

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF MAINTENANCE  
STRUCTURE MAINTENANCE & INVESTIGATIONS  
1801 30th Street  
SACRAMENTO, CA 95816  
PHONE (916) 227-8631  
FAX (916) 227-8357



*Making Conservation  
a California Way of Life.*

December 13, 2018

Mr. Mohsen Maali  
Deputy Public Works Director  
City of Del Mar  
2240 Jimmy Durante Blvd.  
Del Mar, CA 92014

Dear Mr. Maali:

In accordance with Title 23 of the Code of Federal Regulations (Federal Highway Act) and the National Bridge Inspection Standards (NBIS), Caltrans Structure Maintenance and Investigations performed an inspection of 2 bridges under your jurisdiction. The type of inspection is indicated on the bridge report transmittal sheet. The bridges have been rated to indicate their deficiencies, structural adequacy, safe load carrying capacity and overall general condition.

Enclosed are copies of the Bridge Inspection Reports for the structures noted on the attached transmittal sheet. These reports contain descriptions of physical changes to the structures since the last inspection, recommendations for work to be done, and additional information not recorded in the previous Bridge Reports.

Your attention is directed to the requirements of Title 23, Part 650 of the Code of Federal Regulations, where newly completed structures or any modification of existing structures shall be entered in the inventory within 90 days. Please notify this office of any newly constructed bridge or culvert within your jurisdiction, more than 20 feet measured along the center of the roadway and carrying public vehicular traffic or over a public roadway, in order that it may be entered in the inventory of bridge structures in compliance with Federal requirements.

Should you have any questions regarding the enclosed Bridge Inspection Reports, please contact Anthony Traina @ (916) 227-8844.

Sincerely,

*Vassil Simeonov*

VASSIL K. SIMEONOV  
Office Chief  
Structure Maintenance & Investigations - (Specialty Investigations)

Enclosures

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**WEB SITES:**

The National Bridge Inspection Standards (NBIS) Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges, Element Level Inspection, Structure Maintenance and Investigations Manuals, Local Assistance Program Guidelines and other related information are posted on Division of Maintenance, Structure Maintenance and Investigations; Division of Local Assistance, Local Highway Bridge Program (HBP) and FHWA websites.

The websites can be accessed at:

1. "Caltrans Structure Maintenance and Investigations" <http://www.dot.ca.gov/hq/structur/strmaint/>
2. "Caltrans Division of Local Assistance"  
<http://www.dot.ca.gov/hq/LocalPrograms/hbrr99/hbrr99a.htm>
3. "FHWA" <http://www.fhwa.dot.gov/BRIDGE/mtguide.pdf>

**Inspection Type Definitions****Routine Inspection:**

Routine Inspections consist of both the initial Inventory Inspection (the first inspection of the bridge that places it in the bridge inventory or when there has been a change in the configuration of the structure) and subsequent regularly scheduled inspections. The initial inspection provides all the Structural Inventory & Appraisal (SI&A) data required by federal and state regulations, determines the baseline structural conditions, lists any existing problems, and establishes the load capacity of the structure. Subsequent inspections consist of observations, measurements needed to determine the physical and functional condition of the bridge, to identify any changes from the previously recorded conditions, and verification of its load capacity. These inspections are generally conducted from the deck, ground and/or water level, and from permanent work platforms and walkways, if present. Inspection of underwater portions of the substructure is limited to observations during low-flow periods and/or probing for signs of undermining. Special equipment should be utilized in circumstances where its use provides the only practical access to areas of the structure.

**Fracture Critical, Special Feature & Underwater Inspections:**

Fracture Critical, Special Feature, and Underwater Inspections are up close, hands-on inspections of one or more members above or below the water level to identify any deficiencies not readily detectable using Routine Inspection procedures. These inspections generally require special equipment such as under-bridge inspection equipment, manlifts, boats, traffic control, and railroad flagging. Personnel with special skills such as divers or structural steel inspectors trained in non-destructive testing techniques may be required.

**Other Inspections:**

Other Inspections are conducted on damaged structures, structures that have developed specific problems, or structures suspected of developing problems. The scope of these investigations should be sufficient to determine the need for emergency load restrictions or closure of the structure, monitor a changing condition, and to assess the level of effort necessary to effect a repair.

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**Bridge Report Transmittal Sheet****Batch 47268****City of Del Mar**

<b>Bridge #</b>	<b>Bridge Name</b>	<b>Location</b>	<b>Inspection Date</b>	<b>Inspection Type</b>	<b>Outstanding Work</b>	<b>Outstanding Cost</b>
57C0043	SAN DIEGUITO RVR (JIMMY DURANTE BLVD)	0.75M S/O VIA DE LA VALLE	07/31/2018	Underwater	Y	\$
57C0209	SAN DIEGUITO RVR (CAMINO DEL MAR)	0.3MI S/O VIA DE LA VALLE	07/31/2018	Underwater	Y	\$

2 Bridge(s) in this Transmittal



DEPARTMENT OF TRANSPORTATION  
Structure Maintenance & Investigations

Bridge Number : 57C0043  
Facility Carried: JIMMY DURANTE BLVD  
Location : 0.75M S/O VIA DE LA VALL  
City : DEL MAR  
Inspection Date : 07/31/2018

## Bridge Inspection Report

Inspection Type

Routine  FC  Underwater  Special  Other

**STRUCTURE NAME: SAN DIEGUITO RVR (JIMMY DURANTE BLVD)**

### CONSTRUCTION INFORMATION

Year Built : 1982 Skew (degrees): 10  
Year Modified: N/A No. of Joints : 1  
Length (m) : 80.2 No. of Hinges : 0

Structure Description: Six, simply supported, PC/PS concrete slab unit (14) spans on two open end RC seated abutments supported on PC/PS piles and on five PC/PS 7-pile bents.

Span Configuration : (S) 6 @ 43.33ft (N) c/c

### SAFE LOAD CAPACITY AND RATINGS

Design Live Load: MS-18 OR HS-20  
Inventory Rating: RF=1.00 =>32.4 metric tons Calculation Method: LOAD FACTOR  
Operating Rating: RF=1.56 =>50.5 metric tons 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: (W) 1.0ft br, 5.0ft sw, 44.67ft rw, 5.0ft sw, 1.0ft br (E)

Total Width: 17.3 m Net Width: 13.6 m No. of Lanes: 2 Speed: 45 mph  
Min. Vertical Clearance: Unimpaired Overlay Thickness: 2.0 inches

Rail Code: 1000

### DESCRIPTION UNDER STRUCTURE

Channel Description: Natural, well defined w/ ungrouted riprap at the abutment slopes in tidal zone.

### NOTICE

The bridge inspection condition assessment used for this inspection is based on the American Association of State Highway and Transportation Officials (AASHTO) Bridge Element Inspection Manual 2013 as defined in Moving Ahead for Progress in the 21st Century (MAP-21) federal law. The new element inspection methodology may result in changes to related condition and appraisal ratings on the bridge without significant physical changes at the bridge.

The element condition information contained in this report represents the current condition of the bridge based on the most recent routine and special inspections. Some of the notes presented below may be from an inspection that occurred prior to the date noted in this report. Refer to the Scope and Access section of this inspection report for a description of which portions of the bridge were inspected on this date.

### INSPECTION COMMENTARY

#### SCOPE AND ACCESS

All elements listed in the "Underwater Elements Investigated" section of the report were inspected. The inspection of all other elements within the waterway is the responsibility of the ABME. The ABME should inspect the columns during a period of low tide.

This structure was inspected from the SE bank.

#### REVISIONS

**INSPECTION COMMENTARY**

Element 205 was removed and replaced with Element 204 to reflect the pre-cast pre-stressed piles noted on the plans.

**SUBSTRUCTURE**

Bents 2-6 were covered with 7.6 centimeters of marine growth. Visibility was 4 feet. Referencing the Scripps pier tide station, the tide was at approximately 1.2 meters at 1359 hours. The distance from the water line to the top of deck was 4.1 meters at 1439 hours, at the right side of Bent 2. The bottom material was sand and cobbles.

**Bent 2**

Depth: West Column = 2.25 meters. Column 5 was cleaned at mudline, mid water column and in the splash zone, revealing sound concrete.

Depth: East Column = 1.5 meters.

**Bent 3**

Depth: West Column = 2.75 meters. Column 3 was cleaned at mudline, mid water column and in the splash zone, revealing sound concrete.

Depth: East Column = 2.75 meters.

**Bent 4**

Depth: West Column = 2.5 meters. Column 6 was cleaned at mudline, mid water column and in the splash zone, revealing sound concrete.

Depth: East Column = 2.5 meters.

**Bent 5**

Depth: West Column = 2.1 meters. Columns 3 and 5 were cleaned at mudline, mid water column and in the splash zone, revealing sound concrete.

Depth: East Column = 1.5 meters.

**Bent 6**

Depth: West Column = 1 meter.

Depth: East Column = 1 meter.

**Element 204 - PC/PS Column**

See ELI table for condition state and rating.

**SCOUR**

The 11/16/2000 scour investigation determined this structure to be stable for the assessed or calculated scour conditions. The scour was determined to be within the limits of the footing or piles and the NBI Item 113 coding, Scour Critical Bridges, was 5. The underwater investigation performed on this date did not find any conditions which contradict that determination.

**WATERWAY**

Prior to this inspection the NBI Item 61, Channel and Channel Protection, rating was 8. The conditions present on the date of this UWI are consistent with that coding.

**UNDERWATER INVESTIGATION**

Next Inspection :	31-JUL-2023	Water Type :	3 - Brackish
Inspection Freq.:	60 months	Max. Water Velocity:	.5 mps
Dive Type :	B - Routine UW	Max. Water Depth :	3 m
Dive Mode :	D - Surface supplied	Max. Visibility :	2.5 m
Contractor :	N/A	Water Surface Elev.:	m
Contract No. :	N/A		
Supervisor :	A. Groess/D. Kendall	Diver :	Shane Stirling
Tender :	Mitch Miller	Backup Diver :	Robert Hugel

**UNDERWATER ELEMENTS INVESTIGATED**

**UNDERWATER ELEMENTS INVESTIGATED**

Location	Depth (m)	Vel (mps)	Channel Material	Element Description
Bent 2	2.3	0.5	Sand	7 EA Element 204 - PS Concrete Column
Bent 3	2.8	0.5	Sand	7 EA Element 204 - PS Concrete Column
Bent 4	3.0	0.5	Sand	7 EA Element 204 - PS Concrete Column
Bent 5	2.1	0.5	Sand	7 EA Element 204 - PS Concrete Column
Bent 6	1.0	0.5	Sand	7 EA Element 204 - PS Concrete Column

**ELEMENT INSPECTION RATINGS AND COMMENTARY**

Elem No.	Defect /Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each State	Condition	State	
							St. 1	St. 2	St. 3	St. 4
39			Slab-PS Conc.	2	1382	sq.m	1377	0	5	0
	1120		Efflorescence/Rust Staining	2	5		0	0	5	0
	510		Deck Wearing Surface-Asphalt	2	1090	sq.m	770	0	320	0
	3220		Cracking-AC (WS)	2	320		0	0	320	0
(39) Slab units are only visible from below.										
(39-1120) There are several locations on the longitudinal seams with heavy efflorescence build up.										
(39-510) AC has longitudinal cracks along the panel joints and is wearing.										
(39-510-3220) There are 8 longitudinal cracks 1in wide along the cracks coinciding with slab unit joints..										
204			Column-PS Conc.	2	35	each	35	0	0	0
(204) UWI (7-31-2018): There were no significant defects noted.										
215			Abutment-RC	4	35	m	35	0	0	0
(215) There were no significant defects noted.										
226			Pile-PS Conc.	2	1	ea.	1	0	0	0
(226) The pile element is included to indicate the presence of driven concrete piles on this structure. The piles were not exposed for visual inspection. No indication of pile distress was noted in any substructure element.										
234			Pier Cap-RC	4	88	m	88	0	0	0
(234) There were no significant defects noted.										
256			Slope Protection	2	2	ea.	2	0	0	0
(256) There were no significant defects noted.										
302			Joint-Compression Seal	3	55	m	55	0	0	0
(302) There were no significant defects noted.										
303			Joint-Assembly w/ Seal	3	14	m	14	0	0	0

**ELEMENT INSPECTION RATINGS AND COMMENTARY**

Elem No.	Defect /Prot	Element Description	Env Qty	Total Qty	Units	Qty in each Condition State			
						St. 1	St. 2	St. 3	St. 4
(303)									
There were no significant defects noted.									
331		Railing-RC	2	160	m	143	9	8	0
	1080	Delamination/Spall/Patched Area	2	16		0	8	8	0
	1090	Exposed Rebar (PS Conc./RC)	2	1		0	1	0	0

(331)

There are cracks and incipient spalls across the length of both rails.

(331-1080)

There are several locations, mostly at the bents, where barrier joint should be.

(331-1090)

There are 3 spalls about 12in long x 3in wide x 1.5in deep in the east side walk of span 4 with exposed rebar.

**WORK RECOMMENDATIONS**

RecDate: 09/13/2016

Action : Appr. Roadway-Repair

Work By: LOCAL AGENCY

Status : PROPOSED

EstCost:

StrTarget: 2 YEARS

DistTarget:

EA:

The sidewalk at the southwest corner of the bridge has settled about 1in and needs to be leveled to the bridge. Also, the transition from PCC sidewalk to asphalt sidewalk at the northwest corner is not level either. AC is too high by about 1in.

RecDate: 09/13/2016

Action : Railing-Repair

Work By: LOCAL AGENCY

Status : PROPOSED

EstCost:

StrTarget: 4 YEARS

DistTarget:

EA:

Repair the shallow spalls, which was just one rebar 300 mm x 75 mm x 15 mm, now includes 3 exposed rebar on the east sidewalk in span 4. Repair the spalls and delaminations scattered along the faces of the barriers by removing unsound concrete to below rebar, saw cut edges square and to about 3/8in depth, abrasive blast exposed rebar and patch with an approved high strength structural concrete repair material.

RecDate: 07/18/2011

Action : Super-Patch spalls

Work By: LOCAL AGENCY

Status : PROPOSED

EstCost:

StrTarget: 2 YEARS

DistTarget:

EA:

Repair the spall (12in x 4in x 4in) with exposed rebar on the bottom of west facial girder at Bent 6.

Team Leader : Shane N. Stirling *Shane St* 12-6-18  
Report Author : Shane N. Stirling  
Inspected By : SN.Stirling/AR.Traina



*Anthony R. Traina* 12/6/18  
Anthony R. Traina (Registered Civil Engineer) (Date)



**STRUCTURE INVENTORY AND APPRAISAL REPORT**

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***** IDENTIFICATION *****
(1) STATE NAME- CALIFORNIA 069
(8) STRUCTURE NUMBER 57C0043
(5) INVENTORY ROUTE (ON/UNDER) - ON 150000000
(2) HIGHWAY AGENCY DISTRICT 11
(3) COUNTY CODE 073 (4) PLACE CODE 18506
(6) FEATURE INTERSECTED- SAN DIEGUITO RIVER
(7) FACILITY CARRIED- JIMMY DURANTE BLVD
(9) LOCATION- 0.75M S/O VIA DE LA VALLE
(11) MILEPOINT/KILOMETERPOINT 0
(12) BASE HIGHWAY NETWORK- NOT ON NET 0
(13) LRS INVENTORY ROUTE & SUBROUTE
(16) LATITUDE 32 DEG 58 MIN 14.2 SEC
(17) LONGITUDE 117 DEG 15 MIN 45.72 SEC
(98) BORDER BRIDGE STATE CODE % SHARE %
(99) BORDER BRIDGE STRUCTURE NUMBER

***** STRUCTURE TYPE AND MATERIAL *****
(43) STRUCTURE TYPE MAIN:MATERIAL- PRESTRESS CONC
TYPE- SLAB CODE 501
(44) STRUCTURE TYPE APPR:MATERIAL- OTHER/NA
TYPE- OTHER/NA CODE 000
(45) NUMBER OF SPANS IN MAIN UNIT 6
(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 1982
(106) YEAR RECONSTRUCTED 0000
(42) TYPE OF SERVICE: ON- HIGHWAY-PEDESTRIAN 5
UNDER- WATERWAY 5
(28) LANES:ON STRUCTURE 02 UNDER STRUCTURE 00
(29) AVERAGE DAILY TRAFFIC 10844
(30) YEAR OF ADT 2016 (109) TRUCK ADT 1 %
(19) BYPASS, DETOUR LENGTH 3 KM
***** GEOMETRIC DATA *****
(48) LENGTH OF MAXIMUM SPAN 13.1 M
(49) STRUCTURE LENGTH 80.2 M
(50) CURB OR SIDEWALK: LEFT 1.5 M RIGHT 1.5 M
(51) BRIDGE ROADWAY WIDTH CURB TO CURB 13.6 M
(52) DECK WIDTH OUT TO OUT 17.3 M
(32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 15.5 M
(33) BRIDGE MEDIAN- NO MEDIAN 0
(34) SKEW 10 DEG (35) STRUCTURE FLARED NO
(10) INVENTORY ROUTE MIN VERT CLEAR 99.99 M
(47) INVENTORY ROUTE TOTAL HORIZ CLEAR 13.6 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 = 91.4
STATUS
HEALTH INDEX 99.6
PAINT CONDITION INDEX = N/A

***** CLASSIFICATION ***** CODE
(112) NBIS BRIDGE LENGTH- YES Y
(104) HIGHWAY SYSTEM- NOT ON NHS 0
(26) FUNCTIONAL CLASS- MINOR ARTERIAL URBAN 16
(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- CITY OR MUNICIPAL HIGHWAY AGENCY 04
(22) OWNER- CITY OR MUNICIPAL HIGHWAY AGENCY 04
(37) HISTORICAL SIGNIFICANCE- NOT ELIGIBLE 5

***** CONDITION ***** CODE
(58) DECK 7
(59) SUPERSTRUCTURE 7
(60) SUBSTRUCTURE 7
(61) CHANNEL & CHANNEL PROTECTION 8
(62) CULVERTS N

***** LOAD RATING AND POSTING ***** CODE
(31) DESIGN LOAD- MS-18 OR HS-20 5
(63) OPERATING RATING METHOD- LOAD FACTOR 1
(64) OPERATING RATING- 50.5
(65) INVENTORY RATING METHOD- LOAD FACTOR 1
(66) INVENTORY RATING- 32.4
(70) BRIDGE POSTING- EQUAL TO OR ABOVE LEGAL LOADS 5
(41) STRUCTURE OPEN, POSTED OR CLOSED- A
DESCRIPTION- OPEN, NO RESTRICTION

***** APPRAISAL ***** CODE
(67) STRUCTURAL EVALUATION 7
(68) DECK GEOMETRY 9
(69) UNDERCLEARANCES, VERTICAL & HORIZONTAL N
(71) WATER ADEQUACY 8
(72) APPROACH ROADWAY ALIGNMENT 8
(36) TRAFFIC SAFETY FEATURES 1000
(113) SCOUR CRITICAL BRIDGES 5

***** 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 18922
(115) YEAR OF FUTURE ADT 2036

***** INSPECTIONS *****
(90) INSPECTION DATE 09/16 (91) FREQUENCY 24 MO
(92) CRITICAL FEATURE INSPECTION: (93) CFI DATE
A) FRACTURE CRIT DETAIL- NO MO A)
B) UNDERWATER INSP- YES 60 MO B) 07/18
C) OTHER SPECIAL INSP- NO MO C)

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DEPARTMENT OF TRANSPORTATION  
Structure Maintenance & Investigations

Bridge Number : 57C0209  
Facility Carried: CAMINO DEL MAR  
Location : 0.3MI S/O VIA DE LA VALL  
City : DEL MAR  
Inspection Date : 07/31/2018

## Bridge Inspection Report

### Inspection Type

Routine  FC  Underwater  Special  Other

**STRUCTURE NAME: SAN DIEGUITO RVR (CAMINO DEL MAR)**

### CONSTRUCTION INFORMATION

Year Built : 1932 Skew (degrees): 0  
Year Modified: 1953 No. of Joints : 12  
Length (m) : 181.7 No. of Hinges : 0

Structure Description: Eleven simple CIP/RC "T" beam 6-girder spans on two RC seated abutments and ten RC wall piers, all supported on untreated timber piles. Cantilevered timber sidewalk supported on steel brackets at the westerly side.

Span Configuration : (S) 11 @ 54.0ft (N)

### SAFE LOAD CAPACITY AND RATINGS

Design Live Load: M-13.5 OR H-15  
Inventory Rating: RF= 0.98 Calculation Method: (LRFR) LD & RES FACT RATING  
Operating Rating: RF= 1.37 Calculation Method: (LRFR) LD & RES FACT RATING  
Permit Rating : PPPPP  
Posting Load : Type 3: Legal Type 3S2: Legal Type 3-3: Legal

### DESCRIPTION ON STRUCTURE

Deck X-Section: (W) 5.25ft cantlever sw, 1.75ft cu/br, 18.3ft rw, 7.3ft med, 20.5ft rw, 1.75ft cu/br (E)

Total Width: 17.6 m Net Width: 13.8 m No. of Lanes: 2 Speed: 40 mph  
Min. Vertical Clearance: Unimpaired Overlay Thickness: 2.0 inches  
Rail Code: 1000

### DESCRIPTION UNDER STRUCTURE

Channel Description: Natural, well defined sandy beach/river outlet.

### NOTICE

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The element condition information contained in this report represents the current condition of the bridge based on the most recent routine and special inspections. Some of the notes presented below may be from an inspection that occurred prior to the date noted in this report. Refer to the Scope and Access section of this inspection report for a description of which portions of the bridge were inspected on this date.

### INSPECTION COMMENTARY

#### SCOPE AND ACCESS

All elements listed in the "Underwater Elements Investigated" section of the report were inspected. The inspection of all other elements within the waterway is the responsibility of the ABME.

This structure was inspected from the northwest bank using surface supplied diving

INSPECTION COMMENTARY

inspection techniques.

## SUBSTRUCTURE

Piers 7 through 10 were covered with approximately 1.3 centimeters of marine growth, which was easily removed with the diver's gloved hands. This condition allowed for a 100% Level I inspection and a minimum of 10% Level II inspection.

This structure is tidal. All mudline and waterline depths will vary with the tide. Referencing the Scripps pier tide station, the tide was approximately 1.3 meters at 1238 hours.

For reference purposes, the distance from the waterline to the top of the concrete guard rail at Pier 7 was 4.8 meters at 1245 hours on the date of this inspection.

The following depths were recorded:

Pier 7:

mudline at west nose - 0.75 meters

mudline at east nose - 1.0 meters

Pier 8

mudline at west nose - 4.2 meters

mudline at east nose - 3.0 meters

Pier 9

mudline at west nose - 4.75 meters

mudline at east nose - 3.2 meters

Pier 10

mudline at west nose - 4.5 meters

mudline at east nose - 3.5 meters

Element 210, Pier Wall-RC, 56.0 meters

See ELI table for condition state and rating.

Element 220, Pile Cap/Footing-RC, 16.0 meters

Exposed footings were noted at Piers 9 and 10. No undermining was found. See ELI table for condition state and rating.

## WATERWAY

Prior to this inspection the NBI Item 61, Channel and Channel Protection, rating was 7. The conditions present on the date of this UWI are consistent with that coding.

## SCOUR

The 6/5/2012 scour investigation determined this structure to be scour critical and stated that "Bridge is scour critical; bridge foundations determined to be unstable for calculated scour conditions". The NBI Item 113 Code for Scour Vulnerability was 3. There is a scour plan of action in BIRIS is dated 10-19-2012. This scour plan of action was reviewed in preparation for this underwater investigation. There were no specific items to watch noted for underwater investigations in the scour plan of action.

The Local Hydraulics Branch of SM&I made a recommendation to the City of Del Mar to provide appropriate scour countermeasures dated 6/5/2012. That work recommendation stated "Provide scour countermeasures at Piers 2-11. See 6/5/2012 Bridge Inspection

**INSPECTION COMMENTARY**

Report for background information." This work recommendation was marked as completed 8/14/2014. The SM&I Local Hydraulics group was asked to review the need for a new scour work recommendation via SM&I work request number 8492. They will follow up as appropriate.

**UNDERWATER INVESTIGATION**

Next Inspection :	31-JUL-2023	Water Type :	2 - Salt
Inspection Freq.:	60 months	Max. Water Velocity:	.5 mps
Dive Type :	B - Routine UW	Max. Water Depth :	5 m
Dive Mode :	D - Surface supplied	Max. Visibility :	3.0 m
Contractor :	N/A	Water Surface Elev.:	m
Contract No. :	N/A		
Supervisor :	A. Groess/D. Kendall	Diver :	Shane Stirling
Tender :	Mitch Miller	Backup Diver :	Robert Hugel

**UNDERWATER ELEMENTS INVESTIGATED**

Location	Depth (m)	Vel (mps)	Channel Material	Element Description
Pier 7	1.0	0.5	Sand and Cobbles	14.0 meters Element 210
Pier 8	4.2	0.5	Sand and Cobbles	14.0 meters Element 210
Pier 9	4.8	0.5	Sand and Cobbles	14.0 meters Element 210; 8 meters Element 220
Pier 10	4.5	0.5	Sand and Cobbles	14.0 meters Element 210; 8 meters Element 220

**ELEMENT INSPECTION RATINGS AND COMMENTARY**

Elem No.	Defect /Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each State	Condition	State	
							St. 1	St. 2	St. 3	St. 4
16			Top Flange-RC	2	3144	sq.m	2644	0	500	0
	1080		Delamination/Spall/Patched Area	2	500		0	0	500	0
	510		Deck Wearing Surface-Asphalt	2	2550	sq.m	2370	0	180	0
		3220	Cracking-AC (WS)	2	180		0	0	180	0

(16)

Deck condition is unknown due to AC overlay.

(16-1080)

The west deck edge has longitudinal delaminations and spalls in most spans. The widening closure pour also has longitudinal delaminations and incipient spalling in several spans.

Easterly side of bridge was under construction by SDGE and access not possible. It is assumed that a similar condition state exists and the quantity in state 3 reflects 30% of 4 edges.

(16-510)

AC overlay is in reasonable condition except over the expansion joints.

(16-510-3220)

There were transverse cracks/spalls/potholes over all the joints.

110			Girder/Beam-RC	4	1090	m	360	100	630	0
	1080		Delamination/Spall/Patched Area	4	380		0	0	380	0
	1090		Exposed Rebar (PS Conc./RC)	4	50		0	0	50	0
	1130		Cracking (RC and Other)	4	300		0	100	200	0

(110)

1931 girders are in fair condition. 1952 girders are delaminating and spalling along the entire

**ELEMENT INSPECTION RATINGS AND COMMENTARY**

Elem No.	Defect /Prot	Defect	Element Description	Env Qty	Total	Units Qty in each Condition State			
						St. 1	St. 2	St. 3	St. 4

western line (girder 1). Easterly line covered by construction scaffolds and tenting.

(110-1080)

Many girders (especially the ocean side exterior ones) exhibit delamination  
 Span 1, girder 1 - delaminated for 90% of its length and girder 2 - delaminated for 5% of its length  
 Span 2, girder 1 - delaminated for 70% of its length  
 Span 3, girder 1 - delaminated for 80% of its length  
 Span 4, girder 1 - delaminated for 100% of its length  
 Span 5, girder 1 - delaminated for 100% of its length and girder 6 - delaminated for 20% of its length  
 Span 6, girder 1 - delaminated for 100% of its length  
 Span 7, girder 1 - delaminated for 100% of its length  
 Span 8, girder 1 - delaminated for 70% of its length  
 Span 9, girder 1 - delaminated for 60% of its length  
 Span 10, girder 1 - delaminated for 50% of its length  
 Span 11, girder 1 - delaminated for 80% of its length and girder 6 - delaminated for 100% of its length  
 Most diaphragms between girders exhibit delaminations.  
 Span 1, 4 diaphragms delaminated at the top.  
 Span 3, 3 diaphragms delaminated.  
 Span 4, 6 diaphragms delaminated.

(110-1090)

Girders exhibit spalling with exposed corroded rebars.  
 Span 1, girder 1 a spall 3ft x 1ft x 10in at north with corroder rebar (1/3in rust thickness).  
 Span 2, girder 1 spall 2ft x 1ft x 10in at north with corroder rebar (1/3in rust thickness).  
 Span 7, girder 1 a spall 10ft x 1ft x 10in m and girder 5 a spall 3ft x 1ft x 4in with rebar exposed.  
 Most diaphragms between girders exhibit spalling with exposed corroded rebars:  
 Span 2 bay #5 diaphragm spall 5ft x 4in x 1in with exposed corroder rebar.  
 Span 5: diaphragm 1 above bent 5 has a spall 3ft x 5ft x 4in with rebar exposed, rusted and corroded between girder 2 and 3 at the north face.  
 Span 6: diaphragm 1 above bent 6 has a spall 1.2ft x 6in x 2in with rebar exposed, rusted and corroded between girder 4 and 5 at the north face.  
 Span 7: diaphragm 1 above bent 7 was crushed 1ft x in between girder 4 and 5; diaphragm 3 was crushed 400 mm x 50 mm from the top adjacent to girder 3.  
 Span 9: diaphragm 2 was crushed 8in x 2in from the top between girders 3, 4 and 1ft x 2in between girders 2, 3.  
 Span 10: diaphragm 2 was crushed 4in x 2in between girders 4, 5 & diaphragm 3 was crushed 4in x 2in between girders 3, 4.  
 Span 11: diaphragm 1 above the pier was crushed 10in x 1.3ft x 4in at the north face with rebar exposed and corroded between girders 4 and 5.

(110-1130)

Girders exhibit diagonal cracking emanating from bearings.  
 Span 1, girder 6 - minor random cracks  
 Span 2, girder 6 - minor random cracks  
 Span 9, girder 6 - minor shear cracks at both ends  
 Span 10, girder 6 - minor shear cracks at both ends  
 Span 11 girder 6 - minor shear cracks at south end.

210	Pier Wall-RC	4	170	m	110	0	60	0
1080	Delamination/Spall/Patched Area	4	40		0	0	40	0
1090	Exposed Rebar (PS Conc./RC)	4	20		0	0	20	0

(210)

**ELEMENT INSPECTION RATINGS AND COMMENTARY**

Elem No.	Defect /Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each State	Condition	State
							St. 1	St. 2	St. 3

Original pier walls are in fair condition. Widen extensions are in serious condition with defects noted.

UWI (7-31-18): At Pier 8 several 1 square foot areas were cleaned at water surface, mid water column, and mudline, revealing clean, sound concrete.

(210-1080)

Spalls and delaminations exist at both ends of all pierwalls.

UWI (7-31-18): The west nose of Pier 7 has a spall 7.6 centimeter diameter x 2.5 centimeters deep, with no exposed rebar. (1 m CS 3)

(210-1090)

There are spalls with exposed rusted and corroded rebars at the pier wall ends.

215			Abutment-RC	4	35	m	21	0	14	0
	1080		Delamination/Spall/Patched Area	4	10		0	0	10	0
	1090		Exposed Rebar (PS Conc./RC)	4	4		0	0	4	0

(215)

Abutments are in reasonable condition except as noted.

(215-1080)

There is delamination and incipient spalling along the top of abutment 12.

(215-1090)

There are 2 spalls (1ft x 8in x 2in) at abutment 1 under girders 4 and 6 with exposed and corroded rebars and one spall at abutment 12.

220			Pile Cap/Footing-RC	2	16	m	0	16	0	0
	6000		Scour	2	16		0	16	0	0

(220)

UWI 7-31-2018: The exposed footings are in good condition.

(220-6000)

UWI 7-31-2018: At Pier 9 the east half of the footing is exposed up to a maximum of 20.3 centimeters. There was no undermining. At Pier 10 the east half of the footing is exposed up to a maximum of 20.3 centimeters. There was no undermining. 16 meters ( 8 m each pier) have been placed in CS 2 due to scour (Defect 6000).

228			Pile-Timber	3	1	ea.	1	0	0	0
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(228)

The pile element is included to indicate the presence of CDF piles on this structure. The piles were not exposed for visual inspection. No indication of pile distress was noted in any substructure element.

304			Joint-Open Expansion	2	234	m	234	0	0	0
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(304)

Open joints are covered with AC and condition is not known.

311			Bearing-Moveable	4	44	each	0	0	44	0
	1000		Corrosion	4	44		0	0	44	0

(311)

Bearings are corroded to the point where bearing capacity needs to be evaluated.

(311-1000)

**ELEMENT INSPECTION RATINGS AND COMMENTARY**

Elem No.	Defect /Prot	Defect	Element Description	Env Qty	Total	Units	Qty in each Condition State			
							St. 1	St. 2	St. 3	St. 4

All bearing have corroded and have extensive section loss. Section loss is more than 25% in many cases, such that it may restrict the function of the bearing.

330			Railing-Metal	4	567	m	567	0	0	0
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(330)

The 2001 barrier replacement project Type 19/Alaska/ST30 rails are wearing OK with galvanizing in satisfactory condition.

**WORK RECOMMENDATIONS**

RecDate: 08/24/2016

Action : Deck-Patch spalls

Work By: LOCAL AGENCY

Status : PROPOSED

EstCost:

StrTarget: 2 YEARS

DistTarget:

EA:

The deck AC overlay is failing over the expansion joints. There are potholes developing in the layers of AC.

Remove AC in a 2 foot wide section across the entire deck width centered over the joints. Evaluate joints and repair as necessary and place a flexible asphaltic plug material specified to perform across an open joint. Do not replace with conventional asphalt.

RecDate: 08/24/2016

Action : Super-Patch spalls

Work By: LOCAL AGENCY

Status : PROPOSED

EstCost:

StrTarget: 2 YEARS

DistTarget:

EA:

The deck edge on the westerly side has several locations with delaminations and incipient spalls.

Repair all spalls and delaminations in the concrete along the outer deck edge and the construction joint for the westerly widening.

Repair spalls in by removing unsound concrete to 1/2in. below any exposed rebar, saw cut around patch area to a depth of 1/2in, abrasive blast exposed rebar and patch with approved high strength structural concrete patching material.

RecDate: 08/24/2016

Action : Bearings-Replace

Work By: LOCAL AGENCY

Status : PROPOSED

EstCost:

StrTarget: 2 YEARS

DistTarget:

EA:

Most of the bearings for the 1931 structure are corroded such that structural capacity needs to be evaluated.

Perform a structural analysis on the bearings to determine serviceability and replace all bearings that can not be repaired.

RecDate: 08/24/2016

Action : Sub-Rehab

Work By: LOCAL AGENCY

Status : PROPOSED

EstCost:

StrTarget: 2 YEARS

DistTarget:

EA:

The pier cap ends of the widening have extensive spalling and delaminations, with exposed rebar that is experiencing advanced corrosion induced section loss.

Conduct a structural analysis of

WORK RECOMMENDATIONS

remaining steel to determine if rebar should be supplemented as part of repair/rehab.

Repair spalls in all elements by removing unsound concrete to 1/2in. below any exposed rebar, saw cut around patch area to a depth of 1/2in, abrasive blast exposed rebar and patch with approved high strength structural concrete patching material.

RecDate: 08/24/2016  
Action : Joints-Repair/Clean  
Work By: LOCAL AGENCY  
Status : PROPOSED

EstCost:  
StrTarget: 2 YEARS  
DistTarget:  
EA:

Based of the as-built plans, there are open joints with armored edges at each bent and the abutments. In conjunction with the deck AC ork over the joints, repair/clean the joints as needed before placing a flexible asphaltic material across the joints.

RecDate: 08/24/2016  
Action : Super-Rehab  
Work By: LOCAL AGENCY  
Status : PROPOSED

EstCost:  
StrTarget: 2 YEARS  
DistTarget:  
EA:

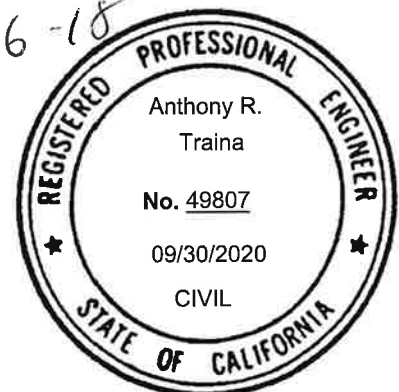
The girders and intermediate diaphragms have extensive spalling and delaminations, with exposed rebar that is experiencing advanced corrosion induced section loss.

Conduct a structural analysis of girders that are experiencing advance corrosion to determine if rebar should be supplemented as part of repair/rehab.

Repair spalls in all elements by removing unsound concrete to 1/2in. below any exposed rebar, saw cut around patch area to a depth of 1/2in, abrasive blast exposed rebar and patch with approved high strength structural concrete patching material.

Team Leader : Shane N. Stirling *Shane St 12-6-18*  
Report Author : Shane N. Stirling  
Inspected By : SN.Stirling/AR.Traina

*Anthony R Traina* 12/6/18  
Anthony R. Traina (Registered Civil Engineer) (Date)





**STRUCTURE INVENTORY AND APPRAISAL REPORT**

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

(1) STATE NAME- CALIFORNIA 069  
 (8) STRUCTURE NUMBER 57C0209  
 (5) INVENTORY ROUTE (ON/UNDER) - ON 150000000  
 (2) HIGHWAY AGENCY DISTRICT 11  
 (3) COUNTY CODE 073 (4) PLACE CODE 18506  
 (6) FEATURE INTERSECTED- SAN DIEGUITO RIVER  
 (7) FACILITY CARRIED- CAMINO DEL MAR  
 (9) LOCATION- 0.3MI S/O VIA DE LA VALLE  
 (11) MILEPOINT/KILOMETERPOINT 0  
 (12) BASE HIGHWAY NETWORK- NOT ON NET 0  
 (13) LRS INVENTORY ROUTE & SUBROUTE  
 (16) LATITUDE 32 DEG 58 MIN 27.5 SEC  
 (17) LONGITUDE 117 DEG 16 MIN 07.55 SEC  
 (98) BORDER BRIDGE STATE CODE % SHARE %  
 (99) BORDER BRIDGE STRUCTURE NUMBER

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

(43) STRUCTURE TYPE MAIN:MATERIAL- CONCRETE  
 TYPE- TEE BEAM CODE 104  
 (44) STRUCTURE TYPE APPR:MATERIAL- OTHER/NA  
 TYPE- OTHER/NA CODE 000  
 (45) NUMBER OF SPANS IN MAIN UNIT 11  
 (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 1932  
 (106) YEAR RECONSTRUCTED 1953  
 (42) TYPE OF SERVICE: ON- HIGHWAY-PEDESTRIAN 5  
 UNDER- WATERWAY 5  
 (28) LANES:ON STRUCTURE 02 UNDER STRUCTURE 00  
 (29) AVERAGE DAILY TRAFFIC 14027  
 (30) YEAR OF ADT 2017 (109) TRUCK ADT 1 %  
 (19) BYPASS, DETOUR LENGTH 3 KM

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

(48) LENGTH OF MAXIMUM SPAN 16.5 M  
 (49) STRUCTURE LENGTH 181.7 M  
 (50) CURB OR SIDEWALK: LEFT 1.5 M RIGHT 0.6 M  
 (51) BRIDGE ROADWAY WIDTH CURB TO CURB 13.8 M  
 (52) DECK WIDTH OUT TO OUT 17.6 M  
 (32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 17.6 M  
 (33) BRIDGE MEDIAN- CLOSED (NO BARRIER) 2  
 (34) SKEW 0 DEG (35) STRUCTURE FLARED NO  
 (10) INVENTORY ROUTE MIN VERT CLEAR 99.99 M  
 (47) INVENTORY ROUTE TOTAL HORIZ CLEAR 6.9 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 = 61.6  
 STATUS STRUCTURALLY DEFICIENT  
 HEALTH INDEX 78.7  
 PAINT CONDITION INDEX = N/A

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

(112) NBIS BRIDGE LENGTH- YES Y  
 (104) HIGHWAY SYSTEM- NOT ON NHS 0  
 (26) FUNCTIONAL CLASS- MINOR ARTERIAL URBAN 16  
 (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- CITY OR MUNICIPAL HIGHWAY AGENCY 04  
 (22) OWNER- CITY OR MUNICIPAL HIGHWAY AGENCY 04  
 (37) HISTORICAL SIGNIFICANCE- NOT ELIGIBLE 5

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

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

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

(31) DESIGN LOAD- M-13.5 OR H-15 2  
 (63) OPERATING RATING METHOD- (LRFR) LD & RES FA 8  
 (64) OPERATING RATING- RF= 1.37  
 (65) INVENTORY RATING METHOD- (LRFR) LD & RES FA 8  
 (66) INVENTORY RATING- RF= 0.98  
 (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 4  
 (68) DECK GEOMETRY 9  
 (69) UNDERCLEARANCES, VERTICAL & HORIZONTAL N  
 (71) WATER ADEQUACY 8  
 (72) APPROACH ROADWAY ALIGNMENT 8  
 (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 26721  
 (115) YEAR OF FUTURE ADT 2038

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

(90) INSPECTION DATE 08/16 (91) FREQUENCY 24 MO  
 (92) CRITICAL FEATURE INSPECTION: (93) CFI DATE  
 A) FRACTURE CRIT DETAIL- NO MO A)  
 B) UNDERWATER INSP- YES 60 MO B) 07/18  
 C) OTHER SPECIAL INSP- NO MO C)