PROJECT PURPOSE

The Sacramento Area Flood Control Agency (SAFCA) is planning to construct approximately 3.1 miles of flood control improvements along Arcade Creek and Natomas East Main Drain Canal (NEMDC) in North Sacramento.

The goals of the project are to 1) reduce the potential risk of catastrophic flooding as quickly as possible, 2) certify the levees as providing at minimum a 100-year level of flood protection, and 3) meet current State urban levels of protection as required under Senate Bill No. 5.

ADDRESSING SEEPAGE

Through Seepage
When the river is near flood stage, water from high pressure can seep through the levee.

Sand and Gravel
Silts and Clays
Surface Soils

River Level at Flood Stage

Underseepage
High river levels can cause pressure beneath the surface, allowing water to seep through sand and gravel and emerge at the land side levee toe; and river water can surface up to several hundred feet from the land side toe.

Levee Cutoff Wall
Three-foot wide cutoff wall installed up to 120 feet deep prevents uncontrolled seepage.

PROJECT BACKGROUND

The North Sacramento area east of Natomas contains several urbanized floodplains that are threatened by peak flood flows in the streams that run through the area, including Dry Creek, Robla Creek, Arcade Creek, and Magpie Creek (the North Area Streams). These streams are hydraulically connected to the lower American River through the NEMDC/Steelhead Creek, which forms the eastern boundary of the Natomas area and carries flow from these streams to the lower American River in flood conditions. Substantial improvements to the levees along these streams were completed by SAFCA in the 1990's.

Over the past several years, post Hurricane Katrina, the U.S. Army Corps of Engineers (USACE) has been updating the standards and procedures used to certify levees across the country. These procedures require that previous certifications be periodically renewed. However, USACE determined that the North Sacramento area levee system did not meet their current flood control standards and the area's levee certification was allowed to expire.

SAFCA conducted additional investigations and analyses to determine the scope of the additional improvements required to meet current federal standards and the state's 200-year level of flood protection. The investigations included new hydrological modeling studies, detailed subsurface investigations and geotechnical analyses by the State and SAFCA, and a general reevaluation of the flood risk management needs of the North Sacramento area by USACE.

As a result, SAFCA has identified a number of levee embankment and foundation stability problems along the north and south levees of Arcade Creek and a portion of the east levee of the NEMDC/Steelhead Creek that must be addressed in order to meet applicable federal and state standards, including FEMA National Flood Insurance Program standards, and the state's urban levee design criteria.

In 2017, SAFCA is planning to begin constructing geotechnical improvements that include 3.1 miles of cutoff walls and 800 feet of relief wells along portions of the Arcade Creek North and South Levees and the NEMDC East Levee to address identified vulnerabilities to this threat of levee under seepage. The improvements are anticipated to be completed no later than fall 2018.

When completed, these improvements will allow a licensed civil engineer to certify the levee system as providing a minimum 100-year flood protection. This will reduce flood risk as quickly as possible, retain the community’s FEMA Flood Insurance Rate Map status and meet current state urban levels of protection requirements by 2025, as required under Senate Bill No. 5.

FOR MORE INFORMATION CONTACT:
Jay Davis, Project Ombudsman
Gualco Consulting
(916) 351-0600
jdavis@gualco.com