

LOCATION HYDRAULIC STUDY

**05-1H430-SB-101-PM 21.6
San Jose Creek Bridge Replacement
February 4, 2020**

INTRODUCTION

The purpose of this study is to identify encroachments created by this project on the base (100-year) floodplain. The study was prepared in accordance with 23 CFR, Section 650.

PROJECT DESCRIPTION

This project proposes to replace the existing San Jose Creek Bridges (Br No 51-0163R/L) that were originally constructed with reactive aggregate. The bridges are located near the City of Goleta, approximately nine miles west of Santa Barbara, in Santa Barbara County on Route 101 at PM 21.6.

The project considers the No-Build and three build alternatives. All the build alternatives propose to replace the northbound and southbound bridges with one single span structure. All temporary and permanent construction work will be performed within the existing state right of way.

The City of Goleta proposes to construct a bike/pedestrian path along the west channel bank of the San Jose Creek Bridge. The potential impact as result of the bike/pedestrian path through the Caltrans R/W was assessed.

FLOODPLAIN BACKGROUND

The San Jose Creek floodplain stretches from the Santa Ynez Mountains north of Route 101 to immediately upstream of Route 217 where the San Jose Creek joins the San Pedro Creek. A floodway is designated on the FEMA Flood Insurance Rate Map (FIRM) and runs the entire length of San Jose Creek and ends just downstream of the Route 217 Bridge. The confluence of the San Jose and San Pedro Creeks is located approximately 1.7 miles downstream of the Route 101 Bridges.

Two bridges are located near the Route 101 Bridges; the Calle Real Bridge is approximately 110 feet upstream and the Union Pacific Railroad (UPRR) Bridge is approximately 130 feet downstream of the Route 101 Bridges. The Calle Real Bridge,

replaced in 2002, along with the existing Route 101 Bridges contain the base flood within their channel banks while minor flooding occurs at the UPRR Bridge.

The 100-year peak discharge is 5,400 cfs at the San Jose Creek Route 101 Bridges reported in the FEMA Flood Insurance Study (FIS), dated November 4, 2015.

FLOODPLAIN ENCROACHMENTS

Federal Regulations

CFR 23, Section 650, defines significant encroachments and risks for the base floodplain. An encroachment is any work done within the limits of the floodplain. A significant encroachment is one, which could significantly interrupt a route required for emergency operations, pose a significant risk, or significantly impact natural and beneficial floodplain values. Risks are consequences of encroachments that could lead to flooding which would cause property loss or hazard to life.

Encroachments

This project will replace the left and right San Jose Creek Bridges with a single structure. The upstream right bridge constructed in 1961 and the downstream left structure built in 1946 were both widened in 1989. The existing right structure is 103.3 feet long (measured along the Route 101 Centerline) and 54.8 feet wide and the existing left bridge is 92.9 feet long and 57.8 feet wide. The proposed bridge is 100.8 feet long (measured along the Route 101 Centerline) and 117.5 feet wide.

The existing bridges are supported by two bents each with 12 to 14 columns per bent for a total of 52 columns. All piers are 18 inches in diameter. The proposed bridge will remove all the existing columns and replace them with a single span structure (PC/PS Concrete Box Beam). The existing channel banks are slope paved at 1.5:1. The project proposes to remove the slope paving allowing less steep channel bank slopes and a greater cross-sectional area.

The City of Goleta proposes to construct a 12-foot wide pedestrian/bike path on the west channel bank. The pedestrian/bike path causes only a minor change in cross-sectional area that will not have a significant impact to the water surface elevation.

CONCLUSION

None of the proposed work will create a significant encroachment. The removal of the existing bents and slope paving will result in an increase in cross-sectional area within San Jose Creek. The reduction in blocked cross-sectional area will decrease the water

surface elevation, but only within the project area. The proposed bridge replacement project will have no significant negative impact on the existing floodplain or floodway. It is anticipated the City of Goleta's proposed pedestrian/bike path will not result in significant negative impacts on the existing floodplain or floodway.


REFERENCES

- Federal Code of Regulations 23, Section 650
- FEMA Flood Insurance Study, Santa Barbara County, November 4, 2015
- FEMA Flood Insurance Rate Map, Santa Barbara County, Panel 1354G, December 4, 2012

ATTACHMENT

- FEMA Flood Insurance Rate Map, Santa Barbara County, Panel 1354G, December 4, 2012

PREPARED BY:



Kristen Inkrott, P.E.
Caltrans District 5 Hydraulics

2/4/2020
Date