



**US Army Corps  
of Engineers** ®  
Los Angeles District



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# **LOS ANGELES RIVER/RIO HONDO DIVERSION 2 LEVEE SYSTEM**

**LOS ANGELES COUNTY, CALIFORNIA  
NLD SYSTEM ID # 3805010047**

**PERIODIC INSPECTION REPORT NO 1  
GENERALIZED EXECUTIVE SUMMARY**

**FINAL SYSTEM RATING: UNACCEPTABLE  
FINAL RATING DATE: MARCH 20, 2013**

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

SUBMITTED: AUGUST 2012  
INSPECTED: AUGUST 4-10, 2010 AND OCTOBER 6, 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 Los Angeles River/Rio Hondo Diversion 2 Levee System (LAR/RH2 Levee System) in Los Angeles County, California. 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 LAR/RH2 Levee System, as shown on Figure 1, is located in the County of Los Angeles, California, and is in the Los Angeles County Drainage Area (LACDA). It comprises three levee segments:

- Los Angeles River LAR/RH2a Levee Segment which runs on the left (east) bank from the City of Cudahy to the confluence with the Rio Hondo Channel.
- Los Angeles River LAR/RH2b Levee Segment which runs on the left (east) bank from the City of Vernon to the City of Cudahy.
- Rio Hondo LAR/RH2 Levee Segment which runs on the right (west) bank from Whittier Narrows Dam to the confluence with the Los Angeles River.

The Los Angeles River LAR/RH2a and Los Angeles River LAR/RH2b Levee Segments, along with other similar works in the LACDA, were authorized initially by the Emergency Relief Act of 1935 to provide drainage and flood control. On June 30, 1937 these segments were transferred to the more comprehensive project adopted in the Flood Control Act of June 22, 1936.

The Flood Control Act of May 15, 1950 modified the general plan to authorize construction of channel improvements on the Rio Hondo Diversion (Rio Hondo) from Whittier Narrows Flood Control Basin to the Los Angeles River, which includes the Rio Hondo LAR/RH2 Levee Segment. The Los Angeles County Drainage Area, California Flood Control Improvements project was authorized under Title I, Section 101(b) of the Water Resources Development Act of 1990 (Public Law 101-640).

The USACE Los Angeles District and the Los Angeles County Flood Control District (LACFCD, now the Los Angeles County Department of Public Works [LACDPW]) entered into a Project Cooperation Agreement on August 7, 1995, as required by Public Law 99-622. The LACDPW is responsible for operating and maintaining all the non-federal features of the LACDA.

The LACDPW is the Local Sponsor for the Los Angeles River LAR/RH2a and the Rio Hondo LAR/RH2 Levee Segments. The USACE Los Angeles District is the Local Sponsor for the Los Angeles River LAR/RH2b Levee Segment.

### 1.3 Field Inspection and Summary of Major Deficiencies Found

The LAR/RH2 Levee System was inspected from August 4, 2010 to August 10, 2010. The Poplink Pump Plant was inspected on October 6, 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:** Locations with trees with diameter greater than two inches or significant brush in the vegetation-free zone, including the crown and landside and riverside levee slopes.
- **Encroachments:** Locations with side drains, power poles, railroad tracks, utilities, irrigation lines, fences and debris present on the landside slope and crown of the levee embankment. 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 43 side drain encroachments were identified.
- **Erosion/Bank Caving:** Locations with erosion on the landside slope of levee.
- **Depressions/Rutting:** Locations with depression and rutting on the landside and riverside slopes.
- **Cracking:** Locations with longitudinal and transverse cracks on the levee crown.
- **Animal Control:** Locations with large and deep animal burrows on the landside slope and crown of the levee.
- **Culverts/Discharge Pipes:** See Culverts/Discharge Pipes under the Interior Drainage System heading for details.
- **Revetments other than Riprap:** Locations with longitudinal and transverse cracks in grouted riprap. Displacement due to vegetation or animal burrows.
- **Underseepage Relief Wells/Toe Drainage Systems:** Toe drain/weep holes were blocked at some locations. One cover for a subdrainage system manhole was missing.

#### Floodwalls

- **Unwanted Vegetation Growth:** Locations with growth of non-compliant vegetation on top of the floodwall or near its base.
- **Encroachments:** Two locations where there is an opening between a floodwall and a bridge where a closure structure may be required.
- **Concrete Surfaces:** Locations with cracking and spalling on the floodwalls.

- **Tilting, Sliding or Settlement of Concrete Structures:** Locations with differential settlement at monolith joints of the floodwall.
- **Monolith Joints:** Locations with cracking and spalling on the floodwalls at their monolith joints.

### **Interior Drainage System**

- **Vegetation and Obstructions:** Locations with non-compliant vegetation and debris obstructing flow from the drainage outlet.
- **Encroachments:** Trash racks were found on some side drains but according to as-built drawings were not part of the authorized Project.
- **Concrete Surfaces:** Locations with cracking, spalling or exposed rebar in the headwall of the drainage structures.
- **Monolith Joints:** Locations with joint material deterioration and non-compliant vegetation in 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:** Locations where flap gates were either missing or obstructed by debris.

### **Pump Stations**

- **Pump Stations Operating, Maintenance, Training, & Inspection Records:** A complete set of records was not present.
- **Pump Station Operations and Maintenance Equipment Manuals:** Operations and maintenance manuals were not present.
- **Fencing and Gates:** Security fences and gates were not present.
- **Pumps:** Pumps were not tested because the station was undergoing an upgrade.
- **Motors, Engines, Fans, Gear Reducers, Back Stop Devices, etc.:** These items were not tested because the station was undergoing an upgrade.
- **Sumps/Wet Well:** The sump and wet well were not inspected due to confined space entry restrictions.
- **Non-Mechanical Trash Racks:** Trash racks, if present, were not inspected due to confined space entry restrictions.
- **Power Source:** Surge protection and inspection records were not observed. There is no backup generator on site.
- **Megger Testing on Pump Motors and Critical Power Cables:** The megger testing program for the pump station was not available.
- **Intake and Discharge Pipelines:** The intake and discharge pipelines were not inspected due to confined space entry restrictions.

- **Flap Gates/Flap Valves/Pinch Valves:** These items were not inspected due to confined space entry restrictions.

#### **Flood Damage Reduction Channels**

- **Vegetation and Obstructions:** Locations with vegetation and debris along the riverside slope toe.
- **Concrete Surfaces:** Longitudinal, transverse and desiccation cracks on concrete surfaces and minor spalling areas were observed on the riverside slope. Also areas of depression, breaks and cracks were found at the toe of riverside slope bottom of channel.
- **Flap Gates/Flap Valves/Pinch Valves:** See Flap Gates/Flap Valves/Pinch Valves under the Interior Drainage System heading for details.
- **Revetments other than Riprap:** For details of Revetments other than Riprap (riverside slopes that consist of grouted riprap), see the same rated item under the Levee Embankments heading.

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 LAR/RH2 Levee System 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 Los Angeles River/Rio Hondo 2 Diversion 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.



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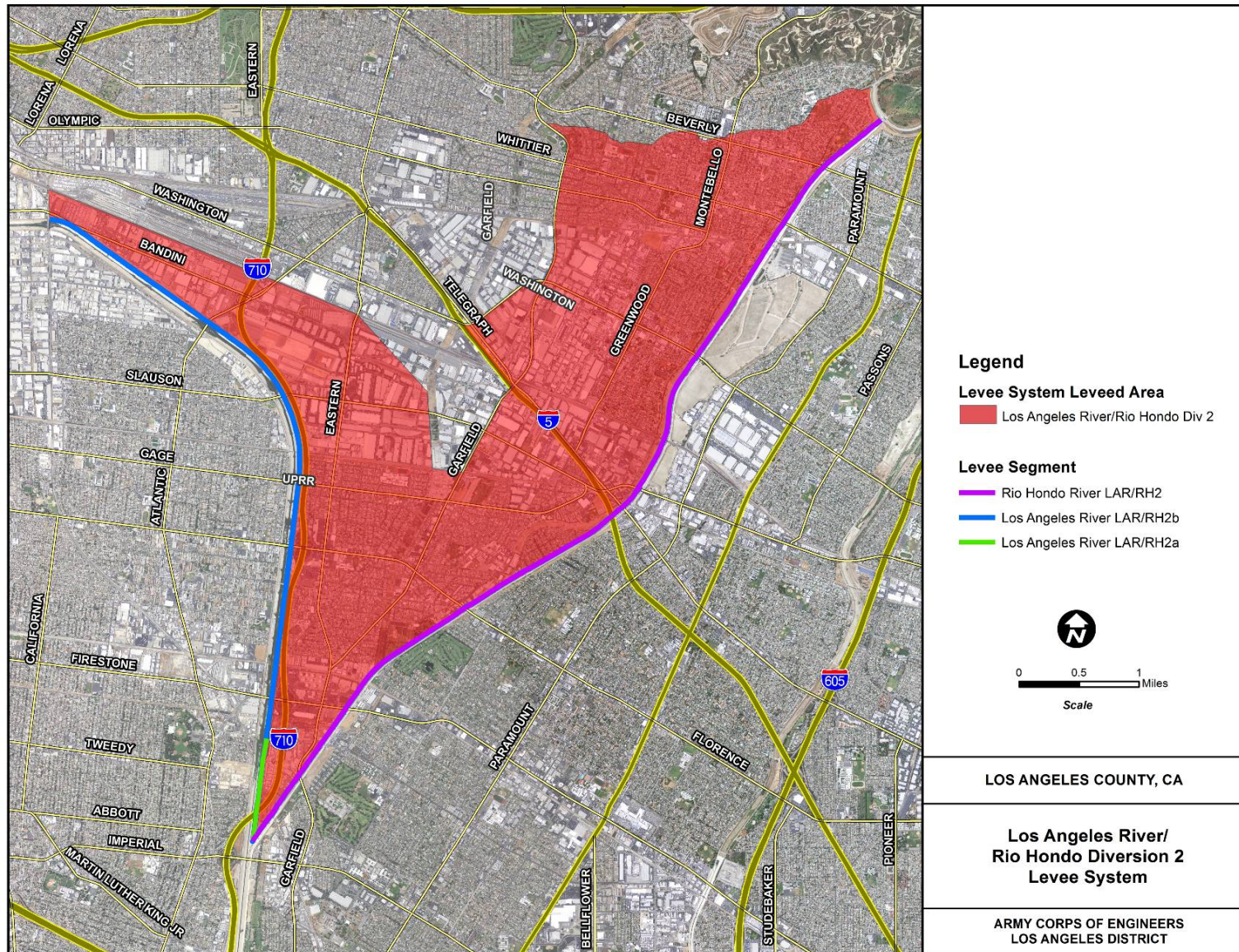


Figure 1. Los Angeles River/Rio Hondo Diversion 2 Levee System