STRUCTURE NO. 03590

GARDNER STREET

over

INTERSTATE-384 + HOP BRK

MANCHESTER

Indepth Inspection

on

6/1/2011

Inspected by AI Engineers - 2

for Area 3

TEAM:	Forwarded to TE3	Rosmery Rodriguez	Date	7/7/2011
TE3:	Reviewed by TE3	Rosmery Rodriguez	Date	7/15/2011
	BMM Required	Yes		
	Town Bridge	No		
	Rating <= 5 (Items 58,59,60 or 62)	Yes		
	Rating Change 2 or More Values	No		
	Forwarded to Supervisor	Sandra Dumas	Date	7/21/2011
	Forwarded to "To Be Copied Drawer"	☐	Date	
	Date BRI-19 Entered	7/21/2011		
SUPERVISOR:	Reviewed by Supervisor	S Dumas	Date	7/22/11
SUPPORT:	Date Copies Made	8/26/11	BMM No	11-431
	Scanned By:		Date Scanned	11/5/11
	PDF Box No			

NBI: Yes

CONNECTICUT
DEPARTMENT OF TRANSPORTATION

BRIDGE SAFETY INSPECTION
STATE PROJECT NO. 170-3013

IN-DEPTH INSPECTION REPORT FOR BRIDGE NO. 03590

CARRYING GARDNER STREET
OVER
INTERSTATE-384 AND HOP BROOK
MANCHESTER, CONNECTICUT

STEEL MULTI GIRDER

INSPECTED JUNE 01, 2011

Prepared by:

AI Engineers, Inc.

919 Middle Street
Middletown, CT 06457

RECEIVED
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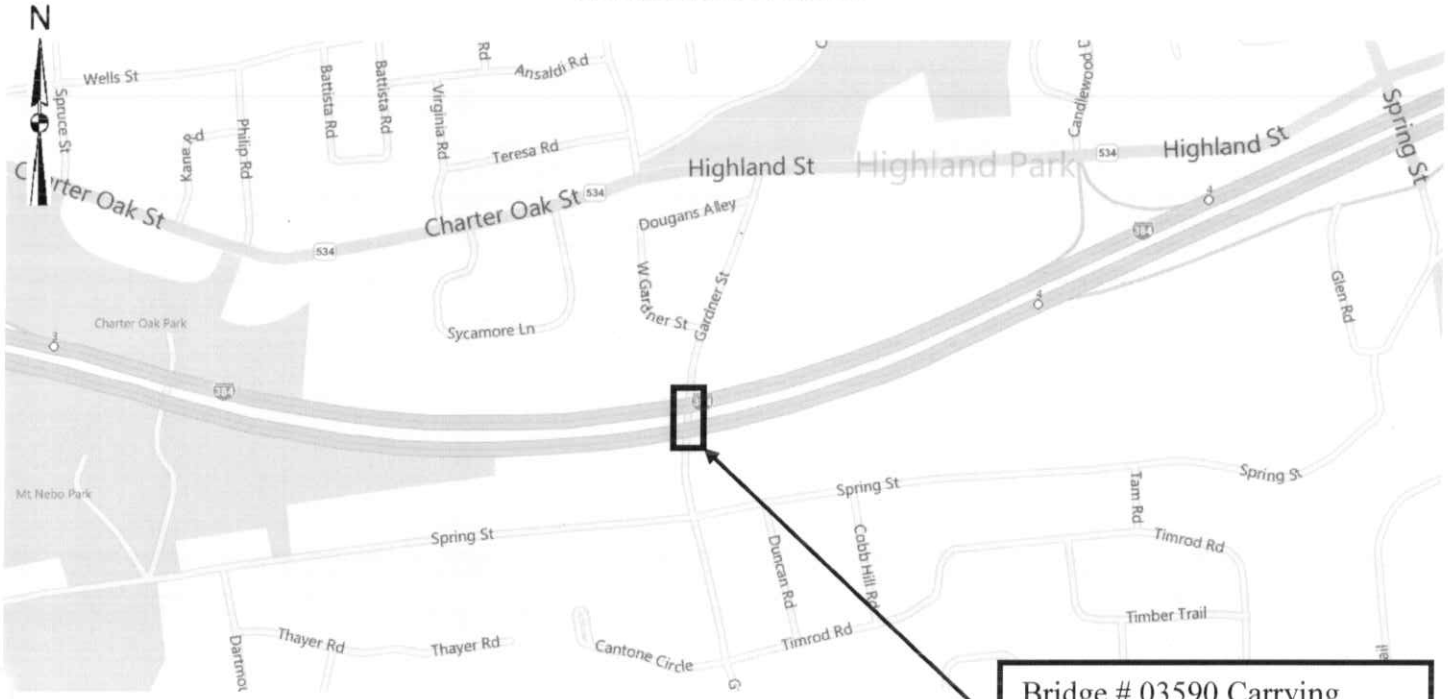
BRIDGE SAFETY & EVALUATION

STATE OF CONNECTICUT
BASIL B. BANTIMBA
No. 23092
LICENSED
PROFESSIONAL ENGINEER

7/5/2011

LOCATION MAP



Bridge # 03590 Carrying Gardner Street over Interstate 384 & Hop Brook, Manchester, CT

AERIAL VIEW

DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

FORM BRI-27

Structure No. **03590** Town Manchester

Inspectors: MAI, CC (AI Engineers Inc.) Date 6/1/2011

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RECEIVED
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CONNECTICUT DOT
BRIDGE SAFETY & EVALUATION

Loose Forms (not bound in report)	No. of Sheets Enclosed
Maintenance Memo	10
Flagging Memos	0
BRI-11, Seismic Screening Data Sheet	0
BRI-12, Fracture Critical Inspection Data Sheet	1
BRI-19, Hwy Bridge SI&A Form	2
BRI-25, Under Entry SI&A Form	1
BRI-39, RR Bridge SI&A Form	0
BRI-49, Sign Structure SI&A Form	0
PONTIS Element Data Collection Form	2
Plan Sheets. PROJECT # 76-86 (1968) Check here if already on file ☑	0

Bound Report Pages	
Title Cover Sheet	1
Table of Contents	1
Executive Summary	6
BRI-18, Bridge Inspection Form	10
BRI-20, Bridge Inspection Form	0
BRI-48, Sign Structure Inspection Form	0
Field Notes (Include Forms BRI-10, BRI-13, BRI 14, BRI-15, BRI-16, BRI-17, BRI-29, BRI-30)	31
Calculations:	
Load Rating Evaluation	0
Quantities & Cost Estimate	0
Photo Sheets	23
Photos	45
Back-up Material	26
Location Map	1

Bridge Number **03590**

Inspected By: M. IQBAL & C. CHUCK

Sufficiency Rating 94.94

Previous Inspection Date 5/29/2009

BS&E Received ☐ Data Entry By: RR

Copies Made ☐ Data Entry Date: 7/21/11

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION
BRIDGE SAFETY & EVALUATION

STRUCTURE EVALUATION

SHEET 1 OF 2 FORM BRI-19 REV 10/00

SHEET 1 OF 2

90) Inspection Date 06/01/11 Inspection Team 24 2 4 91) Frequency 24 Class: 02

Indepth Insp 9/12/2000 06/01/11 Deck Survey Access 15 3 5 Flagman 0 0

CRITICAL FEATURE INSPECTIONS

	Type	Frequency	Team	Date
Fracture:				
Uwater:				
Special:				

RED FLAG ☐

IDENTIFICATION

Bridge Name

Town Name MANCHESTER Town Code 44700

5) Inventory Route:

A) Record Type 1 D) Route Number 00000

B) Signing Prefix 5 City Street E) Directional Suffix 0 NA

C) Level of Service 0 None of the bel

6) Feature Intersected INTERSTATE-384 + HOP BRK

7) Facility Carried: GARDNER STREET

9) Location 1 MI EAST JUNC RT 83

11) Milepoint 6.27 Miles

16) Latitude 41deg 45 min 42.00 sec deg min sec

17) Longitude 72deg 30 min 12.00 sec deg min sec

98) Border Bridge:

A) State Code B) Percent Responsibility %

C) Border Town Name

99) Border Bridge Structure No

STRUCTURE TYPE AND MATERIAL

43) Structure Type, Main:

A) Material 4 Steel continuous B) Design Type 2 Stringer/Multi-beam o

44) Structure Type, Approach:

A) Material 0 Other B) Design Type 0 Other

45) Number of Spans, Main Unit 3

46) Number of Approach Spans 0

107) Deck Structure Type 1 Concrete Cast-in-Place

108) Wearing Surface/Protective System:

A) Type of Wearing Surface 6 Bituminous

B) Type of Membrane 8 Unknown WOVEN GLASS FABRIC MEMBRANE WATERPROOFING. 2

C) Type of Deck Protection 0 None

AGE AND SERVICE

27) Year Built 1970 106) Year Reconstructed

42) Type of Service:

A) On 5 Highway-pedestrian B) Under 6 HIGHWAY-WATER

28) Number of Lanes:

A) On 2 B) Under 7 0 6

* 29) Average Daily Traffic 400 4 1 2 Half ADT?: No N

109) Percent Truck 2%

30) Year of ADT 2007 2 0 1 0

19) Bypass, Detour Length 2miles

GEOMETRIC DATA

48) Length of Max Span 135ft

49) Structure Length 409ft

50) Curb or Sidewalk Widths:

A) Left 5.5ft B) Right 5.5ft ft

51) Brg Rdwy width,curb-curb 34.0ft ft

52) Deck Width, Out-Out 47.5ft ft

32) Approach Roadway Width 34ft ft

33) Bridge Median 0 No Median

Deck Area 19427 sqft sqft

34) Skew Angle 16deg

35) Structure Flared 0

10)Inv. Rte. Min. Vert Clearance 99ft 99in ft in

47) Log Inv. Rte. Total Horiz Clr.: 34.0ft ft

47) RLog Inv. Rte. Total Horiz. Clr.: ft ft

53) Min Vert Clearance Over Bridge 99ft 99in ft in

54) Min Vert Under Clearance H Ref 16ft 5in Ref ft in

55) Min Lat Under Clearance on Right H Ref 11.4ft Ref 1 0 . 2 ft

56) Min Lat Under Clearance on Left 12.5ft 1 6 . 4 ft

BRIDGE COMMENTS

* ITEM 29: ESTIMATED BASED ON 1% INCREASE IN ADT FOR LOCAL ROADS.

STRUCTURE EVALUATION

SHEET 2 OF 2 FORM BRI-19 REV 10/00

SHEET 2 OF 2

Bridge Number	03590	NBIS Length
Town Name	MANCHESTER	Yes 409
Facility Carried	GARDNER STREET	
Feature Crossed	INTERSTATE-384 + HOP BRK	

Inspected By: M. IQBAL & C. CHUCK

CLASSIFICATION

112) NBIS Bridge Length	Yes	
104) Highway System	0	Off System
26) Functional Class	19	Urban Local
100) Defense Highway	0	Route is not a STRAHNET Route
101) Parallel Structure	N	No parallel structure exists
102) Direction of Traffic	2	2-way traffic
103) Temporary Structure		
110) Designated National Network	1	On national network
20) Toll	3	On Free Road
21) Maintain	1	State Highway Agency
22) Owner	1	State Highway Agency
Report Class	S	STATE
37) Historical Significance	5	Bridge is not eligible for National Register

WATERWAY

DrainageBasinCode	4599	
38) Navigation Control	0	No navigation control on waterway
39) Navigation Vert Clr.	0	40) Navigation Horiz Clr. 0
116) Vert-Lift Brg Nav Min		
111) Pier Abutment Protection		

PROPOSED IMPROVEMENTS

75A) Type of Work Proposed		
75B) Work Done By		
76) Length of Struct. Improvement		ft
94) Bridge Improvement Cost	$	
95) Roadway Improvement Cost	$	
96) Total Project Cost	$	
97) Year of Improvement Cost Est.		
114) Future ADT		115) Year Future ADT
List No.		Project No.
		Advertised

POSTED SIGNS & UTILITIES

Other Posted Signs 1				
Other Posted Signs 2				
Actual P.L. Single Unit Truck	tons	Actual P.L. 4Axle Truck	tons	
Rec. P.L. Single Unit Truck	tons	Rec. P.L. 4Axle Truck	tons	
Actual P.L. Semi-TrailerTruck	tons	Actual P.L. 3S2 Truck	tons	
Rec. P.L. Semi-TrailerTruck	tons	Rec. P.L. 3S2 Truck	tons	
Rec. P.L. All Vehicles	tons	Actual P.L. All Vehicles	tons	
Posted Vert Clearance On Bridge	ft in		ft	in
Posted Vert UnderClearance	ft in		ft	in
Posted Speed Limit	mph			mph
Utility				
Utility	1	Gas		
Utility	2	Water		
Utility	3	Electric		
Utility	4	Telephone		

LOAD RATING AND POSTING

31) Design Load	5	Evaluation Code	L	
63) Operating Rating Type	1	Year of Evaluation	2000	
64) Operating Rating	89.4	70) Bridge Posting	5	
65) Inventory Rating Type	1	41) Structure Status	A	A
66) Inventory Rating	53.6			

CONDITION

	Rating	By
58) Deck	5	5 MAI
59) Superstructure	6	5 MAI
60) Substructure	7	7 MAI
61) Channel & Chan. Protection	6	6 MAI
62) Culverts	N	N MAI

APPRAISALS

	Rating	By
67) Structure Evaluation	6	5 ~~BB~~
68) Deck Geometry	7	7 MAI
69) Under Clear Vert & Horiz	5	5 MAI
71) Waterway Adequacy	N	N MAI
72) Approach Rdwy Alignment	8	8 MAI
113) Scour Critical	8	

Items 58 Thru 72 Checked By: [signature] (CDOT)

36) Traffic Safety Features:

A) Bridge Railings	0	0	SUBSTANDARD
B) Transitions	0	0	" 2-CABLE WIRE ROPE W/WOOD POSTS.
C) Approach Guardrail	0	0	" " " "
D) Approach Guardrail End	0	0	" " " "

OTHER FEATURES

Fence Required	Yes	LEAVE BLANK		Barrel Ladder	No N
Fence Present	Yes		Y	Stand Pipes	No N
Fence Height	5.5 ft		05.5 ft	Cat Walks	No N
Fence Type	5	Other	05	Movable Inspection System	No N
Fence Material	2	Steel	02	Loose Concrete Checked?	Yes Y
Fence Top Type	1	Vertical	01		

INSPECTION COMMENTS

Proposed Next Indepth Insp Year	2011
Senior	Paul D'Attilio
Supervisor	Theodore Lapierr

2021

REVIEWED BY: [signature] Date 7/5/2011

BRIDGE NUMBER	TOWN NAME	NBIS BRG LGTH
03590	MANCHESTER	True 409
FACILITY CARRIED	FEATURE CROSSED	
GARDNER STREET	INTERSTATE-384 + HOP BRK	

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION
DIVISION OF BRIDGE SAFETY EVALUATION

INVENTORY ROUTE UNDER STRUCTURE EVALUATION

FORM BRI-25 REV 10/00

INSPECTED BY: M. IQBAL
C. CHUCK

REVIEWED BY: [signature] DATE: 7/5/2011

SHEET 1 OF 1 (INSP. REPORT)

IDENTIFICATION

DESCRIPTION:

5) INVENTORY ROUTE:

A) RECORD TYPE	2	
B) ROUTE SIGNING PREFIX	1	Interstate Highway
C) DESIGNATED LEVEL OF SERVICE	1	Mainline
D) ROUTE NO.	00384	
11) MILE POINT (INV.RTE)	5.09	

CLASSIFICATION

26) INV. RTE. FUNCT CLASSIFICATION	11	Urban Principal Arterial - I
100) DEFENSE HIGHWAY DESIGNATION	1	Route is on a Interstate S
** 102) DIRECTION OF TRAFFIC	2	2-way traffic
104) HIGHWAY SYSTEM OF INV. ROUTE	1	On System
110) DESIGNATED NATIONAL NETWORK	1	On national network

AGE & SERVICE

+ 28B) NUMBER OF INV.ROUTE LANES	7		06
* 29) ADT (INV. RTE)	38600		38300
* 109) TRUCK ADT % (INV.RTE)	14		
* 30) YEAR OF ADT (INV. RTE)	2007		2009
* 41) INV ROUTE OPERATIONAL STATUS	A	Open, no restriction	A
19) BYPASS DETOUR LENGTH	3	Miles	

POSTED SIGNS

+ POSTED VERT. CLR UNDER BRIDGE ft in ft in

COMMENTS:

GEOMETRIC DATA

✓ 10) INV. RTE. MIN. VERT. CLEARANCE	19 ft 6 in	ft in
+ 47) LOG INV. RTE. TOTAL HORIZ CLR.	92.9 ft	94.8 ft
+ 47) RLOG INV. RTE. TOTAL HORIZ CLR.	64 ft	63.5 ft
✓ LOG MIN VERT CLR OVER INV ROUTE	16 ft 5 in	ft in
✓ RLOG MIN VERT CLR OVER INV ROUTE	19 ft 0 in	ft in
+ 55) MIN LAT UNDERCLR ON RIGHT	H 11.4 ft	10.2 ft
✓ 56) MIN LAT UNDERCLR ON LEFT	12.5 ft	16.4 ft

* FILL OUT ON EVERY INSPECTION 29, 109, 30, 41

\+ VERIFY EVERY INSPECTION 28B, 10, 47, 53, 55, 56 & POSTED VERT CLEARANCE UNDER THE BRIDGE

** MUST BE FILLED OUT OR VERIFIED ON THE FIRST INSPECTION MADE BASED ON THE NEW FHWA GUIDE 102

Structure Inventory and Appraisal Sheet (English Units)

Bridge Key: 03590 | Agency ID: 03590 | Sufficiency Rating: 97.9

IDENTIFICATION

State 1:	09 Connecticut	Struc Num 8:	03590
Facility Carried 7:	GARDNER STREET	Location 9:	1 MI EAST JUNC RT 83
Rte.(On/Under)5A:	Route On Structure	Rte. Signing Prefix 5B:	5 City Street
Level of Service 5C:	0 None of the below	Rte. Number 5D:	00000
Directional Suffix 5E:	0 N/A (NBI)	% Responsibility :	0
SHD District 2:	01	County Code 3:	Hartford
Place Code 4:	MANCHESTER	Mile Post 11:	0.210 mi
Feature Intersected 6:	INTERSTATE-384 + HOP BRK		
Latitude 16:	41d 45' 42"	Longitude 17:	072d 30' 12"
Border Bridge Code 98:	Unknown (P)		
Border Bridge Number 99:	NA		

INSPECTION

Frequency 91:	24 months	Inspection Date 90:	6/1/2011	Next Inspection:	06/01/2013
FC Frequency 92A:	NA	FC Inspection Date 93A:	NA	Next FC Inspection:	NA
UW Frequency 92B:	NA	UW Inspection Date 93B:	NA	Next UW Inspection:	NA
SI Frequency 92C:	NA	SI Date 93C:	NA	Next SI:	NA
Element Frequency:	24 months	Element Inspection Date:	06/01/2011	Next Elem. Insp. Due:	06/01/2013

CLASSIFICATION

Defense Highway 100:	0 Not a STRAHNET hwy	Parallel Structure 101:	No || bridge exists
Direction of Traffic 102:	2 2-way traffic	Temporary Structure 103:	Unknown (NBI)
Highway System 104:	0 Not on NHS	NBIS Length 112:	Long Enough
Toll Facility 20:	3 On free road	Functional Class 26:	19 Urban Local
Historical Significance 37:	5 Not eligible for NRHP		
Owner 22:	1 State Highway Agency		
Custodian 21:	1 State Highway Agency		

STRUCTURE TYPE AND MATERIALS

Number of Approach Spans 46: 0 | Number of Spans Main Unit 45: 3

Main Span Material/Design 43A/B:

4 Steel Continuous | 02 Stringer/Girder

Deck Type 107:	1 Concrete-Cast-in-Place
Wearing Surface 108A:	6 Bituminous
Membrane 108B:	2 Preformed Fabric
Deck Protection 108C:	None

CONDITION

Deck 58:	5 Fair	Super 59:	5 Fair	Sub 60:	7 Good
Culvert 62:	N N/A (NBI)	Channel/Channel Protection 61:	6 Bank Slumping		

LOAD RATING AND POSTING

Inventory Rating Method 65:	1 LF Load Factor	Operating Rating Method 63:	1 LF Load Factor
Inventory Rating 66:	HS29.8	Operating Rating 64:	HS49.7
Design Load 31:	5 MS 18 (HS 20)	Posting 70:	5 At/Above Legal Loads
Posting status 41:	A Open, no restriction		

AGE AND SERVICE

Year Built 27:	1970	Year Reconstructed 106:	Unknown
Type of Service on 42A:	5 Highway-pedestrian		
Type of Service under 42B:	6 Highway-waterway		
Lanes on 28A: 2	Lanes Under 28B: 6	Detour Length 19:	2.0 mi
ADT 29: 412	Truck ADT 109: 2 %	Year of ADT 30:	2010

APPRAISAL

Bridge Rail 36A:	0 Substandard	Approach Rail 36C:	0 Substandard
Transition 36B:	0 Substandard	Approach Rail Ends 36D:	0 Substandard
Str. Evaluation 67:	6 5	Deck Geometry 68:	7 Above Min Criteria
Underclearance, Vertical and Horizontal 69:	5 6 Equal Minimum		
Waterway Adequacy 71:	N Not applicable	Approach Alignment 72:	8 7 Above Min Criteria
Scour Critical 113:	8 Stable Above Footing		

GEOMETRIC DATA

Length Max Span 48:	135.0 ft	Structure Length 49:	409.0 ft
Curb/Sdwlk Wdth L 50A:	5.5 ft	Curb/Sidewalk Width R 50B:	5.5 ft
Width Curb to Curb 51:	34.0 ft	Width Out to Out 52:	47.5 ft
Approach Roadway Width 32: (w/ shoulders)	34.0 ft	Median 33:	0 No median
Deck Area:	19,427. sq. ft		
Skew 34:	16.00 °	Structure Flared 35:	0 No flare
Minimum Vertical Clearance Over Bridge 53:		328.1 ft	
Minimum Vertical Underclearance Reference 54A:		H Hwy beneath struct	
Minimum Vertical Underclearance 54B:		16.4 ft	
Minimum Lateral Underclearance Reference R 55A:		H Hwy beneath struct	
Minimum Lateral Undrclearance R 55:		10.2 ft	
Minimum Lateral Undrclearance L 56:		16.4 ft	

PROPOSED IMPROVEMENTS

Bridge Cost 94:	$ 1,000	Type of Work 75:	38 Other Structural
Roadway Cost 95:	$ 1,000	Length of Improvment 76:	0.3 ft
Total Cost 96:	$ 2,000	Future ADT 114:	175
Year of Cost Estimate 97:	2000	Year of Future ADT 115:	2019

NAVIGATION DATA

Navigation Control 38:	0 Permit Not Required		
Vertical Clearance 39:	0.0 ft	Horizontal Clearance 40:	0.0 ft
Pier Protection 111:	Unknown (NBI)	Lift Bridge Vertical Clearance 116:	

ELEMENT CONDITION STATE DATA

Str Unit	Elm/Env	Description	Units	Total Qty	% in 1	Qty. St. 1	% in 2	Qty. St. 2	% in 3	Qty. St. 3	% in 4	Qty. St. 4	% in 5	Qty. St. 5
UNIT0	14/3	P Conc Deck/AC Ovly	(SF)	13,906	0 %	0	0 %	0	100 %	13,906	0 %	0	0 %	0
UNIT0	56/3	Concrete sidewalk	sq.ft	818	0 %	0	100 %	818	0 %	0	0 %	0	0 %	0
UNIT0	107/3	Paint Stl Opn Girder	(LF)	2,428	50 %	1,214	25 %	607	25 %	607	0 %	0	0 %	0
UNIT0	205/3	R/Conc Column	(EA)	4	100 %	4	0 %	0	0 %	0	0 %	0	0 %	0
UNIT0	215/3	R/Conc Abutment	(LF)	98	97 %	95	3 %	3	0 %	0	0 %	0	0 %	0
UNIT0	234/3	R/Conc Cap	(LF)	98	97 %	95	3 %	3	0 %	0	0 %	0	0 %	0

Structure Inventory and Appraisal Sheet (English Units)

Str Unit	Elm/Env	Description	Units	Total Qty	% in 1	Qty. St. 1	% in 2	Qty. St. 2	% in 3	Qty. St. 3	% in 4	Qty. St. 4	% in 5	Qty. St. 5
UNIT0	304/3	Open Expansion Joint	(LF)	34	90 %	31	10 %	3	0 %	0	0 %	0	0 %	0
UNIT0	305/3	Asphaltic Plug Joint	(LF)	34	70 %	24	30 %	10	0 %	0	0 %	0	0 %	0
UNIT0	311/3	Moveable Bearing	(EA)	18	50 %	9	50 %	9	0 %	0	0 %	0	0 %	0
UNIT0	313/3	Fixed Bearing	(EA)	6	75 %	4	25 %	2	0 %	0	0 %	0	0 %	0
UNIT0	330/3	Metal Rail Uncoated	(LF)	0	0 %	0	100 %	0	0 %	0	0 %	0	0 %	0
UNIT0	331/3	Conc Bridge Railing	(LF)	922	10 %	92	90 %	830	0 %	0	0 %	0	0 %	0
UNIT0	359/3	Soffit Smart Flag	(EA)	1	0 %	0	0 %	0	0 %	0	100 %	1	0 %	0
UNIT0	371/3	Free Fall Pipes, Scu	(EA)	2	100 %	2	0 %	0	0 %	0	0 %	0	0 %	0

CONNECTICUT DEPARTMENT OF TRANSPORTATION
FRACTURE CRITICAL MEMBERS/FATIGUE PRONE DETAILS
INSPECTION DATA SHEET

Form BRI12, REV 9/97

Bridge No: **3590**

Year Built: 1970

Fracture Critical Inspection Date:

FC Insp Freq: Months **FC Type Code:**

Town: **Manchester**

ADT: 412 Year of ADT: 2010

Facility Carried: Gardner Street

Structure Type: 402 % Truck: 2

Feature Instersected: Interstate-384 and Hop Brook

Access Equipment Needed: 35' Vanlift and 60' Snooper

Traffic Control Required: Yes (Double left lane and single right lanes closure on I-384 and alternating one-way traffic in Gardner Street)

Reference to Plans: Original plans Project #76-86 (1968)

MEMBER/DETAIL TYPE # H

Member/Detail Type: Highly fatigue prone details in tension areas.

☐ Fracture Critical

Fatigue Category: E Steel Type: A36

☒ Fatigue Prone

Description: Lower lateral bracing gusset plate weled to the bottom flange with longitudinal & transverse welds along the edges.

Inspection Procedure: 100% hands-on.

MEMBER/DETAIL TYPE #

Member/Detail Type:

☐ Fracture Critical

Fatigue Category: Steel Type:

☐ Fatigue Prone

Description:

Inspection Procedure:

EXECUTIVE SUMMARY

June 01, 2011

Bridge No. 03590 was built in 1970 and carries Gardner Street over Interstate 384 and Hop Brook in Manchester, Connecticut. The three-span continuous girder bridge consists of steel multi-girder superstructure with a reinforced concrete deck and is supported by reinforced concrete abutments and piers. The overall length is 409'; the curb-to-curb width is 34' and the sidewalk is 5.5' wide along both sides. As per information in the Connecticut Department of Transportation files, the inventory rating for an AASHTO HS-20 loading is 53.6 tons. During this in-depth inspection completed in June 2011, the bridge was found to be in fair condition.

Deck

The deck is in fair condition. The bituminous concrete overlay with woven glass fabric membrane water proofing exhibits heavy segregation areas, potholes/missing bituminous up to 45' long x 4' wide x 2" deep with exposed deck and heavy raveling throughout in both shoulders.

The underside of the concrete deck shows random transverse and hairline map cracks with and without efflorescence, light honeycombing and rust stains from shallow rebar chairs. There are spalls up to 3' x 4' x 3" deep with exposed rusted and (1) broken rebars and adjacent hollow areas up to 2' x 2' (intact in bay 3, span 2) along deck construction joints in all spans. All loose hollow areas along the construction joint over the live traffic were removed at the time of inspection. The deck overhangs along both fasciae have numerous transverse hairline cracks with efflorescence. There are a few deck haunches over dirt area which sounded hollow but intact at the time of inspection and a few haunch spalls up to 4' x 4" x 4" deep (along girder G1 in span 2). The overall underside of deck deterioration is 16.4% with a maximum of 22.6% in span 2.

The north approach sidewalks (turf) are settled up to 1/2".

There is a spall up to 2' x 1.5' x 3" deep on the outside face of the east parapet, over dirt area near pier 2 in span 2.

The galvanized wire mesh fence with posts and tubing shows areas of paint peeling and light rust. There is heavy rust on the replaced fence panel in span 2 on the west parapet. The east parapet fence in span 2 and the west parapet fence in span 3 are bent up to 2" x 6' x 2' due to collision damage (no holes noted).

The scupper grates are partially filled with debris along the east and west curblines in span 3 but the pipe is clear. The drainage trough below the north abutment finger deck joint is clogged with sand and debris.

The lighting standard at east parapet in span 3 behind the fence is missing 1 of 4 anchor bolt cover and handhole cover with exposed wires which are not accessible to the public.

The 16" diameter water main insulation wrap is torn up to 1' long near the north abutment backwall, and insulation cover is missing at random areas. There is heavy rust on the gas main in bay 3 near the north abutment backwall.

All construction joints on the deck underside show random moderate to heavy efflorescence, rust stains and spalls up to 3' x 4' x 3" deep with exposed and (1) broken rusted rebars (bay 3, span 2) in spans 1 and 2.

The finger joint at the north abutment has vertical and lateral misalignment of the fingers up to 1/8" but not causing any hazard for vehicles. There is up to 10' x 1" deep settlement in the north header in the northbound lane due to settlement in the approach pavement.

The following items have shown increased deterioration, have changed since last inspection, or are deficiencies not previously noted:

- The bituminous concrete overlay exhibits sealed cracks throughout since the last inspection, which started to re-open near the deck joints. There are random bituminous patches with uneven areas which started to break up with minor edge potholes up to ½" deep. There is up to 2' x 6" x 1" deep pothole with exposed deck (southbound lane in span 1). Also, there is water ponding up to 10' x 3' x 1/2" deep along the west curbline near the south abutment deck joint.
- The underside of the concrete deck has new spalls at the previously noted hollow areas (removed at the time of inspection) along the deck construction joints
- The south approach sidewalks (turf) are settled up to 5" (previously noted as 1.5").
- Random anchor bolt nuts for the fence railing are not fully flush.
- The steel weep pipes on the underside of the deck in bays 1 and 5 of span 3 (total 4) are short and do not extended below the bottom flanges. There is light rust on the cross bracings and moderate rust on the end diaphragms at the same locations. There are steel free fall scupper pipes in bays 1 and 5 of span 3 with light to moderate rust along the bottom edges.
- There are missing screws 6 of 10 for the junction box covers at the east parapet in all spans.
- The previously noted smell from the gas main near the north abutment backwall in span 3 was not felt during this inspection.
- The asphaltic plug joint at the south abutment exhibits adhesion cracks up to 4' long x 2" wide and settlement up to full width x 1/2" deep along the south approach pavement in the northbound lane.

Superstructure

The superstructure is in fair condition. The sliding plate expansion bearings with welded keeper bars over both abutments and at pier 2 show spotty peeling paint and light to moderate rust on the bearing plates. Random bearings have light pack rust between the bearing plates. Girder G4 bearing at pier 2 is over contracted. All other bearings at pier 2 and north abutment are in contraction mode except for girder G5 bearing at the north abutment, which is in expansion mode.

Dual block pin fixed bearings over pier 1 exhibit peeling paint and light to moderate rust.

The structural steel exhibits light to moderate rust throughout and areas of heavy rust with negligible section loss on the top flanges due to past water leakage through the deck construction joint in all spans. Girder G1 in span 3, between the 1st and 2nd intermediate diaphragms exhibits a lateral bracing gusset plate which is bowed upwards up to 1" and misaligned due to 1-3/4" thick pack rust between the gusset plate and the bottom flange.

There is previously noted missing weld at the connection between the lateral bracing gusset plate and the bottom flange at girder G1 in span 3, between the 2nd and 3rd intermediate diaphragms north of pier 2. However, plans show no welds exist around the gusset plate except at the back side along the web.

There are random collision scrape marks and minor gouges on bottom flange edges of girders G4, G5 and G6 in span 1, over the center and right lanes of I-384 eastbound. Transverse web stiffener at the north side of girder G5 in span 1, just north of first intermediate diaphragm from the south abutment, is bent towards north up to 3/4" over 1.5' and 6" up from the bottom flange.

The following items have shown increased deterioration, have changed since last inspection, or are deficiencies not previously noted:

- The bearings at the south abutment are in expansion mode except for girders G3 and G6 bearings, which are in contraction mode. Girders G2 and G3 bearings at the north abutment are over contracted. Random bearings sole plates are in contact with the keeper bars.
- Girder G1 fixed bearing at pier 1 west anchor bolt nut is backed off up to 1/4" and girder G3 bearing anchor bolts are tilted to east and west respectively. Also, the east anchor bolt nut for girder G6 fixed bearing at pier 1 is missing.
- Random lateral bracing gusset plates have laminated rust with negligible section loss. There is up to 1/4" thick pack rust between the lateral bracing gusset plate and the bottom flange at random locations. The intermediate diaphragms exhibit light blush rust and the end diaphragms have moderate rust, mostly at the locations where the weep pipe is short. There is moderate to heavy accumulation of pigeon debris on the top of bottom flange and the bottom lateral bracing gusset plate.
- The connection welds between the lateral bracing gusset plates and the girder bottom flanges have following new broken/cracked welds;

  Span 1:
  - Girder G1, east elevation between 2nd & 3rd, 3rd & 4th and 4th & 5th intermediate diaphragms from pier 1, up to 9" long (on north side)with 1/4" gap and 1/4" thick pack rust between the lateral bracing gusset plate and bottom flange.
  - Girder G5, east elevation at 2nd intermediate diaphragm from pier 1, up to 1-3/8" long with 1/8" thick pack rust between the lateral bracing gusset plate and bottom flange.
  - Girder G6, west elevation between 1st and 2nd intermediate diaphragms from pier 1, up to 9" long in the south weld with 1" gap and ¼" thick pack rust between the lateral bracing gusset plate and bottom flange.
  - Girder G6, west elevation between 2nd and 3rd intermediate diaphragms from pier 1, up to 1" long in the south weld.

  Span 2:
  - Girder G1, east elevation between 1st and 2nd intermediate diaphragms from pier 1, up to 1-1/2" long at the north end of the east weld.
  - Girder G4, west elevation between 2nd and 3rd intermediate diaphragms from pier 1, missing welds at the north, south and east sides.

  Per the previous inspection report there are missing welds at the connection between lateral bracing gusset plate and the bottom flange at girder G1 in span 3, between the 2nd and 3rd intermediate diaphragms north of pier 2 and at girder G5 (previously mistaken for G6) in span 3, at 2nd intermediate diaphragm north of pier 2. See photo 33. However, plans show no welds

exist around the gusset plate except at the back side along the web. Previously noted cracks in the longitudinal weld between the lateral brace gusset plate and the bottom flange at girder G1 in span 2, between the 4th and 5th intermediate diaphragm north of pier 1 and at girder G6 in span 2, between the 2nd and 3rd intermediate diaphragm north of pier 1 have been repaired since the last inspection.

Substructure

The substructure is in good condition. Both abutment stems exhibit random vertical hairline cracks, isolated popouts and light to moderate scale areas. Evidence of past leakage noted on both abutment stems. The granite blocks cheekwalls are missing mortar in the upper joint at the southeast cheekwall and at the north edge of the southwest cheekwall. There is a full height hairline crack and a shallow rebar up to 2-1/2" long in girder G6 bearing pedestal on the north face.

Both abutment backwalls exhibit vertical hairline cracks with and without efflorescence, light to moderate scaling and a few minor spalls up to 6" x 6" x 1" deep at top of the south abutment backwall. Evidence of past water leakage noted on both backwalls.

The pier caps and columns have vertical hairline cracks, shallow rebars up to 1' long and a few isolated minor spalls up to 1/2" deep with exposed rebars. There is evidence of past leakage at the west end of pier 1 cap.

The concrete block slope protection at the west end of the south abutment, and at random areas of the north abutment, is settled due to erosion of slope below the concrete blocks. Also, there are random deteriorated blocks with heaved up and depressed areas up to 1" deep.

The following items have shown increased deterioration, have changed since last inspection, or are deficiencies not previously noted:

- There is moderate to heavy graffiti on the north abutment stem. Girder G5 pedestal at the south abutment has a 10" x 8" x 4" deep spall with exposed rebar at the northeast corner with no undermining of the bearing.
- The previously noted 5" deep spall at the south abutment backwall under bay 1 was not found during this inspection.
- Pier 1 cap, south face has a 1' x 10" hollow area at top between girders G1 and G2.
- Concrete block slope protection along both abutments stems exhibit cracks open up to 1/2" wide and missing mortar between blocks.
- There is moderate to heavy accumulation of sand debris between girders G3 and G4 at the north abutment bridge seat.

Channel & Channel Protection

The channel is in satisfactory condition. Both banks show minor encroachment along the channel. All embankments are well vegetated and the trees branches are overhanging the channel. There is light timber debris in the channel.

The following item has shown increased deterioration, was deficiency not previously noted and/or new deficiency found during this inspection:

- None.

Approach Condition

The approaches are in satisfactory condition. The two cable wire rope guide rails with timber posts, at all approaches except the northwest approach exhibit weathered and checked, with some showing broken post tops. The northeast guide rail has impact damage with loose cables.

The following item has shown increased deterioration, was deficiency not previously noted and/or new deficiency found during this inspection:

- The bituminous concrete approach pavement show random sealed cracks, tire wear, and surface rutting.

Repair Recommendations:

Deck

1. Seal the cracks near the deck joints (±100 LF) and patch the potholes/missing bituminous in deck overlay (±0.25 Ton). Consideration should be given to replacing the bituminous overlay.
2. Remove/patch the delaminated concrete at the underside of the concrete deck (±1/2 CY).
3. Install bituminous ramp at approach sidewalks to provide smooth transition (0.1 Ton).
4. Repair bent mesh panels of the east fence in span 2 and the west fence in span 3 (±24 SF).
5. Clean the scupper grates in span 3 (2 Locations).
6. Clean the drainage trough below the north abutment finger deck joint (34 LF).
7. Extend steel weep pipes below structural steel (±30 LF).
8. Install the missing anchor bolt cover (1 EA) and handhole cover (1 EA) for the light standard at the east parapet in span 3.
9. Install the missing junction box cover screws at the east parapet (13 EA).
10. Repair the torn insulation wrap for the water main near the north abutment backwall and install the insulation wrap at random locations (±5 LF)
11. Seal the adhesion cracks in the asphaltic plug joint at the south abutment (12 LF).
12. Repair the settlement in the north header at the north abutment joint (10 LF).

Superstructure

1. Clean rust and re-paint bearings (24 EA). Monitor sliding plate bearings for girder G4 at pier 2 and girders G4 & G5 at the north abutment for continued over contraction during future inspections (Total 3).
2. Install the missing anchor bolt nut for girder G6 fixed bearing at pier 1 (1 EA).
3. Clean rust and re-paint the structural steel members (±800 SF).
4. Grind smooth and reweld the broken/cracked welds (14 Locations).
5. Remove pigeon debris from the superstructure members as required (LS).

Channel & Channel Protection

1. Clear timber debris from the channel (LS).

Substructure

1. Paint over graffiti at the north abutment stem (±48 SF).
2. Patch/repair spall in girder G5 pedestal at the south abutment (<0.1 CY).

3. Remove sand and bird debris from the abutments seats and pier caps as required (LS).
4. Replace/reset the slope protection blocks along both abutment stems (±1 CY).

Approach Condition

1. Repair the damaged northeast guide rail and damaged posts (±15 LF). Consideration should be giving to replacing the guide rail system.

Connecticut Department of Transportation

Bridge Inspection Report BRI-18

Bridge #: 03590 **Inspection Date: 06/01/2011**

Inspection Type:	Indepth	**Previous Inspection Date:**	5/26/2009	**Snooper Required:**	Yes
Inspection Performed By:	AI Engineers	**Feature Carried:**	GARDNER STREET	**Snooper Used:**	Yes
Town:	MANCHESTER	**Feature Intersected:**	INTERSTATE-384 + HOP BRK	**Year Built:**	1970
Location:	1 MI EAST JUNC RT 83	**Main Design:**	Stringer/Multi-beam or Girder	**Year Rebuilt:**	-
Main Material:	Steel continuous				

Visits

Visit Date:	Temp:	Start Time:	End Time:
6/1/2011	90	8:30:00 AM	4:45:00 PM
6/2/2011	80	8:30:00 AM	4:30:00 PM
6/10/2011	80	8:30:00 AM	3:00:00 PM

Inspectors:

Inspector:	Task:
C. Chuck	Inspector
C. Kolasa	Inspector
D. Yenuga	Lead Inspector
M. Iqbal	Lead Inspector

DECK: The deck is in fair condition. **Overall Rating:** 5

	Rating	
OVERLAY:	5	The bituminous concrete overlay with woven glass fabric membrane waterproofing exhibits extensive multiple sealed cracks throughout since the last inspection, which have started to re-open near the deck joints. See photo 7. There are random rough bituminous patches with uneven areas which have started breaking up, potholes up to 2' x 6" x 1" deep with exposed deck (southbound lane in span 1) and heavy segregation areas. See photo 9. Both shoulders have potholes/missing bituminous up to 45' long x 4' wide x 2" deep with exposed deck and heavy raveling throughout. See photo 8. There is water ponding up to 10' x 3' x 1/2" deep along the west curbline near the south abutment deck joint. See field notes sheets 4 to 6.
DECK-STR. CONDITION:	5	The underside of the concrete deck shows random transverse and hairline map cracks with and without efflorescence, light honeycombing and rust stains from shallow rebar chairs. See photo 11. There are spalls up to 3' x 4' x 3" deep with exposed rusted and (1) broken rebar and adjacent hollow areas up to 2' x 2' (intact in bay 3, span 2) along deck construction joints (bay 3, span 2) in all spans. See photos 12 to 15. All loose hollow areas along the construction joint over the live traffic were removed at the time of inspection. There are a few deck haunches which sounded hollow over the dirt area but were intact at the time of inspection and a few haunch spalls up to 4' x 4" x 4" deep (along girder G1 in span 2). See photo 28. The overall underside of deck deterioration is 16.4% with a maximum of 22.6% in span 2.

		See field notes sheets 11 to 14 & 16 and photo 10.
CURBS:	7	Rectangular granite curbs have isolated vertical hairline cracks, rust stains, edge chipping and joint mortar cracking. Average west curb reveal: 10-1/4" Average east curb reveal: 10-1/2" See field notes sheets 4 to 6 and photo 16.
MEDIAN:	N	-
SIDEWALKS:	6	The concrete sidewalks have random transverse hairline cracks and light scaling. All approach sidewalks are turf. The south approach sidewalks are settled up to 5" (previously noted as 1.5") and the north approach sidewalks are settled up to 1/2". See field notes sheets 4 to 6 and photo 16.
PARAPET:	6	Both concrete parapets exhibit random vertical and hairline map cracks with and without efflorescence and rust stains on the inside and outside fasciae. There is a 2' x 1.5' x 3" deep spall on the outside face of the east parapet, over dirt area near pier 2 in span 2. See photo 17. See field notes sheets 4 to 6 and photo 16.
RAILING:	N	-
PAINT:	N	-
FENCE:	6	Galvanized painted wire mesh fence mounted with posts and tubing shows areas of paint peeling and light rust. There is heavy rust on the replaced fence panel in span 2 on the west parapet. See photo 16. The east parapet fence in span 2 and the west parapet fence in span 3 are bent up to 2" x 6' x 2' due to collision damage (no holes noted). See photo 18. Random anchor bolt nuts for the fence railing are not fully flush. See field notes sheets 4 to 6.
DRAINS:	5	The scupper grates are partially filled with debris along the east and west curblines in span 3 but the pipe is clear. See photo 19. There are steel free fall scupper pipes in bays 1 and 5 of span 3 with light to moderate rust along the bottom edges. The steel weep pipes at the underside of the deck in bays 1 and 5 of span 3 (total 4) are short and do not extend below the bottom flange. There is light rust on the cross bracings and moderate rust on the end diaphragms at the same locations. See photo 20. The drainage trough below the north abutment finger deck joint is clogged with sand and debris. See field notes sheets 6 and 12 to 14.
LIGHTING STANDARD:	6	The lighting standard at east parapet in span 3 behind the fence is missing 1 of 4 anchor bolt covers. Also, the handhole cover is missing with exposed wires but is behind the fence and is not accessible to the public. See photo 21. There are missing screws 6 of 10 for the junction box covers at the east parapet in all spans. See field notes sheets 4 to 6.
UTILITIES TYPE/SIZE:	6	The utilities are as follows: Bay 1 has (4) - 4" diameter telephone conduits, bay 2 has a 12" diameter insulated water main, bay 3 has a 6" diameter gas main and bay 5 has (4) - 4" diameter electric conduits. The water main insulation wrap is torn up to 1' long near the north abutment backwall and insulation cover is missing at random areas. See photo 22. There is heavy rust on the gas main in bay 3 near the north abutment backwall. The previously noted smell from the gas main near the north abutment backwall in span 3 was not felt during this inspection. Rating upgraded from '3'. See field notes sheets 12 to 14 and photos 9, 11 & 20.
CONSTR JOINTS:		

	5	All construction joints at deck underside show random moderate to heavy efflorescence, rust stains, hollow areas and spalls up to 3' x 4' x 3" deep with exposed and (1) broken rusted rebar (bay 3, span 2) in spans 1 and 2. See photos 12 to 15. See field notes sheets 12 to 14.
EXPANSION JOINTS:	6	The asphaltic plug joint at the south abutment exhibits adhesion cracks up to 4' long x 2" wide and settlement up to full width x 1/2" deep along the south approach pavement in the northbound lane. See photo 23. The finger joint at the north abutment has vertical and lateral misalignment of the fingers up to 1/8" but not causing any hazard for vehicles. The concrete headers show random transverse hairline cracks, light scaling, and areas of tire wear. There is up to 10' x 1" deep settlement in the north header in the northbound lane due to settlement in the approach pavement. Random sealed cracks at the interface of the concrete headers and overlay/pavement. See photo 24. There are no joints over the piers. See field notes sheets 4 to 6.

59. SUPERSTRUCTURE:	The superstructure is in fair condition.	Overall Rating:	5

	Rating	
BEARING DEVICES:	6	The sliding plate expansion bearings over both abutments and at pier 2 show evidence of movement at 70 and 80 degrees Fahrenheit. Bearings show spotty peeling paint and light to moderate rust on the bearing plates. See photo 25. Random bearings have light pack rust between the bearing plates. The bearings at the south abutment are in expansion mode except for girders G3 and G6 bearings, which are in contraction mode. See photo 26. Girder G4 bearing at pier 2 and girders G2 and G3 bearings at the north abutment are over contracted. All other bearings at pier 2 and north abutment are in contraction mode except for girder G5 bearing at the north abutment, which is in expansion mode. Random bearings sole plates are in contact with the keeper bars. Dual block pin fixed bearings over pier 1 exhibit peeling paint and light to moderate rust. Girder G1 bearing west anchor bolt nut is backed off up to 1/4" and girder G3 bearing anchor bolts are tilted to the east or west. Also, the east anchor bolt nut for girder G6 bearing is missing. See photo 27. See filed notes sheets 7 to 14.
STRINGERS:	N	-
GIRDERS:	5	The structural steel exhibits light to moderate rust throughout and areas of heavy rust with negligible section loss on the top flanges due to past water leakage through the deck construction joint in all spans. See photo 28. Random lateral bracing gusset plates have laminated rust with negligible section loss. There is up to 1/4" thick pack rust between lateral bracing gusset plates and bottom flange at random locations. See photo 32. The lateral bracing gusset plate at girder G1 in span 3, between the 1st and 2nd intermediate diaphragms is bowed upwards up to 1" and misaligned due to 1-3/4" thick pack rust between the gusset plate and the bottom flange. See photo 29. There is moderate to heavy accumulation of pigeon debris on the top of bottom flange and the bottom lateral bracing gusset plate. See photo 36. The intermediate diaphragms exhibit light blush rust and the end diaphragms have moderate rust, mostly at the locations where the weep pipe is short. There are cracks in the gusset plate to the bottom flange connections at random locations. See item "Welds-Cracks" below. See field notes sheets 11 to 14 and photo 10.
FLOOR BEAMS:	N	-
TRUSSES-GENERAL:	N	-
TRUSSES-PORTALS:	N	-
TRUSSES-BRACING:	N	-
PAINT:	5	Less than 25% of the painted surfaces of the structural steel exhibit rusting. Also see items 'Bearing Devices' and 'Girders' above. See photo 10.
RUST:	6	See items 'Bearing Devices' and 'Girders' above
MACHINERY MOV	N	-

SPAN:		
RIVETS & BOLTS:	N	-
WELDS - CRACKS:	5	All the bottom flange transitions and welded web splices were checked hands-on (100%) with no deficiencies noted. See photo 30. The connection welds (Fatigue Category E) between the lateral bracing gusset plates and the girder bottom flanges checked 100% hands-on and the following new broken/cracked welds were found; Span 1: • Girder G1, east elevation between 2nd & 3rd, 3rd & 4th and 4th & 5th intermediate diaphragms from pier 1, up to 9" long (on north side) with 1/4" gap and 1/4" thick pack rust between the lateral bracing gusset plate and bottom flange. See photos 31 and 32. • Girder G5, east elevation at 2nd intermediate diaphragm from pier 1, up to 1-3/8" long with 1/8" thick pack rust between the lateral bracing gusset plate and bottom flange. • Girder G6, west elevation between 1st & 2nd and 2nd & 3rd intermediate diaphragms from pier 1, up to 9" long in the south weld with 1" gap and ¼" thick pack rust between the lateral bracing gusset plate and bottom flange. Span 2 • Girder G1, east elevation between 1st and 2nd intermediate diaphragms from pier 1, up to 1-1/2" long at the north end of the east weld. • Girder G4, west elevation between 2nd and 3rd intermediate diaphragms from pier 1, missing welds at the north, south and east sides. Per the previous inspection report there are missing welds at the connection between lateral bracing gusset plate and the bottom flange at girder G1 in span 3, between the 2nd and 3rd intermediate diaphragms north of pier 2 and at girder G5 (previously mistaken for G6) in span 3, at 2nd intermediate diaphragm north of pier 2. See photo 33. However, plans show no welds exist around the gusset plate except at the back side along the web. ConnDOT Bridge Safety was notified regarding the cracked/broken welds at the time of inspection. Previously noted cracks in the longitudinal weld between the lateral brace gusset plate and the bottom flange at girder G1 in span 2, between the 4th and 5th intermediate diaphragm north of pier 1 and at girder G6 in span 2, between the 2nd and 3rd intermediate diaphragm north of pier 1 have been repaired since the last inspection. See photo 34. See field notes sheets 12 to 15.
TIMBER DECAY:	N	-
CONCRETE CRACKING:	N	-
COLLISION DAMAGE:	6	There are random collision scrapes and minor gouges on bottom flange edges of girders G4, G5 and G6 in span 1, over the center and right lanes of I-384 Eastbound. See photo 35. Transverse web stiffener at the north side of girder G5 in span 1, just north of first intermediate diaphragm from the south abutment, is bent towards north up to 3/4" over 1.5' and 6" up from the bottom flange.
MEMBER ALIGNMENT:	6	See items 'Girders' and 'Collision Damage' above.
DEFLECT. UNDER LOAD:	N	(N) Normal ; (E) Excessive
VIBRATION UNDER LOAD:	N	(N) Normal ; (E) Excessive
STAND PIPES:	N	-
BARREL LADDERS:	N	-

ARE BARREL LADDERS OSHA COMPLIANT? NA

60. SUBSTRUCTURE:	The substructure is in good condition.	**Overall Rating:**	7

	Rating	
ABUTMENTS-STEM:	7	Both abutments stems exhibit random vertical hairline cracks, isolated popouts and light to moderate scale areas. There is moderate to heavy graffiti on the north abutment stem. See photo 42. Evidence of past leakage noted on both abutment stems. Cheekwall: The granite blocks cheekwalls are missing mortar in the upper joint at the southeast cheekwall and at the north edge of the southwest cheekwall. Concrete Pedestals: Girder G5 pedestal at the south abutment has a 10" x 8" x 4" deep spall with exposed rebar at the northeast corner with no undermining of the bearing. See photo 38. There is a full height hairline crack and a shallow rebar up to 2-1/2" long in girder G6 bearing pedestal on the north face. See field notes sheets 17 and 18 and photo 37.
ABUTMENTS-BACKWALL:	7	Both backwalls have isolated vertical hairline cracks with and without efflorescence and light to moderate scaling. The south abutment backwall has a few minor spalls up to 6" x 6" x 1" deep at top. The previously noted 5" deep spall at the south abutment backwall under bay 1 was not found during this inspection. Evidence of past water leakage stains noted on both backwalls. See field notes sheets 17 and 18 and photo 39.
ABUTMENTS-FOOTINGS:	N	The footings are not visible.
ABUTMENTS-SETTLEMENT:	8	The abutments show no signs of settlement.
ABUTMENTS-WINGWALLS:	7	Wingwalls with stone masonry facade show random joint mortar cracking and loss of joint mortar at isolated locations. See field notes sheet 19 and photo 40.
PIERS/BENTS-CAPS:	7	The pier caps have vertical hairline cracks, shallow rebars up to 1' long and a few isolated minor spalls up to 1/2" deep with exposed rebars. Pier 1 cap, south elevation has a 1' x 10" hollow area at top between girders G1 and G2. There is evidence of past leakage at the west end of pier 1 cap. See field notes sheets 20 to 23 and photo 41.
PIERS/BENTS-PILE BENT:	N	-
PIERS/BENTS-COLUMNS:	7	The pier columns exhibit random vertical hairline cracks, shallow rebars and isolated minor spalls up to 1/2" deep with exposed rebar. See field notes sheets 20 to 23 and photo 41.
PIERS/BENTS-FOOTING:	N	The footings are not visible.
PIERS/BENTS-SETTLMT:	8	The pier show no signs of settlement.
EROSION-SCOUR:	6	Erosion - Rated 6: Concrete block slope protection along both abutment stems exhibit cracks open up to 1/2" wide and missing mortar between blocks.

		The slope blocks at the west end of the south abutment, and at random areas of the north abutment, are settled due to erosion of slope below the concrete blocks. Also, there are random deteriorated blocks with heaved up and depressed areas up to 1" deep. Scour Rated : 8
CONCRETE CRACK-SPALL:	7	See above Items
STEEL CORROSION:	N	-
PAINT:	N	-
TIMBER DECAY:	N	-
COLLISION DAMAGE:	8	The substructure shows no collision damage.
DEBRIS:	6	Light to moderate concrete and pigeon debris on abutments and piers seats. There is moderate to heavy accumulation of sand debris between girders G3 and G4 at the north abutment bridge seat. See photo 39.

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61. CHANNEL & CHANNEL PROTECTION:	The channel is in satisfactory condition.	**Overall Rating:**	6

	Rating	
CHANNEL SCOUR:	8	There is no notable scour. See field notes sheets 24 and 25.
EMBANKMENT EROSION:	6	Both banks show minor encroachment along the channel. See field notes sheet 25.
DEBRIS:	6	There is light timber debris in the channel. See field notes sheet 25.
VEGETATION:	6	All embankments are well vegetated and the trees branches are overhanging the channel. See field notes sheet 25 and photos 44 & 45.
CHANNEL CHANGE:	6	The channel is narrowed just south of the bridge due to past encroachment.
FENDER SYSTEM:	N	-
SPUR, DIKES & JETTIES:	N	-
RIP RAP:	8	The channel is lined with rip-rap. No deficiencies noted. See field notes sheet 25 and photos 44 & 45..

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62. CULVERTS & RETAINING WALL:	-	**Overall Rating:**	N

65. APPROACH CONDITION

The approaches are in satisfactory condition.

Overall Rating: 6

	Rating	
APPROACH SLAB:	N	-
RELIEF JOINTS:	N	-
APPROACH GUIDE RAIL:	3	All approaches have two cable wire rope guide rails with timber posts, except the northwest approach. The posts are weathered and checked, with some showing broken post tops. The northeast guide rail has impact damage with loose cables. See photo 43. The substandard metal beam rail at northwest has no notable deficiencies. See field notes sheets 4 and 6.
APPROACH PAVEMENT:	6	The bituminous concrete approach pavement show random sealed cracks, tire wear, and surface rutting. See photos 4 and 6. See field notes sheets 4 and 6.
APPROACH EMBANKMENT:	8	-

TRAFFIC SAFETY FEATURES

	Rating	
BRIDGE RAILINGS:	Last Inspection: 0 Current: 0	Less then 42" high.
TRANSITIONS:	Last Inspection: 0 Current: 0	-
APPROACH GUARDRAILS:	Last Inspection: 0 Current: 0	-
APPR. GUARDRAIL ENDS:	Last Inspection: 0 Current: 0	-

66. LOAD POSTING

	- Posted Loading -	
SINGLE UNIT (TONS):	Last Inspection: - Current: -	-

SEMI TRAILER (TONS):	Last Inspection: - Current: -	-
4 AXLE (TONS):	Last Inspection: - Current: -	-
3S2 (TONS):	Last Inspection: - Current: -	-
ADVANCE WARNING (Y/N):	N	-
LEGIBILITY:	N	-
VISIBILITY/LOCATION:	N	-

67.
MISCELLANEOUS

	Rating	
MIN. VERT. UNDERCLEARANCE:	Last Inspection: 16' 5" Current: 16' 5"	-
POSTED CLR. UNDER BRIDGE:	Last Inspection: -' -" Current: -' -"	-
POSTED CLR. ON BRIDGE:	Last Inspection: -' -" Current: -' -"	-
ADVANCED WARNING (YES/NO):	No	-
SPEED LIMIT (IF ANY):	Last Inspection: - Current: -	-
CHARACTER OF TRAFIC:		Light/mixed.

ADDITIONAL NOTES:	- The bridge ID is clear and legible. - The bridge is logged from south to north, with girder G1 on the west side and the Hop Brook flows from east to west, which is consistent with the previous inspection report and bridge plans. - The bridge underside was inspected using a 35' Vanlift (spans 1 and 2) and a 75' snooper (span 3). - The bridge was inspected in conjunction with bridge number 03593.
ADDITIONAL COMMENTS:	See the report table of contents.

Inspectors' Signatures:	1) MUHAMMAD ASIF IQBAL	Date: 07/05/2011
	2) Christopher Chuck	Date: 07/05/2011
	3)	Date: ----/----/-----
	4)	Date: ----/----/-----
P.E. Signature:		Date: 7/5/2011
P.E. #:	23092	Date: ----/----/-----
Reviewed by:	conndot Rosmery Rodriguez	Date: 07/15/11

RECEIVED
JUL 07 2011
CONNECTICUT DOT
BRIDGE SAFETY & EVALUATION

AI Engineers, Inc.	JOB NO: 170-3013	BRIDGE NO: 03590
FIELD TIME LOG	DATE: See Below	SHEET 1 OF 31

			DESCRIPTION	TIME AT SITE	
DATE:	06/01/11				
WEATHER:	Sunny 90°F	CREW:	MAI, CC	8:30 AM	to 4:45 pm
EQUIP. LIST:	AI White Truck	SNOOPER:	—		to
	35' Vanlift (E-L)	TMA TRUCK:	McClain	"	to "
		RR FLAGMAN:	—	—	to —
VISITOR:	None	TROOPER:	H. Shaw #130	8:30 AM	to 4:45 pm

TC & NOTES: Double left lane closure on I-384 WB in AM & right lane in PM. Inspected u/s of Span 2. An E-mail was sent to AHS regarding crk & missing weld.

			DESCRIPTION	TIME AT SITE	
DATE:	06/02/11				
WEATHER:	SUNNY 80°	CREW:	MAI, CC	8:30 AM	to 4:30 pm
EQUIP. LIST:	35' VAN LIFT (E-L)	SNOOPER:	—		to
	AI cube Van	TMA TRUCK:	—		to
		RR FLAGMAN:	—		to
VISITOR:	ROSMERY RODRIGUEZ (DOT)	TROOPER:	KEVIN MILLER (#1015)	8:30 AM	to 4:30 PM

TC & NOTES: AHS & AA (AI ENG.) DOUBLE LEFT LANE CLOSURE ON I-384 EB IN AM & RIGHT LANE CLOSURE IN PM. INSPECTE U/S OF SPAN 1 (100%). & TOP OF DECK

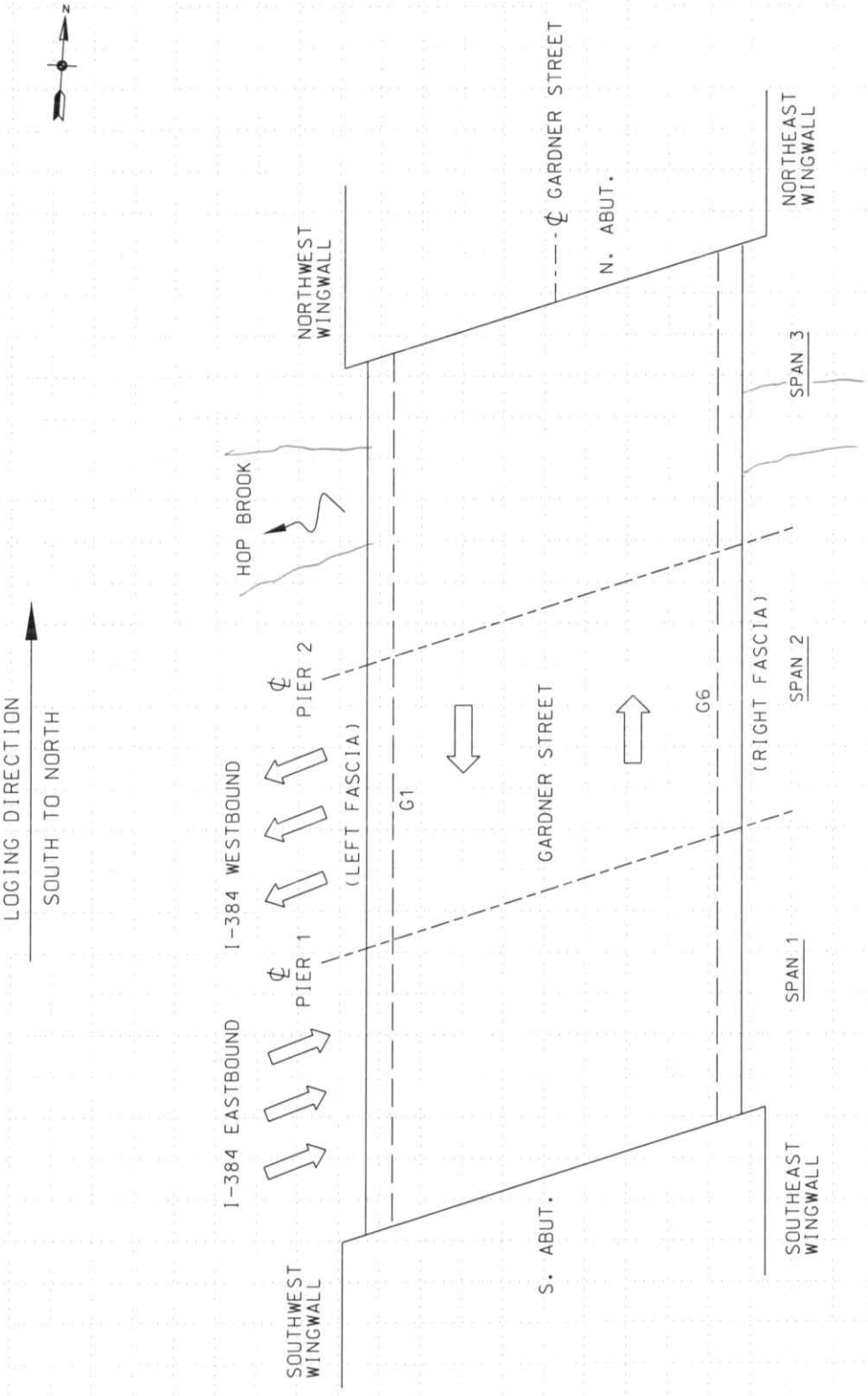
			DESCRIPTION	TIME AT SITE	
DATE:	06/10/11				
WEATHER:	SUNNY 80°	CREW:	DY, CK	8:30 AM	to 3:00 PM
EQUIP. LIST:	AI white pick 06	SNOOPER:	Mcclain 75'	8:30 AM	to 2:30 PM
		TMA TRUCK:	Mcclain	8:30 AM	to 2:30 PM
		RR FLAGMAN:	—	—	to —
VISITOR:	None	~~TROOPER:~~ TOWN POLICE	Left w/o informing	8:30 AM	to 2:30 PM.

TC & NOTES: Right lane closed on Gardner St. Inspection completed. (100%)

			DESCRIPTION	TIME AT SITE	
DATE:					
WEATHER:		CREW:			to
EQUIP. LIST:		SNOOPER:			to
		TMA TRUCK:			to
		RR FLAGMAN:			to
VISITOR:		TROOPER:			to

TC & NOTES:

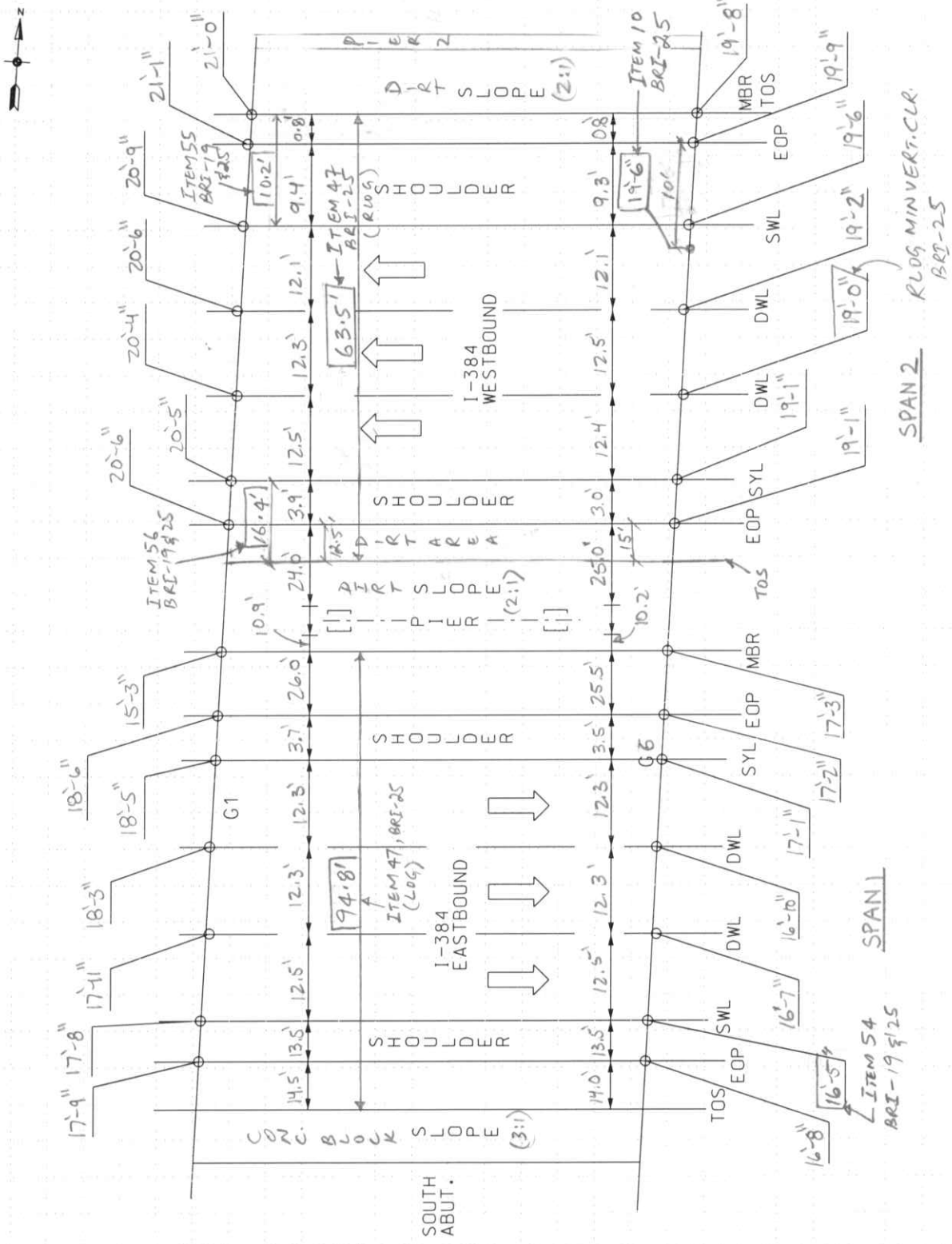
AI Engineers, Inc.	JOB NO. 170-3013	BRIDGE NO: 03590
	DATE: 6/01/11	SHEET 2 OF 31
FIELD NOTES	CREW: MAI, CC	
DESCRIPTION: KEY PLAN		



KEY PLAN
(N.T.S.)

Revision 1	Date	Crew	Company	Revision 3	Date	Crew	Company
Revision 2	Date	Crew	Company	Revision 4	Date	Crew	Company

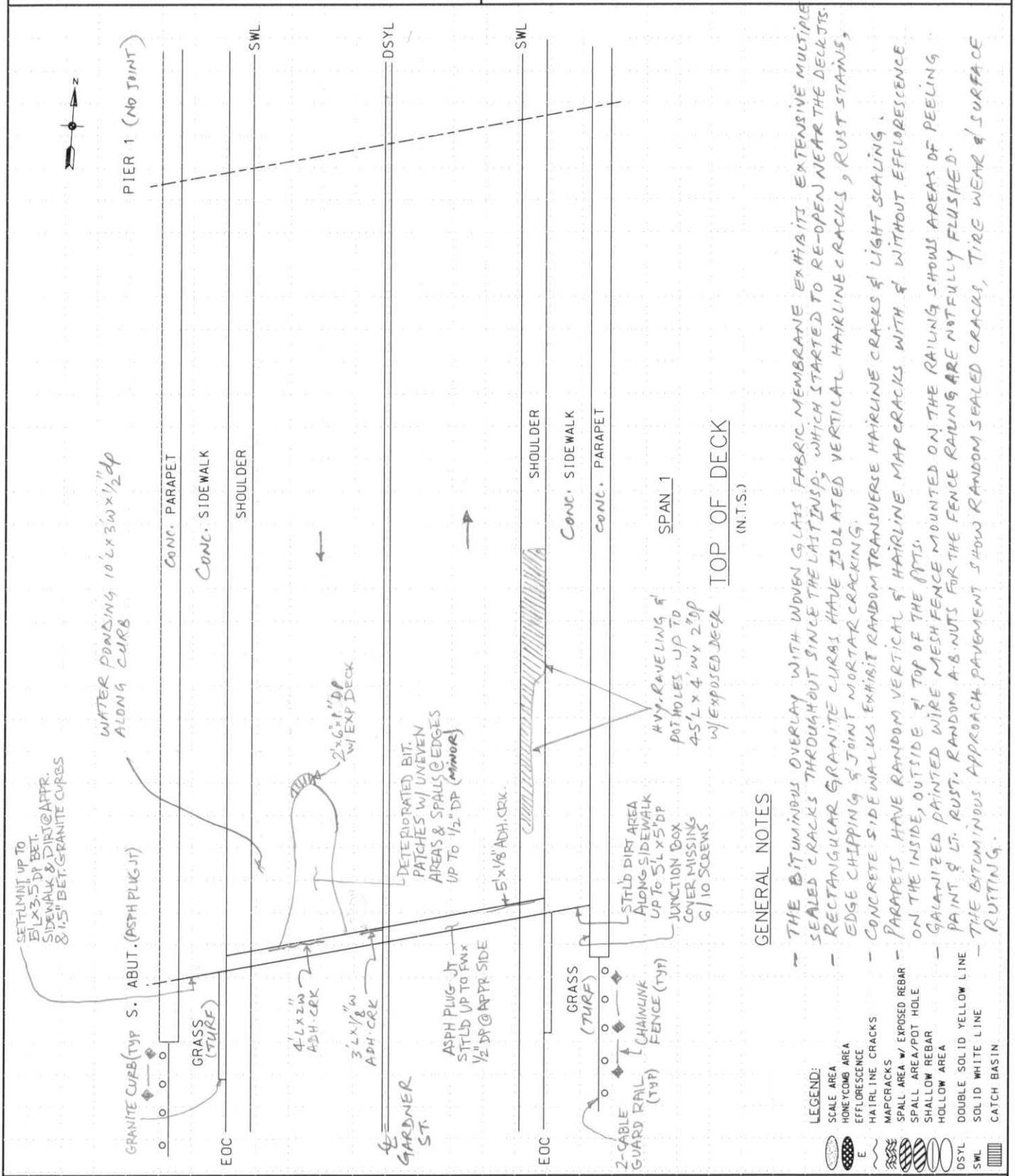
AI Engineers, Inc.	JOB NO. 170-3013	BRIDGE NO: 03590
	DATE: 06/01/11	SHEET 3 OF 31
FIELD NOTES	CREW: CC, MAI	
DESCRIPTION: Clearance Diagram		



LEGEND:
SWL - SOLID WHILE LINE
DWL - DASHED WHITE LINE
SYL - SOLID YELLOW LINE
EOP - EDGE OF PAVEMENT AT CURB LINE
MBR - METAL BEAM RAIL
TOS - TOE OF SLOPE

Revision 1	Date	Crew	Company	Revision 3	Date	Crew	Company
Revision 2	Date	Crew	Company	Revision 4	Date	Crew	Company

AI Engineers, Inc.	JOB NO. 170-3013	BRIDGE NO: 03590
	DATE: 6/2/11	SHEET 4 OF 31
FIELD NOTES	CREW: CK, MAI	
DESCRIPTION: TOP OF DECK		



GENERAL NOTES

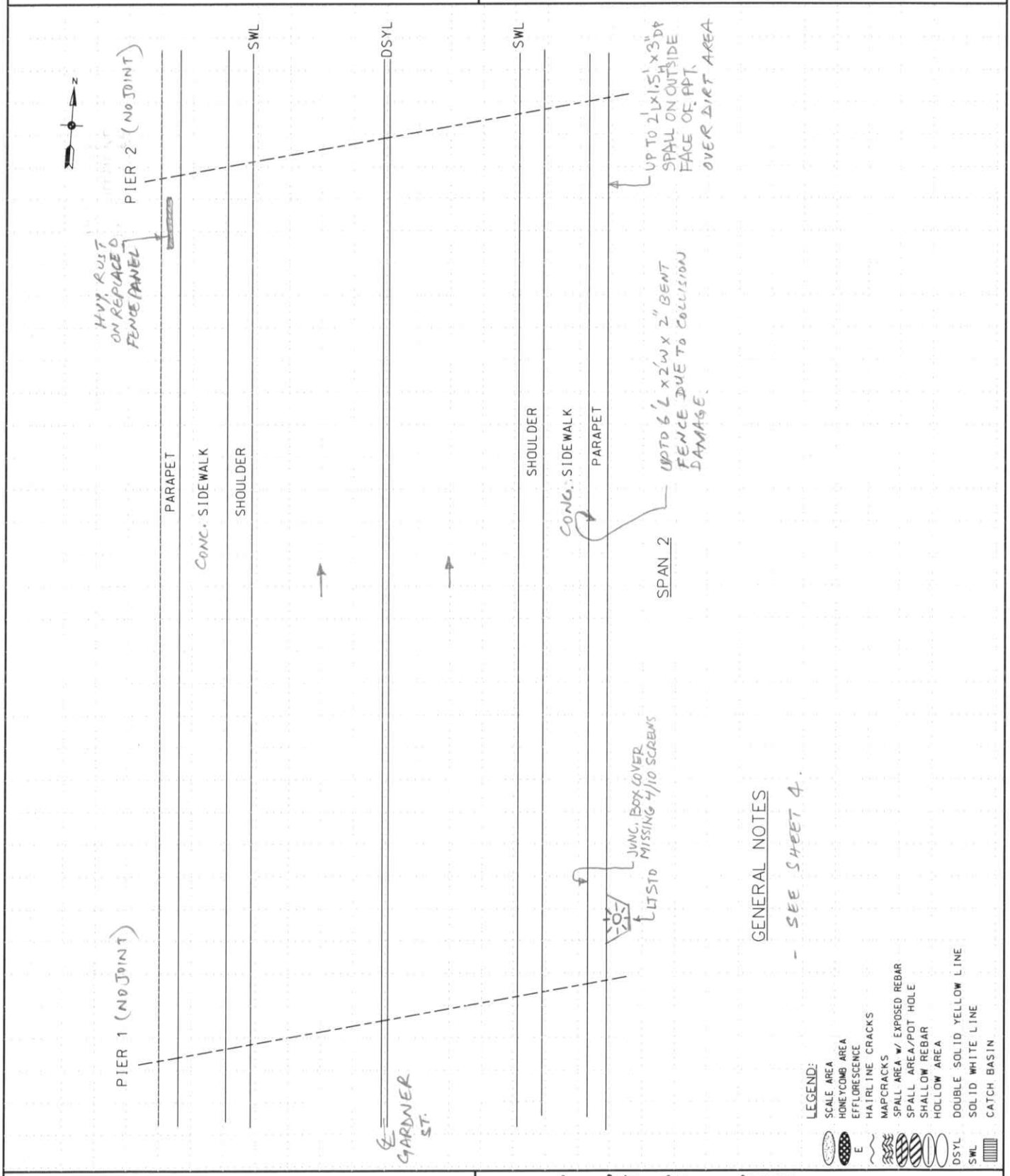
- THE BITUMINOUS OVERLAY WITH WOVEN GLASS FABRIC MEMBRANE EXHIBITS EXTENSIVE MULTIPLE SEALED CRACKS THROUGHOUT SINCE THE LAST INSP. WHICH STARTED TO RE-OPEN NEAR THE DECK JTS.
- RECTANGULAR GRANITE CURBS HAVE ISOLATED VERTICAL HAIRLINE CRACKS, RUST STAINS, EDGE CHIPPING & JOINT MORTAR CRACKING.
- CONCRETE SIDEWALKS EXHIBIT RANDOM TRANSVERSE HAIRLINE CRACKS & LIGHT SCALING.
- PARAPETS HAVE RANDOM VERTICAL & HAIRLINE MAP CRACKS WITH & WITHOUT EFFLORESCENCE ON THE INSIDE, OUTSIDE & TOP OF THE PTS.
- GALVANIZED PAINTED WIRE MESH FENCE MOUNTED ON THE RAILING SHOWS AREAS OF PEELING PAINT & LT. RUST. RANDOM A.B. NUTS FOR THE FENCE RAILING ARE NOTFULLY FLUSHED.
- THE BITUMINOUS APPROACH PAVEMENT SHOW RANDOM SEALED CRACKS, TIRE WEAR & SURFACE RUTTING.

LEGEND:

- SCALE AREA
- HONEYCOMB AREA
- E EFFLORESCENCE
- HAIRLINE CRACKS
- MAPCRACKS
- SPALL AREA w/ EXPOSED REBAR
- SPALL AREA/POT HOLE
- SHALLOW REBAR
- HOLLOW AREA
- DSYL DOUBLE SOLID YELLOW LINE
- SWL SOLID WHITE LINE
- CATCH BASIN

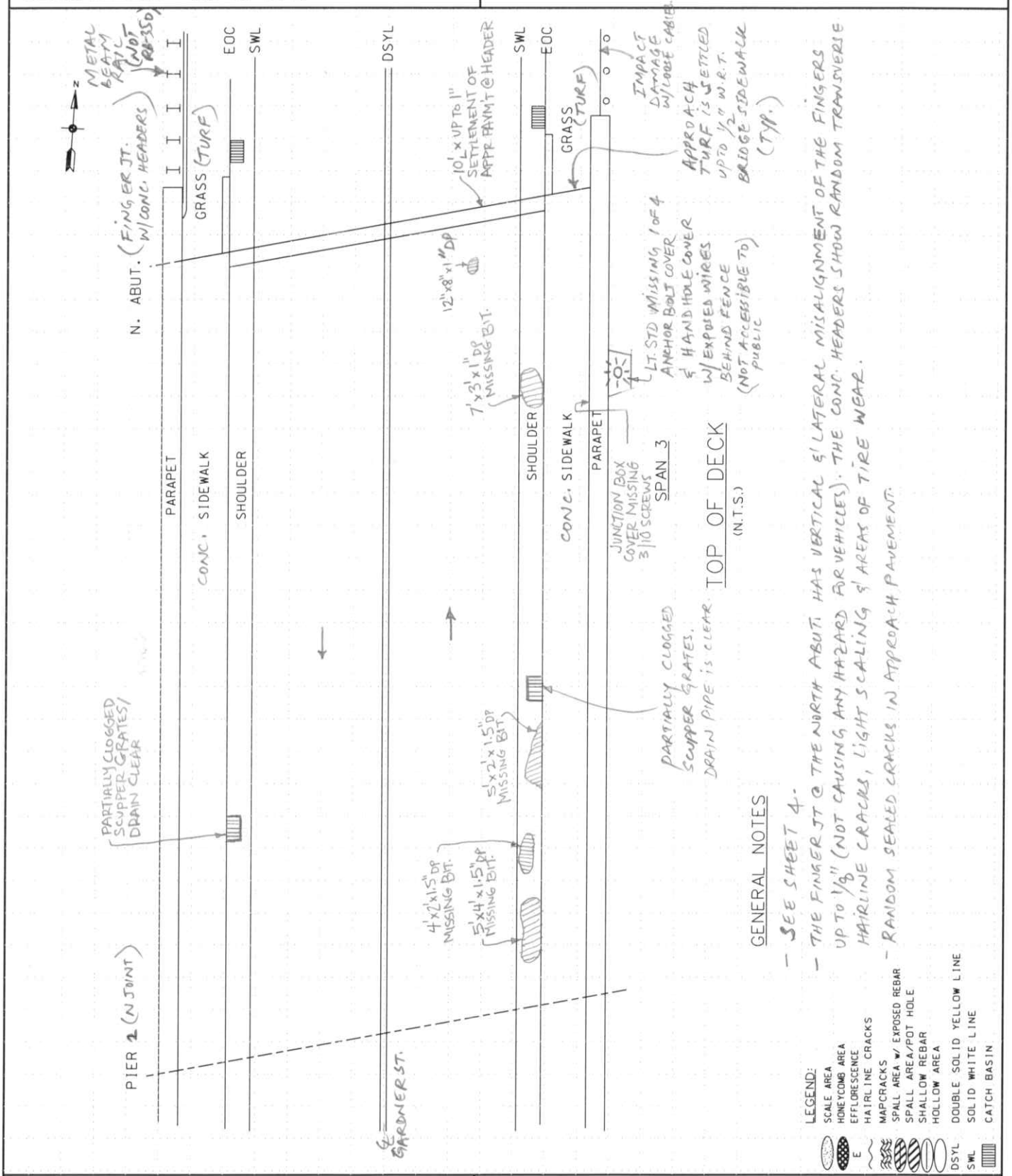
Revision 1	Date	Crew	Company	Revision 3	Date	Crew	Company
Revision 2	Date	Crew	Company	Revision 4	Date	Crew	Company

AI Engineers, Inc.	JOB NO. 170-3013	BRIDGE NO: 03590
	DATE: 6/2/2011	SHEET 5 OF 31
FIELD NOTES	CREW: CK, MAI	
DESCRIPTION: TOP OF DECK		



Revision 1	Date	Crew	Company	Revision 3	Date	Crew	Company
Revision 2	Date	Crew	Company	Revision 4	Date	Crew	Company

AI Engineers, Inc.	JOB NO. 170-3013	BRIDGE NO: 03590
	DATE: 6/2/11	SHEET 6 OF 31
FIELD NOTES	CREW: CK, MAI	
DESCRIPTION: TOP OF DECK		



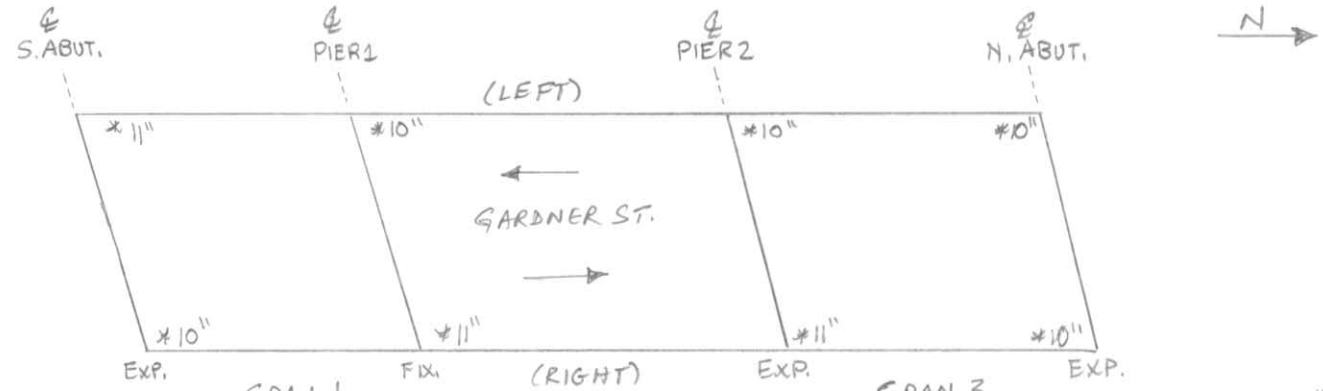
Revision 1	Date	Crew	Company	Revision 3	Date	Crew	Company
Revision 2	Date	Crew	Company	Revision 4	Date	Crew	Company

AI Engineers, Inc.

JOB NO: 170-3013	BRIDGE NO: 03590
DATE: 06/02/11	SHEET 7 OF 31
CREW: CK, MAI	

FIELD NOTES

DESCRIPTION: PARAPET JOINT MEASUREMENTS



AVG. W. CURB REVEAL = 10 1/4"
" E. " " = 10 1/2"

* CURB REVEAL

LOCATION	WINTER MEASUREMENT < 50° F				SUMMER MEASUREMENT > 50° F				JOINT TYPE
	LEFT	RIGHT	TEMP	DATE	LEFT	RIGHT	TEMP	DATE	
S. ABUT.					1 1/2"	1 9/16"	70°	6/2/11	ASPHALTIC PLUG JT.
N. ABUT.					1 3/16"	1 3/16"	70°	6/2/11	FINGER JT.

GENERAL NOTES:- ALL MEASUREMENTS TAKEN ±3" BELOW TOP OF PARAPET.
- NO PREVIOUS MEASUREMENTS AVAILABLE FOR COMPARISON.
- THERE IS NO JOINTS @ PIER

REGULAR INSPECTION [X]
Date: 06-01-11

SUMMER / WINTER JOINT MEASUREMENTS [ ]
Summer 20__ __ Winter 20__ __

JOINT MEASUREMENTS

Form BRI-17, Rev. 9/03

Measurements Taken By: CK
Measurements Reviewed By: MAI

Bridge No.: 03590 Gardner Street over I-384 & Hop Brook **Town:** Manchester

Deck Joint Location	Deck Joint Type	Effect Span (ft.)	Previous Measurements			Current Measurements			Differential Movements			Comments	Difference Between Actual & Calc'd Mov't	
			Temp °F	Date: 3/25/00		Temp °F	Date: 6/2/11		Actual		by			
				Left (in.)	Right (in.)		Left (in.)	Right (in.)	Left (in.)	Right (in.)	Formula		Left (in.)	Right (in.)
S.Abut.	Asph. Plug	134.5	52	1- 8/16	1- 8/16	70	1- 8/16	1- 9/16	0	- 1/16	3/16	Expansion	3/16	4/16
N. Abut.	Finger Jt.	269.0	52	1- 8/16	1-12/16	70	1- 3/16	1- 3/16	5/16	9/16	6/16	Expansion	1/16	- 3/16

1. The "Deck Joint Type" should be "plug" for Asphaltic Plug joints, "strip" for Strip Seals, "seg." for Segmental Joints, etc.
2. The "Effective Span" is the length contributing to expansion at the joint. This should be 0 at fixed joints of single span bridges.

Reviewer's Comments: All measurements taken 3" below from the top of parapet. Previous measurements were not available, so the measurements from 2000 were used for comparison.

Summer / Winter Joint Measurements: (IF ADDING OR REMOVING, SEND A COPY OF THIS FORM TO SUPERVISOR FOR REVIEW/APPROVAL WITH REASONS FOR CHANGE INDICATED)

[ ] **ADD** TO SUMMER/WINTER LIST
[ ] **REMOVE** FROM SUMMER/WINTER LIST

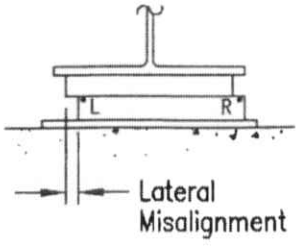
SUPERVISOR APPROVAL: _____
MASTER LIST ENTRY: _____

79/31

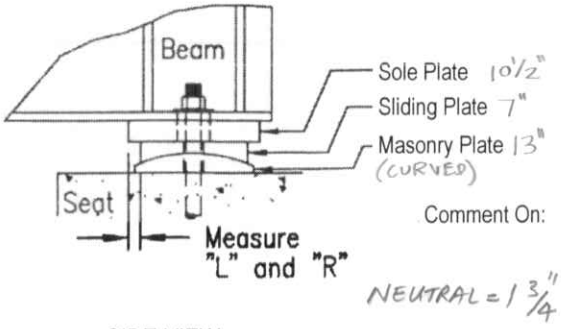
AI Engineers, Inc.	JOB NO: 170-3013	BRIDGE NO: 03590
	DATE: 6/2/2011	SHEET 8 OF 31
FIELD NOTES	CREW: MAI, CC	MAI, CC

SLIDING BEARING MEASUREMENTS

Form BRI-14, Rev. 9/97



FRONT VIEW



SIDE VIEW

Span No. = 1

Substructure Unit = South Abutment

Temperature = 70 °F

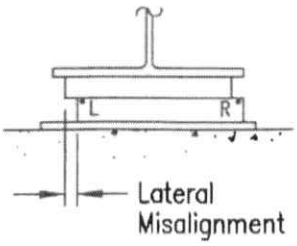
Comment On:
- Presence of keepers or work done on bearings.
- Undermining of bearing. Attach sketch with dimensions.
- Cracking of plates or welds.
- Condition of anchor bolts.

Beam	Movement				Condition			Comments
	"L"	"R"	Mode Exp. or Contr.	Lateral Misalign.	Bearing Frozen?	Normal Mov't?	Rust? H/M/L	
G1	1 2/16	1 2/16	Exp.	1/4" east	N	Y	M	Spotty peeling paint & lt. to mod. rust on brg. assembly
								E. side of sole plate is in contact w/ keeper bar.
G2	1	9/16	Exp.	1/4" east	N	Y	L	Spotty peeling paint.
G3	1 11/16	1 15/16	Contr.	1/4" east	N	Y	L	Spotty peeling paint.
G4	1 12/16	1 13/16	Exp.	1/4" east	N	Y	L	Spotty peeling paint. E. side of sole plate is in contact
								w/ keeper bar.
G5	1 10/16	1 13/16	Exp.	1/8" west	N	Y	L	Spotty peeling paint. W. side of sole plate is in contact
								w/ keeper bar.
G6	2 3/16	2	Contr.	5/16" west	N	Y	L	

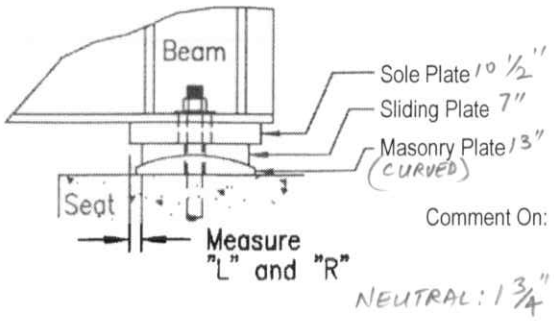
AI Engineers, Inc.	JOB NO: 170-3013	BRIDGE NO: 03590
	DATE: 6/10/2011	SHEET 9 OF 31
FIELD NOTES	CREW: DY, CK	DY, CK

SLIDING BEARING MEASUREMENTS

Form BRI-14, Rev. 9/97



FRONT VIEW



SIDE VIEW

Span No. = 2

Substructure Unit = Pier 2

Temperature = 80 °F

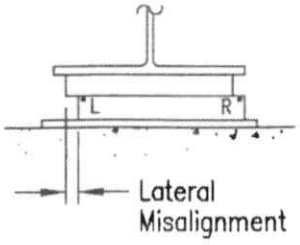
Comment On:
- Presence of keepers or work done on bearings.
- Undermining of bearing. Attach sketch with dimensions.
- Cracking of plates or welds.
- Condition of anchor bolts.

Beam	Movement				Condition			Comments
	"L"	"R"	Mode Exp. or Contr.	Lateral Misalign.	Bearing Frozen?	Normal Mov't?	Rust? H/M/L	
G1	2 10/16	2 5/16	Contr.	1/4" east	N	Y	M	Top of bearing plates have spotty area of peeling
								paint & light rust.
G2	2 4/16	2 4/16	Contr.	1/16" west	N	Y	M	" "
G3	2 3/16	2 3/16	Contr.	1/16" west	N	Y	M	" "
G4	3 4/16	3 8/16	OVER. Contr.	Neutral	N	Y	L	" "
G5	2 3/16	2 4/16	Contr.	Neutral	N	Y	M	" "
G6	2 10/16	2 14/16	Contr.	1/16" west	N	Y	M	" "
								G. NOTES:-
								Random bearings Sole PL's are
								in Contact w/ Keeper bars.

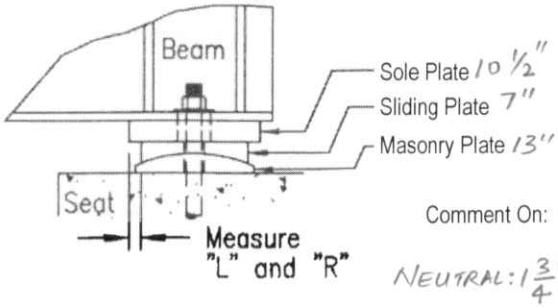
AI Engineers, Inc.	JOB NO: 170-3013	BRIDGE NO: 03590
	DATE: 6/10/2011	SHEET 10 OF 31
FIELD NOTES	CREW: DY, CK	DY, CK

SLIDING BEARING MEASUREMENTS

Form BRI-14, Rev. 9/97



FRONT VIEW



SIDE VIEW

Span No. = 3

Substructure Unit = North Abutment

Temperature = 80 °F

Comment On:
- Presence of keepers or work done on bearings.
- NEUTRAL: 1 3/4" — Undermining of bearing. Attach sketch with dimensions.
- Cracking of plates or welds.
- Condition of anchor bolts.

Beam	Movement				Condition			Comments
	"L"	"R"	Mode Exp. or Contr.	Lateral Misalign.	Bearing Frozen?	Normal Mov't?	Rust? H/M/L	
G1	2 10/16	2 6/16	Contr.	9/16" east	N	Y	L-M	Bearing tight against E. keeper
G2	3 12/16	3 10/16	OVER Contr.	3/16" east	N	Y	M	Impacted rust between bearing & E. keeper
G3	3 7/16	3 6/16	OVER. Contr.	3/16" east	N	Y	L-M	Bearing tight against E. keeper
G4	2 7/16	2 12/16	Contr.	Neutral	N	Y	M	Impacted rust between bearing & E. keeper
G5	1 12/16	1 6/16	Exp.	1/16" west	N	Y	M	Bearing tight against W. keeper
G6	1 14/16	1 12/16	Contr.	1/16" west	N	Y	M	Impacted rust between bearing & keeper

AI Engineers, Inc.	Project No.: 170-3013	Date: 06/01/2010
FIELD NOTES	Bridge No.: 03590	Sheet 11 OF 31
Description: Underside of deck & Superstructure Notes	Crew: MAI, CC	

General Notes

UNDERSIDE OF DECK

- The underside of the concrete deck shows random transverse and hairline map cracks with and without efflorescence, light honeycombing and rust stains from shallow rebar chairs. All loose hollow areas along the construction joint over the live traffic were removed at the time of inspection (unless otherwise noted) resulting in spalls with exposed rebar. The deck overhangs along both fasciae have numerous transverse hairline cracks with efflorescence. Random construction joints exhibit heavy efflorescence, rust stains and spalls with exposed rebar. There are a few deck haunches which sounded hollow over the dirt area but were intact at the time of inspection.

BEARING DEVICES

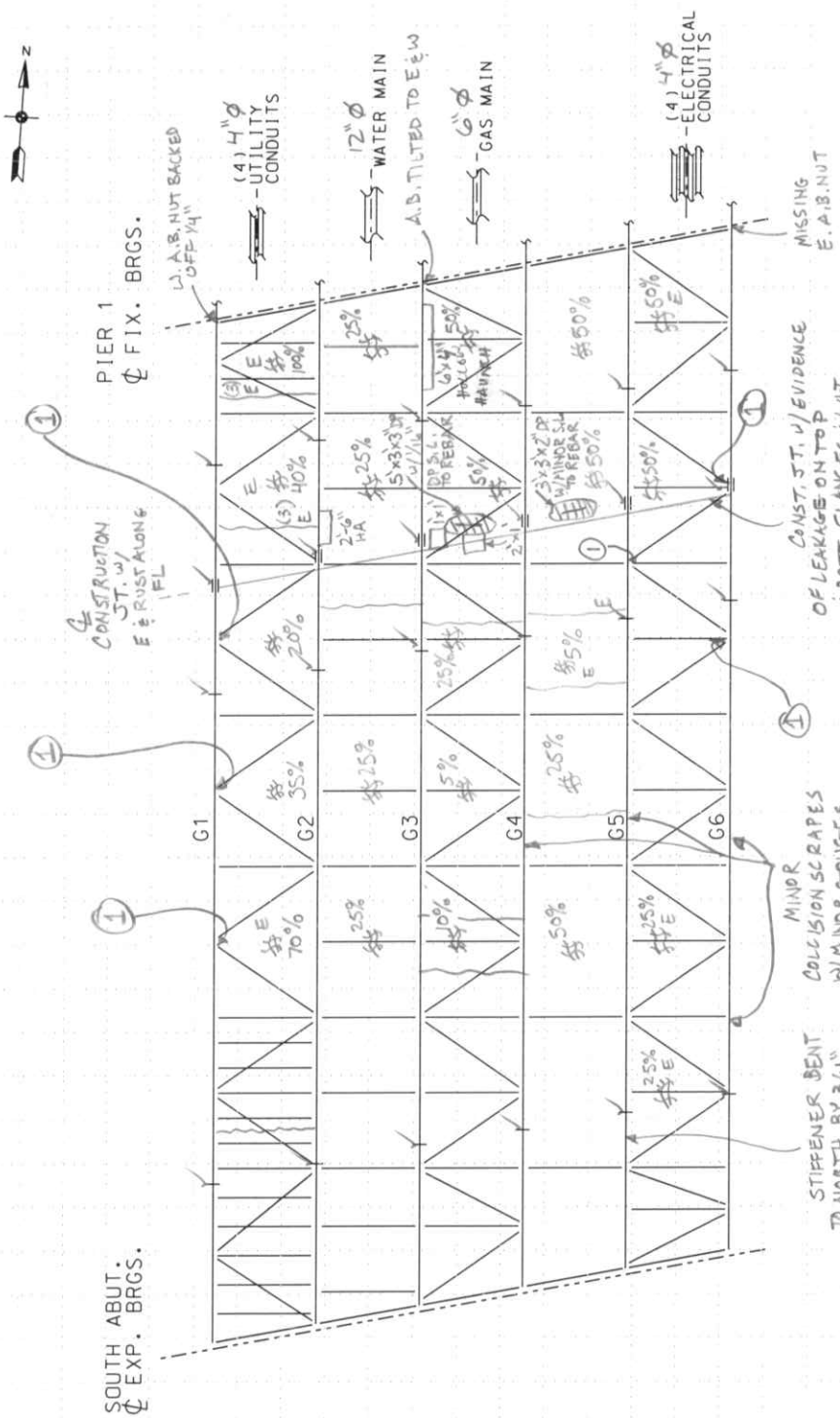
- Fixed bearings with dual steel blocks and pin over pier 1 exhibit peeling paint and light to moderate rust.

GIRDERS

- The structural steel exhibits light to moderate rust throughout and areas of heavy rust with negligible section loss on the top flanges due to past water leakage through the deck construction joint in all spans. Random lateral bracing gusset plates have laminated rust with negligible section loss. There is up to 1/4" thick pack rust between lateral bracing gusset plates and bottom flange at random locations. There is moderate to heavy accumulation of pigeon debris on the top of bottom flange and the bottom lateral bracing gusset plate.

  The intermediate cross frames exhibit light blush rust and the end diaphragms have moderate rust, mostly at the locations where the weep pipe is short.
- Less than 25% of the painted surfaces of the structural steel exhibit rust.

AI Engineers, Inc.	JOB NO. 170-3013	BRIDGE NO: 03590
	DATE: 6/1/11	SHEET 12 OF 31
FIELD NOTES	CREW: MAI, CC	
DESCRIPTION: UNDERSIDE OF DECK & FRAMING		



DETERIORATION NOTES:

(1) CRACKED/BROKEN LONG. W/ELD B/W LATERAL BRACE GUSSET PL & BOTT. FLANGE SEE FIELD NOTES SHEET 15 FOR SIZES & COMMENTS

GENERAL NOTES:-

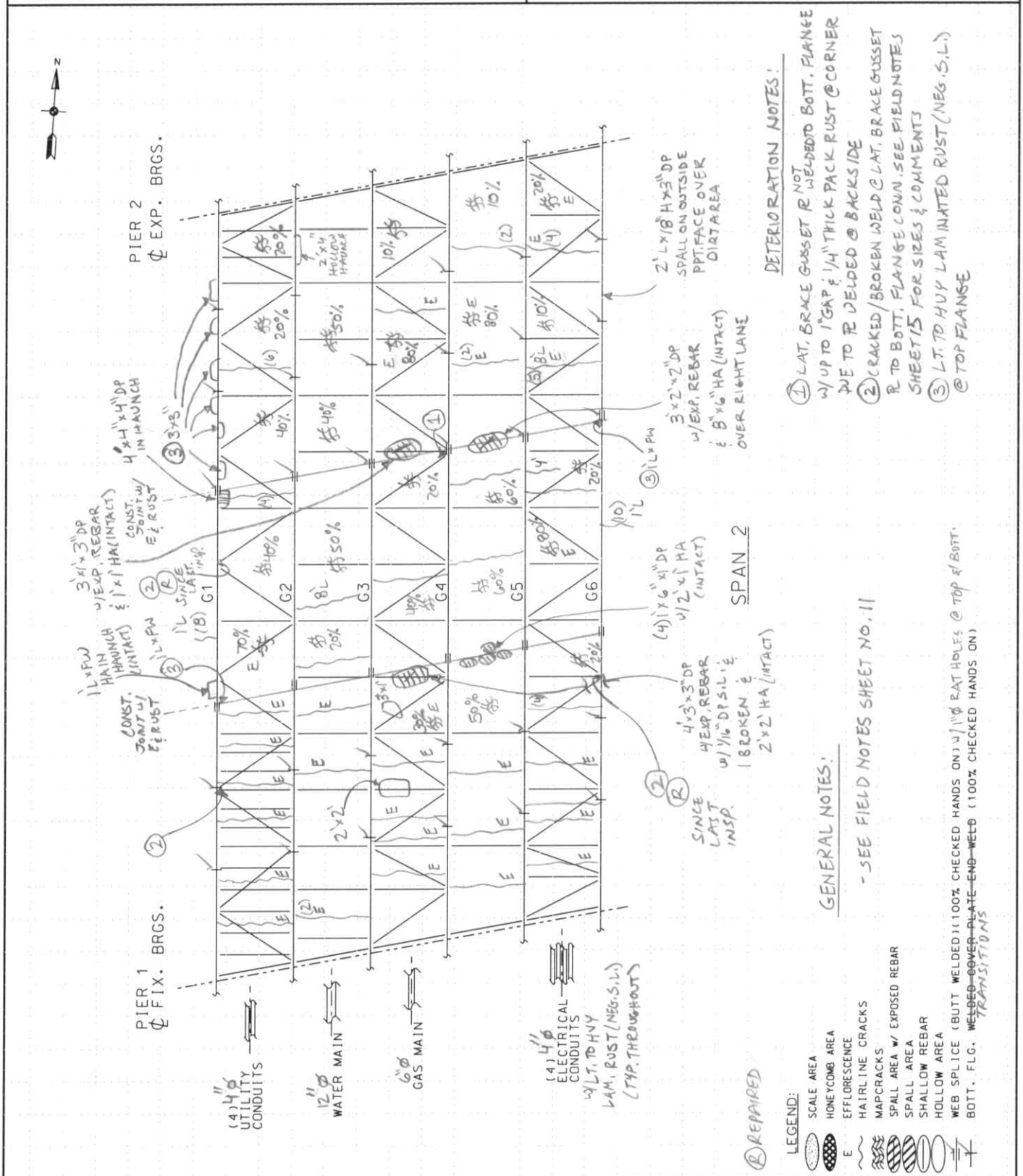
-SEE FIELD NOTES SHEET NO. 11

LEGEND:

- SCALE AREA
- HONEYCOMB AREA
- E EFFLORESCENCE
- HAIRLINE CRACKS
- MAPCRACKS
- SPALL AREA w/ EXPOSED REBAR
- SPALL AREA
- SHALLOW REBAR
- HOLLOW AREA
- WEB SPLICE (BUTT WELDED)(100% CHECKED HANDS ON), w/1"Ø RAT HOLES @ TOP & BOTT. TRANSITIONS
- BOTT. FLG. ~~WELDED COVER PLATE END WELD (100%~~ CHECKED HANDS ON)

Revision 1	Date	Crew	Company	Revision 3	Date	Crew	Company
Revision 2	Date	Crew	Company	Revision 4	Date	Crew	Company

AI Engineers, Inc.	JOB NO. 170-3013	BRIDGE NO: 03590
	DATE: 6/2/11	SHEET 13 OF 31
FIELD NOTES	CREW: MAI, CK	
DESCRIPTION: UNDERSIDE OF DECK & FRAMING		



DETERIORATION NOTES:

1. LAT. BRACE GUSSET R NOT WELDED TO BOTT. FLANGE W/ UP TO 1" GAP & 1/4" THICK PACK RUST @ CORNER DUE TO R DELDED @ BACKSIDE
2. CRACKED/BROKEN WELD @ LAT. BRACE GUSSET R TO BOTT. FLANGE CONN. SEE FIELD NOTES SHEET 15 FOR SIZES & COMMENTS
3. LT. TO HVY LAMINATED RUST (NEG. S.L.) @ TOP FLANGE

GENERAL NOTES:

- SEE FIELD NOTES SHEET NO. 11

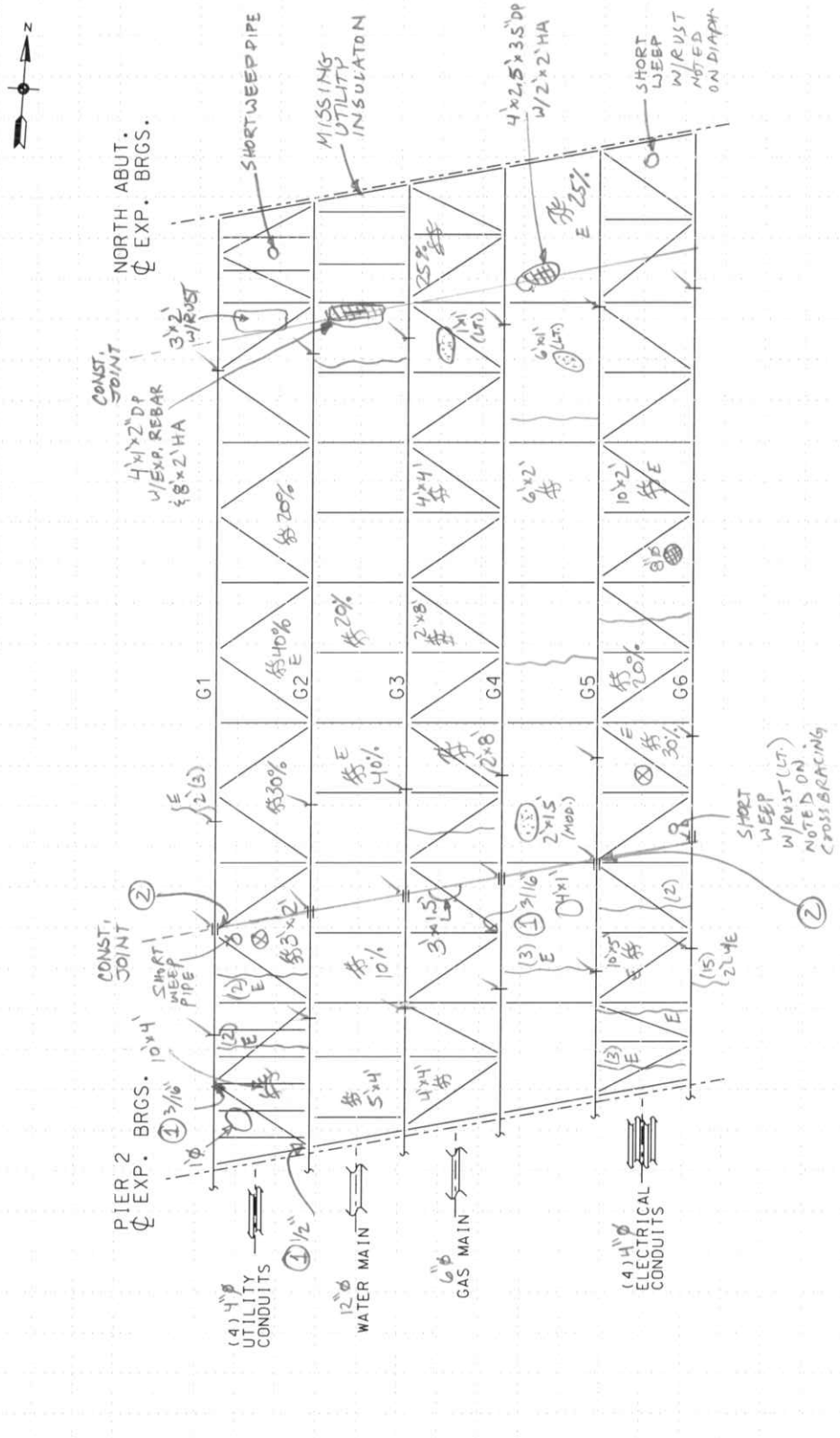
R REPAIRED

LEGEND:

- SCALE AREA
- HONEYCOMB AREA
- E EFFLORESCENCE
- HAIRLINE CRACKS
- MAPCRACKS
- SPALL AREA w/ EXPOSED REBAR
- SPALL AREA
- SHALLOW REBAR
- HOLLOW AREA
- WEB SPLICE (BUTT WELDED)(100% CHECKED HANDS ON) w/ 1"ø RAT HOLES @ TOP & BOTT. TRANSITIONS
- BOTT. FLG. ~~WELDED COVER PLATE END WELD~~ (100% CHECKED HANDS ON)

Revision 1	Date	Crew	Company	Revision 3	Date	Crew	Company
Revision 2	Date	Crew	Company	Revision 4	Date	Crew	Company

AI Engineers, Inc.	JOB NO. 170-3013	BRIDGE NO: 03590
	DATE: 6/10/11	SHEET 14 OF 31
FIELD NOTES	CREW: DY, CK	
DESCRIPTION: UNDERSIDE OF DECK & FRAMING		



SPAN 3

DETERIORATION NOTES:

1. GAP B/W LAT. TEE CONN. & UP TO 1/2"W
2. MISSING WELDS @ LAT. BRACE GUSSET & CONN. TO BOTT. FLANGE SEE FIELD NOTES SHEET 15 FOR SIZES & COMMENTS

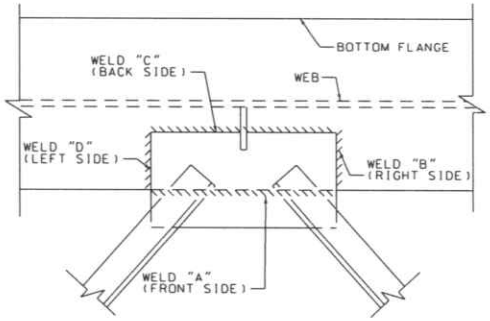
GENERAL NOTES:

-SEE FIELD NOTES SHEET No. 11

LEGEND:

- SCALE AREA
- HONEYCOMB AREA
- E EFFLORESCENCE
- HAIRLINE CRACKS
- MAPCRACKS
- SPALL AREA w/ EXPOSED REBAR
- SPALL AREA
- SHALLOW REBAR
- HOLLOW AREA
- WEB SPLICE (BUTT WELDED)(100% CHECKED HANDS ON) W/1"ø RAT HOLES @ TOP & BOTT. TRANSITIONS
- BOTT. FLG. ~~WELDED COVER PLATE END WELD~~ (100% CHECKED HANDS ON)
- STEEL WEEP PIPE
- STEEL SCUPPER FREE FALL PIPE

Revision 1	Date	Crew	Company	Revision 3	Date	Crew	Company
Revision 2	Date	Crew	Company	Revision 4	Date	Crew	Company



TYPICAL PLAN VIEW OF
LATERAL BRACE GUSSET PLATE
CONNECTION TO GIRDER BOTTOM FLANGE

LEGEND

WELDS "A", "B" & "D" - PER FIELD CONDITION (NO WELDS PER PLANS)
WELD "C" - PER PLANS

NOTES

- PLANS SHOW NO WELDS EXIST AROUND THE GUSSET PLATE EXCEPT AT THE BACK SIDE (WELD "C").

LOCATION	BETWEEN OR AT DIAPHRAGMS (SEE REFERENCE)	FROM (REFERENCE)	SIZE OF CRACKED/ BROKEN WELD	NOTES
GIRDER G1 - SPAN 1 (EAST ELEVATION)	2ND & 3RD	PIER 1	1-1/2"L @ SOUTH END & 4"L @ NORTH END OF WELD "A" (NEW)	
GIRDER G1 - SPAN 1 (EAST ELEVATION)	2ND & 3RD	PIER 1	5"L @ WELD "D" (NEW)	1/8" THICK PACK RUST BETWEEN LATERAL BRACE GUSSET PLATE AND BOTTOM FLANGE
GIRDER G1 - SPAN 1 (EAST ELEVATION)	2ND & 3RD	PIER 1	9"L @ WELD "B" (NEW)	1/4" THICK PACK RUST BETWEEN LATERAL BRACE GUSSET PLATE AND BOTTOM FLANGE
GIRDER G1 - SPAN 1 (EAST ELEVATION)	2ND & 3RD	PIER 1	2"L @ SOUTH END OF WELD "C" (NEW)	1/4" THICK PACK RUST BETWEEN LATERAL BRACE GUSSET PLATE AND BOTTOM FLANGE
GIRDER G1 - SPAN 1 (EAST ELEVATION)	3RD & 4TH	PIER 1	7"L @ NORTH END OF WELD "A" (NEW)	1/4" GAP AND 1/4" THICK PACK RUST BETWEEN LATERAL BRACE GUSSET PLATE AND BOTTOM FLANGE
GIRDER G1 - SPAN 1 (EAST ELEVATION)	3RD & 4TH	PIER 1	9"L @ WELD "B" (NEW)	1/4" GAP AND 1/4" THICK PACK RUST BETWEEN LATERALBRACE GUSSET PLATE AND BOTTOM FLANGE
GIRDER G1 - SPAN 1 (EAST ELEVATION)	3RD & 4TH	PIER 1	5"L @ NORTH END OF WELD "C" (NEW)	1/4" GAP AND 1/4" THICK PACK RUST BETWEEN LATERAL BRACE GUSSET PLATE AND BOTTOM FLANGE
GIRDER G1 - SPAN 1 (EAST ELEVATION)	4TH & 5TH	PIER 1	2-1/2"L @ NORTH END OF WELD "A" (NEW)	1/4" THICK PACK RUST BETWEEN LATERAL BRACE GUSSET PLATE AND BOTTOM FLANGE
GIRDER G1 - SPAN 1 (EAST ELEVATION)	4TH & 5TH	PIER 1	9"L @ WELD "B" (NEW)	1/4" THICK PACK RUST BETWEEN LATERAL BRACE GUSSET PLATE AND BOTTOM FLANGE
GIRDER G5 - SPAN 1 (EAST ELEVATION)	2ND	PIER 1	(2) 1-3/8"L @ WELD "B" (NEW)	1/8" THICK PACK RUST BETWEEN LATERAL BRACE GUSSET PLATE AND BOTTOM FLANGE
GIRDER G6 - SPAN 1 (WEST ELEVATION)	1ST & 2ND	PIER 1	9"L @ WELD "B" (NEW)	1" GAP AND 1/4" THICK PACK RUST BETWEEN LATERAL BRACE GUSSET PLATE AND BOTTOM FLANGE
GIRDER G6 - SPAN 1 (WEST ELEVATION)	2ND & 3RD	PIER 1	1"L @ WELD "B" (NEW)	
GIRDER G1 - SPAN 2 (EAST ELEVATION)	1ST & 2ND	PIER 1	1-1/2"L @ NORTH END OF WELD "A" (NEW)	
GIRDER G4 - SPAN 2 (WEST ELEVATION)	2ND & 3RD	PIER 2	MISSING WELDS "A", "B" & "D" (OLD)	UP TO 1" GAP AT WELD "A" AND 1/4" THICK PACK RUST BETWEEN LATERAL BRACE GUSSET PLATE AND BOTTOM FLANGE
GIRDER G1 - SPAN 3 (EAST ELEVATION)	1ST & 2ND	PIER 2	MISSING WELDS "A", "B", "D" & UP TO 17" "C' (OLD)	UP TO 1-3/4" THICK PACK RUST BETWEEN LATERAL BRACE GUSSET PLATE AND BOTTOM FLANGE. ALSO THE GUSSET PLATE IS MISALIGNED UP TO 1-3/4"
GIRDER G5 - SPAN 3 (EAST ELEVATION)	2ND	PIER 2	MISSING WELDS "A", "B", "D" & UP TO 17" "C' (OLD)	1/8" THICK PACK RUST BETWEEN LATERAL BRACE GUSSET PLATE AND BOTTOM FLANGE AT WELD "B"

Revision 1 Date Crew Company
Revision 2 Date Crew Company
Revision 3 Date Crew Company
Revision 4 Date Crew Company

AI Engineers, Inc.

FIELD NOTES

DESCRIPTION: SUPERSTRUCTURE

CREW: MAI, CC

JOB NO. 170-3013

DATE: 06/01/11

BRIDGE NO: 03590

SHEET 15 OF 31

AI Engineers, Inc.

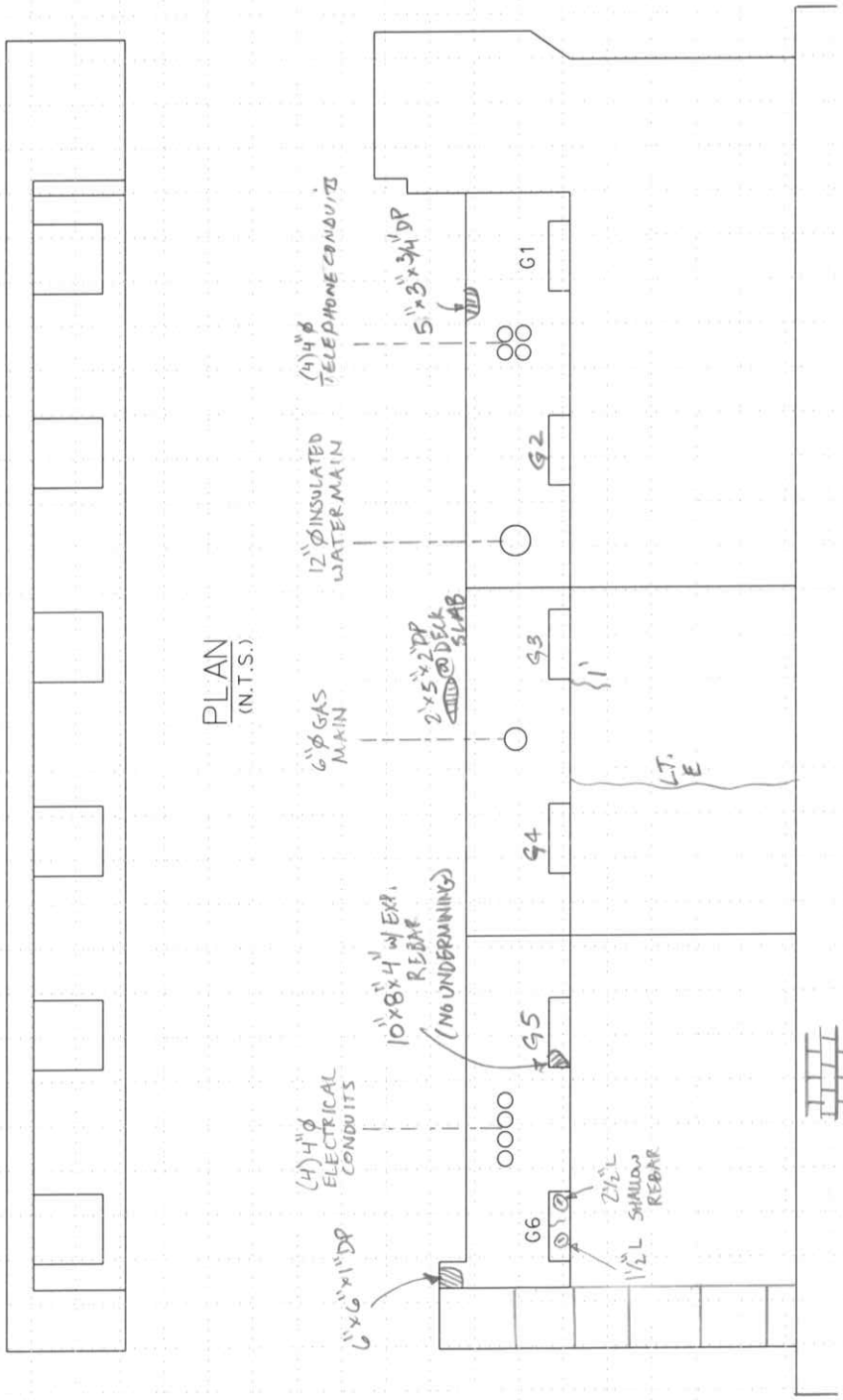
Bridge Number : 03590 Date: 6/1/2011 Prepared by: CC Checked By: MAI

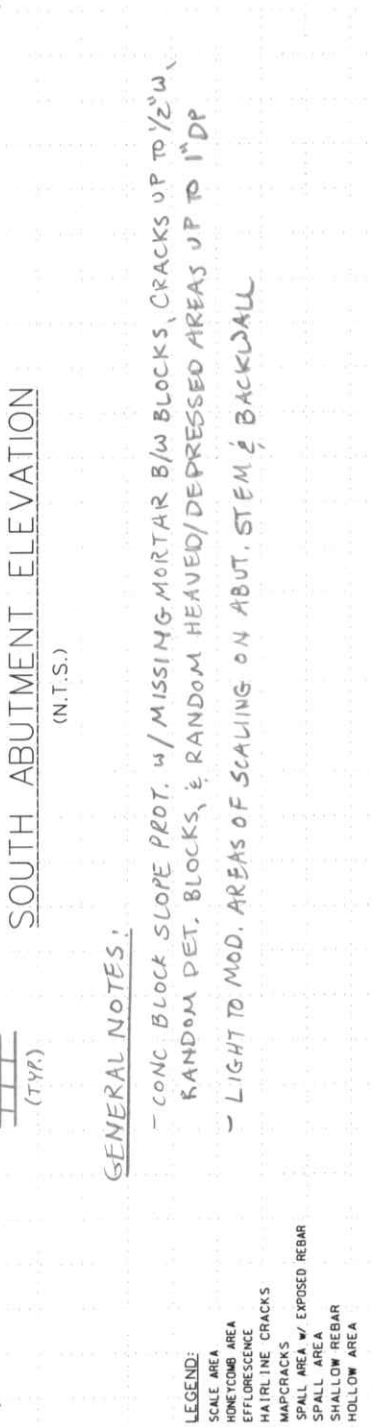
CONCRETE DETERIORATION WORKSHEET

Form BRI-10, Rev. 9/01

	Deterioration By Span- In Square Feet										
	Span Number										
Deterioration Type	1	2	3								Total
Spalled and Delaminated Areas	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:
	Bot: 40	Bot: 38	Bot: 46	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot: 124
Scale (Moderate to Severe only)	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:
	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:
Cracks: w/ Efflorescence (use 6in. width x length	Bot: 45	Bot: 135	Bot: 44	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot: 224
w/o Efflo. (use 3in. width x length)	Bot: 8	Bot: 54	Bot: 14	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot: 76
Map Cracking: w/Efflorescence (use full area)	Bot: 265	Bot: 345	Bot: 315	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot: 925
w/o Efflo. (use 50 % of area)	Bot: 620	Bot: 889	Bot: 325	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot: 1834
Honeycombed Areas (only areas more than 1-1/2in. deep)	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:
TOTAL	978	1461	744								3183
Total Span Area (Square Feet)	6476	6476	6476								19427
% Spalled and Delaminated on Top											
% Deterioration on Bottom	15.1%	22.6%	11.5%								16.4%

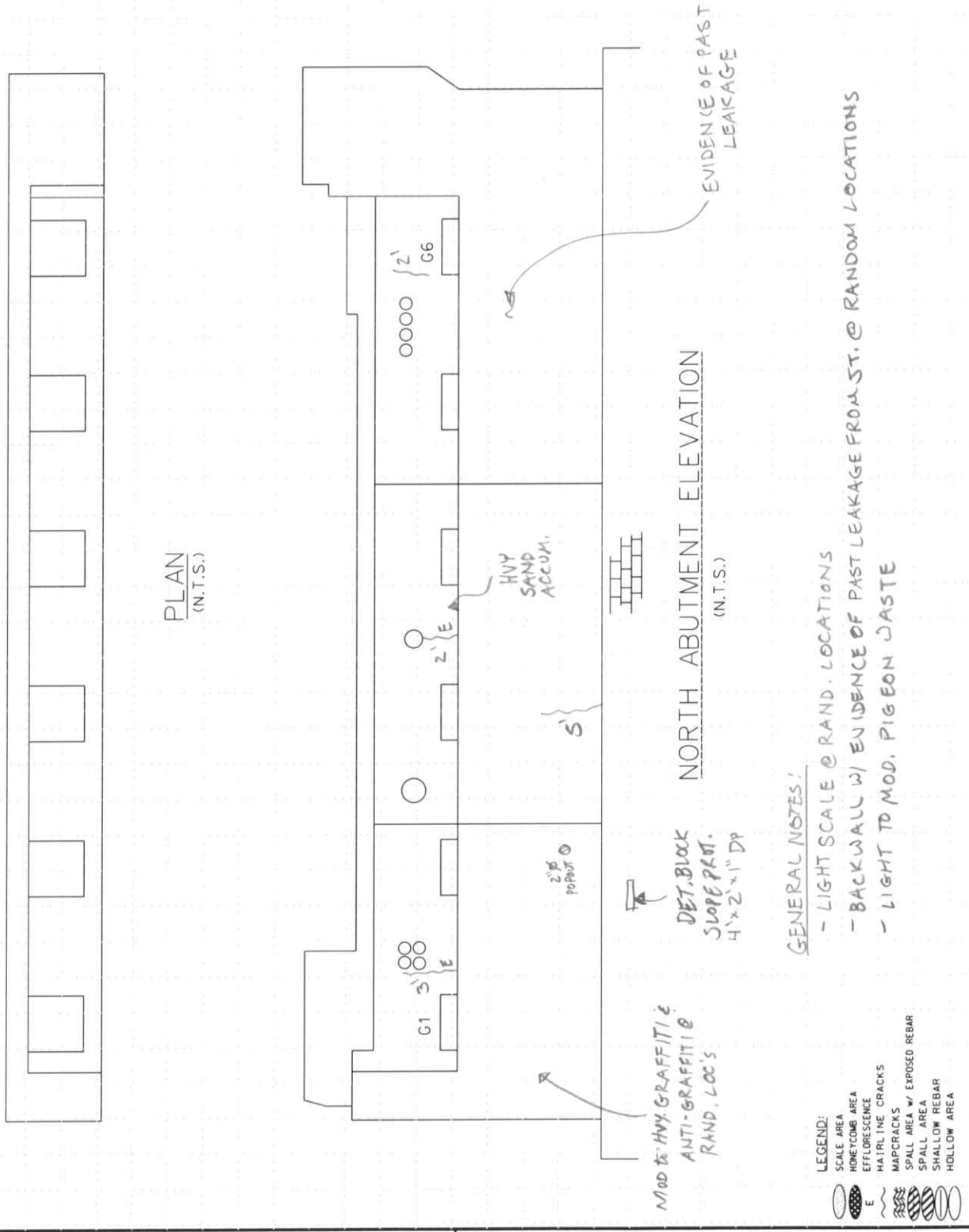
AI Engineers, Inc.	JOB NO. 170-3013	BRIDGE NO: 03590
	DATE: 6/2/11	SHEET 17 OF 31
FIELD NOTES	CREW: CC, MAI	
DESCRIPTION: SUBSTRUCTURE		





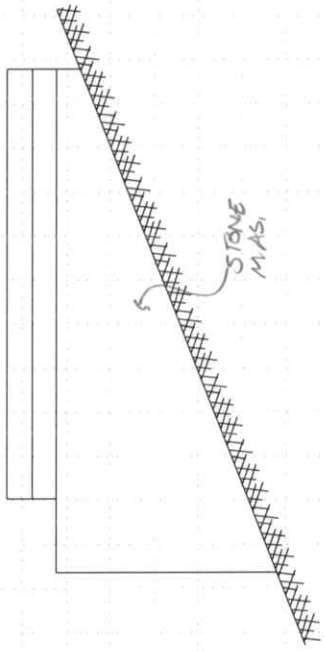
	Date	Crew	Company		Date	Crew	Company
Revision 1				Revision 3			
Revision 2				Revision 4			

AI Engineers, Inc.	JOB NO. 170-3013	BRIDGE NO: 03590
	DATE: 6/10/11	SHEET 18 OF 31
FIELD NOTES	CREW: CK, DY	
DESCRIPTION: SUBSTRUCTURE		

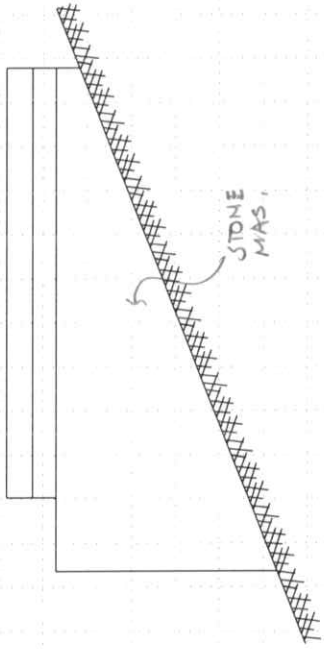


	Date	Crew	Company		Date	Crew	Company
Revision 1				Revision 3			
Revision 2				Revision 4			

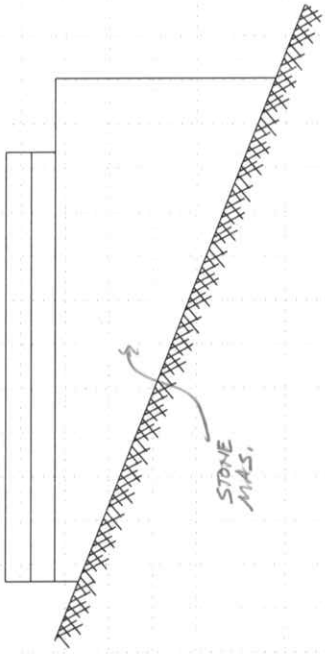
AI Engineers, Inc.	JOB NO. 170-3013	BRIDGE NO: 03590
	DATE: 6/2/11	SHEET 19 OF 31
FIELD NOTES	CREW: CK, MAI	
DESCRIPTION: SUBSTRUCTURE		



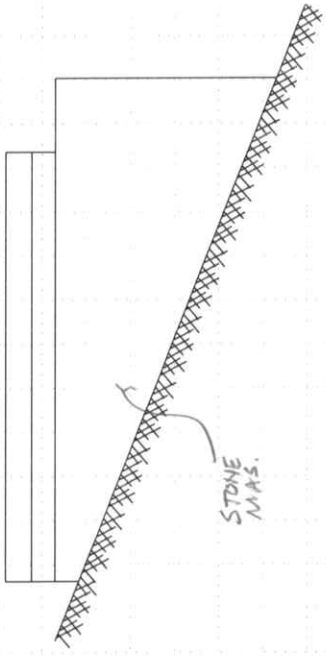
SOUTHEAST WINGWALL
(N.T.S.)



NORTHEAST WINGWALL
(N.T.S.)



SOUTHWEST WINGWALL
(N.T.S.)



NORTHWEST WINGWALL
(N.T.S.)

GENERAL NOTES:-

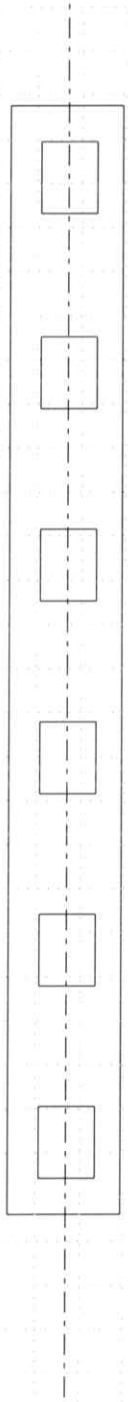
- WINGWALLS SHOW RANDOM JOINT MORTAR CRACKING & LOSS OF JOINT MATERIAL AT ISOLATED LOCATIONS.

LEGEND:

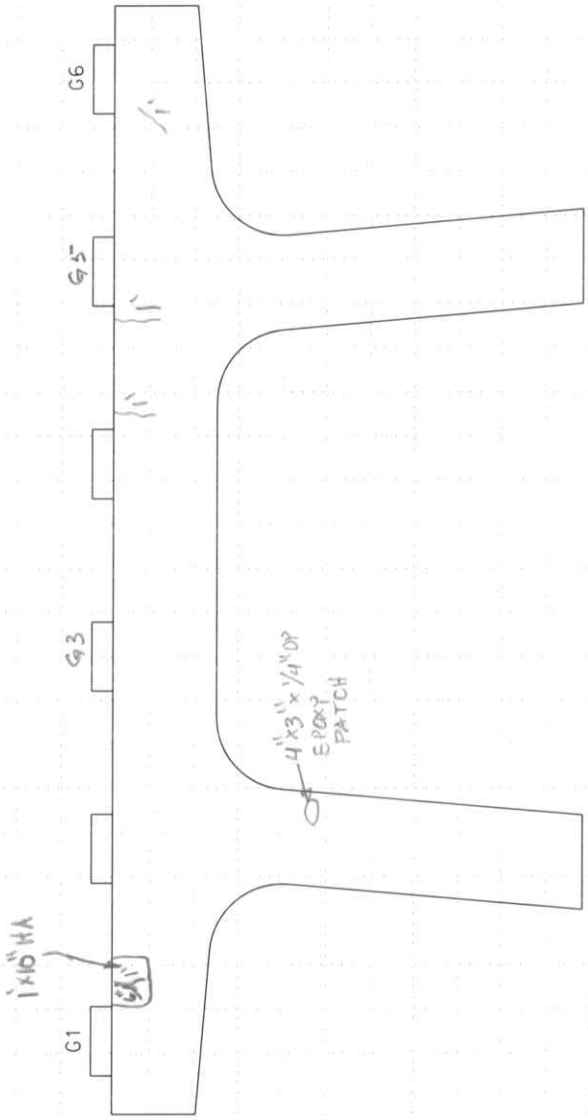
- E EFFLORESCENCE
- HAIRLINE CRACKS
- MAP CRACKS
- HOLLOW AREA
- SHALLOW REBAR
- SCALE AREA
- SPALL AREA
- SPALL AREA w/EXPOSED REBAR
- HONEYCOMB AREA
- HONEYCOMB AREA w/EXPOSED REBAR

	Date	Crew	Company		Date	Crew	Company
Revision 1				Revision 3			
Revision 2				Revision 4			

AI Engineers, Inc.	JOB NO. 170-3013	BRIDGE NO: 03590
	DATE: 06/01/11	SHEET 20 OF 31
FIELD NOTES	CREW: CC, MAI	
DESCRIPTION: SUBSTRUCTURE		



PLAN VIEW
(N.T.S.)



PIER 1 - SOUTH ELEVATION
(N.T.S.)

GENERAL NOTES:-

- LIGHT TO MOD ACCUMULATION OF PIGEON DEBRIS ON PIER CAP
- SILT STAINS AND EVIDENCE OF PAST LEAKAGE AT WEST END

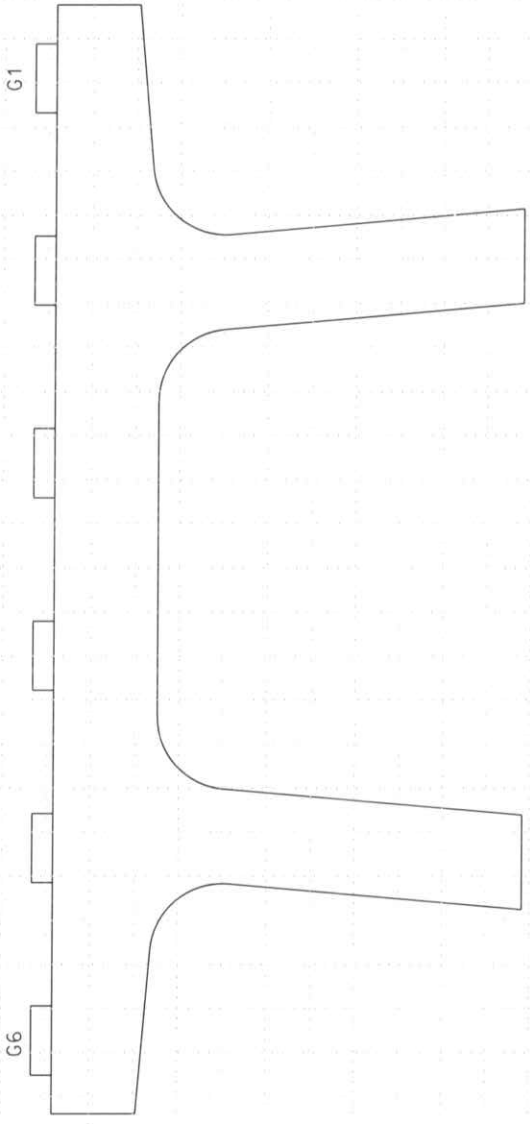
LEGEND:

- E EFFLORESCENCE
- HAIRLINE CRACKS
- MAP CRACKS
- HOLLOW AREA
- SHALLOW REBAR
- SCALE AREA
- SPALL AREA
- SPALL AREA w/EXPOSED REBAR
- HONEYCOMB AREA
- HONEYCOMB AREA w/EXPOSED REBAR

	Date	Crew	Company		Date	Crew	Company
Revision 1				Revision 3			
Revision 2				Revision 4			

AI Engineers, Inc.	JOB NO. 170-3013	BRIDGE NO: 03590
	DATE: 6/1/11	SHEET 21 OF 31
FIELD NOTES	CREW: CC, MAI	
DESCRIPTION: SUBSTRUCTURE		

UNDERSIDE VIEW
(N.T.S.)



PIER 1 - NORTH ELEVATION
(N.T.S.)

GENERAL NOTES:-

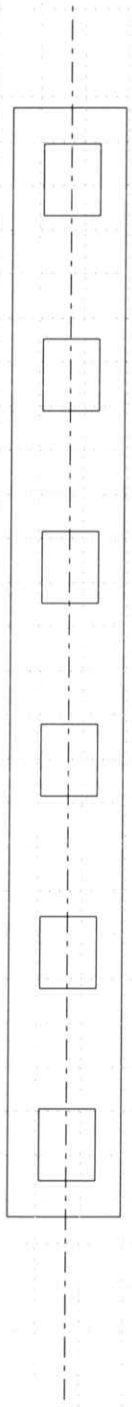
- SEE NOTES FOR PIER 1 - SOUTH ELEVATION.

LEGEND:

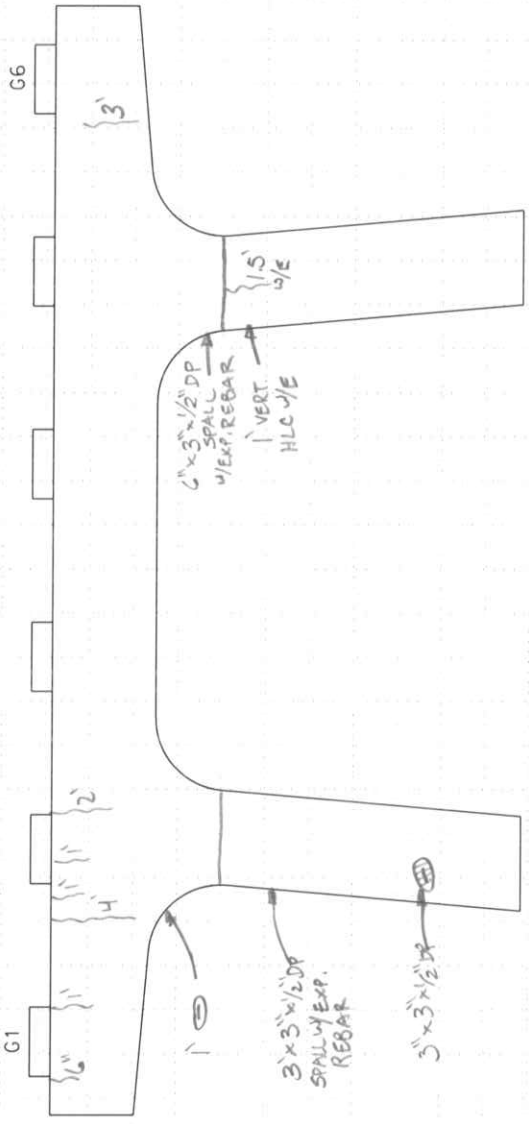
- E EFFLORESCENCE
- HAIRLINE CRACKS
- MAP CRACKS
- HOLLOW AREA
- SHALLOW REBAR
- SCALE AREA
- SPALL AREA
- SPALL AREA w/EXPOSED REBAR
- HONEYCOMB AREA
- HONEYCOMB AREA w/EXPOSED REBAR

	Date	Crew	Company		Date	Crew	Company
Revision 1				Revision 3			
Revision 2				Revision 4			

AI Engineers, Inc.	JOB NO. 170-3013	BRIDGE NO: 03590
	DATE: 6/10/11	SHEET 22 OF 31
FIELD NOTES	CREW: CK, DY	
DESCRIPTION: SUBSTRUCTURE		



PLAN VIEW
(N.T.S.)



PIER 2 - SOUTH ELEVATION
(N.T.S.)

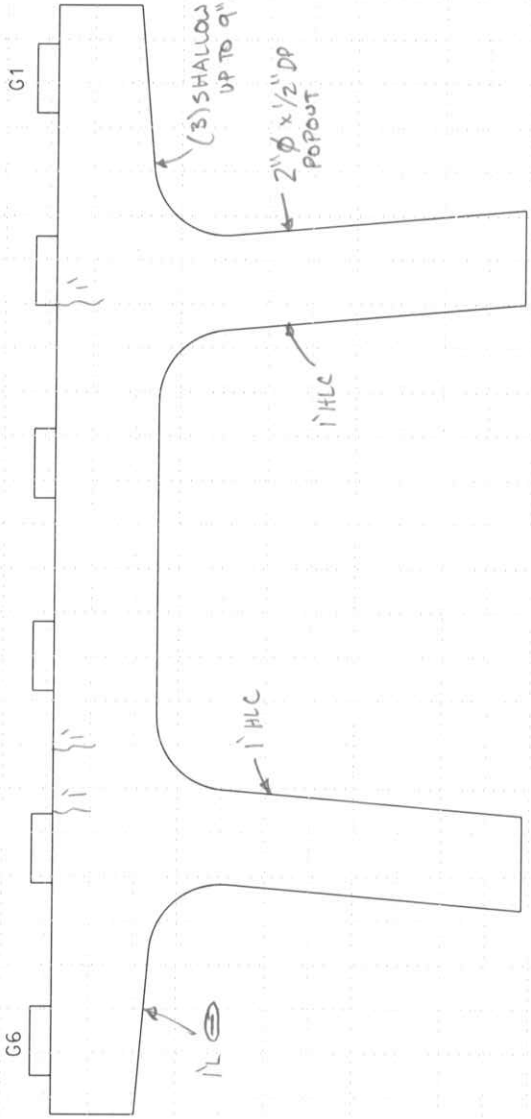
GENERAL NOTES:
- RANDOM POPOUTS UP TO 2"×2" @ PIER FACE & COLUMNS
- HVY VEGETATION GROWTH @ BASE OF COLUMNS
- LT. TO MOD. PIGEON DEBRIS ON ABUT. SEAT

LEGEND:
- E EFFLORESCENCE
- HAIRLINE CRACKS
- MAP CRACKS
- HOLLOW AREA
- SHALLOW REBAR
- SCALE AREA
- SPALL AREA
- SPALL AREA w/EXPOSED REBAR
- HONEYCOMB AREA
- HONEYCOMB AREA w/EXPOSED REBAR

	Date	Crew	Company		Date	Crew	Company
Revision 1				Revision 3			
Revision 2				Revision 4			

AI Engineers, Inc.	JOB NO. 170-3013	BRIDGE NO: 03590
	DATE: 6/10/11	SHEET 23 OF 31
FIELD NOTES	CREW: CK, DY	
DESCRIPTION: SUBSTRUCTURE		

UNDERSIDE VIEW
(N.T.S.)



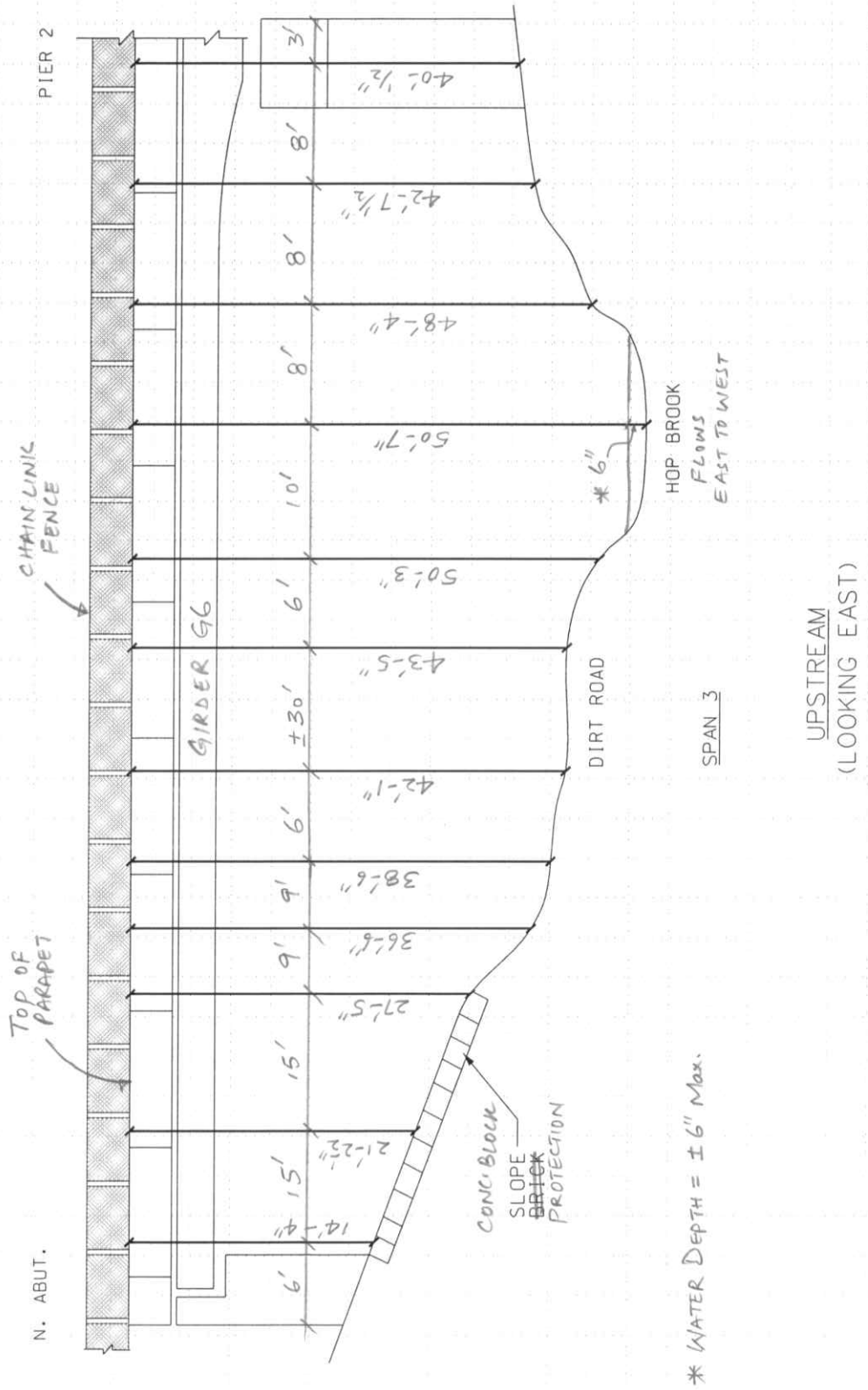
PIER 2 - NORTH ELEVATION
(N.T.S.)

GENERAL NOTES:
- SEE SOUTH ELEVATION

LEGEND:
- E EFFLORESCENCE
- HAIRLINE CRACKS
- MAP CRACKS
- HOLLOW AREA
- SHALLOW REBAR
- SCALE AREA
- SPALL AREA
- SPALL AREA w/EXPOSED REBAR
- HONEYCOMB AREA
- HONEYCOMB AREA w/EXPOSED REBAR

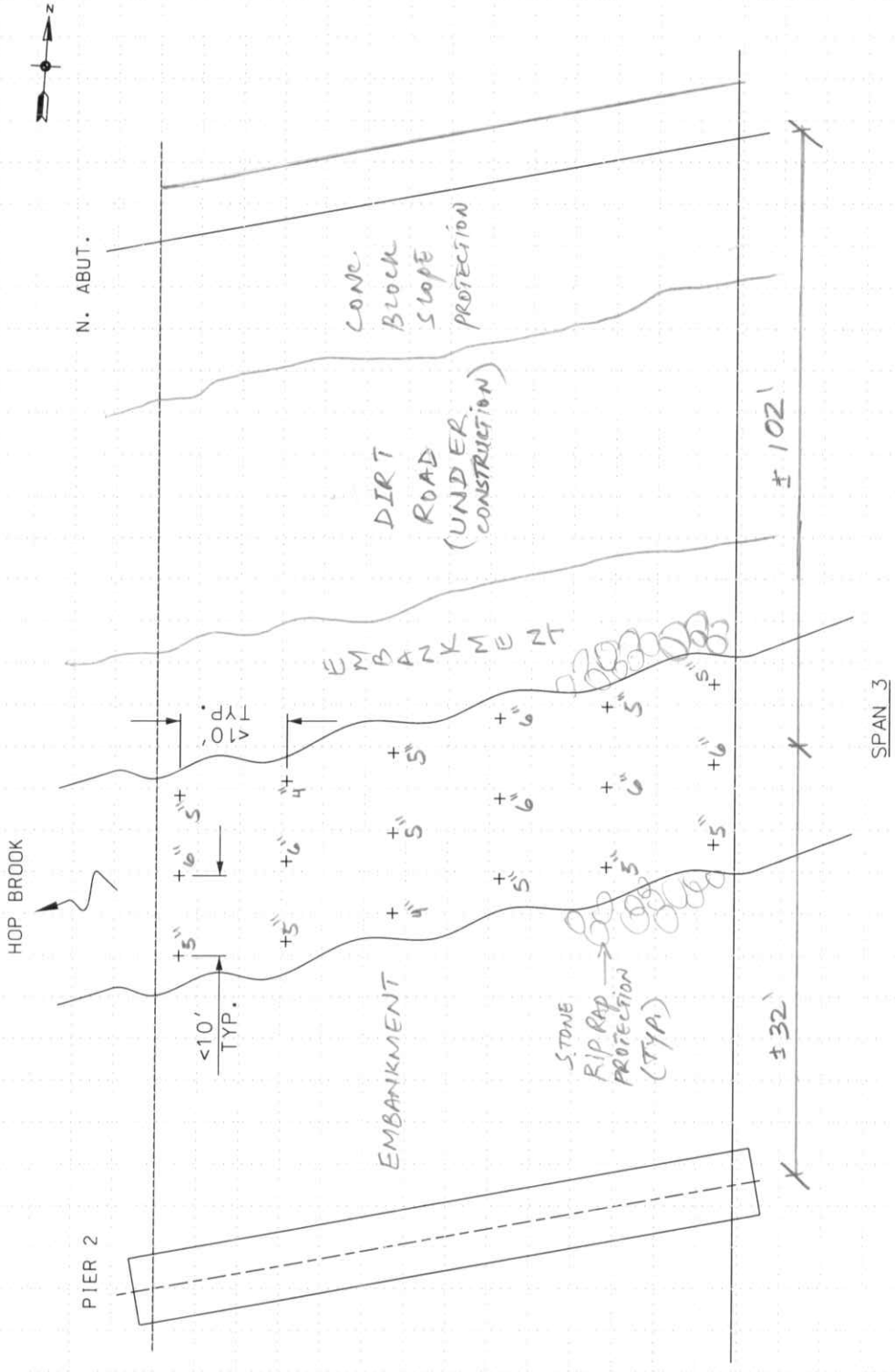
Revision	Date	Crew	Company	Revision	Date	Crew	Company
1				3			
2				4			

AI Engineers, Inc.	JOB NO. 170-3013	BRIDGE NO: 03590
	DATE: 6/10/11	SHEET 24 OF 31
FIELD NOTES	CREW: DY, CK	
DESCRIPTION: DROPLINE		



Revision 1	Date	Crew	Company	Revision 3	Date	Crew	Company
Revision 2	Date	Crew	Company	Revision 4	Date	Crew	Company

AI Engineers, Inc.	JOB NO. 170-3013	BRIDGE NO: 03590
	DATE: 6/10/11	SHEET 25 OF 31
FIELD NOTES	CREW: DY, CK	
DESCRIPTION: SOUNDING GRID (CHANNEL)		



GENERAL NOTES:

- BOTH BANKS SHOW MINOR ENCROACHMENT ALONG THE CHANNEL.
- ALL EMBANKMENTS ARE WELL VEGETATED & THE TREE BRANCHES ARE OVERHANGING CHANNEL
- THERE IS LIGHT TIMBER DEBRIS IN CHANNEL.

Revision 1	Date	Crew	Company	Revision 3	Date	Crew	Company
Revision 2	Date	Crew	Company	Revision 4	Date	Crew	Company

AI Engineers, Inc.

PHOTO LOG

Form BRI-13, Rev. 9/97

Bridge Information System

Image Inventory

Bridge No. 03590 Date: 06/01/11

Town: Manchester Photographer: MAI

Carried / Crossed: Gardner St. / I-384 & Hop Brook

Film Frame #	Image Description
1.	Brig ID
2	U/S of Span 2
3.	Lat. bracing conn. @ G6 in Sp 2, w/ Hvy pigeon debris. Note
	gaps b/w T-sec & Hz. PL Conn. to Gir Bott flg. ± 5/8" (Typ.)
4	Typ. U/S of deck in bay 5 w/ Trans & wrap cracks w/efflo & leakage @ Constr Jt
	in Sp-2. Note rust on utilities.
5	Typ. welded splice conn. for G4 in Sp-2
6	17" of Main in bay 2, Span 2
7	Lat. brace Conn to G1 bott flg w/ 7/16" Gap b/w Hz. PL & X-brace in Sp-2
8	Utilities in bays 1 & 2, in Sp-2
9.	Top of deck overlay in Sp-2.
10	Typ. bott flg Transitions near P-1 in Sp-2
11 & 12	Repaired cracks in weld @ lat brace conn. to bott flg of G6, N. of P-2 b/w
	2nd & 3rd intermediate diaph in Sp-2
13	HA & spalls w/ exp rebar in bay 4 (or) left out area) in Sp-2 along Const Jt
14 & 15	3'x4'x3" dp spall w/ exp rebar (1 broken) & a 2'x2' HA in bay 3, Sp-2 near
	S. Constr Jt. (near P-1)
16 & 17	1½" L crk in lat brace & bott flg of G1 weld b/w 1st & 2nd int. diaph
	from P-1 in Sp-2
18	G1 fixed brg @ P-1
19	G2 " " " "
20 & 21	Lat. brace Gusset PL not welded to G4 bott flg w/ 1" gap & 1/4" th. Pack rust in Sp2
	b/w 2nd & 3rd Int. diap from P-2 (Towards South)
22	Spall w/ Exp rebar & HA in bay 4 of Sp-2 along N. Constr Jt
23	Typ. Int diap bolt @ Vt. Stiff conn (top), Sp. 2

AI Engineers, Inc.

PHOTO LOG

Form BRI-13, Rev. 9/97

Bridge Information System

Image Inventory

Bridge No. 03590 Date: 06/01/11

Town: Manchester Photographer: MAI

Carried / Crossed: Gardner St. / I-384 & Hop Brook

Film Frame #	Image Description
24	Long. Stiff. PL welded to G1 web in Sp-2 near P-2 (Typ all Girders)
25	Repaired crk & weld of lat. brace Gusset PL & bott. flg of G1 in Sp-2
	b/w 4th & 5th Int diaph from P-1
26 & 27	3'x1'x3" dp spall w/exp rebar & a 1'x1' HA (intact) in bay 3, along N. const. Jt.
	in Sp-2 (All sounded hollow remined @ time of insp.)
28	Haunch spall along G1 in Sp-2
29	Exp. brg for G5 O/P-2
30	Spall on outside face of E. ppt in Sp-2 near P-2
6/2/2011 CK 1	SW WW w/ BR ID
2	BR FR S APPR
3	JT OVER S. ABUT
4	SETTLEMENT BET SIDEWALK & APPR @ SW
5	TYP OVERLAY, SP. 1
6.	SETTLEMENT @ SIDEWALK & APPR @ SE W/ E FENCE & SIDEWALK
7	S. APPR PAVEMENT
8	HVY RAVELING & POTHOLES ALONG E. CURB LINE IN SP. 1
9	S. APPR FR BR
10	HVY RUST ON REPLACMNT PANEL IN SP. 2 @ W PPT / W PPT FENCE / SIDEWALK
11	N. APPR FR. BR.
12	PARTIALLY CLOGGED GRATE @ E SCUPPER IN SP-3 / DRAIN CLEAR
13	MISSING COVER W/ EXP WIRE @ LT STD IN SP. 3 & MISSIN AB COVER
14	MISSING BIT UP TO 1.5" ALONG
15,16	N. ABUT
17	N. APPR PVMNT
18	BR FR N. APPR

AI Engineers, Inc.

PHOTO LOG

Form BRI-13, Rev. 9/97

Bridge Information System

Image Inventory

Bridge No. 03590 Date: 06/01/11

Town: MANCHESTER Photographer: CC

Carried / Crossed: GARDNER ST / I-384 & HOP BROOK

Film Frame #	Image Description
1	BRIDGE ID
2	NORTH ELEV. PIER 1
3+4	U/S SPAN 2
5	SOUTH ELEV. PIER 2
6/2/11 6	Brig ID
7	U/S of Sp. 2
8	Spall w/exp. rebar in bay 3, along S. Const Jt in Sp-2
9 & 10	7"L broken weld b/w Guss PL & bott flg of G1, b/w 3rd & 4th Int.
	diaph., South of P-1 in Sp-1 (Looking west in Photo)
11-14	A 4"L (N. edge) & a 1½"L (S edge) broken weld b/w lat brace Guss PL & bott flg of
	G1, b/w 2nd & 3rd Int diaph S. of P-1 in Sp-1
15	Typ. conf of lat Guss PL weld to bott. flg. near web, G1, Sp-1
16	Same as 9 & 10 w/ broken weld on N. side of PL & bott. flg.
17	Same as 11-14 " " " " S. Side " " "
18	Same as " " (Marketing)
19 & 20	(2) 1⅜"L missing/broken weld w/ 11/8"th fach wst on N. side of lat brace Guss
	PL & bott. flg. of G5 ~~b/w~~ @ the 2nd Int. diaph. from P-1, in Sp-1 (Looking S)
21	Collision scrapes along bott flges of G5 & G6 over center of R lane, Sp-1
22	" " " " flg. of G5 w/minor gouges along N. edge "
23	1"L broken/missing weld on N. side of lat. brace Guss PL & bott. flg. b/w 2nd &
	3rd Int diaph from P-1 in Sp-1.
24	Collision Scrapes along bott flg. of G6 in Sp-1 (center over R-lane)
25	G1 Fixbrg. @ P-1 w/ west A.B. nut backed off 1/4"
26	Repaired crk in weld of lat brace Guss PL & G6 bott flg b/w 1st & 2nd Int
	diaph from P-1 in Sp-1

AI Engineers, Inc.

PHOTO LOG

Form BRI-13, Rev. 9/97

Bridge Information System

Image Inventory

Bridge No. 03590 Date: 6/2/11

Town: Manchester Photographer: MAI

Carried / Crossed: Gardner St - / I-384 & Hop Brook

Film Frame #	Image Description
27 & 28	9"L Missing weld w/ 1" Gap & 1/4"th pack wrt under lat. brace Gusset PL & bolt-
	flg of G6 on S. Side b/w 1st & 2nd Int. diaph from P-1, SP-1
29	Spall w/exp rebar in bay 4 b/w 1st & 2nd diaph from Pier 1 in SP-1
	(over dirt area)
30	Spall w/ exp rebar & a 2'x1' HA in bay 3 b/w 1st & 2nd Int diap. from P-1
	in SP1 (over dirt area
31	G3, fix Brg o/P-1 w/ AB tilted to E & W.
32	Missing E. A.B. nut for G6 fix brg o/P-1
33 & 34	U/S of SP-1
35 & 38	S. Abut Stem & Slope Prot.
Span 1 36	Broken weld @ G1 bott flg & lat. brace Conn. b/w 1st & 2nd Int diap
	from P-1 in SP-1
37	Broken weld b/w lat brace Gusset PL & G1 bott. flg b/w 2nd & 3rd
	Int. diaph. from S. Abut. in SP-2.
38	S. Abut Stem
39	S. Abut. Backwall in bay 1.
40 & 41	G5, E, web stiff. bent to North by 3/4" over 1'-6", N. of 1st int
	diaph from S. Abut in SP-1
42	G1 brg over S. Abut
43	" " " " showing W. Side Sole PL Meas.
44	G3 brg " " in Contr. mode
45	G4 " " " w/ spall (10" L x 8" H x 4" dp w/exp rebar @ NE
	corner) NO U/M.

AI Engineers, Inc.

PHOTO LOG

Form BRI-13, Rev. 9/97

Bridge Information System

Image Inventory

Bridge No. 03590 Date: 6/10/2011

Town: MANCHESTER Photographer: CK

Carried / Crossed: GARDNER ST / I-384 & HOP BROOK

Film Frame #	Image Description
1	BRIDGE ID
2,3	W. ELEV
4	SW WW
5	SE WW
6	E. ELEV
7	COLLISION DAMAGE @ N. FENCE IN SP. 2
8,9	LAT. TEE CONN PL TO GUSSET PL w/ UP TO 1/2" GAP BET PLs @ G2, SP. 3, NEAR P. 2
10	3/16" GAP BET. LAT TEE CONN PL TO GUSSET PL @ 1ST CONN FR P.2 / SP. 3 @ G1
11	TYP BRG FOR G2 @ P.2, SP. 3
12	LAT TEE CONN TO G6 IN SP. 2, 1ST CONN FR P.2
13-15	2.5" CRK @ BOTT OF LAT. TEE CONN. PL TO G1 BOTT FLG @ WELD, SP. 2, NEAR P. 2
16	TYP U/S SP. 3
17	N. ABUT
18	RATHOLES W/ UNSMOOTH EDGES @ G6, SP. 3
19	SCUPPER IN BAY 5 SP. 3
20-26	2nd LATERAL TEE CONN @ G5 FR P.2 MISSING WELDS, POOR WELDS
27-29	RATHOLES @ G5 @ F. SPLICE, SP. 3
30	MOD HONEYCOMB BAY 4 SP 3
31, 32	PEELING PAINT @ RATHOLES @ G2, SP 3
33-43	RATHOLES & LAT TEE CONN (2nd FR P.2) W/ HVY PACK RUST @ G1, SP3
44	TYP BF TRANS IN G1 NEAR N. ABUT
45, 57	MISSING UTILITY INSULATION IN BAY 2 NEAR E. ABUT
46	EROSION AREA IN N. AB SLOPE PROT
47	SAME AS 45

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PHOTO LOG

Form BRI-13, Rev. 9/97

Bridge Information System

Image Inventory

Bridge No. 03590 Date: 6/10/2011

Town: MANCHESTER Photographer: CK

Carried / Crossed: GARDNER ST | I-384 & HOP BROOK

Film Frame #	Image Description
48	SPALL w/ EXP REBAR @ CONSTR JT IN BAY 2, SP. 3
49	" " " " " " BAY 4 "
50	BAY 5 @ N. ABUT w/ RUST @ DIAPH & SHORT WEEP
51	TYP BRG @ N ABUT FOR G1
52	1st Lateral TEE CONN @ G1 FR. N. AB. w/ PACK RUST
53	NW VIW
54	DEBRIS ON ABUT SEAT IN BAY 3 @ N. ABUT
55	NE VIW
56	N ELEV P.2
58,60	CHANNEL DOWNSTREAM
59	CHANNEL UPSTREAM
60	GUIDERAIL @ SE
61	" " SW
62	POOLING @ S JT
63	GUIDERAIL @ NE
64	" NW

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Photo # 1: Bridge identification number.

Photo # 2: West elevation.

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Photo # 3: East elevation.

Photo # 4: Bridge from south approach.
Note random sealed cracks in the approach pavement.

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Photo # 5: South approach from the bridge.

Photo # 6: Bridge from north approach.
Note random sealed cracks in the approach pavement.

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Photo # 7: North approach from the bridge. Note extensive sealed cracks in the bridge overlay throughout.

Photo # 8: General view of the bituminous concrete overlay in spans 1 and 2. Note random sealed cracks throughout and potholes/missing bituminous in the shoulder.

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Photo # 9: Bituminous concrete overlay in span 1 with uneven bituminous patches and potholes with exposed deck. Note water ponding along the west curbline and settlement in southwest approach sidewalk (turf).

Photo # 10: General view of the underside of the concrete deck and framing in span 2.
Note (4)-4" diameter telephone conduits in bay 1, a 12" diameter water main in bay 2 and a 6" diameter gas main in bay 3.

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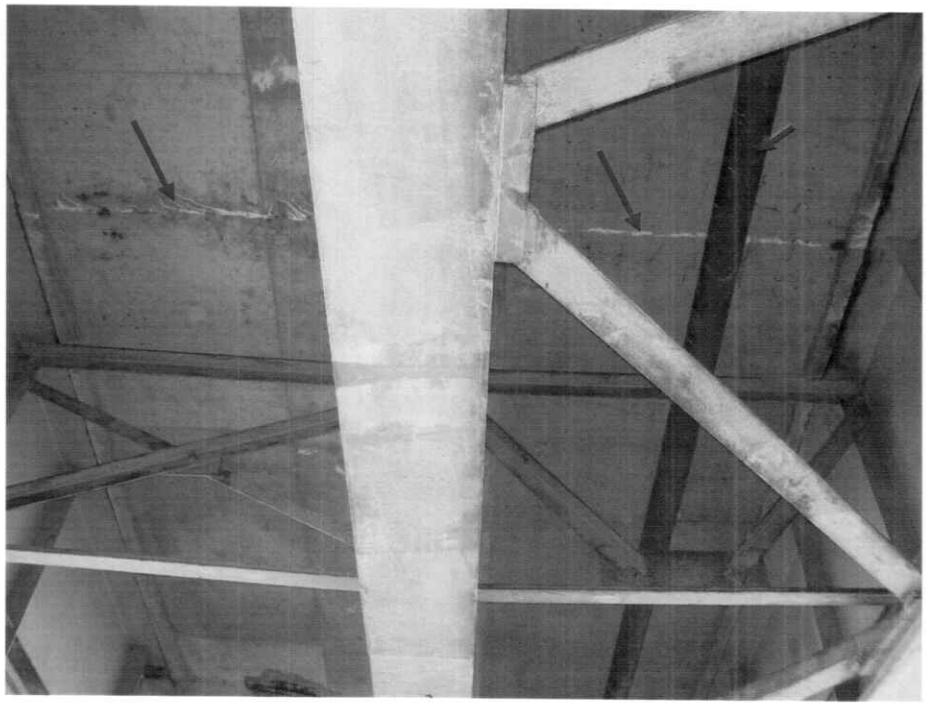

Photo # 11: Underside of the concrete deck has transverse and hairline map cracks with efflorescence in bays 3 and 4 of span 1. Note a 6" diameter gas main in bay 3.

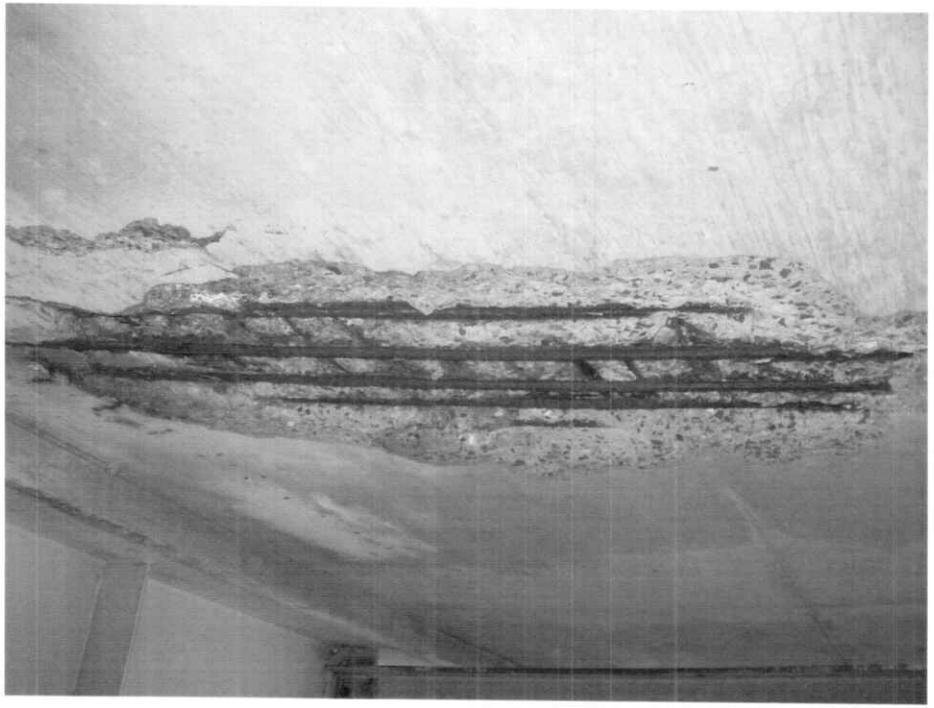

Photo # 12: Spall with exposed rebars (removed at the time of inspection) and adjacent hollow area (over dirt area) at the underside of the deck along the construction joint in bay 3 near pier 1 in span 1.

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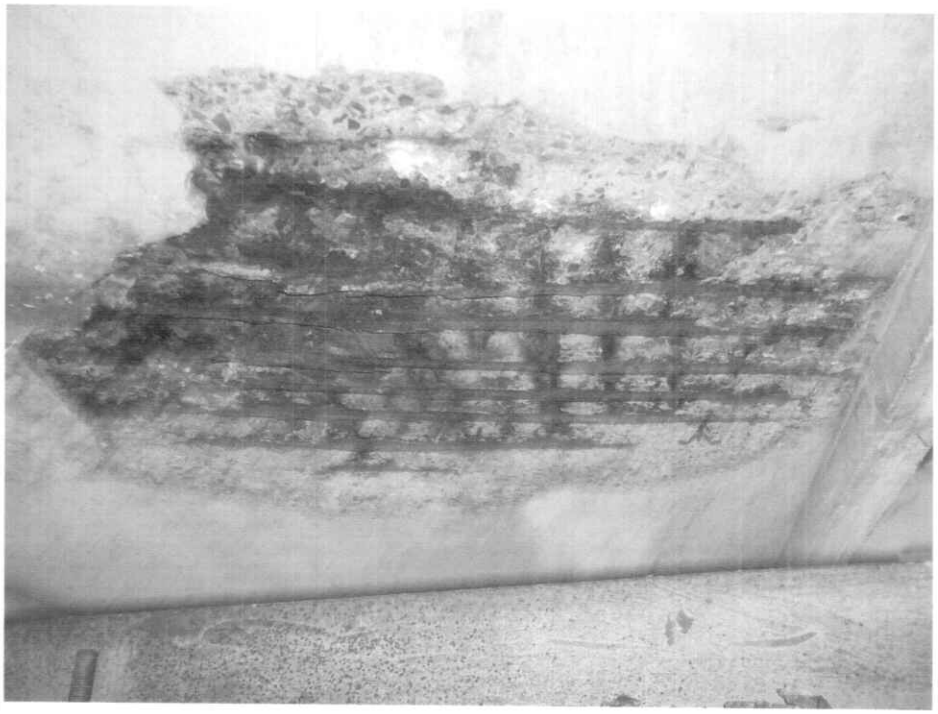

Photo # 13: Spall with exposed and (1) broken rebar at the underside of the deck in bay 3 near pier 1 in span 2.

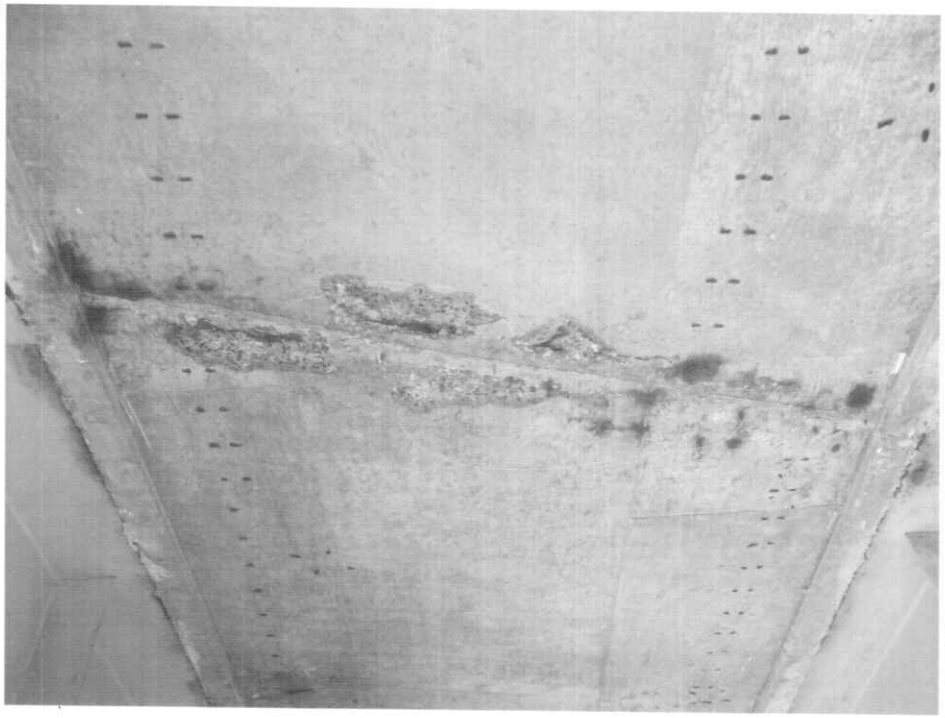

Photo # 14: Hollow area (over dirt area), spalls with exposed rebar and rust staining at the underside of the deck along the south construction joint in bay 4 near pier 1 in span 2.

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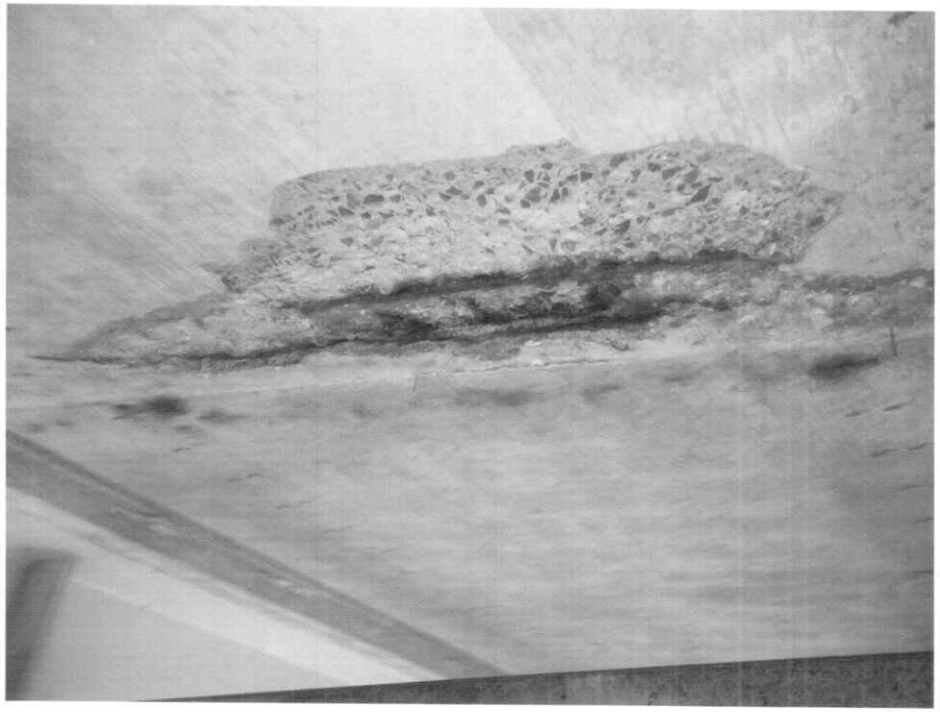

Photo # 15: Spall with exposed rebars at the underside of the concrete deck over I-384 Eastbound right lane along the north construction joint in bay 3 of span 2. All loose hollow concrete removed at the time of inspection.

Photo # 16: General view of the west sidewalk, parapet, fence and granite curbs in spans 2 and 3. Note heavy rust on the previously repaired fence panel and on parapet.

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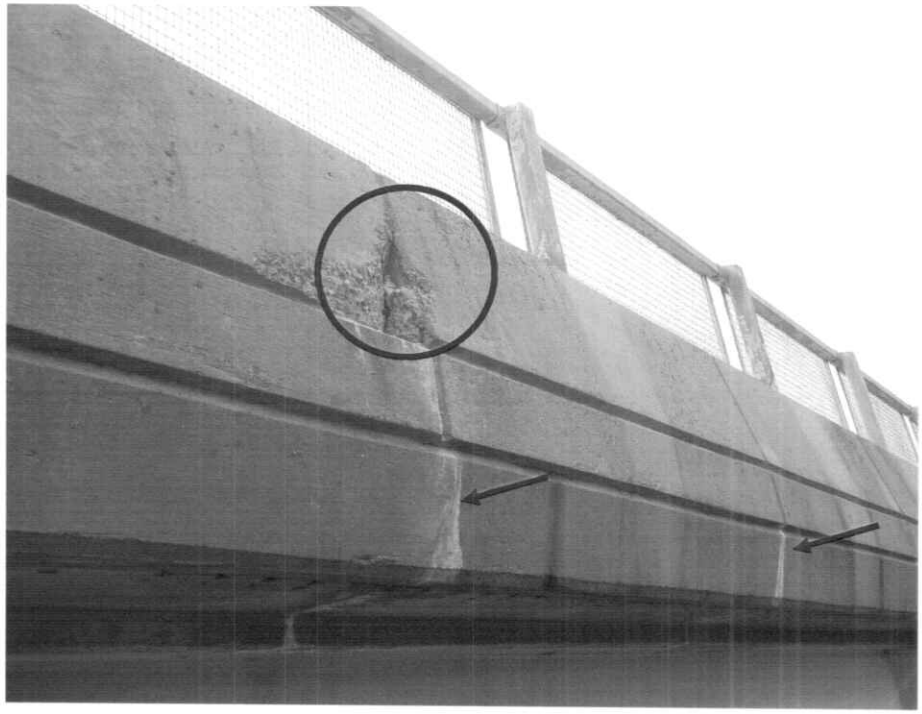

Photo # 17: Cracks with efflorescence and a spall on the outside face of the east parapet near pier 2 in span 2 over the dirt area.

Photo # 18: Fence at east parapet in span 2. Note the bent fence panal due to collision damage.

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Photo # 19: Scupper grate partially filled with debris (pipe is clear) along the east curbline in span 3.

Photo # 20: Steel scupper free fall pipe at the underside in bay 5, span 3 with light to moderate rust. Note short weep pipe and light rust on the cross bracings.
Also, note (4)-4" diameter electrical conduits.

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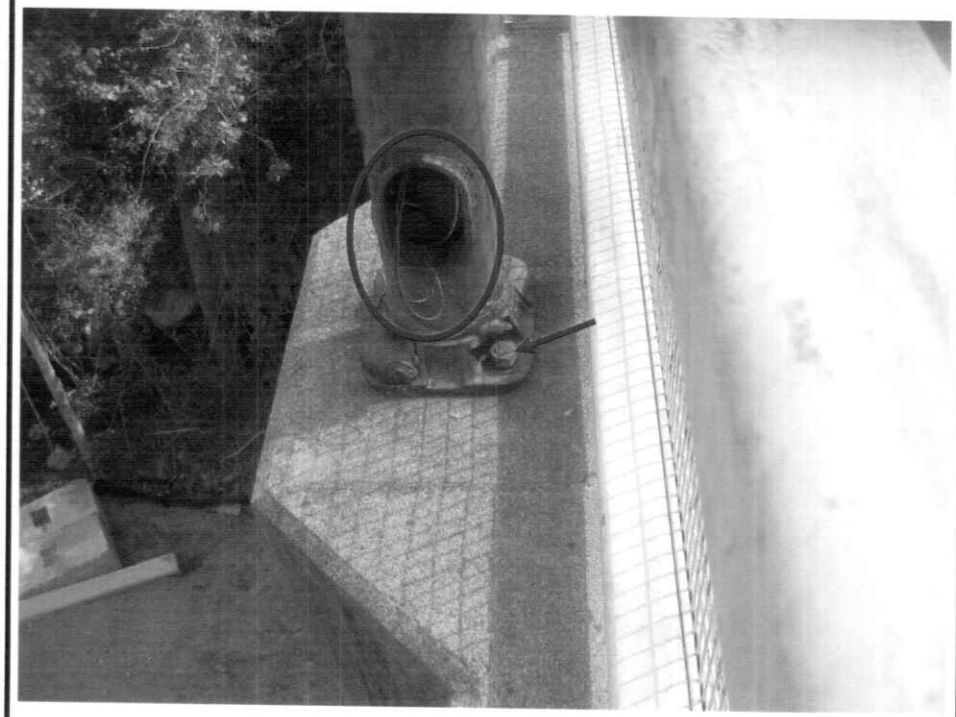

Photo # 21: Lighting standard at east parapet behind the fence in span 3 is missing 1 of 4 anchor bolt cover and handhole cover with exposed wires (not accessible to the public).

Photo # 22: 12" diameter water main in bay 2 with torn insulation wrap near the north abutment backwall.

RL emailed utility Co.

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Photo # 23: Asphaltic plug joint at the south abutment with adhesion cracks open up to 2" wide and settlement up to 1/2'" along the approach pavement. Note rough bituminous patches in the bridge overlay along the deck joint in the southbound lane.

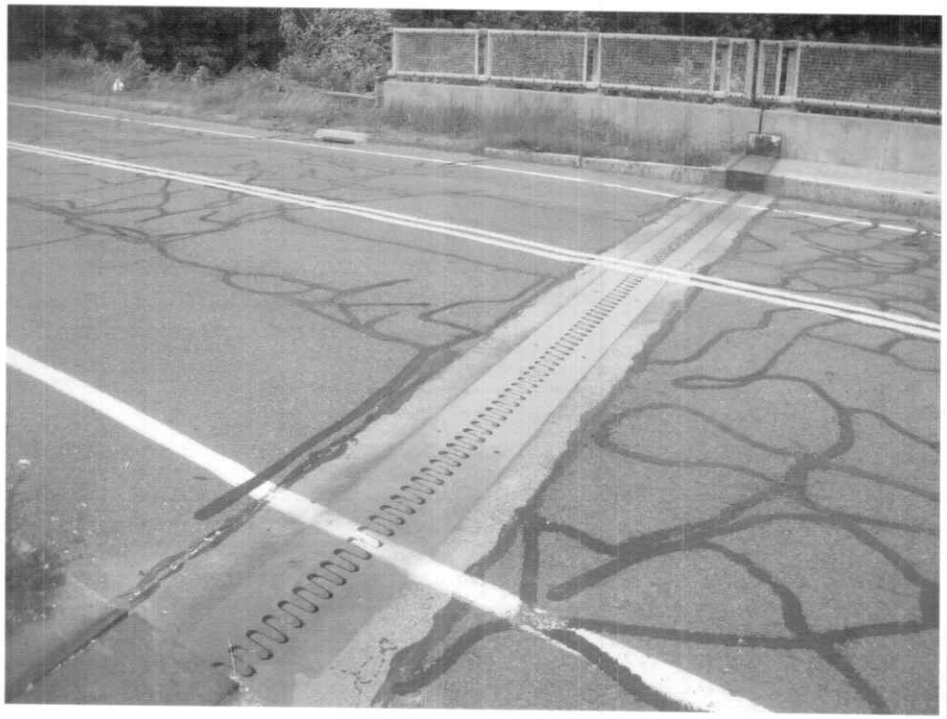

Photo # 24: Finger joint with concrete headers at the north abutment.

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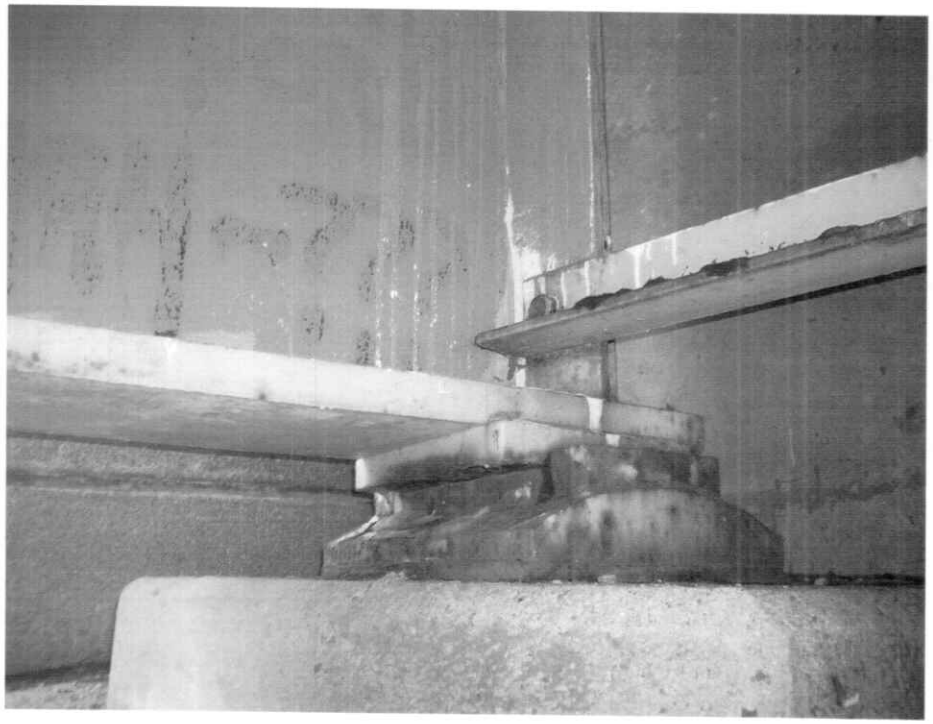

Photo # 25: Girder G1 sliding plate expansion bearing over north abutment (typical). Note moderate rust on the bearing components.

Photo # 26: Girder G3 sliding plate expansion bearing over south abutment is in contraction mode. Note moderate rust on the bearing components.

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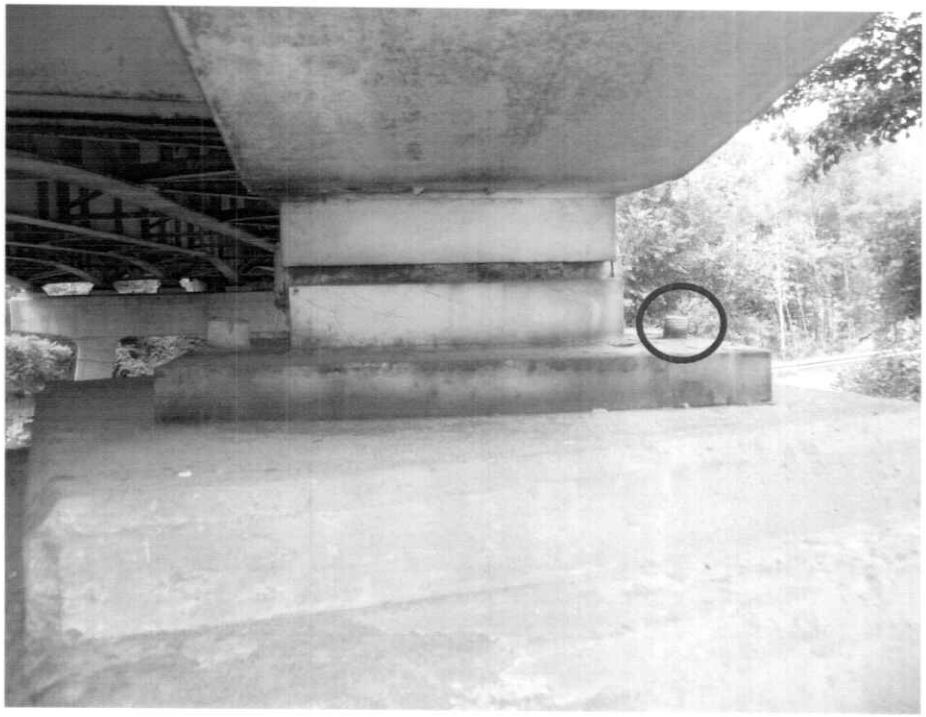

Photo # 27: Girder G6 fixed bearing over pier 1 (typical). Note the missing east anchor bolt nut.

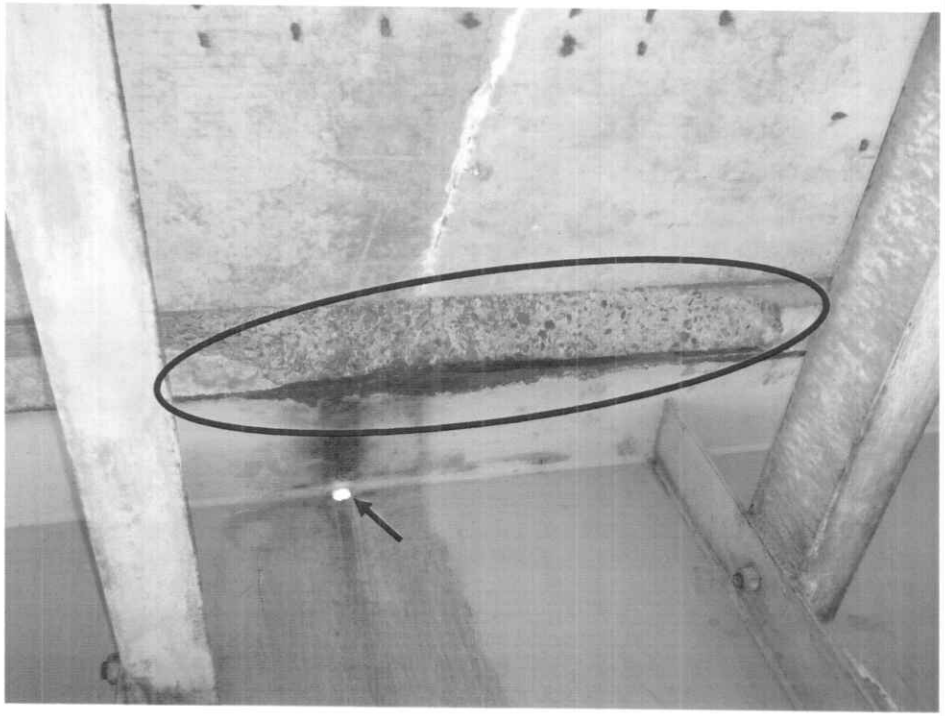

Photo # 28: Girder G1 top flange has laminated rust with negligible section loss at the deck construction joint in span 2. Note the haunch spall and rat hole for the welded splice connection in web.

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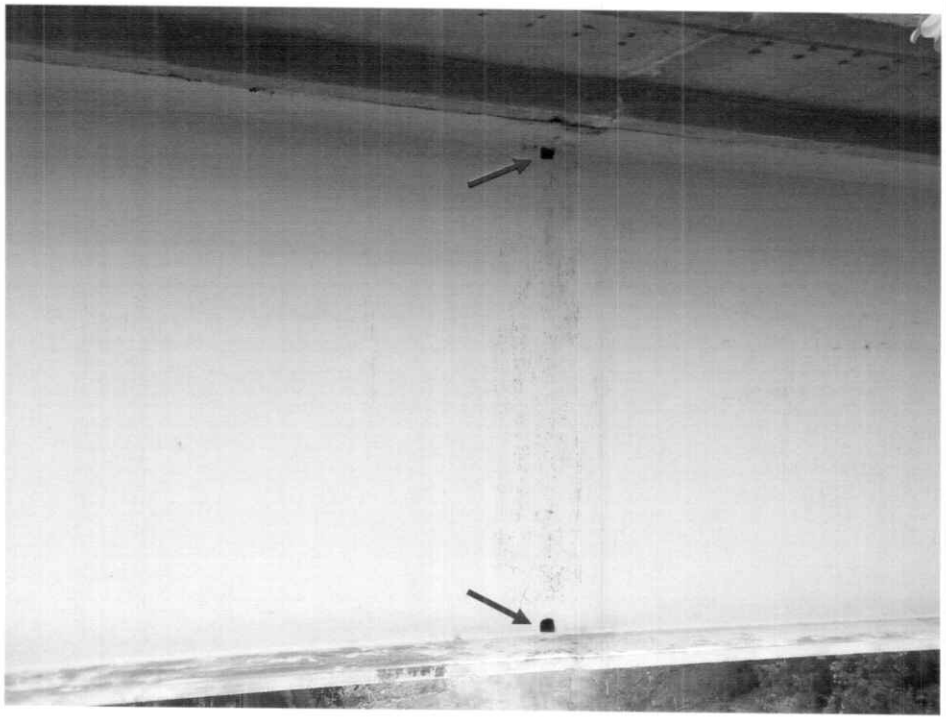

Photo # 29: Girder G1 in span 3, between the 1st and 2nd intermediate diaphragm the lateral bracing gusset plate is bowed upwards up to 1" and misaligned due to 1-3/4" thick pack rust between the gusset plate and the bottom flange.

Photo # 30: Girder G6 welded web splice connection with rat holes in span 3.

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Photo # 31: Typical 7" long broken weld at girder G1 bottom flange connection with the lateral bracing gusset plate between 3rd and 4th intermediate diaphragm from pier 1 in span 1. East elevation of girder G1 shown.

Photo # 32: 9" long broken weld due to pack rust up to ¼" thick between the bottom flange and lateral bracing gusset plate of girder G1 at photo 31 location. North side of gusset plate shown.

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Photo # 33: Missing welds at girder G4 bottom flange connection with lateral bracing gusset plate between 2nd and 3rd intermediate diaphragm from pier 2 in span 2. West elevation of girder G4 shown.

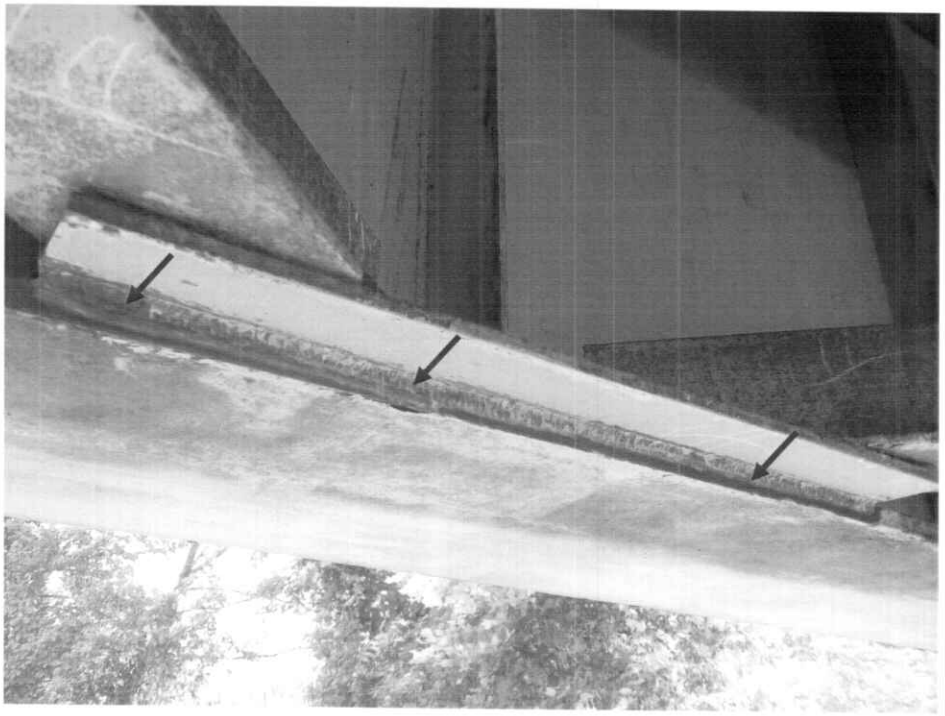

Photo # 34: Previously noted cracks in the longitudinal weld between the lateral bracing gusset plate and girder G 1 bottom flange in span 2 have been repaired since the last inspection.

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Photo # 35: Collision scrapes and minor gouges at the bottom flange of girder G5 in span 1.

Photo # 36: Accumulation of pigeon debris on top of lateral bracing gusset plate in span 2 (typical).

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Photo # 37: South abutment stem and concrete block slope protection.

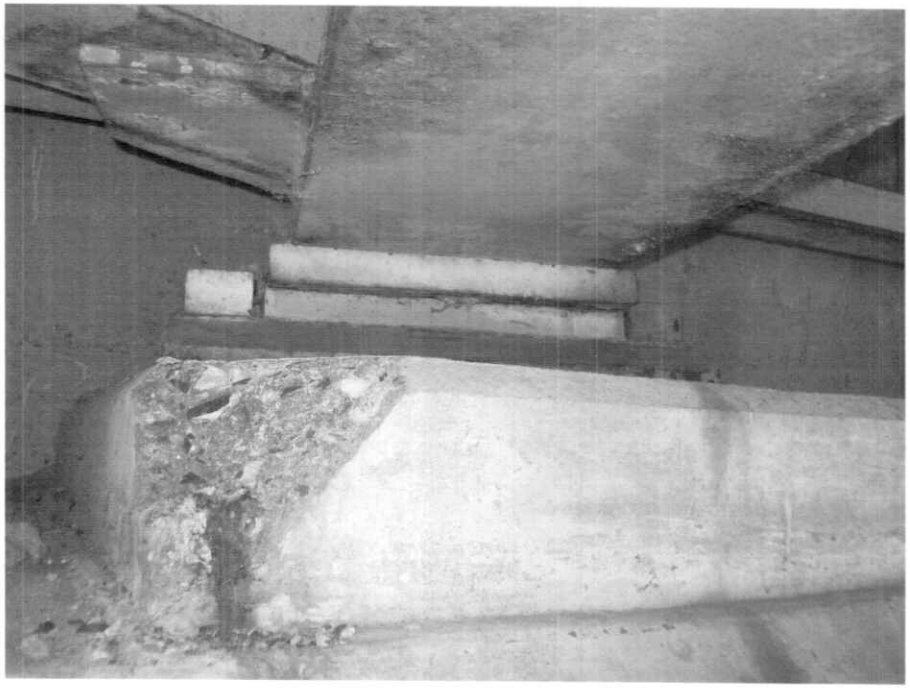

Photo # 38: Girder G5 pedestal with spall and exposed rebar at the south abutment. No undermining of the bearing.

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Photo # 39: North abutment backwall under bay 3 with vertical hairline cracks and rust (typical). Note accumulation of sand on abutment seat.

Photo # 40: Typical northwest wingwall with stone masonry façade.

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Photo # 41: Pier 1, north elevation (typical).

Photo # 42: Concrete block slope protection along the north abutment stem are settled due to erosion of slope underneath the blocks. Note moderate to heavy graffiti on the abutment stem.

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Photo # 43: Northeast approach guide rail (typical).

Photo # 44: Upstream view of the brook from under the bridge in span 3, looking east.

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Photo # 45: Downstream view of the brook from under the bridge in span 3, looking west.