Central Valley Regional Water Quality Control Board

31 July 2020

Sukwinder Bajwa
California Department of Transportation, District 3
703 B Street
Marysville, CA 95901

ORDER AMENDING CLEAN WATER ACT SECTION 401 WATER QUALITY CERTIFICATION AND ORDER; CALIFORNIA DEPARTMENT OF TRANSPORTATION, DISTRICT 3, BRIDGE RETROFIT PROJECT ON SAC-05 (03-3F090) (WDID NO. 5A34CR00717A1), SACRAMENTO COUNTY

This Order responds to the 20 July 2020 request for an amendment of the Bridge Retrofit Project on SAC-05 (03-3F090) Section 401 Water Quality Certification (WDID No. 5A34CR00717). The original Water Quality Certification (Certification) was issued on 10 May 2018. The requested amendment is hereby approved, and the original Certification is therefore amended as described below. Please attach this document to the original Certification.

AMENDMENT:

California Department of Transportation, District 3 is requesting an amendment to the Section 401 Water Quality Certification and Order to place three temporary work trestles, instead of the use of temporary rock work pads, for construction equipment access and operation, resulting in a decrease of 0.356 acre of temporary impacts. It is also proposed that the trestles will be left in place until the following season to avoid additional impacts Therefore, Section IV; Section VII, Table 2; Attachment B, Table 2 are amended in underline format below.

IV. Project Description

At the Mokelumne River bridges, the bridge substructure is proposed to be retrofit by replacing the existing multi-column bents with new “outrigger” bents and constructing new bent caps which will support the existing bridge deck. Each of the two bridges is supported by 20 existing bents (40 bents total). Each new outrigger bent will be supported by two new pile shafts comprised of 4-ft diameter “cast in steel shell” concrete piles (a total of 40 outrigger bents supported by a total of 80 new pile shafts). Once the new outrigger bent systems have been constructed, the columns of the existing bents will be removed.

The outrigger bent system will be supported by 4-ft diameter (48-inch) Cast-in-Steel-Shell (CISS) piles (two columns per bent). CISS piles are open-ended

concrete piers fabricated within a steel shell. Cast-in-steel-shell concrete piles are driven pipe piles that are filled with cast-in-place reinforced concrete no deeper than the shell tip elevation. CISS piles provide excellent lateral resistance and are a good seismic retrofit option under the following conditions: 1) where poor soil conditions exist, such as soft bay mud deposits or loose sands; 2) if liquefaction or scour potential exists that will cause long unsupported pile lengths; or 3) if large lateral soil movements or flows are anticipated from a seismic event.

Pile driving equipment is proposed to access the Mokelumne River Bridges Environmental Study Limits (ESL) and construction site on a tracked crane or tracked long-boomed vehicle along the existing levee-access roads within the ESL.

Construction of the new outrigger bent systems will require the construction of temporary false-work including temporary support structures for formwork used to mold concrete to form a desired shape, scaffolding to give workers access to the structure being constructed, and shoring which is temporary structural reinforcement used during repairs. Concrete pouring will be required during CISS pile installation (inside space is filled with concrete and steel) and during the construction of the new outrigger bent caps.

Once the new outrigger bent systems have been constructed, the columns of the existing bents will be removed by cutting the base of the existing columns off at approximately 2 feet below ground level.

Bents 4 and 5 of each of the Mokelumne River bridges (western and eastern spans) are located below the top of the Mokelumne River levee, near or below the ordinary high-water mark. Construction equipment access and operation at Bents 4 and 5 is proposed to be facilitated with the use of three temporary trestles, rather than a temporary rock causeway (work-pad): one on the east side, one down the middle, and one on the west side of the bridge. There will be a total of 60 24” pipe pile installed by vibratory means, with the exception of two piles which will be impact driven in order to verify bearing capacity. The two trestle piles that will be impact driven will receive a sound attenuation system and hydro-acoustical monitoring. Installation of the trestles started on 15 July 2020 with Central Valley Regional Water Quality Control Board approval. Temporary impacts to in-water habitat for covered species will be reduced from 0.36 acre to 0.004 acre. It is also proposed that the trestle be left in until the following season to avoid additional impacts. No in-water work will occur from the trestles outside of the July 15-October 15 window. Trestle pipe pile removal will be by vibratory means with the use of a crane and vibratory hammer.

Substructure Retrofit - Abutment Retrofit

The abutment retrofit will consist of “abutment strengthening”. The most essential retrofit of abutments is enhancement of its strength. Retrofit is conducted by enlarging the abutment footing and constructing new piles. The new piles are constructed and doweled to the existing abutment foundation along the abutment axis, providing a significant improvement to transverse strength (reduces shearing forces).

Similar to the outrigger bent system, Mokelumne River bridges abutments are proposed to be retrofitted by adding two 4'-diameter CISS piles at the outside of each of the existing abutments (2 additional CISS piles per abutment; 8 total CISS piles at abutments) and constructing new abutment pile caps. Similar to a bent cap, the term "pile cap" may be used to describe a reinforced concrete slab constructed on top of a group of foundation piles to evenly displace or spread the load they are to carry. The abutment pile caps will resemble the appearance of the proposed outrigger bent caps. The new abutment pile caps will be tied to the existing abutment diaphragm using a "dowel drill and bond" technique (dowels bonded within 12-inch deep coreholes), essentially widening the existing abutment pile cap.

Abutment Retrofit Construction Methods:
Like the installation of CISS piles for the proposed outrigger bent system, installation of 4'-diameter CISS piles for abutment retrofit will be installed by pile-driving. The piles may be initially placed ("stabbed") using a vibratory hammer however, the ultimate CISS pile driving is accomplished using an impact pile driving hammer. For preliminary assessment it is assumed that a hammer similar to Delmag D36-32 or APE D100-42 may be used to drive the CISS piles. Pile driving equipment is proposed to access the Mokelumne River Bridges ESL and construction site on a tracked crane or tracked long-boomed vehicle along the existing levee-access roads within the ESL. The construction of the new concrete pile cap abutment extension will require soil excavation, the construction of temporary false-work including wooden forms, and concrete pouring.

VII. Description of Direct Impacts to Waters of the State

Dewatering will occur within the Project area. Wet concrete will be placed into wetlands and the stream channel habitat after the area has been completely dewatered. Total Project fill/excavation quantities for all impacts are summarized in Table 2. Permanent impacts are categorized as those resulting in a physical loss in area and also those degrading ecological condition.

Table 2: Total Project Fill/Excavation Quantity

Aquatic Resource Type	Temporary Impact[1]			Permanent Impact					
				Physical Loss of Area			Degradation of Ecological Condition		
	Acres	CY[2]	LF[2]	Acres	CY	LF	Acres	CY	LF
Stream Channel	0.004		32	0.002	14.89	32			
Wetland	3.72		798	0.013		184			

[1] Includes only temporary direct impacts to waters of the state and does not include upland areas of temporary disturbance which could result in a discharge to waters of the state.
[2] Cubic Yards (CY); Linear Feet (LF)

Attachment B

Receiving Waters, Impacts and Mitigation Information

Individual Direct Impact Locations

The following tables show individual impacts.

Table 2: Individual Permanent Fill/Excavation Impact Information

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Site ID	Latitude	Longitude	Indirect Impact Requiring Mitigation		Direct Impact Duration	Dredge			Fill/Excavation			
			Yes	No		Acres	Cubic Yards	Linear Feet	Acres	Cubic Yards	Linear Feet	
Wetland	38.255	-121.448	☐	☒	Temporary				3.72		798	
					Permanent				0.013		184	
Streambed Un-Vegetated	38.255	-121.448	☐	☒	Temporary				0.004		32	
					Permanent				0.002	14.89	32	

CENTRAL VALLEY WATER BOARD CONTACT:

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WATER QUALITY CERTIFICATION:

I hereby issue an Order amending the existing Clean Water Act Section 401 Water Quality Certification and Order for Bridge Retrofit Project on SAC-05 (03-3F090) (WDID No. 5A34CR00717A1). All other conditions and provisions of the original Water Quality Certification remain in full force and effect, except as modified based on the conditions of this Order. Failure to comply with the terms and conditions of the original Water Quality Certification, previously approved amendments, or of this Order may result in suspension or revocation of the Water Quality Certification.

Original Signed by Clint Snyder (AEO) for 7/31/20
PATRICK PULUPA, Executive Officer Date
Central Valley Regional Water Quality Control Board

DLW: db

cc
via email: Sam Ziegler, U.S. EPA, Region 9, San Francisco
Water Quality Certification Program, SWRCB, Sacramento
Michele Lukkarila, California Department of Transportation, District 3, Sacramento