



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



**SAN LUIS REY RIVER 4 LEVEE SYSTEM
SAN DIEGO COUNTY, CALIFORNIA
NLD SYSTEM ID # 3805010010**

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

**FINAL SYSTEM RATING: UNACCEPTABLE
FINAL RATING DATE: APRIL 11, 2017**

PERIODIC INSPECTION REPORT PREPARED BY TETRA TECH FOR THE
U.S. ARMY CORPS OF ENGINEERS, LOS ANGELES DISTRICT

SUBMITTED: FEBRUARY 2017
INSPECTED: MARCH 3, 2016

EXECUTIVE SUMMARY

This Executive Summary provides an introduction to the Periodic Inspection of the San Luis Rey River 4 (SLR4) Levee System, an overview of the SLR4 Levee System, a summary of the major findings of the Periodic Inspection, and the overall rating for the SLR4 Levee System.

1.1 Scope and Purpose of Periodic Inspections

The purpose of the SLR4 Levee System Periodic Inspection is to identify deficiencies that pose hazards to human life or property. The inspection is intended to identify the issues in order to facilitate future studies and associated repairs as appropriate.

This assessment of the general condition of the SLR4 Levee System is based on available data and visual inspections. Detailed investigation and analysis involving hydrologic design, topographic mapping, subsurface investigations, testing, and detailed computational evaluations are beyond the scope of this levee system inspection.

1.2 System Summary

The SLR4 Levee System is located on the right/north bank of the San Luis Rey River (SLRR) in the State of California, in San Diego County, in the City of Oceanside (Figure 1). This levee system runs 0.48 miles along the north (right) bank of the river from just downstream of the North Coast Highway to the ocean. It is one of five levee systems on the San Luis Rey River 7.1 mile long project that were federally authorized and subsequently constructed by the U.S. Army Corps of Engineers, South Pacific Division, Los Angeles District (USACE SPL). The construction of the SLR4 Levee System was completed on May 5, 1989 (USACE SPL 2010a) and subsequent improvements, such as pressure grouting of voids in the existing levee grouted stone and installation of the relief wells, were completed in 2000 (USACE SPL 2010a). Per the National Levee Database (NLD), the SLR4 Levee System is currently operated and maintained by the USACE SPL Programs and Project Management Division (PPMD); however, in the future, the levee system will be turned over to the City of Oceanside for post-construction operation and maintenance per the Local Cooperation Agreement (LCA) signed on May 13, 1988 (USACE SPL 2010a). The NLD Number (NLD No.) for the SLR4 Levee System is 3805010010.

The SLR4 Levee System extends from downstream of North Coast Highway (formerly Hill Street) at Station 35+88 to the Pacific Ocean at Station 10+70, a distance of approximately 2,518 feet (0.48 miles). It consists of an earthen levee embankment with grouted stone on the riverward slope, knee stone and toe stone on the riverward toe, and either no revetment or grouted stone on the landward slope. Other features along the SLR4 Levee System include a parapet wall, four side-drainage structures, a closure structure, utility crossings, bridge crossings, and relief wells.

1.3 Summary of Major Deficiencies Found

The Periodic Inspection (PI) No. 1 of the SLR4 Levee System was conducted on March 3, 2016, and representatives from both the USACE SPL and the City of Oceanside were present. During the inspection of the levee system, deficiencies were noted for which remedial actions are required. The following main deficiencies of the project features were noted during the PI No. 1:

- Levee Embankment:
 - Non-Compliant Vegetation Growth: Significant vegetation growth including trees with trunks larger than 2-inches in diameter and shrubs were present within the vegetation-free

- zone. The vegetation-free zone extends 15 feet outward from both the landward and riverward toes of the levee.
- Revetments other than Riprap: The grouted stone revetment was covered by dense vegetation (willow trees, arundo, shrubs, and grass). The vegetation did not appear to be growing through the grouted stone.
 - Underseepage Relief Wells/Toe Drainage Systems: There are no maintenance records available nor any documentation of the required pump testing for the relief wells.
 - Floodwalls:
 - Closure Structures: A 4-inch-gap was observed at the midpoint of the closure structure because the center lock post, which locks the two floodgates closed, was missing. In addition, three welds were broken at the top of the downstream closure structure panel.
 - Interior Drainage Systems:
 - Vegetation and Obstructions: At the outlet of one of the side-drainage structures, flow was significantly impaired by surrounding vegetation and sediment.
 - Culverts/Discharge Pipes: The side-drainage structures could not be visually inspected and have not been video inspected.
 - Flood Damage Reduction Channels:
 - Vegetation and Obstructions: Accumulated sediment was observed within the channel which has substantially reduced the flow conveyance of the SLRR Flood Control Project from the authorized 71,200 cubic feet per second (cfs). This loss of capacity due to sedimentation within the channel was verified in the referenced 2015 Vegetation Management Plan (USACE SPL 2015a).
 - Shoaling: See comment from the previous rated item above.

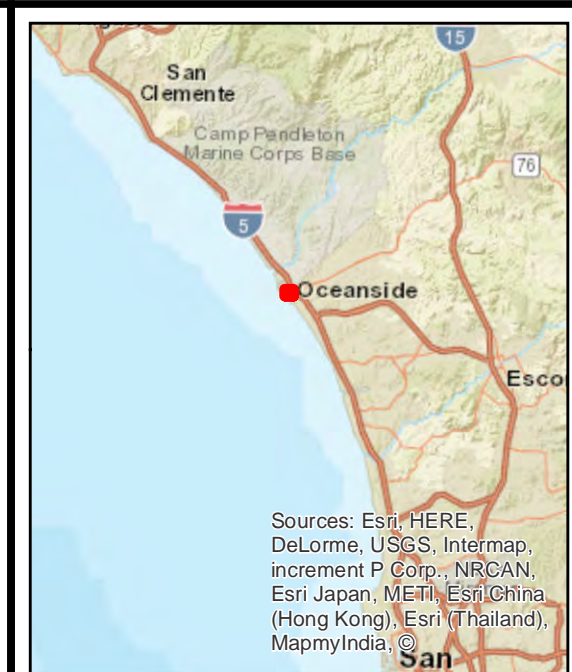
1.4 Overall Rating

The Levee Safety Out-Brief Meeting was held on May 26, 2016. An engineering determination has concluded that the observed deficiencies could prevent the SLR4 Levee System from performing as intended during the next significant runoff event. Therefore, the Levee Safety Officer (LSO), Los Angeles District, has determined the overall rating of the SLR4 Levee System to be “Unacceptable.”



An “Unacceptable” system rating is defined as, “One or more items are rated as Unacceptable and would prevent the segment/system from performing as intended, or a serious deficiency noted in past inspections (which had previously resulted in a minimally acceptable system rating) has not been corrected within the established timeframe, not to exceed two years.”

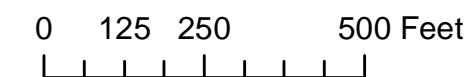
The USACE SPL Programs and Project Management Division will be notified of the overall rating of the levee system by letter with instructions to correct Critically Unacceptable rated items immediately, Unacceptable rated items as soon as possible, and to correct the Minimally Acceptable rated items within two years so that they do not deteriorate further and become Unacceptable. A public notice will be prepared and coordinated between the USACE SPL and the City of Oceanside. Once the Critically Unacceptable deficiencies are corrected by the USACE SPL in cooperation with the City of Oceanside, the overall system rating will be revised to

“Minimally Acceptable.” The Critically Unacceptable rated items included the vegetation and the shoaling in the channel.



Legend

-  SLR4 Levee System
-  Leveed Area (NLD)



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**Location and
Leveed Area Map**



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community, Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors

Figure 1