

## **Green Valley Road Bridge Scour Repair**

The County of Santa Cruz is proposing to repair the existing scour beneath the southern abutment on the Green Valley Road Bridge over Green Valley Creek at post mile 4.1. The bridge is a single span concrete earth infill arch bridge with concrete cut off walls. During the winter storms of 2016, stream flow has undermined the southern abutment along with the concrete cut off walls compromising the stability of the bridge. The bridge is scheduled for full replacement in 2018 and is in the design phase now.

Caltrans performs inspections on County maintained bridges and reports back to the County the conditions and any work that may be required. Bridges are given a sufficiency rating between 0 and 100 with 100 being a new bridge built up to current standards. Caltrans has given this bridge a sufficiency rating of 19.5 and considers the bridge to be structurally deficient. A rating below 50 makes the bridge eligible for Federal funds for replacement. The County has programmed the bridge into the Federal Highway Bridge Program (HBP) for replacement and has been using Federal funds to develop preliminary plans and environmental documents. Funds are obligated in the HBP program for right of way acquisitions and for construction.

A recent inspection completed in July by Caltrans hydraulic branch has determined the bridge to be scour critical 2. "bridge is scour critical; field review indicates that extensive scour has occurred at bridge foundations, which are determined to be unstable by a comparison of calculated scour and observed scour during the bridge inspection." The scour rating system rates bridges from 0-9, with a rating of 0 indicating the bridge has failed due to scour; a 9 rating is foundations on dry land above flood elevations. A rating of 2 indicates that the bridge is in critical condition, with any further degradation resulting in road closure.

The repair will consist of creating a notch in the bottom of the cut off walls to allow flow to go underneath during low flow conditions. Once this is complete, the upstream concrete rubble area and scoured abutment area will be isolated from the main channel by visqueen and sand bags or gravel berm. Forms shall be placed approximately 1 foot from the face of the abutment to seal off the undermined area. A concrete grout will then be pumped to fill the undermined areas and into the broken concrete upstream of the abutment. After the concrete has set the sand bags and visqueen shall be removed. The pipe will be left in place to act as a low flow channel for the creek.