



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



**LYTLE CREEK (MUSCOY)
LEVEE SYSTEM
SAN BERNARDINO COUNTY, CALIFORNIA
NLD SYSTEM ID # 3805010071**

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

**FINAL SYSTEM RATING: MINIMALLY ACCEPTABLE
FINAL RATING DATE: OCTOBER 17, 2013**

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

SUBMITTED: MARCH 2013
INSPECTED: JUNE 8-9, 2010, AND DECEMBER 7, 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 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

Lytle Creek (Muscoy) Levee System is located in the City of San Bernardino, in the County of San Bernardino, in the State of California. It is crossed by the Southern Pacific railroad (SPRR), Highland Avenue, State Route 210 (SR 210), and Base Line Road (See Figure 1). Lytle Creek (Muscoy) Levee System is a flood-control improvement located along the eastern/left (looking downstream) bank of Lytle Creek. The portion of earthen levee with grouted rock revetment on the riverward slope starts about one mile downstream from Muscoy Groin No. 4, and extends downstream a distance of 13,085 feet. At that location the grouted rock revetment on the riverward slope changes into concrete revetment. The concrete revetment on the riverward slope extends downstream a distance of 151 feet. At that location the riverward slope, levee crown, and landward slope of the levee are all faced with concrete. This portion of the levee is known as the bypass structure. A floodwall stands on top of the crown of the bypass structure. Lytle Creek (Muscoy) Levee System was federally authorized and subsequently constructed by the United States Army Corps of Engineers (USACE). It is now entirely operated and maintained by the San Bernardino County Flood Control District (SBCFCD). The National Levee Database Number (NLD No.) for Lytle Creek (Muscoy) Levee System is 3805010071.

1.3 Field Inspection and Summary of Major Deficiencies Found

The levee system was inspected on June 8–9, 2010, and December 7, 2010. 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, several deficiencies were noted for which remedial actions are required. The following main unacceptable deficiencies were noted during the inspection of the project features:

Levee Embankments

- Significant vegetation growth (brush, tall grass, and trees greater than 2 inches in diameter) was present within the vegetation-free zone. The vegetation-free zone extends 15 feet outward from both the landward and riverward toes of the levee.
- Encroachments in the form of physical structures (SPRR and SR210) within the system right-of-way are likely to inhibit operations, maintenance, and emergency operations.
- Significant erosion gullies (i.e., more than 6 inches deep) have formed on the landward and riverward levee slope due to concentration of local runoff on the levee crown.
- Grouted riprap revetment was missing along the levee, near a bridge. Sufficient freeboard may no longer be provided.

Floodwalls

- Differential movement was evident at the interface of the floodwall monolith with the East Branch Lytle Creek concrete channel wall monolith. The differential movement has caused up to 2 inches of separation between the monoliths and no watertight seal is provided.
- The exterior joint sealant was missing from the floodwall joints. The need for joint material should be investigated, as some of the joints are no longer watertight.

Interior Drainage System

- There was vegetation and debris obstructing the inlet of the diversion structure.
- A side-drainage structure did not include a closure structure. The permit did not indicate if a closure structure was included in the original design.
- The chain-link fence located on the floodwall was damaged. In addition, the fencing on the retaining wall on the landward side of the bypass structure was similarly damaged.
- The condition of the side drains has not been verified using videotaping by television camera or other visual-inspection method within the past five years.
- Vegetation was obstructing the sluice gate at the inlet to the diversion structure and prevented the gate from closing.

TetraTech 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 Lytle Creek (Muscoy) 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 Lytle Creek (Muscoy) 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 immediately, and correct the “Minimally Acceptable” rated items within two years so that they do not deteriorate further and become “Unacceptable.”

1.5 Leveed Area Revision

On June 13, 2013, the leveed area was revised per signature of the Levee Safety Officer and is shown on Figure 1. This leveed area supersedes the leveed area in the Periodic Inspection Report No. 1.

LYTLE CREEK (MUSCOY) LEVEE SYSTEM
 FINAL PERIODIC INSPECTION REPORT NO. 1

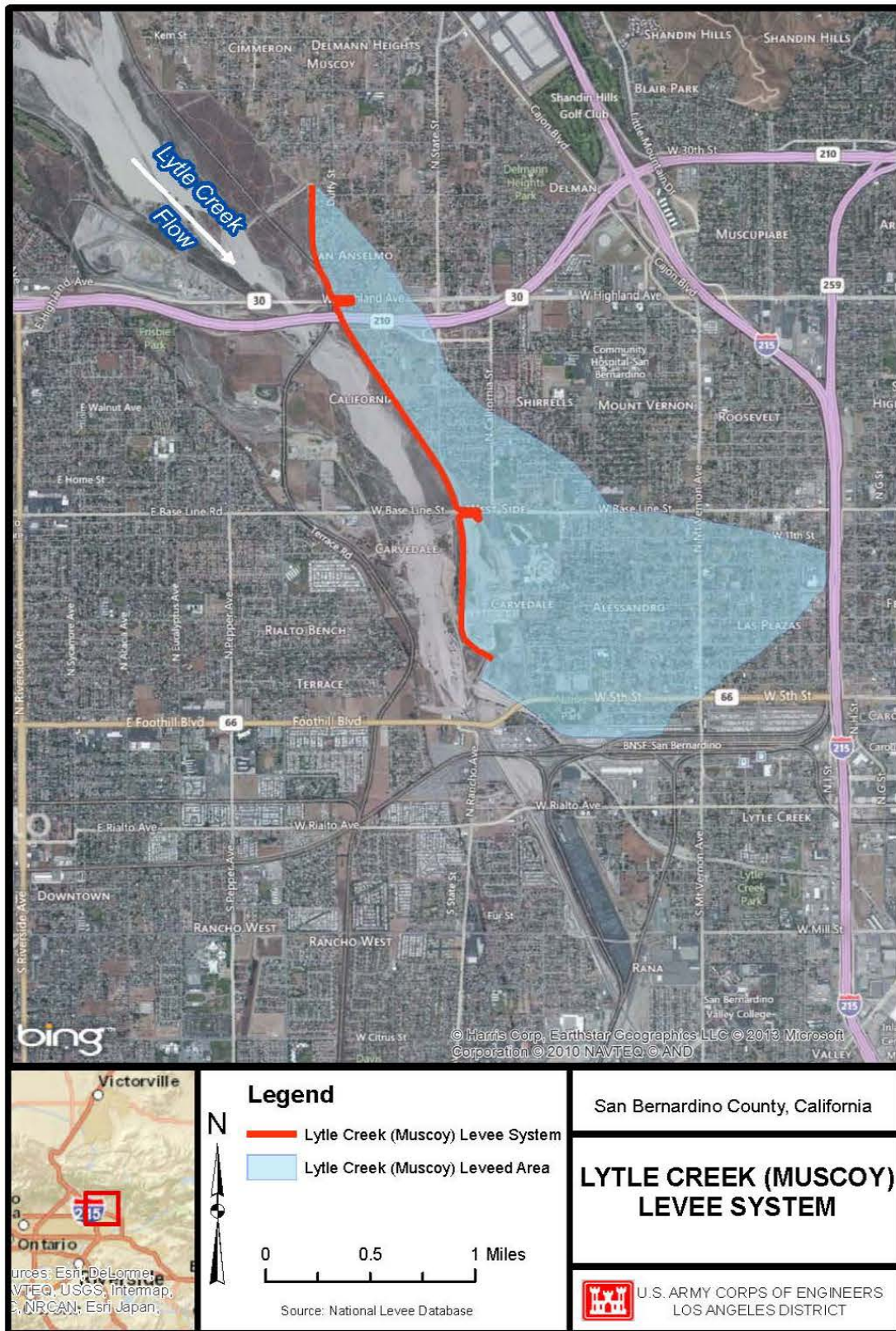


Figure 1: Lytle Creek (Muscoy) Levee System

Note: This NLD Leveed Area supersedes the leveed area shown in the PI Report.