DEPARTMENT OF TRANSPORTATION
Structure Maintenance & Investigations

Bridge Number : 55C0371
Facility Carried: SEGERSTROM-SLATER
Location : 0.3 MI. W/O HARBOR BLVD.
City :
Inspection Date : 06/28/2017

Bridge Inspection Report

Inspection Type

Routine	FC	Underwater	Special	Other
X				

STRUCTURE NAME: SANTA ANA RIVER CHANNEL (SEGERSTROM-SLATER)

CONSTRUCTION INFORMATION

Year Built : 1974
Year Modified: 1982
Length (m) : 100

Skew (degrees): 13
No. of Joints : 2
No. of Hinges : 0

Structure Description: Continuous 5-span CIP/RC T-beam (10 each) with RC pier walls and RC open end seat abutments, all supported upon concrete piles.

Span Configuration : (W) 54.00 ft, 3 @ 72.00 ft, 72.00 ft (E)

SAFE LOAD CAPACITY AND RATINGS

Design Live Load: MS-18 OR HS-20
Inventory Rating: RF= 1.11 Calculation Method: (LRFR) LD & RES FACT RATING
Operating Rating: RF= 1.43 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: (S) 1.00 ft br, 5.00 ft sw, 64.00 ft, 5.00 ft sw, 1.00 ft br (N)
Total Width: 23.2 m Net Width: 19.5 m No. of Lanes: 4 Speed: 45 mph
Min. Vertical Clearance: Unimpaired Overlay Thickness: 0.0 inches

Rail Code: 1000

Rail Type	Location	Length (ft)	Rail Modifications
Type 11	Right/Left	660	

DESCRIPTION UNDER STRUCTURE

Channel Description: RC 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

This inspection was performed by walking on the sidewalks, on the abutment slopes and under all spans of the superstructure. The water in the channel was 2 inches with 7 feet wide through span 3 during the time of inspection. A full inspection is performed for all substructure elements.

INSPECTION COMMENTARY

REVISIONS

The slope protection (element 256) is deleted from element table, because the channel lining in continuous at the channel and under the bridge.

DECK AND ROADWAY

The approach sidewalks at the two corners north-east and south-west have vertical offset up to 2 inches.

An electric cover is missing at the light pole above span 1 at the south side. (see the attached photo no. 4)

The north deck elevation has two holes from the previous steel rail.

The south west corner of the curb is broken 2.5 feet. (see the attached photo no. 6)

SAFE LOAD CAPACITY

A load Rating Summary sheet is archived in BIRIS on 04/23/2015. The current load rating was based on calculations dated 04/23/2015.

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
16			**Top Flange-RC**	2	2320	sq.m	2260	60	0	0
	1120		**Efflorescence/Rust Staining**	2	60		0	60	0	0
	521		**Concrete Coat.(Meth/Paint/Seal)**	2	1950	sq.m	1950	0	0	0

(16-1120)
There are few transverse cracks with white efflorescence in many bays at every span.

The south and north overhangs exhibit few transverse cracks 2 feet long and 1-1.5 spaing at Bents area 2, 3 and 4.

(16-521)
The bridge deck was methacrylated.

110			**Girder/Beam-RC**	2	1000	m	983	17	0	0
	1080		**Delamination/Spall/Patched Area**	2	1		0	1	0	0
	1120		**Efflorescence/Rust Staining**	2	1		0	1	0	0
	1130		**Cracking (RC and Other)**	2	15		0	15	0	0

(110-1080)
There is a spall 4 inches x 3 inches x 1 inch at girder 1 (north) at span 2 at bottom, 2 feet from pier wall 3.

(110-1120)
The north girder at pier wall 3 has a white efflorescence stain 3 feet long at north face.

(110-1130)
Most concrete girders have few vertical and diagonal cracks, up to 0.03 inches wide near the supports.

210			**Pier Wall-RC**	2	96	m	92	3	1	0

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
	1080	Delamination/Spall/Patched Area	2	1		0	0	1	0
	1130	Cracking (RC and Other)	2	3		0	3	0	0

(210-1080)
The south end of northerly portion of pier wall 3 has two spalls 6 inches X 4 inches X 1 inch at the west face.

The south end of northerly portion of pier wall 3 has a spall 6 inches W X 24 inches L X 3 inches D at the top. (see the attached photos no. 9 & 10)

(210-1130)
Pier wall 3 has two vertical cracks, up to 0.05 inches wide.

Pier wall 4 has two vertical cracks, up to 0.05 inches wide.

215		Abutment-RC	2	48	m	48	0	0	0

(215)
There were no significant defects noted.

227		Pile-RC	2	1	ea.	1	0	0	0

(227)
The pile element is included to indicate the presence of piles on this structure. The piles were not exposed for visual inspection. No indication of pile distress was noted in any substructure element.

302		Joint-Compression Seal	2	39	m	26	13	0	0
	2350	Debris Impaction (Joints)	2	12		0	12	0	0
	2360	Adjacent Deck or Header (Joints)	2	1		0	1	0	0

(302)
There were no significant defects noted.

(302-2350)
Joint seals 2 and 5 is partially filled with debris.

(302-2360)
The header of the east joint has a crack 3 feet long at south end. (see the attached photo no. 1)

312		Bearing-Enclosed	2	2	each	2	0	0	0

(312)
There were no significant defects noted.

333		Railing-Other	2	200	m	170	28	2	0
	1080	Delamination/Spall/Patched Area	2	20		0	18	2	0
	1130	Cracking (RC and Other)	2	10		0	10	0	0

(333-1080)
There are two spalls 15 inches X 5 inches X 1.5 inches with exposed rebars at the inside face of the south rail at 50 and 70 feet from west end; and many spalls +/- 6 inches X 4 inches X 1 inch with rebar exposed and rusted at many locations of the inside face of both rails. (see the attached photos no. 2, 3 & 5)

The south and north rails exhibit several unsound concrete areas 6 inches X 6 inches.

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

(333-1130)
The south and north concrete portion exhibit few vertical cracks , up to 0.04 inches wide.

WORK RECOMMENDATIONS

RecDate: 06/28/2017 Action : Sub-Patch spalls Work By: LOCAL AGENCY Status : PROPOSED	EstCost: StrTarget: 2 YEARS DistTarget: EA:		Repair the spall at the south end of northerly portion of pier wall 3 that has a spall 6 inches W X 24 inches L X 3 inches D at the top.
RecDate: 10/24/2014 Action : Railing-Misc. Work By: LOCAL AGENCY Status : PROPOSED	EstCost: StrTarget: 2 YEARS DistTarget: EA:		Repair the approach sidewalks at the two corners northeast and southwest are vertically offset up to 2 inches.
RecDate: 05/16/2012 Action : Railing-Repair Work By: LOCAL AGENCY Status : PROPOSED	EstCost: StrTarget: 2 YEARS DistTarget: EA:		Repair the two spalls 15 inches X 5 inches X 1.5 inches with exposed rebars at the inside face of the south rail at 50 and 70 feet from west end; and many spalls +/- 6 inches X 4 inches X 1 inch with rebar exposed and rusted at many locations of the inside face of both rails.

Team Leader : Ashraf Shenouda

Report Author : Ashraf Shenouda

Inspected By : A.Shenouda/KD.Henderson

12/26/17

Ashraf Shenouda (Registered Civil Engineer) (Date)

STRUCTURE INVENTORY AND APPRAISAL REPORT

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

(1) STATE NAME- CALIFORNIA 069
(8) STRUCTURE NUMBER **55C0371**
(5) INVENTORY ROUTE(ON/UNDER)- ON 140000000
(2) HIGHWAY AGENCY DISTRICT 12
(3) COUNTY CODE 059 (4) PLACE CODE 00000
(6) FEATURE INTERSECTED- SANTA ANA RIVER CHANNEL
(7) FACILITY CARRIED- SEGERSTROM-SLATER
(9) LOCATION- 0.3 MI. W/O HARBOR BLVD.
(11) MILEPOINT/KILOMETERPOINT 0
(12) BASE HIGHWAY NETWORK- NOT ON NET 0
(13) LRS INVENTORY ROUTE & SUBROUTE
(16) LATITUDE 33 DEG 42 MIN 32.31 SEC
(17) LONGITUDE 117 DEG 55 MIN 33.9 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- NONE CODE 0
B) TYPE OF MEMBRANE- NONE CODE 0
C) TYPE OF DECK PROTECTION- NONE CODE 0

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

(27) YEAR BUILT 1974
(106) YEAR RECONSTRUCTED 1982
(42) TYPE OF SERVICE: ON- HIGHWAY-PEDESTRIAN 5
UNDER- WATERWAY 5
(28) LANES:ON STRUCTURE 04 UNDER STRUCTURE 00
(29) AVERAGE DAILY TRAFFIC 30000
(30) YEAR OF ADT 2012 (109) TRUCK ADT 1 %
(19) BYPASS, DETOUR LENGTH 2 KM

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

(48) LENGTH OF MAXIMUM SPAN 21.9 M
(49) STRUCTURE LENGTH 100.0 M
(50) CURB OR SIDEWALK: LEFT 1.5 M RIGHT 1.5 M
(51) BRIDGE ROADWAY WIDTH CURB TO CURB 19.5 M
(52) DECK WIDTH OUT TO OUT 23.2 M
(32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 20.1 M
(33) BRIDGE MEDIAN- NO MEDIAN 0
(34) SKEW 13 DEG (35) STRUCTURE FLARED NO
(10) INVENTORY ROUTE MIN VERT CLEAR 99.99 M
(47) INVENTORY ROUTE TOTAL HORIZ CLEAR 19.5 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

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SUFFICIENCY RATING = 95.2
STATUS
HEALTH INDEX 99.1
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- 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 9
(62) CULVERTS N

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

(31) DESIGN LOAD- MS-18 OR HS-20 5
(63) OPERATING RATING METHOD- (LRFR) LD & RES FA 8
(64) OPERATING RATING- RF= 1.43
(65) INVENTORY RATING METHOD- (LRFR) LD & RES FA 8
(66) INVENTORY RATING- RF= 1.11
(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 7
(69) UNDERCLEARANCES, VERTICAL & HORIZONTAL N
(71) WATER ADEQUACY 9
(72) APPROACH ROADWAY ALIGNMENT 8
(36) TRAFFIC SAFETY FEATURES 1000
(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 48034
(115) YEAR OF FUTURE ADT 2036

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

(90) INSPECTION DATE 06/17 (91) FREQUENCY 48 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)

Photo No. 1
Header joint crack 3 feet long at east Abutment.

Photo No. 2
Several spall w/rebar exposed at both rails.

Photo No. 3
A spall 15 " X 5" X 1.5 at the interior face of the south rail.

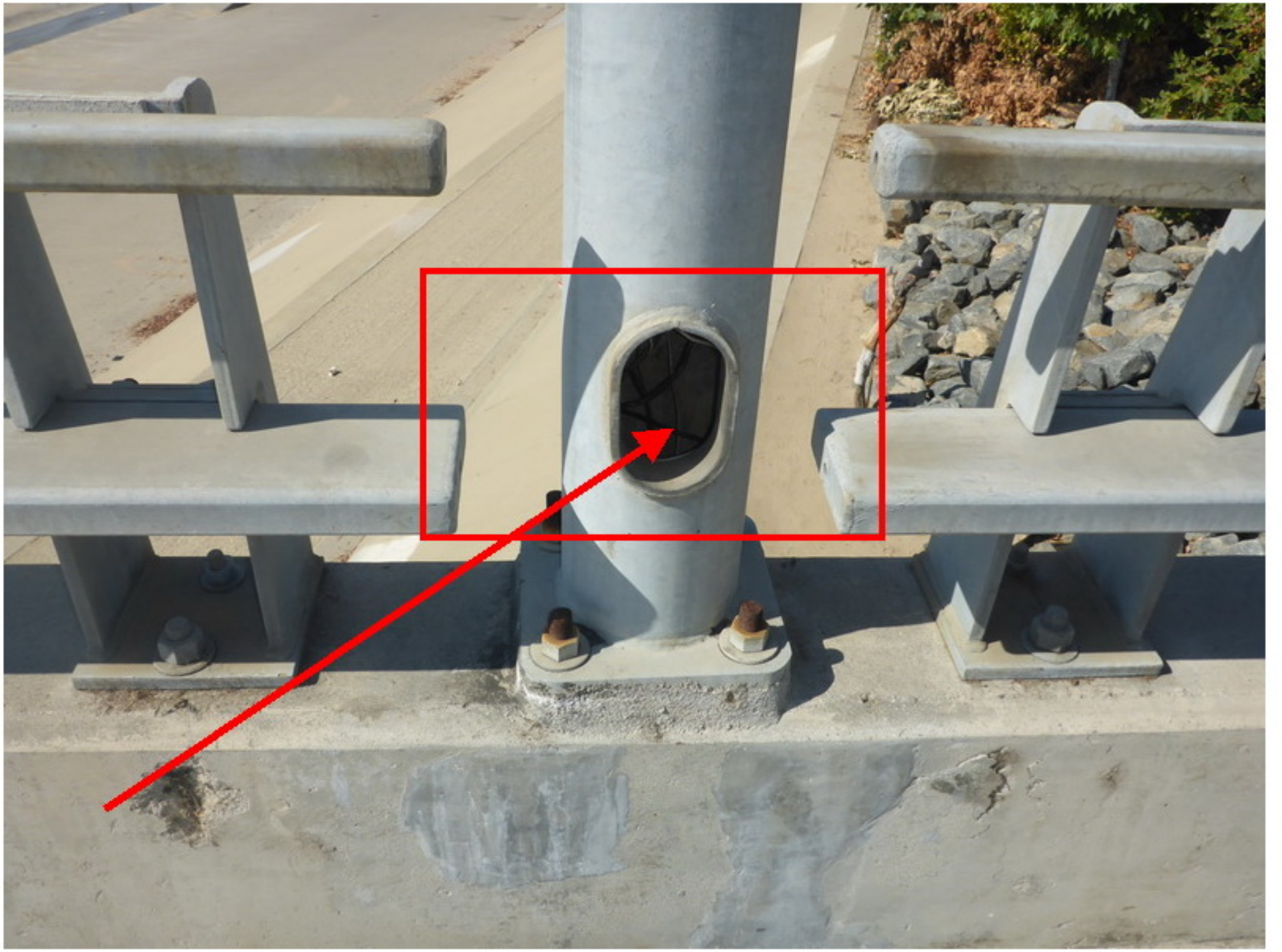

Photo No. 4
Electric cover is missing at span 1 southerly side.

Photo No. 5
A spall 15 " X 5" X 1.5 at the interior face of the south rail.

Photo No. 6
Curb south-west corner is brokn 2.5 feet.

Photo No. 7
Enchoachment.

Photo No. 8
Encroachemnts

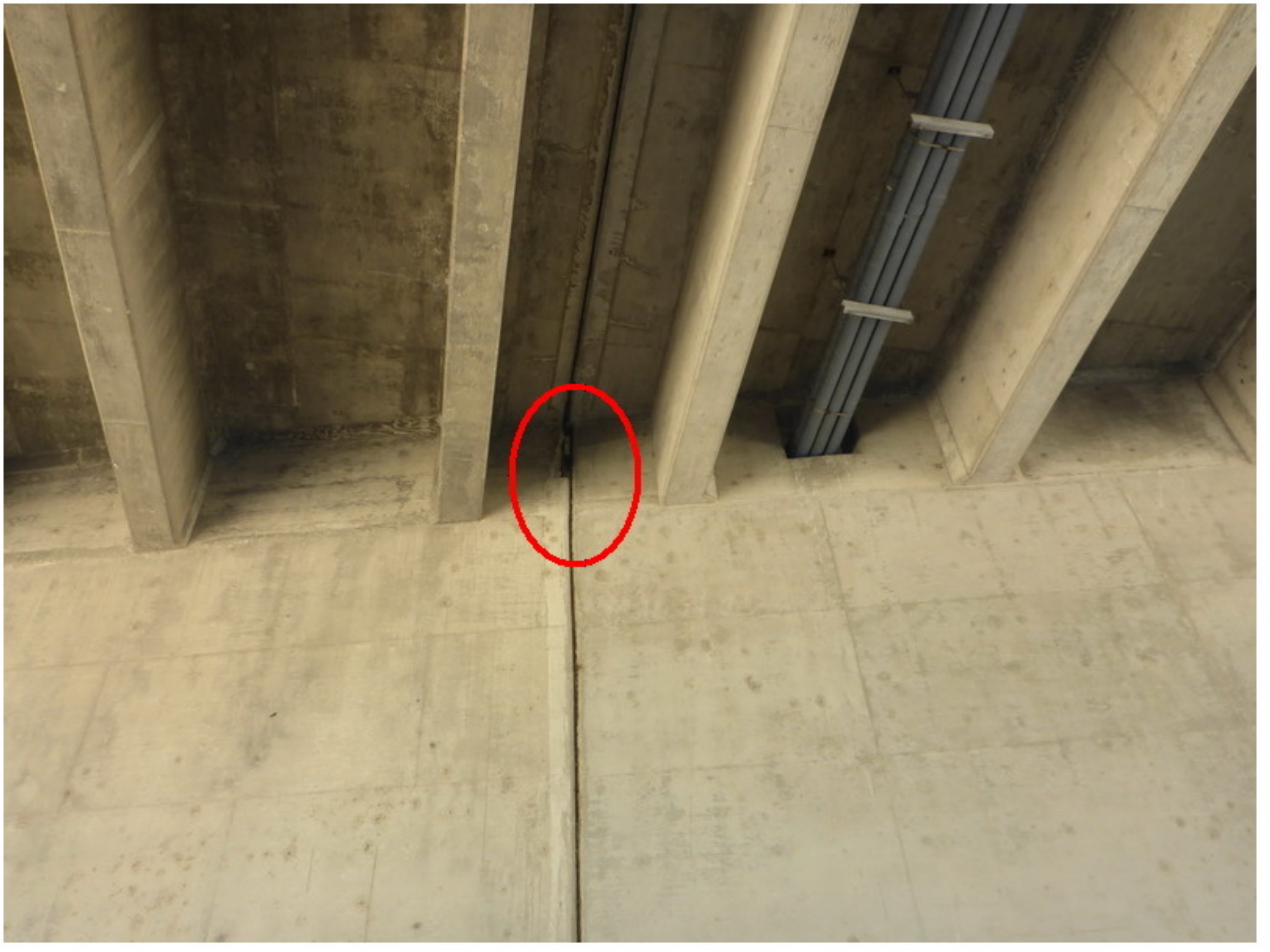

Photo No. 9
Spall 6 in X 24 in X 3 in at the top of the southerly end of the northerly half.

Photo No. 10
Spall 6 in X 24 in X 3 in at the top of the southerly end of the northerly half.

Photo No. 11
Encroachments

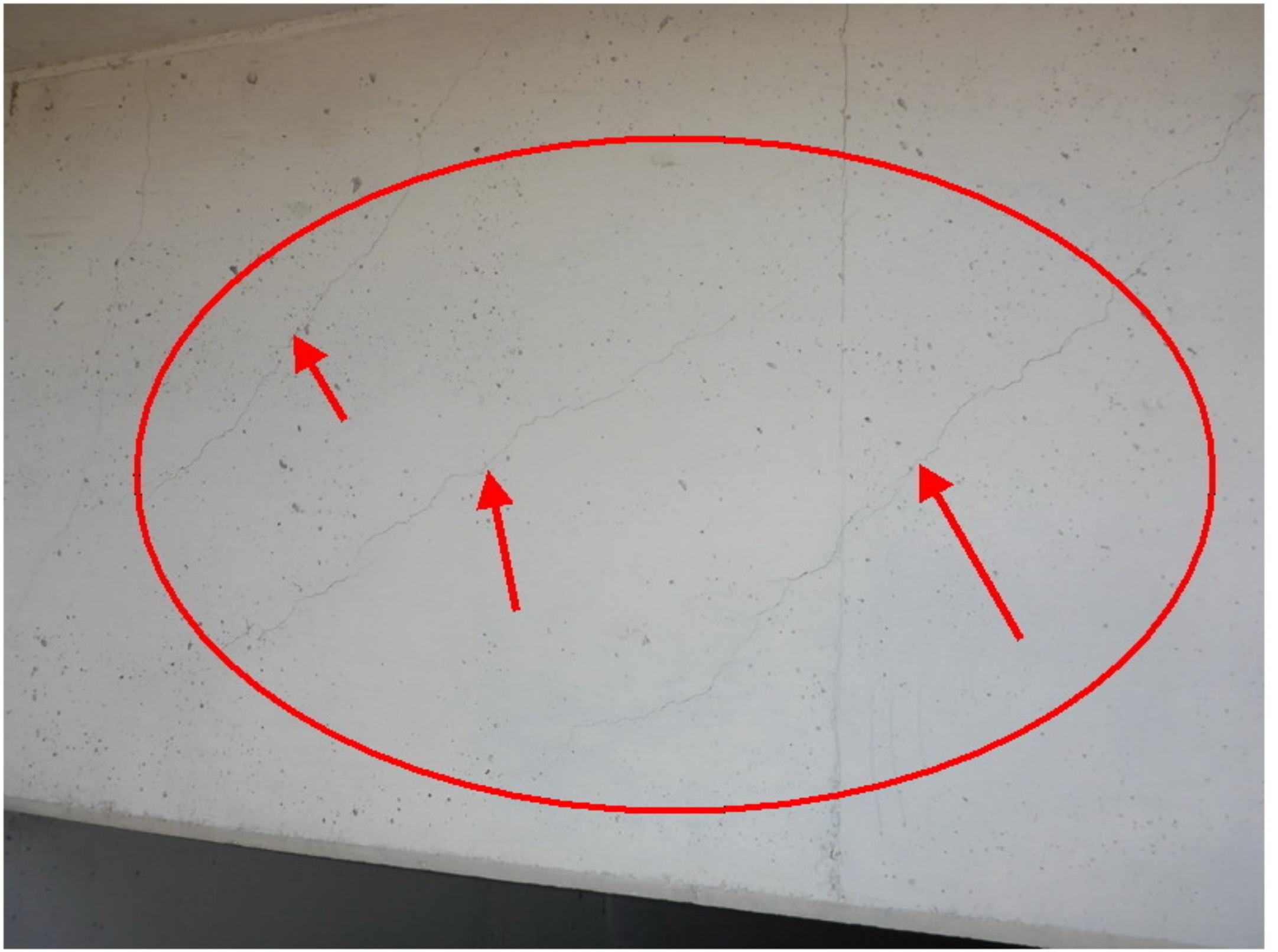

Photo No. 12
Vertical and diagonal crakcs at the RC girders near the supports.