US Army Corps of Engineers ®
Los Angeles District

SAN GABRIEL RIVER/COYOTE CREEK 2 LEVEE SYSTEM

LOS ANGELES AND ORANGE COUNTIES, CALIFORNIA
NLD SYSTEM ID # 3805010035

PERIODIC INSPECTION REPORT NO 1
GENERALIZED EXECUTIVE SUMMARY

FINAL SYSTEM RATING: UNACCEPTABLE
FINAL RATING DATE: MARCH 15, 2013

PERIODIC INSPECTION REPORT PREPARED BY URS GROUP, INC.
FOR THE U.S. ARMY CORPS OF ENGINEERS, LOS ANGELES DISTRICT

SUBMITTED: AUGUST 2012
INSPECTED: NOVEMBER 22, 2010 THROUGH DECEMBER 8, 2010

EXECUTIVE SUMMARY

This Executive Summary provides an introduction to the periodic inspection, an overview of the system, a summary of the major findings of the periodic inspection, and the overall rating for the system.

1.1 Scope and Purpose of this Periodic Inspection

The U.S. Army Corps of Engineers (USACE) Los Angeles District has authorized URS Group, Inc. (URS) to perform a Periodic Inspection (PI) of the San Gabriel River/Coyote Creek 2 (SGR/CC2) Levee System. This Periodic Inspection Report was prepared following the Scope of Work for Task Order CQ01 on USACE Contract W912P9-10-D-0501, *Indefinite Delivery A-E Contract for Dam and Levee Safety for Areas Selected by the St. Louis District, US Army Corps of Engineers*.

1.2 System Summary

The SGR/CC2 Levee System, shown on Figure 1, is located in Los Angeles and Orange counties, California, and is in the Los Angeles County Drainage Area (LACDA). It comprises two levee segments:

- San Gabriel River SGR/CC2 Levee Segment which runs on the left (east) bank of the San Gabriel River from Whittier Narrows Dam to Coyote Creek
- Coyote Creek SGR/CC2 Levee Segment which runs on the right (west) bank of Coyote Creek from Interstate 5 (I-5) to San Gabriel River

The San Gabriel River and its tributaries, which includes the SGR/CC2 Levee System, are a unit under the general comprehensive plan for flood control and other purposes in the basins of the Los Angeles and San Gabriel rivers and Ballona Creek, as set forth in House Document 838, 76th Congress, third session. The comprehensive plan was approved August 18, 1941 by the act of Congress, Public Law 228, 77th Congress, first session.

The USACE Los Angeles District and the Los Angeles County Flood Control District (LACFCD) entered into a Project Cooperation Agreement on August 7, 1995, as required by Public Law 99-622. The LACFCD is responsible for operating and maintaining all the non-federal features of the LACDA. The Los Angeles County Department of Public Works (LACDPW) has assumed the functions of the LACFCD. The LACDPW is the Local Sponsor for the entire SGR/CC2 Levee System.

1.3 Field Inspection and Summary of Major Deficiencies Found

The field inspection of the SGR/CC2 Levee System was conducted from November 22, 2010 to December 6, 2010. The pump stations were inspected on December 7-8, 2010. The Local Sponsors show an active participation in operation and maintenance of the project; however, some deficiencies were noted and remedial actions are required. The main system deficiencies are:

Levee Embankments

- **Unwanted Vegetation Growth**: Non-compliant vegetation growth was observed in the vegetation-free zone, including on the crown and the landside and riverside levee slopes.
- **Encroachments**: Encroachments were observed, including side drains, buildings, facilities, nurseries, residences, streets, bridge abutments, utility improvements, utility poles, landscape irrigation improvements, pipelines, fencing and block walls on the levee embankments. The Levee Embankments checklist was used to record (1) any side drain that was shown on available as-built drawings but was not found during the field inspection and for which no approved permit for removal was found and (2) any side drain that was found during the field inspection but is not shown on the as-built drawings (this may include side drains where changes have occurred, such as change in pipe material, change in diameter/size, or fewer or more pipes/conduits) and no approved permit for installation/modification was found. Side drain encroachments are important because they may have been removed or installed using unacceptable methods that could cause seepage and erosion along the pipe/conduit or leakage of water and backfill into the pipe/conduit. A total of 45 side drain encroachments were identified.
- **Erosion/Bank Caving**: Erosion was observed on the landside slope, typically caused by collapsed animal burrows and stormwater runoff from the crown.
- **Depressions/Rutting**: Depressions and rutting were observed on the paved crown. Rutting along the crest of slopes exposed the edge of the pavement section.
- **Animal Control:** Animal burrows were found on the levee embankments. Animal activities were observed within the riprap revetment on the riverside slope.
- **Culverts/Discharge Pipes:** See Culverts/Discharge Pipes under the Interior Drainage System heading for details.
- **Riprap Revetments & Bank Protection**: Riprap displacement exposed the bedding on the riverside slope.
- **Revetments other than Riprap:** Surface cracking and cavities were observed on grouted riprap.

Interior Drainage System

- **Vegetation and Obstructions**: Vegetation, sediment and debris obstructed drainage inlets and outlets.
- **Encroachments**: Trash racks added to side drains without apparent authorization.
- **Monolith Joints**: The joints at the drainage structures were deteriorated or joint material was missing. Vegetation was growing within the joints.
- **Culverts/Discharge Pipes**: Documentation of the interior condition of the pipes (via video or visual inspection methods) was not provided.
- **Flap Gates/Flap Valves/Pinch Valves**: Some flap gates are corroded, not operable or were missing. Due to inaccessibility of some flap gates, their operability could not be verified.

- **Trash Racks (non-mechanical)**: Trash Racks (non-mechanical): One trash rack could not be observed or verified to exist due to fencing. Where as-built drawings do not require trash racks on the side drain inlets and outlets, it may be desirable to provide a trash rack where evidence of debris accumulation is present, where debris might enter the pipe and interfere with flow, or where children (or others) might enter the pipe in populated areas.

Pump Stations

- **Pump Stations Operating, Maintenance, Training, & Inspection Records**: Operating, maintenance and inspection records for the electric-driven pumps were not provided. Operator training records were not provided for all pumps.
- **Pump Station Operations and Maintenance Equipment Manuals**: Operation and maintenance equipment manuals were not provided for a city pump station and private community pump station. Points of contact for manufacturers and suppliers of major equipment were not provided for a pump station.
- **Plant Building**: A private community pump station is an open space platform without a roof.
- **Fencing and Gates**: Minor deterioration was observed for a city pump station. A private community pump station was not fully secured.
- **Pumps**: Proper operation of the electric-driven pump in a pump station and the pumps in a city pump station and a private community pump station was not demonstrated.
- **Motors, Engines, Fans, Gear Reducers, Back Stop Devices, etc.**: Records of bearing sensors were not available for inspection. Leakage was observed on the engines and motors in the a city pump station and a private community pump station.
- **Sumps/Wet Well**: The wet well in a pump station was not observed due to confined space entry restrictions. Minor debris was observed on the grates of the wet well in a city pump station. For a private community pump station, there was no confirmation that procedures had been established to remove debris accumulation during operation.
- **Non-Mechanical Trash Racks**: The non-mechanical operating trash racks in a pump station were not observed due to confined space entry restrictions.
- **Power Source**: Maintenance, inspection and exercising records for the electrical system was not available for a city pump station. Operability of the normal power source for a private community pump station was unknown.
- **Electrical Systems**: Operability of the electrical system was unknown and the maintenance and inspection records for the electrical systems were not available for a private community pump station.
- **Megger Testing on Pump Motors and Critical Power Cables**: There was no evidence that megger testing was being conducted for the pump stations.
- **Enclosures, Panels, Conduit and Ducts:** Corrosion was observed on the electrical enclosures, panels, conduits and ducts for a private community pump station.

- **Intake and Discharge Pipelines**: The intake components for a pump station were not observed due to confined space entry restrictions. Minor corrosion was observed on the intake components for a city pump station. The intake components for a private community pump station were inaccessible for a visual inspection and some corrosion was observed on the discharge pipelines.
- **Flap Gates/Flap Valves/Pinch Valves**: Flap gates for a pump station were inoperable. There was no flap gate for the pump discharge pipe for a city pump station.
- **Cranes**: A 15-ton overhead crane was locked out and the Certificate of Unit Test and Examination required renewal.

Flood Damage Reduction Channels

- **Encroachments**: Pipelines were observed penetrating through the concrete surface of riverside slope.
- **Concrete Surfaces**: Spalling and open cracking were observed at the concrete slab joints.
- **Tilting, Sliding or Settlement of Concrete Structures**: Minor concrete slab separation was observed at concrete slab joints.
- **Flap Gates/Flap Valves/ Pinch Valves**: Refer to Flap Gates/Flap Valves/Pinch Valves under the Interior Drainage System heading for details.
- **Riprap Revetments and Banks**: Refer to Riprap Revetments & Bank Protection under Levee Embankments for details.
- **Revetments other than Riprap**: Refer to Revetments other than Riprap under the Levee Embankments heading for details.

URS presented an out-brief concerning Periodic Inspection No. 1 to the Los Angeles District Levee Safety Officer, reviewers of the draft report, and other interested USACE personnel. The USACE Los Angeles District has determined the overall system rating for the SGR/CC2 Levee System as described in section 1.4 below.

1.4 Overall System Rating

The Levee Safety Officer, Los Angeles District, has determined the overall system rating of San Gabriel River/Coyote Creek 2 Levee System to be "Unacceptable." An "Unacceptable" system rating is defined as:

> *The Periodic Inspection has identified one (or more) System Components which are rated Unacceptable and require immediate correction. An engineering determination has concluded that the Unacceptable System Components identified seriously impair the functioning of the levee system, would prevent the system from performing as intended, and pose unacceptable risk to public safety.*

The Local Sponsor will be notified of the overall rating of the levee system by letter with instructions to correct "Critically Unacceptable" rated items immediately, "Unacceptable" rated items as soon as possible, and to correct the "Minimally Acceptable" rated items

within two years so that they do not deteriorate further and become "Unacceptable." Because this levee system is rated as "Unacceptable" a public notice will be prepared and coordinated between the USACE and LACDPW. Additionally, due to the "Unacceptable" rating, the levee system will be removed from the USACE Rehabilitation and Inspection Program (RIP). Once the "Critically Unacceptable" deficiencies are corrected by the sponsor and verified by the USACE, the system rating will be revised to "Minimally Acceptable" and the system will be reevaluated for eligibility in the RIP.

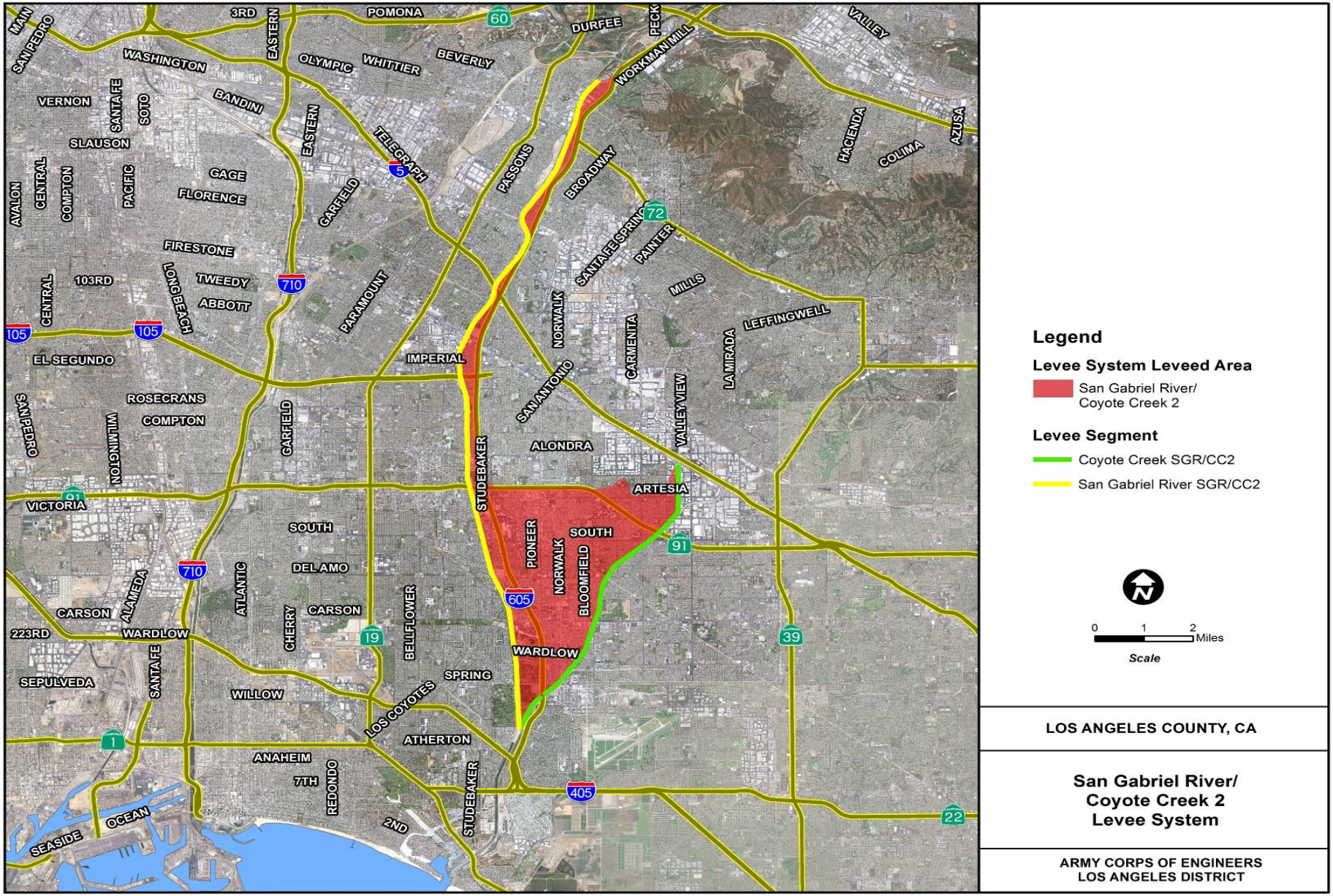

Figure 1. San Gabriel River/Coyote Creek 2 Levee System