



DEPARTMENT OF TRANSPORTATION  
Structure Maintenance & Investigations

Bridge Number : 24C0004  
Facility Carried: DILLARD RD  
Location : 0.2 MI S OF S.R. 16  
City :  
Inspection Date : 04/29/2010

## Bridge Inspection Report

Inspection Type  
 Routine  FC  Underwater  Special  Other

STRUCTURE NAME: COSUMNES RIVER

### CONSTRUCTION INFORMATION

Year Built : 1964                      Skew (degrees): 0  
Year Widened: N/A                      No. of Joints : 0  
Length (m) : 106.7                      No. of Hinges : 0

Structure Description: RC T-girders (4), continuous on RC piers, and on RC diaphragm abutments

Span Configuration : 15.5 m, 3 @ 25 m, 15.5 m

### LOAD CAPACITY AND RATINGS

Design Live Load: MS-18 OR HS-20  
Inventory Rating: 42.1 metric tonnes                      Calculation Method: LOAD FACTOR  
Operating Rating: 69.7 metric tonnes                      Calculation Method: LOAD FACTOR  
Permit Rating : P P P P P  
Posting Load : Type 3: Legal                      Type 3S2: Legal                      Type 3-3: Legal

### DESCRIPTION ON STRUCTURE

Deck X-Section: 0.3 m br, 0.6 m sw, 8.5 m, 0.6 m sw, 0.3 m br  
Total Width: 10.4 m                      Net Width: 8.5 m                      No. of Lanes: 2  
Rail Description: Type 2                      Rail Code : 1000  
Min. Vertical Clearance: Unimpaired

### DESCRIPTION UNDER STRUCTURE

Channel Description: Earth lined, with light rock riprap on abutment slopes.

### CONDITION TEXT

#### ACCESS

During this inspection water of unknown depth was flowing swiftly under Spans 2, 3, and 1/3 of 4. The depth and velocity of the water in the channel prevented a wade and probe inspection of Piers 3 and 4. Additionally the AC overlay on the bridge deck prevented a complete deck inspection.

#### REVISIONS

#### CONDITION OF STRUCTURE

#### DECK AND RAIL:

There is a 0.5" AC chip seal which currently covers approximately 99% of the deck surface.

The AC overlay was in good condition (free of depressions, potholes and significant cracking) at the time of this inspection.

#### SUPERSTRUCTURE:

There are transverse cracks located in both the right and left overhangs at each pier. These cracks have light efflorescence and are spaced between 6"-12" apart. This condition is caused by negative moment bending. See attached photo.

**CONDITION TEXT**

The efflorescence indicates water is seeping through the slab and is dissolving the calcium carbonate in the cement portion of the concrete. At this time the severity and quantity of the condition listed above does not warrant corrective action.

**SUBSTRUCTURE:**

The pier walls and both abutments were inspected and no structural defects (cracking and spalling) were found at the time of this investigation.

**SCOUR**

The report dated 10/11/2006 determined this structure is Scour Critical (NBI Item 113 code of 3). A Scour Plan of Action dated 09/28/2009 has been completed. On this date a channel cross section could not be taken due to the velocity of the water in the channel. As a result a comparison could not be made to the critical elevations in the previous stream section dated 10/11/2009.

There is 1' of vertical exposure along the entire length of the Pier 2 pile cap on the Span 2 side. No undermining was observed during this inspection. This is the first documentation of scour at this location. At this time no corrective action is required; however, the local agency should monitor this location during high flow events and provide scour countermeasures as deemed necessary. See attached photo.

Due to the depth and velocity of the water in the channel during this inspection, a wade and probe inspection of Piers 3 and 4 could not be conducted. The 2007 report documented 2' of vertical exposure along the entire length of the Pier 3 pile cap. The 2009 Scour Plan of action documents rock rip rap placed under and around the Pier 3 pile cap as a scour countermeasure. This countermeasure was also not visible for inspection.

**SAFE LOAD CAPACITY**

Load ratings were calculated in 1978 with the Bridge Design System program using the Load Factor method with 0" of AC. As noted under DECK AND RAIL the deck currently has 0.5" of AC. The structure was not rerated due to the addition of 0.5" of AC because the previous Operating Rating was 2.15 and the additional dead load caused by the 0.5" of AC will not significantly decrease the ratings. This bridge is able to sustain all the State legal and permit truck loads.

Inventory Rating = 42.1 metric tons, Rating Factor: 1.30  
 Operating Rating = 69.7 metric tons, Rating Factor: 2.15  
 Permit ratings: P P P P P, Rating Factor = 1.22

**WORK COMPLETED**

A Scour Plan of Action dated 09/28/2009 is on file.

| <b><u>ELEMENT INSPECTION RATINGS</u></b> |  | Env | Total | Units | Qty in each Condition State |       |       |       |       |
|--|--|-----|-------|-------|-----------------------------|-------|-------|-------|-------|
| F#Elem                                   | Element Description                          |     |       |       | Qty                         | St. 1 | St. 2 | St. 3 | St. 4 |
| 101 13                                   | Concrete Deck - Unprotected w/<br>AC Overlay | 2   | 910   | sq.m. | 910                         | 0     | 0     | 0     | 0     |
| 101 110                                  | Reinforced Conc Open<br>Girder/Beam          | 2   | 427   | m.    | 427                         | 0     | 0     | 0     | 0     |
| 101 210                                  | Reinforced Conc Pier Wall                    | 2   | 41    | m.    | 41                          | 0     | 0     | 0     | 0     |
| 101 215                                  | Reinforced Conc Abutment                     | 2   | 21    | m.    | 21                          | 0     | 0     | 0     | 0     |
| 101 225                                  | Unpainted Steel Submerged Pile               | 2   | 52    | ea.   | 52                          | 0     | 0     | 0     | 0     |
| 101 333                                  | Other Bridge Railing                         | 2   | 226   | m.    | 226                         | 0     | 0     | 0     | 0     |
| 101 361                                  | Scour  | 2   | 1     | ea.   | 0                           | 1     | 0     | 0     | 0     |

WORK RECOMMENDATIONS - NONE

Inspected By : N.Semander/AR.Nojumi



Ricardo Fuentes  
Ricardo L. Fuentes (Registered Civil Engineer)





**STRUCTURE INVENTORY AND APPRAISAL REPORT**

\*\*\*\*\* IDENTIFICATION \*\*\*\*\*

(1) STATE NAME- CALIFORNIA 069  
 (8) STRUCTURE NUMBER 24C0004  
 (5) INVENTORY ROUTE(ON/UNDER)- ON 1400V5640  
 (2) HIGHWAY AGENCY DISTRICT 03  
 (3) COUNTY CODE 067 (4) PLACE CODE 00000  
 (6) FEATURE INTERSECTED- COSUMNES RIVER  
 (7) FACILITY CARRIED- DILLARD RD  
 (9) LOCATION- 0.2 MI S OF S.R. 16  
 (11) MILEPOINT/KILOMETERPOINT 0  
 (12) BASE HIGHWAY NETWORK- PART OF NET 1  
 (13) LRS INVENTORY ROUTE & SUBROUTE 000000V56400  
 (16) LATITUDE 38 DEG 29 MIN 27 SEC  
 (17) LONGITUDE 121 DEG 09 MIN 39 SEC  
 (98) BORDER BRIDGE STATE CODE % SHARE %  
 (99) BORDER BRIDGE STRUCTURE NUMBER

\*\*\*\*\* STRUCTURE TYPE AND MATERIAL \*\*\*\*\*

(43) STRUCTURE TYPE MAIN:MATERIAL- CONCRETE CONT  
 TYPE- TEE BEAM CODE 204  
 (44) STRUCTURE TYPE APPR:MATERIAL- OTHER/NA  
 TYPE- OTHER/NA CODE 000  
 (45) NUMBER OF SPANS IN MAIN UNIT 5  
 (46) NUMBER OF APPROACH SPANS 0  
 (107) DECK STRUCTURE TYPE- CIP CONCRETE CODE 1  
 (108) WEARING SURFACE / PROTECTIVE SYSTEM:  
 A) TYPE OF WEARING SURFACE- BITUMINOUS CODE 6  
 B) TYPE OF MEMBRANE- NONE CODE 0  
 C) TYPE OF DECK PROTECTION- NONE CODE 0

\*\*\*\*\* AGE AND SERVICE \*\*\*\*\*

(27) YEAR BUILT 1964  
 (106) YEAR RECONSTRUCTED 0000  
 (42) TYPE OF SERVICE: ON- HIGHWAY 1  
 UNDER- WATERWAY 5  
 (28) LANES:ON STRUCTURE 02 UNDER STRUCTURE 00  
 (29) AVERAGE DAILY TRAFFIC 3300  
 (30) YEAR OF ADT 2007 (109) TRUCK ADT 10 %  
 (19) BYPASS, DETOUR LENGTH 6 KM

\*\*\*\*\* GEOMETRIC DATA \*\*\*\*\*

(48) LENGTH OF MAXIMUM SPAN 25.0 M  
 (49) STRUCTURE LENGTH 106.7 M  
 (50) CURB OR SIDEWALK: LEFT 0.6 M RIGHT 0.6 M  
 (51) BRIDGE ROADWAY WIDTH CURB TO CURB 8.5 M  
 (52) DECK WIDTH OUT TO OUT 10.4 M  
 (32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 10.7 M  
 (33) BRIDGE MEDIAN- NO MEDIAN 0  
 (34) SKEW 0 DEG (35) STRUCTURE FLARED NO  
 (10) INVENTORY ROUTE MIN VERT CLEAR 99.99 M  
 (47) INVENTORY ROUTE TOTAL HORIZ CLEAR 8.5 M  
 (53) MIN VERT CLEAR OVER BRIDGE RDWY 99.99 M  
 (54) MIN VERT UNDERCLEAR REF- NOT H/RR 0.00 M  
 (55) MIN LAT UNDERCLEAR RT REF- NOT H/RR 0.0 M  
 (56) MIN LAT UNDERCLEAR LT 0.0 M

\*\*\*\*\* NAVIGATION DATA \*\*\*\*\*

(38) NAVIGATION CONTROL- NO CONTROL CODE 0  
 (111) PIER PROTECTION- CODE  
 (39) NAVIGATION VERTICAL CLEARANCE 0.0 M  
 (116) VERT-LIFT BRIDGE NAV MIN VERT CLEAR M  
 (40) NAVIGATION HORIZONTAL CLEARANCE 0.0 M

\*\*\*\*\* SUFFICIENCY RATING \*\*\*\*\*

SUFFICIENCY RATING = 79.8  
 STATUS  
 HEALTH INDEX 100.0  
 PAINT CONDITION INDEX = N/A

\*\*\*\*\* CLASSIFICATION \*\*\*\*\*

(112) NBIS BRIDGE LENGTH- YES Y  
 (104) HIGHWAY SYSTEM- NOT ON NHS 0  
 (26) FUNCTIONAL CLASS- MINOR ARTERIAL RURAL 06  
 (100) DEFENSE HIGHWAY- NOT STRAHNET 0  
 (101) PARALLEL STRUCTURE- NONE EXISTS N  
 (102) DIRECTION OF TRAFFIC- 2 WAY 2  
 (103) TEMPORARY STRUCTURE-  
 (105) FED.LANDS HWY- NOT APPLICABLE 0  
 (110) DESIGNATED NATIONAL NETWORK - NOT ON NET 0  
 (20) TOLL- ON FREE ROAD 3  
 (21) MAINTAIN- COUNTY HIGHWAY AGENCY 02  
 (22) OWNER- COUNTY HIGHWAY AGENCY 02  
 (37) HISTORICAL SIGNIFICANCE- NOT ELIGIBLE 5

\*\*\*\*\* CONDITION \*\*\*\*\*

(58) DECK 7  
 (59) SUPERSTRUCTURE 7  
 (60) SUBSTRUCTURE 6  
 (61) CHANNEL & CHANNEL PROTECTION 7  
 (62) CULVERTS N

\*\*\*\*\* LOAD RATING AND POSTING \*\*\*\*\*

(31) DESIGN LOAD- MS-18 OR HS-20 5  
 (63) OPERATING RATING METHOD- LOAD FACTOR 1  
 (64) OPERATING RATING- 69.7  
 (65) INVENTORY RATING METHOD- LOAD FACTOR 1  
 (66) INVENTORY RATING- 42.1  
 (70) BRIDGE POSTING- EQUAL TO OR ABOVE LEGAL LOADS 5  
 (41) STRUCTURE OPEN, POSTED OR CLOSED-  
 DESCRIPTION- OPEN, NO RESTRICTION A

\*\*\*\*\* APPRAISAL \*\*\*\*\*

(67) STRUCTURAL EVALUATION 6  
 (68) DECK GEOMETRY 4  
 (69) UNDERCLEARANCES, VERTICAL & HORIZONTAL N  
 (71) WATER ADEQUACY 9  
 (72) APPROACH ROADWAY ALIGNMENT 6  
 (36) TRAFFIC SAFETY FEATURES 1000  
 (113) SCOUR CRITICAL BRIDGES 3

\*\*\*\*\* PROPOSED IMPROVEMENTS \*\*\*\*\*

(75) TYPE OF WORK- CODE  
 (76) LENGTH OF STRUCTURE IMPROVEMENT M  
 (94) BRIDGE IMPROVEMENT COST  
 (95) ROADWAY IMPROVEMENT COST  
 (96) TOTAL PROJECT COST  
 (97) YEAR OF IMPROVEMENT COST ESTIMATE  
 (114) FUTURE ADT 4225  
 (115) YEAR OF FUTURE ADT 2029

\*\*\*\*\* INSPECTIONS \*\*\*\*\*

(90) INSPECTION DATE 04/10 (91) FREQUENCY 24 MO  
 (92) CRITICAL FEATURE INSPECTION: (93) CFI DATE  
 A) FRACTURE CRIT DETAIL- NO MO A)  
 B) UNDERWATER INSP- NO MO B)  
 C) OTHER SPECIAL INSP- NO MO C)



# COSUMNES RIVER

0.2 MI S OF S.R. 16

04/29/2010 [AAAE]

24C0004

## 107 - PHOTO-SUPER DAMAGE/DETERIORATION



Photo No. 1

Typical transverse overhang soffit cracks found at each pier

## 116 - PHOTO-SUB SCOUR/EROSION



Photo No. 2

1' vertical expose along the entire length of the Pier 2 footing on the Span 2 side