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



*Making Conservation a California Way of Life.*

Jeff

August 22, 2018

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

NAIZDY
F.Y. Review
& Action
KB 9/24/18

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 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 Bing Wu @ (213) 897-0874.

Sincerely,

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

Enclosures

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# Bridge Report Transmittal Sheet

## Batch 38704

## County of Orange

| Bridge # | Bridge Name | Location | Inspection Date | Inspection Type | Outstanding Work | Outstanding Cost |
|---|---|---|---|---|---|---|
| 55C0693L | NORTHERLY CHIQUITA CANYON | 0.4 MI E/O ANTONIO PKWY | 04/28/2018 | Routine | N | $ |
| 55C0705 | SANTA ANA DELHI CHANNEL | 0.12 MI E OF BRISTOL ST | 04/29/2018 | Routine | N | $ |

2 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 : 55C0693L**
Facility Carried: COW CAMP ROAD
Location : 0.4 MI E/O ANTONIO PKWY
City :
Inspection Date : 04/28/2018

# Bridge Inspection Report

Inspection Type

| Routine | FC | Underwater | Special | Other |
|---|---|---|---|---|
| X | | | | |

**STRUCTURE NAME: NORTHERLY CHIQUITA CANYON**

## CONSTRUCTION INFORMATION

Year Built : 2015
Year Modified: N/A
Length (m) : 432.8

Skew (degrees): 0
No. of Joints : 3
No. of Hinges : 1

Structure Description: Eight span continuous span CIP/PS concrete box girder (5 cells) with a hinge in Span 4, on RC two column bents and RC seat type abutments. All founded on CIDH concrete piles.

Span Configuration : (W) 140.0 ft, 2 @ 190.0 ft, 1 @ 190 ft (160.0 ft-hinge-30.0 ft), 3 @ 190.0 ft, 1 @ 135.0 ft (E)

## SAFE LOAD CAPACITY AND RATINGS

Design Live Load: HL 93
Inventory Rating: RF= 1.00 Calculation Method: ASSIGNED (LRFD)
Operating Rating: RF= 1.30 Calculation Method: ASSIGNED (LRFD)
Permit Rating : PPPPP
Posting Load : Type 3: Legal Type 3S2: Legal Type 3-3: Legal

## DESCRIPTION ON STRUCTURE

Deck X-Section: (N) 1.0 ft br, 5.7 ft sw, 53.3 ft, 1.5 ft br (S)
Total Width: 18.7 m Net Width: 16.2 m No. of Lanes: 4 Speed: 45 mph
Min. Vertical Clearance: Unimpaired Overlay Thickness: 0.0 inches
Rail Code: 1111

## DESCRIPTION UNDER STRUCTURE

Channel Description: Natural earth trapezoidal ravine.

## 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 the deck surface, walking on the abutment slopes, and walking under Spans 1, portions of Spans 2 and 6, and Spans 7 and 8. The area under the bridge from approximately midspan of Span 2 to midspan of Span 6 is a designated wildlife sanctuary and are cordoned off by barb wire fencing. The elements within this area were inspected using binoculars.

HISTORY

## INSPECTION COMMENTARY

Construction of this Bridge 55C0693L was completed in 2015. There was no previous structure at this location.

SAFE LOAD CAPACITY

A Load Rating Summary Sheet dated 05/04/2018 is on file for this structure. The current rating has been assigned in accordance with SM&I procedures.

WATERWAY

This bridge spans over a ravine with bike trails and maintenance access road. A channel cross section was taken at the north barrier with measurements made from the top of the timber railing to the channel ground using a weighted tape.

## ELEMENT INSPECTION RATINGS AND COMMENTARY

| Elem No. | Defect /Prot | Element Description | Env | Total Qty | Units | Qty in each Condition State St. 1 | St. 2 | St. 3 | St. 4 |
|---|---|---|---|---|---|---|---|---|---|
| **16** | | **Top Flange-RC** | 2 | 8113 | sq.m | 8104 | 9 | 0 | 0 |
| | **1120** | **Efflorescence/Rust Staining** | 2 | 9 | | 0 | 9 | 0 | 0 |
| (16-1120) The soffit of the northerly overhang has transverse cracks with white efflorescence spots which average 2 feet in length. There is an average of six spots per span. (2 feet x 6 x 8 spans = 96 square feet CS2) | | | | | | | | | |
| **104** | | **Box Girder-PS Conc.** | 2 | 433 | m | 433 | 0 | 0 | 0 |
| (104) There are no significant defects noted. | | | | | | | | | |
| **180** | | **EQ Restrainer Cable-Type II** | 2 | 2 | ea. | 2 | 0 | 0 | 0 |
| (180) There are no significant defects noted. | | | | | | | | | |
| **205** | | **Column-RC** | 2 | 14 | each | 14 | 0 | 0 | 0 |
| (205) There are no significant defects noted. | | | | | | | | | |
| **215** | | **Abutment-RC** | 2 | 38 | m | 38 | 0 | 0 | 0 |
| (215) There are no significant defects noted. | | | | | | | | | |
| **252** | | **Pile-CIDH** | 2 | 1 | ea. | 1 | 0 | 0 | 0 |
| (252) The pile element is included to indicate the presence of piles on this structure. The piles are not exposed for visual inspection. No indication of pile distress is noted in any substructure element. | | | | | | | | | |
| **303** | | **Joint-Assembly w/ Seal** | 2 | 56 | m | 56 | 0 | 0 | 0 |
| (303) There are no significant defects noted. All joints are partially filled with sand which do not impact structure movement. | | | | | | | | | |
| **312** | | **Bearing-Enclosed** | 2 | 1 | each | 1 | 0 | 0 | 0 |
| (312) There were no significant defects noted. There bearings at the abutments and hinge are not visible or accessible for inspection. According to the as-built plans, there are PTFE elastomeric bearings | | | | | | | | | |

## 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| at the abutments and PTFE spherical bearings at the hinge. | | | | | | | | | | |
| **321** | | | **Approach Slab-RC** | 2 | 342 | sq.m | 342 | 0 | 0 | 0 |
| (321) There are no significant defects noted. | | | | | | | | | | |
| **331** | | | **Railing-RC** | 2 | 866 | m | 866 | 0 | 0 | 0 |
| (331) There are no significant defects noted. There are architectural timber railings which are not considered in the rating of the barriers. | | | | | | | | | | |

## WORK RECOMMENDATIONS - NONE

## CHANNEL X-SECTION

Side : Upstream
Measured From : Top of timber railing
X-Section Date: 04/28/2018

| Location | Horiz(m) | Vert(m) | Comments |
|---|---|---|---|
| A1 | 0.00 | 3.30 | Measure at north rail from top of timber |
| B2 | 41.80 | 12.20 | railing which is 4.25 ft from top of |
| B3 | 99.70 | 23.30 | sidewalk using weighted tape |
| B4 | 157.60 | 23.50 | |
| B5 | 215.50 | 19.20 | |
| B6 | 273.40 | 17.50 | |
| B7 | 331.30 | 15.00 | |
| B8 | 389.20 | 13.40 | |
| A9 | 432.50 | 3.90 | |

Team Leader : Vinh-duc L. Dang

Report Author : Vinh-duc L. Dang

Inspected By : VL.Dang/P.Kazi

8-15-18

Vinh-duc L. Dang (Registered Civil Engineer) (Date)

# STRUCTURE INVENTORY AND APPRAISAL REPORT

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

(1) STATE NAME- CALIFORNIA 069
(8) STRUCTURE NUMBER **55C0693L**
(5) INVENTORY ROUTE(ON/UNDER)- ON 14000000
(2) HIGHWAY AGENCY DISTRICT 12
(3) COUNTY CODE 059 (4) PLACE CODE 00000
(6) FEATURE INTERSECTED- CHIQUITA CANYON CREEK
(7) FACILITY CARRIED- COW CAMP ROAD
(9) LOCATION- 0.4 MI E/O ANTONIO PKWY
(11) MILEPOINT/KILOMETERPOINT 0
(12) BASE HIGHWAY NETWORK- NOT ON NET 0
(13) LRS INVENTORY ROUTE & SUBROUTE
(16) LATITUDE 33 DEG 31 MIN 43.79 SEC
(17) LONGITUDE 117 DEG 36 MIN 38.11 SEC
(98) BORDER BRIDGE STATE CODE % SHARE %
(99) BORDER BRIDGE STRUCTURE NUMBER

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

(43) STRUCTURE TYPE MAIN:MATERIAL- PRSTR CONC CONT
TYPE- BOX BEAM OR GIRDER - MULTI CODE 605
(44) STRUCTURE TYPE APPR:MATERIAL- OTHER/NA
TYPE- OTHER/NA CODE 000
(45) NUMBER OF SPANS IN MAIN UNIT 8
(46) NUMBER OF APPROACH SPANS 0
(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 2015
(106) YEAR RECONSTRUCTED
(42) TYPE OF SERVICE: ON- HIGHWAY-PEDESTRIAN 5
UNDER- WATERWAY 5
(28) LANES:ON STRUCTURE 04 UNDER STRUCTURE 00
(29) AVERAGE DAILY TRAFFIC 4000
(30) YEAR OF ADT 2017 (109) TRUCK ADT 3 %
(19) BYPASS, DETOUR LENGTH 10 KM

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

(48) LENGTH OF MAXIMUM SPAN 57.9 M
(49) STRUCTURE LENGTH 432.8 M
(50) CURB OR SIDEWALK: LEFT 1.8 M RIGHT 0.0 M
(51) BRIDGE ROADWAY WIDTH CURB TO CURB 16.2 M
(52) DECK WIDTH OUT TO OUT 18.7 M
(32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 16.5 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 16.2 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 = 85.2
STATUS
HEALTH INDEX 100.0
PAINT CONDITION INDEX = N/A

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

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

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

(31) DESIGN LOAD- HL 93 A
(63) OPERATING RATING METHOD- ASSIGNED (LRFD) F
(64) OPERATING RATING- RF= 1.30
(65) INVENTORY RATING METHOD- ASSIGNED (LRFD) F
(66) INVENTORY RATING- RF= 1.00
(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 4
(69) UNDERCLEARANCES, VERTICAL & HORIZONTAL N
(71) WATER ADEQUACY 8
(72) APPROACH ROADWAY ALIGNMENT 8
(36) TRAFFIC SAFETY FEATURES 1111
(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 6000
(115) YEAR OF FUTURE ADT 2036

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

(90) INSPECTION DATE 04/18 (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)

# NORTHERLY CHIQUITA CANYON

0.4 MI E/O ANTONIO PKWY | 04/28/2018 [DSMI] | 55C0693L

100 - PHOTO-Routine-Roadway View

Photo No. 1

Looking west standing east of the bridge.

101 - PHOTO-Routine-Elevation View

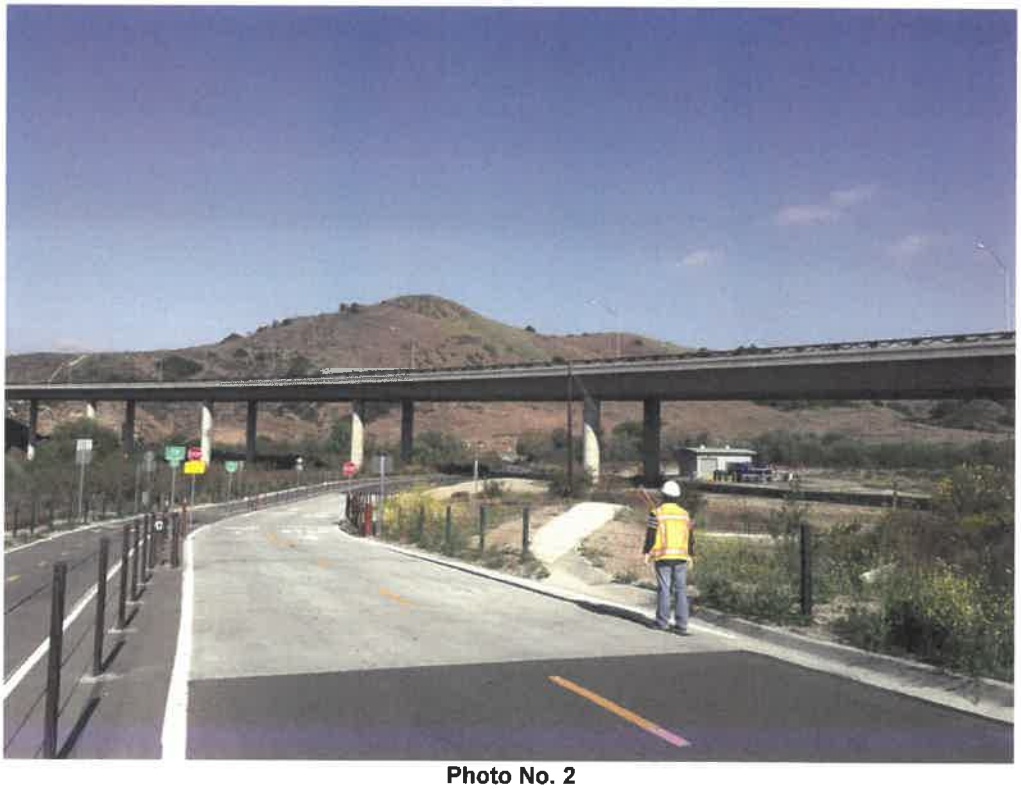

Photo No. 2

Looking north standing south of the bridge.

# NORTHERLY CHIQUITA CANYON

0.4 MI E/O ANTONIO PKWY 04/28/2018 [DSMI] 55C0693L

135 - PHOTO-Routine-Underside View

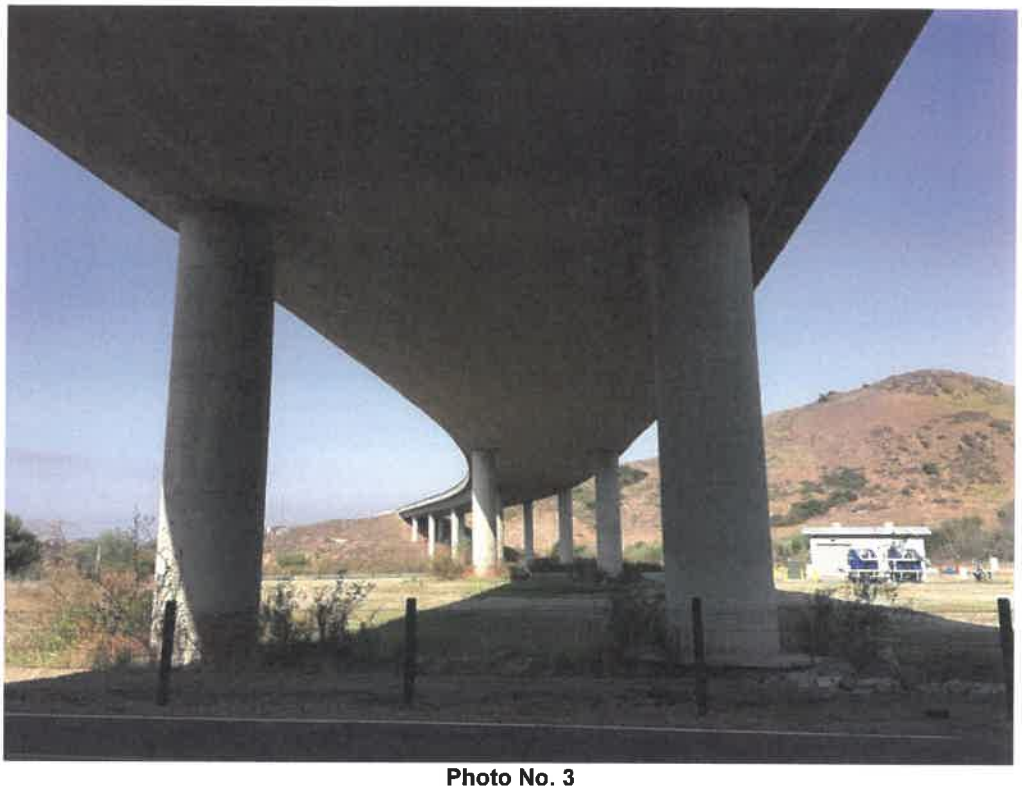

Photo No. 3

Looking west standing under Span 8.

135 - PHOTO-Routine-Underside View

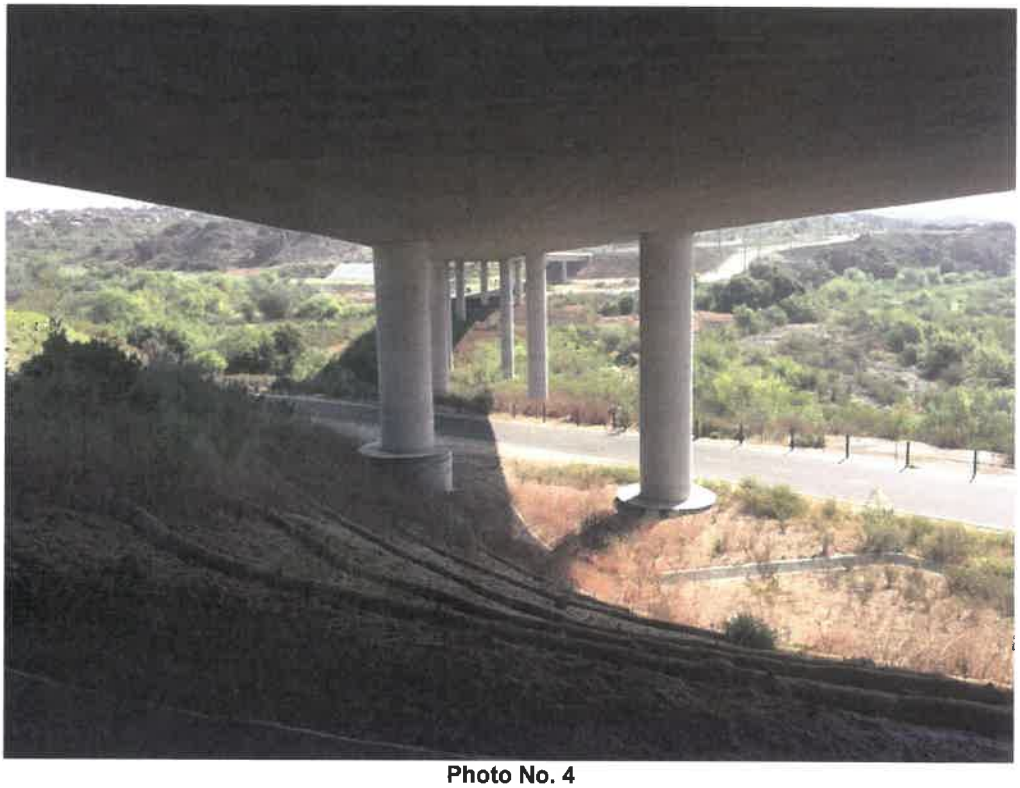

Photo No. 4

Looking east standing in front of Abutment 1.