

STRUCTURE NO. 01428D

I-91 TR 840
over
I-91 NB,US44 EB,RR,CT RV
HARTFORD

Routine Inspection
on
3/22/2007

Inspected by Baker - 23
for Area 10

<u>TEAM:</u>	Forwarded to Senior	Sandra Dumas	Date	9/28/2007
<u>SENIOR:</u>	Reviewed by Senior	Sandra Dumas	Date	9/30/2007
	BMM Required		Yes	
	Town Bridge		No	
	Rating <= 5 (Items 58,59,60 or 62)		Yes	
	Forwarded to Supervisor	Sandra Dumas	Date	9/30/2007
	Forwarded to "To Be Copied Drawer"	<input type="checkbox"/>	Date	
	Date BRI-19 Entered		10/1/2007	
<u>SUPERVISOR:</u>	Reviewed by Supervisor	Sandra Dumas	Date	10/1/2007
<u>SUPPORT:</u>	Date Copies Made	10/1/2007	BMM No	07-386

NBI: Yes

Bridge Number **01428D**

Inspected By: *MICHAEL DAVID CHASE MORAVE*

Sufficiency Rating **72.86**
Previous Inspection Date **3/22/2007**

BS&E Received Data Entry By: *had*
Copies Made Data Entry Date: *10/1/07*

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION
BRIDGE SAFETY & EVALUATION
STRUCTURE EVALUATION
SHEET 1 OF 2 FORM BRI-19 REV 10/00

SHEET _____ OF _____ (INSP. REPORT)

90) Inspection Date 03/22/07	Inspection Team 20 23	91) Frequency Class 24 03
Indepth Insp 12/3/2000	Deck Survey	Access Flagman 31 0 0

CRITICAL FEATURE INSPECTIONS

Type	Frequency	Team	Date
Fracture: K <input checked="" type="checkbox"/>	24 24	20 23	3/22/2007 03/22/07
Uwatur:			
Special:			

RED FLAG

IDENTIFICATION

Bridge Name **HARTFORD** Town Code **37070**

5) Inventory Route:
 A) Record Type **1** D) Route Number **00091**
 B) Signing Prefix **1** Interstate High E) Directional Suffix **0** NA
 C) Level of Service **7** Ramp, Wye, C

6) Feature Intersected **I-91 NB,US44 EB,RR,CT RV**

7) Facility Carried **I-91 TR 840**

9) Location **ACCESS I-84EB FROM I-91SB**

11) Milepoint **1.12** Miles

16) Latitude **41 deg 46 min 8.27 sec** deg min sec
 17) Longitude **72 deg 40 min 7.22 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 **3** Steel B) Design Type **2** Stringer/Multi-beam

44) Structure Type, Approach:
 A) Material **0** Other B) Design Type **0** Other

45) Number of Spans, Main Unit **5**
 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 **2** Preformed Fabric
 C) Type of Deck Protection **1** Epoxy Coated Reinforcing

AGE AND SERVICE

27) Year Built **1961** 106) Year Reconstructed **1990**

42) Type of Service:
 A) On **6** Overpass structure B) Under **8** HIGHWAY-WATE

28) Number of Lanes:
 A) On **1** B) Under **7**

29) Average Daily Traffic **10600** Half ADT?: **No**

109) Percent Truck **9** %

30) Year of ADT **1992**

19) Bypass, Detour Length **6** miles

GEOMETRIC DATA

48) Length of Max Span **143** ft

49) Structure Length **408** ft

50) Curb or Sidewalk Widths:
 A) Left **0.0** ft B) Right **0.0 05 5** ft

51) Brg Rdwy width, curb-curb **25.0** ft

52) Deck Width, Out-Out **28.8** ft

32) Approach Roadway Width **25** ft

33) Bridge Median **0** No Median

Deck Area **12924** sqft

34) Skew Angle **99** deg

35) Structure Flared **0**

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

47) Log Inv. Rte. Total Horiz Clr.: **25.0** ft

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

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

54) Min Vert Under Clearance **H** Ref **14** ft **2** in

55) Min Lat Under Clearance on Right **H** Ref **3.0** ft

56) Min Lat Under Clearance on Left **2.7** ft

BRIDGE COMMENTS

① ADT BASED ON 1% ANNUAL INCREASE, ROUNDED OFF.
② = 14'3" @ TRAVEL LANE, 14'2" @ SHOULDER.

CLASSIFICATION	
112) NBIS Bridge Length	Yes
104) Highway System	1 On System
26) Functional Class	11 Urban Principal Arterial - Interstate
100) Defense Highway	2 Defense Highway over/under another
101) Parallel Structure	N No parallel structure exists
102) Direction of Traffic	1 1-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

STRUCTURE EVALUATION

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

Bridge Number	01428D	NBIS Length	
Town Name	HARTFORD	Yes	408
Facility Carried	I-91 TR 840		
Feature Crossed	I-91 NB,US44 EB,RR,CT RV		

SHEET _____ OF _____ (INSP. REPORT)

Inspected By: M. JAKIRI & G. MORANEJ

LOAD RATING AND POSTING				
31) Design Load	5		Evaluation Code	L
63) Operating Rating Type	1		Year of Evaluation	2001
64) Operating Rating	85.4		70) Bridge Posting	5
65) Inventory Rating Type	1		41) Structure Status	A
66) Inventory Rating	51.3		Open, no restriction	

WATERWAY	
DrainageBasinCode	4000
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	

CONDITION		APPRAISALS			
Rating	By	Rating	By		
58) Deck	7	7 MRS	67) Structure Evaluation	5	4 V P
59) Superstructure	6	5 MRS	68) Deck Geometry	7	7 MRS
60) Substructure	5	4 MRS	69) Under Clear Vert & Horiz	3	3 MRS
61) Channel & Chan. Protection	8	8 MRS	71) Waterway Adequacy	8	8 MRS
62) Culverts	N	N MRS	72) Approach Rdwy Alignment	2	2 MRS
			113) Scour Critical	8	

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.	Advised

Items 58 Thru 72 Checked By: S. Dumas

36) Traffic Safety Features:	
A) Bridge Railings	1
B) Transitions	1
C) Approach Guardrail	1
D) Approach Guardrail End	1

POSTED SIGNS & UTILITIES					
Other Posted Signs 1					
Other Posted Signs 2	7	Sharp Curve			
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-Trailer Truck	tons		Actual P.L. 3S2 Truck	tons	
Rec. P.L. Semi-Trailer Truck	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 Under Clearance	ft	in		ft	in
Posted Speed Limit	mph				
Utility					

OTHER FEATURES

Fence Required	No		Barrel Ladder	No
Fence Present	No		Stand Pipes	No
Fence Height	0.0 ft		Cat Walks	No
Fence Type			Movable Inspection System	No
Fence Material			Loose Concrete Checked?	Yes
Fence Top Type				

INSPECTION COMMENTS

Proposed Next Indepth Insp Year	2010	
Senior	consultant	
Supervisor	consultant	

Paul McQuinn PE #17090 9/27/07

REVIEWED BY _____ Date _____

BRIDGE NUMBER	TOWN NAME	NBIS BRG LGTH
01428D	HARTFORD	Yes 408
FACILITY CARRIED	FEATURE CROSSED	
I-91 TR 840	I-91 NB,US44 EB,RR,CT RV	

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. JAKIEL
G. MORAVIETZ

REVIEWED BY: Ad DATE: 10/1/07

SHEET _____ OF _____ (INSP. REPORT)

IDENTIFICATION

DESCRIPTION: 1444 EB

5) INVENTORY ROUTE:

- A) RECORD TYPE B
- B) ROUTE SIGNING PREFIX 2 U.S. Numbered Highway
- C) DESIGNATED LEVEL OF SERVICE 1 Mainline
- D) ROUTE NO. 00044

11) MILE POINT (INV.RTE) 53.76

AGE & SERVICE

- + 28B) NUMBER OF INV.ROUTE LANES 2
- * 29) ADT (INV. RTE) 11450 010700
- * 109) TRUCK ADT % (INV. RTE) 6 06
- * 30) YEAR OF ADT (INV. RTE) 2003 2005
- * 41) INV ROUTE OPERATIONAL STATUS A Open, no restriction A
- 19) BYPASS DETOUR LENGTH 1 Miles

GEOMETRIC DATA

- + 10) INV. RTE. MIN. VERT. CLEARANCE 14 ft 3 in ft in
- + 47) LOG INV. RTE. TOTAL HORIZ CLR. 30.5 ft 35.5 ft
- + 47) RLOG INV. RTE. TOTAL HORIZ CLR. ft ft
- + LOG MIN VERT CLR OVER INV ROUTE 14 ft 2 in 14 ft 0.3 in
- + RLOG MIN VERT CLR OVER INV ROUTE ft in ft in
- + 55) MIN LAT UNDERCLR ON RIGHT H 3 ft H 0.8.0 ft
- + 56) MIN LAT UNDERCLR ON LEFT 2.7 ft 0.3.2 ft

CLASSIFICATION

- 26) INV. RTE. FUNCT CLASSIFICATION 14 Urban Other Principal Art
- 100) DEFENSE HIGHWAY DESIGNATION 2 Defense Highway over/u
- ** 102) DIRECTION OF TRAFFIC 1 1-way traffic
- 104) HIGHWAY SYSTEM OF INV. ROUTE 1 On System
- 110) DESIGNATED NATIONAL NETWORK On national network

POSTED SIGNS

+ POSTED VERT. CLR UNDER BRIDGE ft in ft in

COMMENTS:

See sheet 11

14'3" @ TRAVEL LANE, 4'2" @ SHOULDER

MOUNTABLE CURB

* 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: 01428D

Agency ID: 01428D

Sufficiency Rating: 84.7

IDENTIFICATION

State 1: 09 Connecticut Struc Num 8: 01428D
 Facility Carried 7: I-91 TR 840 Location 9: ACCESS I-84EB FROM 1-91SB
 Rte.(On/Under)5A: Route On Structure Rte. Signing Prefix 5B: 1 Interstate Hwy
 Level of Service 5C: 7 Ramp Rte Number 5D: 00091
 Directional Suffix 5E: 0 N/A (NBI) % Responsibility : 0
 SHD District 2: 01 County Code 3: Hartford
 Place Code 4: HARTFORD Mile Post 11: 53.749 mi
 Feature Intersected 6: I-91 NB,US44 EB,RR,CT RV
 Latitude 16: 41d 46' 12" Longitude 17: 072d 40' 12"
 Border Bridge Code 98: Unknown (P)
 Border Bridge Number 99: NA

INSPECTION

Frequency 91: 24 months Inspection Date 90: 3/22/2007 Next Inspection: 03/22/2009
 FC Frequency 92A: 24 months FC Inspection Date 93A: 3/22/2007 Next FC Inspection: 3/22/2009
 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: 03/22/2007 Next Elem. Insp. Due: 03/22/2009

CLASSIFICATION

Defense Highway 100: 2 Over/under STRAHNET Parallel Structure 101: No || bridge exists
 Direction of Traffic 102: 1 1-way traffic Temporary Structure 103: Unknown (NBI)
 Highway System 104: 1 On the NHS NBIS Length 112: Long Enough
 Toll Facility 20: 3 On free road Functional Class 26: 11 Urban Interstate
 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: 5
 Main Span Material/Design 43A/B:
 3 Steel 02 Stringer/Girder
 Deck Type 107: 1 Concrete-Cast-in-Place
 Wearing Surface 108A: 6 Bituminous
 Membrane 108B: 2 Preformed Fabric
 Deck Protection 108C: 1 Epoxy Coated Reinforci

CONDITION

Deck 58: 7 Good Super 59: 5 Fair Sub 60: 4 Poor
 Culvert 62: N N/A (NBI) Channel/Channel Protection 61: 8 Protected

LOAD RATING AND POSTING

Inventory Rating Method 65: 5 No rating Operating Rating Method 63: 5 No rating
 Inventory Rating 66: HS19.8 Operating Rating 64: HS27.0
 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: 1961 Year Reconstructed 106: 1990
 Type of Service on 42A: 6 2d level interchg
 Type of Service under 42B: 8 Hwy-waterway-RR
 Lanes on 28A: 1 Lanes Under 28B: 7 Detour Length 19: 6.2 mi
 ADT 29: 10,600 Truck ADT 109: 9 % Year of ADT 30: 1992

APPRAISAL

Bridge Rail 36A: 1 Meets Standards Approach Rail 36C: 1 Meets Standards
 Transition 36B: 1 Meets Standards Approach Rail Ends 36D: 1 Meets Standards
 Str. Evaluation 67: 6 Deck Geometry 68: 7 Above Min Criteria
 Underclearance, Vertical and Horizontal 69: 3 Intolerable - Correct
 Waterway Adequacy 71: 8 Equal Desirable Approach Alignment 72: 2 Intolerable - Replace
 Scour Critical 113: 6 Calcs not made

GEOMETRIC DATA

Length Max Span 48: 143.0 ft Structure Length 49: 408.1 ft
 Curb/Sdwk Width L 50A: 0.0 ft Curb/Sidewalk Width R 50B: 0.0 ft
 Width Curb to Curb 51: 24.9 ft Width Out to Out 52: 28.9 ft
 Approach Roadway Width 32: 24.9 ft Median 33: 0 No median (w/ shoulders)
 Deck Area: 12,924 sq ft
 Skew 34: 99.00 ° 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: 14.2 ft
 Minimum Lateral Underclearance Reference R 55A: H Hwy beneath struct
 Minimum Lateral Underclearance R 55: 3.0 ft
 Minimum Lateral Underclearance L 56: 2.6 ft

PROPOSED IMPROVEMENTS

Bridge Cost 94: \$ 1,000 Type of Work 75: 38 Other Structural
 Roadway Cost 95: \$ 1,000 Length of Improvement 76: 0.3 ft
 Total Cost 96: \$ 2,000 Future ADT 114: 5,300
 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	19/3	Concrete Deck - Prot	(SF)	12,924	0 %	0	100 %	12,924	0 %	0	0 %	0	0 %	0
UNIT0	56/3	Concrete sidewalk	sq.ft	1,200	100 %	1,200	0 %	0	0 %	0	0 %	0	0 %	0
UNIT0	107/3	Paint Stl Opn Girder	(LF)	2,313	85 %	1,972	11 %	244	2 %	49	2 %	49	0 %	0
UNIT0	205/3	R/Conc Column	(EA)	8	0 %	0	63 %	5	38 %	3	0 %	0	0 %	0
UNIT0	210/3	R/Conc Pier Wall	(LF)	59	83 %	49	8 %	5	8 %	5	0 %	0	0 %	0
UNIT0	231/3	Paint Stl Cap	(LF)	56	0 %	0	0 %	0	0 %	0	82 %	46	18 %	10

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	234/3	R/Conc Cap	(LF)	94	63 %	59	37 %	35	0 %	0	0 %	0	0 %	0
UNIT0	300/3	Strip Seal Exp Joint	(LF)	26	81 %	21	19 %	5	0 %	0	0 %	0	0 %	0
UNIT0	301/3	Pourable Joint Seal	(LF)	26	42 %	11	58 %	15	0 %	0	0 %	0	0 %	0
UNIT0	302/3	Compressn Joint Seal	(LF)	105	81 %	85	19 %	20	0 %	0	0 %	0	0 %	0
UNIT0	310/3	Elastomeric Bearing	(EA)	50	80 %	40	20 %	10	0 %	0	0 %	0	0 %	0
UNIT0	331/3	Conc Bridge Railing	(LF)	768	98 %	753	2 %	15	0 %	0	0 %	0	0 %	0
UNIT0	357/3	Pack Rust Smart Flag	(EA)	1	0 %	0	100 %	1	0 %	0	0 %	0	0 %	0
UNIT0	363/3	Section Loss SmFlag	(EA)	1	0 %	0	0 %	0	100 %	1	0 %	0	0 %	0
UNIT0	371/3	Free Fall Pipes, Scu	(EA)	3	100 %	3	0 %	0	0 %	0	0 %	0	0 %	0

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

MEMORANDUM

subject: BMM No. 07-386
Bridge No. 01428D
I-91 TR 840 over I-91 NB, RT 44 EB,
RR & Connecticut River
Hartford
date: October 1, 2007

to: Mr. Robert P. Mongillo
Transportation Maintenance Administrator
Bureau of Engineering
and Highway Operations

Sandra A. Dumas
from: Sandra A. Dumas
Transportation Supervising Engineer
Bridge Safety and Evaluation
Bureau of Engineering
and Highway Operations

Attached are two copies of our most recent inspection report for the subject structure. The following deficiencies were found:

1. The approach sidewalk at Pier 4 has settled approximately 1.5 inches.
2. There is a spall at the top of Pier 1, column 2 that undermines the bearing for the steel cap girder.
3. There are leaking deck joints over piers 1 and 5.
4. There are cracked tack welds along the cap girder batten plates.

Please direct persons under your jurisdiction to:

1. Repair the sidewalk (<1/4 CY)
2. Repair the spall that undermines the cap girder bearing at pier 1, column 2 (<1/4 CY).
3. Repair the leaking deck joints (25 LF).
4. Remove the cracked tack welds along the cap girder batten plates (± 6 LF).

All repairs shall be performed utilizing appropriate, approved materials and tried and proven methods unless otherwise specified.

Item No. 1 should be considered Priority C and the remaining items should be considered Priority D. There may be other deficiencies, which are considered routine maintenance and should be corrected.

The attached inspection report also notes that the following items were issued under previous BMM's and have not been addressed.

<u>BMM No.</u>	<u>Item</u>
03-356	5. There is a 1" x 1/8" over-cut in the top web cope of girder 2 in span 1 near pier 2 (fabrication error). (Priority C)
	6. There is a cracked weld at a diaphragm connection to girder 3 in span 1 (south elevation of the beam, the second intermediate diaphragm, lower strut connection). (Priority C)
	8. There are large spalls, popouts, hollow areas, and spalls with exposed rebar in the substructure at random locations. (Priority E)

<u>BMM No.</u>	<u>Item</u>
05-313	<ol style="list-style-type: none">1. There is spalled and delaminated concrete at pier 1, adjacent to traffic below for I-91 Northbound, left lane. (Priority C)2. There are short/broken weep pipes at several locations throughout that drain onto bridge elements below. (Priority C)3. There is a disconnected steel sliding curb plate at the pier 5 deck joint. (Priority D)4. The cap girder at Pier 1 has areas of heavy rust with section loss. (Priority D)

Bridge Safety and Evaluation believes that these repairs are structurally important and should be addressed. **Note: The Superstructure is currently rated Poor and the bridge is being placed on List 21 (see attached Poor Bridge report). Due to losses in the steel pier cap (Pier 1), our evaluation staff is checking the load carrying capacity of the structure. Pending the outcome, additional items may be forwarded or priorities for the repairs may need to be increased.**

If you have any questions concerning this matter, please contact me at (860) 594-2072. Please notify this office when the work has been completed.

Attachments

M. Orłowski/mjo

cc: Arthur W. Gruhn – Michael W. Lonergan – Richard T. Jankovich
James H. Norman
Joseph J. Obara
Robert P. Zaffetti – Sandra A. Dumas – Ned T. Statchen
Baker Engineering
Team 1

BRIDGE SAFETY & EVALUATION

LIST 99 - BRIDGE 01428D

Bridge No: 01428D	Town: HARTFORD	Area: 10	Deck: 7
Feature Carried:	I-91 TR 840	NBI? Yes	Superstructure: 5
Features Intersected:	I-91 NB,US44 EB,RR,CT R	Sufficiency Rating 50.6	Substructure: 4
Year Built: 1961	Year Rebuilt: 1990	Main Material & Design: 32	Culverts: N
List #: 99			Structural Evaluation: 4
Submitted By: SAD		Project #:	Scour Rating: 8
Date Submitted: 10/1/2007		Advertising Date	
Reviewed By:			
Date Submitted to Design:			

Problems and General Condition:

Substructure is Poor based mainly on condition of steel pier cap Pier 1. There are section losses to the pier cap with a max of 10% avg loss to top flange, 5% section loss to bottom flange, and 5% section loss to webs. There is up to 3/16" impacted rust between the cover plates and angles.

There are also issues with the concrete pier caps (Piers 2,3, & 5). The concrete pier columns have hollow areas, spalls up to 4" deep with exposed rebar <section loss on rebar>, map cracking and cracks open up to 1/16" with rust and efflo.

There is heavy rust on bearings and at girder ends.

Other Related Projects:

Recommendations:

Substructure Repair	Clean, plate, paint Pier 1 steel cap. Other work needed to concrete piers <caps and columns>.
Spot Painting	Clean and paint girder ends. Some plating may be required following cleaning.
Bearings	Clean, lubricate bearings.

BRIDGE SAFETY INSPECTION

STATE PROJECT NO. 170-2357

BRIDGE NO. 01428D

INTERSTATE 91 TR 840 (I-91 SB TO I-84 EB)

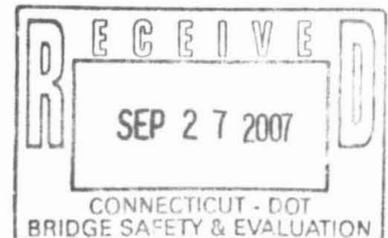
OVER

INTERSTATE 91 NB, US ROUTE 44 EB, RR &
CONNECTICUT RIVER

HARTFORD, CONNECTICUT



ROUTINE INSPECTION



Prepared by

Baker

BAKER ENGINEERING
2096-B SILAS DEANE HIGHWAY
ROCKY HILL, CT 06067

MARCH 22, 2007

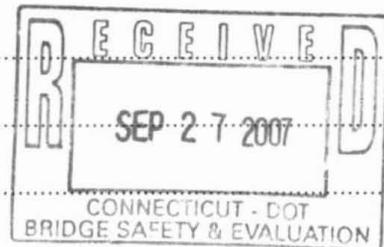
Structure No. 01428D Town: Hartford

Inspectors Baker Engineering (MRJ, GM) Date 3-22-07

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BRI-12, Fracture Critical Inspection Data Sheet	--
BRI-19, HWY Bridge SI&A Form	2
BRI-25, Under Entry SI&A Form	2
BRI-39, RR Bridge SI&A Form	--
BRI-49, Sign Structure SI&A Form	--
PONTIS Element Data Collection Form	2
Plan Sheets: Project 63-162, 1960 & Project 63-375, 1986	Check here if already on file: <input type="checkbox"/>

<u>Bound Report Pages</u>	<u>Sheet Numbers</u>
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Executive Summary

Bridge No. 01428D carries Interstate 91 TR840 over Interstate 91 Northbound, US Route 44 Eastbound, Railroad and the Connecticut River in Hartford. The bridge consists of a 5 span, steel multi-girder superstructure with a reinforced concrete deck. The bridge is supported by concrete piers, one of which has a steel pier cap. The bridge is abutted by adjacent structures at each end (Bridges 00980A & 01428A). The bridge has an overall length of 408 feet and a curb-to-curb measurement of 25 feet. The bridge was constructed in 1961 and rehabilitated in 1990. According to information on file at ConnDOT, the bridge has an inventory load rating capacity of 51 tons for an AASHTO HS Loading. Note that this load rating did not include a steel pier cap analysis. Section losses found on the steel pier cap may warrant re-analysis of this structure. The bridge was found to be in fair condition during this routine inspection completed in April 2007.

The deck was found to be in good condition. The bituminous overlay exhibits cracks up to 1.5" wide, random potholes up to 1" deep and random settled/depressed areas up to 1/2" deep. The stay-in-place forms exhibit only small areas of rust, and the deck overhangs exhibit random transverse cracks with efflorescence. The approach sidewalk at the south side of the structure is vertically misaligned/settled 1 1/2" at pier 4. There are random short and missing weep pipes that drain onto the steel superstructure and the steel cap girder at pier 1. Strip and compression seal joints have sand in the joints, edge spalling along the headers, and active joint leakage was noted at piers 1 & 5.

The superstructure was found to be in fair condition. The bearings have heavy to laminated rust with up to 1/8" deep section losses on plates, impacted rust between bearing plates/elements, up to 100% anchor bolt nut loss, and random missing anchor bolt nuts. A spall below the cap girder bearing at pier 1, column 2 has caused minor undermining of the bearing, approximately 2%. The girder ends exhibit areas of heavy rust to laminated rust, causing areas of section loss to the webs over the bearings, up to 3/16" deep, resulting in 5.0% web loss. There is a 1" long x 1/16" wide crack and stop hole in the bottom web cope of girder 2 in span 1 near pier 2 (crack does not propagate past the stop hole). No cracks were noted in the over-cut in the top cope of the web at this location. Girder flanges in spans 1-4 exhibit no significant deterioration away from the bearings. Riveted girders in span 5 exhibit areas of up to 1/2" impacted rust, random bolt/rivet heads are not flush with the plates (backed off, but are not loose), and there are gaps up to 1/8" at the top flange field splices. A sloppy overhead diaphragm weld between a diaphragm lower strut and connection plate has cracked in span 1, south elevation of girder 3, second intermediate diaphragm (all remaining welds are in good condition at this connection). Previously reported cracked diaphragm weld along girder 3 in span 3 has been repaired since the last inspection.

The substructure was found to be in poor condition. The steel cap girder at pier 1 exhibits areas of heavy rust to laminated rust causing up to 10.3% top flange loss, 4.6% bottom flange loss, and up to 5% web loss at critical locations. In addition, several tack welds are broken on the batten plates between the adjacent girder bottom flanges that comprise the cap girder. The concrete pier caps and columns exhibit hollow areas up to 3' x 3.5', spalls up to 5' x 3' x 4" deep with exposed rebar with isolated section losses, varying degrees of scaling (up to 1" deep at isolated locations), and cracking up to 1/16" wide with rust and/or efflorescence.

The channel was found to be in very good condition. The channel is below span 5 only. Since this structure abuts Bridge 00980A on the east end, only the embankment at pier 5 was considered for this report. For information about the channel, refer to the most recent underwater inspection report for Bridge 00980A.

Since adjacent structures abut this bridge on each end, approaches were not rated for this report. Refer to the inspection reports for Bridges 00980A and 01428A for the approach conditions.

Repair Recommendations are as follows:

Deck:

1. Repair potholes and depressed areas in the overlay (<1/2 Ton).
2. Repair the settlement of the approach sidewalk at pier 4 (<1/4 Cubic Yard).
3. Repair short and/or missing weeps that drain onto bridge elements below (± 25 Linear Feet).
4. Repair areas of active leakage along the piers 1 and 5 deck joints (± 25 Linear Feet).

Superstructure:

1. Repair the spall that undermines the cap girder bearing at pier 1, column 2 (<1/4 Cubic Yard).
2. Clean and paint the girder ends and bearings (1500 Square Feet). *Rehab*
3. Continue to monitor span 1, girder 2 copes near pier 2 for cracking.
4. Repair the cracked diaphragm weld at the south elevation of girder 3, span 1 at the second intermediate diaphragm lower strut (0.5 Linear Feet).

Substructure:

1. Clean and paint the steel cap girder at pier 1 (700 Square Feet). *Rehab*
2. Remove the cracked tack welds along the cap girder batten plates (± 6 Linear Feet).
3. Repair areas of deteriorated concrete along the piers (± 2 Cubic Yards). *Repair / Rehab*

Channel:

No repairs are recommended at this time.

Connecticut Department of Transportation Bridge Inspection Report BRI-18

BRIDGE #: **01428D**

INSPECTION DATE: **3/22/2007**

INSPECTION TYPE: **Routine** PREVIOUS INSPECTION DATE: **8/31/2004** SNOOPER REQUIRED: **Yes**

INSPECTION PERFORMED BY: **Baker Engineering** SNOOPER USED: **Yes**

TOWN: **HARTFORD** FEATURE CARRIED: **I-91 TR 840** YEAR BUILT: **1961**

LOCATION: **ACCESS I-84EB FROM I-91** FEATURE INTERSECTED: **I-91 NB,US44 EB,RR,CT RV** YEAR REBUILT: **1990**

MAIN MATERIAL: **Steel** MAIN DESIGN: **Stringer/Multi-beam or Gird**

INSPECTION VISITS:

Inspection Date:	3/22/2007	Start Time:	8:30 AM
Temperature:	51 °F	End Time:	3:00 PM
Inspection Date:	3/31/2007	Start Time:	6:00 AM
Temperature:	50 °F	End Time:	12:30 PM
Inspection Date:	4/13/2007	Start Time:	9:30 AM
Temperature:	45 °F	End Time:	1:00 PM

INSPECTORS:

Inspector:	M. Jakiel	Task:	Team Leader
Inspector:	G. Moravej	Task:	Assistant Team Leader

58. DECK

OVERALL RATING **7**

	RATING	
OVERLAY	6	The bituminous overlay exhibits cracks up to 1.5" wide, random potholes up to 2' x 6" x 1" deep, areas of raveling, and random settled/depressed areas up to 1/2" deep. See sheets 13-15 and photos 9-12 .
DECK STR. CONDITION	7	The stay-in-place forms have small areas of light rust around PVC drains. The bare concrete deck overhangs have transverse hairline cracks at random locations. Note that since there are stay-in-place forms, a BRI-10 was not generated. The total deck deterioration is less than 1%. See sheets 18-22 and photo 8.
CURBS	7	Sloped Granite. Random scrape marks and a few random spalls up to 9" x 4" x 2" deep with isolated exposed rebar at the joints where the curbs are concrete. The average curb reveal is 3". See the "Expansion Joint" item below for the loose curb plate. See sheets 13-15 and photo 14.
MEDIAN	N	
SIDEWALKS	6	North side only in Spans 4 and 5. The sidewalk exhibits a few random transverse hairline cracks, minor light debris and an accumulation of sand. There is up to 1-1/2" of settlement/vertical misalignment at the end of the sidewalk over pier 4. See sheets 13-15 and photo 13.
PARAPET	6	The parapets exhibit random vertical and transverse hairline cracks with light efflorescence and moderate to heavy scrape marks throughout. See sheets 13-15.
RAILING	7	Single aluminum rail on north side only with no significant deficiencies.
PAINT	N	
FENCE	N	Steel picket along sidewalk along and under span 3 shows light rust and peeling paint. There are a few vertical posts with missing top cap plates (fence not on bridge).
DRAINS	4	PVC weep pipes. There is a short/broken weep that drains onto the pier 1 cap girder (actually Bridge 01428A weep). In addition, there are random weeps that are missing or short, some of which drain onto the bridge elements below. Scupper grates are partially clogged and have a light build-up of debris in the basins (all drain pipes are clear and open). See sheets 13- 15 & 18-22 and photo 15.
LIGHTING STANDARD	8	Light standard in spans 1, 3 and 5. No deficiencies noted.
UTILITIES TYPE/SIZE	N	
CONSTRUCTION JOINTS	N	
EXPANSION JOINTS	5	Compression seal with concrete headers at Piers 1-4 and strip seal with concrete headers at Pier 5. There is sand, typical in the joints, and the concrete headers have random longitudinal hairline cracks, minor edge spalling, and light scaling throughout. The joint plate at the north curb over pier 5 is disconnected. The bituminous patch at the joint at the east end of the bridge (junction with Bridge 00980A) is depressed up to 2' wide x 1" deep throughout. There is evidence of active leakage at random locations throughout. Only piers 1 and 5 joint exhibited

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BRIDGE #: 01428D

INSPECTION DATE: 3/22/2007

58. DECK **OVERALL RATING** 7
active leakage at the time of inspection. See sheets 13-15 & 18-22 and photos 16, 17 and 24.

59. SUPERSTRUCTURE **OVERALL RATING** 5

	RATING	
BEARING DEVICES	5	<p>The fixed and elastomeric bearings exhibit moderate to heavy laminated rust to the steel plates with up to 1/8" deep section losses. Fixed bearings have up to 1/4" impacted rust between sole and masonry plates. There are random tilted anchor bolts, random missing anchor bolt nuts and random anchor bolt nuts with up to 100% section loss. See sheets 18-22 and photos 18-21.</p> <p>Rocker bearings at pier 5: Rocker bearings exhibit light to moderate rust, up to 100% loss of anchor bolt nuts, and up to 1/8" impacted rust below the rockers. Bearings exhibit evidence of movement, based on comparison with previous measurements. See sheet 17.</p> <p>Cap girder bearings at pier 1: The curved sole plate bearings for the steel cap girder exhibit heavy laminated rust with up to 1/16" deep section loss to the plates. The cap girder bearing at column 2 is undermined 11" x 1" (approximately 2%) due to a spall below. See sheets 23 & 24 and photo 22.</p>
STRINGERS	N	
GIRDERS	5	<p>There are random areas of light to moderate rust and isolated areas of heavy laminated rust and painted over section losses up to 3/16" deep, mostly at the girder ends. Girder webs over the bearing areas exhibit up to 5% section loss (girder 1, span 4 over pier 4). Girder flanges in spans 1-4 exhibit no significant deterioration away from the bearings. Girders in span 5 exhibit areas of up to 1/2" impacted rust (built-up girders), random rivet/bolt heads are not flush with the plates (but are not loose), and there are gaps up to 1/8" at the top flange field splices (no significant change). See sheets 18-22 and photos 23 & 24.</p>
FLOOR BEAMS	N	
TRUSSES-GENERAL	N	
TRUSSES-PORTALS	N	
TRUSSES-BRACING	N	
PAINT	7	Random areas of peeling and chipping paint throughout the structure (<10% of area).
RUST	5	See above items.
MACHINERY MOV SPAN	N	
RIVETS & BOLTS	7	<p>Random bolt/rivet heads are not flush with the plates in span 5 (backed off, but are not loose). There is up to 1/8" gap at top flange splice plates at random locations in span 5 (no change). ✓ Random erection bolts missing in diaphragm connections (diaphragm connections are welded). See sheets 18-22. ✓</p>
WELDS & CRACKS	6	<p>There is a 1" long x 1/16" wide crack and stop hole in the bottom cope of the girder 2 web in span 1 near pier 2 (crack does not propagate past the stop hole). ✓ No cracks were noted in the over-cut in the top cope of the web at this location. See sheet 18 and photo 26.</p> <p>A sloppy overhead diaphragm weld between a diaphragm lower strut and connection plate has cracked in span 1, south elevation of girder 3, second intermediate diaphragm (all remaining welds are in good condition at this connection). Previously reported cracked diaphragm weld along girder 3 in span 3 has been repaired since the last inspection. See sheets 18 & 20 and photo 25. ✓</p> <p>Fatigue category D & E' were checked hands-on; ✓ no deficiencies were noted.</p>
TIMBER DECAY	N	
CONCRETE CRACKING	N	
COLLISION DAMAGE	8	
MEMBER ALIGNMENT	8	
DEFLECT. UNDER LOAD	N	Normal

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7/56

BRIDGE #: 01428D

INSPECTION DATE: 3/22/2007

59. SUPERSTRUCTURE		OVERALL RATING 5
VIBR. UNDER LOAD	N Normal	
STAND PIPES	N	
BARREL LADDERS	N	
ARE BARREL LADDERS OSHA COMPLIANT?		NA

60. SUBSTRUCTURE		OVERALL RATING 4
	<small>RATING</small>	
ABUTMENTS-STEM	N	
ABUTMENTS-BACKWALL	N	
ABUTMENTS-FOOTINGS	N	
ABUT.-SETTLEMENT	N	
ABUTMENTS-WINGWALLS	N	
PIERS/BENTS-CAPS	4	<p>Riveted steel pier cap (Pier 1 only). The steel pier cap at pier 1 exhibits areas of heavy laminated rust and section loss. The top flange (1" thick cover plate and 1" thick angles) has areas of as little as 1-11/16" remaining, resulting in a maximum of <u>10.3%</u> top flange average loss across the entire width. The bottom flanges have areas of section loss, up to 4.6%. The web plates have areas of up to 1/8" deep x 1' high loss at the web bases, resulting in up to 5% web loss. Several tack welds at the batten plates are cracked and/or broken. There is up to 3/16" impacted rust between the cover plates and angles. Random rivet heads have up to 50% section loss. See sheets 23-25 and photos 29-32.</p> <p>Concrete pier caps (piers 2, 3 & 5): Concrete pier caps exhibit hollow areas up to 3' x 3', popouts, spalls up to 1' diameter x 1" deep, isolated spalls with exposed rebar up to 1' x 6" x 1" deep, isolated scaling up to 1" deep, and random cracking, up to 1/16" wide with rust and efflorescence. See sheets 26-33.</p>
PIERS/BENTS-PILE BENT	N	
PIERS/BENTS-COLUMN	5	<p>Concrete pier columns (piers 1, 2, 3, & 5): Concrete pier columns exhibit random shallow rebar, hollow areas up to 3' x 3.5', spalls up to 5' x 3' x 4" deep with exposed rebar with section loss, popouts, isolated hairline map cracking, and cracks up to 1/16" wide with rust and efflorescence. See sheets 23-29 & 32 & 33 and photos 22, 33 & 34.</p> <p>Solid pier stem at pier 4: Pier stem exhibits random popouts, shallow rebars, spalls up to 1' x 7" x 1" deep with exposed rebar, and isolated hairline cracks with efflorescence. See sheets 30 & 31.</p>
PIERS/BENTS-FOOTINGS	N	Not visible.
PIERS/BENTS-SETTLEMENT	8	None noted.
EROSION-SCOUR	8	No deficiencies.
CONCRETE CRACK-SPALL	5	See above items.
STEEL CORROSION	4	See "Piers/Bents Caps" item above.
PAIN	3	More than 50% of the painted surfaces along the steel pier cap at pier 1 exhibit deterioration. See photos 27 and 29.
TIMBER DECAY	N	
COLLISION DAMAGE	8	
DEBRIS	6	The pier caps exhibit a build up of pigeon debris and construction debris at random locations.

61. CHANNEL & CHANNEL PROTECTIO	Only span 5 is above water (span that abuts bridge 00980A). Ratings noted below are pertinent to pier 5	OVERALL RATING 8
--	---	--

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BRIDGE #: **01428D**

INSPECTION DATE:

3/22/2007

only. Channel condition away from pier 5 is contained in the Bridge 00980A underwater inspection report dated May 20, 2006.

RATING

CHANNEL SCOUR	8	Channel under Span 5 only. See photos 35 & 36.
EMBANKMENT EROSION	8	
DEBRIS	8	
VEGETATION	7	Light growth under span 5 only.
CHANNEL CHANGE	8	
FENDER SYSTEM	N	
SPUR DIKES & JETTIES	N	
RIP RAP	8	

62. CULVERTS & RETAINING WALL

OVERALL RATING

N

APPROACH CONDITION

OVERALL RATING

P

RATING

APPROACH SLAB	N	Approaches are actually 00980A (Bulkeley Bridge) at east and 01428A at west end.
RELIEF JOINTS	N	
APPROACH GUIDE RAIL	N	
APPROACH PAVEMENT	N	
APPROACH EMBANKMENT	N	
TRAFFIC SAFETY FEATURES:		
BRIDGE RAILINGS	0	North railing (concrete parapet with aluminum railing) does not meet standards.
TRANSITIONS	0	There is no guide rail at the southwest approach (attenuator barrels at parapet end). ✓
APPROACH GUARDRAILS	0	There is no guide rail at the southwest approach (attenuator barrels at parapet end). ✓
APPR. GUARDRAIL ENDS	0	There is no guide rail at the southwest approach (attenuator barrels at parapet end). ✓

LOAD POSTING

SINGLE UNIT (TONS)	<input type="checkbox"/>	
HS (TONS)	<input type="checkbox"/>	
4 AXLE (TONS)	<input type="checkbox"/>	
3S2 (TONS)	<input type="checkbox"/>	
ADVANCE WARNING Y/N	N	
LEGIBILITY	N	
VISIBILITY/LOCATION	N	

MISC.

MIN VERT. UNDERCLR.	14'	3"	14'-2" in shoulder area; 14'-3" at edge of travel. See clearance diagrams sheets 11 & 12.
POSTED CLR. UNDER BRIDGE	<input type="checkbox"/>	<input type="checkbox"/>	<i>small shoulder in sidewalk side prof.</i>
POSTED CLR. ON BRIDGE	<input type="checkbox"/>	<input type="checkbox"/>	<i>(3')</i>

Connecticut Department of Transportation Bridge Inspection Report BRI-18

BRIDGE #: **01428D**

INSPECTION DATE: **3/22/2007**

ADVANCE WARNING (Y/N) No

SPEED LIMIT (IF ANY) MPH

CHARACTER OF TRAFFIC

ADDITIONAL NOTES

- Bridge identification number is clear and legible.
 - Bridge is logged from west to east; girder 1 is at north fascia (consistent with the previous inspection report and bridge plans).
 - Bridge inspected with 40' lift truck and snooper.
 - Detour performed for snooper access on a Saturday.
 - State troopers and crash trucks used for detour and I-91 northbound closures.
 - Local officer used for Route 44 closures.
 - Riverfront Recapture must be contacted prior to inspection of span 5 (860)-883-2845 (Marc Nicol).

ADDITIONAL COMMENTS:

Inspectors' Signatures:

1) *[Signature]* Date: 09/27/2007

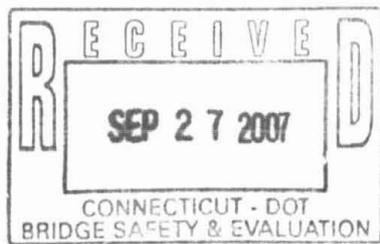
2) *Sarah G. Hastings (for GM)* Date: 09/27/2007

3) _____ Date: __/__/__

4) _____ Date: __/__/__

P.E. Signature: *Paul McSwinness* Date: 9/27/07
 P.E.#: 17040

Reviewed by: *Sandra A Dumas* CDOT Date: 9/30/07



SUPPLEMENTAL SHEET

BRIDGE NO. 01428D

DATE: SEE BELOW

FIELD ORIGINAL TRANSCRIBED BY: _____

CREW: SEE BELOW

SHEET 10 OF 56

DESCRIPTION: TIME LOG

DATE: 3/22/2007 DESCRIPTION: _____ TIME AT SITE: _____
 WEATHER: P. Sunny 51° CREW: MRTJ, SE 8:30AM TO 3:00PM
 EQUIP. LIST: _____ SNOOPER: _____ TO _____
 _____ LIFT: BAKER (46') 8:30AM TO 3:00PM
 _____ CRASH TRUCK: _____ TO _____
 ARROW HRS. _____ TO _____ TROOPER: HARTFORD Police Dicenzo #625 9:00AM TO 3:00PM
 VISITORS: _____ : _____ TO _____
 TC & NOTES: LEFT & RIGHT Lane Closure RT 44 RB Insp 1/2 OF
SPANS 1 & 4, Complete SPAN 3 SUB & Superstructure
CLEARANCES.

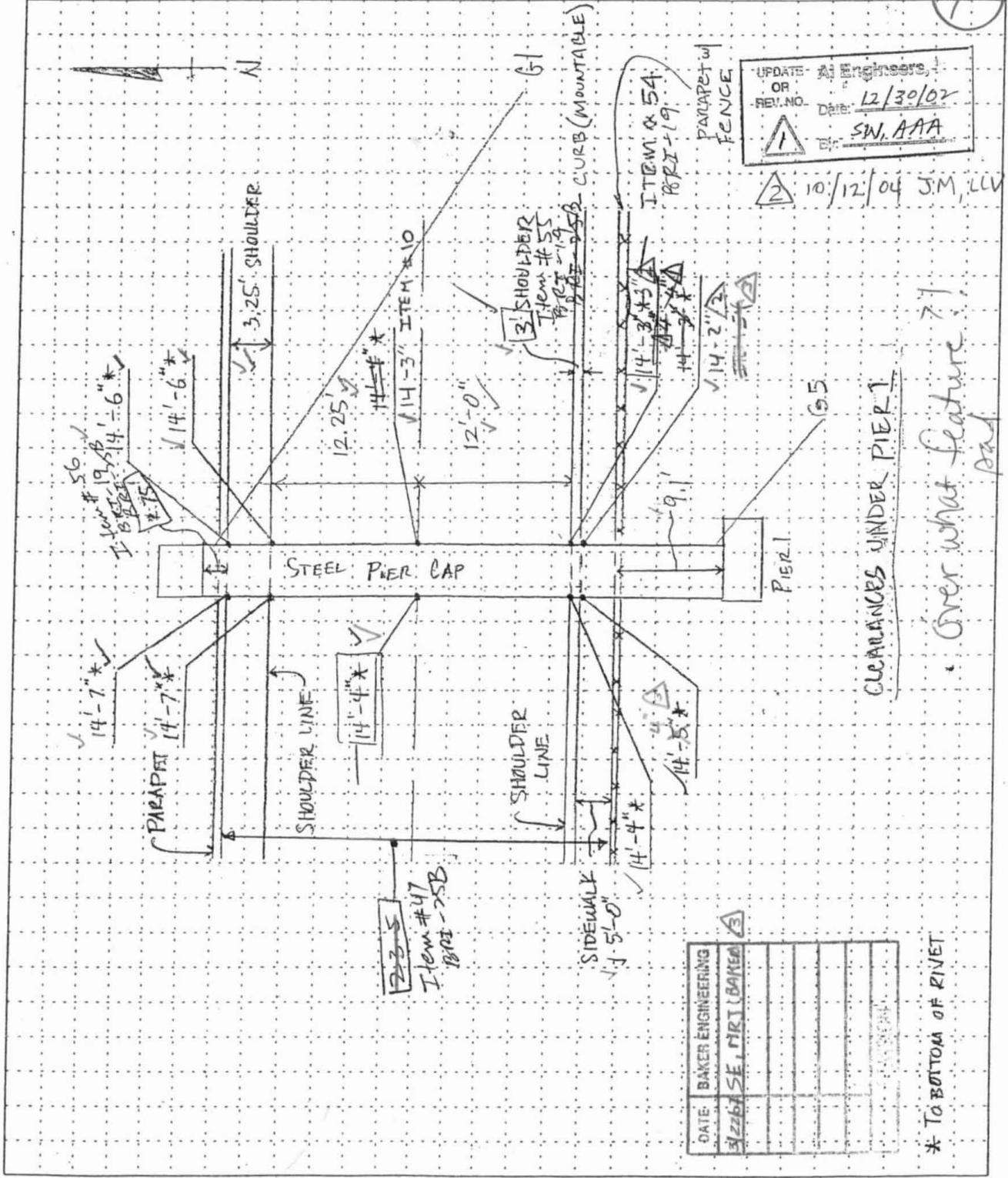
DATE: 03/31/2007 DESCRIPTION: _____ TIME AT SITE: _____
 WEATHER: SUNNY 50° CREW: GM, SE, WNK, MRTJ 6:00AM TO 12:30PM
 EQUIP. LIST: BAKER VAN - CUBE SNOOPER: UNITED 60' 6:00AM TO 12:00PM
 _____ LIFT: _____ TO _____
 _____ CRASH TRUCK: (2) CRASH TRUCK 6:00AM TO 12:30PM
 ARROW HRS. _____ TO _____ TROOPER: TOLLIS, JOHN # 1155 6:00AM TO 12:30PM
 VISITORS: _____ : GAUVIN, TODD # 1007 TO _____
 TC & NOTES: EXIT RAMP # 30 CLOSED, RIGHT & LEFT LANE CLOSURE ON I-91N; Inspected
SPANS 1-3 SUB & Superstructure & Top of Deck.

DATE: 4/13/2007 DESCRIPTION: _____ TIME AT SITE: _____
 WEATHER: CLOUDY 45° CREW: MRTJ, GM 9:30AM TO 1:00 PM
 EQUIP. LIST: VAN SNOOPER: _____ TO _____
 _____ LIFT: _____ TO _____
 _____ CRASH TRUCK: _____ TO _____
 ARROW HRS. _____ TO _____ TROOPER: _____ TO _____
 VISITORS: _____ : _____ TO _____
 TC & NOTES: NONE, SPAN 4 SUB & Superstructure, MISC CLEAN UP
work. Inspection Complete

DATE: _____ DESCRIPTION: _____ TIME AT SITE: _____
 WEATHER: _____ CREW: _____ TO _____
 EQUIP. LIST: _____ SNOOPER: _____ TO _____
 _____ LIFT: _____ TO _____
 _____ CRASH TRUCK: _____ TO _____
 ARROW HRS. _____ TO _____ TROOPER: _____ TO _____
 VISITORS: _____ : _____ TO _____
 TC & NOTES: _____

Baker

SUPPLEMENTAL SHEET <input type="checkbox"/> FIELD ORIGINAL <input checked="" type="checkbox"/> TRANSCRIBED BY: <u>WA</u>	JOB NO. 170-1965	BRIDGE NO. 01428D
	DATE: 1/2/01	SHEET 10 OF 51
DESCRIPTION: <u>Clearance Diagram</u>	CREW: MRJ, WA,	(11/50)



UPDATE OR REV. NO. 12/30/02
 SW, AAA

10/12/04 JM, LLV

DATE	BAKER ENGINEERING
NAME	SE, PIRI (BAKER)
DRAWN BY	
CHECKED BY	
DATE	

* TO BOTTOM OF RIVET

SUPPLEMENTAL SHEET

FIELD ORIGINAL

TRANSCRIBED BY: CD

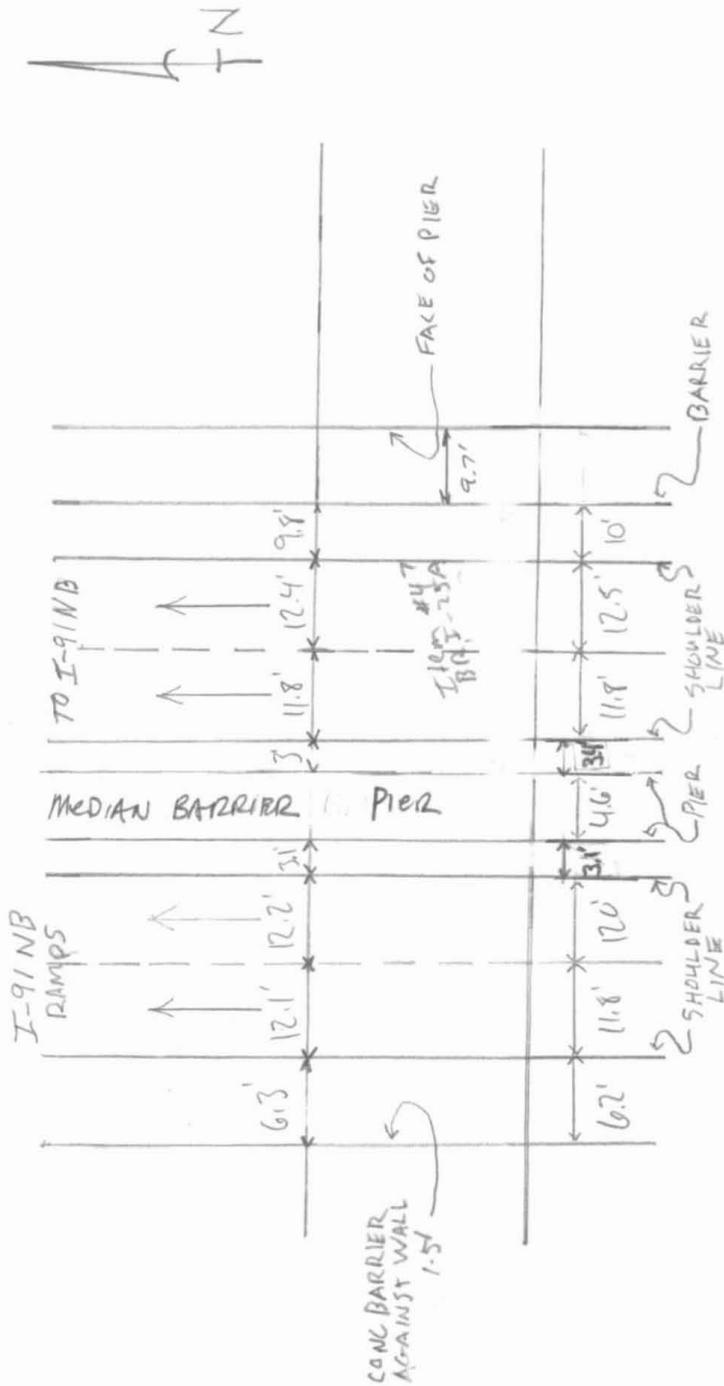
BRIDGE NO. 1428 D

DATE: 3/3/07

CREW: WMK, MRJ

SHEET 12 OF 56

DESCRIPTION: Clearance Diagram



* - ALL VERTICAL CLEARANCES OVER 25' SPANS 1 & 2

UPDATE NO.	DATE	COMPANY	CREW
△			
△			
△			
△			

SUPPLEMENTAL SHEET

BRIDGE NO. 01428D

DATE: 3/31/2007

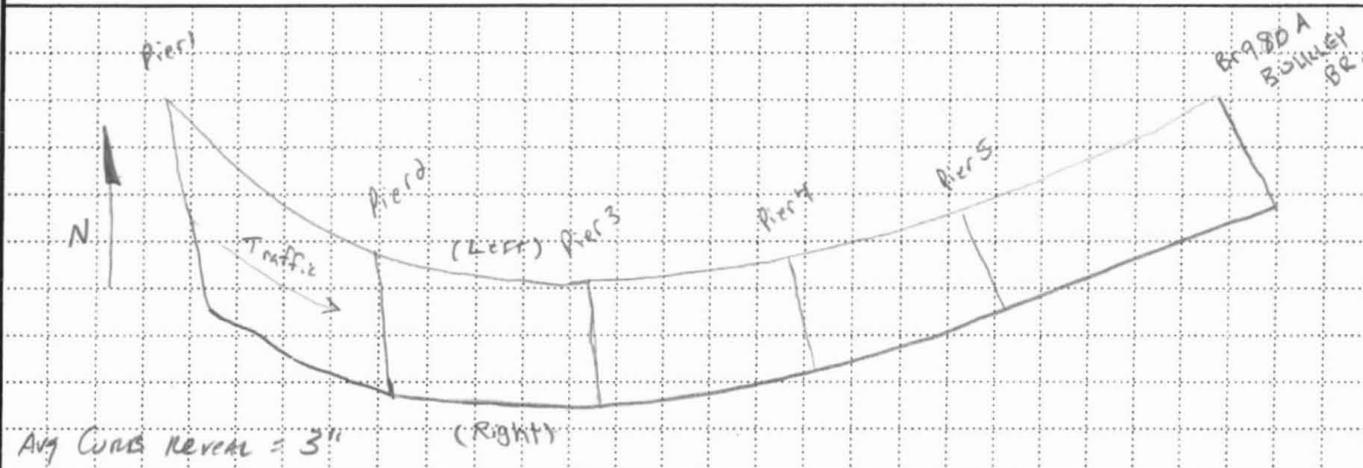
FIELD ORIGINAL

TRANSCRIBED BY: BD

CREW: MAJ, WMC, GM, SG

SHEET 16 OF 56

DESCRIPTION: PARAPET JOINT MEASUREMENTS



LOCATION	MEASUREMENT < 50° F				MEASUREMENT > 50° F				JOINT TYPE
	LEFT	RIGHT	TEMP	DATE	LEFT	RIGHT	TEMP	DATE	
Pier 1	1 1/16	1 5/16	48°	3/31/07					Comp. Seal
Pier 2	1 2/16	1 7/16	48°	3/31/07					Comp. Seal
Pier 3	1 4/16	1 7/16	48°	3/31/07					Comp. Seal
Pier 4	1 6/16	1 14/16	48°	3/31/07					Comp. Seal
Pier 5	2 7/16	2 3/16	48°	3/31/07					Strip Seal
End	**	1 0/16	48°	3/31/07					Saw and Seal

GENERAL NOTES:
 ** NO JOINT
 - ALL MEASUREMENTS DOUBLE CHECKED.

FIELD NOTES

CREW: BNS, ZRI, AHS

17/50

ROCKER BEARING MEASUREMENTS

Form BRI-15, Rev. 9/97

3/31/07 GM, SIE (BAKED)
Temp = 50°

Span No. = 5

Substructure Unit = Pier 5

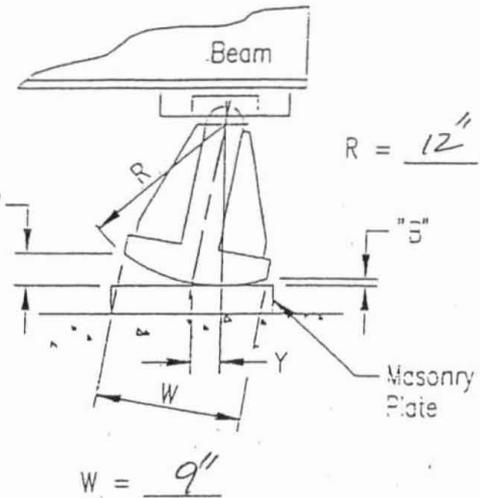
Temperature = 22.4°F

50°F

$\theta = \sin^{-1} (F-B)/W$

$Y = R \tan \theta$

The "Front" of the bearing is the side facing the fixed bearing.



NOTE:

"F" & "B" should be measured at the left side corners of the rocker or on the side closest to the front face of the substructure on skewed bridges.

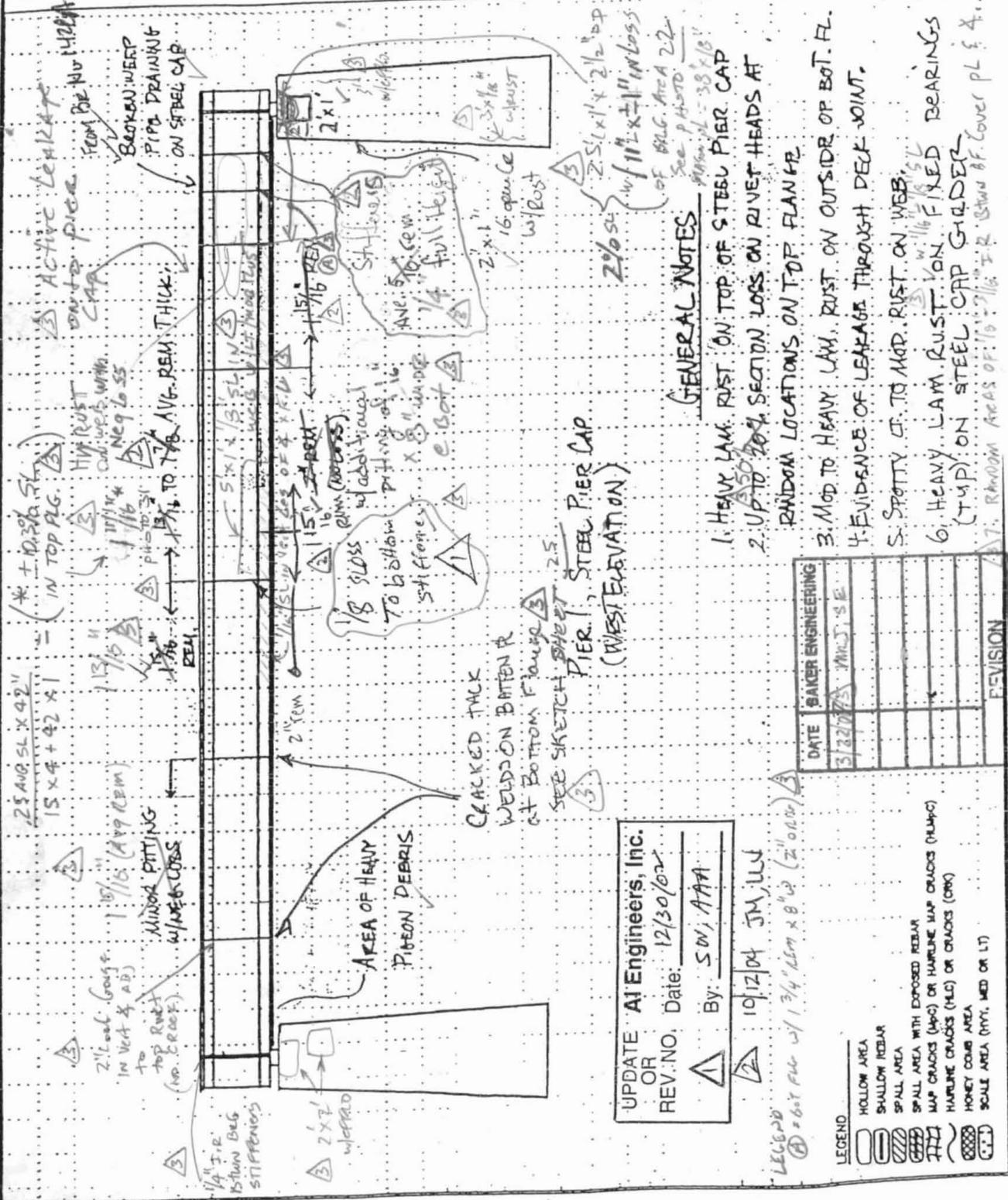
Beam	"F"	"B"	Y	Cont. or Exp.	Comments
1	1 1/8"	1 1/8"	7/16"	E	A Bolt nuts exhibit up to 90% S. Loss. Drop bolt nuts, up to 95% S. Loss (painted over)
3	1 3/16"	3/4"	9/16"		
4	1 1/16"	5/8"	9/16"	E	severe S. Loss & A. Bolt nuts up to 100%.
3	1 3/16"	7/16"	1/2"		
6	5/8"	1 3/16"	3/4"	C	Lt. to mod imp. rust @ bottom rocker
3	7/8"	1 1/8"	5/16"		

General notes:

- Mod to HVY spotty Pigeon debris on Brgs, mainly @ the S. end.
- Mod. imp. rust @ rocker bottom up to 1/8".

9/17/04 JM, LLV BRG'S INSPECTED, NO MEASUREMENTS WERE MADE

<h1 style="margin: 0;">SUPPLEMENTAL SHEET</h1> <p style="margin: 0;">□ FIELD ORIGINAL ■ TRANSCRIBED BY: JJA</p>	JOB NO. 170-1965	BRIDGE NO. 014281
	DATE: 1/2/01	SHEET 23 OF 51
DESCRIPTION: SUBSTRUCTURE FIELD NOTES	CREW: JJA, MARJ	REVISED 5/16/01



GENERAL NOTES

1. HEAVY LAM. RUST ON TOP OF STEEL PIER CAP
2. UP TO 20% SECTION LOSS ON RIVET HEADS AT RANDOM LOCATIONS ON TOP FLANGE
3. MOD TO HEAVY LAM. RUST ON OUTSIDE OF BOT. FL.
4. EVIDENCE OF LEAKAGE THROUGH DECK JOINT.
5. SPOTTY C. TO MOD. RUST ON WEB
6. HEAVY LAM. RUST ON FIXED BEARINGS (TYP) ON STEEL CAP GIRDER
7. RANDOM AREAS OF 1/8\"/>

UPDATE: AI Engineers, Inc.
 OR
 REV. NO. Date: 12/30/02
 By: SW, AAA
 10/12/04 JM, JLL

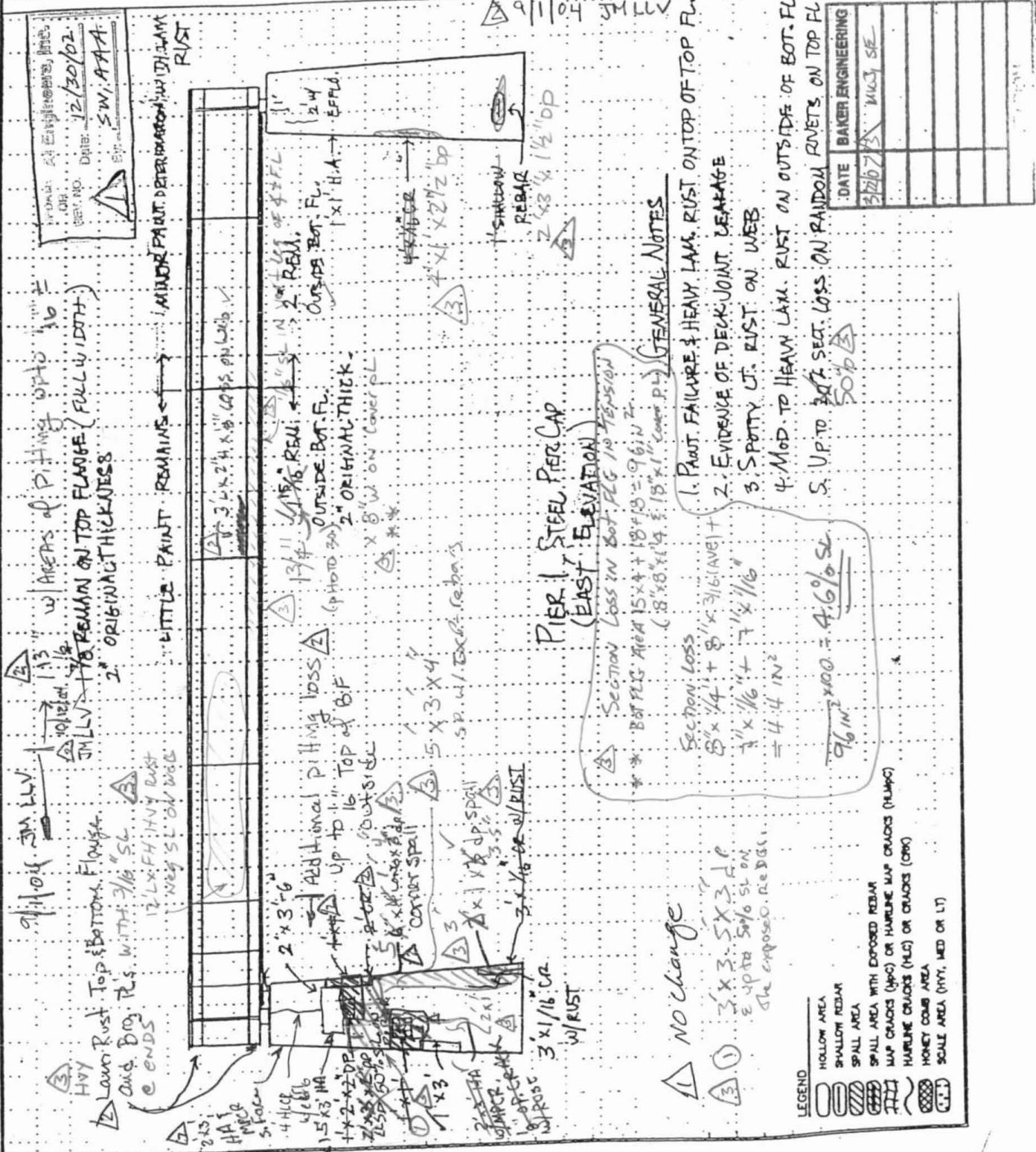
DATE	BAKER ENGINEERING	REVISION
3/22/01	JJA, JSE	

- LEGEND**
- HOLLOW AREA
 - SHALLOW REBAR
 - SPALL AREA
 - ▨ SPALL AREA WITH EXPOSED REBAR
 - ▧ MAP CRACKS (MAP) OR HARLINE MAP CRACKS (MAPC)
 - ▩ HARLINE CRACKS (HLC) OR CRACKS (CRK)
 - ⊞ HONEY COMB AREA
 - ⊞ SCALE AREA (MM, MED OR LT)

LEGEND
 ⊞ = bot flg w/ 3/4" lam x 8" w (2" or 10")

16/27
28 of 60
24/56

<h2>SUPPLEMENTAL SHEET</h2> <p>FIELD ORIGINAL TRANSCRIBED BY: <u>JJA</u></p>	JOB NO. 170-1965	BRIDGE NO. 014281
	DATE: 1/2/01	SHEET 24 OF 51
DESCRIPTION: SUBSTRUCTURE FIELD NOTES	CREW: JJA, MRJ	REVISED 5/14/01



PIER 1 STEEL PIER CAP (EAST ELEVATION)

Section Loss in Bot. Flg. No Tension
 BOT FLG. AREA 15' x 4' + 18' x 3' = 96 in²
 (.8' x 8' x 1/4" + 18' x 1" cover p.l.)

Section Loss
 8" x 1/4" + 8" x 3/16" (AVEL) +
 7" x 1/16" + 7" x 1/16"
 = 4.4 IN²
 4.4 IN² x 100 = 4.6% SL

- GENERAL NOTES
1. PAINT FAILURE & HEAVY LAM. RUST ON TOP OF TOP FL.
 2. EVIDENCE OF DECK JOINT LEAKAGE
 3. SPOTTY UT. RUST ON WEB
 4. MOD. TO HEAVY LAM. RUST ON OUTSIDE OF BOT. FL.
 5. UP TO 30% SECT. LOSS ON RANDOM POINTS ON TOP FL.

LEGEND

	HOLLOW AREA
	SHALLOW REBAR
	SPALL AREA
	MAP AREA WITH EXPOSED REBAR MAP CRACKS (MPC) OR HARBOR MAP CRACKS (HMAPC)
	HAIRLINE CRACKS (HL) OR CRACKS (CR)
	HONEY COMB AREA
	SCALE AREA (MT, MD OR LT)

DATE	BAKER ENGINEERING
5/26/73	WJY SE



HAKS

FIELD NOTES

JOB NO.170-2357

BRIDGE No. 01428 D

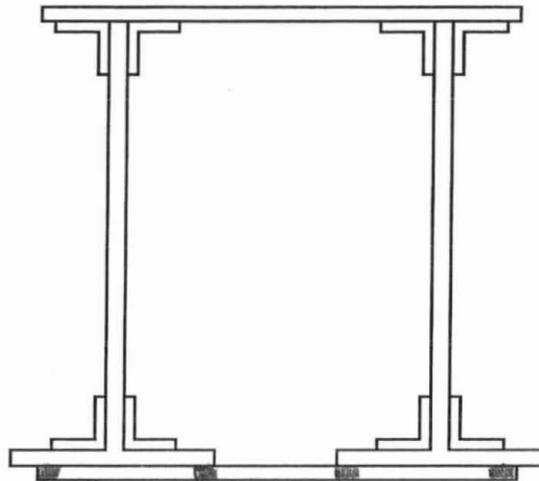
DATE: 11/1/04

SHEET ~~29 of 60~~

CREW: JM, LLV

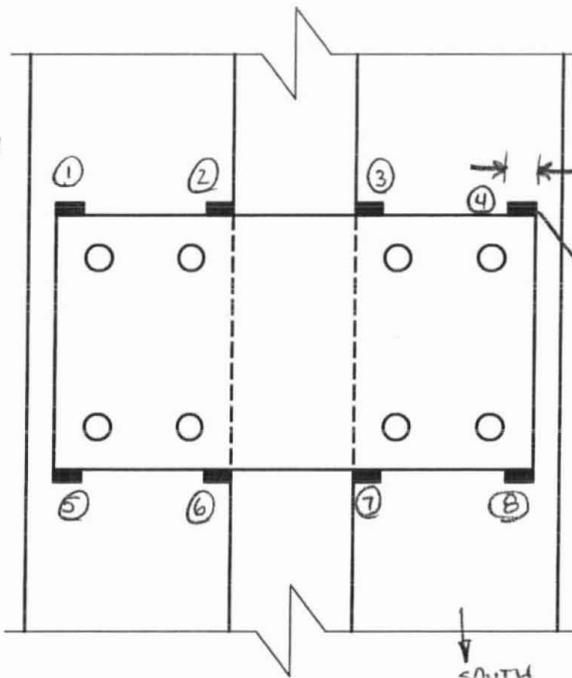
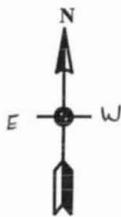
25/56

CAP GIRDER AT PIER 1



BATTEN PLATE

X-SECTION



TYP. TACK WELD

SOUTH

PLAN

(VIEW LOOKING UP)

1 ST WEB STIFFENER			
LOC.	2004	2007 Δ	
①	NC	NC	
②	CT	1" W	
③	1"	CTW	
④	NC	NC	
⑤	NC	NC	
⑥	CT	CT	
⑦	CT	CT	
⑧	NC	NC	

NC = NO CRACK
CT = CRACKED THRU

2 ND WEB STIFFENER Δ			
LOC.	2004	2007	
①	NC	NC	
②	CT	1 1/4" W	
③	1 1/4"	CTW	
④	NC	NC	
⑤	NC	NC	
⑥	CT	CT	
⑦	CT	CT	
⑧	NC	NC	

(PHOTO 32) Δ

REVISION Δ	DATE 3/22/2007	CREW MLJ, SR (BAKER)	REVISION Δ	DATE	CREW
REVISION Δ	DATE	CREW	REVISION Δ	DATE	CREW

SUPPLEMENTAL SHEET

JOB NO. 170-1965

BRIDGE NO. 01428

FIELD ORIGINAL TRANSCRIBED BY: _____

DATE: 1/2/2001

SHEET 29 OF 51

30/56

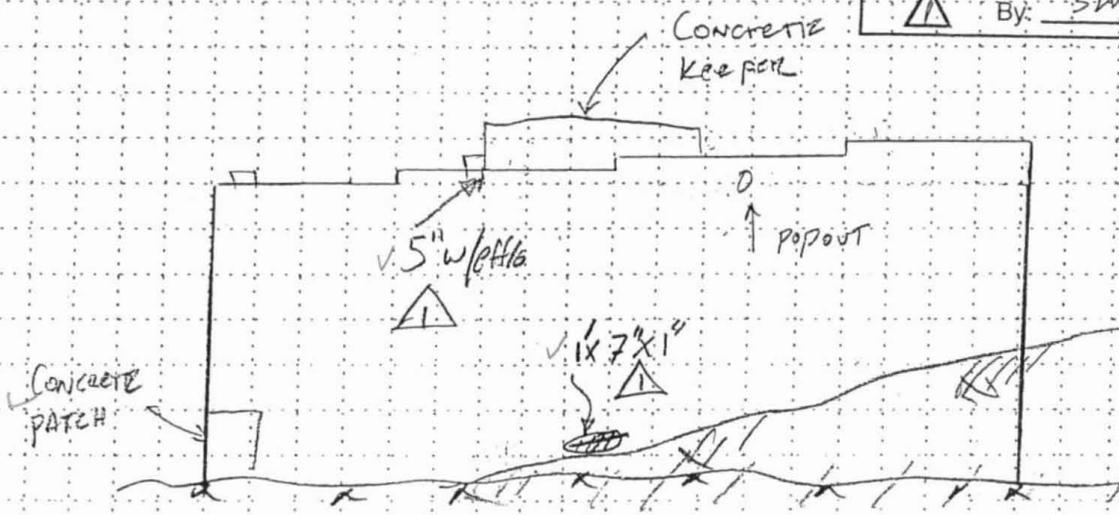
DESCRIPTION: Substructure Notes

CREW: MRS, JJA

21/27 34/60

② 11/2/04 JM RML

UPDATE OR REV. NO. _____
 Date: 12/30/02
 By: SW, AAA



PIER #4 WEST ELEVATION

ACTIVE WATER LEAKAGE @ PIER CAP. ③

LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS (MPC) OR HAIRLINE MAP CRACKS (HLMPC)
- HAIRLINE CRACKS (HLC) OR CRACKS (CRC)
- HONEY COMB AREA
- SCALE AREA (HY, MED OR LT)

DATE	BAKER ENGINEERING
8/22/07	SE, MRS
REVISION:	

Bridge No.	01428D	Inspected by:	Michael R. Jakiel
Town:	Hartford	Inspected by:	Ghasem Moravej
Feature Carried:	Interstate 91 TR 840 (I-91 SB to I-84 EB)	Date Inspected:	03/22/2007
Feature Crossed:	I-91 NB, US Route 44 EB, RR & Connecticut River	Project No.:	170-2357



Photo # 1: Bridge I.D.



Photo # 2: South elevation of structure.

Bridge No.	01428D	Inspected by:	Michael R. Jakiel
Town:	Hartford	Inspected by:	Ghasem Moravej
Feature Carried:	Interstate 91 TR 840 (I-91 SB to I-84 EB)	Date Inspected:	03/22/2007
Feature Crossed:	I-91 NB, US Route 44 EB, RR & Connecticut River	Project No.:	170-2357



Photo # 3: North elevation of structure.



Photo # 4: Bridge from west approach.

Bridge No.	01428D	Inspected by:	Michael R. Jakiel
Town:	Hartford	Inspected by:	Ghasem Moravej
Feature Carried:	Interstate 91 TR 840 (I-91 SB to I-84 EB)	Date Inspected:	03/22/2007
Feature Crossed:	I-91 NB, US Route 44 EB, RR & Connecticut River	Project No.:	170-2357

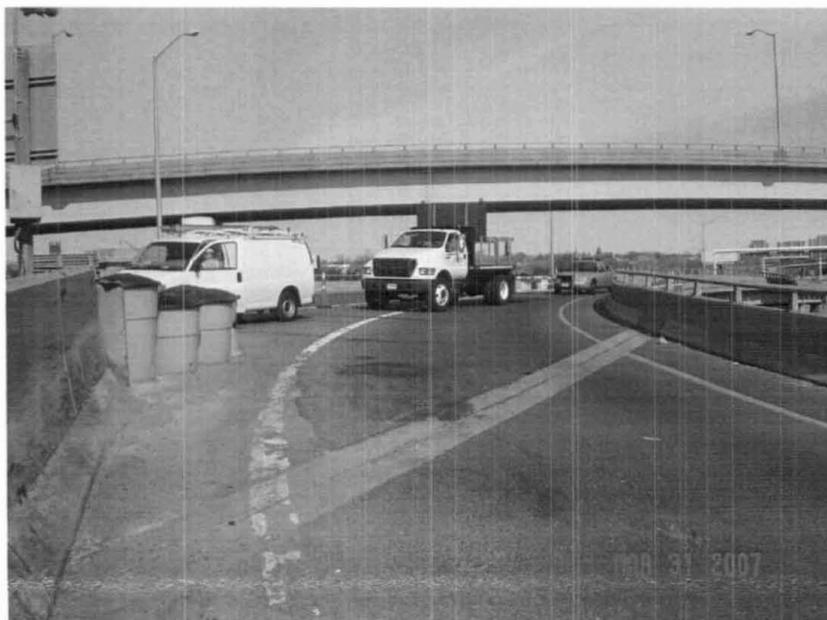


Photo # 5: West approach from bridge.



Photo # 6: Bridge from east approach.

Bridge No.	01428D	Inspected by:	Michael R. Jakiel
Town:	Hartford	Inspected by:	Ghasem Moravej
Feature Carried:	Interstate 91 TR 840 (I-91 SB to I-84 EB)	Date Inspected:	03/22/2007
Feature Crossed:	I-91 NB, US Route 44 EB, RR & Connecticut River	Project No.:	170-2357



Photo # 7: East approach from bridge.

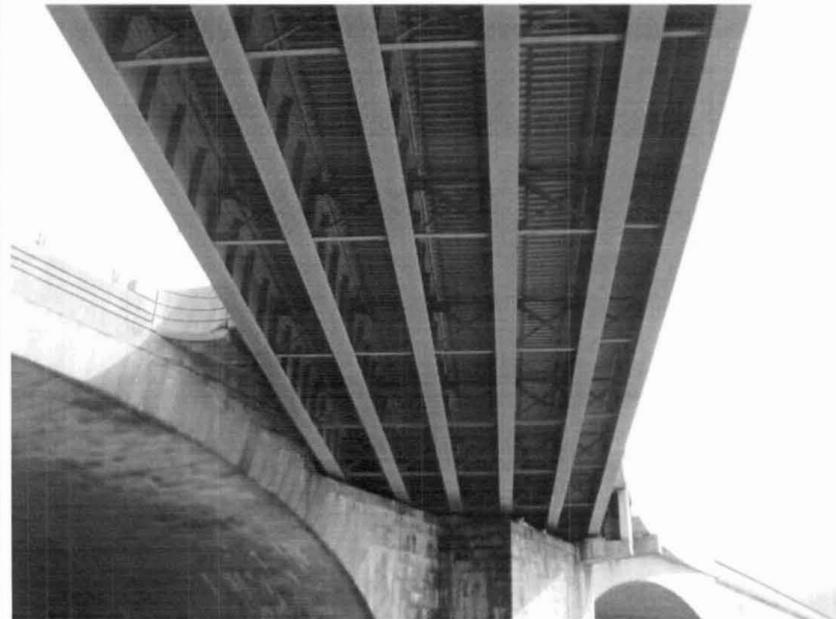


Photo # 8: Typical superstructure and underside of deck.

Bridge No.	01428D	Inspected by:	Michael R. Jakiel
Town:	Hartford	Inspected by:	Ghasem Moravej
Feature Carried:	Interstate 91 TR 840 (I-91 SB to I-84 EB)	Date Inspected:	03/22/2007
Feature Crossed:	I-91 NB, US Route 44 EB, RR & Connecticut River	Project No.:	170-2357



Photo # 9: Typical top of deck.

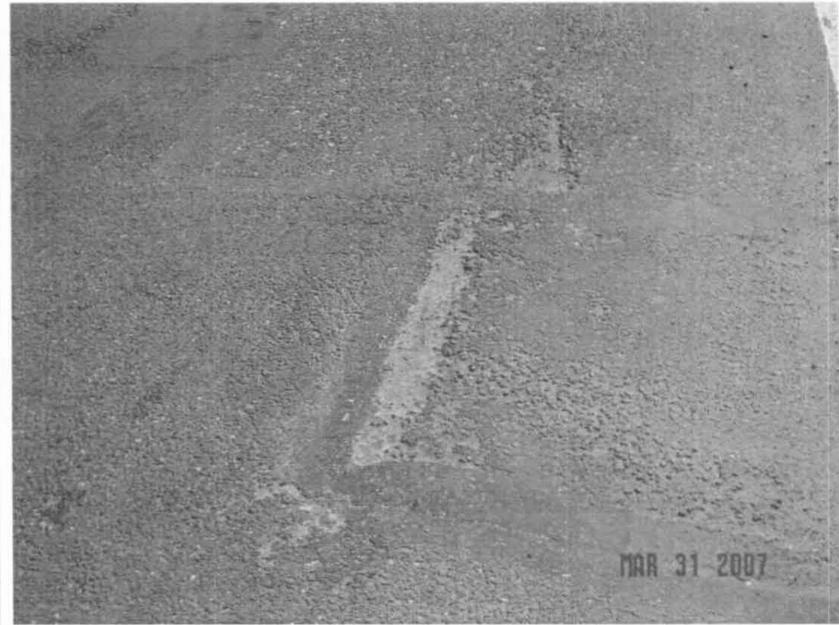


Photo # 10: Raveling of bituminous overlay in span 2.

Bridge No.	01428D	Inspected by:	Michael R. Jakiel
Town:	Hartford	Inspected by:	Ghasem Moravej
Feature Carried:	Interstate 91 TR 840 (I-91 SB to I-84 EB)	Date Inspected:	03/22/2007
Feature Crossed:	I-91 NB, US Route 44 EB, RR & Connecticut River	Project No.:	170-2357

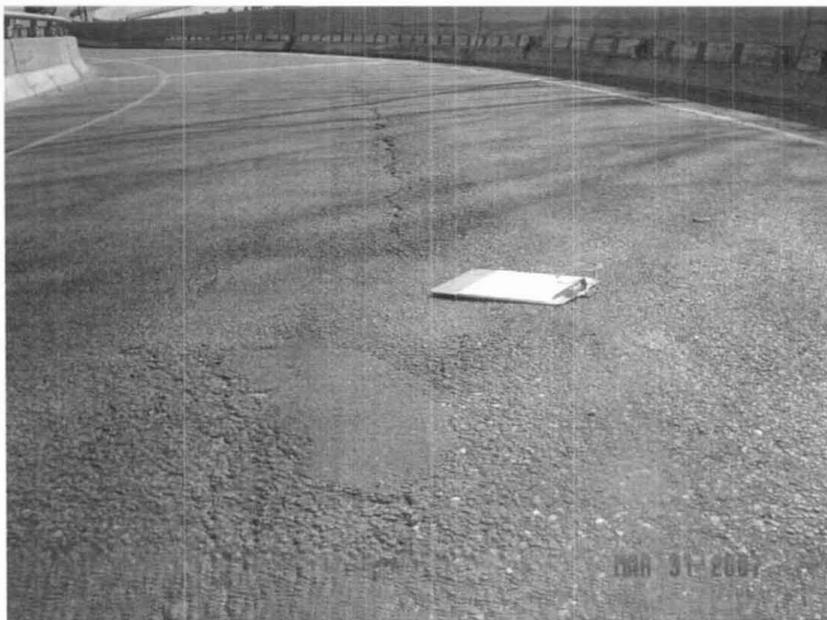


Photo # 11: Uneven overlay and a 1" wide crack with raveling bituminous in span 3.



Photo # 12: Pothole/raveling adjacent to the concrete header in span 1 over pier 2.

Bridge No.	01428D	Inspected by:	Michael R. Jakiel
Town:	Hartford	Inspected by:	Ghasem Moravej
Feature Carried:	Interstate 91 TR 840 (I-91 SB to I-84 EB)	Date Inspected:	03/22/2007
Feature Crossed:	I-91 NB, US Route 44 EB, RR & Connecticut River	Project No.:	170-2357



Photo # 13: Settlement up to 1-1/2" in the sidewalk over pier 4.



Photo # 14: Spall with exposed rebar in the south curb over pier 1.

Bridge No.	01428D	Inspected by:	Michael R. Jakiel
Town:	Hartford	Inspected by:	Ghasem Moravej
Feature Carried:	Interstate 91 TR 840 (I-91 SB to I-84 EB)	Date Inspected:	03/22/2007
Feature Crossed:	I-91 NB, US Route 44 EB, RR & Connecticut River	Project No.:	170-2357



Photo # 15: Short weep draining onto the top of the pier cap (pier 1) from bridge 01428A at the southwest end.

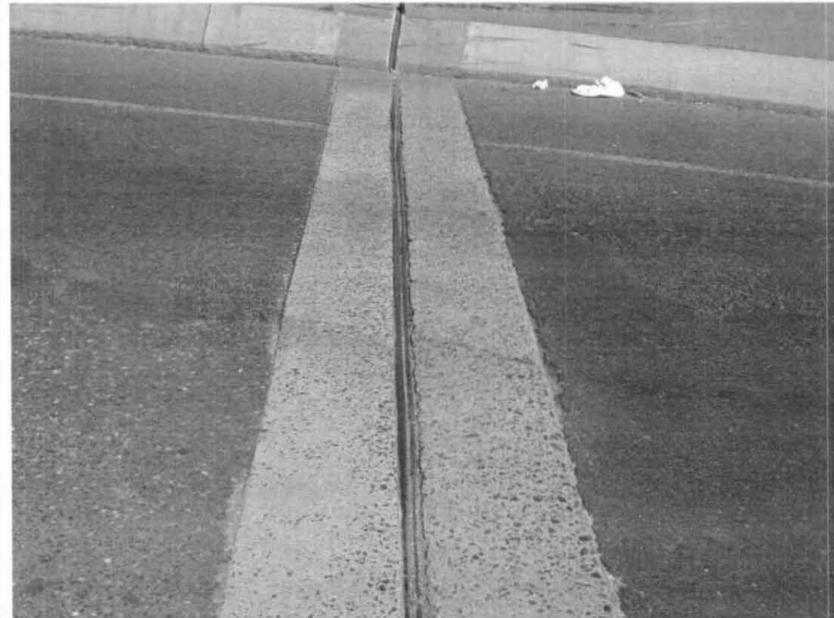


Photo # 16: Typical compression seal joint.

Bridge No.	01428D	Inspected by:	Michael R. Jakiel
Town:	Hartford	Inspected by:	Ghasem Moravej
Feature Carried:	Interstate 91 TR 840 (I-91 SB to I-84 EB)	Date Inspected:	03/22/2007
Feature Crossed:	I-91 NB, US Route 44 EB, RR & Connecticut River	Project No.:	170-2357

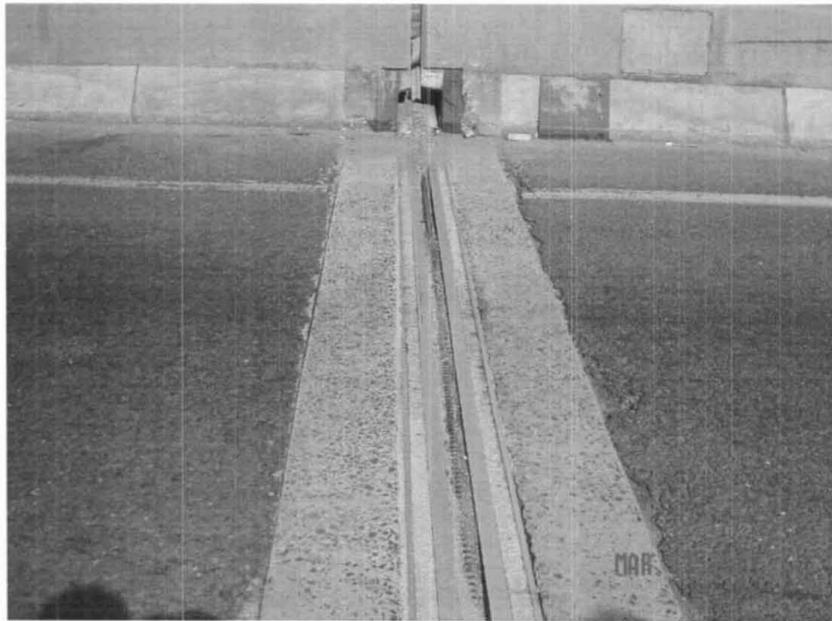


Photo # 17: Typical strip seal joint over pier 5.

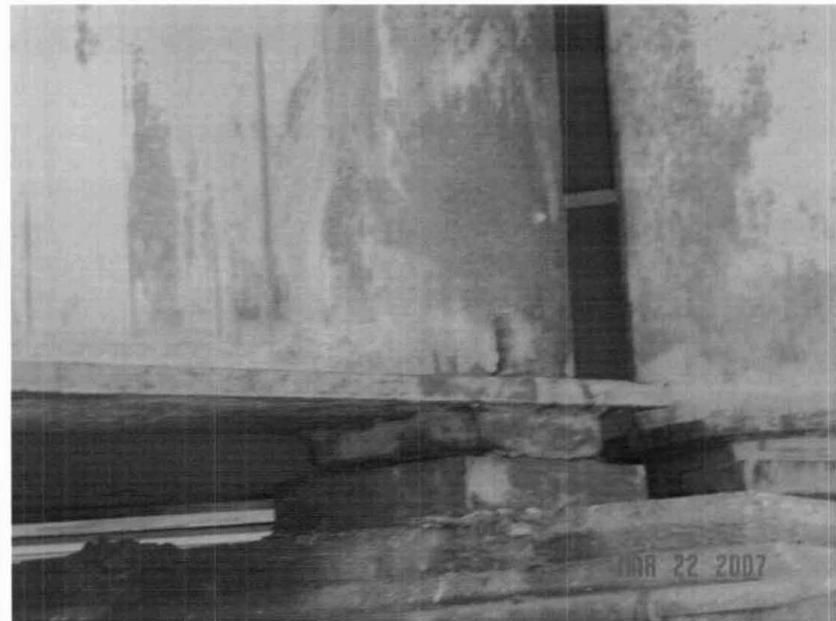


Photo # 18: Typical fixed bearing.

Bridge No.	01428D	Inspected by:	Michael R. Jakiel
Town:	Hartford	Inspected by:	Ghasem Moravej
Feature Carried:	Interstate 91 TR 840 (I-91 SB to I-84 EB)	Date Inspected:	03/22/2007
Feature Crossed:	I-91 NB, US Route 44 EB, RR & Connecticut River	Project No.:	170-2357

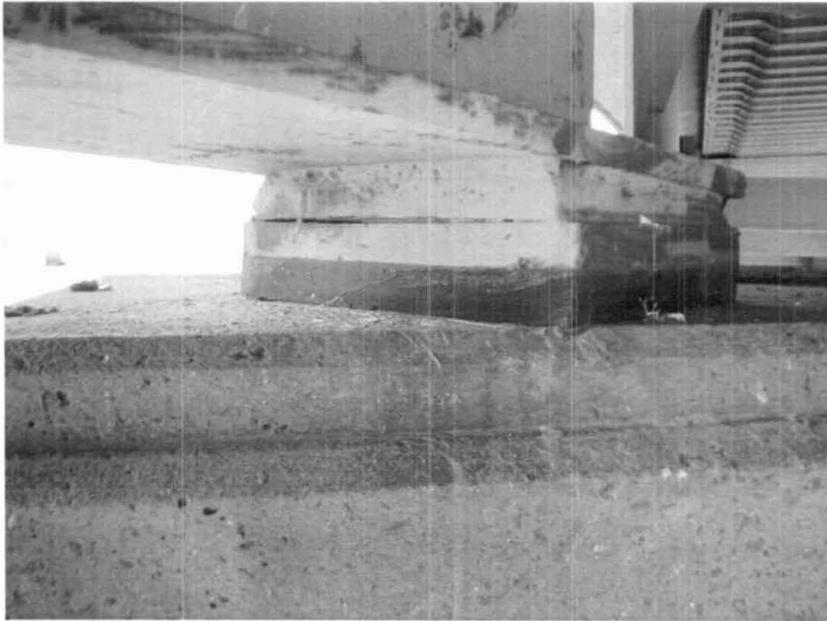


Photo # 19: Typical expansion (elastomeric) bearing.



Photo # 20: Heavy rust and section loss on expansion (elastomeric) bearing plates on pier 5 in span 4.

Bridge No.	01428D	Inspected by:	Michael R. Jakiel
Town:	Hartford	Inspected by:	Ghasem Moravej
Feature Carried:	Interstate 91 TR 840 (I-91 SB to I-84 EB)	Date Inspected:	03/22/2007
Feature Crossed:	I-91 NB, US Route 44 EB, RR & Connecticut River	Project No.:	170-2357



Photo # 21: Heavy rust and section loss on the fixed bearing plates on pier 1 in span 1.



Photo # 22: Spall on column 2 of pier 1 exposing/undermining the masonry plate of the bearing for the steel pier cap.

Bridge No.	01428D	Inspected by:	Michael R. Jakiel
Town:	Hartford	Inspected by:	Ghasem Moravej
Feature Carried:	Interstate 91 TR 840 (I-91 SB to I-84 EB)	Date Inspected:	03/22/2007
Feature Crossed:	I-91 NB, US Route 44 EB, RR & Connecticut River	Project No.:	170-2357



Photo # 23: Section loss in the web of girder 4 on pier 5, north elevation.



Photo # 24: Section loss in the web of girder 5 on pier 1. Also note active leakage on to the steel pier cap.

Bridge No.	01428D	Inspected by:	Michael R. Jakiel
Town:	Hartford	Inspected by:	Ghasem Moravej
Feature Carried:	Interstate 91 TR 840 (I-91 SB to I-84 EB)	Date Inspected:	03/22/2007
Feature Crossed:	I-91 NB, US Route 44 EB, RR & Connecticut River	Project No.:	170-2357

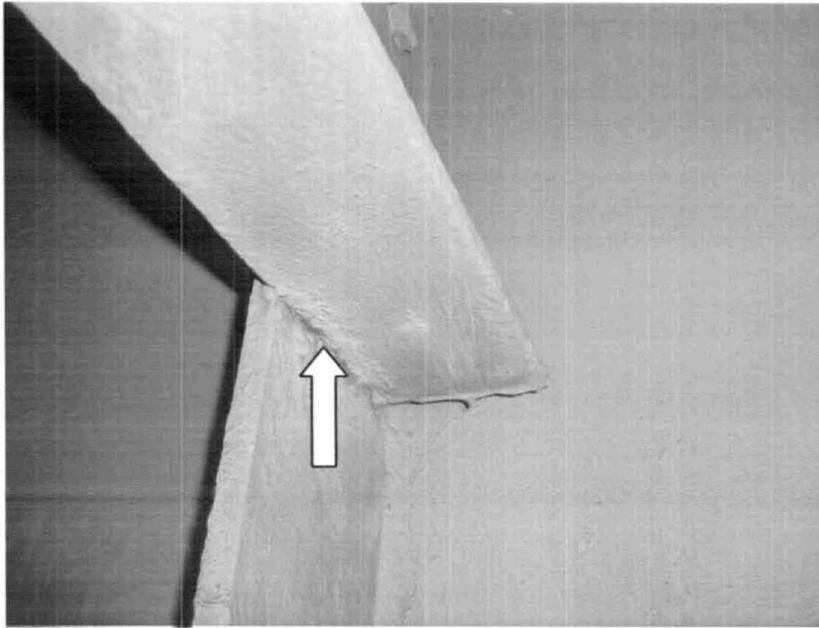


Photo # 25: Sloppy/cracked weld between the web stiffener and diaphragm in span 1 on girder 3.

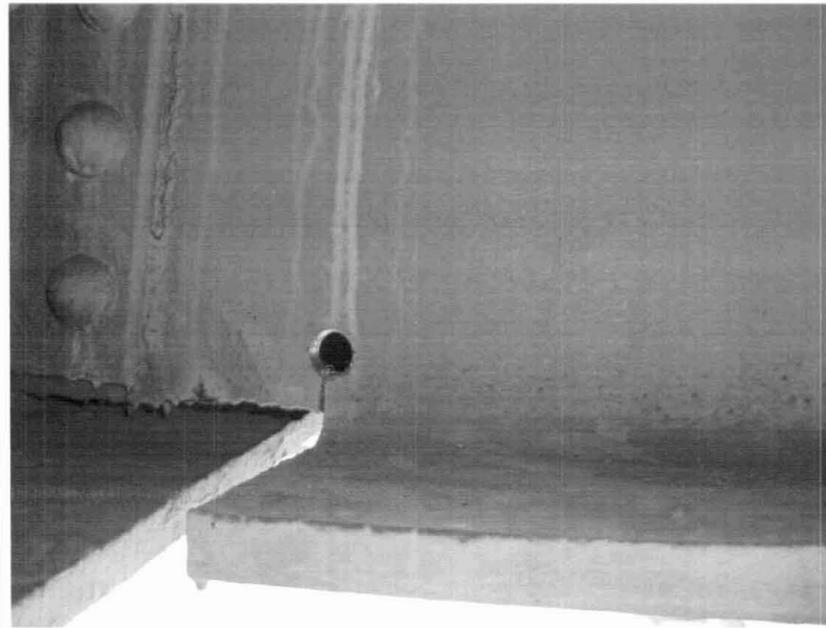


Photo # 26: Crack in web of girder 2 of span 1 at cope, stop hole in place.

Bridge No.	01428D	Inspected by:	Michael R. Jakiel
Town:	Hartford	Inspected by:	Ghasem Moravej
Feature Carried:	Interstate 91 TR 840 (I-91 SB to I-84 EB)	Date Inspected:	03/22/2007
Feature Crossed:	I-91 NB, US Route 44 EB, RR & Connecticut River	Project No.:	170-2357



Photo # 27: Typical elevation of steel pier cap (pier 1).



Photo # 28: East elevation of pier 3 (typical).

Bridge No.	01428D	Inspected by:	Michael R. Jakiel
Town:	Hartford	Inspected by:	Ghasem Moravej
Feature Carried:	Interstate 91 TR 840 (I-91 SB to I-84 EB)	Date Inspected:	03/22/2007
Feature Crossed:	I-91 NB, US Route 44 EB, RR & Connecticut River	Project No.:	170-2357



Photo # 29: Condition of the underside of the steel pier cap (pier 1).

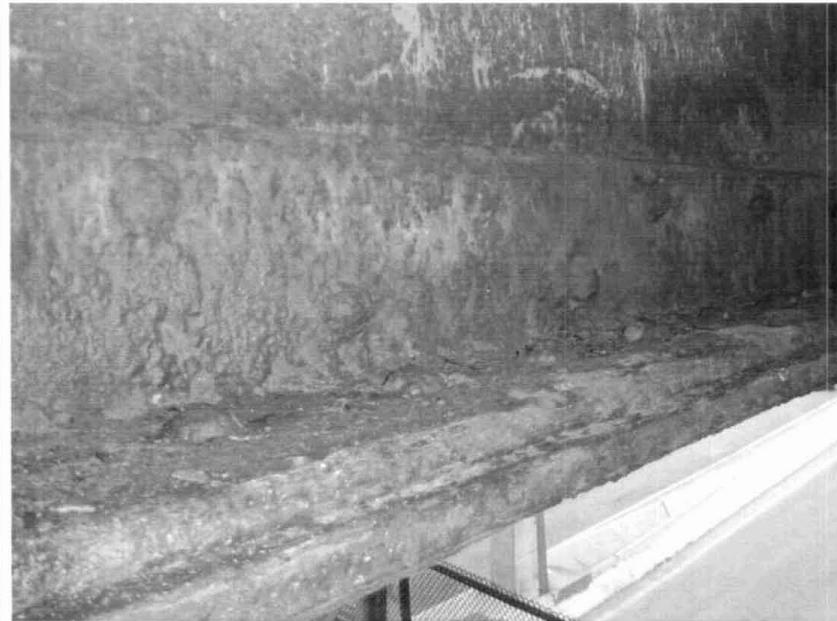


Photo # 30: Heavy rust with section loss in the bottom flange angle and cover plate of the steel pier cap (pier 1).

Bridge No.	01428D	Inspected by:	Michael R. Jakiel
Town:	Hartford	Inspected by:	Ghasem Moravej
Feature Carried:	Interstate 91 TR 840 (I-91 SB to I-84 EB)	Date Inspected:	03/22/2007
Feature Crossed:	I-91 NB, US Route 44 EB, RR & Connecticut River	Project No.:	170-2357

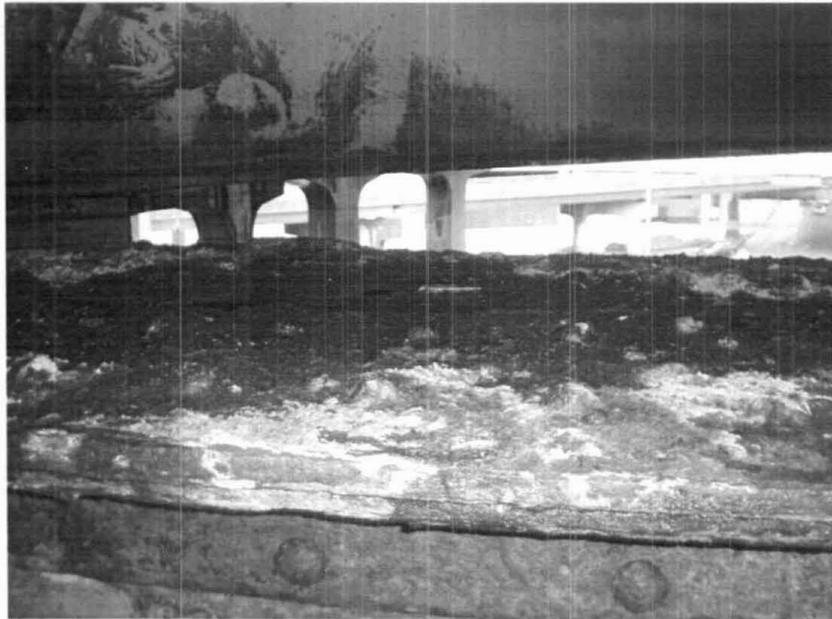


Photo # 31: Heavy laminated rust with section loss in the top flange cover plate of the steel pier cap (pier 1).

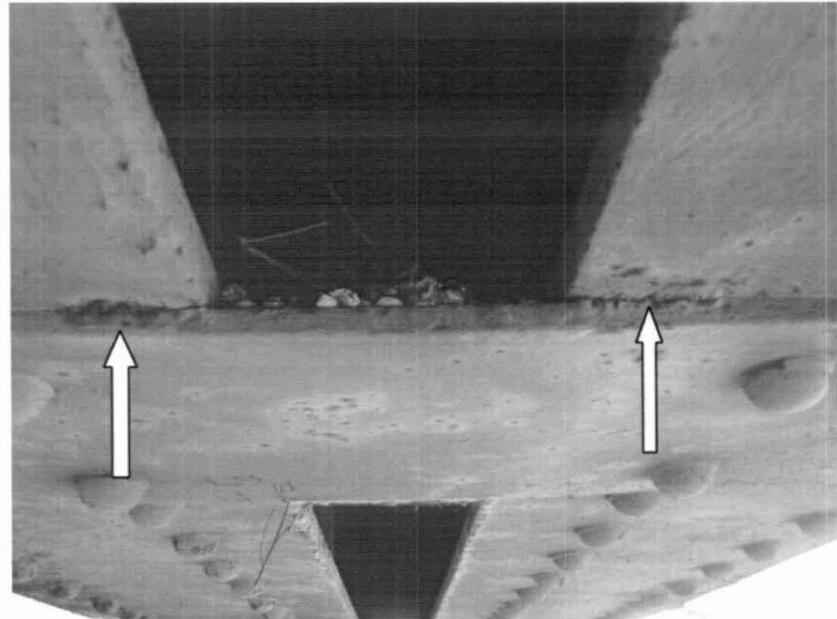


Photo # 32: Typical cracked/broken tack welds between the batten plates and bottom flange cover plate of steel pier cap (pier 1).

Bridge No.	01428D	Inspected by:	Michael R. Jakiel
Town:	Hartford	Inspected by:	Ghasem Moravej
Feature Carried:	Interstate 91 TR 840 (I-91 SB to I-84 EB)	Date Inspected:	03/22/2007
Feature Crossed:	I-91 NB, US Route 44 EB, RR & Connecticut River	Project No.:	170-2357



Photo # 33: Large spall with exposed rebar and section loss on pier 2, column 2 at the west elevation.



Photo # 34: Pier 2 east elevation, column 1 with a large spall with exposed rebar.

Bridge No.	01428D	Inspected by:	Michael R. Jakiel
Town:	Hartford	Inspected by:	Ghasem Moravej
Feature Carried:	Interstate 91 TR 840 (I-91 SB to I-84 EB)	Date Inspected:	03/22/2007
Feature Crossed:	I-91 NB, US Route 44 EB, RR & Connecticut River	Project No.:	170-2357

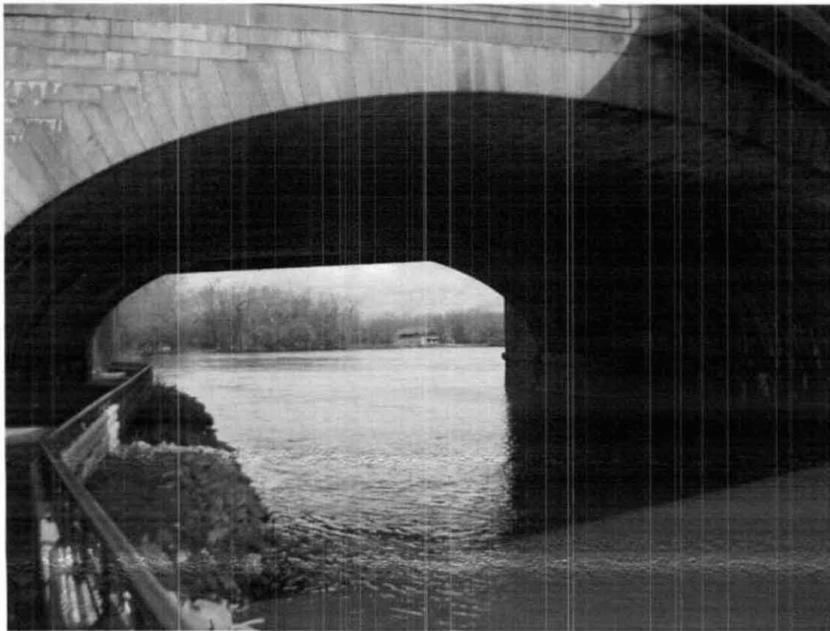


Photo # 35: Looking upstream from bridge.

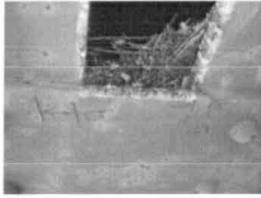
Bridge #00980A in photo (1428D is in upper right corner)



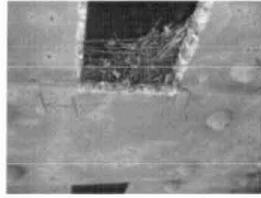
Photo # 36: Looking downstream from bridge.



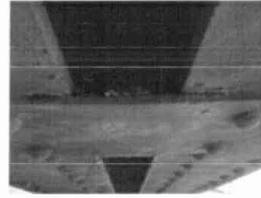
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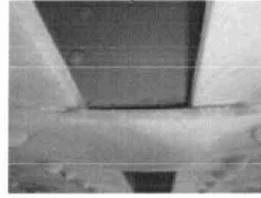
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03-22-2007 (31)

32



03-22-2007 (32)



03-22-2007 (33)

27

27



03-22-2007 (34)



03-22-2007 (35)



03-31-2007-1

2



03-31-2007-1 (1)

3



03-31-2007-1 (2)



03-31-2007-1 (3)

1



03-31-2007-1 (4)

5



03-31-2007-1 (5)

4



03-31-2007-1 (6)

7



03-31-2007-1 (7)

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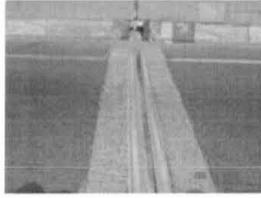


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03-31-2007-1 (9)

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03-31-2007-1 (10)

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03-31-2007-1 (11)



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03-31-2007-1 (14)

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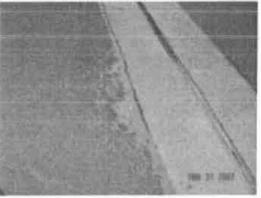


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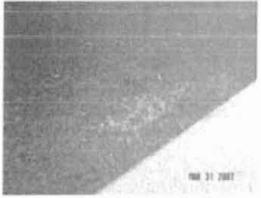
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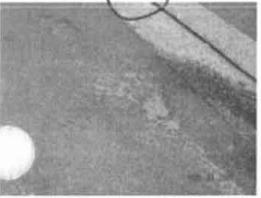
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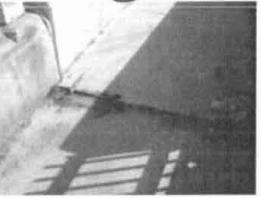
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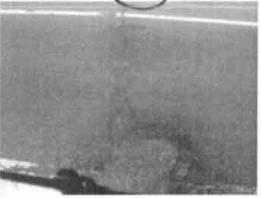


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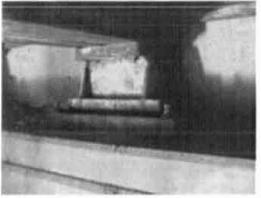


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03-31-2007-2



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04-13-2007 (6)

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04-13-2007 (7)

8



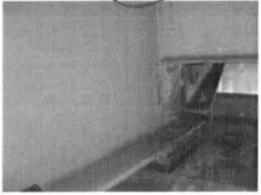
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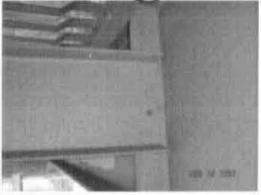
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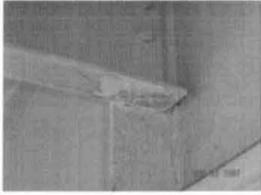
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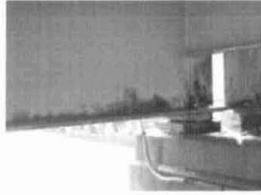
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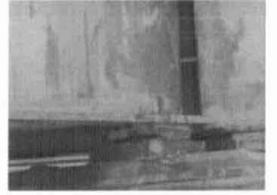
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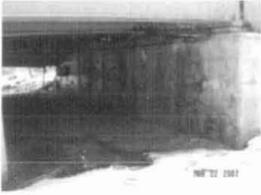


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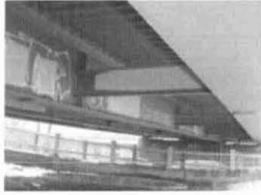
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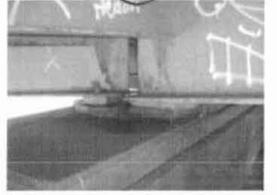
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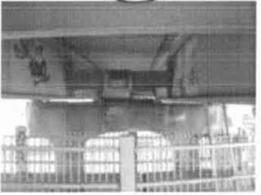
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03-22-2007 (11)



03-22-2007 (12)



03-22-2007 (13)



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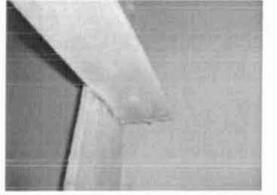
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03-22-2007 (16)

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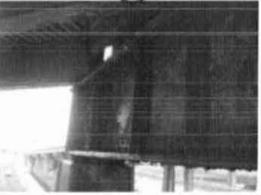


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03-22-2007 (18)



03-22-2007 (19)



03-22-2007 (20)

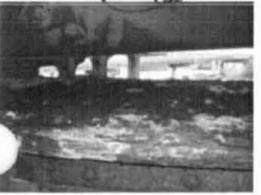
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03-22-2007 (21)

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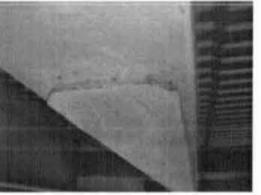
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03-22-2007 (23)



03-22-2007 (24)

22



03-22-2007 (25)



03-22-2007 (26)

15

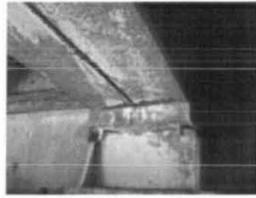


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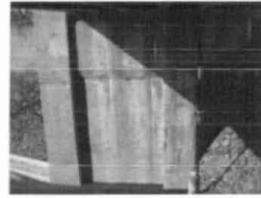
34



03-31-2007-2 (3)



03-31-2007-2 (4)



03-31-2007-2 (5)



03-31-2007-2 (6)



03-31-2007-2 (7)



03-31-2007-2 (8)



03-31-2007-2 (9)



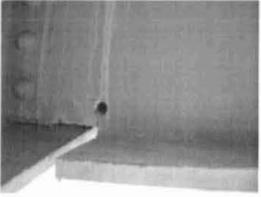
03-31-2007-2 (10)



03-31-2007-2 (11)



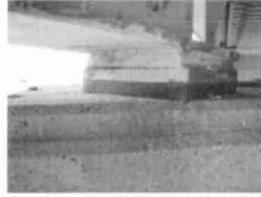
03-31-2007-2 (12)



03-31-2007-2 (13)



03-31-2007-2 (14)



03-31-2007-2 (15)



03-31-2007-2 (16)

26

19

33



04-13-2007

23

BAKER ENGINEERING NY, INC.

BRIDGE # 01428D

ADDITIONAL FIELD NOTES

(BACK-UP MATERIAL)

DATE: 03-22-07

Baker

SUPPLEMENTAL SHEET

JOB NO. 170-1965

BRIDGE NO. 1428D

FIELD ORIGINAL

TRANSCRIBED BY: AR

DATE: 12/3/00

SHEET 11 OF 51

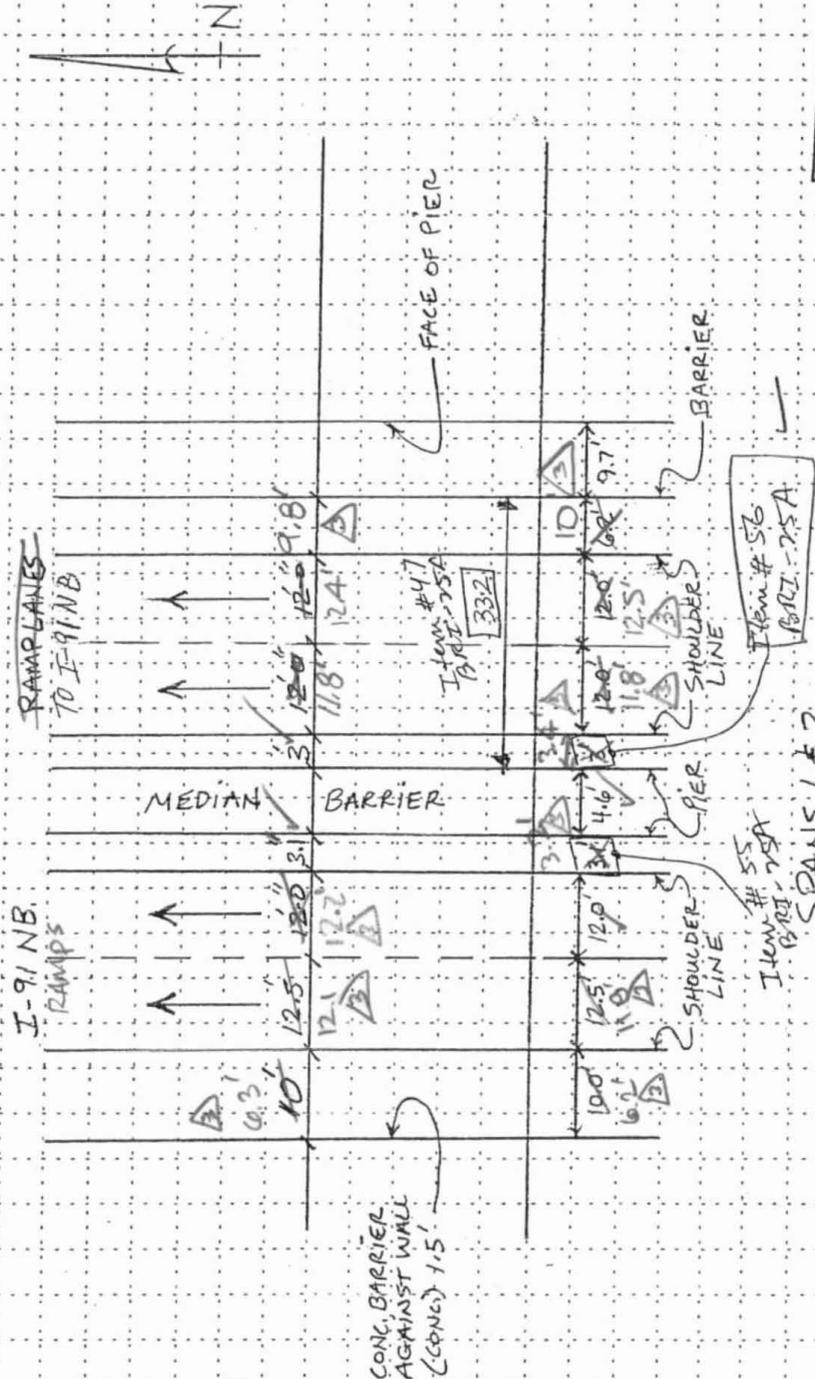
DESCRIPTION: Clearance Diagram

CREW: GM, AR

8/31/04 JMLLV

UPDATE OR REV. NO. Date: 4-28-03
By: ZRI, BNS

DATE	BAKER ENGINEERING	REVISION
8/31/04	JMLLV	



* - ALL VERTICAL CLEARANCES OVER 25'

△ - NO CHANGE

△2 - NO CHANGE

Redrawn

PHOTO LOG

Form BRI-13, Rev. 9/97

Bridge Information System	
Image Inventory	
Bridge No. <u>01428D</u>	Date <u>3/31/2007</u>
Town: <u>HAVLTOWN</u>	Photographer: _____
Carried / Crossed: <u>I-91 Ramp / I-91 & RAMPs</u>	
Film Frame #	Image Description
1	SOUTH ELEV
2	NORTH ELEV
3	u u
4	I-D
5	WEST APP FROM BRIDGE
6	BRIDGE FROM WEST APP
7	EAST APP FROM BRIDGE
8	BRIDGE FROM EAST APP
10	PIER 5 TYP STRIP SEAL JT
11	JT PLATE DISCONNECTED FROM NORTH PARAPET.
9	POTHOLE IN SPAN 5
12	SPALL IN N. PARAPET ADJ TO JOINT OVER PIER 4
13	UNEVEN OVERLAY & ±1/2" WIDE CRACK WITH RAVELLING BIT @ MIDSPAN, SPAN 3
14	COMP SEAL JOINT OVER PIER 3.
15	TYP SCRAPES & GOUGES ALONG PARAPET
16	RAVELLING / WORN BITUMEN IN SPAN 2
17	POTHOLE ADJ TO CONCRETE HEADER, SPAN 1 OVER PIER 2.
18	SPALL WITH EXPOSED REBAR ON SOUT PARAPET OVER PIER 1
19	POTHOLE IN SPAN 1
20	TYP COND OF COMP SEAL JT OVER PIER 1
21	RAVELLING BIT IN WEST APP PARAPET ADJ TO PIER 1
22	SIDEWALK SURFMENT @ PIER 4
23	END OF SPAN 5 STS JT @ PK 960A

PHOTO LOG

Form BRI-13, Rev. 9/97

Bridge Information System	
Image Inventory	
Bridge No. <u>0142BD</u>	Date <u>3/22/2007</u>
Town: <u>HARTFORD</u>	Photographer: _____
Carried / Crossed: <u>I-91 RAMP over RT 44 / RAMP</u>	
Film Frame #	Image Description
1	I. D.
2	GS, SPAN 1, N. ELEV, S.L ON WEB OF BRG.
3	GS, BRG ON PIER CAP, HVY RUST W/SL ON BRG PLATES.
4	CRACKED / SHIPP WELDS BTWN DIAPHR. STIFF (G), S. ELEV (LOWER WELD) SPAN 1
5	EAST FACE OF PIER CAP, HVY RUST W/ NEG SL ON WEBS
6	HVY RUST W/SL ON BOT FLG, STEEL PIER CAP, NEAR MIDSPAN
7	HVY RUST ON STEEL PIER CAP SOUTH OF EAST ELEV
8	TOP CONDITION OF BOT FLG ON STEEL PIER CAP.
9	HVY RUST W/SL ON BOT FLG, STEEL PIER CAP, WEST ELEV.
10	~ ~ ~ TO TOP OF STEEL PIER CAP (RIVET HEAD) WITH S.L.
11	TOP OVER TOP W/ WELDS.
12	SPACE WITH EXPOSED MASONRY PL COLUMN 2 PICK / WEST ELEV
13	S.L. & HVY RUST ON BF OF CAP GIRDER NEAR BRG (OWN COLUMN 2)
14	SHORT WELD DRAWING ON TO TOP OF CAP (FROM BRG # 0142 BA) @ S.W. END
15	Gauge / painted over SCRAP @ IN TOP OF VERT & 2 ND STIFFENER FROM COLUMN 1 (WEST ELEV)
16, 17	BROKEN & CRACKED TACK WELDS @ BOTTOM PL #1 FROM COLUMN #1
18	" " " #2 FROM COLUMN #1
19	1/8" - 3/16" IR DOWN BF (over PL ^{100%} @ MIDSPAN OF PIER 1
20	EAST ELEV OF PIER 2
21	West " "

PHOTO LOG

Form BRI-13, Rev. 9/97

Bridge Information System	
Image Inventory	
Bridge No. <u>1428D</u>	Date <u>03/22/07</u>
Town: <u>HARTFORD</u>	Photographer: <u>SE</u>
Carried / Crossed: <u>I-91 RAMP / I-91 NB</u>	
Film Frame #	Image Description
1	SL ON WEB, G ₁ , 0/P-4, SPAN 3 (S. ELEV.)
2	PITTING LOSS ON WEB @ GIRDER END, G ₃ , 0/P-4, SPAN 3 (N. ELEV.)
3	" " " " " " " " " " " " (S. ELEV.)
4	MISSING BOLT IN DIAPH CONN. TO STIFF, BAY 2, SPAN 3.
5	REPAIRED CRACK IN WELD IN CONN BTWN DIAPH & STIFF, BAY 2, SPAN 3.
6	HVY IAN RUST @ N. ELEV. OF G ₄ , 0/P-3, SPAN 3.
7	MISSING ABS NUT @ N. SIDE OF G ₁ , 0/P-3, SPAN 3.
8	EAST ELEV. PIER 3
9	WEST ELEV. PIER 4
10	EAST ELEV. PIER 4
11	TOP UNDERSIDE, SPAN 3
12	TOP BRG @ PIER 4.
13	LIGHT CONDUIT ATTACHED TO DIAPH IN SPAN 3.
4/13/2007	
1	Girder 4 on Pier 5 with HVY RUST & SL ON WEB @ BF (N. ELEV.)
2	" " " " " " " " " " " " TOP CONDITION OF BRG PLATES @ PIER 5
3	TOP ELEV OF Pier 5 (WEST ELEV)
4	TOP UNDERSIDE OF SPAN 4
5	SOUTH ELEV OF SPANS 4 & 5
6	Looking upstream from BRIDGE
7	Looking downstream from BRIDGE
8	TOP UNDERSIDE OF SPAN 5
9	N.E CORNER OF Pier 5 (TOP CONDITION)

Town: HARTFORD

Bridge: 01428D

I-91 TR 840 over I-91 NB,US44 EB,RR,CT RV

Prepared By: Baker Engineering Date 07/24/2001

Checked By: David Pawlikowski Date 10/23/2001

Structure Type: Four Simple Spans Multiple Steel Stringers..
One Simple Span Multiple Plate Girders..
Simple Span Steel Box Girder Pier Cap..

Deck Width Curb to Curb: 25.00 feet

Deck Width Out to Out: 28.80 feet

Deck Type: Concrete Deck Thickness 7 3/4 inches..
{With Stay-In-Place Forms}..

Wearing Surface 2 1/2 inches of Bituminous Concrete Wearing Surface..

Year Built: 1961

Year Rehab: 1990

Allowable Stresses: Stringers..
Structural Steel ASTM A373 Fy= 33.00 ksi..
Plate Girders and Box Girder Pier Cap..
Structural Steel ASTM A7 Fy= 33.00 ksi..
Span #5 Plate Girder #6..
Structural Steel ASTM A588 Fy= 50.00 ksi..
Concrete Deck..
Concrete Compression Strength f'c= 3.00 ksi..
Composite Construction for Stringers and Plate Girders..
Non-Composite Construction for Box Girder Pier Cap..

Coded: INV 51.3 OP 85.4 L 2001

Span #	Type of Member Analyzed	Member	Member Span Length (Ft)	Beam Spacing (Ft)	Analysis Type	Vehicle Type	Inventory Rating	Inventory Gross Tonnage	Operating Rating	Operating Gross Tonnage
1 ●	Stringer	Interior	67.93	7.44	LF	HS20	28.4	51.3	47.4	85.4
Comments: Analysis for Span #1 Interior Stringer #4.. Load Factor "Serviceability" Analysis for Bending at Approximately 33.97 feet from Centerline of Bearing.. Stringer is Braced and Compact..										
2 ○	Stringer	Interior	54.36	7.74	LF	HS20	30.4	54.7	50.6	91.2
Comments: Analysis for Span #2 Interior Stringer #2.. Load Factor "Serviceability" Analysis for Bending at Approximately 27.18 feet from Centerline of Bearing.. Stringer is Braced and Compact..										
3 ○	Stringer	Interior	68.83	7.76	LF	HS20	31.4	56.4	52.2	94.1
Comments: Analysis for Span #3 Interior Stringer #2.. Load Factor "Serviceability" Analysis for Bending at Approximately 34.42 feet from Centerline of Bearing.. Stringer is Braced and Compact..										

Stringer	Fascia	42.77	7.19	LF	HS20	46.8	84.3	78.0	140.4
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Comments: Analysis for Span #4 Fascia Stringer #4..

Load Factor "Serviceability" Analysis for Bending at Approximately 21.39 feet from Centerline of Bearing..

Stringer is Braced and Compact..

Plate Girder	Interior	141.55	6.23	LF	HS20	60.0	108.2	100.2	180.3
--------------	----------	--------	------	----	------	------	-------	-------	-------

Comments: Analysis for Span #5 Interior Plate Girders #2 thru #4..

Load Factor "Ultimate Strength" Analysis for Moment-Shear Interaction at Approximately 13.78 feet from Centerline of Bearing..

Plate Girders are Braced and Compact..

Comments

From: Paul McGuinness
To: Moravej, Ghasem
Date: 3/23/2007 3:37 PM
Subject: Fwd: FW: Baker's Proposed Detour for Br. 1428D Ramp closure

CC: Jakiel, Michael; Kristoff, William; sandra.dumas@po.state.ct.us; Stat... Ghasem,

Please have someone check out this proposed alternative detour route early next week to verify any additional signage needed. Show the existing and recommended additional signage in a sketch and send to CDOT for final approval.

Assuming we get approval by Thursday then confirm access equipment, prepare signs and order police, look into whether local police are needed for around Airport Road. Choose the day that has the best weather forecast.

Paul

>>> "Dumas, Sandra A." <Sandra.Dumas@po.state.ct.us> 3/23/2007 1:08 PM >>>

-----Original Message-----

From: LaLone, Michael W.
 Sent: Friday, March 23, 2007 12:27 PM
 To: Statchen, Ned T.
 Cc: Dumas, Sandra A.; Harlow, Charles S.; Williamson, Peter E.
 Subject: FW: Baker's Proposed Detour for Br. 1428D Ramp closure

This office has reviewed the proposed detour and would recommend that Exit 27 (Airport Road) be used in place of the proposed detour. The detour would be Exit 27 left at end of the ramp, right onto Brainard Road then right onto Route 15. Existing route signing should be in place however it should be reviewed to confirm and additional temporary signs installed as needed. Using this detour would eliminate motorist following the existing guide signs traveling in the left lane for the (left exit to I-84 E) and comprehending detour signs to exit on the right.

-----Original Message-----

From: Williamson, Peter E.
 Sent: Friday, March 23, 2007 10:01 AM
 To: LaLone, Michael W.
 Subject: RE: Baker's Proposed Detour for Br. 1428D Ramp closure

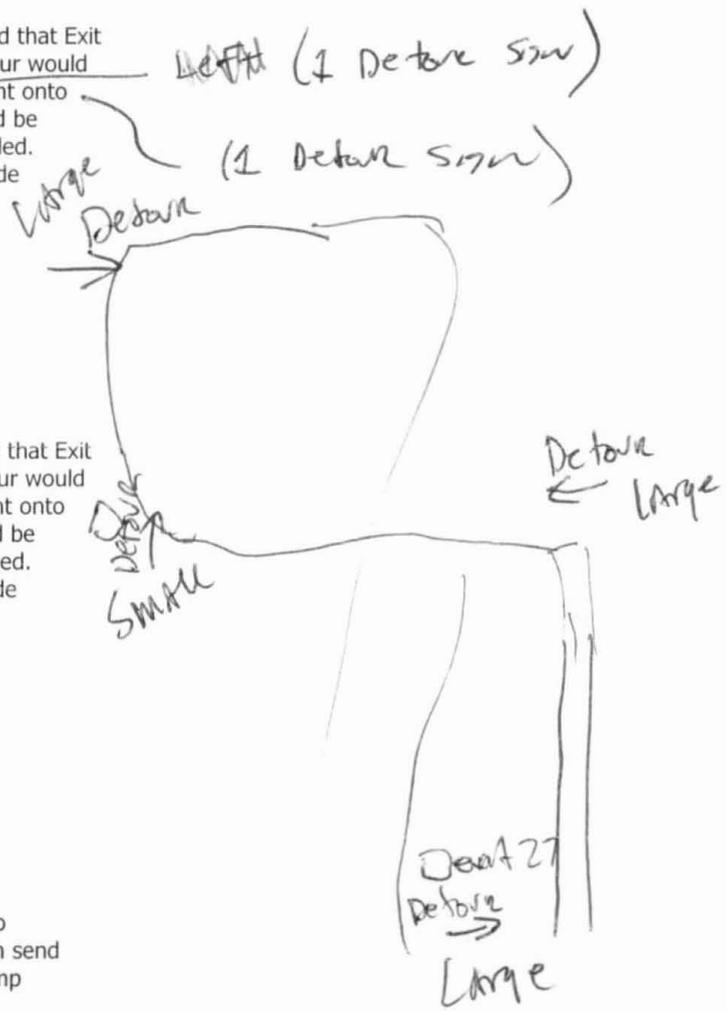
This office has reviewed the proposed detour and would recommend that Exit 27 (Airport Road) be used in place of the proposed detour. The detour would be Exit 27 left at end of the ramp, right onto Brainard Road then right onto Route 15. Existing route signing should be in place however it should be reviewed to confirm and additional temporary signs installed as needed. Using this detour would eliminate motorist following the existing guide signs traveling in the left lane for the (left exit to I-84 E) and comprehending detour signs to exit on the right.

-----Original Message-----

From: LaLone, Michael W.
 Sent: Thursday, March 22, 2007 12:40 PM
 To: ; Fogarty, Tracy L.
 Cc: Dumas, Sandra A.; Harlow, Charles S.; Williamson, Peter E.
 Subject: RE: Baker's Proposed Detour for Br. 1428D Ramp closure

Hey Ned that would be mine.

This is the first I've seen this detour, it seems it may be difficult to do as illustrated. Let me have someone take a look at it, perhaps we can send people to the Airport Road exit instead, we've used that for other ramp



closures in the I-84/I-91 interchange.

-----Original Message-----

From: Statchen, Ned T.
Sent: Thursday, March 22, 2007 11:48 AM
To: Fogarty, Tracy L.; LaLone, Michael W.
Cc: Dumas, Sandra A.
Subject: FW: Baker's Proposed Detour for Br. 1428D Ramp closure

Tracey & Mike,

I'm not sure who has Hartford regarding detour/ramp closure approval. Bridge Safety needs to close the exit ramp to do bridge inspection work. We have done this same closure the last few inspections without incident. Let me know if you need any additional information and if the detour is OK. Thank You.

Saturday 3/31/07 6:00AM-10:00AM Hartford Br.#01428D Ramp closure and Detour from I-91SB to I-84 EB and right and left lane closures on I-91 NB (between exits 27-28)

I-91 TR 84 I-91 NB, US route 44EB, Amtrak RR and CT. River Baker 1
60' snooper, crash trucks and cube truck State troopers

Ned T. Statchen - Trans. Engineer III
CT DOT-Bridge Safety & Evaluation
Phone: (860)594-3169 / Fax: (860)594-3175
email: ned.statchen@po.state.ct.us

-----Original Message-----

From: Paul McGuinness [<mailto:PMCGUINNESS@mbakercorp.com>]
Sent: Tuesday, March 20, 2007 5:07 PM
To: Ned Statchen; sandra.dumas@po.state.ct.us
Cc: Ghasem Moravej; William Kristoff
Subject: Baker's Proposed Detour for Br. 1428D Ramp closure

Ned,

See attached for our proposed Detour for the I-91 TR840 Ramp (from I-91 SB to I-84 EB) closure, Sat. 3/31/07 (Sunday contingency day). We will also utilize the VMS signs on I-91 SB, north of Hartford to notify traffic of the Ramp closure and the Exit 32 Detour. Our planned TC is shown in our 2-week schedule submitted last week.

Please let us know if this plan is acceptable or if we need to make any modifications. This is how we performed the same inspection in Dec. 2000.

Thank you.

Paul

Paul McGuinness, PE

Project Manager
Baker Engineering
2096-B Silas Deane Highway
Rocky Hill, CT 06706

Ph. 860-257-2411
Cell: 860-205-4247



Fax Transmittal Letter

2096-B Silas Deane Highway
Rocky Hill, CT 06067

Telephone (860) 563-3044
Fax Number (860) 529-6627

To: Captain Hogan
Company: HTFd. Police Dept.
Fax No: 722-6140
From: Paul McGuinness
Date: 11/17/00
Subject: CDOT Biennial Bridge Inspection
Contract: 170-1965
Project Number: 24179

Total Number of Pages 2 Including Transmittal Pages

Message: Captain Hogan,

Baker Engineering is planning to close the Exit 30 I-91 SB Ramp (I-91 SB to I-84 EB) on Sunday 12/3/00 From 5AM to 2:00PM (Sunday 12/10/00 - rain date).

We are coordinating this with CDOT & State Police and will need to detour traffic via city streets as shown in the attached sketch.

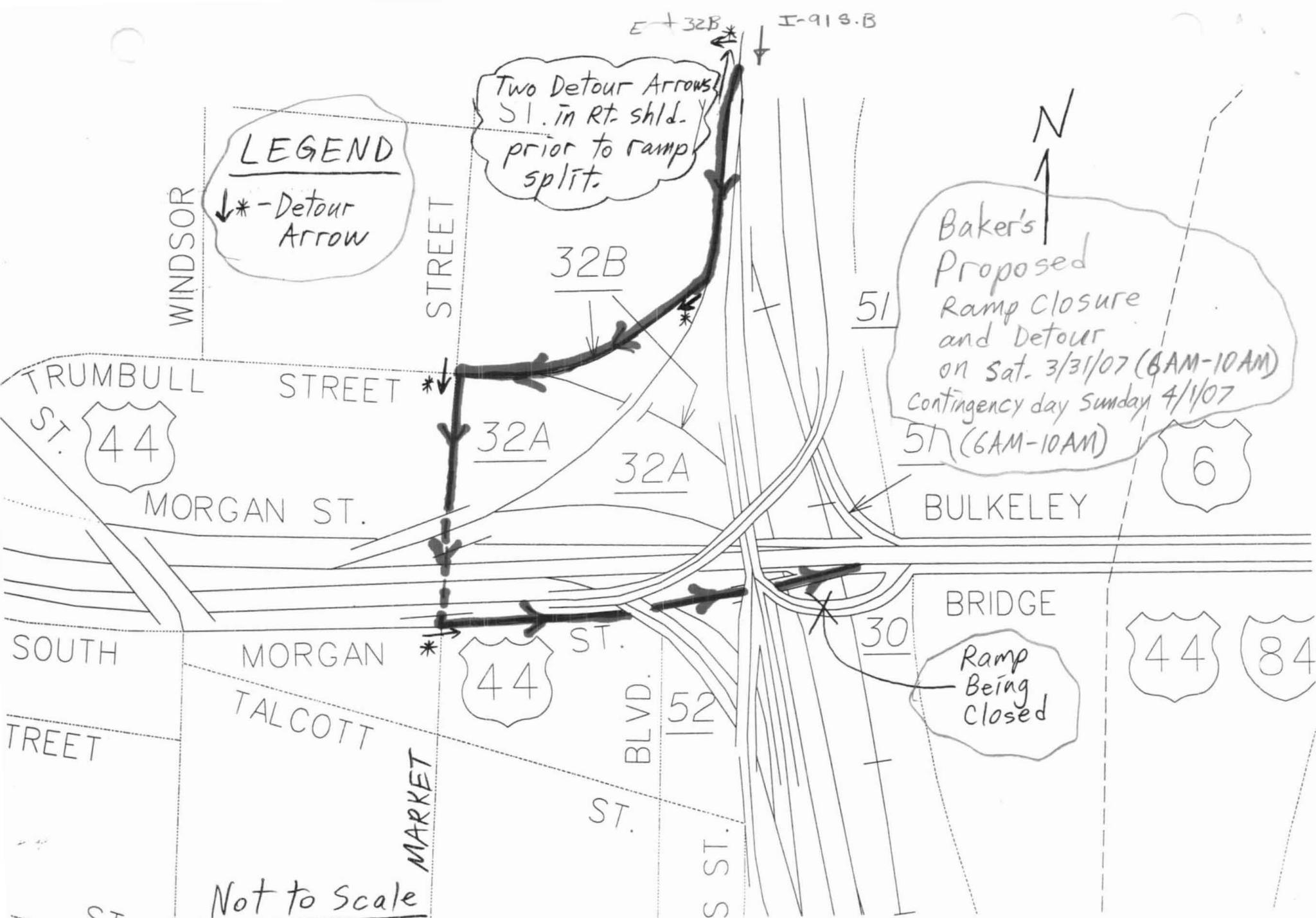
Please let me know if there are any conflicts or special requirements (ie. hiring local police) today. I will be away from 11/20-11/28/00 during which time you can ask for Mr. Ghasem Moravej.

Please contact our office if you did not receive the number of pages indicated

Thank you for your assistance.

cc: Br 1428D File

Paul McGuinness



Downtown Htfd. City streets Detour

S.O. No. _____

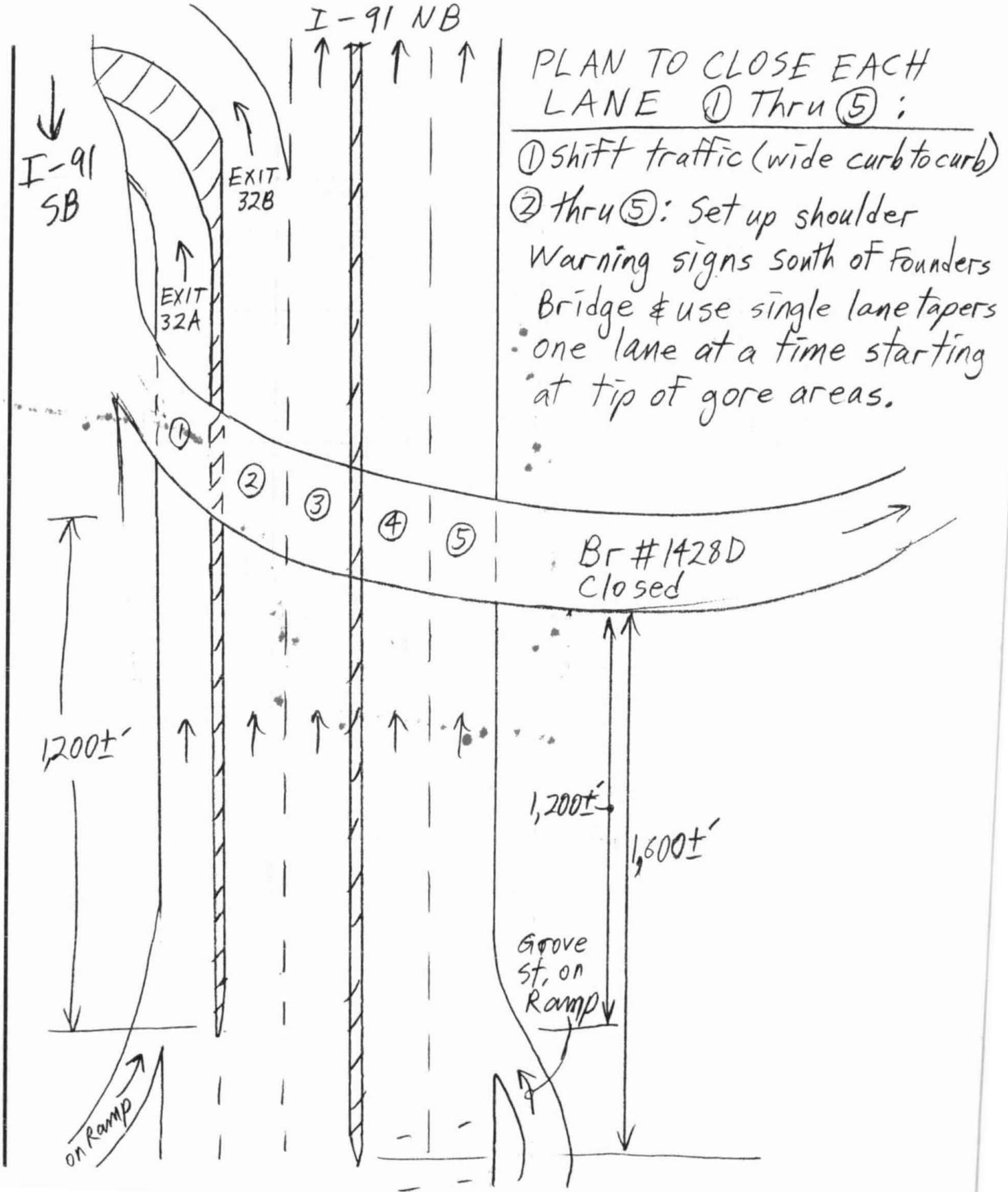
Subject: _____



Sheet No. _____ of _____

Drawing No. _____

Computed by _____ Checked By _____ Date _____



PLAN TO CLOSE EACH LANE ① Thru ⑤ :

- ① shift traffic (wide curb to curb)
- ② thru ⑤: Set up shoulder Warning signs south of Founders Bridge & use single lane tapers one lane at a time starting at tip of gore areas.



Fax Transmittal Letter

2096-B Silas Deane Highway
Rocky Hill, CT 06067

Telephone (860) 563-3044
Fax Number (860) 529-6627

To: Sandra Dumas

Company: CDOT

Fax No: 07

From: Paul McGuinness

Date: 10/13/00

Subject: CDOT Biennial Bridge Inspection

Contract: 170-1965

Project Number: 24179

Total Number of Pages 3 Including Transmittal Pages

Message: See attached,

CC: CF-24179

GM

Br #1428 D File

PDM

Please contact our office if you did not receive the number of pages indicated.

2096-B
Silas Deane Highway
Rocky Hill, Connecticut 06067

(860) 563-3044
FAX (860) 529-6627

Main Office:

400 Executive Boulevard
Elmsford, New York 10523
(914) 333-5300
FAX (914) 333-5370

Memo**To: Sandra Dumas****From: Paul McGuinness****Date: 10/13/00****Subject: Traffic Control and Inspection Plan for Indepth Inspection of Bridge #1428D**

Sandra,

As I explained earlier today on the phone, Baker is planning our inspection of the subject bridge which will require lane closures on every lane below.

This bridge carries a one lane ramp from I-91 SB to I-84 EB in downtown Hartford. This bridge has been inspected in the past with snooper and we recommend the same for most of the spans. The snooper will take up to 10 feet of the ramp's curb to curb width. We have calculated that a standard 8.5' wide tractor trailer would occupy a 10.5' path width at the 180+/-' radius of this structure. The curb to curb width on the curved portion of this bridge is approximately 25'. Thus, although physically doable it would be fairly tight and would require significant speed reduction of tractor trailers (no wide loads). The 1998 inspection by State forces utilized a 40' snooper on the ramp on a Sunday and Monday, but did not specify if ramp was open both days. The inspectors (Steven Jaronczyk and James Jones) should be contacted for advice on traffic control.

According to our field recon, there are 5 highway and 2 local road lanes below this bridge. The highway lanes are all I-91 NB mainlines or ramps off of I-91 NB (see attached sketch). We propose to close one lane at a time on the four main line lanes and shift traffic on the lane leading to I-84 on a weekend day starting early in the morning (utilizing a police officer on the ramp and another one for lane closures below). While each lane is closed the snooper will inspect the superstructure above. We propose to inspect the portion of this bridge over the local roads with local police and vanlift on a weekday.

Please review and comment on our proposal and let us know of any required revisions and time restrictions. Note that, per scope, our inspection should start by 11/13/00 and we need to submit our schedule for this period by Friday 10/27/00.

Please call me if you have any questions.

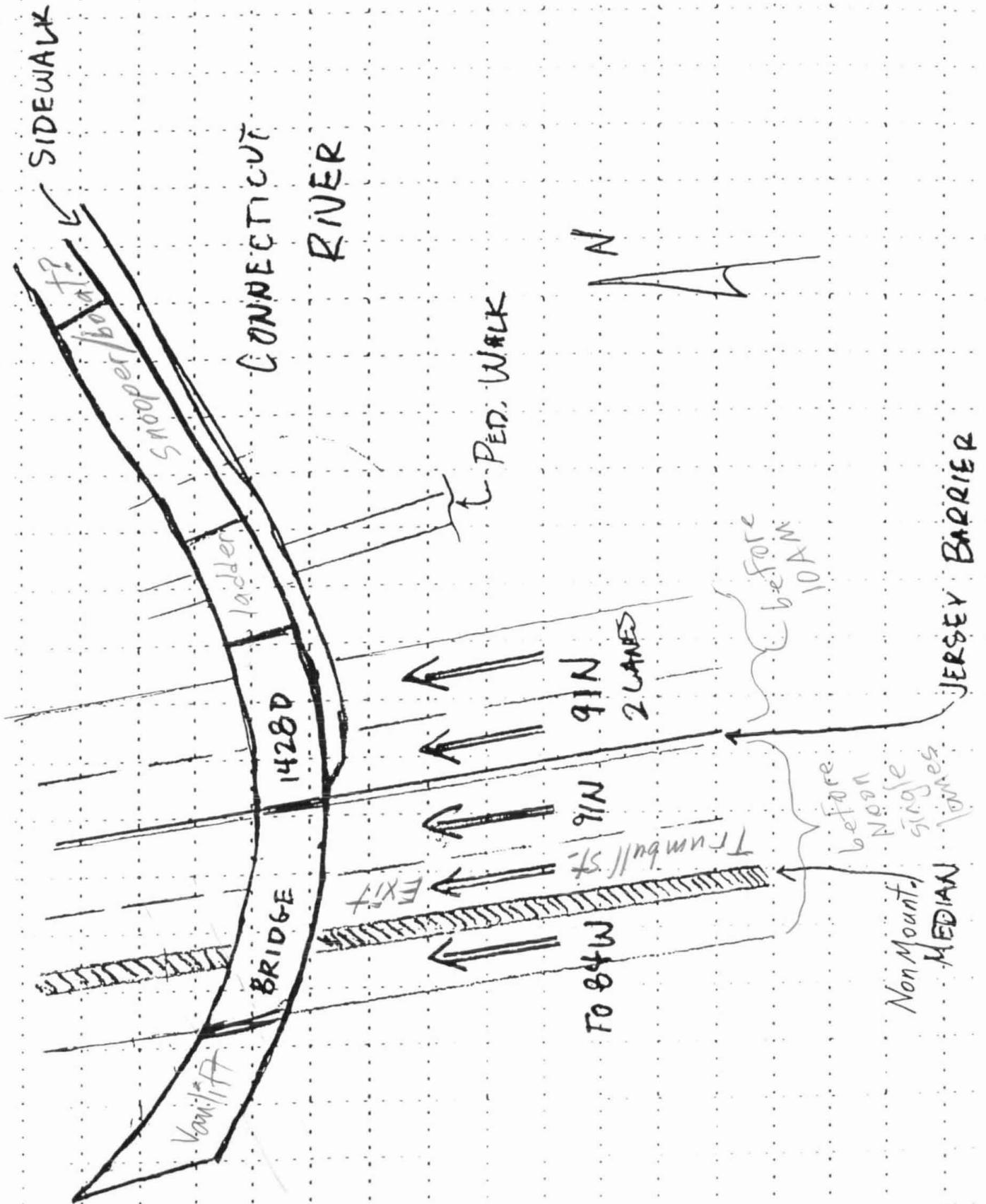


Paul McGuinness

cc: CF-24179, GM



CREW:



Mail Message

[Close](#)[Next](#)[Delete From This Mailbox](#)[Delete From All Mailboxes](#)[Properties](#)

From: Paul McGuinness
To: GATEDOM.gwia:po.state.ct.us:lisa:novak, GATEDOM.gwia:po.state.ct.us:sandra:dumas
CC: Ghasem Moravej
Date: Friday - November 17, 2000 9:55 AM
Subject: Br#1428D Ramp Closure - Hartford

Lisa,

This email is to confirm the adjustments to your November 9, 2000 letter (traffic control requirements), which we agreed to today on the phone.

- Baker plans this closure for Sunday 12/3/00 (Sunday 12/10/00 - rain date).
- Both the ramp closure and single lane closures on I-91 will be permitted until 2:00 PM (not 10:00AM).
- The three permanent VMS signs north of the ramp and VMS signs south of the ramp will be used in lieu of portable VMS signs.
- Double lane closures on I-91 NB will not be possible due to local on/off ramps. Instead generic shoulder caution signs will be placed in each shoulder of I-91 NB starting approximately 1.5 to 2 miles before the closure. These signs and the VMS signs will indicate "lanes closed ahead". Then individual lanes will be tapered off with arrows one at a time.
- State police will be utilized for both the ramp and I-91NB closures.
- Baker is coordinating the City street detour with the City of Hartford.

If you have any questions, please call me or Ghasem Moravej a 1-860-563-3044.

Paul McGuinness