



DEPARTMENT OF TRANSPORTATION
Structure Maintenance & Investigations

Bridge Number : 25C0004
Facility Carried: MT MURPHY RD
Location : 0.1 MI E OF SR 49
City :
Inspection Date : 01/05/2011

Bridge Inspection Report

Inspection Type
 Routine FC Underwater Special Other

STRUCTURE NAME: SOUTH FORK AMERICAN RIVER

CONSTRUCTION INFORMATION

Year Built : 1915 Skew (degrees): 0
Year Widened: N/A No. of Joints : 6
Length (m) : 149 No. of Hinges : 0

Structure Description: Approach Spans (Span 1, 2, 4, 5 and 6): RC deck on RC beams on RC abutments and RC piers, all on spread footings.

Main Span (Span 3): RC deck on rolled steel stringers on rolled steel floor beams on pinned and riveted steel through truss on RC piers on spread footings.

Span Configuration : 20.8 m, 17.6 m, 49.4 m (truss); 20 m, 19.8 m, 19.5 m

LOAD CAPACITY AND RATINGS

Design Live Load: UNKNOWN

Inventory Rating: 2.7 metric tonnes

Calculation Method: ALLOWABLE STRESS

Operating Rating: 13.6 metric tonnes

Calculation Method: ALLOWABLE STRESS

Permit Rating : XXXXX

Posting Load : Type 3: 14 U.S. Tons

Type 3S2: 21 U.S. Tons

Type 3-3: 27 U.S. Tons

DESCRIPTION ON STRUCTURE

Deck X-Section: (Truss) 0.12 m r, 0.15 m cu, 3.2 m, 0.15 m cu, 0.12 m r; (Appr) 0.67 m r, 0.15 m cu, 4.1 m, 0.15 m cu, 0.67 m r

Total Width: 3.7 m

Net Width: 3.2 m

No. of Lanes: 1

Rail Description: Timber rail (truss); Concrete (approaches).

Rail Code : 0000

Min. Vertical Clearance: 4.190

DESCRIPTION UNDER STRUCTURE

Channel Description: Flat. Rock lined; rapid flow.

CONDITION TEXT

REVISIONS

Item #28c, Speed, a traffic speed of 5mph was entered based on nearby speed limit signs.

Item #29, Recent ADT, was revised to 280 based on 2009 traffic counts by the local agency.

Item #108a, Type of Wearing Surface, has been changed from 1:Concrete to 0:None.

ELI Element #359, Soffit of Concrete Decks and Slabs Smart Flag, a quantity of 1 each was added in State 2 due to existing field conditions.

CONDITION OF STRUCTURE

INSPECTION ACCESS

Reference nomenclature in this report is as follows: Abutment 1 is on the left side looking downstream.

The river was flowing rapidly with a depth of about 6' across the full width of Span 3 and 25' into Span 2. All elements above water were inspected.

CONDITION TEXT

DECK AND RAILS

The surface of the approach slabs are scaled and abraded with shallow spalls and edge spalls at the joints, probably caused by the spoked wheels with a metal band surface of the horse and carriage attraction at the local park. There are also 0.020" to 0.080" wide transverse cracks throughout the deck (see photo #3 and #4). These cracks are mirrored on the soffit with efflorescence (see photo #5). This condition has been reported since November 25, 1991.

The bridge does not have an identification marker.

SUPERSTRUCTURE

The lower double angle of each lateral overhead bracing frame has some level of vehicle impact damage (see photo #6). The damage generally consists of out-of-plane local deformations up to 2". This damage was first noted in the November 25, 1991, inspection.

Soffit cracks appear about 6" from both edges of the deck in Span 1. No rust stains were noted. This damage was first noted in the August 1, 2008, inspection.

There is about 2' of exposed rebar in the soffit of Span 6 (see photo #8). The bar appears to have inadequate concrete cover and does not warrant repairs at this time.

SUBSTRUCTURE

There is a diagonal crack > 0.080" wide appears in the Abutment 1 right wingwall. The crack is 6' from the end of the wall and extends down to ground level. A similar crack also appears in the left wingwall. This condition was first noted during the October 12, 1995, inspection.

There is spalling of the end diaphragm at Pier 4. The concrete is missing on the bottom 6" along three-quarters of the length of the diaphragm. The bottom longitudinal reinforcing steel is exposed, but does not appear to be rusting (see photo #9). No cracks could be seen in the adjacent area or soffit. A 1995 work order to repair this spall remains incomplete.

There is a vertical, meandering crack along Abutment 7 and adjacent right side wingwall. The crack is 1" wide with 1.25" offset, running 4.5' long. This condition was first noted during the October 12, 1995, inspection.

PAINT CONDITION

Chipped paint with rust, blush rust and scattered areas of blanket rust were noted on the bottom chord, stringers and floor beams (see photo #7 and #10). There is random freckled rust on the remaining steel members.

SCOUR

The footings at Piers 3 & 4 were not exposed. Scour countermeasures in the form of tied blocks have been placed around Pier 3 located about 3' from the sides of the pier.

The footing at Pier 2 is exposed 18" along its entire length. The footing was dry at the time of investigation and is buried in heavy vegetation. There were no signs of undermining.

SIGNS

There are signs posted at both approaches indicating the following:

ONE LANE BRIDGE

and,

14 TONS PER VEHICLE

21 TONS PER SEMI-TRAILER COMBINATION

27 TONS PER TRUCK AND FULL TRAILER

CONDITION TEXT

There are signs on top of the truss indicating:
VERTICAL CLEARANCE 13'- 6"

SAFE LOAD CAPACITY
EXISTING POSTING

This structure was posted by an Order from the Director of Transportation, dated September 25, 1980 for the following load restrictions.

14 TONS PER VEHICLE
21 TONS PER SEMI-TRAILER COMBINATION
27 TONS PER TRUCK AND FULL TRAILER

RECOMMENDED POSTING

Retain the existing posting mentioned above.

MISCELLANEOUS

Routine roadway and elevation photographs were taken during this investigation (see photo #1 and #2).

ELEMENT INSPECTION RATINGS

Elem No.	Element Description	Env	Total Qty Units	Qty in each Condition State				
				St. 1	St. 2	St. 3	St. 4	St. 5
12	Concrete Deck - Bare	2	550 sq.m.	0	550	0	0	0
110	Reinforced Conc Open Girder/Beam	2	199 m.	0	199	0	0	0
121	Painted Steel Bottom Chord Thru Truss	2	198 m.	0	0	198	0	0
126	Painted Steel Thru Truss (excl. bottom chord)	2	198 m.	0	0	198	0	0
152	Painted Steel Floor Beam	2	42 m.	0	0	42	0	0
205	Reinforced Conc Column or Pile Extension	2	6 ea.	6	0	0	0	0
210	Reinforced Conc Pier Wall	2	12 m.	12	0	0	0	0
215	Reinforced Conc Abutment	2	12 m.	7	5	0	0	0
304	Open Expansion Joint	2	18 m.	12	6	0	0	0
311	Moveable Bearing (roller, sliding, etc.)	2	2 ea.	2	0	0	0	0
313	Fixed Bearing	2	2 ea.	2	0	0	0	0
331	Reinforced Conc Bridge Railing	2	192 m.	192	0	0	0	0
332	Timber Bridge Railing	2	99 m.	99	0	0	0	0
358	Deck Cracking	2	1 ea.	0	1	0	0	0
359	Soffit of Concrete Deck or Slab	2	1 ea.	0	1	0	0	0

WORK RECOMMENDATIONS

RecDate: 08/02/2006

Action : Bridge-Paint ID

Work By: LOCAL AGENCY

Status : PROPOSED

EstCost:

StrTarget: 2 YEARS

DistTarget:

EA:

Place bridge number on the face of the right barrier at Abutment 1.

RecDate: 03/18/2001

Action : Undefined Work

Work By: LOCAL AGENCY

Status : PROPOSED

EstCost:

StrTarget: 2 YEARS

DistTarget:

EA:

Repair the damaged lateral frame elements.

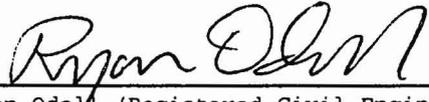
WORK RECOMMENDATIONS

RecDate: 10/12/1995
Action : Undefined Work
Work By: LOCAL AGENCY
Status : PROPOSED

EstCost:
StrTarget: 2 YEARS
DistTarget:
EA:

Remove unsound concrete on the end diaphragm at Pier 4 and recast.

Inspected By : R.Odell/M.O'leary



Ryan Odell (Registered Civil Engineer)



STRUCTURE INVENTORY AND APPRAISAL REPORT

***** IDENTIFICATION *****

(1) STATE NAME- CALIFORNIA 069
 (8) STRUCTURE NUMBER 25C0004
 (5) INVENTORY ROUTE(ON/UNDER)- ON 140000000
 (2) HIGHWAY AGENCY DISTRICT 03
 (3) COUNTY CODE 017 (4) PLACE CODE 00000
 (6) FEATURE INTERSECTED- SOUTH FK AMERICAN RIVER
 (7) FACILITY CARRIED- MT MURPHY RD
 (9) LOCATION- 0.1 MI E OF SR 49
 (11) MILEPOINT/KILOMETERPOINT 0
 (12) BASE HIGHWAY NETWORK- NOT ON NET 0
 (13) LRS INVENTORY ROUTE & SUBROUTE
 (16) LATITUDE 38 DEG 48 MIN 07 SEC
 (17) LONGITUDE 120 DEG 53 MIN 27 SEC
 (98) BORDER BRIDGE STATE CODE % SHARE %
 (99) BORDER BRIDGE STRUCTURE NUMBER

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

(43) STRUCTURE TYPE MAIN:MATERIAL- STEEL
 TYPE- TRUSS - THRU CODE 310
 (44) STRUCTURE TYPE APPR:MATERIAL- CONCRETE
 TYPE- STRINGER/MULTI-BEAM OR GDR CODE 102
 (45) NUMBER OF SPANS IN MAIN UNIT 1
 (46) NUMBER OF APPROACH SPANS 5
 (107) DECK STRUCTURE TYPE- CIP CONCRETE CODE 1
 (108) WEARING SURFACE / PROTECTIVE SYSTEM:
 A) TYPE OF WEARING SURFACE- NONE CODE 0
 B) TYPE OF MEMBRANE- NONE CODE 0
 C) TYPE OF DECK PROTECTION- NONE CODE 0

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

(27) YEAR BUILT 1915
 (106) YEAR RECONSTRUCTED 0000
 (42) TYPE OF SERVICE: ON- HIGHWAY 1
 UNDER- WATERWAY 5
 (28) LANES:ON STRUCTURE 01 UNDER STRUCTURE 00
 (29) AVERAGE DAILY TRAFFIC 280
 (30) YEAR OF ADT 2009 (109) TRUCK ADT 10 %
 (19) BYPASS, DETOUR LENGTH 32 KM

***** GEOMETRIC DATA *****

(48) LENGTH OF MAXIMUM SPAN 49.4 M
 (49) STRUCTURE LENGTH 149.0 M
 (50) CURB OR SIDEWALK: LEFT 0.2 M RIGHT 0.2 M
 (51) BRIDGE ROADWAY WIDTH CURB TO CURB 3.2 M
 (52) DECK WIDTH OUT TO OUT 3.7 M
 (32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 4.6 M
 (33) BRIDGE MEDIAN- NO MEDIAN 0
 (34) SKEW 0 DEG (35) STRUCTURE FLARED NO
 (10) INVENTORY ROUTE MIN VERT CLEAR 4.19 M
 (47) INVENTORY ROUTE TOTAL HORIZ CLEAR 3.2 M
 (53) MIN VERT CLEAR OVER BRIDGE RDWY 4.19 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 = 0.0
 STATUS STRUCTURALLY DEFICIENT
 HEALTH INDEX 61.8
 PAINT CONDITION INDEX = 50.0

***** CLASSIFICATION *****

(112) NBIS BRIDGE LENGTH- YES Y
 (104) HIGHWAY SYSTEM- NOT ON NHS 0
 (26) FUNCTIONAL CLASS- LOCAL RURAL 09
 (100) DEFENSE HIGHWAY- NOT STRAHNET 0
 (101) PARALLEL STRUCTURE- NONE EXISTS N
 (102) DIRECTION OF TRAFFIC- 1 LANE, 2 WAY 3
 (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- ELIGIBLE 2

***** CONDITION *****

(58) DECK 4
 (59) SUPERSTRUCTURE 5
 (60) SUBSTRUCTURE 7
 (61) CHANNEL & CHANNEL PROTECTION 7
 (62) CULVERTS N

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

(31) DESIGN LOAD- UNKNOWN 0
 (63) OPERATING RATING METHOD- ALLOWABLE STRESS 2
 (64) OPERATING RATING- 13.6
 (65) INVENTORY RATING METHOD- ALLOWABLE STRESS 2
 (66) INVENTORY RATING- 2.7
 (70) BRIDGE POSTING- > 39.9% BELOW 0
 (41) STRUCTURE OPEN, POSTED OR CLOSED- P
 DESCRIPTION- POSTED FOR LOAD

***** APPRAISAL *****

(67) STRUCTURAL EVALUATION 2
 (68) DECK GEOMETRY 2
 (69) UNDERCLEARANCES, VERTICAL & HORIZONTAL N
 (71) WATER ADEQUACY 8
 (72) APPROACH ROADWAY ALIGNMENT 4
 (36) TRAFFIC SAFETY FEATURES 0000
 (113) SCOUR CRITICAL BRIDGES U

***** PROPOSED IMPROVEMENTS *****

(75) TYPE OF WORK- REPLACE FOR DEFICIENC CODE 31
 (76) LENGTH OF STRUCTURE IMPROVEMENT 149 M
 (94) BRIDGE IMPROVEMENT COST \$1,285,700
 (95) ROADWAY IMPROVEMENT COST \$257,140
 (96) TOTAL PROJECT COST \$2,159,976
 (97) YEAR OF IMPROVEMENT COST ESTIMATE 2010
 (114) FUTURE ADT 2848
 (115) YEAR OF FUTURE ADT 2028

***** INSPECTIONS *****

(90) INSPECTION DATE 01/11 (91) FREQUENCY 24 MO
 (92) CRITICAL FEATURE INSPECTION: (93) CFI DATE
 A) FRACTURE CRIT DETAIL- YES 24 MO A) 12/10
 B) UNDERWATER INSP- YES 60 MO B) 06/08
 C) OTHER SPECIAL INSP- NO MO C)

SOUTH FORK AMERICAN RIVER

0.1 MI E OF SR 49

01/05/2011 [AAAM]

25C0004

100 - PHOTO-ROADWAY VIEW

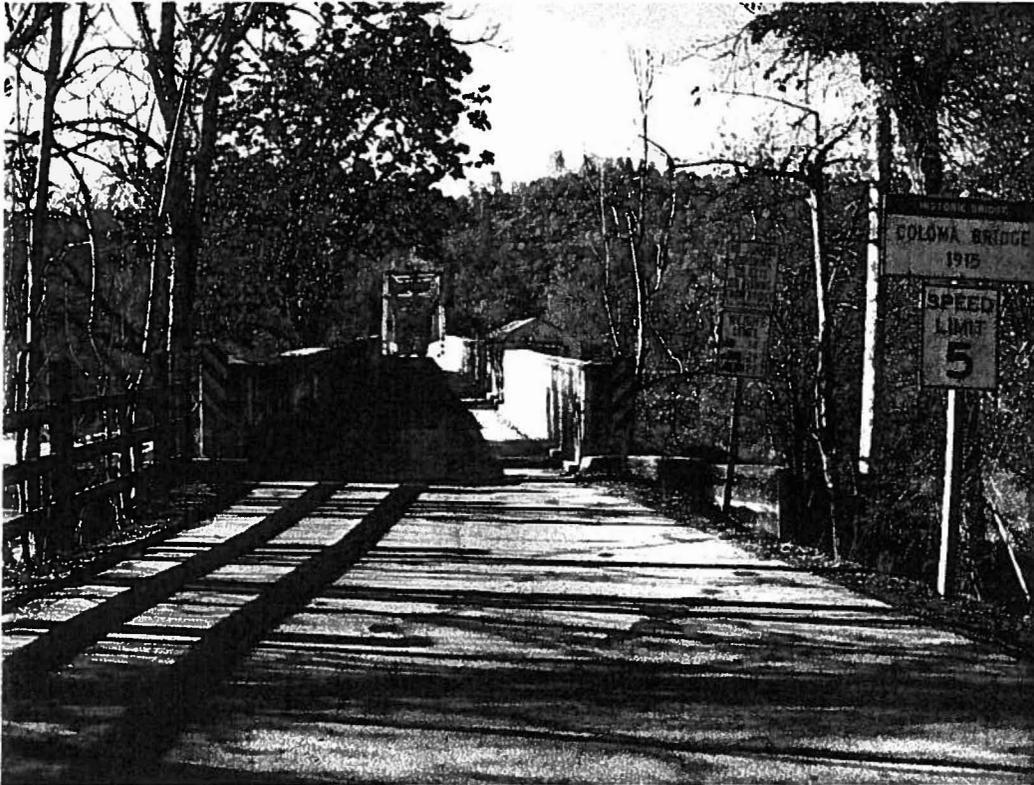


Photo No. 1

Roadway View (looking east).

101 - PHOTO-ROUTINE ELEVATION

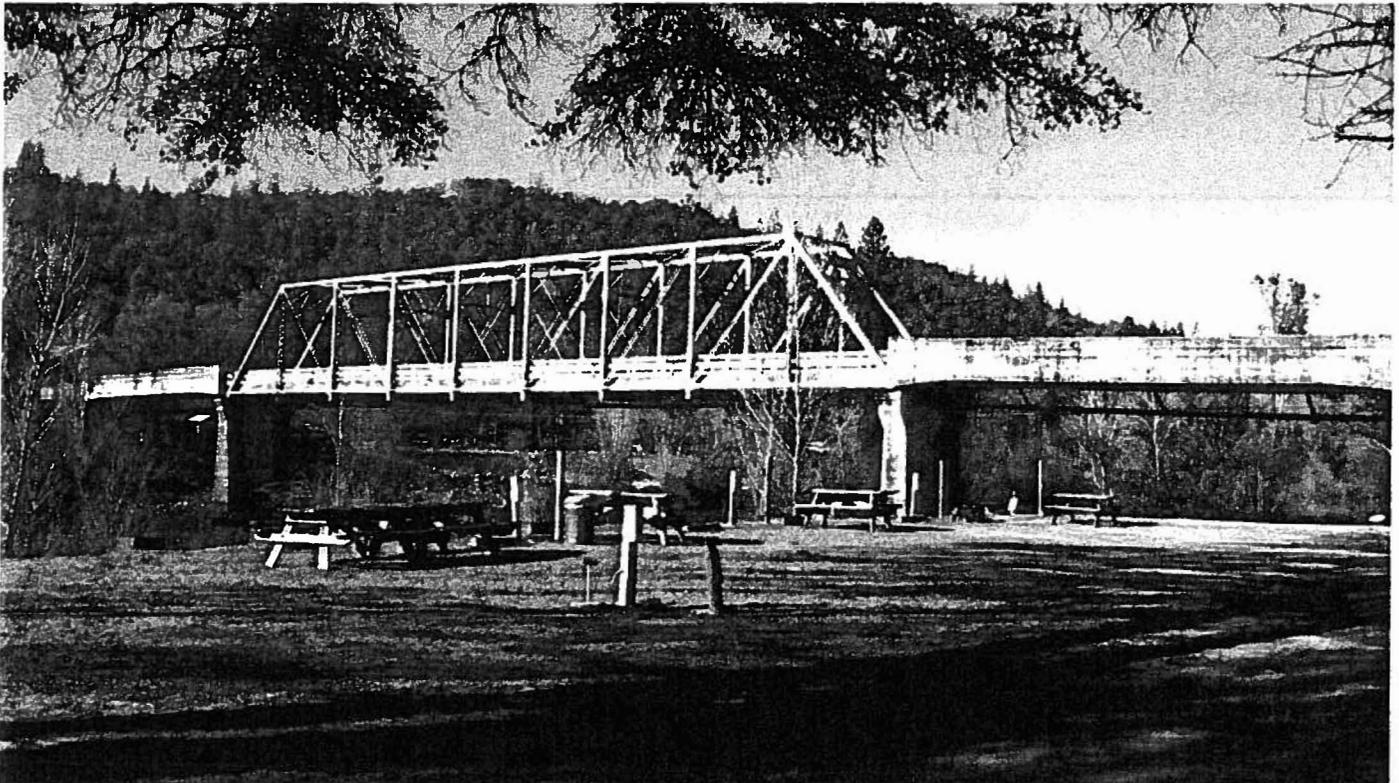


Photo No. 2

Elevation View (right side).

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102 - PHOTO-DECK DAMAGE/DETERIORATION



Photo No. 3

Abrasion, scaling, and spalls on the deck surface in Span 7.

107 - PHOTO-SUPER DAMAGE/DETERIORATION

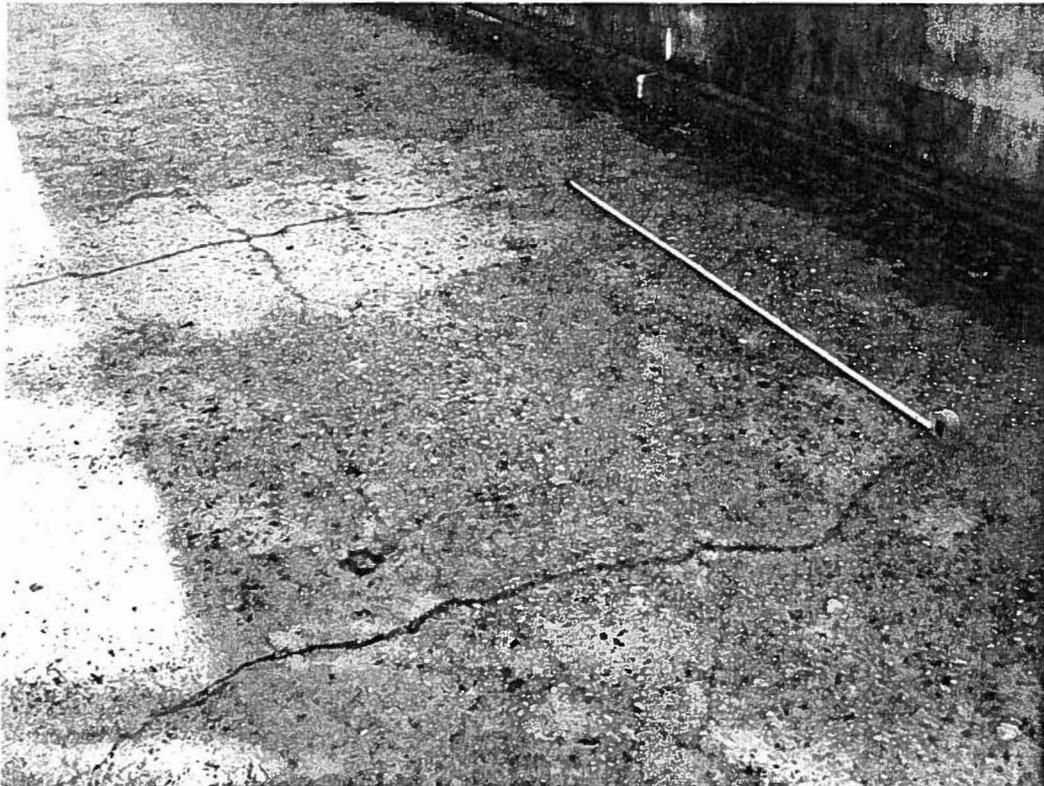


Photo No. 4

Typical transverse deck cracks in Span 2.

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107 - PHOTO-SUPER DAMAGE/DETERIORATION



Photo No. 5

Typical transverse soffit cracks with efflorescence and rust stains in Span 2.

107 - PHOTO-SUPER DAMAGE/DETERIORATION

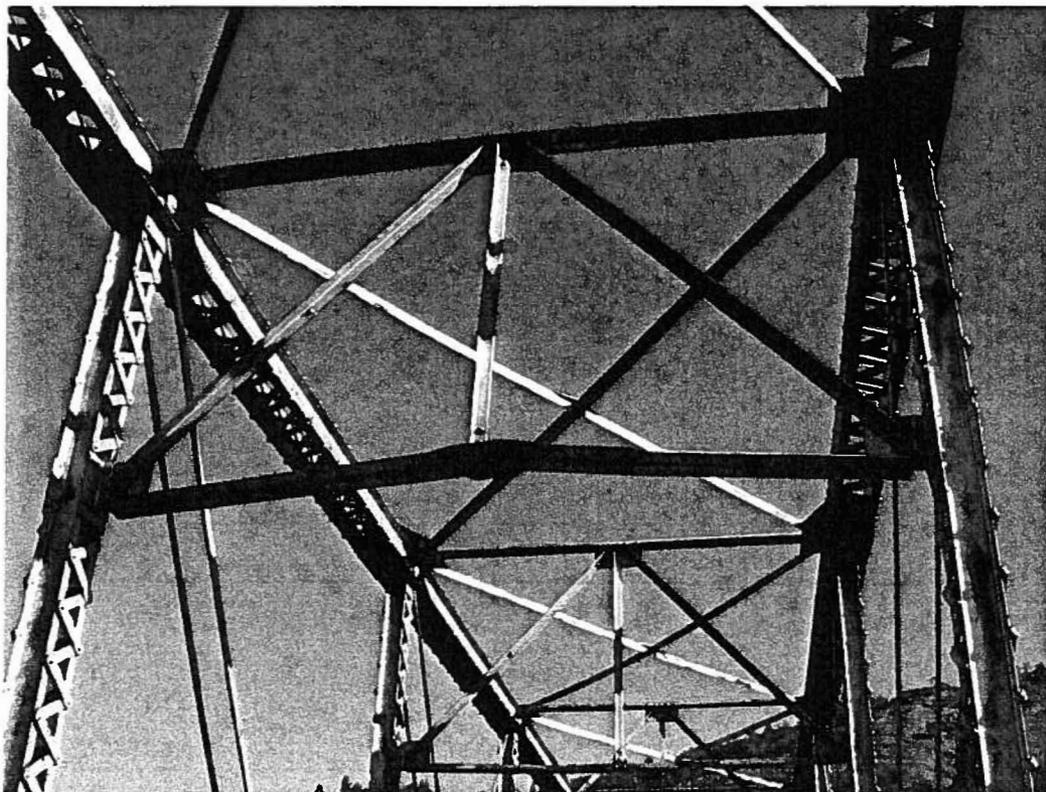


Photo No. 6

Damaged sway bracing from vehicle impact.

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107 - PHOTO-SUPER DAMAGE/DETERIORATION

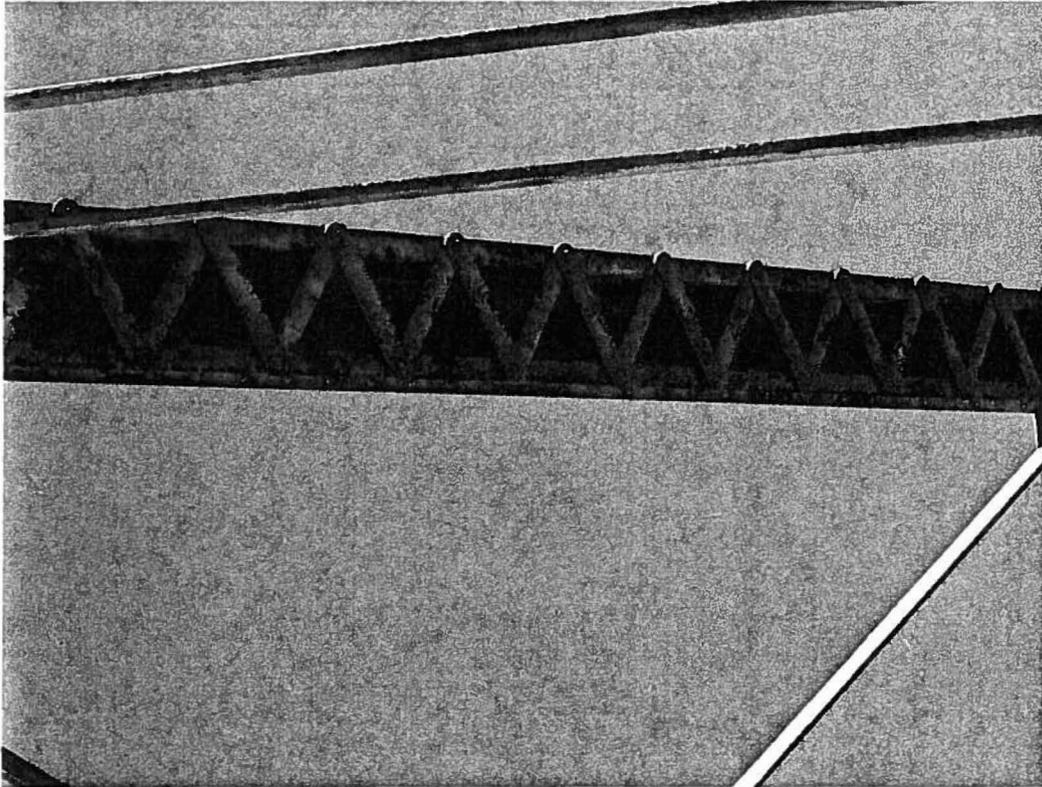


Photo No. 7

Paint condition of top chord in Span 3.

107 - PHOTO-SUPER DAMAGE/DETERIORATION



Photo No. 8

Exposed transverse rebar in the soffit of Span 6.

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107 - PHOTO-SUPER DAMAGE/DETERIORATION



Photo No. 9

Pier 4 end diaphragm spall with exposed rebar.

107 - PHOTO-SUPER DAMAGE/DETERIORATION

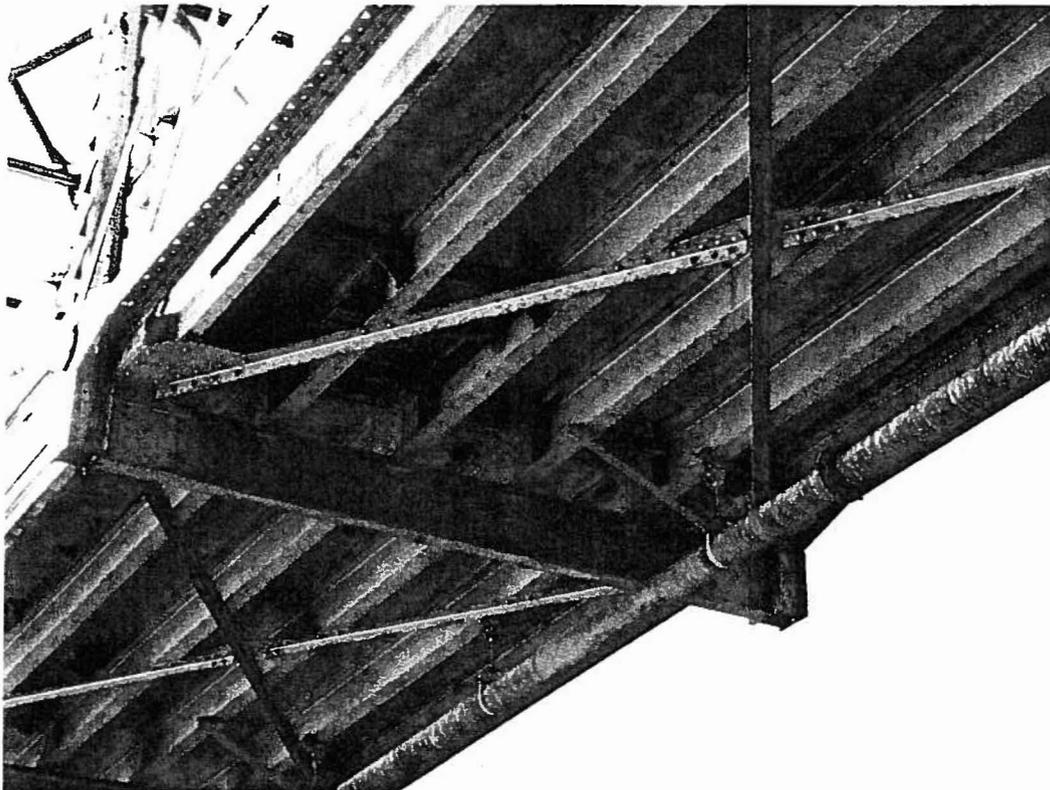


Photo No. 10

Typical paint condition of floorbeams and stringers.