)	←1101(717) √-46(64)		- 137(37) - 2104(1106) - 109(46)	-	Consti Ana Or	ruction lysis		<pre></pre>	4—339(126) ←2074(987) ↓ 190(25)		0(057)	←798(638) ∲-94(227)
1	41(146)	201(102) 217(106)	43(43)— 920(2340)→ 185(54)—	110(145) 16(30)				4 924(2 26	2264)→ (101)→	123(93)- 2(4)→ 31(19)-	12	8(325)—	349(143) 273(130)
3	8	Flight Av. & Kimball Av.	39 E. Pro	eserve Loop & Pine Av.	40	ŀ	leliman Av. & Kimbali Av.	41	H Si	lellman Av. & Pine Av./ chleisman Rd.	42	A	chibald Av. & Limonite Av.
	←136(226) ←12(17) ←176(193)	[↓] 147(221) <i>↓</i> 749(630) ₁ /17(67)	← 192(51) ← 165(211) ← 133(68)	45(165) ←1836(966) ←121(438)		←25(148) ←45(98) ←40(123)	[≜] —119(62) ← 825(809) _{\$} —331(483)		←37(293) ←166(344) ←111(439)	4—332(159) ←1134(1025) ∲─107(264)		+-766(1480) +-406(655)	[≹] 656(686) ∳ 366(470)
6	08(281)⊸* 29(774)→ 24(42)→	7(10) → 12(14) → 176(23) →	20(166)→ 976(1850)→ 53(441)→	575(121)→ 185(188)→ 400(160)→	5 601 376	5(30)→ (967)→ (258)→	163(326) → 265(93) → 298(430) ¬	243 559(517	3(186)→ (1317)→ 7(618)→	608(239)			1108(1155) + 372(484)
4	3 A S	rchibald Av. & chleisman Rd.			•								
5 77 1	(12) (22) (22) (22) (22) (22) (22) (22)	231(238) 3360(538) 496(329) 496(329) 496(329) 5388(242) 496(329) 5388(242) 496(329) 5388(242) 5388(2	10(GEND: 10) - AM(PM) PEA	k houi	RINTERSECT	ION V	VOLUME	ΞS			

EXHIBIT 8-4 (20F2): HORIZON YEAR (2040) WITH PROJECT TRAFFIC VOLUMES (IN PCE)



8.3 INTERSECTION OPERATIONS ANALYSIS

8.3.1 HORIZON YEAR (2040) WITHOUT PROJECT TRAFFIC CONDITIONS

LOS calculations were conducted for the study intersections to evaluate their operations under Horizon Year (2040) Without Project conditions with roadway and intersection geometrics consistent with Section 8.1 *Roadway Improvements*. As shown on Tables 8-1 and 8-2, the following study area intersections are anticipated to operate at an unacceptable LOS under Horizon Year (2040) Without Project traffic conditions:

- SR-71 Southbound Ramps & Pine Avenue (#2) LOS F AM peak hour only
- SR-71 Northbound Ramps & Pine Avenue (#5) LOS F AM and PM peak hours
- El Prado Road & Pine Avenue (#15) LOS F AM and PM peak hours
- Euclid Avenue (SR-83) & SR-60 Eastbound Ramps (#20) LOS F AM and PM peak hours
- Euclid Avenue (SR-83) & Riverside Drive (#22) LOS F AM and PM peak hours
- Euclid Avenue (SR-83) & Chino Avenue (#23) LOS E AM peak hour; LOS F PM peak hour
- Euclid Avenue (SR-83) & Schaefer Avenue (#24) LOS F AM and PM peak hours
- Euclid Avenue (SR-83) & Edison Avenue (#25) LOS F AM and PM peak ours
- Euclid Avenue (SR-83) & Eucalyptus Avenue (#26) LOS E AM peak hour; LOS F PM peak hour
- Euclid Avenue (SR-83) & Merrill Avenue (#27) LOS F AM and PM peak hours
- Euclid Avenue (SR-830 & Kimball Avenue (#28) LOS F AM and PM peak hours
- Flight Avenue & Kimball Avenue (#38) LOS F AM and PM peak hours
- Hellman Avenue & Kimball Avenue (#40) LOS F PM peak hour only
- Archibald Avenue & Limonite Avenue (#42) LOS F AM and PM peak hours

A summary of the peak hour intersection LOS for Horizon Year (2040) Without Project conditions is shown on Exhibit 8-5. The intersection operations analysis worksheets for Horizon Year (2040) Without Project traffic conditions are included in Appendices 8.1 of this TIA.

8.3.2 HORIZON YEAR (2040) WITH PROJECT TRAFFIC CONDITIONS

As shown on Tables 8-1 and illustrated on Exhibit 8-6, the following study area intersection is anticipated to operate at a deficient LOS during one or both peak hours for Horizon Year (2040) With Project traffic conditions with the addition of Project traffic, in addition to the locations identified above for Horizon Year (2040) Without Project traffic conditions:

• El Prado Road & Mountain Avenue (#14) – LOS F PM peak hour only

The intersection operations analysis worksheets for Horizon Year (2040) With Project traffic conditions are included in Appendix 8.2 of this TIA.



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Intersection Analysis for Horizon Year (2040) Conditions

			204	0 Withou	it Proje	ct	20	040 With	Project		
			De	ay ¹	Lev	el of	De	lay ¹	Lev	el of	Acceptable
		Traffic	(se	cs.)	Ser	vice	(se	cs.)	Ser	vice	LOS
#	Intersection	Control ²	AM	PM	AM	PM	AM	PM	AM	PM	
1	SR-71 SB Ramps & Soquel Canyon Rd.	TS	16.0	36.7	В	D	16.1	36.8	В	D	D
2	SR-71 SB Ramps & Pine Av.	TS	121.0	40.1	F	D	122.4	55.9	F	Е	D
3	SR-71 SB Ramps & Butterfield Ranch Rd.	TS	58.3	65.9	Е	Е	58.3	65.9	Е	Е	D
4	SR-71 NB Ramps & Central Av.	TS	10.0	8.7	В	А	10.0	8.7	В	А	D
5	SR-71 NB Ramps & Pine Av.	AWS	>100.0	>100.0	F	F	>100.0	>100.0	F	F	D
6	SR-71 NB Ramps & Euclid Av. (SR-83)	TS	20.1	13.9	С	В	20.1	13.9	С	В	D
7	Central Av. & El Prado Rd.	TS	30.3	59.8	С	Е	31.8	61.5	С	Е	D
8	El Prado Rd. & Kimball Av.	TS	34.6	121.4	С	F	38.6	124.2	D	F	D
9	Mountain Av. & Kimball Av.	TS	9.3	14.8	А	В	9.5	15.3	А	В	D
10	Mountain Av. & Bickmore Av.	CSS	11.7	11.1	В	В	13.0	11.9	В	В	D
11	Mountain Av. & Driveway 1	<u>CSS</u>	Fu	ture Inte	rsectior	ו	9.7	9.7	Α	А	D
12	Mountain Av. & Driveway 2	<u>CSS</u>	Fu	ture Inte	rsectior	ו	10.9	10.9	В	В	D
13	Mountain Av. & Driveway 3	<u>CSS</u>	Fu	ture Inte	rsectior	ו	10.2	10.2	В	В	D
14	El Prado Rd. & Mountain Av.	CSS	14.5	20.6	В	С	17.3	64.7	С	F	D
15	El Prado Rd. & Pine Av.	AWS	>100.0	>100.0	F	F	>100.0	>100.0	F	F	D
16	Driveway 4 & Bickmore Av.	<u>CSS</u>	Fu	ture Inte	rsectior	۱	9.6	9.6	Α	А	D
17	Driveway 5 & Bickmore Av.	<u>CSS</u>	Fu	ture Inte	rsectior	۱	9.6	9.6	Α	А	D
18	Driveway 6 & Bickmore Av.	<u>CSS</u>	Fu	ture Inte	rsectior	l	9.7	9.7	Α	А	D
19	Euclid Av. (SR-83) & SR-60 WB Ramps	TS	73.5	69.5	Ε	Е	77.9	73.0	Е	Е	D
20	Euclid Av. (SR-83) & SR-60 EB Ramps	TS	100.8	81.7	F	F	103.8	87.1	F	F	D
21	Euclid Av. (SR-83) & Walnut Av.	TS	55.3	59.0	Е	Е	58.2	62.9	Е	Е	E
22	Euclid Av. (SR-83) & Riverside Dr.	TS	129.9	>200.0	F	F	136.2	>200.0	F	F	D
23	Euclid Av. (SR-83) & Chino Av.	TS	56.5	121.9	Ε	F	61.8	128.0	Е	F	D
24	Euclid Av. (SR-83) & Schaefer Av.	TS	155.8	172.7	F	F	165.1	180.7	F	F	D
25	Euclid Av. (SR-83) & Edison Av.	TS	>200.0	>200.0	F	F	>200.0	>200.0	F	F	D
26	Euclid Av. (SR-83) & Eucalyptus Av.	TS	69.2	155.8	Ε	F	75.9	162.8	Е	F	D
27	Euclid Av. (SR-83) & Merrill Av.	TS	117.6	>200.0	F	F	120.8	>200.0	F	F	D
28	Euclid Av. (SR-83) & Kimball Av.	TS	101.3	152.6	F	F	114.1	163.3	F	F	D
29	Euclid Av. (SR-83) & Bickmore Av.	TS	49.4	40.5	D	D	52.4	49.5	D	D	D
30	Euclid Av. (SR-83) & Pine Av.	TS	>200.0	>200.0	F	F	>200.0	>200.0	F	F	D
31	Rincon Meadows Av. & Kimball Av.	TS	31.4	26.4	С	С	36.0	27.5	D	С	D
32	Rincon Meadows Av. & Pine Av.	<u>TS</u>	57.7	107.7	Е	F	59.6	109.8	Е	F	D
33	Mill Creek Av. & Kimball Av.	TS	26.2	15.3	С	В	30.3	16.0	С	В	D
34	Mill Creek Av./Chino-Corona Rd. & Pine Av.	TS	175.6	62.4	F	Е	178.8	64.2	F	Е	D
35	Cucamonga Av. & Chino Corona Rd.	AWS	Constr	uction Lo	cation	Only	Consti	uction Lo	ocation	Only	D
36	W. Preserve Loop & Pine Av.	TS	72.7	36.0	Е	D	74.4	36.9	Е	D	D
37	Main St. & Kimball Av.	TS	24.6	25.0	С	С	25.5	26.1	С	С	D
38	Flight Av. & Kimball Av.	CSS	>100.0	>100.0	F	F	>100.0	>100.0	F	F	D
39	E. Preserve Loop & Pine Av.	TS	160.3	>200.0	F	F	161.3	>200.0	F	F	D
40	Hellman Av. & Kimball Av.	TS	32.9	>200.0	С	F	33.4	>200.0	С	F	D



Page 2 of 2

Intersection Analysis for Horizon Year (2040) Conditions

			204	0 Withou	t Proje	ct	20	040 With	Project	:	
			De	lay ¹	Lev	el of	De	ay1	Leve	el of	Acceptable
		Traffic	(se	cs.)	Ser	vice	(se	cs.)	Ser	vice	LOS
#	Intersection	Control ²	AM	AM PM /		PM	AM	PM	AM	PM	
41	Hellman Av. & Pine Av./Schleisman Rd.	TS	41.6	46.7	D	D	41.8	47.0	D	D	D
42	Archibald Av. & Limonite Av.	TS	>200.0	>200.0	F	F	>200.0	>200.0	F	F	D
43	Archibald Av. & Schleisman Rd.	TS	>200.0	152.3	F	F	>200.0	152.8	F	F	D

* **BOLD** = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

² CSS = Cross-street Stop; AWS = All-Way Stop; TS = Traffic Signal; <u>CSS</u> = Improvement

³ Includes additional lanes consistent with the planned Pine Avenue extension.

⁴ Intersection geometrics reflect the completion of Pine Avenue Stages 1-3.

⁵ Assumes signalization of the intersection and the buildout of the east leg.

⁶ Assumes the buildout of the west leg.

⁷ Assumes new interchange improvements at I-15 Freeway and Limonite Avenue.





EXHIBIT 8-5: HORIZON YEAR (2040) WITHOUT PROJECT SUMMARY OF LOS

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8.4 TRAFFIC SIGNAL WARRANTS ANALYSIS

The following study area intersections are anticipated to meet either ADT or peak hour volumebased traffic signal warrants for Horizon Year (2040) Without Project traffic conditions in addition to those previously warranted under Existing traffic conditions:

- SR-71 Northbound Ramps & Pine Avenue (#5)
- Rincon Meadows Avenue & Pine Avenue (#32)

Worksheets for Horizon Year (2040) Without Project traffic conditions signal warrants are provided in Appendix 8.3.

There are no additional study area intersections anticipated to meet either ADT or peak hour volume-based traffic signal warrants for Horizon Year (2040) With Project traffic conditions, in addition to those warranted previously (see Appendix 8.4).

8.5 OFF-RAMP QUEUING ANALYSIS

Queuing analysis findings for Horizon Year (2040) traffic conditions are presented on Table 8-2. As shown on Table 8-2, there are no movements that are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows for Horizon Year (2040) Without Project traffic conditions. Similarly, there are no movements that are anticipated to experience queuing issues during the weekday AM or weekday AM or weekday PM peak 95th percentile traffic flows that are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows with addition of Project traffic. Worksheets for Horizon Year (2040) traffic conditions off-ramp queuing analysis are provided in Appendices 8.5 and 8.6.

8.6 FREEWAY FACILITY ANALYSIS

Horizon Year (2040) mainline directional volumes for the AM and PM peak hours are provided on Exhibits 8-7 and 8-8. As shown on Table 8-3, the following freeway segments and merge/diverge ramp junctions analyzed for this study are anticipated to operate at an unacceptable LOS (i.e., LOS E or worse) during the peak hours:

- SR-71 Freeway Southbound, South of Euclid Avenue (SR-83) (#12) LOS E AM peak hour only
- SR-60 Freeway Westbound, West of Euclid Avenue (SR-83) (#24) LOS E AM and PM peak hours
- SR-60 Freeway Westbound, Euclid Avenue (SR-83) Off-Ramp (#26) LOS E AM peak hour; LOS F PM peak hour
- SR-60 Freeway Westbound, East of Euclid Avenue (SR-83) (#27) LOS E AM peak hour; LOS F PM peak hour
- SR-60 Freeway Eastbound, West of Euclid Avenue (SR-83) (#28) LOS F PM peak hour only
- SR-60 Freeway Eastbound, Euclid Avenue (SR-83) Off-Ramp (#29) LOS E AM peak hour; LOS F PM peak hour
- SR-60 Freeway Eastbound, Euclid Avenue (SR-83) On-Ramp (#30) LOS F PM peak hour only
- SR-60 Freeway Eastbound, East of Euclid Avenue (SR-83) (#31) LOS F PM peak hour only



		Available	20	040 Without Proj	ect			2040 With Proje	ct	
Intersection	Movement	Stacking Distance	95th Percentil	e Queue (Feet) ³	Accepta	able? ¹	95th Percentil	e Queue (Feet) ³	Horizo (20	n Year 40)
		(Feet)	AM Peak Hour	PM Peak Hour	AM	ΡM	AM Peak Hour	PM Peak Hour	MA	PM
SR-71 SB Ramps & Central Avenue	SBL	1,530	297 ²	656 ²	Yes	Yes	295 ²	658 ²	Yes	Yes
	SBL/R	740	0	0	Yes	Yes	0	0	Yes	Yes
	F. 122			2 001	:	;		2000	:	:
SR-71 SB Ramps & Pine Avenue	SBL/T	1,370	236	599 -	Yes	Yes	272	622 -	Yes	Yes
	SBR	725	30	240	Yes	Yes	30	242	Yes	Yes
CD 71 CD Damas & Euclid Avanua (CD 93)		1 100	<i>LCL</i>	A70 ²	207	Vac	<i></i>	170 ²		
2N-11 JD Nallips & EUCIU AVEIURE (2N-03)	20L	1, TOU	702	470	res	res	762	4/0	res	res
	SBL/I	1,560	233	484 -	Yes	Yes	233	484 -	Yes	Yes
	SBR	255	0	0	Yes	Yes	0	0	Yes	Yes
SR-71 NB Ramps & Central Avenue	NBL	1,485	54	85	Yes	Yes	54	85	Yes	Yes
	NBL/R	1,070	0	0	Yes	Yes	0	0	Yes	Yes
SR-71 NB Ramps & Pine Avenue	NBL	1,375	15	35	Yes	Yes	15	35	Yes	Yes
	NBL/T	815	20	06	Yes	Yes	33	105	Yes	Yes
SR-71 NB Ramps & Fuclid Avenue (SR-83)	NBI	1.745	02	63	Vac	Хас	70	63	Уас	Vac
	NBR	420	157 ²	30 2.3 1.226 ^{2,3}	Yes	Yes	157 ²	30 2.3 1.226 ^{2,3}	Yes	Yes
Euclid Av. (SR-83) & SR-60 WB Ramps	WBL	400	493 ^{2,3}	420 ^{2,3}	Yes	Yes	503 ^{2,3}	428 ^{2,3}	Yes	Yes
	WBL/T/R	1,430	510 ²	447 2	Yes	Yes	537 ²	447 2	Yes	Yes
	WBR	400	388 ²	326 ²	Yes	Yes	395 ²	334 ²	Yes	Yes
Euclid Av. (SR-83) & SR-60 EB Ramps	EBL	006	518 -	489 2	Yes	Yes	518 -	489 2	Yes	Yes
	EBT/R	1,270	883 ²	687 ²	Yes	Yes	903 ²	695 ²	Yes	Yes
1 Stacking Distance is acceptable if the required stacking	g distance is less tha	an or equal to th	e stacking distance p	orovided. An additio	nal 15 feet	of stackin	g which is assumed	to be provided in the	e transition	for turn

Peak Hour Freeway Off-Ramp Queuing Summary for Horizon Year (2040) Conditions

pockets is reflected in the stacking distance shown on this table, where applicable.

³ Although 95th percentile queue is anticipated to exceed the available storage for the turn lane, the adjacent through lane has sufficient storage to accommodate any spillover without spilling back and affecting the SR-71 Freeway mainline. ² 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.



Freeway Facility Analysis for Horizon Year (2040) Conditions

	c			204	0 With	out Projec	t	20	40 Wit	h Project	
eway	ectio	Ramp or Segment	Lanes on	AM Peak	Hour	PM Peak	Hour	AM Peak	Hour	PM Peak	Hour
Fre	Dir		Freeway	Density ²	LOS ³						
		North of Central Avenue	3	12.2	В	19.1	С	12.6	В	19.3	С
		Central Avenue Off-Ramp	3	19.0	В	26.4	С	19.4	В	26.6	С
		Central Avenue Loop On-Ramp	3	8.6	Α	14.1	В	8.9	А	14.2	В
		Central Avenue On-Ramp	3	15.5	В	21.4	С	15.8	В	21.5	С
	pu	Central Avenue to Pine Avenue	3	17.9	В	28.5	D	18.2	С	28.8	D
	noc	Pine Avenue Off-Ramp	2	23.1	С	45.0	D	23.4	С	45.0	D
	uthl	Pine Avenue On-Ramp	2	18.7	В	17.3	В	18.8	В	17.7	В
	So	Pine Avenue to Euclid Avenue (SR-83)	2	15.3	В	13.2	В	15.4	В	13.4	В
		Euclid Avenue (SR-83) Off-Ramp	2	20.4	С	18.9	В	20.5	С	19.4	В
γ		Euclid Avenue (SR-83) Loop On-Ramp	2	21.3	С	17.4	В	21.4	С	17.9	В
ewa		Euclid Avenue (SR-83) On-Ramp	2	34.9	D	28.1	С	35.1	D	28.6	D
Fre		South of Euclid Avenue (SR-83)	2	35.5	Е	27.7	D	35.6	Е	28.2	D
-71		North of Central Avenue	3	17.6	В	18.1	С	17.6	В	18.4	С
SF		Central Avenue On-Ramp	3	20.5	С	21.6	С	20.6	С	21.9	С
		Central Avenue Loop On-Ramp	3	17.2	В	17.0	В	17.2	В	17.3	В
	8	Central Avenue Off-Ramp	3	23.2	С	24.8	С	23.3	С	25.0	С
	unc	Central Avenue to Pine Avenue	3	16.3	В	17.1	В	16.3	В	17.4	В
	qų	Pine Avenue On-Ramp	2	15.0	В	17.5	В	15.0	В	17.5	В
	Vor	Pine Avenue Off-Ramp	2	24.2	С	32.6	D	24.6	С	32.8	D
	_	Pine Avenue to Euclid Avenue (SR-83)	2	18.5	С	26.6	D	18.8	С	26.8	D
		Euclid Avenue (SR-83) On-Ramp	2	20.5	С	29.6	D	20.7	С	29.8	D
		Euclid Avenue (SR-83) Off-Ramp	3	13.1	В	24.7	С	13.3	В	24.8	С
		South of Euclid Avenue (SR-83)	3	15.9	В	28.9	D	16.1	В	29.0	D
	pu	West of Euclid Avenue (SR-83)	4	35.5	Е	42.9	E	35.5	E	42.9	E
	noc	Euclid Avenue (SR-83) On-Ramp	4	35.4	D	40.8	D	35.4	D	40.8	D
way	est	Euclid Avenue (SR-83) Off-Ramp	4	41.3	Е	43.4	F	41.5	E	43.4	F
ree	3	East of Euclid Avenue (SR-83)	4	38.1	Е	45.0	F	38.2	E	45.0	F
50 F	рι	West of Euclid Avenue (SR-83)	4	32.9	D	45.0	F	33.0	D	45.0	F
SR-(Inoc	Euclid Avenue (SR-83) Off-Ramp	4	36.4	Ε	50.1	F	36.5	Ε	50.1	F
	astk	Euclid Avenue (SR-83) On-Ramp	4	34.9	D	55.3	F	35.0	D	55.3	F
	ŭ	East of Euclid Avenue (SR-83)	4	34.7	D	38.4	F	34.8	D	38.4	F

* **BOLD** = Unacceptable Level of Service

¹ Number of lanes are in the specified direction and is based on existing conditions.

² Density is measured by passenger cars per mile per lane (pc/mi/ln).

³ LOS = Level of Service





EXHIBIT 8-7: HORIZON YEAR (2040) WITHOUT PROJECT FREEWAY MAINLINE VOLUMES



LEGEND:





N



EXHIBIT 8-8: HORIZON YEAR (2040) WITH PROJECT FREEWAY MAINLINE VOLUMES



LEGEND:





N

There are no additional freeway segments or merge/diverge ramp junctions that are anticipated to operate at an unacceptable LOS during the peak hours with the addition of Project traffic. Horizon Year (2040) basic freeway segment analysis worksheets are provided in Appendix 8.7 and 8.8, respectively.

8.7 HORIZON YEAR (2040) DEFICIENCIES AND RECOMMENDED IMPROVEMENTS

8.7.1 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES AT INTERSECTIONS

Improvement strategies have been recommended at intersections that have been identified as deficient in an effort to reduce each location's peak hour delay and improve the associated LOS grade to an acceptable LOS (LOS D or better). The effectiveness of the recommended improvement strategies discussed below to address Horizon Year (2040) traffic deficiencies is presented on Table 8-4.

Although the following intersections are anticipated to operate at a deficient LOS for Horizon Year (2040) traffic conditions, the Project is anticipated to contribute less than 50 peak hour trips:

- SR-71 Southbound Ramps & Butterfield Ranch Road (#2)
- Central Avenue & El Prado Road (#7)
- El Prado Road & Kimball Avenue (#8)
- Euclid Avenue (SR-83) & SR-60 Westbound Ramps (#19)
- Euclid Avenue (SR-83) & Pine Avenue (#30)
- Rincon Meadows Avenue & Pine Avenue (#32)
- Mill Creek Avenue/Chino Corona Road & Pine Avenue (#34)
- W. Preserve Loop & Pine Avenue (#36)
- E. Preserve Loop & Pine Avenue (#39)
- Archibald Avenue & Schleisman Road (#43)

As such, the impact at these locations are less than significant and improvements have not been recommended at these locations.

The Project Applicant shall participate in the funding of off-site improvements, including traffic signals that are needed to serve cumulative traffic conditions through the payment of City of Chino DIF (if the improvements are included in the DIF program) or on a fair share basis (if the improvements are not included in the DIF program). These fees shall be collected by the City of Chino, with the proceeds solely used as part of a funding mechanism aimed at ensuring that regional highways and arterial expansions keep pace with the projected population increases. Each of the improvements discussed above have been identified as being included as part of City DIF fee program or fair share contribution in Section 9 *Local and Regional Funding Mechanisms* of this TIA.

Worksheets for Horizon Year (2040) Without and With Project conditions, with improvements, HCM calculation worksheets are provided in Appendix 8.9 and Appendix 8.10, respectively.

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Intersection Analysis for Horizon Year (2040) Conditions With Improvements

					Ir	nters	ectio	on Ai	opro	ach I	Lane	S			De	lav ²	Lev	el of
		Traffic	Nor	thbo	und	Sou	thbo	ound	Eas	stbo	und	We	stbo	und	(se	cs.)	Ser	vice
#	Intersection	Control ³	L	т	R	L	т	R	L	Т	R	L	т	R	AM	PM	AM	PM
2	SR-71 SB Ramps & Pine Av.																	
	2040 Without Project:																	
	-Without Improvements	TS	0	0	0	0	1	1	0	1	1	1	2	0	121.0	40.1	F	D
	-With Improvements	TS	0	0	0	<u>1</u>	1	<u>0</u>	0	<u>2</u>	<u>0</u>	1	2	0	22.2	27.1	С	С
	2040 With Project:																	
	-Without Improvements	TS	0	0	0	0	1	1	0	1	1	1	2	0	122.4	55.9	F	Е
	-With Improvements	TS	0	0	0	1	1	0	0	2	<u>0</u>	1	2	0	23.1	29.7	С	С
5	SR-71 NB Ramps & Pine Av.																	
	2040 Without Project:																	
	-Without Improvements ⁴	AWS	1	1	0	0	0	0	<u>1</u>	<u>1</u>	0	0	<u>1</u>	0	>100.0	>100.0	F	F
	-With Improvements [*]	<u>TS</u>	<u>0</u>	1	<u>1</u>	0	0	0	<u>2</u>	<u>1</u>	0	0	<u>2</u>	<u>1</u>	18.4	21.5	В	С
	2040 With Project:			_		_	_	_				_	_	_			_	_
	-Without Improvements	AWS	1	1	0	0	0	0	1	<u>1</u>	0	0	1	0	>100.0	>100.0	F	F
	-With Improvements	<u>TS</u>	<u>0</u>	1	<u>1</u>	0	0	0	2	<u>1</u>	0	0	<u>2</u>	<u>1</u>	24.2	22.6	С	С
14	El Prado Rd. & Mountain Av.																	
	2040 Without Project:	666	~	4	•	~		~	~	~	~	~	4	~	445	20.0		~
	-without improvements	CSS	0	T	U	0	T No	0 + ^ n	U nlica	U blo	0	0	T	0	14.5	20.6	В	C
	-with improvements				ĺ		NC	πΑρ	plica	bie	ĺ							
	2040 With Project. Without Improvements	CSS	0	1	0	0	1	Δ	0	Δ	0	0	1	0	172	64 7	c	E
	-With Improvements	C33 TS	0	1	0	0	1	0	0	0	0	0	1	0	10.5	04.7 10.6	B	Г В
15	El Prado Rd & Pine Av	13	0	-	0	0	1	0	0	0	0	0	1	0	10.5	10.0	D	D
15	2040 Without Project:																	
	-Without Improvements ⁴	AWS	0	0	0	0	1	0	1	2	0	0	2	0	>100.0	>100.0	F	F
	-With Improvements ⁴	TS	0	0	0	0	1	0	1	2	0	0	2	0	20.8	31.6	C	C
	2040 With Project:		-	-	•	-		-	-	-	-	-	-	-			-	-
	-Without Improvements ⁴	AWS	0	0	0	0	1	0	1	2	0	0	2	0	>100.0	>100.0	F	F
	-With Improvements ⁴	TS	0	0	0	0	1	0	1	2	0	0	2	0	37.7	54.3	D	D
20	Euclid Av. (SR-83) & SR-60 EB Ramps																	
	2040 Without Project:																	
	-Without Improvements	TS	0	2	1	1	2	0	1	1	0	0	0	0	100.8	81.7	F	F
	-With Improvements	TS	0	2	1	<u>2</u>	2	0	1	1	<u>1</u>	0	0	0	30.0	22.1	С	С
	2040 With Project:																	
	-Without Improvements	TS	0	2	1	1	2	0	1	1	0	0	0	0	103.8	87.1	F	F
	-With Improvements	TS	0	2	1	2	2	0	1	1	1	0	0	0	30.7	22.1	С	С
22	Euclid Av. (SR-83) & Riverside Dr.																	
	2040 Without Project:																	
	-Without Improvements	TS	1	2	1	1	2	1>	1	1	0	1	2	d	129.9	>200.0	F	F
	-With Improvements	TS	<u>2</u>	<u>3</u>	1	<u>2</u>	<u>3</u>	1>	1	<u>2</u>	<u>1</u>	1	2	d	37.0	45.8	D	D
	2040 With Project:			~			~			~	~		~				_	
	-Without Improvements	15	1	2	1	1	2	1>		1	0	1	2	d	136.2	>200.0	F	F
1	-With Improvements	TS IS	2	3	1	2	3	1>	1	2	1	1	2	d	37.2	46.4	D	D



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Intersection Analysis for Horizon Year (2040) Conditions With Improvements

					Ir	nters	ectio	on Ar	opro	ach I	ane	s ¹			De	av^2	Lev	el of
		Traffic	Nor	thbc	ound	Sou	thbc	ound	Eas	stbou	und	We	stbo	und	(se	cs.)	Ser	vice
#	Intersection	Control ³	L	Т	R	L	Т	R	L	т	R	L	Т	R	AM	PM	AM	PM
23	Euclid Av. (SR-83) & Chino Av.																	
	2040 Without Project:																	
	-Without Improvements	TS	1	2	1	1	2	1	1	1	1	0	1	0	56.5	121.9	Е	F
	-With Improvements	TS	1	<u>3</u>	1	1	3	1	1	1	1	1	1	0	25.9	36.3	С	D
	2040 With Project:																	
	-Without Improvements	TS	1	2	1	1	2	1	1	1	1	0	1	0	61.8	128.0	Е	F
	-With Improvements	TS	1	<u>3</u>	1	1	3	1	1	1	1	1	1	0	26.1	37.7	С	D
24	Euclid Av. (SR-83) & Schaefer Av.																	
	2040 Without Project:																	
	-Without Improvements	TS	1	2	1	1	2	1	1	1	1	1	1	0	155.8	172.7	F	F
	-With Improvements	TS	<u>2</u>	<u>3</u>	1	<u>2</u>	<u>3</u>	1	<u>2</u>	1	1	1	1	0	52.2	41.5	D	D
	2040 With Project:																	
	-Without Improvements	TS	1	2	1	1	2	1	1	1	1	1	1	0	165.1	180.7	F	F
	-With Improvements	TS	<u>2</u>	<u>3</u>	1	<u>2</u>	<u>3</u>	1	<u>2</u>	1	1	1	1	0	54.9	42.9	D	D
25	Euclid Av. (SR-83) & Edison Av.																	
	2040 Without Project:																	
	-Without Improvements	TS	1	2	1	1	2	1	1	1	1	1	1	0	>200.0	>200.0	F	F
	-With Improvements	TS	<u>2</u>	<u>3</u>	1	<u>2</u>	<u>3</u>	<u>1></u>	<u>2</u>	<u>3</u>	1	<u>2</u>	<u>2</u>	<u>1></u>	41.9	43.2	D	D
	2040 With Project:																	
	-Without Improvements	TS	1	2	1	1	2	1	1	1	1	1	1	0	>200.0	>200.0	F	F
	-With Improvements	TS	2	<u>3</u>	1	2	3	1>	2	<u>3</u>	1	2	2	1>	42.7	44.1	D	D
26	Euclid Av. (SR-83) & Eucalyptus Av.																	
	2040 Without Project:																	
	-Without Improvements	TS	1	2	1	1	2	1	1	1	1	1	1	0	69.2	155.8	E	F
	-With Improvements	TS	1	<u>3</u>	1	1	<u>3</u>	1	1	1	1	<u>2</u>	1	<u>1</u>	25.9	45.2	С	D
	2040 With Project:																	
	-Without Improvements	TS	1	2	1	1	2	1	1	1	1	1	1	0	75.9	162.8	E	F
	-With Improvements	TS	1	<u>3</u>	1	1	<u>3</u>	1	1	1	1	<u>2</u>	1	<u>1</u>	26.6	47.3	С	D
27	Euclid Av. (SR-83) & Merrill Av.																	
	2040 Without Project:			•					~		•	~		~			_	_
	-Without Improvements	TS	1	2	1	1	2	0	0	1	0	0	1	0	117.6	>200.0	F	F
	-With Improvements	TS	1	<u>3</u>	<u>1></u>	1	<u>3</u>	0	1	1	0	<u>2</u>	1	<u>1></u>	25.3	46.1	С	D
	2040 With Project:			•					~		•	~		~			_	_
	-Without Improvements		1	2	1	1	2	0	0	1	0	0	1	0	120.8	>200.0	F	F
20	-With Improvements	15	1	3	1>	1	3	0	1	1	0	2	1	1>	25.5	50.4	С	D
28	Euclid Av. (SR-83) & Kimball Av.																	
	2040 Without Project:	тс	1	h	1、	2	h	1.	2	h	0	1	h	0	101.2	152.0	-	_
	-without improvements			2	1>		2	1>	2	2	0		2	0	101.3	152.0	F	
	-with improvements	15		<u>3</u>	τ>	2	<u>3</u>	τ>	2	2	U	_∠	2	U	35.0	52.7	L	U
	12040 WILLI FIOJELL.	тс	1	r	1、	2	r	1、	h	r	0	1	r	0	114 1	162.2	F	F
	-without improvements			2	1>	2	2	1>	2	2	0	1 2	2	0	25.0	103.3 E4 0	r	
1	-With Improvements	TS	1	3	1>	2	3	1>	2	2	0	2	2	0	35.9	54.9	D	D



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Intersection Analysis for Horizon Year (2040) Conditions With Improvements

					In	ters	ectio	on Aj	opro	ach	Lane	s			De	lay ²	Leve	el of
		Traffic	Nor	thbo	und	Sou	thbo	und	Eas	stbo	und	We	stbo	und	(se	cs.)	Ser	vice
#	Intersection	Control ³	L	Т	R	L	Т	R	L	Т	R	L	Т	R	AM	PM	AM	PM
38	Flight Av. & Kimball Av.																	
	2040 Without Project:																	
	-Without Improvements	CSS	0	1	0	0	1	0	1	2	0	1	1	0	>100.0	>100.0	F	F
	-With Improvements	<u>TS</u>	0	1	0	<u>1</u>	1	0	1	2	0	1	<u>2</u>	<u>1</u>	43.2	19.2	D	В
	2040 With Project:																	
	-Without Improvements	CSS	0	1	0	0	1	0	1	2	0	1	1	0	>100.0	>100.0	F	F
	-With Improvements	<u>TS</u>	0	1	0	<u>1</u>	1	0	1	2	0	1	<u>2</u>	<u>1</u>	45.2	19.5	D	В
40	Hellman Av. & Kimball Av.																	
	2040 Without Project:																	
	-Without Improvements	TS	1	2	0	<u>1</u>	2	d	1	<u>1</u>	1>	2	<u>2</u>	<u>1</u>	32.9	>200.0	С	F
	-With Improvements	TS	2	2	0	<u>1</u>	2	d	1	<u>2</u>	1>	<u>2</u>	<u>2</u>	<u>1</u>	31.6	43.0	С	D
	2040 With Project:																	
	-Without Improvements	TS	1	2	0	<u>1</u>	2	d	1	<u>1</u>	1>	2	<u>2</u>	<u>1</u>	33.4	>200.0	С	F
	-With Improvements	TS	2	2	0	<u>1</u>	2	d	1	<u>2</u>	1>	2	<u>2</u>	<u>1</u>	31.9	44.3	С	D
42	Archibald Av. & Limonite Av.																	
	2040 Without Project:																	
	-Without Improvements	TS	<u>1</u>	1	1>	1	1	0	<u>1</u>	<u>1</u>	0	1	<u>1</u>	1>	>200.0	>200.0	F	F
	-With Improvements	TS	<u>1</u>	<u>3</u>	1>	<u>2</u>	<u>3</u>	0	<u>2</u>	<u>2</u>	0	2	<u>2</u>	1>	40.5	52.4	D	D
	2040 With Project:																	
	-Without Improvements	TS	1	1	1>	1	1	0	1	<u>1</u>	0	1	<u>1</u>	1>	>200.0	>200.0	F	F
	-With Improvements	TS	1	<u>3</u>	1>	2	<u>3</u>	0	2	<u>2</u>	0	2	<u>2</u>	1>	41.0	54.0	D	D

When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; > = Right; > = Right-Turn Overlap Phasing; >> = Free Right Turn Lane; d = Defacto Right Turn Lane; <u>1</u> = Improvement Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or

movements sharing a single lane) are shown.

³ CSS = Cross-street Stop; AWS = All-Way Stop; TS = Traffic Signal; <u>TS</u> = Improvement

⁴ Includes additional lanes consistent with the planned Pine Avenue extension.



8.7.2 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES ON OFF-RAMP QUEUES

As shown previously on Table 8-2, there are no peak hour queuing issues at the SR-71 Freeway at Euclid Avenue (SR-83) and Euclid Avenue (SR-83) at SR-60 Freeway interchanges for Horizon Year (2040) Without and With Project traffic conditions. As such, no improvements have been recommended.

8.7.4 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES ON FREEWAY FACILITIES

At this time, Caltrans has no fee programs or other improvement programs in place to address the deficiencies caused by development projects in the City of Chino (or other neighboring jurisdictions) on SHS roadway segments. As such, no improvements have been recommended to address the Horizon Year (2040) Without and With Project deficiencies on the SHS, because there is no feasible mitigation available.



9 LOCAL AND REGIONAL FUNDING MECHANISMS

Transportation improvements within the City of Chino are funded through a combination of project mitigation, development impact fee programs or fair share contributions, such as the City of Chino Development Impact Fee (DIF) program. Identification and timing of needed improvements is generally determined through local jurisdictions based upon a variety of factors.

9.1 CITY OF CHINO DEVELOPMENT IMPACT FEE PROGRAM

The City of Chino has created its own local Development Impact Fee (DIF) program to impose and collect fees from new residential, commercial and industrial development for the purpose of funding roadways and intersections necessary to accommodate City growth as identified in the City's General Plan Circulation Element. The City's DIF includes regional improvements to comply with Measure "I". The fee schedule was recently adopted on July 16, 2019. The fee schedule and project transportation impacts fees are shown on Table 9-1. Under the City's DIF program, the City may grant to developers a credit against specific components of fees when those developers construct certain facilities and landscaped medians identified in the list of improvements funded by the DIF program.

TABLE 9-1: ESTIMATED FEE OBLIGATION

Fee Reference	Light Industrial (\$ PER SQ. FT.)
Streets, Signals and Bridges (Schedule 5.2)	2.188/SF

* City-wide DIF rates adopted July 16, 2019.

Fee Calculation

Building	Category	Unit Cost	Units/Sq.Ft.	Local Circulation
Building 1	Industrial	\$2.188	1,168,710	\$2,557,137
Building 2	Industrial	\$2.188	914,040	\$1,999,920
		Total Tran	sportation Impact Fees	\$4,557,057

The timing to use the DIF fees is established through periodic capital improvement programs which are overseen by the City's Public Works Department. Periodic traffic counts, review of traffic accidents, and a review of traffic trends throughout the City are also periodically performed by City staff and consultants. The City uses this data to determine the timing of implementing the improvements listed in its facilities list. The City also uses this data to ensure that the improvements listed on the facilities list are constructed before the LOS falls below the

LOS performance standards adopted by the City. In this way, the improvements are constructed before the LOS falls below the City's LOS performance thresholds.

The Project Applicant will be subject to the City's DIF fee program and will pay the requisite City DIF fees at the rates then in effect pursuant to the City's ordinance. The Project Applicant's payment of the requisite DIF at the rates then in effect, pursuant to the City DIF Program, would satisfy the Project's proportional mitigation requirements at potentially affected DIF-funded facilities.

9.2 MEASURE "I" FUNDS

In 2004, the voters of San Bernardino County approved the 30-year extension of Measure "I", a one-half of one percent sales tax on retail transactions, through the year 2040, for transportation projects including, but not limited to, infrastructure improvements, commuter rail, public transit, and other identified improvements. The Measure "I" extension requires that a regional traffic impact fee be created to ensure development is paying its fair share. A regional Nexus study was prepared by the San Bernardino County Transportation Authority (SBCTA) and concluded that each jurisdiction should include a regional fee component in their local programs in order to meet the Measure "I" requirement. The regional component assigns specific facilities and cost sharing formulas to each jurisdiction and was most recently updated in November 2011. Revenues collected through these programs are used in tandem with Measure "I" funds to deliver projects identified in the Nexus Study. While Measure "I" is a self-executing sales tax administered by SBCTA, it bears discussion here because the funds raised through Measure "I" have funded in the past and will continue to fund new transportation facilities in San Bernardino County.

9.3 FAIR SHARE CONTRIBUTION

Project mitigation may include a combination of fee payments to established programs, construction of specific improvements, payment of a fair share contribution toward future improvements or a combination of these approaches. Improvements constructed by development may be eligible for a fee credit or reimbursement through the program where appropriate (to be determined at the City's discretion).

When off-site improvements are identified with a minor share of responsibility assigned to proposed development, the approving jurisdiction may elect to collect a fair share contribution or require the development to construct improvements. Detailed fair share calculations, for each peak hour, has been provided on Table 9-2 for the applicable deficient study area intersections.



Table 9-2

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Project Fair Share Calculations for Intersections

#	Intersection		Existing	Project	2040 With Project Volume	Total New Traffic	Project % of New Traffic
2	SR-71 SB Ramps & Pine Av.				-		
		AM:	716	67	1,751	1,035	6.473%
		PM:	1,482	82	2,564	1,082	7.579%
5	SR-71 NB Ramps & Pine Av.						
		AM:	510	127	2,572	2,062	6.159%
		PM:	437	158	2,766	2,329	6.784%
8	El Prado Rd. & Kimball Av.						
		AM:	1,801	30	2,114	313	9.585%
		PM:	2,248	42	2,711	463	9.071%
22	Euclid Av. (SR-83) & Riverside Dr.						
		AM:	3,696	65	5,496	1,800	3.611%
- 22		PM:	3,753	77	5,996	2,243	3.433%
23	Euclid AV. (SR-83) & Chino AV.	A N 4 .	2 077	67	4 525	1 (40	4.0000
		AIVI:	2,877	6/ 70	4,525	1,648	4.066%
24		PIVI.	5,110	79	5,039	1,925	4.108%
24	Euclid AV. (SR-83) & Schäefer AV.		2 746	67	4.040	2 4 9 4	2.05.49/
		AIVI:	2,746	6/ 70	4,940	2,194	3.054%
25	Fuelid Av. (SP 82) & Edison Av.	PIVI:	3,302	79	5,999	2,697	2.929%
25	Euclia AV. (SR-85) & Euison AV.	۸N <i>A</i> •	2 1/2	72	6 652	2 510	2 080%
			2 026	75	7 704	3,510 2,779	2.000%
26	Fuclid Av. (SR-83) & Fucalyntus Av.	FIVI.	3,920	00	7,704	3,770	2.32376
20		AM·	2 717	78	4 735	2 018	3.865%
		PM:	2,972	93	5,756	2,784	3.341%
27	Euclid Av. (SR-83) & Merrill Av.		_);; ; <u>_</u>		0,700	_,,	0.0.12/0
	. ,	AM:	2,828	82	4,626	1,798	4.561%
		PM:	3,143	100	5,546	2,403	4.161%
30	Euclid Av. (SR-83) & Pine Av.						
		AM:	3,519	21	6,661	3,142	0.668%
		PM:	3,639	26	7,318	3,679	0.707%
32	Rincon Meadows Av. & Pine Av.						
		AM:	2,231	21	3,830	1,599	1.313%
		PM:	2,140	26	4,392	2,252	1.155%
36	W. Preserve Loop & Pine Av.						
		AM:	2,506	18	4,000	1,494	1.205%
		PM:	2,252	23	4,001	1,749	1.315%
38	Flight Av. & Kimball Av.		1 240	45	2.504	1 20 4	2 5020/
		AIVI:	1,310	46	2,594	1,284	3.583%
42	Archibald Av. 8 Limentia Av.	PIVI:	1,440	61	2,497	1,057	5.771%
42	Archibalu AV. & Linonite AV.	A N # .	2 711	16	5 722	2 0 2 1	1 5220/
			2,711	40 61	5,732 7 202	5,021 ////1	1.3 23%
		PIVI:	2,102	01	7,203	4,441	1.3/4%



Table 9-2

Page 2 of 2

Project Fair Share Calculations for Intersections

#	Intersection	Existing	Project	2040 With Project Volume	Total New Traffic	Project % of New Traffic
43	Archibald Av. & Schleisman Rd.					
	AM:	4,151	13	6,600	2,449	0.531%
	PM:	3,985	18	7,261	3,276	0.549%

BOLD = Denotes highest fair share percentage.

¹ Fair share based on total traffic only.



10 REFERENCES

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- 7. California Department of Transportation. Freeway Performance Measurement (PeMS). [Online] [Cited: February 12, 2019.] http://pems.dot.ca.gov/.
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Appendix I

EJScreen Report



EJSCREEN ACS Summary Report



Location: User-specified point center at 33.959597, -117.666742

Ring (buffer): 1-miles radius

Description:

Summary of ACS Estimates	2013 - 2017
Population	2,928
Population Density (per sq. mile)	1,126
Minority Population	2,314
% Minority	79%
Households	969
Housing Units	981
Housing Units Built Before 1950	0
Per Capita Income	34,146
Land Area (sq. miles) (Source: SF1)	2.60
% Land Area	100%
Water Area (sq. miles) (Source: SF1)	0.01
% Water Area	0%

	2013 - 2017 ACS Estimates	Percent	MOE (±)
Population by Race			
Total	2,928	100%	722
Population Reporting One Race	2,764	94%	1,725
White	928	32%	625
Black	357	12%	270
American Indian	15	0%	39
Asian	1,129	39%	373
Pacific Islander	0	0%	17
Some Other Race	335	11%	401
Population Reporting Two or More Races	163	6%	130
Total Hispanic Population	694	24%	465
Total Non-Hispanic Population	2,233		
White Alone	614	21%	448
Black Alone	357	12%	270
American Indian Alone	15	0%	39
Non-Hispanic Asian Alone	1,129	39%	373
Pacific Islander Alone	0	0%	17
Other Race Alone	0	0%	17
Two or More Races Alone	119	4%	110
Population by Sex			
Male	1,369	47%	388
Female	1,559	53%	442
Population by Age			
Age 0-4	202	7%	135
Age 0-17	807	28%	368
Age 18+	2,121	72%	553
Age 65+	143	5%	144

 Data Note:
 Detail may not sum to totals due to rounding.
 Hispanic population can be of any race.

 N/A means not available.
 Source:
 U.S. Census Bureau, American Community Survey (ACS) 2013 - 2017



EJSCREEN ACS Summary Report



Location: User-specified point center at 33.959597, -117.666742 Ring (buffer): 1-miles radius

Description:

	2013 - 2017 ACS Estimates	Percent	MOE (±)
Population 25+ by Educational Attainment			
Total	1,962	100%	507
Less than 9th Grade	13	1%	33
9th - 12th Grade, No Diploma	51	3%	61
High School Graduate	234	12%	207
Some College, No Degree	454	23%	206
Associate Degree	153	8%	117
Bachelor's Degree or more	1,210	62%	357
Population Age 5+ Years by Ability to Speak English			
Total	2,726	100%	710
Speak only English	1,527	56%	462
Non-English at Home ¹⁺²⁺³⁺⁴	1,198	44%	436
¹ Speak English "very well"	899	33%	401
² Speak English "well"	175	6%	121
³ Speak English "not well"	83	3%	93
⁴ Speak English "not at all"	41	1%	73
³⁺⁴ Speak English "less than well"	124	5%	117
²⁺³⁺⁴ Speak English "less than very well"	299	11%	167
Linguistically Isolated Households*			
Total	34	100%	49
Speak Spanish	0	0%	17
Speak Other Indo-European Languages	8	23%	23
Speak Asian-Pacific Island Languages	27	77%	40
Speak Other Languages	0	0%	17
Households by Household Income			
Household Income Base	969	100%	162
< \$15,000	35	4%	68
\$15,000 - \$25,000	15	2%	53
\$25,000 - \$50,000	118	12%	111
\$50,000 - \$75,000	83	9%	81
\$75,000 +	718	74%	386
Occupied Housing Units by Tenure			
Total	969	100%	162
Owner Occupied	771	80%	160
Renter Occupied	198	20%	154
Employed Population Age 16+ Years			
Total	2,199	100%	525
In Labor Force	1,569	71%	382
Civilian Unemployed in Labor Force	60	3%	91
Not In Labor Force	630	29%	302

DataNote:Datail may not sum to totals due to rounding.Hispanic population can be of anyrace.N/Ameans not available.Source:U.S. Census Bureau, American Community Survey (ACS)*Households in which no one 14 and over speaks English "very well" or speaks English only.



EJSCREEN ACS Summary Report



Location: User-specified point center at 33.959597, -117.666742 Ring (buffer): 1-miles radius

Description:

	2013 - 2017 ACS Estimates	Percent	MOE (±)
Population by Language Spoken at Home [*]			
Total (persons age 5 and above)	4,943	100%	574
English	2,915	59%	572
Spanish	751	15%	312
French	0	0%	30
French Creole	N/A	N/A	N/A
Italian	N/A	N/A	N/A
Portuguese	N/A	N/A	N/A
German	0	0%	17
Yiddish	N/A	N/A	N/A
Other West Germanic	N/A	N/A	N/A
Scandinavian	N/A	N/A	N/A
Greek	N/A	N/A	N/A
Russian	N/A	N/A	N/A
Polish	N/A	N/A	N/A
Serbo-Croatian	N/A	N/A	N/A
Other Slavic	N/A	N/A	N/A
Armenian	N/A	N/A	N/A
Persian	N/A	N/A	N/A
Gujarathi	N/A	N/A	N/A
Hindi	N/A	N/A	N/A
Urdu	N/A	N/A	N/A
Other Indic	N/A	N/A	N/A
Other Indo-European	31	1%	51
Chinese	413	8%	269
Japanese	N/A	N/A	N/A
Korean	78	2%	111
Mon-Khmer, Cambodian	N/A	N/A	N/A
Hmong	N/A	N/A	N/A
Thai	N/A	N/A	N/A
Laotian	N/A	N/A	N/A
Vietnamese	55	1%	93
Other Asian	119	2%	106
Tagalog	492	10%	291
Other Pacific Island	N/A	N/A	N/A
Navajo	N/A	N/A	N/A
Other Native American	N/A	N/A	N/A
Hungarian	N/A	N/A	N/A
Arabic	88	2%	173
Hebrew	N/A	N/A	N/A
African	N/A	N/A	N/A
Other and non-specified	0	0%	17
Total Non-English	2,028	41%	810

Data Note: Detail may not sum to totals due to rounding. Hispanic popultion can be of any race. N/A meansnot available. **Source:** U.S. Census Bureau, American Community Survey (ACS) 2013 - 2017. *Population by Language Spoken at Home is available at the census tract summary level and up. Appendix J

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