STATE OF CALIFORNIA - CALIFORNIA STATE TRANSPORTATION AGENCY

EDMUND G. BROWN JR., Governor

DEPARTMENT OF TRANSPORTATION
DIVISION OF MAINTENANCE
STRUCTURE MAINTENANCE & INVESTIGATIONS
100 South Main Street, 3rd Floor
LOS ANGELES, CA 90012
PHONE (213) 897-2004
FAX (213) 897-2033

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Jeff E
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Making Conservation a California Way of Life.

March 23, 2018

Mr. Shane Silsby
Director of Public Works
County of Orange
P O Box 4048
Santa Ana, CA 92702-4048

Dear Mr. Silsby:

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 3 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 Bing Wu @ (213) 897-0874.

Sincerely,

CHING CHAO
Office Chief
Structure Maintenance & Investigations - (Investigations-South)

Enclosures

RECEIVED
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DIRECTOR'S OFFICE

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Bridge Report Transmittal Sheet

Batch 40274

County of Orange

Bridge #	Bridge Name	Location	Inspection Date	Inspection Type	Outstanding Work	Cost
55C0008	TRABUCO CREEK	1.4 mi n/o Snta Margarita	09/07/2017	Routine	Y	$
55C0065	LIMESTONE CANYON	4.4 mi se/o JAMBOREE RD.	09/13/2017	Routine	Y	$
55C0168	HANDY CREEK	0.2 MI E/O ORANGE PK BLVD	09/07/2017	Routine	Y	$

3 Bridge(s) in this Transmittal

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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.

DEPARTMENT OF TRANSPORTATION
Structure Maintenance & Investigations

Bridge Number : 55C0065
Facility Carried: SANTIAGO CNYN ROAD
Location : 4.4 mi se/o JAMBOREE RD.
City :
Inspection Date : 09/13/2017

Bridge Inspection Report

Inspection Type

Routine	FC	Underwater	Special	Other
X				

STRUCTURE NAME: LIMESTONE CANYON

CONSTRUCTION INFORMATION

Year Built : 1931
Year Modified: 1955
Length (m) : 7.9

Skew (degrees): 0
No. of Joints : 0
No. of Hinges : 0

Structure Description: Double 12.00 ft x 10.00 ft x 42.00 ft m RC box culvert (grade top) beneath 1.00 ft of earth fill.

Span Configuration : (W) 2 @ 12.00 ft (E) clear, normal

SAFE LOAD CAPACITY AND RATINGS

Design Live Load: UNKNOWN
Inventory Rating: RF=0.50 =>16.2 metric tons Calculation Method: FIELD EVAL/ENG JUDGMENT
Operating Rating: RF=0.84 =>27.2 metric tons Calculation Method: FIELD EVAL/ENG JUDGMENT
Permit Rating : PPPPP
Posting Load : Type 3: Legal Type 3S2: Legal Type 3-3: Legal

DESCRIPTION ON STRUCTURE

Deck X-Section: (S) 0.70 ft br, 41.00 ft, 0.70 ft br (N)

Total Width: 12.8 m Net Width: 12.5 m No. of Lanes: 2 Speed: 55 mph
Min. Vertical Clearance: Unimpaired Overlay Thickness: 5.0 inches

Rail Code: 0000

Rail Type	Location	Length (ft)	Rail Modifications
MBBR	Right/Left	60	

DESCRIPTION UNDER STRUCTURE

Channel Description: Natural earth trapezoidal.

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

A complete routine inspection was performed by walking on and around the structure to inspect all visible elements on the existing structures. The canyon was dry at the time of the inspection. A full visual inspection is performed for the visible substructure elements. Pedestrian access is from any quadrant.

INSPECTION COMMENTARY

SUBSTRUCTURE

At the southwest wingwall, there is a 0.25 inches wide diagonal crack; and a spall 8 inches x 8 inches x 3 inches with exposed rebar.

WATERWAY

There is sediment inside the barrels, 3.5 feet inside the east barrel and 2 feet inside the west barrel.

SAFE LOAD CAPACITY

A Load Rating Summary Sheet is archeived dated 09/16/2015. The current rating has been assigned in accordance with SM&I procedures.

ELEMENT INSPECTION RATINGS AND COMMENTARY

Elem No.	Defect /Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State St. 1	St. 2	St. 3	St. 4
241			**Culvert-RC**	2	26	m	24	2	0	0
	1080		**Delamination/Spall/Patched Area**	2	1		0	1	0	0
	1130		**Cracking (RC and Other)**	2	1		0	1	0	0

(241-1080)
Culvert wall 3 has a spall 6 inches X 3 inches X 1 inc at the bottom of the north end.

The north headwall has an unsound concrete area 5 inches X 3 inches above east barrel.

(241-1130)
Culvert wall 1 has a vertical crack 0.04 inches wide.

The soffit of the west barrel slab has a longitudinal crack at 1 foot from the south end.

330			**Railing-Metal**	2	16	m	14	2	0	0
	1020		**Connection**	2	1		0	1	0	0
	1900		**Distortion**	2	1		0	1	0	0

(330-1020)
The steel post 4 is deformed and bent at the bottom connection with the culvert top slab. (see the attached photo no. 3)

(330-1900)
The web of the steel post 3 is deformed and bent at the south rail. (see the attached photo no. 4)

WORK RECOMMENDATIONS

RecDate: 08/13/2015
Action : Sub-Misc.
Work By: LOCAL AGENCY
Status : PROPOSED

EstCost:
StrTarget: 2 YEARS
DistTarget:
EA:

Repair the northeast wingwall that is separated from structure, horizontal movement of 6" at the top and 2" at the bottom, it caused erosion behind the culvert wall and depression in the roadway corner.

Team Leader : Ashraf Shenouda

Report Author : Ashraf Shenouda

Inspected By : A.Shenouda/KD.Henderson

3/16/18

Ashraf Shenouda (Registered Civil Engineer) (Date)

STRUCTURE INVENTORY AND APPRAISAL REPORT

********** IDENTIFICATION **********

(1) STATE NAME- CALIFORNIA 069
(8) STRUCTURE NUMBER **55C0065**
(5) INVENTORY ROUTE(ON/UNDER)- ON 140000000
(2) HIGHWAY AGENCY DISTRICT 12
(3) COUNTY CODE 059 (4) PLACE CODE 00000
(6) FEATURE INTERSECTED- LIMESTONE CANYON
(7) FACILITY CARRIED- SANTIAGO CNYN ROAD
(9) LOCATION- 4.4 mi se/o JAMBOREE RD.
(11) MILEPOINT/KILOMETERPOINT 0
(12) BASE HIGHWAY NETWORK- PART OF NET 1
(13) LRS INVENTORY ROUTE & SUBROUTE 000000000000
(16) LATITUDE 33 DEG 45 MIN 36.09 SEC
(17) LONGITUDE 117 DEG 42 MIN 12.47 SEC
(98) BORDER BRIDGE STATE CODE % SHARE %
(99) BORDER BRIDGE STRUCTURE NUMBER

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

(43) STRUCTURE TYPE MAIN:MATERIAL- CONCRETE
TYPE- CULVERT CODE 119
(44) STRUCTURE TYPE APPR:MATERIAL- OTHER/NA
TYPE- OTHER/NA CODE 000
(45) NUMBER OF SPANS IN MAIN UNIT 2
(46) NUMBER OF APPROACH SPANS 0
(107) DECK STRUCTURE TYPE- NOT APPLICABLE CODE N
(108) WEARING SURFACE / PROTECTIVE SYSTEM:
A) TYPE OF WEARING SURFACE- NOT APPLICABLE CODE N
B) TYPE OF MEMBRANE- NOT APPLICABLE CODE N
C) TYPE OF DECK PROTECTION- NOT APPLICABLE CODE N

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

(27) YEAR BUILT 1931
(106) YEAR RECONSTRUCTED 1955
(42) TYPE OF SERVICE: ON- HIGHWAY 1
UNDER- WATERWAY 5
(28) LANES:ON STRUCTURE 02 UNDER STRUCTURE 00
(29) AVERAGE DAILY TRAFFIC 8000
(30) YEAR OF ADT 2012 (109) TRUCK ADT 3 %
(19) BYPASS, DETOUR LENGTH 23 KM

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

(48) LENGTH OF MAXIMUM SPAN 3.7 M
(49) STRUCTURE LENGTH 7.9 M
(50) CURB OR SIDEWALK: LEFT 0.0 M RIGHT 0.0 M
(51) BRIDGE ROADWAY WIDTH CURB TO CURB 12.5 M
(52) DECK WIDTH OUT TO OUT 12.8 M
(32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 12.5 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 12.5 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- NOT APPLICABLE CODE N
(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 = 60.7
STATUS
HEALTH INDEX 97.0
PAINT CONDITION INDEX = N/A

********** CLASSIFICATION ********** CODE

(112) NBIS BRIDGE LENGTH- YES Y
(104) HIGHWAY SYSTEM- ROUTE ON NHS 1
(26) FUNCTIONAL CLASS- OTHER PRIN ART URBAN 14
(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 ********** CODE

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

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

(31) DESIGN LOAD- UNKNOWN 0
(63) OPERATING RATING METHOD- FIELD EVAL/ENG JUD 0
(64) OPERATING RATING- 27.2
(65) INVENTORY RATING METHOD- FIELD EVAL/ENG JUD 0
(66) INVENTORY RATING- 16.2
(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 4
(68) DECK GEOMETRY 5
(69) UNDERCLEARANCES, VERTICAL & HORIZONTAL N
(71) WATER ADEQUACY 8
(72) APPROACH ROADWAY ALIGNMENT 8
(36) TRAFFIC SAFETY FEATURES 0000
(113) SCOUR CRITICAL BRIDGES 8

********** 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 12426
(115) YEAR OF FUTURE ADT 2035

********** INSPECTIONS **********

(90) INSPECTION DATE 09/17 (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)

LIMESTONE CANYON

4.4 mi se/o JAMBOREE RD. 09/13/2017 [AAAI] 55C0065

133 - PHOTO-Unclassified

Photo No. 2

Pipe attached at the south side.

119 - PHOTO-Rail-Damage/Deterioration

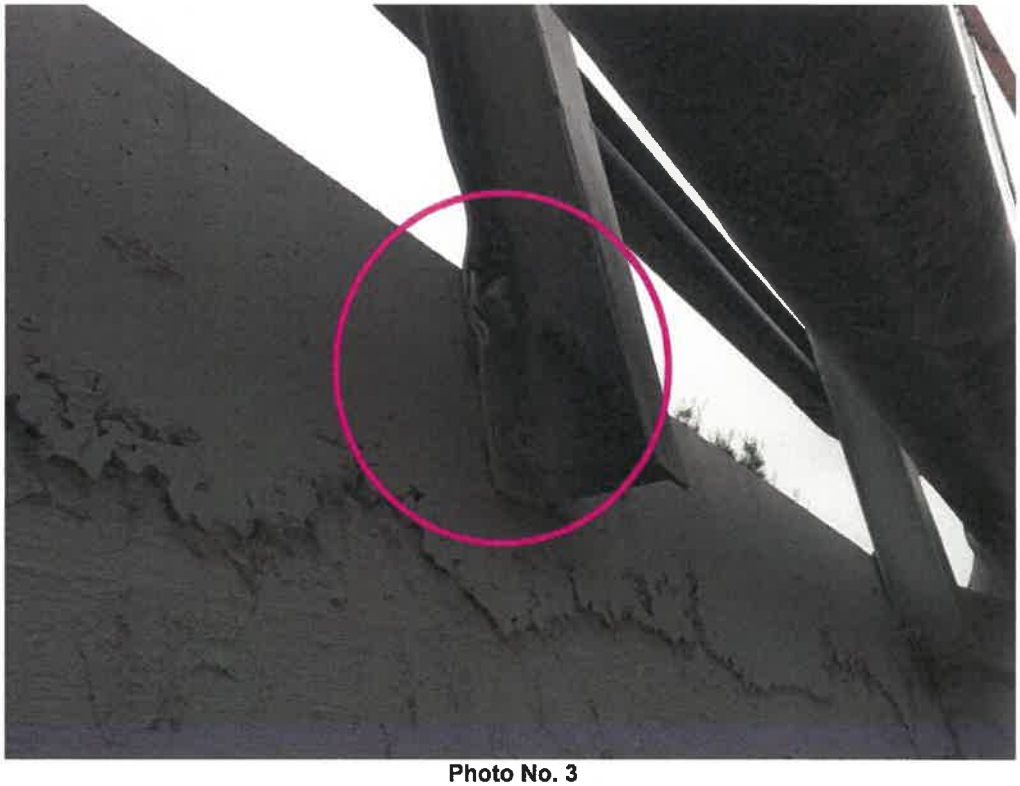

Photo No. 3

Steel post 4 is bent at the south rail.

LIMESTONE CANYON

4.4 mi se/o JAMBOREE RD. 09/13/2017 [AAAI] 55C0065

119 - PHOTO-Rail-Damage/Deterioration

Photo No. 4

Steel post 3 is deformed at the south rail.