



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



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**SANTA ANA RIVER/  
SAN TIMOTEO CREEK 1  
LEVEE SYSTEM  
SAN BERNARDINO COUNTY, CALIFORNIA  
NLD SYSTEM ID # 3805030015**

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

**FINAL SYSTEM RATING: UNACCEPTABLE**

**FINAL RATING DATE: 25 JUNE 2015**

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

SUBMITTED: MARCH 2015  
INSPECTED: AUGUST 20, 2014

## **EXECUTIVE SUMMARY**

This Executive Summary provides an introduction to the periodic inspection, an overview of the Santa Ana River/San Timoteo Creek 1 (SARSTC1) Levee System, a summary of the major findings of the periodic inspection of the SARSTC1 Levee System, and the overall rating for the SARSTC1 Levee System.

### **1.1 Scope and Purpose of Periodic Inspections**

The purpose of the SARSTC1 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 SARSTC1 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 SARSTC1 Levee System is located on the left/west bank of the San Timoteo Creek (STC) Channel and the left/east bank of the Santa Ana River in the state of California, in San Bernardino County, in the city of Colton (Figure 1.1). The SARSTC1 Levee System was federally authorized and subsequently constructed by the U.S. Army Corps of Engineers, Los Angeles District (USACE LAD). Construction of the SARSTC1 Levee System along the San Timoteo Creek Channel and along the Santa Ana River was completed in October 1996 and December 1979, respectively (USACE LAD 2006 & USACE LAD 1984). The SARSTC1 Levee System is now entirely operated and maintained by San Bernardino County Flood Control District (SBCFCD). The National Levee Database Number (NLD No.) for the SARSTC1 Levee System is 3805030015. The SARSTC1 Levee System has an earthen embankment, a rectangular channel lined with reinforced concrete, a trapezoidal channel with a riverward slope lined with either reinforced concrete, grouted stone, the invert of which is either soft bottom or lined with reinforced concrete or derrick stone, nine side-drainage structure pipes, nine side-drain junction structure pipes, one gate outlet drain, utility crossings, bridge crossings, access ramps, a drop structure, baffle blocks, a sill, a training dike, a grade stabilizer, and landscaping.

The SARSTC1 Levee System extends from the San Timoteo Creek (STC) Station 24+45 to STC 11+97 and Santa Ana River (SAR) Station 3201+68 to SAR Station 3090+00, a distance of approximately 13,268 feet (2.1 miles).

It should be noted, that the earthen spoil bank located at the downstream end of the levee system from SAR Station 3090+00 to SAR Station 3081+48, was originally recommended to be included as part of the levee system, because it was constructed by the USACE LAD and is labeled as a levee embankment on the 1987 as-built drawings (USACE LAD 1987). However, during the Periodic Inspection, no levee slope was observed on the landside of the spoil bank and the area appears to have been filled in. In addition, the general topography of the area located to the landside/east of the spoil bank slopes towards the channel. Therefore, the spoil bank was not included as part of the levee system.

A channel reach was identified during the Periodic Inspection of the SARSTC1 Levee System. These are reaches where the landside levee embankment height was observed to be level with the landside ground surface and therefore not leveed. The channelized reach was along the San

Timoteo Creek Channel from STC Station 21+50 to STC Station 14+60. All the deficiencies noted along this reach were included in the Flood Damage Reduction Channel checklist.

### 1.3 Summary of Major Deficiencies Found and Subsequent Repairs

The Periodic Inspection of the SARSTC1 Levee System was conducted on August 20, 2014 and SBCFCD staff was 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 Periodic Inspection:

- 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. Most of the vegetation was planted as part of the landscape drawings in USACE LAD 1976.
  - Closure Structures: The stop logs were not available for the closure structure and a 6-inch-gap was observed between the stop-log hinge and the parapet wall. In addition, the top of levee elevation was lowered by as much as 4.7 feet during the construction of the bike path. Additionally, a retaining wall on the levee crown was cut for the bike path.
  - Underseepage Relief Wells/Toe Drainage Systems: Along San Timoteo Creek Channel, the subdrainage system outlets along a portion of the channel were not located during the Periodic Inspection because they were covered with vegetation and sediment. Along the Santa Ana River, some of the weep holes through the riverward concrete slope paving were clogged with vegetation. In addition, a subdrainage system outlet was rusted and corroded shut. In addition, the maintenance records were not available to verify cleaning of the subdrainage system per the *Operation and Maintenance Plan* (SBCFCD 2009) and the *Operation, Maintenance, Repair, Replacement, and Rehabilitation Manual, San Timoteo Creek Channel* (USACE LAD 2006).
- Floodwalls
  - Encroachments: Approximately 90 feet of the floodwall has been removed on the levee crown when the bike path was constructed in 2005 (San Bernardino County Department of Public Works [SBKDPW] 2005).
- Interior Drainage System
  - Vegetation and Obstructions: There was sediment and vegetation blocking more than 10 percent of the inlet and/or outlet of five side-drainage structures.
  - Culverts/Discharge Pipes: Video inspection was not available for any of the side-drainage structures or side-drain junction structures.
  - Flap Gates/Flap Valves/Pinch Valves: The flap gate at the outlet of a 24-inch-diameter reinforced concrete pipe (RCP) side-drainage structure was buried by sediment and vegetation. A flap gate was missing at the outlet of an 18-inch-diameter gate outlet. There was no flap gate at the outlet of a 12-inch-diameter corrugated metal pipe (CMP) side-drain junction structure, but there were no construction drawings available to determine if it was required.

- Flood Damage Reduction Channels:
  - Vegetation and Obstructions: Woody vegetation was growing in the channel on established sediment shoals. This woody vegetation impaired the channel flow capacity.
  - Shoaling: Shoaling up to three feet deep, stabilized by saplings, brush, and other vegetation, was observed along the invert of the San Timoteo Creek Channel.

#### **1.4 Overall Rating**

The Levee Safety Out-Brief Meeting was held on January 28, 2015. An engineering determination has concluded that the observed deficiencies could prevent the SARSTC1 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 SARSTC1 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 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, not to exceed two years, and to correct the “Minimally Acceptable” rated items so that they do not deteriorate further and become “Unacceptable.”



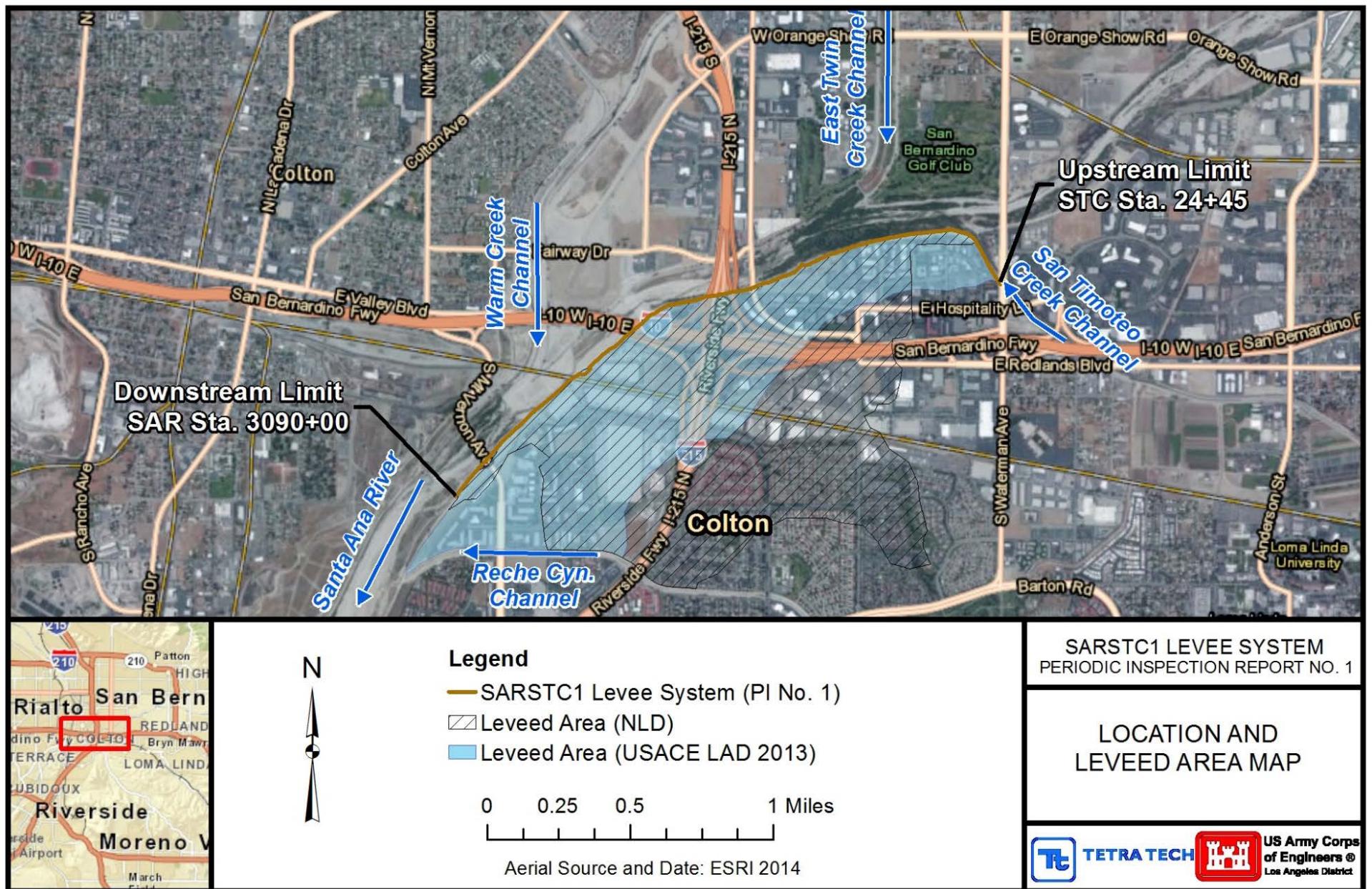


Figure 1