US Army Corps of Engineers®

Los Angeles River Channel at Glendale Narrows Reach 5C and Reach 6A Accumulated Material Removal Project

Environmental Assessment

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May 2018

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1.0 INTRODUCTION

1.1 Location

The Proposed Project Area is located within a 2000 foot long section of the Los Angeles River (LAR) in Reaches 5C and 6A of the Los Angeles County Drainage Area (LACDA) flood risk management project, extending downstream of the Fletcher Drive bridge to approximately 900 feet downstream of the Glendale Freeway, in the city of Los Angeles, Los Angeles County, California. The Proposed Project Area occurs within an area referred to as the Glendale Narrows, which is an approximately 6.2-mile-long, soft bottom section of the LAR between Griffith Park and downtown Los Angeles starts. See Figure 1.

1.2 Background

The Los Angeles District of the U.S. Army Corps of Engineers (Corps) conducted an engineering review of the Glendale Narrows in 2016 to assess the flood conveyance capacity in anticipation of large rainfall associated with the predicted El Nino season. This review identified Reaches 5A, 5B, 5C and 6A of the LACDA flood risk management project as critical areas for restoring conveyance capacity. The design capacity in these critical areas is a 51-year storm event or 78,000 cubic feet per second (cfs). However, the existing channel capacity in these critical areas due to vegetation and accumulated material is approximately a 7-year storm event (43,500 cfs). Of the four reaches, Reach 5C and the upstream section of Reach 6A has the greatest volume of accumulated material due to a bend in the river which causes sandbars to form against the left bank. In total, the sandbars contain approximately 40,000 cubic yards (cy) of material. The material consists of approximately 65% cobbles and boulders (rock sizes greater than 3 inches in diameter) and 33% sub-cobbles and fines.

The soft-bottom channel configuration of Reach 5C is characterized by a concrete, trapezoidal channel with a cobblestone invert and 12 inch thick concrete banks. The banks are toed-down with sheet pile and derrick/quarry run stone. The cobblestone invert is approximately seven (7) feet deep and the bottom of the channel is approximately 220 feet wide. The soft-bottom channel configuration of Reach 6A is characterized by a concrete, trapezoidal channel with a cobblestone invert and 12 inch thick concrete bank on the left, and a grouted stone embankment on the right. The left bank is toed-down with sheet pile and derrick/quarry run stone. The right bank is toed-down with a grouted stone toe. The cobblestone invert is approximately seven (7) feet deep and the bottom of the channel is approximately 220 feet wide.

In 2017, the chemical and geotechnical properties of the sediments in Reach 5C were evaluated to assess their suitability for potential disposal/reuse at offsite locations. The sampling program included the collection of 50 sediment samples from 25 locations (Amec Foster Wheeler, 2017). The sampling results can be found in Appendix A to this environmental assessment. The sampling program was based on a sampling grid of

approximately 85 by 85 feet. The actual sampling locations were selected in the field based on logistical conditions and access available during field work. In addition, one targeted sample was collected from sediments that exhibited slight discoloration and an elevated photoionization detector (PID) measurement relative to other sediment samples collected from the site. Sediment samples for chemical analysis, except for the targeted sample, were composited by the analytical laboratory for analyses in accordance with the sampling and analysis plan (SAP). The targeted sediment sample was analyzed for the same constituents as the composite samples. Three discrete sediment samples were collected for geotechnical testing in accordance with the SAP. Results for total lead in the composite samples indicated concentrations of total lead that exceeded 10 times the soluble threshold limit concentration (STLC) and/or 20 times the toxicity characteristic leaching procedure (TCLP) for lead. Consequently, soluble lead analyses were performed on composite samples and total and soluble lead analyses were performed on discrete sediment samples selected based on the total lead concentrations of their corresponding composite samples. Soluble lead results for several of these discrete sediment samples exceeded the STLC for lead. To provide a more representative data set for soluble lead, the remaining discrete sediment samples collected during this investigation were analyzed for STLC for lead.

All chemical results were below the regional screening levels (RSLs) for residential and commercial/industrial soils, except for the following.

- In the one targeted sample, indeno (1,2,3-cd) pyrene was detected at 162 µg/kg, which is above its RSL for residential soils but below its RSL for commercial/industrial soils.
- Lead was detected at concentrations of 104 and 166 mg/kg in two composite samples. These values are above the RSL for residential soils but below the RSL for commercial/industrial soils. Additional analyses of the four individual soil samples that comprised these composite samples indicated lead concentrations below the RSL for residential soils.

Approximately 1,000 cy of accumulated sediment is considered contaminated in Reach 5C.

No chemical and geotechnical properties of the sediments in Reach 6A were evaluated. However, both the chemical and geotechnical properties are likely to be similar to those characterized for Reach 5C since the sediments are part of the same sand bar.

1.3 Purpose and Need

The LAR channel is a flood risk management structure. The accumulated material reduces the channel conveyance capacity of the LAR through Reaches 5C and 6A. The purpose of the project is to improve conveyance capacity in the Proposed Project Area.

2.0 ALTERNATIVES

2.1 Alternatives Considered But Not Carried Forward

Glendale Freeway Onramp Alternative: Temporary ingress and egress ramps would be constructed near the entrance to the Glendale Freeway on-ramp off Fletcher Drive. Northbound trucks on Fletcher Drive would ingress to the project area near the entrance to the freeway on-ramp and egress back onto the freeway on-ramp near the Glendale Freeway overpass. After exiting onto the on-ramp, trucks would proceed directly onto the Glendale Freeway en route to their destination. This alternative was not carried forward due to potential safety risks associated with decelerating trucks sharing lanes with other vehicles accelerating to highway speeds.

Residential Street Haul Route Alternative: A temporary ingress ramp would be constructed near the entrance to the Glendale Freeway on-ramp off Fletcher Drive. Northbound trucks on Fletcher Drive would ingress near the entrance to the freeway on-ramp. Trucks exiting the channel would proceed east via an existing access road, turn north across a state-owned lot (Bowtie Parcel), and proceed to Kerr Avenue which transitions to Casitas Avenue. From Casitas Avenue, trucks would turn left onto Carillon Street then turn right onto La Clede Avenue to reach Fletcher Drive. This alternative was not carried forward due to potential safety risks associated with decelerating trucks sharing lanes with other vehicles accelerating to highway speeds. Furthermore, weights of haul trucks would exceed weight limits for residential streets.

Conveyor System Alternative: A system of mechanized crushing equipment conveyor belts would be used to crush and transport accumulated material from the channel invert for further storage in the uplands. The processed material would be loaded onto haul trucks from the temporary upland storage area. This alternative was not carried forward due to noise and dust that would accompany such operations. Furthermore, the potential for fuel spills and oil leaks in the channel invert would be higher due to the need for additional heavy equipment. Moreover temporary easements on adjacent brownfields for stockpiles could not be secured. Last, the process equipment is not mobile. Thus, evacuating the channel in preparation for potential storm flows would be difficult since equipment would need to be disassembled and moved to the uplands in a timely manner.

Levee Access Road Haul Route Alternative: Haul trucks would use an existing access road atop the left embankment and bypass the Bowtie Parcel and connect to Kerr Road via Taylor Yard. This alternative was not carried forward for safety and logistical concerns. The access road is not sufficiently wide to safely accommodate haul trucks. Furthermore, the access road is immediately adjacent to the sloped embankment with no margin for driver error. Moreover, two-way traffic is not possible and the logistics of establishing one-way traffic for both inbound and outbound haul trucks would not be practicable.

Limited Footprint Alternative: Approximately 40,000 cy of accumulated material would be removed from the area of the channel invert between Fletcher Drive and the Glendale Freeway. The riparian corridor along the right embankment would be excluded from the construction footprint. This alternative was not carried forward for safety concerns. Removal of 40,000 cy from a limited footprint would require excavation below the design elevation of the channel invert, leaving the construction footprint deeper than the areas of the invert upstream and downstream of the footprint. The uneven channel invert gradient may result in erosion that may undermine the embankments. Furthermore, excavation to depths below the design invert elevation may damage a sewer trunk line that crosses the channel at Reach 5C.

2.2 No Action Alternative

Under the No Action Alternative, accumulated material from the Proposed Project Area would not be removed. The accumulated material would continue to remain within the channel and the conveyance capacity would not be improved.

2.3 Channel-Wide Removal Alternative

Under the Channel-Wide Removal Alternative, approximately 40,000 cy of accumulated material from Reach 5C would be removed to the design elevation of the channel invert across the entire width of the channel between Fletcher Drive and the Glendale Freeway. See Figure 1. The construction footprint within the footprint is approximately 4.5 acres. The design elevation for the channel invert is the top of the toe.

The depth of sediment to be removed ranges from 2 to 8 feet. Clean excavated material, approximately 39,000 cy, would be transported and temporarily stockpiled at a Corps-owned sediment placement site downstream of Lopez Dam. See Figure 4. Lopez Dam is located near the city of San Fernando, on the Pacoima Wash, in the north-central part of the San Fernando Valley, Los Angeles County, California, approximately 20 miles from the Proposed Project Area. See Figure 5. Contaminated sediment, approximately 1,000 cy, would be disposed at Sunshine Landfill in Sylmar. There would be no structural alterations or modifications of structural elements of the engineered channel.

Staging Area: An unvegetated area near the Glendale Freeway onramp off Fletcher Drive would be used as a staging area. See Figure 1.

Trucking Routes: From San Fernando Road, trucks would proceed in a southwesterly direction via an unnamed access road into Taylor Yard, located riverward of the Rio de Los Angeles State Park. Once past the railway trestle bridge, vehicles would proceed in a northwesterly direction along a paved access road that is parallel to the railway track heading towards the Bowtie Parcel. From the Bowtie Parcel, trucks would transition onto the existing access road atop the left embankment then enter the channel via a temporary access ramp. Loaded trucks would exit the channel using a second temporary access ramp and turn around in an open space area in the Staging Area

shown in Figure 1. Exiting trucks would proceed in the opposite direction via the same route through Bowtie Parcel and Taylor Yard onto San Fernando Road. Trucks would proceed northbound on San Fernando Road and proceed onto the Glendale Freeway. See Figure 3.

Channel Access: Two 120 foot-long by 15 foot-wide by 2 foot-high temporary access ramps constructed from clean earthen fill imported from Lopez Dam would be constructed within the channel on the left embankment. To minimize turbidity, fiber rolls and or sand bags would be installed below the ramp during its construction and removal. Location of proposed access ramps are shown in Figure 1.

Water Diversion Structures: Water diversion structures such as k-rails or rubber dams would be temporarily placed on the existing concrete invert at the upstream terminus just below Fletcher Drive crossing to redirect flows. Placement of water diversion structures would be staged. Diversion structures would be placed perpendicular to the right embankment while accumulated material from the left embankment is removed. Diversion structures would be placed perpendicular to the left embankment while accumulated material from the right embankment is removed. See Figures 1, 1a and 1b. The structures would be wrapped in visqueen with sand bags placed on the upstream side to hold it in place.

Vegetation Removal: All vegetation, native and non-native, within the 4.5 acre removal area would be removed. Clearing and grubbing would occur outside of bird nesting season (approximately February 28 – August 15).

Upland Native Species Avoidance Area: Native vegetation atop the left embankment would be excluded from the construction footprint. See Figure 1.

2.4 Selective Removal Alternative (Preferred Alternative)

Under the Selective Removal Alternative (Preferred Alternative), approximately 40,000 cy of accumulated material from Reach 5C and Reach 6A would be removed. The staging area, trucking routes, channel access would be the same as the Channel-Wide Removal Alternative. Under this alternative, the construction footprint would avoid two areas:

- **Riparian Zone Avoidance Area:** Approximately 1.5 acres of contiguous native vegetation with complex vertical structure (i.e., a matrix of mature trees with understory of differing heights and densities) along the right bank would be excluded from the construction footprint. The vegetation would be protected by a 10-foot radius buffer. The outer edge of the earthen buffer would be stabilized with a 2:1 (horizontal: vertical) slope. See Figure 2.

- **Native Species Avoidance Area:** In-channel, native vegetation located adjacent to the left bank would be excluded from the construction footprint. See Figure 2.

The construction footprint would be approximately 4.25 acres. Clean excavated material from Reach 5C, approximately 39,000 cy, would be transported and temporarily stockpiled at a Corps-owned sediment placement site downstream of Lopez Dam. Contaminated sediment from Reach 5C, approximately 1,000 cy, would be disposed at Sunshine Landfill in Sylmar. All accumulated material from Reach 6A would be temporarily stockpiled at Lopez Dam. The stored sediment would be later tested and transported to suitable landfills for disposal based on testing results. Removal of sediment under this alternative would increase conveyance to approximately a 15-year storm event capacity (54,000 cfs).

A biological monitor would be on-site during all construction activities to insure vegetation removal avoids or minimizes unintended impacts to biological resources. Clearing and grubbing would occur outside of bird nesting season (approximately February 28 – August 15).

Water Diversion Structures: Water diversion structures such as k-rails or rubber dams would be temporarily placed on the existing concrete invert at the upstream terminus just below Fletcher Drive crossing to redirect flows. See Figure 2. Water diversion structures would be placed perpendicular to the left embankment while to redirect flows along the right embankment. The structures would be wrapped in visqueen with sand bags placed on the upstream side to hold it in place.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 Aesthetics

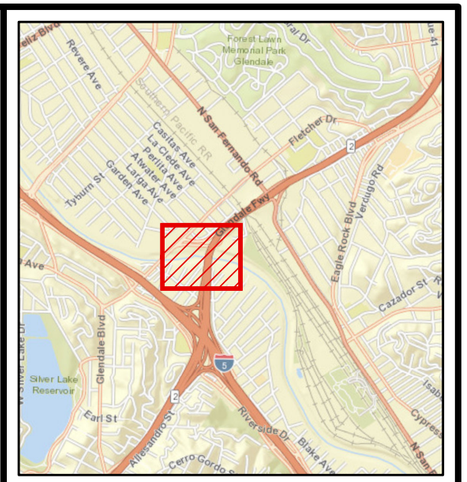
Affected Environment

The vista from within the channel for both Reach 5C and 6A is composed of linear lines, sharp angles and other geometric forms as well as varying hues of gray and textures associated with a grouted embankment. This linear, monolithic element frames the upstream and downstream views of the LAR. In the center of the vista, the accumulated sand and rocks form undulating lines and textured surface with varying hues of beige and brown. The view of the sandbar is interspersed with non-linear forms, heterogeneous textures and a natural color palette associated with vegetation.

Significance Threshold

Based on the existing conditions described above, impacts would be considered significant if the alternative:

- Permanently alters the existing vista.
- Impairs or obstructs views of major visual elements.



Legend

- Sediment Removal Area
- Staging Area
- Access Ramp
- Haul Route

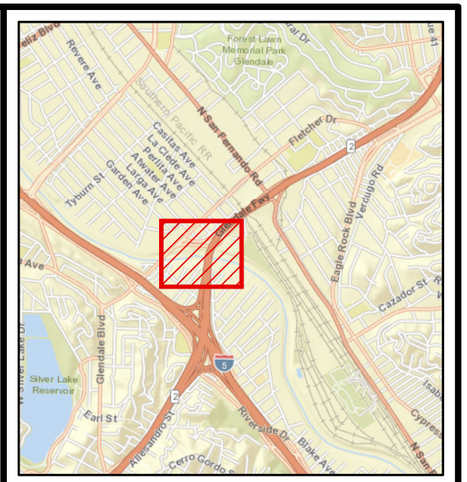
N

0 75 150 300 Feet

LOS ANGELES RIVER

FIGURE 1: CHANNEL-WIDE REMOVAL ALTERNARTIVE

U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT



Legend

- Sediment Removal Area
- Excavate Stage 1
- Staging Area
- Access Ramp
- Haul Route
- Dewatering Structure Stage 1

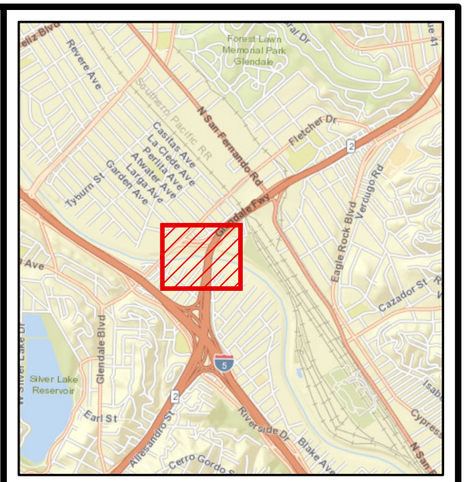
N

0 75 150 300 Feet

LOS ANGELES RIVER

FIGURE 1a: CHANNEL-WIDE REMOVAL ALTERNARTIVE (STAGE 1)

U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT



Legend

- Sediment Removal Area
- Excavate Stage 2
- Staging Area
- Access Ramp
- Haul Route
- Dewatering Structure Stage 2

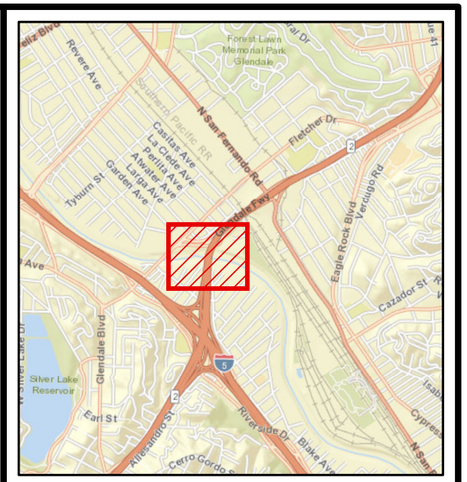
N

0 75 150 300 Feet

LOS ANGELES RIVER

FIGURE 1b: CHANNEL-WIDE REMOVAL ALTERNARTIVE (STAGE 2)

U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT



Legend

- Sediment Removal Area
- Staging Area
- Access Ramp
- Haul Route
- Dewatering Structure

N

0 75 150 300 Feet

LOS ANGELES RIVER

FIGURE 2: SELECTIVE REMOVAL ALTERNATIVE (PREFERRED ALTERNATIVE)

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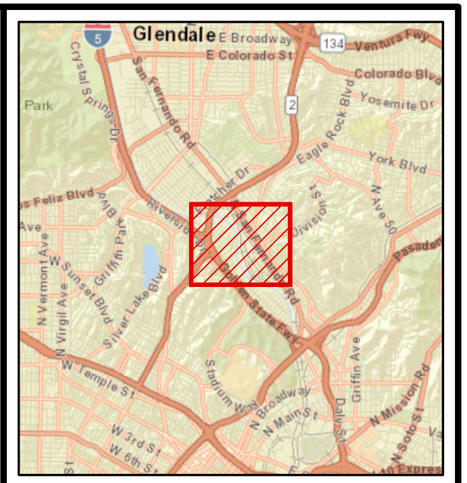
LOS ANGELES DISTRICT



Legend

- Sedment Removal Area
- Loading Area
- Access Ramp
- Route 3
- Gate

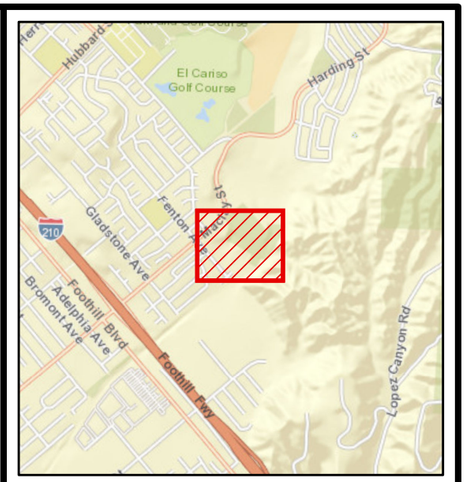
N

0 212.5 425 850 Feet

LOS ANGELES RIVER

FIGURE 3: HAUL ROUTE MAP

U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT



Legend

- Stockpile Area Location
- Access Road
- USACE ROW

N

0 75 150 300 Feet

1 inch = 154 feet

LOS ANGELES RIVER 5C
SEDIMENT REMOVAL

FIGURE 4: LOPEZ DAM DISPOSAL AREA MAP

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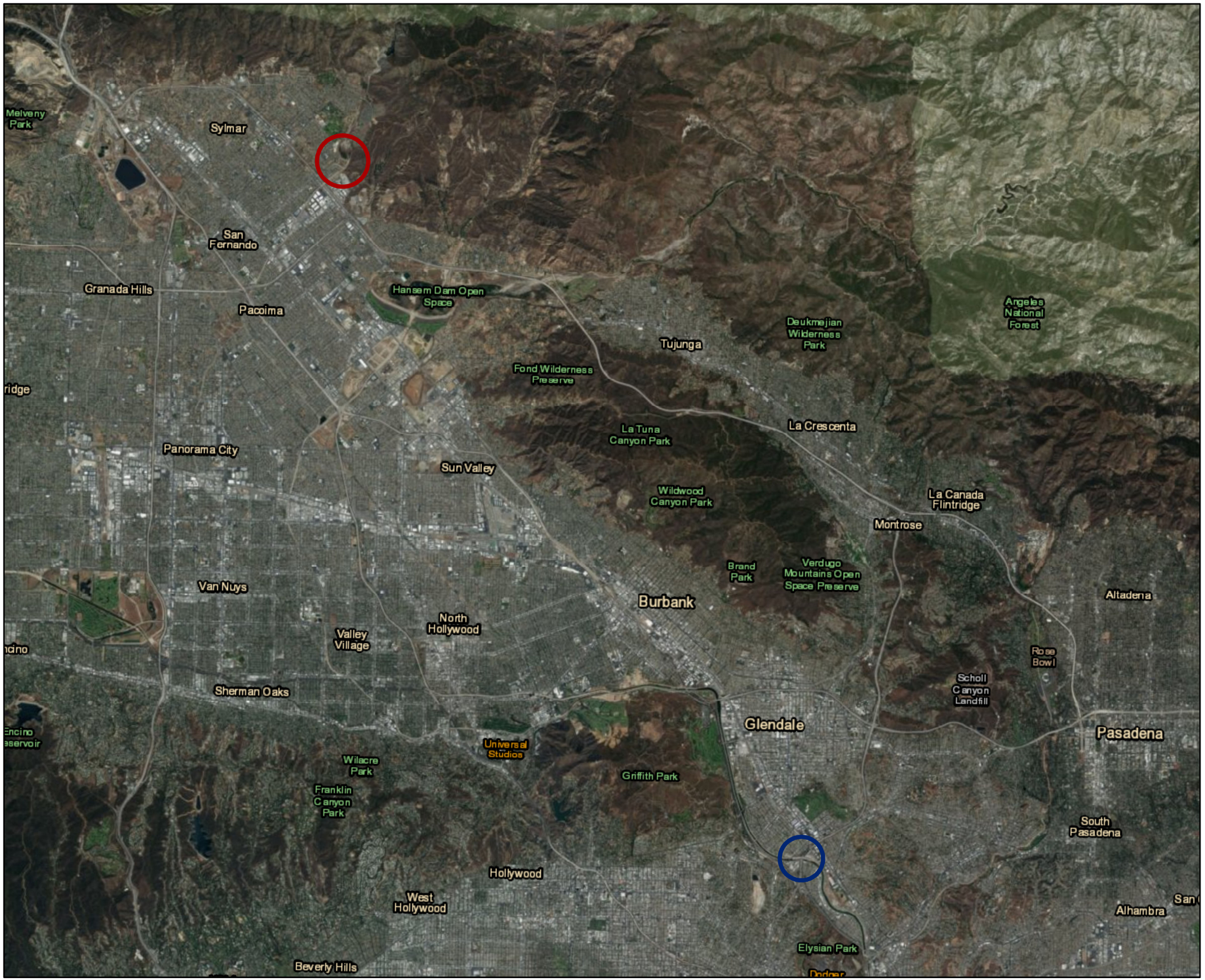
LOS ANGELES DISTRICT



Legend

- LAR 5C Sediment Removal Area
- Lopez Dam Disposal Area

N

0 3,750 7,500 15,000 Feet

1 inch = 10,244 feet

LOS ANGELES RIVER 5C
SEDIMENT REMOVAL

MAPPING SHOWING THE
LOCATION OF LOPEZ DAM
DISPOSAL AREA AND LAR 5C
SEDIMENT REMOVAL AREA

U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT

FIGURE 5

Environmental Consequences

No Action Alternative

Under the No Action Alternative, accumulated material from the Proposed Project Area would not be removed. The vegetation growing atop the sandbar would remain in place. The existing vista would remain unchanged.

Channel-Wide Removal Alternative

Removal of the accumulated materials under the Channel-Wide Removal Alternative would require approximately three excavators, two loaders, and dump trucks to work within the channel invert. Thus, earthmoving equipment with highly visible paint schemes and colors would be temporarily present in the LAR for the duration of construction. Use of water diversion structures such as k-rails would temporarily result in introduction of visible linear forms into the construction footprint. These elements would be removed upon completion of construction. Removal of accumulated material would result in the removal of all vegetation within the channel invert at Reach 5C. Thus, subsequent to construction, the channel invert at Reach 5C would be temporarily devoid of heterogeneous forms and textures as well as a natural color palette associated vegetation and replaced with a homogeneous earthen environment with various hues of beige and brown. However, vegetation is expected to naturally reestablish in the area due to the perennial flows and existing seed bank. Thus, impacts would not be permanent since regrowth over a number of years would restore visual heterogeneity associated with shrub vegetation. Large structures that could obstruct views of the major visual elements would not be constructed. Furthermore, the existing vista would not be permanently altered since the visual heterogeneity associated with shrub vegetation would be restored with regrowth of in-channel vegetation. Therefore, impacts would be less than significant.

Selective Removal Alternative (Preferred Alternative)

Impacts would be similar to those characterized under the Channel-Wide Removal Alternative. However, approximately 1.5 acres of contiguous native vegetation with complex vertical structure (i.e., a matrix of mature trees with understory of differing heights and densities) would be excluded from the construction footprint. The vegetation would be protected by a 10 foot radius buffer. The outer edge of the earthen buffer would be stabilized with a 2:1 (horizontal: vertical) slope. Thus, most vegetation that dominate the vista of the channel invert would be retained. The existing vista would not be permanently altered. Large structures that could obstruct views of the major visual elements would not be constructed. Impacts would be less than significant.

3.2 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 (O_3), carbon monoxide (CO), suspended particulate matter (PM), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), and lead (Pb). PM emissions are regulated in two size classes: Particulates up to 10 microns in diameter (PM_{10}) and particulates up to 2.5 microns in diameter ($PM_{2.5}$).

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.
- 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. 93.153.

Table 1: NAAQS Attainment Designations for the South Coast Air Basin (SACB) and Applicable General Conformity Applicability Rates

Pollutant	Attainment Status	General Conformity Applicability Rates (tons/year)
Ozone (VOC)	Nonattainment, extreme	10
CO	Attainment/Maintenance	100
NO_2	Attainment/Maintenance	100
SO_2	Attainment	100

PM_{10}	Attainment/Maintenance	100
$PM_{2.5}$	Nonattainment	100
Pb	Nonattainment	25

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 nonattainment for lead. 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.

Regional Significance Thresholds

The South Coast Air Quality Management District (SCAQMD) has developed Regional Significance Thresholds (RSTs) for mass daily emission rates of criteria pollutants for both construction and operational sources. RSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable Federal or state ambient air quality standard in the SCAB.

Table 2: SCAQMD Regional Air Quality Significance Thresholds[1]

Pollutant	Construction
Nitrogen Oxide (NOx)	100 lbs./day
Reactive Organic Gas (ROG) (or VOC[2])	75 lbs./day
Particle Pollution (PM10)	150 lbs./day
Particle Pollution (PM2.5)	55 lbs./day
Sulfur Oxides (SOx)	150 lbs./day
Carbon Monoxide (CO)	550 lbs./day
Lead	3 lbs./day

1. Source: http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf?sfvrsn=2
2. Per CalEEMod Appendix B, ROG and VOC are used interchangeably for the purpose of comparing to significance thresholds.

Greenhouse Gases

Effective April 5, 2017, the Council on Environmental Quality withdrew its “Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews.” The guidance established a recommended reference point of 25,000 metric tons of annual CO2 emissions as warranting further review. Thus, estimates of greenhouse gas emissions are included herein for the purpose of disclosure under NEPA.

Emission Estimates Methodology

Emissions were estimated using CalEEMod.2016.3.2 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. Little to no quantifiable and foreseeable lead emissions would be generated by any of the alternatives.

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.

Significance Threshold

Based on the existing conditions described above, impacts would be considered significant if the alternative:

- Exceeds General Conformity Rule applicability rates
- Exceeds any SCAQMD daily RSTs

Environmental Consequences

No Action Alternative

Under the No Action Alternative, accumulated material from the Proposed Project Area would not be removed. There would be no temporary emissions from the use of earthmoving equipment, and dump trucks.

Channel-Wide Removal Alternative

The Channel-Wide Removal Alternative entails excavating approximately 40,000 cy of accumulated sand, cobbles, and boulders from the LAR and transport of accumulated material for off-site disposal. In-channel construction operations to excavate, sort, and load the accumulated material would require approximately three excavators, one dozer, and two loaders. All off-road equipment would be operating 10 hours a day, six days a week, for a period of 90 work days. CalEEMod's default values for the number of hauling trips and distance required to dispose 40,000 cy of material were used to estimate on-road emission. CalEEMod's air quality emissions data are provided in Appendix B.

As shown in Table 1, estimated annual emissions would not exceed the Clean Air Act General Conformity applicability rates. As a result, a General Conformity Analysis would not be required. As shown in Table 3 estimated emissions would not exceed daily SCAQMD emissions thresholds. Therefore, impacts to air quality would be less than significant.

As shown in Table 2, GHG emissions is approximately 394 tons/year.

Table 1: Comparison of Estimated Annual Emissions to General Conformity Applicability Rates		
Pollutants	**General Conformity Rates (tons/year)**	**Estimated Emissions (tons/year)**
Ozone (VOC)	10	0.20
NO2	100	2.83
CO	100	1.26
Pb	25	-
PM10	100	0.49
PM2.5	100	0.29
Table 2: Estimated GHG Emissions (tons/years)		
394		

Table 3: Comparison of Estimated Daily Emissions to SCAQMD Thresholds		
Pollutants	**Regional Significance Thresholds (lbs./day)**	**Estimated Emissions (lbs./day)**
VOC	75	4.67
NOX	100	62.63
CO	550	28.15
SOX	150	0.09
PM10	150	11.04
PM2.5	55	6.53

Selective Removal Alternative (Preferred Alternative)

The Selective Removal Alternative (Preferred Alternative) would remove the same amount of accumulated material as the Channel-Wide Removal Alternative. Thus, impacts would be the same as those characterized under the Channel-Wide Removal Alternative. Impacts would be less than significant. GHG emissions would be the same as the Channel-Wide Removal Alternative.

3.3 Biological Resources

The information presented in this section describes the biological resources that occur within the Proposed Project Area and its immediate vicinity. It includes descriptions of common plant communities and wildlife, including special-status species that have either been observed or have the potential to occur within this area.

Affected Environment

The LAR watershed is located in a Mediterranean climate region characterized by highly seasonal precipitation and temperature patterns that occur annually, with hot, dry summers, and cool, wet winters predominating. Inter-annual variability in precipitation is a key characteristic of the region.

Like most Mediterranean-climate streams, flows in the LAR often occur as a single annual flow peak in winter, although the frequency of these events can be highly episodic and variable inter-annually, with dramatic shifts between the two extremes of flow-flood and flow-cessation. Urban development (i.e., increase in impervious surface) coupled with flood risk-related modifications of the river channel have led to large-scale changes in the patterns of energy and matter distribution throughout the watershed, including evapotranspiration rates, surface runoff, discharge, nutrient availability (nitrogen and phosphorus), soil erosion, and sedimentation (He et al. 2000). As consequence of these changes, the volume and timing of stream flow in the LAR has been altered, both spatially and temporally, from that of a typical Mediterranean-climate river. This has substantially influenced the structure and composition of its natural communities (Miltner et al. 2004; Konrad and Booth 2005).

As stated in Section 1.2 above, the soft-bottom channel configuration of Reach 5C is characterized by a concrete, trapezoidal channel with a cobblestone invert and 12 inch thick concrete banks. The banks are toed-down with sheet pile and derrick/quarry run stone. The cobblestone invert is approximately seven (7) feet deep and the bottom of the channel is approximately 220 feet wide. The soft-bottom channel configuration of Reach 6A is characterized by a concrete, trapezoidal channel with a cobblestone invert and 12 inch thick concrete bank on the left, and a grouted stone embankment on the right. The left bank is toed-down with sheet pile and derrick/quarry run stone. The right bank is toed-down with a grouted stone toe. The cobblestone invert is approximately seven (7) feet deep and the bottom of the channel is approximately 220 feet wide.

Plant Communities

The Proposed Project Area is located at a bend in the LAR where the natural hydraulics, coupled with the existing channel roughness, promote the process of sedimentation. Sediment carried from upstream areas has accumulated over the existing cobblestone bed and vegetation has established on this accumulated sediment over time. As gravel, mud, and debris become trapped in the channel bed, vegetation has become rooted and contributes to additional gravel, mud, and debris collection. This process has resulted in sizeable areas of vegetation establishment within the Proposed

Project Area, including the growth of native and non-native grasses, trees, and shrubs within the “soft bottom” channel bed. Structural conditions of the existing vegetation include: grass-forb, shrub, and tree layers along with constrained river channel and urban with various levels of impervious surfaces.

The functions of riparian systems for wildlife (e.g., to promote species diversity and recruitment) are optimized when its botanical structure is complex in 3-dimensional space, resulting in suitable habitat for multiple animal species. Much of the natural microbial, invertebrate, and vertebrate communities of wetlands and riparian areas are adjusted to the architectural forms, phenologies, detrital materials, and chemistry of the native vegetation. Furthermore, the physical form of any riparian habitat area is partly the result of interactions between plants and physical processes, especially hydrology. A sudden change in the dominant species, such as results from the spread of an aggressive invasive plant species, can have cascading effects on whole-system form, structure, and function (CWMW 2013). Besides providing structural wildlife habitat, riparian areas can also provide a means to reduce the amount of chemicals and other pollutants from entering the water column and help to reduce stream temperatures (in the form of shading) to promote the survival and growth of aquatic organisms that require higher levels of dissolved oxygen.

Outside of the river channel, habitat is extremely limited. Urban land uses dominate the overbanks within the project reaches and most vegetation is ruderal or ornamental. A small (>0.5 acre) area of marginal upland habitat, planted by a local non-profit agency, exists along the upper left bank of the river channel.

The most up-to-date inventory of vegetation conditions in the LAR corridor is based on the Combined Habitat Assessment Protocol (CHAP) conducted for the Los Angeles River Ecosystem Restoration Feasibility Study (USACE 2015). Based on this assessment, habitat types present within the Proposed Project Area include open water, valley foothill riparian, and urban. No other vegetation community types are identified within the project reaches (USACE 2015).

Descriptions of the habitat classifications present in the Proposed Project Area are provided in the following paragraphs:

- Open Water: Intermittent or continually running water distinguishes river and stream communities. In the higher velocity stretches of natural streams, riffle/pool complexes are dominant and vegetation includes water moss and filamentous algae that are attached to rocks. In slower moving waters, with increasing temperatures, decreasing velocities, and accumulating bed sediment, emergent freshwater marsh vegetation, such as rushes, sedges, and cattails is established along river banks (Mayer and Laudenslayer 1988). In the Proposed Project Area, emergent marsh vegetation is dominated by common cattail (*Typha latifolia*), narrow-leafed cattail (*Typha angustifolia*) California bulrush (*Schoenoplectus californicus).* Herbaceous species can be found on low elevation mats and large islands of southern willow scrub vegetation.

- Valley foothill riparian: This vegetation community occupies a large portion of the soft-bed channel within the Proposed Project Area, forming a semi-continuous strip of riparian habitat composed of native and non-native grasses, shrubs, and trees. Dominant native tree species in the Proposed Project Area include: black willow (*Salix gooddingii*), Fremont cottonwood (*Populus fremontii*), and arroyo willow (*Salix laevigata*). Native understory vegetation consists of shrubby willows and mule fat (*Baccharis salicifolia*) with herbaceous species including California mugwort (*Artemisia douglasiana)* and various native and non-native grasses. While scouring during high floods has at times cleared some of the understory vegetation within this reach, well-rooted black willows have persisted.

- Urban: This category includes landscapes dominated by urban structures, residential units, industrial areas, highways, and other such structures. It also includes urban uses such as parks, recreational fields, golf courses, and other such urban open space areas. Park areas may include alternately categorized vegetation such as ornamental or exotic hardwood mixture. Urban land uses dominate the overbanks within the Proposed Project Area and any vegetation tends to be ruderal or ornamental.

  Various exotic (i.e., non-native) species can be found in riparian and urban areas within the Proposed Project Area. Some of these non-native species are considered invasive and have been targeted by removal efforts. “Invasive” species are non-native species that “(1) are not native to, yet can spread into, wild land ecosystems, and that also (2) displace native species, hybridize with native species, alter biological communities, or alter ecosystem processes” (Cal-IPC 2018). Many non-native species are now naturalized in California, and may be widespread in occurrence.

  The most prevalent non-native and invasive plant is giant reed (*Arundo donax*). It spreads quickly, has limited habitat value, and contributes to fire hazards through fuel loading. Other invasive species targeted by removal efforts include tree of heaven (*Ailanthus altissima*), Mexican fan palm (*Washingtonia robusta*), castor bean (*Ricinus communis*) and eucalyptus (*Eucalyptus* spp.) Other exotic/ornamental species found within the Proposed Project Area include white mulberry (*Morus alba*)*,* edible fig (*Ficus carica*), and non-native species of ash (*Fraxinus* spp.).

Wildlife

Because of the Proposed Project Area’s urban setting and surrounding land uses, wildlife species (birds, amphibians, reptiles, and mammals) that are the most tolerant of human activity and the extremely modified landscapes inhabit the Proposed Project Area.

- Herpetofauna: The herpetofauna in the LAR watershed consists of a variety of amphibians and reptiles. Four salamanders may occur within the Proposed Project Area: Pacific slender salamander (*Batrachoseps pacificus*), arboreal salamander (*Aneides lugubris*), ensatina (*Ensatinae schscholtzii*), and black-bellied slender salamander (*Batrachoseps nigriventris*). Three frogs may occur in the Proposed Project Area including western toad (*Bufo boreas*), Pacific tree frog (*Hyla regilla*), and the introduced American bullfrog (*Rana catesbeiana*). The most common lizards to occur within the study area are the western fence lizard (*Sceloporus occidentalis*) and the common side-blotched lizard (*Uta stansburiana*). Six species of native snakes are known to occur within the Los Angeles River basin (CDFW 1993). However, none of these are expected to occur in the Proposed Project Area. If present, the most probable snake species to occur would be the gopher snake (*Pituophis melanoleucus*).

- Mammals: Common mammals potentially using or passing through the Proposed Project Area include opossum (*Didelphis virginiana*), black rat (*Rattus rattus*), raccoon (*Procyon lotor)*, California ground squirrel (*Spermophilus beecheyi*), fox squirrel (*Sciurus niger*), striped skunk (*Mephitis mephitis*), coyotes (*Canis latrans*), and several species of bats (CDFW 1993). Feral dog and cats may also utilize the area.

- Fish: No fish native to the LAR watershed are expected to occur in open water areas within the Proposed Project Area. Past surveys upstream of and within the Proposed Project Area (LADWP 2004; FoLAR 2008) have only collected non-native fish species including fathead minnow (*Pimephales promelas*), carp (*Cyprinus carpio*), black bullhead (*Ameiurus melas*), Amazon sailfin catfish (*Pteroplichthys pardalis*), green sunfish (*Lepomis cyanellus*), bluegill (*Lepomis macrochirus*), mosquito fish (*Gambusia affinis*), tilapia (*Oreochromis* spp.), and largemouth bass (*Micropterus salmoides*). Mosquitofish and tilapia were the most prevalent fish species captured within the Proposed Project Area.

  Seven species of native fish historically occurred in the freshwaters of the LAR including the now endangered species of southern California Distinct Population Segment of steelhead (*Oncorhynchus mykiss*), the unarmored threespine stickleback (*Gasterosteusaculeatus williamsoni*), the threatened Santa Ana sucker (*Catostomus santaanae*) and arroyo chub (*Gila orcuttii*), the species of concern Pacific lamprey (*Lampetra tridentata*), and the non-listed species Pacific brook lamprey (*Lampetra pacifica*) and Santa Ana speckled dace (*Rhinichthys osculus*) (CDFW 1993). However, it is highly unlikely any endangered fish species or species of special concern inhabit the Proposed Project Area. The timing of past fish surveys was ideal to determine the presence or absence of these native species and no native fishes have been collected in these surveys (LADWP 2004; FoLAR 2008).

Red swamp crayfish (*Procambarus clarki*), a non-native, invasive aquatic invertebrate is known to inhabit slow moving water areas within the Los Angeles River watershed. However, they may be less common within the Proposed Project Area because fish predators like green sunfish, black bullhead, and carp are relatively abundant.

- Birds: Though abundance of native bird species is limited by habitat quantity and quality within the study area, diversity of native birds in the Proposed Project Area fluctuates with seasonal migration and can be relatively high. Resident birds use the existing small and intermittent pockets of vegetation along the waterway to nest, roost, as a base for feeding, and to take cover. Bird species commonly associated with urban areas are abundant within the study area including: rock dove (*Columba livia*), mourning dove (*Zenaida macroura*), American crow (*Corvus brachyrhynchos*), and house finch (*Carpodacus mexicanus*). Migratory species include shorebirds, wading birds, and ducks of the Pacific Flyway. These species are primarily found roosting or feeding. Bird species commonly observed within the Proposed Project Area are listed in Table 4.

Table 4: Bird species observed or known to occur within the Proposed Project Area

Grebes and cormorants
Double-crested cormorant (*Phalacrocorax auritus*)
Western grebe (*Aechmophorus occidentalis*)

Wading and shore birds
Black-crowned night heron (*Nycticorax nytcitcorax*)
Black necked stilt (Himantopus mexicanus)
Great blue heron (*Ardea herodias*)
Great egret (*Ardea alba*)
Green heron (*Butorides virescens*)
Killdeer *(Charadrius vociferous)*
Lesser yellowlegs (Tringa flavipes)
Snowy egret (*Egretta thula*)
Western sandpiper (*Calidris mauri*)

Gulls and terns
Western Gull (*Larus occidentalis)*

Diurnal raptors
Peregrine Falcon (*Falco peregrinus)*
Red-tailed hawk (Buteo jamaicensis)
Turkey vulture *(Cathartes aura)*

Geese, ducks, and swans
American coot *(Fulicia Americana)*
Canada goose *(Branta canadensis)*
Mallard (*Anas platyrhynchos*)
Ring Necked Duck *Aythya collaris*
Muscovy duck (*Cairina moschata*)
American Pekin (*Anas platyrhynchos)**

Pigeon and doves
Mourning dove (*Zenaida macroura)*
Rock dove (*Columba livia*)
Spotted dove (*Spilopelia chinensis*

Jays and crows (corvids)
American crow (*Corvus brachyrhynchos)*
Common raven (*Corvus corax*)

Other species:
American cliff swallow (*Petrochelidon pyrrhonota*)
Anna's Hummingbird *Calypte anna)*
Belted kingfisher *(Megaceryle alcyon)*
Black phoebe *(Sayornis nigricans)*
Brewer's blackbird (*Euphagus cyanocephalus*)
Common yellowthroat (*Geothlypis trichas*)
House finch (Haemorhous mexicanus)
House sparrow (Passer domesticus)*
Northern mockingbird (*Mimus polyglottos*)

**Non-native or domestic/hybrid species*

Special Status Species

Sensitive species include plants or wildlife listed as threatened or endangered under the Federal Endangered Species Act (ESA). In general, the Proposed Project Area is unlikely to contain federally listed endangered or threatened species due to the degraded conditions. Based on the results of the Combined Habitat Assessment Protocol (CHAP) conducted for the Los Angeles River Ecosystem Restoration Feasibility Study (USACE 2015) and more recent survey data (USACE 2017; Carvel Bass, pers. comm.), no federally listed plant, wildlife, or fish species are known from or expected to occur within the Proposed Project Area. There are no designated critical habitats within the Proposed Project Area.

Of the 28 special status wildlife species with the potential to occur in the greater Los Angeles Basin, only one incidental observation of an unpaired male least Bell's vireo (*Vireo bellii pusillus*), a federally endangered species, has been sighted near the Proposed Project Area in recent years. This incidental observation was documented in Reach 6 near Taylor Yard during a one-day nesting bird survey of the area in April 2013; however, this area is located outside of the Proposed Project Area. In addition, a similar one-day nesting survey of the area in May 2013 did not detect any least Bell's vireo (Cooper 2013a, 2013b). Least Bell's vireo are not known to nest in the Glendale narrows area of the LAR due to the marginal, linear and confined nature of existing habitat. Within the Proposed Project Area, marginal habitat for least Bell's vireo exists, but lacks suitable adjacent foraging habitat. It is therefore unlikely to support nesting least Bell's vireo. No breeding pairs were documented in the Proposed Project Area during the most recent surveys (USACE 2017; Carvel Bass, pers. comm.).

There is low potential for the southwestern willow flycatcher (*Empidonax traillliextimus*) (federally endangered) and the coastal California gnatcatcher (*Polioptila californica*) (federally threatened) to use the Proposed Project Area. No flycatchers or gnatcatchers were found during these studies, and the most recent documented occurrence of the southwestern willow flycatcher was over 13 miles west of the Proposed Project Area in the Angeles National Forest. The gnatcatcher, which generally occupies coastal scrub habitat, is unlikely to occur since there is less than one (1) acre of this habitat type in the entire LAR Mainstem corridor.

Wetlands

Riverine wetlands were the only wetland type found during the habitat assessments conducted for the CHAP (USACE 2015). Based on this analysis, riverine wetlands are only within the LAR channel and subject to modification for operation and maintenance of the flood risk management channel. Though no wetland delineation was performed, it is likely that all of the vegetated area within the channel bottom of the Proposed Project Area comprises riverine wetland based on the species present.

There are no other special aquatic sites in the Proposed Project Area as defined under the Clean Water Act Section 404(b)(1) Guidelines promulgated at 40 CFR Part 230.

Wildlife Corridors

Due to the urbanized environment, wildlife movement through the Proposed Project Area is limited to urban adapted species and opportunities for passage are disconnected and/or limited by human presence and development. Bats and birds are less restricted by development, though human occupation may discourage passage through the Proposed Project Area. Ground dwelling animals that occur in the Proposed Project Area are migrating into the Proposed Project Area via the extremely limited pathways available. These pathways can be composed of narrow riparian strips, but more often are provided by culverts, paved pathways along the LAR, and concrete tunnels beneath highways. None of these features are located within the Proposed Project Area.

Significance Threshold

Impacts would be considered significant if the alternative:

- Permanently alters the existing riparian structure and functional habitat benefits for wildlife
- Permanently impacts existing wetlands

Environmental Consequences

No Action Alternative

Under the No Action Alternative, accumulated sediments from the Proposed Project Area would not be removed and the native and non-native riparian vegetation growing atop the accumulated material would remain intact.

Channel-Wide Removal Alternative

Under the Channel-wide Removal Alternative, approximately 40,000 cy of accumulated material would be removed from Reach 5C along with all the native and non-native vegetation growing atop the accumulated material. Although this alternative would improve the channel's capacity to convey floodwaters and minimize the risk to human safety and structures, it would remove all of the structural and functional habitat benefits afforded to wildlife that this reach of the channel provides such as nesting and foraging habitat that promotes greater wildlife diversity, as well as enhanced hydrological functions such as rainfall interception, reduced evaporation from soils, and enhanced filtration of floodwaters (CWMW 2013). Over time, it is expected that the riparian vegetation would naturally reestablish in the Proposed Project Area due to the perennial flows and an existing seed/propagule bank; however, recovery of this vegetation would require several years or more to reach the maturity and complexity that would most benefit wildlife (especially migratory bird species) in the form of foraging and nesting habitat. In addition, an on-going giant reed abatement program that encompasses the

Proposed Project Area would further facilitate recovery of native vegetation. With the recovery of vegetation, the existing riparian structure and functional habitat benefits for wildlife would not be permanently altered. Impacts would be less than significant.

Likewise, under this alternative all wetland vegetation and hydric soils within the 4.5 acre construction footprint would be removed. Wetland vegetation and hydric soils are expected to naturally reestablish over time due to the perennial flows and an existing seed/propagule bank; however, recovery of this vegetation would require several years or more to reach the maturity and complexity that characterizes the existing wetland vegetation. Hydric soils would reestablish overtime as newly exposed soils come into contact with the surrounding flows. Based on the above, wetlands would not be permanently impacted. Impacts would be less than significant.

Selective Removal Alternative (Preferred Alternative)

The Selective Removal Alternative (Preferred Alternative) would remove the same amount of accumulated material from Reach 5C and 6A. Approximately 1.5 acres of native riparian vegetation would be excluded from the construction footprint and designated as a "riparian zone avoidance area."

The avoidance area is intended to exclude areas of riparian vegetation with complex vertical structure (i.e., a matrix of mature trees with understory of differing heights and densities). This vegetation would be protected by a 5-foot radius buffer from the drip line (outer canopy edge) of the tree or shrub. The outer edge of the earthen buffer would be stabilized with a 2:1 (horizontal: vertical) slope. The fringing riparian/emergent marsh vegetation along the south side of the river channel would be included in the avoidance area. The riparian zone avoidance area would retain as many of the key components of the riparian habitat (e.g., multiple plant layers comprised of predominantly native species, a high degree of overlap among plant layers) as possible within the Proposed Project Area. This would promote retention of related habitat benefits in the form of such nesting and foraging habitat that would promote greater wildlife diversity and enhanced hydrological functions such as rainfall interception, reduced evaporation from soils, and enhanced filtration of floodwaters (CWMW 2013).

Under this alternative, some native and non-native riparian vegetation growing atop the accumulated material would still need to be removed and would no longer be available to provide habitat benefits as described above. However, any change is expected to be less than significant because the existing vegetation (atop the accumulated channel bed material) that would be targeted for removal tends to be sparse and/or patchily dispersed within the Proposed Project Area. The riparian vegetation is expected to naturally reestablish in the area due to the perennial flows and an existing seed/propagule bank. Furthermore, the targeted removal of nuisance invasive, non-native plant species conducted as part of the project activities would provide long-term benefits to the habitat integrity. With preservation of the riparian and native vegetation,

the existing riparian structure and functional habitat benefits for wildlife would not be permanently altered. Impacts would be less than significant.

Likewise, under this alternative all wetland vegetation and hydric soils within the construction footprint would be removed. Wetland vegetation and hydric soils are expected to naturally reestablish over time due to the perennial flows and an existing seed/propagule bank; however, recovery of this vegetation would require several years or more to reach the maturity and complexity that characterizes the existing wetland vegetation. Hydric soils would reestablish overtime as newly exposed soils come into contact with the surrounding flows. Based on the above, wetlands would not be permanently impacted. Impacts would be less than significant.

Clearing and grubbing would occur outside of bird nesting season (approximately February 28 – August 15). A biological monitor would be on-site during all construction activities to insure vegetation removal avoids or minimizes unintended impacts to biological resources. Based on this analysis and the measures in place, the Selective Removal Alternative would not substantially alter the existing riparian structure and functional habitat benefits for wildlife. Therefore, impacts would be less than significant.

3.4 Cultural Resources

Affected Environment

Cultural resources are artifacts of human activity, occupation, or use. They include expressions of human culture and history in the physical environment, such as archaeological sites, historic buildings and structures, or other culturally significant places.

Archaeologists have placed the earliest occupations of southern California at roughly 12,000 to 10,000 years before present (BP). The local Tongva or Gabrielino oral traditions speak of the importance and use of the rivers in the inland valleys, and named settlements have been documented at locations along nearly every river and ephemeral stream. At the time of contact, the Spanish encountered native populations who were organized in villages with social elites, well-established trade networks and elaborate mortuary customs. Missionization, disease, and colonization decimated the organized Tongva villages along the LAR, but some Native American use of the river continued throughout the nineteenth century.

Use of the area surrounding the project transitioned from livestock grazing to agricultural use as control of the area transitioned from Spain to Mexico and, eventually, to the United States. Beginning in the 1880s, residential and industrial development along the LAR grew rapidly. The Corps began to channelize the LAR with concrete in 1938 to reduce flood risk to the rapidly developing communities, but construction wasn't completed until 1959, when the LAR had been contained in a series of channels, flood risk management reservoirs, and debris basins. Freeway construction further increased the industrial nature of adjacent land use near the project area.

The proposed action would occur within Reach 5C and the upstream section of Reach 6A of the LAR. As stated in Section 1.2 above, the soft-bottom channel configuration of Reach 5C is characterized by a concrete, trapezoidal channel with a cobblestone invert and 12 inch thick concrete banks. The banks are toed-down with sheet pile and derrick/quarry run stone. The cobblestone invert is approximately seven (7) feet deep and the bottom of the channel is approximately 220 feet wide. The soft-bottom channel configuration of Reach 6A is characterized by a concrete, trapezoidal channel with a cobblestone invert and 12 inch thick concrete bank on the left, and a grouted stone embankment on the right. The left bank is toed-down with sheet pile and derrick/quarry run stone. The right bank is toed-down with a grouted stone toe. The cobblestone invert is approximately seven (7) feet deep and the bottom of the channel is approximately 220 feet wide. The banks were initially constructed in 1938, but the cobblestone invert was repaired in 1956. While the LAR flood control system as a whole may be viewed as historically important, most individual segments likely lack significance or otherwise fail to meet one of the four criteria necessary to be eligible for the National Register of Historic Places (NRHP). The LAR within the project area has not been formally evaluated for the NRHP, although a segment of Reach 4 has been previously determined ineligible.

As the Los Angeles area developed economically and rail traffic increased, it was necessary to construct a number of rail yards along the LAR north of downtown Los Angeles. In 1925, the Southern Pacific Railroad shifted management of its entire Los Angeles freight handling operations to a new freight facility constructed at Taylor Yard, located adjacent to the LAR on the east side in the southern part of Reach 6. Improvements and updates were continually made to yard facilities until 1973, when it was superseded by more modern yard in the City of Colton. The Southern Pacific Railroad closed the yard in 1985, and the land was eventually cleared (California Department of Parks and Recreation. (2005a. Rio De Los Angeles State Park (Taylor Yard), Preliminary General Plan and Final Environmental Impact Report. May 2005).

The Fletcher Drive Bridge also crosses over the proposed project. This is a concrete bridge built in 1927. It has been recorded as site number P-19-73432 and has been determined eligible for the NRHP. It has also been given Caltrans Bridge Number 53C0096 and Los Angeles Historical-Cultural Monument number 332.

Significance Threshold

The impacts of federal undertakings on cultural resources are formally assessed through a process mandated by the National Historic Preservation Act (NHPA) of 1966, as amended (54 U.S.C. Section 300101, et seq), and its implementing regulation, Protection of Historic Properties (36 CFR Part 800). For the purposes of this analysis, the NHPA "criteria of adverse effect" was identified as the significance threshold for NEPA. The criteria of adverse effects are defined in 36 CFR 800.5(a) as follows:

> *"An adverse effect is found when an action may alter the characteristics of a historic property that qualify it for inclusion in NRHP in a manner that would*

diminish the integrity of the property's location, design, setting, workmanship, feeling, or association. Adverse effects may include reasonably foreseeable effects caused by the action that may occur later in time, be farther removed in distance, or be cumulative".

Based on the above, impacts would be considered significant if the alternative:

- Results in an adverse effect on an historic property.

Environmental Consequences

No Action Alternative

Under the No Action Alternative, accumulated material from the Proposed Project Area would not be removed. Since no ground disturbing activities would be conducted, there would be no potential for effects to historic properties.

Channel-Wide Removal Alternative

The Channel-Wide Alternative entails excavation of accumulated alluvial deposits from Reach 5C to improve flood conveyance capacity affecting approximately 4.5 acres. However, no material would be excavated below the top of the cobblestone invert repaired in 1956. Two temporary access ramps would be constructed of earthen fill to provide access to the channel invert. These ramps would be removed at the end of the project, so there would be no permanent alteration of the channel wall. Thus, no alterations or modifications would be made to any surviving portions of the historic constructed channel. Further, no alteration would be made to Fletcher Drive Bridge by the proposed project.

The access road is an existing road with a built up decomposed granite roadbed constructed to provide access along the channel. Vehicular use of this road is a regular and routine activity and would be restricted to the existing constructed roadbed.

All ground disturbing activities would be limited to recent alluvium or imported soils. No in situ soil deposits would be disturbed. No actions are proposed that would alter or diminish the integrity of the historic channel or Fletcher Bridge. Thus, no historic properties would be affected by this alternative. Impacts would be less than significant

Selective Removal Alternative (Preferred Alternative)

Project activities would be the same as under the Channel-Wide Removal Alternative, except the area of ground disturbance would extend to Reach 6A in addition to Reach 5C totaling approximately 4.25 acres. No historic properties would be affected by the preferred alternative, so impacts would be less than significant.

3.5 Hazardous and Toxic Wastes

Affected Environment

The Proposed Project Area is adjacent to industrial land uses. Adjacent to the right bank are permitted industrial operations that use hazardous materials. Adjacent to the right bank is Taylor Yard, a brown field that was formerly the site of a rail yard. Taylor Yard was historically used for rail maintenance and fueling operations from 1930s through 2006. A number of soil and groundwater investigations have identified chemicals in the soil including petroleum products, metals, and organic compounds such as polycyclic aromatic hydrocarbons and polychlorinated biphenyls. Volatile organic chemicals are also present in the groundwater beneath the site. Likewise, the state-owned Bowtie Parcel was a former industrial site and contaminants that characterize Taylor Yard are expected to be present on site.

An on-going source of contaminants are nuisance flows and storm flows that enter the LAR through major storm outfalls. These flows convey pollutants associated with the urban environment into the water column: fecal coliform bacteria, pesticides; metals (e.g., copper, chromium, lead); nutrients (nitrogenous and phosphorus compounds); petroleum based oils and solvents; and trash. These compounds are expected to present within the soils and the water column at various concentrations.

Chemical analysis of soils from the interstitial spaces on the sandbar detected metals, organic chemicals, pesticides, and petroleum based products at concentrations below applicable regulatory limits for hazardous wastes. However, concentrations of lead at three sample locations exceeded reporting limits for molecular forms of lead that could migrate into the aqueous environment.

Significance Threshold

Based on the existing conditions described above, impacts would be considered significant if the alternative:

- Caused long-term exposure of hazardous materials to humans and wildlife

Environmental Consequences

No Action Alternative

Under the No Action Alternative, accumulated material from the Proposed Project Area would not be removed. Existing contaminants within the accumulated material would remain. However, erosion and sedimentation processes during storm flows could change the concentration and location of contaminants. Nuisance flows and storm flows that enter the LAR through major storm outfalls would continue to convey pollutants associated with the urban environment into the water column. These

compounds are expected to present within the soils and the water column at various concentrations.

Channel-Wide Removal Alternative

Channel-Wide Removal Alternative entails excavation of accumulated sand, cobbles, and boulders from Reach 5C. Material to be excavated includes fine sediment where contaminants are found. However, the amount of fine sediment within the construction footprint is limited; approximately 2.5% to 7.3% of the accumulated material. Based on the 2017 testing results, clean excavated material would be temporarily stockpiled at a Corps-owned sediment placement site downstream of Lopez Dam. Approximately 1,000 cy of contaminated soils would be disposed at landfills appropriate for the level of contaminants present. With disposal of contaminated material at suitable landfills, there would be no long-term exposure of hazardous materials to humans and wildlife as a result of the Channel-Wide Removal Alternative.

Continued presence of contaminants in the soil remaining onsite is possible. Furthermore, nuisance flows and storm flows that enter the LAR through major storm outfalls would continue to convey pollutants associated with the urban environment into the water column. These compounds are expected to be present within the soils and the water column at various concentrations.

Removal of the accumulated materials would require approximately three excavators, two loaders, and dump trucks to work within the channel invert. Use of construction vehicles increases the potential for accidental release of fuels, solvents, or other petroleum-based contaminants. However, the possibility of contaminants coming into contact with the water column is unlikely since the work area would be fully isolated from surrounding flows.

Haul trucks would traverse through Taylor Yard and the Bowtie Parcel on existing paved roads. Furthermore, dust would be suppressed through use of water trucks. Thus, potential for aerial suspension of contaminants would be minimized. Impacts would be less than significant.

Selective Removal Alternative (Preferred Alternative)

The Selective Removal Alternative (Preferred Alternative) would remove the same amount of accumulated material from Reach 5C and Reach 6A. Though the chemical properties of the soils at Reach 5C has been characterized. No chemical and geotechnical properties of the sediments in Reach 6A were evaluated. However, both the chemical and geotechnical properties are likely to be similar to those characterized for Reach 5C since the sediments are part of the same sand bar. Presence of contaminated soils in Reach 6A is possible. The sediment from Reach 6A would be temporarily stockpiled at Lopez Dam. The stored sediment would be later tested and transported to suitable landfills for disposal based on testing results. Thus, impacts

would be approximately the same as those characterized under the Channel-Wide Removal Alternative.

3.6 Noise

Affected Environment

Noise is defined as unwanted sound. The effects of noise on human receptors can range from annoyance to permanent hearing loss. Sound travels from a source in the form of wave, which exerts a pressure on a receptor, such as those found in the human ear. The pressure level associated by a sound wave is commonly measured in decibels (dBA), which is used to equally weight all frequencies of sound. However, the human ear is not equally sensitive to sounds at all frequencies. Therefore, the dBA scale, which primarily weighs frequencies within the human range of hearing, is used to assess the impact of noise on human hearing.

Table 5: Range of Noises Levels and Human Receptor Response

Noise level (dBA)	Examples	Human Receptor Response
0	recording studio	hearing threshold
20	rustling leaves	
40	conversational speech	quiet
60	freeway at 50 feet	
70	freight train at 100 feet	moderately loud
90	heavy truck at 50 feet	
110	ambulance siren at 100 feet	very loud
120	jet engine at 200 feet	threshold of pain

Ambient Noise at the Proposed Project Area

A dense, fully developed urban environment surrounds the Proposed Project Area. Industrial land uses are immediately adjacent to the right embankment with residential land uses located approximately 1,000 feet landward from the construction area. Land along the left embankment at Reach 5C are corridors for utilities and freeway access ramps. The closest residential development is located approximately 400 feet landward of the construction area.

The transportation corridors traversing the area, especially the Glendale Freeway, dominate the source of ambient noise. Sound level measurements within the immediate vicinity of the freeway bridge is approximately 68 dBA. The sound level incrementally decreases with increasing distance from the freeway bridge, decreasing to approximately 58 dBA midway between the Fletcher Drive and Glendale Freeway. The sound level approximately midway between the Fletcher Drive and Glendale

Freeway along the left embankment is approximately 55 dBA. Sound level near the Glendale Freeway onramp off Fletcher Drive is approximately 60 dBA.

Other contributing noise sources are the industrial land uses that are immediately adjacent to the right embankment as well as residential areas on both embankments. Land use along the left bank of Reach 6A consists of an approximately 8 acre industrial complex, and a state-owned brownfield, the "Bowtie Parcel." Sound level measurements near this location is approximately 55 dBA. Further downstream, the sound level along Taylor Yard is approximately 46 dBA.

Sound levels throughout the soft bottom channel invert is approximately 4 to 8 dBA lower than corresponding locations on top of the embankments ranging from 52 dBA at approximately 500 feet downstream of the Glendale Freeway to 60 dBA near the freeway.

Ambient Noise Adjacent to Haul Routes

The sound level within residential areas adjacent to haul routes is approximately 54 dBA. Sound levels along major surface arteries range from 63 dBA to 72 dBA.

Noise Associated with Haul Trucks and Off-Road Construction Equipment

Noise levels associated with haul trucks at 50 feet is approximately 76 dBA. Noise levels associated with loaders and excavators at 50 feet is approximately 80 dBA.

Significance Threshold

Based on the existing conditions described above, impacts would be considered significant if the alternative:

- Creates a long term increase in noise levels above ambient noise levels by 5 dBA

Environmental Consequences

No Action Alternative

Under the No Action Alternative, accumulated material from the Proposed Project Area would not be removed. There would be no noise associated with earthmoving equipment and haul trucks. Ambient noise levels would remain unchanged.

Channel-Wide Removal Alternative

Noise Associated In-Channel Construction Operations

Under the Channel-Wide Removal Alternative, earthmoving equipment such as loaders and excavators would operate within the channel invert at Reach 5C. Furthermore, haul trucks would enter and exit the channel to remove excavated material. Noise associated with earthmoving equipment and haul trucks in the channel would primarily be located near the left embankment.

Sound levels associated with earthmoving equipment and haul trucks at a distance of 50 feet are approximately 80 dBA and 76 dBA, respectively. The rate atmospheric sound attenuation is approximately 6 dBA for every doubling of distance from a noise source. For residential areas on the right bank located approximately 1,000 feet away, sound levels based solely on atmospheric attenuation would be approximately 52 dBA and 60 dBA for respectively for haul trucks and earthmoving equipment within the channel. Likewise, for residential areas on the left bank located approximately 400 feet away, sound levels based solely on atmospheric attenuation would be approximately 58 dBA and 66 dBA for respectively for haul trucks and earthmoving equipment within the channel. In addition to atmospheric attenuation, the embankments would function as a sound barrier for equipment working within the channel invert, further reducing levels. Furthermore, sound levels for residential areas are influenced by traffic on Fletcher Drive, the Glendale Freeway, a freeway off-ramp, and operations from industrial land uses. Thus, noise from in-channel construction activities may not be distinguishable from ambient noise levels.

Noise Associated with Hauling Operations

Under the Channel-Wide Removal Alternative, loaded haul trucks would proceed downstream atop the left embankment after exiting the channel invert. Land use along the left bank of Reach 6A consists of an approximately 8 acre industrial complex, and a state-owned brownfield, the “Bowtie Parcel.” Sound level measurements near this location is approximately 55 dBA. Further downstream along the embankment is Taylor Yard where the ambient noise is approximately 46 dBA.

Sound levels associated with haul trucks at a distance of 50 feet is approximately 76 dBA. The rate atmospheric sound attenuation is approximately 6 dBA for every doubling of distance from a noise source. With ambient sound levels being substantially lower than the sound levels associated with haul trucks, noise from haul trucks would be perceptible for a distance of approximately 800 feet. Thus, sound levels along these land uses would temporarily increase with the passing of each haul truck. However, there are no residential receptors within 800 feet of the noise source. Land uses between San Fernando Road and the left embankment are primarily composed of industrial and open spaces such as brown fields. The Rio de Los Angeles State Park is located landward of Taylor Yard, approximately 150 feet away from the haul route. Sound levels near the haul route along the Rio de Los Angeles State Park is approximately 55 dBA.

With ambient sound levels being substantially lower than the sound levels associated with haul trucks, noise from haul trucks would be perceptible for a distance of approximately 800 feet. Thus, there would be temporary increases in noise levels along the Bowtie Parcel, Taylor Yard, and the Rio de Los Angeles State Park. Thus, there would be no noise impacts to residential noise receptors.

A high school is located approximately 500 to 800 feet from the left embankment within the industrial/open space corridor. Students and staff outside of enclosed spaces could experience noise levels of 58 dBA (at 400 feet) to 52 dBA (at 800 feet). These levels would not be substantially different from traffic noise from San Fernando Road and noise from adjacent industrial and commercial facilities. There would be no long term increase in noise levels. Impacts are less than significant.

Selective Removal Alternative (Preferred Alternative)

The Selective Removal Alternative (Preferred Alternative) would remove the same amount of accumulated material as the Channel-Wide Removal Alternative using the same type and number of equipment. However, the construction footprint would encompass Reaches 5C and 6A. Thus, noise associated with in-channel construction operations would extend approximately 900 feet downstream. However, the footprint of the accumulated material removal area would not span the entire width of the channel invert. Instead, the construction footprint would avoid areas where native vegetation is concentrated. Thus, noise sources would be further removed from the right embankment when compared the Channel-Wide Removal Alternative. However, given the short distance of the setback and in consideration of the general noise environment that characterize the general area, potential changes in noise levels under the Selective Removal Alternative (Preferred Alternative) would be imperceptible. Impacts would be less than significant.

3.7 Land Use

Affected Environment

A dense, fully developed urban environment surrounds the Proposed Project Area. Industrial land uses are immediately adjacent to the right embankment with residential land uses located approximately 1,000 feet landward from the Proposed Project Area. Land along the left embankment at Reach 5C are corridors for utilities and freeway access ramps. The closest residential development is located approximately 400 feet landward of the construction area. Land uses further downstream along the left embankment of Reach 6A include an approximately 8 acre industrial complex, a state-owned brownfield (i.e., "Bowtie Parcel"), and Taylor Yard, a former rail yard. Land uses further landward of Bowtie Parcel and Taylor Yard include industrial, commercial, recreational, and institutional land uses.

Significance Threshold

Impacts would be considered significant if the alternative:

- Permanently conflicts with existing land uses or with adjacent, offsite land uses.

Environmental Consequences

No Action Alternative

Under the No Action Alternative, accumulated material from the Proposed Project Area would not be removed. There would be no impacts to land use.

Channel-Wide Removal Alternative

Removal of accumulated debris under the Channel-Wide Removal Alternative would be limited to invert of the LAR channel at Reach 5C. There would be no changes to the use and function of the LAR channel for water conveyance. Haul trucks would use existing access roads along the left embankment and existing roadways. All adjacent land uses would remain unchanged. A staging area would be temporarily established atop the left embankment along Reach 5C. The staging area would be demobilized upon completion of work. There would be no impacts to land use.

Selective Removal Alternative (Preferred Alternative)

The Selective Removal Alternative (Preferred Alternative) would remove the same amount of accumulated material as the Channel-Wide Removal Alternative using the same type and number of equipment as well as the same haul route. However, the construction footprint would encompass Reach 5C and 6A. Thus, impacts would be the same as those characterized under the Channel-Wide Removal Alternative.

3.8 Recreation

Affected Environment

Two recreational facilities are located within the general area where construction would occur. A bicycle/pedestrian path is located atop the right embankment. In-channel construction would be located towards the left embankment. The Rio de Los Angeles State Park is located between Taylor Yard and San Fernando Road. Ad hoc recreational activities may also take place at the Bowtie Parcel.

The Los Angeles River Elysian Valley Recreation Zone, managed by The Mountains Recreation and Conservation Authority (MRCA) on behalf of the City, in coordination with the Corps and LA County, opens the river to the public for the passive recreational uses of walking, fishing, bird watching, and non-motorized, steerable boating (using kayaks, canoes, and rafts with appropriate equipment) during daylight hours from Memorial Day through September 30 in a 2.5-mile-long segment of the river, from Fletcher Drive to Steelhead Park each year. Kayaking by individuals and guided groups may occur any day of the week. Due to sandbars throughout the project area that extend from the left bank, low flows are impinged against the right bank. The only kayak launch location adjacent to the Proposed Project Area is an empty lot located at the intersection of Ripple Street and Fletcher Drive. Other locations at Marsh Park and the Frog Spot (a riverside café) are downstream of the Proposed Project Area. Kayakers launch their boats on the right bank and kayak downstream along the low flow channel located along the right embankment. The Recreation Zone use is subject to limitations for Corps operations and maintenance activities when necessary.

Significance Threshold

Impacts would be considered significant if the alternative:

- Permanently disrupts or substantially limits access existing recreational uses.

Environmental Consequences

No Action Alternative

Under the No Action Alternative, accumulated material from the Proposed Project Area would not be removed. There would be no impacts to recreation.

Channel-Wide Removal Alternative

Approximately 40,000 cy of accumulated material would be removed from Reach 5C. Two recreational facilities and one recreational program are present within general area where construction would occur. The maintenance road, which has a secondary use as a bicycle/pedestrian path, is located atop the right embankment. In-channel construction activity would be located towards the left embankment. Hauling operations would be located on the left embankment. There would be no need to temporarily close

access to or reroute the maintenance road on the right embankment which also serves as a path for bicyclists and pedestrians.

The recreation zone, with seasonal kayaking allowed, is generally authorized from Memorial Day through September 30, unless Corps project needs including operations and maintenance would conflict with that time period. With an anticipated project start date of August 15, the removal of accumulated material would occur simultaneously with recreational kayaking until the end of the kayaking on September 30. The time overlap between the two activities would be 15 days. However, we do not anticipate any impacts to the recreation zone during this time as the maintenance work will take place from the east embankment.

The Rio de Los Angeles State Park is located landward of Taylor Yard. Haul trucks would pass by the park. However, there would be no disruption of recreational activities or modifications of recreational facilities at the park. Therefore, impacts would be less than significant.

Selective Removal Alternative (Preferred Alternative)

The Selective Removal Alternative (Preferred Alternative) would remove the same amount of accumulated material as the Channel-Wide Removal Alternative, but would encompass Reach 5C and 6A. However, with implementation the same avoidance measures as the Channel-Wide Removal Alternative, impacts would be less than significant.

3.9 Socioeconomics and Environmental Justice

Each federal agency is required, by Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, 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 populations . . ."

For purposes of Executive Order 12898, the term minority means “individual(s) who are members of the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic.” For the purpose of this analysis, the population below poverty level as defined by the U.S. Census serves as surrogate for low-income populations.

Affected Environment

The Proposed Project Area is located in the Glassell Park neighborhood of the City of Los Angeles. Demographics for the City of Los Angeles County serve as a reference for comparison.

Table 6: Demographic Data for Los Angeles and Glassell Park		
	City of Los Angeles[1]	**Glassell Park[2]**
White	28.2%	13.7%
Asian	11.5%	17.4%
Black	8.5%	1.4%
Hispanic	49.0%	66.1%
Other	2.6%	1.4%
Median Income	$49,840	$50,098
Population below poverty level	20.5%[3]	20.4%[3]

Source:
1. https://www.scag.ca.gov/Documents/LosAngeles.pdf
2. http://maps.latimes.com/neighborhoods/neighborhood/glassell-park/
3. http://www.city-data.com/neighborhood/Glassell-Park-Los-Angeles-CA.html

In comparison to the city of Los Angeles, the Glassell Park neighborhood has notably more Hispanics and notably less Blacks. Likewise, the percentage of Whites is notably less. With respect to low-income populations, the Glassell Park neighborhood has approximately the same percentage as the city of Los Angeles. According to the US EPA environmental justice profile, minorities make up approximately 79% of the population in the neighborhood and the percentage of low income population is approximately 42% (see Appendix C).

The Glassell Park neighborhood, similar to the larger city of Los Angeles, is a dense, fully developed urban environment. The Glendale Freeway traverses the area. Major arteries such as Eagle Rock Boulevard, York Boulevard, and San Fernando Road also traverse the area. Industrial and commercial land uses are primarily adjacent to these major arteries. The neighborhood also encompasses Taylor Yard. Thus, residents live in close proximity to traffic and industrial processes. Moreover, characteristic of a fully developed urban environment, residents are exposed to conditions that affect respiratory health such as particulate matter.

Significance Threshold

Impacts would be considered significant if the alternative results in:

- A substantial shift in population, housing, and employment
- Disproportionate adverse environmental impacts to minority or low-income populations

Environmental Consequences

No Action Alternative

Under the No Action Alternative, accumulated material from the Proposed Project Area would not be removed. There would be no short term economic benefits associated with temporary construction work. There would be no temporary emissions from the use of earthmoving equipment and dump trucks.

Channel-Wide Removal Alternative

Removal of accumulated debris under Channel-Wide Removal Alternative would provide temporary employment to earthmoving equipment operators, and truck drivers. The work would not require additional housing for laborers since the project is readily within commuting distance from most parts of Los Angeles County. Due to the short duration, the work to be performed would not result in substantial shift in population, housing, and employment. Furthermore, the work would not entail the construction of infrastructure or utilities that would result in growth of the surrounding area, nor would the work increase capacity of existing infrastructure that would induce growth. The work would not lead to a substantial shift in population, housing, and employment. Impacts would be less than significant.

Off-site transport of accumulated material would result in a temporary increase in truck traffic along San Fernando Road. There would be temporary increase in emission of particulate matter PM2.5. However, the estimated PM2.5 emission of 6.53 lbs./day would not exceed the SCAQMD's threshold of 55 lbs./day. Levels of PM2.5 emissions along San Fernando Road would return to pre-project levels upon completion of construction. Furthermore, the work would not entail the construction of infrastructure or utilities that would result in growth of the surrounding area, nor would the work increase capacity of existing infrastructure that would induce growth. In addition the Channel-Wide Removal Alternative would not result in changes to land uses that could increase exposure to environmental conditions that may affect respiratory health. Last, neighborhoods and cities adjacent to Glassell Park are also highly urbanized and share the approximately the same demographic characteristics. Thus, the temporary increase in truck traffic and emission would not disproportionately affect minority or low-income populations. Impacts would be less than significant.

Selective Removal Alternative (Preferred Alternative)

The Selective Removal Alternative (Preferred Alternative) would remove the same amount of accumulated material as the Channel-Wide Removal Alternative using the same type and number of equipment as well as the same haul route. Thus, impacts would be the same as those characterized under the Channel-Wide Removal Alternative. Impacts would be less than significant.

3.10 Soils and Substrate

Affected Environment

Reach 5C and the beginning Reach 6A are located at a bend in the river which causes materials to accumulate against the left bank. In total, the sandbar contains approximately 40,000 cy accumulated material. Cobbles and boulders make up a substantial portion of the material and ranged from 55 to 90% (by volume) of the material. The largest of the boulders exceeded approximately 3 feet in diameter and typical clast size was estimated as a large cobble on the order of 9 inches in diameter. The remaining soil matrix in the interstitial space consists primarily of granular material ranging from poorly graded sand with silt and gravel to poorly graded gravel with sand. The percentage of fines (particles smaller than 0.075mm) varies between 2.5 and 7.3 with more silt than clay particles. The specific gravity of the soils tested varies between 2.65 and 2.69.

Significance Threshold

Based on the existing conditions described above, impacts would be considered significant if the alternative:

- Substantially or permanently increases wind or water erosion of soils or loss of topsoil

Environmental Consequences

No Action Alternative

Under the No Action Alternative, accumulated material from the Proposed Project Area would not be removed. The accumulated material would continue to remain exposed to wind and water. Boulders and cobbles would not be subject to movement from wind action. Movement of top soils composed of fines and sand is expected. However, wind erosion potential is minimal due to consolidation and compaction. The vegetation atop the accumulated material would further minimize erosion. Some water erosion during storm flows is possible but sedimentation is more likely. The hydraulics, in addition to channel roughness, at the bend at Reach 5C and 6A promote sedimentation. Sediment equilibrium within the water column would determine sedimentation or erosion rates. Wind and water erosion would be minimal.

Channel-Wide Removal Alternative

Approximately 40,000 cy of accumulated material would be removed from Reach 5C. The composition of the accumulated material is homogeneous. Thus, removal of the accumulated material would mostly expose additional boulders and cobbles. Sediment remaining in the interstitial space would be composed of gravel, rough sand, and fines with gravel and rough sand the predominant constituents. Though the exposed surface would continue to remain exposed to wind and water, potential for erosion is minimal

since the predominant material is coarse sand. Coarse sand is not easily carried by wind and settles out of the water column quickly. Boulders and cobbles would not be subject to movement from wind action. Though some movement of top soils composed of fines and sand is expected, increased wind erosion potential is minimal due to consolidation and compaction. The temporary absence of vegetation from the newly exposed surface could increase wind and water erosion. However, any change would not be notable because vegetation atop the accumulated material is sparse and the substrate is already exposed to wind and water. Furthermore, vegetation is expected to naturally reestablish in the area due to the perennial flows and existing seed bank.

Some water erosion during storm flows is possible but sedimentation is more likely. The hydraulics, in addition to channel roughness, at the bend at Reach 5C and 6A promote sedimentation. Some water erosion during storm flows is possible but sedimentation is more likely. Sediment equilibrium within the water column would determine sedimentation or erosion rates. Wind and water erosion would be minimal. Therefore, impacts would be less than significant.

Selective Removal Alternative (Preferred Alternative)

The Selective Removal Alternative (Preferred Alternative) would remove the same amount of accumulated material as the Channel-Wide Removal Alternative, but would encompass Reaches 5C and 6A. With inclusion of vegetation avoidance areas, the acreage of exposed surface would be reduced from approximately 4.5 acres to 4.25 acres. Thus, potential for wind and water erosion would be reduced compared to the Channel-Wide Removal Alternative. Due to the minimal differences in acreage of disturbance impacts for the Selective Removal Alternative (Preferred Alternative) would be indistinguishable from the Channel-Wide Removal Alternative. Furthermore, differences in erosion would not be notable since boulders, cobbles, gravels, and coarse sand which are less prone to erosion predominately compose the substrate. Thus, impacts would be the roughly the same as those characterized under the Channel-Wide Removal Alternative. Impacts would be less than significant.

3.11 Traffic

Affected Environment

The Proposed Project Area is close to two freeways and major roadways. Interstate 5 is located approximately 1,000 to 3,000 feet west of the right embankment. State Highway 2 (i.e., the Glendale Freeway) bisects the Proposed Project Area. San Fernando Road, a major roadway is located approximately 1,000 to 2,500 feet east of the left embankment. Fletcher Drive is located at the upstream terminus of the Proposed Project Area. Average daily traffic (ADT) counts for these freeways and roadways near the Proposed Project Area are shown in Table 7 below.

Significance Threshold

Based on the existing conditions described above, impacts would be considered significant if the alternative:

- Substantially increases traffic levels in the long term
- Caused closure of a major roadway to through traffic with no suitable route available for traffic
- Decreased safety for vehicular traffic or transit operations in the long term

Environmental Consequences

No Action Alternative

Under the No Action Alternative, accumulated material from the Proposed Project Area would not be removed. There would be no additional traffic on roadways and freeways associated with hauling operations.

Channel-Wide Removal Alternative

Channel-Wide Removal Alternative entails excavating approximately 40,000 cy of accumulated sand, cobbles, and boulders from the LAR and transport of accumulated material for off-site disposal. Using 12 cy to 14 cy haul trucks, approximately 6,667 round trips in total would be required to remove the accumulated material resulting in approximately 75 round trips per day for a period of 90 days. The 75 daily round trips would add 150 one way trips per day to local roadways and freeways. In addition, approximately 10 construction workers would commute daily to the site, resulting in 20 one way trips per day to local roadways and freeways. In total approximately 170 one way trips per day would be added to local roadways and freeways during construction. Traffic levels would return to baseline levels upon completion of construction.

Haul trucks would primarily use San Fernando Road and Glendale Freeway. San Fernando Road is a major artery that services industrial and commercial land uses that abut the route. Thus, it could accommodate a temporary increase in truck traffic. Thus, road closures to accommodate the additional traffic would not be required. There would be no changes to road alignment, elevation, lane striping, or signal operations that would decrease safety for vehicular traffic or transit operations. Impacts would be less than significant.

Selective Removal Alternative (Preferred Alternative)

The Selective Removal Alternative (Preferred Alternative) would remove the same amount of accumulated material as the Channel-Wide Removal Alternative using the same number of haul trucks as well as the same haul route. Thus, impacts would be the same as those characterized under the Channel-Wide Removal Alternative.

Table 7: Average Daily Traffic Counts			
Roadway	**ADT**	**Daily Trips**	**% Increase**
San Fernando Road	39,546[1]	150	0.38
Fletcher Drive	46,259[2]	150	0.32
Glendale Freeway	155,000[3]	150	0.10
Interstate 5	282000[3]	150	0.05

1. City of Los Angeles, 2010 to 2011 traffic counts (http://ladot.lacity.org/node/576)
2. City of Los Angeles, 2000 to 2010 traffic counts (http://ladot.lacity.org/node/576)
3. CalTrans 2015 Traffic Volume (http://www.dot.ca.gov/trafficops/census/docs/2015_aadt_volumes.pdf)

3.12 Water Quality

Affected Environment

The Proposed Project Area is located within the Glendale Narrows section of the LAR, an approximately 6.2-mile-long, soft bottom section of the LAR between Griffith Park and downtown Los Angeles. The LAR is a water of the U.S. Thus, discharges of dredged or fill material are subject to Sections 401 and 404 of the Clean Water Act.

The major sources of water at Glendale Narrows are storm flows; nuisance flows from urban areas that enter the LAR through major storm outfalls; and treated wastewater from the Tillman Water Reclamation Plant and the Glendale Water Reclamation Plant. The flow through this reach is perennial due to the discharge of approximately 30 million gallons per day from the two water reclamation plants.

Water from the water reclamation plants is treated to Title 22 (California Code of Regulations) Reclaimed Water standards. The water receives full secondary treatment, including the addition of a coagulant and chlorination to kill pathogens. Treated water is then de-chlorinated before discharged into the LAR. Water discharged from the treatment plants is suitable for industrial, and landscape uses. However, nuisance flows and storm flows that enter the LAR through major storm outfalls convey pollutants associated with the urban environment into the water column: fecal coliform bacteria, pesticides; metals (e.g., copper, chromium, lead); nutrients (nitrogenous and phosphorus compounds); petroleum based oils and solves; and trash. Thus, the project reach is listed as an impaired water pursuant to Section 303(d) of the Clean Water Act.

Significance Threshold

Based on the existing conditions described above, impacts would be considered significant if the alternative:

- Caused a long term violation of state water quality standards or otherwise substantially degrades water quality

Environmental Consequences

No Action Alternative

Under the No Action Alternative, accumulated material from the Proposed Project Area would not be removed. There would be no temporary discharge of fill material such as k-rails or earthen access ramps within the channel. Earthmoving equipment would not temporarily operate within the channel invert atop the sandbar.

Channel-Wide Removal Alternative

Channel-Wide Removal Alternative entails excavation of approximately 40,000 cy of accumulated material across the entire width of the channel at Reach 5C temporarily impacting approximately 4.5 acres of waters of the US.

Sandbars throughout the project area extend from the left bank, low flows are impinged against the right bank and the sandbars are not in contact with flows. With the exception of work on the sandbar-low flow interface, most earthwork would not increase turbidity.

Prior to the sediment removal work, work areas would be isolated from flows with water diversion structures such as k-rails or rubber dams. Movement of vehicles across earthen substrate during the placement and removal of dewatering structures would temporarily elevate turbidity in the water column. When fully isolated from surrounding flows, work within the LAR would not increase turbidity. Likewise, a temporary increase in turbidity is expected during storm flows when unconsolidated fine sediment would enter the water column. However, the amount of fine sediment within the construction footprint is limited. Approximately 2% of the accumulated material is composed of fine sediment. Furthermore, any increase in turbidity would not be notable since storm flows are highly turbid. Subsequent to storm flows, exposed soils are expected to reconsolidate due to the absorption of water.

Removal of the accumulated materials would require approximately three excavators, two loaders, and dump trucks to work within the channel invert. Use of construction vehicles increases the potential for accidental release of fuels, solvents, or other petroleum-based contaminants. However, the possibility of contaminants coming into contact with the water column is unlikely since low flows are impinged against the right bank and the sandbars are not in contact with flows. Furthermore, the work area would be fully isolated from surrounding flows.

Construction would not entail discharge of permanent fill material within waters of the U.S. However, temporary discharge of dewatering structures such as k-rails or rubber dams would be required. Both types of dewatering structures would be chemically inert and would not leach contaminants into the water column. In addition, two earthen access ramps would be placed within waters of the US during construction. Furthermore, there would be temporary excavation and stockpiles within waters of the US associated with sediment removal and material sorting. Potential for turbidity from

the construction and use of these ramps is unlikely since the work area would be fully isolated from surrounding flows. All temporary fill would be removed upon completion of construction.

The temporary discharge of dewatering structures and access ramps, and sediment removal activities in soft bottom portions of the LAR are subject to Sections 401 and 404 of the Clean Water Act. These discharges of dredged and fill material in waters of the U.S. are authorized by the Clean Water Act Section 401 Technically Conditioned Water Quality Certification (WQC) for the U.S. Army Corps of Engineers Los Angeles District, Operation, Maintenance, Repair, Replacement and Rehabilitation (OMRR&R) Activities Associated with the Los Angeles County Drainage Area (LACDA) Project System, Los Angeles County. The Section 401 WQC is found in Appendix D.

Although the Corps does not process and issue Section 404 permits for its own activities, the Corps authorizes its own discharges of dredged and fill material into waters of the U.S. by applying all applicable substantive legal requirements.

Selective Removal Alternative (Preferred Alternative)

The Selective Removal Alternative (Preferred Alternative) would remove the same amount of accumulated material as the Channel-Wide Removal Alternative. Thus, the nature of impacts would be the same as those characterized under the Channel-Wide Removal Alternative. However, due to the incorporation of vegetation avoidance areas, the surface area of disturbance would be reduced to 4.25 acres of waters of the US. Impacts would be less than significant.

4.0 CUMULATIVE IMPACTS

Pursuant to 40 CFR Parts 1500-1508, cumulative impacts of a proposed action must be assessed. A cumulative impact is an "impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions."

The intent is to identify impacts of other past, present, and reasonably foreseeable future projects that, when considered together with the Proposed Action, 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 Action Area are considered to have the potential for creating cumulative impacts in association with the Proposed Action. 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”.

The geographic scope for the cumulative impacts analysis is the Glendale Narrows from the State Highway 134 crossing to the State Highway 110 crossing.

Past: The Glendale Narrows reach of the LAR is an approximately 6-mile long, soft-bottom, trapezoidal channel that traverses Elysian Valley. Subsequent to its construction in 1939 and the completion of the LACDA project in 1959, the adjacent area became highly urbanized with residential, commercial, and industrial land uses currently abutting the structure.

Present: Originally devoid of vegetation subsequent to completion of construction, the Corps periodically trimmed and removed vegetation from the project reach until the 1980s. The Corps also undertook limited trimming operations during the latter half of the 1990s. No large-scale vegetation maintenance activities took place within the project reach thereafter due to funding limitations. As a result, Glendale Narrows currently supports approximately 63 acres of vegetation composed of native and non-native trees, shrubs, and tall grasses, making it a regional destination for recreational enthusiasts and birdwatchers. The vegetation and sediment in the river has also diminished flood conveyance capacity within the Glendale Narrows reach.

The increase of urbanization in areas adjacent to Glendale Narrows has also affected water quality. Glendale Narrows is a Clean Water Act section 303(d)-listed water body. Wet weather and dry weather flows from numerous storm water outfalls have resulted in high concentrations of nutrients including nitrate, nitrite, ammonia, and total phosphate within the discharged effluent. High concentrations of bacteria are associated with nuisance flow discharged from the storm water outfalls.

Development has also changed the flow regime of Glendale Narrows from ephemeral to perennial. The 6.2-mile-long reach is now a perennial water body that conveys approximately 30 million gallons per day discharged from the Tillman Water Reclamation Plant, and the Glendale Water Reclamation Plant.

The Corps has conducted maintenance activities required for maintenance of designed flows and capacities within the LAR. Maintenance activities include removal of trash and debris, graffiti abatement, removal of sediment from concrete structures and associated vegetation, removal of non-native vegetation, and like-for-like structural repairs. In addition to operating and maintaining the engineered structures of the LAR within the Glendale Narrows, the Corps has also issued permits pursuant to Section 404 of the Clean Water Act for discharges of dredged or fill material within waters of the U.S., and Section 408 of the Rivers and Harbors Act for modifications to federally-constructed structures.

Section 404 CWA Action in the Glendale Narrows Area
1997-149 - Revegetation Project - Los Feliz Riverway
1998-566 - Giant Reed Removal - Los Angeles River
2006-333 - Caltans I-5 Zoo Drive Culvert Replacement
2007-094 - Arroyo Seco Channel Repair
2007-919 - NPR - Newell Street Sewer Siphon
2008-495 -Fletcher Drive Bridge Seismic Retrofit over LA River
2012-051 - Atwater Park Multimodal Bridge Crossing
2013-775 - NPR - Northeast Interceptor Sewer
2015-382 - River Lofts Outfall Project
2017-417 - Caltrans I-5 at Colorado Street Freeway Extension
2017-307 - Taylor Yard Bikeway/Pedestrian Bridge over the LA River
2017 – Sediment testing at Reach 5C (NW6)
2018-114 - LA River Hyperion Ave Bridge Replacement

Future: Existing maintenance practices within the LAR are expected to remain unchanged for the foreseeable future. In addition to operating and maintaining the engineered structures of the LAR within the project reach, the Corps also issues permits pursuant to Section 404 of the Clean Water Act for discharges of dredged or fill material within waters of the U.S., and Section 408 of the Rivers and Harbors Act for modifications to federally-constructed structures. Continued receipt of Section 404 and Section 408 permits for the construction, modifications, and maintenance of existing and future infrastructure such as bridges and utilities are anticipated. These non-Corps projects may require issuances of Section 404 and Section 408 permits. With few exceptions, most projects are expected to be small in scope and limited to like-for-like repairs.

Furthermore, there is an increasing awareness of the recreational, economic and environmental importance of the LAR to the social milieu of the city. To that end, the city of Los Angeles may implement projects designed to create access and facilitate interaction with the LAR per the Los Angeles River Master Revitalization Plan or other efforts. Revitalization of the LAR is intended to spur renewed investments including job growth and economic development. Furthermore, with the exception of the 2.4-mile-long reach transecting the Sepulveda Basin, Glendale Narrows is the only substantial segment of the LAR resembling a natural river system. Therefore, many of the projects identified in the Revitalization Plan including parks, recreation trails, and pedestrian bridges are focused on the Glendale Narrows area. Furthermore, the Corps and the City of Los Angeles are in the design phase for the Los Angeles River Ecosystem Restoration Project, which would restore habitat structure and functions throughout an 11-mile reach of the river, including the Glendale Narrows. Full implementation of projects identified in the Los Angeles River Master Revitalization Plan and the Los Angeles River Ecosystem Restoration Project could result in beneficial but significant cumulative impacts. An Environmental Impact Statement/Environmental Impact Report (EIS/EIR) was prepared for the Master Revitalization Plan. Likewise, the City of Los

Angeles and the Corps jointly prepared an EIS/EIR for the LAR Ecosystem Restoration Project.

With a renewed public interest in the revitalized LAR, additional projects are likely. Future projects by non-Federal entities in the next five years within Reach 4D include the Atwater Pedestrian-Equestrian Bridge. Construction would temporarily affect water quality. However, land uses are expected to remain urban. Thus, the existing water quality impairments are unlikely to change substantially.

The proposed action would primarily result in temporary impacts to air quality, noise, and traffic. However, these impacts would be minor relative to existing impacts associated with the urban environment surrounding the proposed project area. Furthermore, the affected environmental resources would return to pre-project conditions upon completion of work. As such, implementation of the proposed action would result in incremental impacts to the environment, but would not result in significant environmental impacts.

5.0 Environmental Commitments

Biological Resources

- Provide a biological monitor to insure vegetation removal avoids or minimizes unintended impacts to biological resources.

Recreation

- Coordinate early recreational zone closure with MRCA.

- Post temporary signage where safe and practicable to alert recreational users of the early recreational zone closure including but not limited to the three kayak put in points.
- Place construction flagging at the Bowtie Parcel to clearly demarcate the haul route across the property.

- Establish reciprocal points of contact between MRCA and on-site construction supervisor.

Water Quality

- Comply with conditions of the Clean Water Act Section 401 Technically Conditioned Water Quality Certification (WQC) for the U.S. Army Corps of Engineers Los Angeles District, Operation, Maintenance, Repair, Replacement and Rehabilitation (OMRR&R) Activities Associated with the Los Angeles County Drainage Area (LACDA) Project System, Los Angeles County. See Appendix D.

- Except for activities carried out under § 404 of the Clean Water Act, soil, silt, or other organic materials shall not be placed where such materials could pass into surface water or surface water drainage courses.
- The Corps shall maintain a copy of the Section 401 WQC and supporting documentation at the activity work site during work for review by site personnel and agencies. All personnel (employees, contractors, and subcontractors) performing work/participating in described activity shall be adequately informed and trained regarding the conditions of the WQC.
- Activities shall not cause visible oil, grease, or foam in the receiving water.
- Refueling of equipment within the waterway is prohibited.
- Equipment shall be staged outside of waters of the United States. Storage areas shall be provided with containment including drip pans and/or placement of absorbent material.
- The Corps shall perform inspections of construction equipment prior to it being utilized in surface waters to ensure leaks from the equipment are not occurring and are not a threat to water quality.
- The Corps shall develop and maintain onsite a project-specific Spill Prevention, Containment and Cleanup Plan outlining the practices to prevent, minimize, and/or clean up potential spills during construction of the project. The Plan must detail the project elements, construction equipment types and location, access and staging and construction sequence.
- Raw cement, concrete (or washing thereof), asphalt, drilling fluids, lubricants, paints, coating material, oil, petroleum products, or any other substances which could be hazardous to fish and wildlife resulting from or disturbed by project-related activities, shall be prevented from contaminating the soil and/or entering waters of the United States.
- Silt fencing, straw wattles, or other effective management practices must be used along the construction zone to minimize soil or sediment along the embankments from migrating into the waters of the United States through the entire duration of the project.
- All earthen embankment areas disturbed by project activities that could contribute to water quality impairment shall be protected from erosion.

- All temporarily affected areas in soft bottom channels shall be restored to pre-construction contours upon completion of construction activities.

- All materials resulting from the activity shall be removed from the site and disposed of properly.

- No permanent water diversion of flow shall occur as a part of this activity.

- The discharge of petroleum products, any construction materials, hazardous materials, pesticides, fuels, lubricants, oils, hydraulic fluids, raw cement, concrete, asphalt, paint, coating material, drilling fluids, or other construction-related potentially hazardous substances to surface water and/or soil is prohibited. In the event of a prohibited discharge, the Corps shall notify the Regional Water Board's contact persons pursuant to paragraph 7 of the Settlement Agreement within 24-hours of the discharge.

- The Corps shall conduct water quality monitoring to ensure effectiveness of water diversions. If surface flows are present, upstream and downstream monitoring for the following shall be implemented:
    - pH
    - temperature
    - dissolved oxygen
    - turbidity

  These constituents shall be measured at least once prior to diversion and then monitored on a daily basis during the first week and then on a weekly basis, thereafter, until the instream work is complete. The Corps shall review water quality data each day water quality data is collected.

- Pre-project planning shall include consideration of contingency measures to address various flow discharges, if anticipated.

- When invasive species may be encountered, BMPs to limit the spread of invasive species shall be considered and implemented to the extent appropriate as follows:

  (a) The District shall follow the Regional General Permit 41 BMPs in the removal and disposal of invasive plants.

  (b) All equipment, including equipment for personnel such as hand tools, survey equipment and boots, that have been deployed in an area which supports New Zealand mud snails, shall be subject to a program of inspection and be carefully cleaned before use at an additional project site.

  (c) Construction and maintenance personnel shall be instructed in invasive species control methods.

- The Corps shall provide to the Regional Water Board a Notice of Completion (NOC) no later than 45 days after activity completion. The NOC shall demonstrate that the activity has been carried out in accordance with the activity description in the Notification and/or provide an explanation as to any deviations/modifications. The NOC shall include a map of the activity location(s) and representative pre-and post-construction photographs. Each photograph shall include a descriptive title, date taken, photographic site, and photographic orientation. The NOC will include all water quality data collected.

6.0 APPLICABLE ENVIRONMENTAL LAWS AND REGULATIONS

Clean Air Act

The preferred alternative would not violate any Federal air quality standards, equal or exceed the U.S. EPA's general conformity applicability rates, or hinder the attainment of air quality objectives in the local air basin.

Clean Water Act

. Section 404 of the Clean Water Act regulates the discharge of dredged or fill material into waters of the United States. The Corps does not issue permits to itself but conducts an internal assessment to ensure that all requirements of Section 404 are met. A 404(b)(1) Evaluation in accordance with 40 C.F.R. Part 230 has been prepared and is found in Appendix E.

The temporary discharge of dewatering structures and access ramps, and sediment removal activities in soft bottom portions of the LAR are subject to Section 401 of the Clean Water Act. These discharges of dredged and fill material in waters of the U.S. are authorized by the Clean Water Act Section 401 Technically Conditioned Water Quality Certification (WQC) for the U.S. Army Corps of Engineers Los Angeles District, Operation, Maintenance, Repair, Replacement and Rehabilitation (OMRR&R) Activities Associated with the Los Angeles County Drainage Area (LACDA) Project System, Los Angeles County. The Section 401 WQC is found in Appendix D. Notice to the Regional Water Quality Control Board in accordance with the terms of the Section 401 WQC would occur at least 75 days prior to the discharges of dredged and fill material occurring in waters of the United States.

Endangered Species Act

The preferred alternative would be in compliance with the Endangered Species Act as it will not affect federally-listed species (least Bell's vireo, Southwestern Willow Flycatcher, and California gnatcatcher) for these species, and there is no designated critical habitat for any federally listed species in the project area.

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations

The preferred alternative would not result in long-term environmental impacts that would result in disproportionately high and adverse impacts to minority and low income communities.

Executive Order 13112, Invasive Species

The Proposed Project Area would be monitored and managed after vegetation/sediment removal operations cease to minimize re-infestation by invasive plant species. Conditions of the Clean Water Act Section 401 WQC concerning invasive plants would also be implemented.

Migratory Bird Treaty Act (MBTA)

The MBTA prohibits persons, except as permitted by regulations, "to pursue, take, or kill…any migratory bird, or any part, nest, or egg of any such bird, included in the terms of conventions" with certain other countries (16 USC 703). According to MBTA implementing regulations at 50 C.F.R. 10.12, "take" means "to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect." "Take" refers to conduct directed at birds, such as hunting and poaching, and does not refer to accidental activity or the unintended results of other conduct. Removal of vegetation for the proposed project would occur outside of the migratory bird nesting season. The project is in compliance with the MBTA.

National Environmental Policy Act

This EA has evaluated a reasonable range of alternatives within the context of the purpose and need. Furthermore, this EA has evaluated and disclosed anticipated environmental impacts.

National Historic Preservation Act of 1966, as amended

The preferred alternative would be located in a highly disturbed area and would occur entirely within imported soils. All ground disturbing activities would be limited to recent alluvium or imported soils. No in situ soil deposits would be disturbed. No actions are proposed that would alter or diminish the integrity of the historic channel or Fletcher Bridge. Thus, no historic properties would be affected by the preferred alternative. The Corps will consult with interested tribes and the State Historic Preservation Officer regarding the potential to affect cultural resources.

6.0 LIST OF PREPARERS

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