



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



**MILL CREEK LEVEE SYSTEM
SAN BERNARDINO COUNTY, CALIFORNIA
NLD SYSTEM ID # 3805010056**

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

**FINAL SYSTEM RATING: MINIMALLY ACCEPTABLE
FINAL RATING DATE: SEPTEMBER 23, 2013**

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

SUBMITTED: JULY 2013
INSPECTED: JUNE 7, 2011

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 purpose of the 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 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 is beyond the scope of this levee system inspection.

1.2 System Summary

The Mill Creek Levee System is located in the County of San Bernardino, in the State of California. The system is comprised of two levee segments: Segment 1a and Segment 1b. Both segments were federally authorized by the U.S. Army Corps of Engineers (USACE) and are operated and maintained by the San Bernardino County Flood Control District (County). Segment 1a and Segment 1b are located within the City of Redlands. The Mill Creek Levee System is located on the south/left bank (looking downstream) of Mill Creek. The total length of levee included in the system is 15,625 feet. The National Levee Database (NLD) System ID Number for Mill Creek Levee System is 3805010056.

Segment 1a is comprised of a 1,297-foot-long masonry wall (Masonry Wall No. 1). Segment 1b is primarily an earthen levee, with grouted rock revetment and a concrete floodwall located on top of the levee embankment. The total length of Segment 1b is 14,328 feet, including 705 feet of masonry wall (Masonry Wall No. 2) and 611 feet of tieback levee, excluding 183 feet at Garnet Bridge. Segment 1b begins upstream of Garnet Avenue, behind Segment 1a, and extends downstream of Garnet Avenue to the Bear Valley Mutual Water Company pipeline. A location map is shown on Figure 1.

It should be noted that the Mill Creek Levee System originally included an additional earthen levee embankment referred to Segment 1c. Segment 1c was constructed and is operated and maintained by local interests. It originally extended from the downstream end of Segment 1b to the confluence with the Santa Ana River, a distance of 3,700 feet. The downstream limit was later extended further downstream to Opal Avenue, which made Segment 1c a total of 6,500 feet in length. Segment 1c was inspected as part of the periodic inspection, but following the inspection it was determined that Segment 1c is inactive in the Rehabilitation and Inspection Program (RIP) and should not be included as part of the levee system. As a result, Segment 1c was removed from the Mill Creek Levee System.

1.3 Field Inspection and Summary of Major Deficiencies Found

The field inspection of the Mill Creek Levee System was conducted on June 7, 2011. The Local Sponsor representative met with the inspection team and assisted with granting access along the length of the levee. During the inspection of the system, deficiencies were noted for which remedial actions are required. The following main deficiencies were noted during the inspection of the Mill Creek Levee System. The respective Segment is noted for each major deficiency. The main system deficiencies are:

Levee Embankment

- Segment 1b: Dense vegetation and trees with trunks greater than 2 inches in diameter were located within 15 feet of the toe on both the landward and riverward slopes.
- Segment 1b: Unauthorized encroachments were observed, such as material preventing inspection and unpermitted modifications to the levee embankment including high-pressure water lines, and three side-drainage structures.
- Segment 1b: The stop logs for a Reinforced Concrete Box (RCB) diversion structure were not found on site during the inspection. Instructions, maintenance and/or recent operation records were unavailable.
- Segment 1b: Erosion gully caused by surface-water runoff deeper than 6 inches was located along the Segment 1b landward levee slope.

Interior Drainage (Segment 1b only)

- A Reinforced Concrete Pipe (RCP) side-drainage outlet structure was completely buried. The pipe may be abandoned, but the condition of the pipe was unable to be verified due to the presence of sediment. It could not be determined if the pipe had been properly abandoned.
- A catwalk railing associated with the a RCP diversion structure was not secured.
- The slide gates associated with a RCP diversion structure were in good condition and functional. They are operated by the San Bernardino Valley Water Conservation District (SBVWCD); however, instructions, maintenance and/or recent operation records were not available.
- Flap gate was inoperable due to sediment. The pipe may be abandoned.

Tetra Tech 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 Mill Creek 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 Mill Creek Levee System to be “Minimally Acceptable”:

A Minimally Acceptable System is where one or more items are rated as Minimally Acceptable or one or more items are rated as Unacceptable and an engineering

determination concludes that the Unacceptable items would not prevent the segment/system from performing as intended during the next significant runoff event.

The Local Sponsor will be notified of the overall rating of the levee system by letter with instructions to correct the “Unacceptable” rated items as soon as possible, and correct the “Minimally Acceptable” rated items within two years so that they do not deteriorate further and become “Unacceptable.”

MILL CREEK LEVEE SYSTEM
FINAL PERIODIC INSPECTION REPORT NO. 1

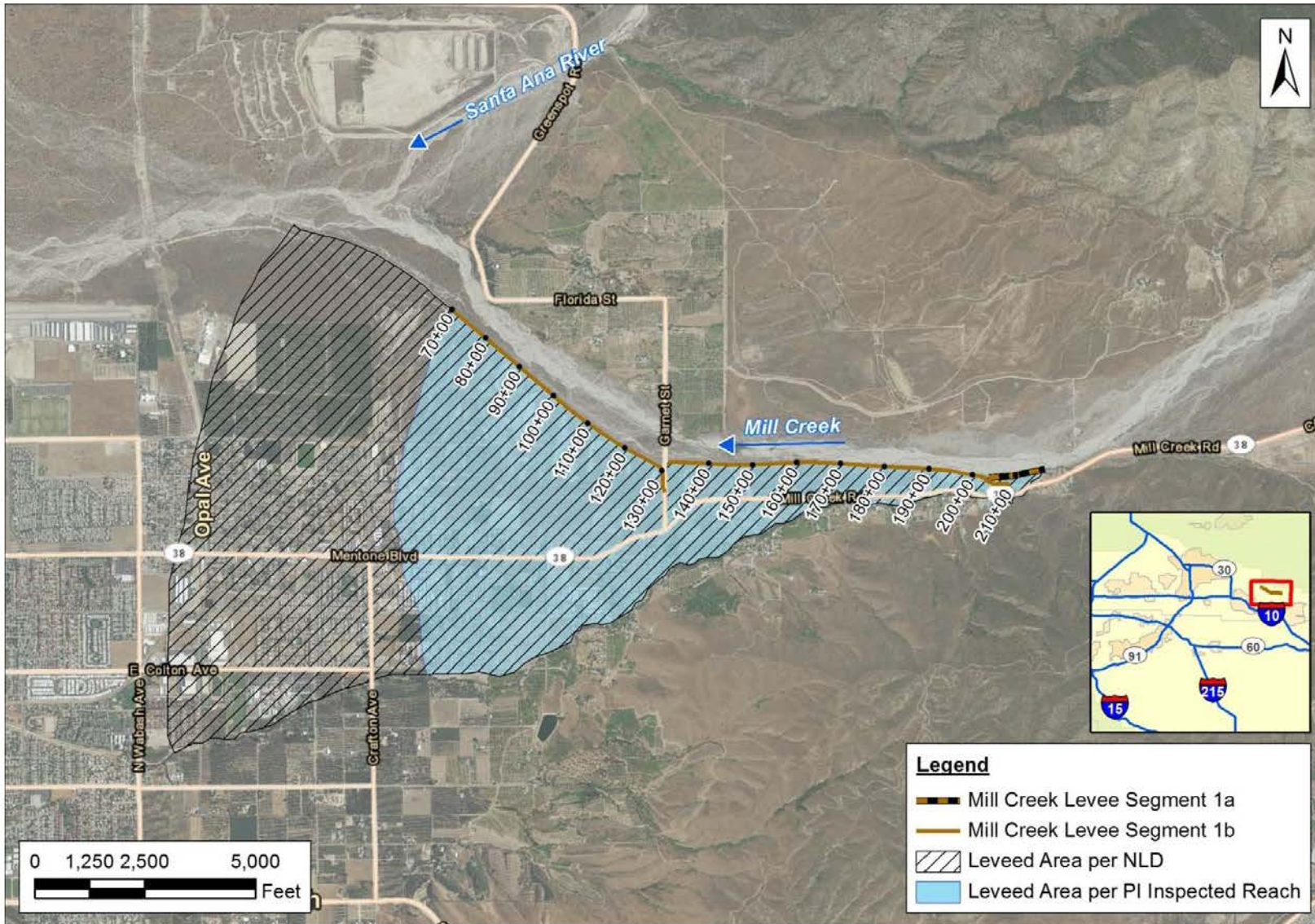


Figure 1. Mill Creek Levee System