STRUCTURE NO. 00908

US ROUTE 202
over
BANTAM RIVER
LITCHFIELD

Routine Inspection
on
3/28/2006

Inspected by 00908
for Area 5

TEAM:	Forwarded to Senior	Keith DeBishop	Date	4-5-2006
SENIOR:	Reviewed by Senior	RKD	Date	4-20-06
	BMM Required	NO		
	Town Bridge	NO		
	Rating <= 5 (Items 58,59,60 or 62)	Yes		
	Forwarded to Supervisor	TDL	Date	4-25-06
	Forwarded to "To Be Copied Drawer"	☐	Date	
	Date BRI-19 Entered	4-20-06		
SUPERVISOR:	Reviewed by Supervisor	TDL	Date	4/25/06
SUPPORT:	Date Copies Made	5-30-06	BMM No	Trans

NBI: Yes

BRIDGE SAFETY & EVALUATION

LIST 99 - BRIDGE 00908

Bridge No:	00908	***Town:***	LITCHFIELD	***Area:***	5	***Deck:***	6
Feature Carried:		US ROUTE 202		***NBI?***	Yes	***Superstructure:***	4
Features Intersected:		BANTAM RIVER		***Sufficiency Rating***	49.3	***Substructure:***	6
Year Built:	1931	***YearRebuilt:***	0000	***Main Material & Design:***	1 1	***Culverts:***	N
List #:	99					***Structural Evaluation:***	4
Submitted By:	RKD			***Project #:***		***Scour Rating:***	3
Date Submitted:	4/25/2006			***Advertising Date***			
Reviewed By:	TDL						
Date Submitted to Design:							

Problems and General Condition:

Underside exhibits spalls, hollow areas, exposed rebars with laminar rust, and upto 24 percent deterioration.

Substructure is scour critical.

Other Related Projects:

Recommendations:

Bridge Replacement	Superstructure is poor. Substructure is scour critical.

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

INSPECTION REPORT TRANSMITTAL FORM
Form BRI-27, Rev. 6/00

Structure No.	00908	Town	LITCHFIELD
Inspection Date	3/28/2006	Inspectors	Team 5

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Loose Forms (not bound in report)

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Flagging Memos		0
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Plan Sheets	Already on file ☐	0

Bound Report Pages

Title Cover Sheet		1
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Field Notes		0
Calculations:	Load Rating Evaluation	0
	Quantities & Cost Estimate	0
Photo Sheets		11
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Forms

BRI-10, Concrete Deterioration Worksheet	1
BRI-18, Bridge Inspection Form	5
BRI-19, Highway Bridge Inventory Form	2

Comments:

(5) Attached Sheets.

Bridge Number **00908**

Inspected By: P. Talmont & K. Weir

Sufficiency Rating 64.85

Previous Inspection Date 4/19/04

BS&E Received ☐ Data Entry By: RKD

Copies Made ☐ Data Entry Date: 4/20/06

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION
BRIDGE SAFETY & EVALUATION

STRUCTURE EVALUATION

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

SHEET 3 OF 15 (INSP. REPORT)

90) Inspection Date	Inspection Team	91) Frequency	Class
03/28/06	5 05	24	01

Indepth Insp	Deck Survey	Access	Flagman
1/24/02	12/27/93	0	0

CRITICAL FEATURE INSPECTIONS

	Type	Frequency	Team	Date
Fracture:				
Uwater:				
Special:				

RED FLAG

IDENTIFICATION

Bridge Name

Town Name LITCHFIELD Town Code 43370

5) Inventory Route:

A) Record Type 1 D) Route Number 00202

B) Signing Prefix 2 U.S. Numbere E) Directional Suffix 0 NA

C) Level of Service 1 Mainline

6) Feature Intersected BANTAM RIVER

7) Facility Carried US ROUTE 202

9) Location .75 MI E OF JCT RTE 63

11) Milepoint 39.21 Miles

16) Latitude 41 deg 45 min 24.00 sec deg min sec

17) Longitude 73 deg 10 min 54.00 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 1 Concrete B) Design Type 1 Slab

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 2 Preformed Fabric

C) Type of Deck Protection 0 None

AGE AND SERVICE

27) Year Built 1931 106) Year Reconstructed 0000

42) Type of Service:

A) On 1 Highway B) Under 5 WATERWAY

28) Number of Lanes:

A) On 2 B) Under 0

29) Average Daily Traffic 9700 008700 Half ADT?: No

109) Percent Truck 6 %

30) Year of ADT 2002 2004

19) Bypass, Detour Length 1 miles

GEOMETRIC DATA

48) Length of Max Span 20 ft

49) Structure Length 68 ft

50) Curb or Sidewalk Widths:

A) Left 1.0 ft B) Right 1.0 ft

51) Brg Rdwy width,curb-curb 30.0 ft

52) Deck Width, Out-Out 34.0 ft

32) Approach Roadway Width 40 ft

33) Bridge Median 0 No Median

Deck Area 2312 sqft

34) Skew Angle 0 deg

35) Structure Flared 0

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

47) Log Inv. Rte. Total Horiz Clr.: 30.0 ft

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

53) Min Vert Clearance Over Bridge 99 ft 99 in

54) Min Vert Under Clearance N Ref 0 ft 0 in Ref

55) Min Lat Under Clearance on Right N Ref 99.9 ft Ref

56) Min Lat Under Clearance on Left 0.0 ft

BRIDGE COMMENTS

STRUCTURE EVALUATION

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

SHEET 4 OF 15 (INSP. REPORT

Bridge Number	00908	NBIS Length
Town Name	LITCHFIELD	Yes 68
Facility Carried	US ROUTE 202	
Feature Crossed	BANTAM RIVER	

Inspected By: P. Talmadge & K. Weir

CLASSIFICATION

112) NBIS Bridge Length	Yes	
104) Highway System	1	On System
26) Functional Class	2	Rural Principal Arterial - Other
100) Defense Highway	1	Defense Highway
101) Parallel Structure	N	No parallel structure exists
102) Direction of Traffic	2	2-way traffic
103) Temporary Structure		
110) Designated National Network	0	Not 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	6705	
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		Navigation protection not required

PROPOSED IMPROVEMENTS

75A) Type of Work Proposed		Replacement - incidental widening
75B) Work Done By		Work done by contract
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	0	Other warning signs			
Other Posted Signs 2	0				
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					

LOAD RATING AND POSTING

31) Design Load	4	Evaluation Code	L	
63) Operating Rating Type	1	Year of Evaluation	1998	
64) Operating Rating	59.0	70) Bridge Posting	5	
65) Inventory Rating Type	1	41) Structure Status	A	
66) Inventory Rating	35.0	Open, no restriction		

CONDITION

	Rating	By
58) Deck	6	DT
59) Superstructure	5	4 DT
60) Substructure	6	DT
61) Channel & Chan. Protection	5	DT
62) Culverts	N	DT

APPRAISALS

	Rating	By
67) Structure Evaluation	5	4 RKD
68) Deck Geometry	3	DT
69) Under Clear Vert & Horiz	N	DT
71) Waterway Adequacy	5	DT
72) Approach Rdwy Alignment	8	DT
113) Scour Critical	3	

Items 58 Thru 72 Checked By:

36) Traffic Safety Features:

A) Bridge Railings	0	/
B) Transitions	0	/
C) Approach Guardrail	1	/
D) Approach Guardrail End	1	/

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	2012
Senior	debishopk
Supervisor	lapierretd

REVIEWED BY RK De Bishop Date 4-20-06

Connecticut Department of Transportation
Bridge Inspection Report BRI-18

BRIDGE #: 00908 **INSPECTION DATE:** 3/28/2006

INSPECTION TYPE: Routine **PREVIOUS INSPECTION DATE:** 4/19/2004 **SNOOPER REQUIRED:** No
INSPECTION PERFORMED BY: Team 5 **SNOOPER USED:** No

TOWN: LITCHFIELD **FEATURE CARRIED:** US ROUTE 202 **YEAR BUILT:** 1931
LOCATION: .75 MI E OF JCT RTE 63 **FEATURE INTERSECTED** BANTAM RIVER **YEAR REBUILT:** 0
MAIN MATERIAL: Concrete **MAIN DESIGN:** Slab

INSPECTION VISITS:
Inspection Date: 3/28/2006 **Start Time:** 11:00 AM
Temperature: 49 °F **End Time:** 1:45 AM

INSPECTORS:
Inspector: D. Talmont **Task:** Routine Inspection
Inspector: K. Weir **Task:** Routine Inspection

58. DECK

Reinforced Concrete Slabs **OVERALL RATING** 6

	RATING	
OVERLAY	6	Bituminous Concrete With Membrane. Overlay shows longitudinal crack / separation along cold joint in the south bound lane. Also, random transverse and isolated longitudinal cracks open up to 1 inch with pavement heaved around cracks in span # 2. The most recent overlay does not extend full width between railbases. The pavement at both shoulders is uneven and some areas have heaved. Approximately 9 inches +/- of bituminous concrete over slabs. Measured depth along the 4 inch pipe drain thru deck.
DECK STR. CONDITION	6	Per Conn. Dot Bridge Inspection Manual,the deck rating is based on condition of wearing surface.
CURBS	6	Combination Curb / Railbase: Show areas of medium to heavy scale & some gouges from snow plows.
MEDIAN	N	
SIDEWALKS	N	
PARAPET	N	
RAILING	6	Concrete Balustrade: Shows vertical and random cracks open 1/16 inches and areas of severe scale & spalls with exposed reinforcement in some cases. Span # 2 east side has an area of severe scale 18 inches long by 6 inches high at north end. Span # 2 west side is worst condition with medium to heavy scale, small hollow areas with rust stains. (MBR)- was installed within the old bridge rails. The rails are bolted through the concrete spindle rail with timber stand off blocks, some cracked. (no posts, not attached to railbases)
PAINT	N	
FENCE	N	
DRAINS	6	4 inch pipes thru deck. All drains were cleared during field inspection. The ends are flush with the underside of the deck and bottom of deck drain pipes show heavy laminar rust and section loss.
LIGHTING STANDARD	N	
UTILITIES TYPE/SIZE	N	
CONSTRUCTION JOINTS	N	
EXPANSION JOINTS	7	Asphaltic plug joints abutments & piers show areas of slightly exposed aggregate and a honeycomb type surface texture, with areas of tire wear. No visible active leakage was noted over the substructure during the 2004 inspection.

59. SUPERSTRUCTURE

Reinforced Concrete Slabs **OVERALL RATING** 4

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BRIDGE #: 00908 **INSPECTION DATE:** 3/28/2006

59. SUPERSTRUCTURE Reinforced Concrete Slabs **OVERALL RATING** 4

	RATING	
BEARING DEVICES	N	
STRINGERS	4	Underside of (3) slab soffits show approximately 20% of deterioration. Transverse form board lines, shrinkage, curing type cracking, light honeycombing, light map cracking, potental spalling, delaminations, spalls, and delaminated concrete patched areas. There are old partial depth patches along edges in all spans, most patches are now hollow. Random areas of very fine map hairline cracks. Scattered spalls with some exposed rebar and hollow areas along ends near abutments and piers. Span #1 shows approximately 21.5% of deterioration. Span #2 shows approximately 15.4% of deterioration. Span #3 shows approximately 23.8% of deterioration. Also, span # 3 shows (2) longitudinal cracks open up to .025 inch with efflorescence. Also, (1) 11 foot long by 4 foot wide surface spall up to 4 inches deep (approx. 6% of span) with exposed transverse & longitudinal rebars with heavy to laminar rust with hollow concrete between rebars. The longitudinal exposed rebars have ~~seperated~~ separated RKD 4/20/06 from the concrete and shows 1/8 inch +/- of loss. The transverse exposed rebars show small sections reduced to knife edge. See photos,attached sheets & Bri-10.
GIRDERS	N	
FLOOR BEAMS	N	
TRUSSES-GENERAL	N	
TRUSSES-PORTALS	N	
TRUSSES-BRACING	N	
PAINT	N	
RUST	N	
MACHINERY MOV SPAN	N	
RIVETS & BOLTS	N	
WELDS & CRACKS	N	
TIMBER DECAY	N	
CONCRETE CRACKING	4	See above.
COLLISION DAMAGE	8	
MEMBER ALIGNMENT	N	
DEFLECT. UNDER LOAD	N	
VIBR. UNDER LOAD	N	
STAND PIPES	N	
BARREL LADDERS	N	

ARE BARREL LADDERS OSHA COMPLIANT?

60. SUBSTRUCTURE Concrete **OVERALL RATING** 6

	RATING	
ABUTMENTS-STEM	6	Abutment # 1 shows medium to heavy scale along the base up to 24 inches high and some hairline cracks at random locations. Abutment # 2 shows some isolated hairline cracks and light to medium scale along the base up

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BRIDGE #: 00908 **INSPECTION DATE:** 3/28/2006

60. SUBSTRUCTURE — Concrete — **OVERALL RATING** 6

to 18 inches high.
Also, there are a few small popouts near east end.

ABUTMENTS-BACKWALL	N	
ABUTMENTS-FOOTINGS	8	The footings are not visible.
ABUT.-SETTLEMENT	8	
ABUTMENTS-WINGWALLS	7	Concrete wingwalls show some vertical cracks at random locations, some old repairs and some medium to heavy scale at the base.
PIERS/BENTS-CAPS	N	
PIERS/BENTS-PILE BENT	N	
PIERS/BENTS-COLUMN	6	Concrete Stems. up to 24 RHD 4/20/06 Pier # 1 shows medium to heavy scale along the base ~~24 up to~~ inches high mixed with some severe scale at the ends. Also, the west face shows 4 square foot +/- of severe scale. Isolated small hollow areas at cap. Also,efflorescence stains and areas of past leakage stains along cap. Pier # 2 show small area of severe scale at the east end. The south face has heavy scale up to 12 inches high for full length. Isolated spalls and hollow areas at cap.
PIERS/BENTS-FOOTINGS	7	Concrete footing is exposed at pier # 1 west end up to 20 inches high for first 20 feet +/- and the remaining 14 feet +/- show only the top of footing exposed. See attached sketch. Formwood left in place along pier #1 span #1 footing south side. The top of sheet piles are exposed 12 inches high at pier # 2 south side.
PIERS/BENTS-SETTLEMent	8	
EROSION-SCOUR	5	Localized scour at inlet nose of pier # 1, under span # 1 and at inlet of span # 2. Waterdepths vary from 20 inches to 38 inches.
CONCRETE CRACK-SPALL	6	See above.
STEEL CORROSION	N	
PAINT	N	
TIMBER DECAY	N	
COLLISION DAMAGE	N	
DEBRIS	N	

61. CHANNEL PROTECTION — **OVERALL RATING** 5

	RATING	
CHANNEL SCOUR	5	There is a localized scour at west end of pier # 1 that has exposed the footing up to 20 inches high by 20 feet +/- long.
EMBANKMENT EROSION	5	Undercutting and steep banks 8 to 10 feet high downstream at south side. Embankments have tree roots exposed. There is massive encroachment along the Northerly banks which has stopped all channel flow thru the northerly span.
DEBRIS	5	Obstruction - Heavy accumulation of sand and gravel up and downstream along north side. Gravel accumulation under span # 3 is approx 4.5 feet deep. Under the center line of the roadway the gravel is 36 inches +/- from the deck underside. There is a small stone dam across channel in span # 1 under structure, it appears the stones that have formed this dam were washed out of scour pocket at inlet of pier # 1. Medium size tree & log with caught brush laying in channel under span #2 along pier #2.
VEGETATION	6	Vegetation is growing out of sand and gravel deposits.
CHANNEL CHANGE	6	Alignment - channel narrows up and downstream. Flow at outlet end of pier # 1 is partially divded by a gravel island and small stone dam at outlet

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BRIDGE #: 00908 **INSPECTION DATE:** 3/28/2006

61. CHANNEL PROTECTION **OVERALL RATING** 5

of span # 1under structure is slightly backing up water during normal flow.
No flow thru span #3.

FENDER SYSTEM	N	
SPUR DIKES & JETTIES	N	
RIP RAP	6	Modified rip rap under span #1 appears to have washed out at the inlet. Additional and larger stone may be needed to control scour in spans #1 and #2.

62. CULVERTS & RETAINING WALL **OVERALL RATING** N

APPROACH CONDITION **OVERALL RATING** 6

	RATING	
APPROACH SLAB	N	
RELIEF JOINTS	N	
APPROACH GUIDE RAIL	8	(MBR) was all replaced under a past traffic safety improvement project. Minor scrapes. Newer concrete transition curbing was installed at approaches.
APPROACH PAVEMENT	6	Bituminous concrete shows bituminous segragation, tire wear, light surface rutting, isolated surface gouges, transverse, longitudinal cracks at random locations open up to 1 inch.
APPROACH EMBANKMENT	8	Rip rap placed behind northeast wingwall.

TRAFFIC SAFETY FEATURES:

BRIDGE RAILINGS	1	
TRANSITIONS	1	
APPROACH GUARDRAILS	1	
APPR. GUARDRAIL ENDS	1	

LOAD POSTING

SINGLE UNIT (TONS)		
HS (TONS)		
4 AXLE (TONS)		
3S2 (TONS)		
ADVANCE WARNING Y/N		
LEGIBILITY		
VISIBILITY/LOCATION		

MISC.

MIN VERT. UNDERCLR.	0' 0"	
POSTED CLR. UNDER BRIDGE	' "	
POSTED CLR. ON BRIDGE	' "	
ADVANCE WARNING (Y/N)	No	
SPEED LIMIT (IF ANY)	MPH	
CHARACTER OF TRAFFIC		(ADT) 8,700 -6% Trucks.

Connecticut Department of Transportation
Bridge Inspection Report BRI-18

BRIDGE #: 00908 **INSPECTION DATE:** 3/28/2006

ADDITIONAL NOTES

ADDITIONAL COMMENTS:

Inspectors' Signatures:

1) [signature] **Date:** 3/29/2006

2) [signature] **Date:** 3/29/06

3) _____ **Date:** __/__/__

4) _____ **Date:** __/__/__

P.E. Signature: _____ **Date:** __/__/__

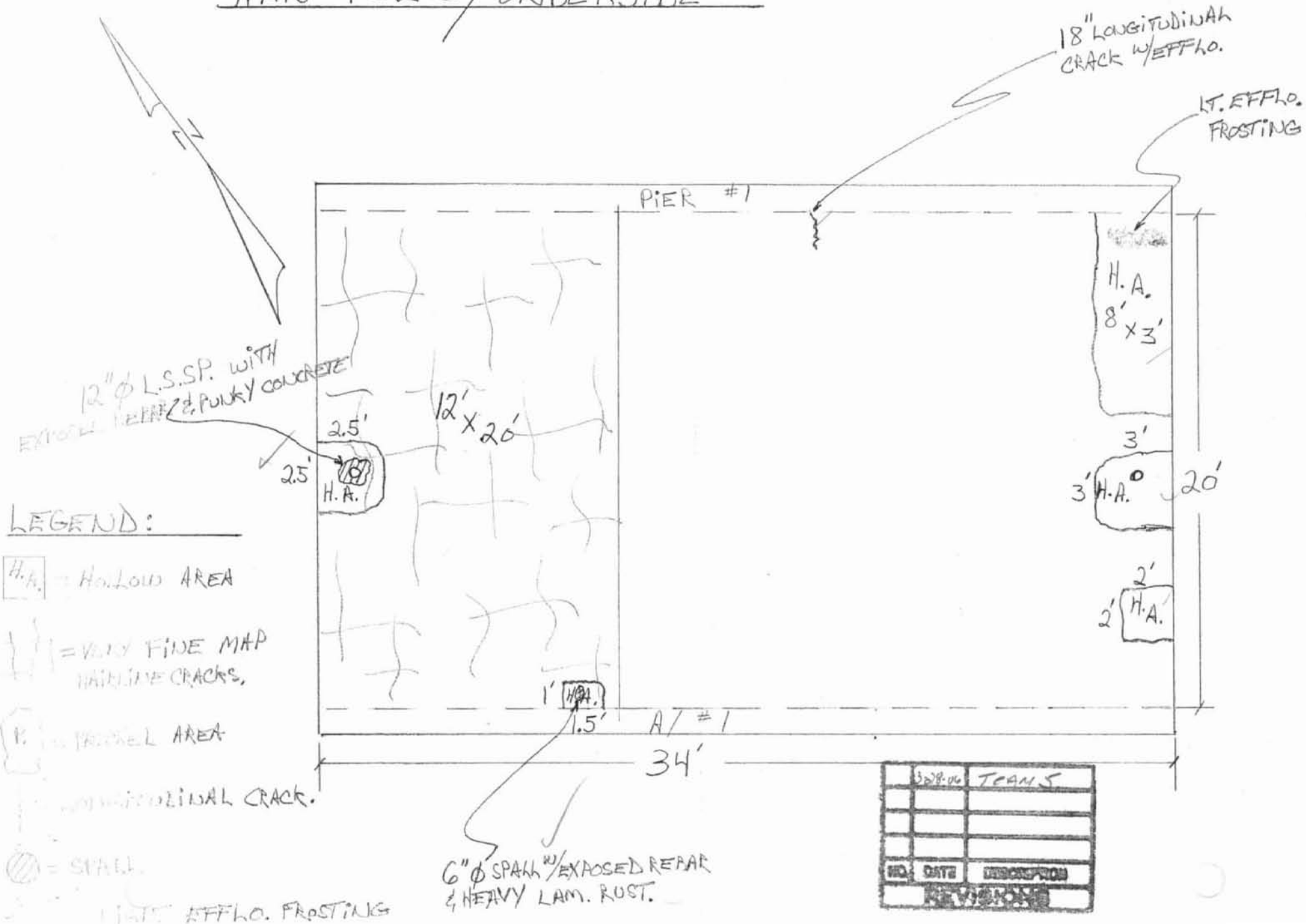
P.E.#: _____

Reviewed by: RK De Bishop **CDOT** **Date:** 4/20/06

1/24/02

LITCHFIELD, RT. 202 OVER BANTAM RIVER, BR. NO. 908

SPAN #1 SLAB / UNDERSIDE

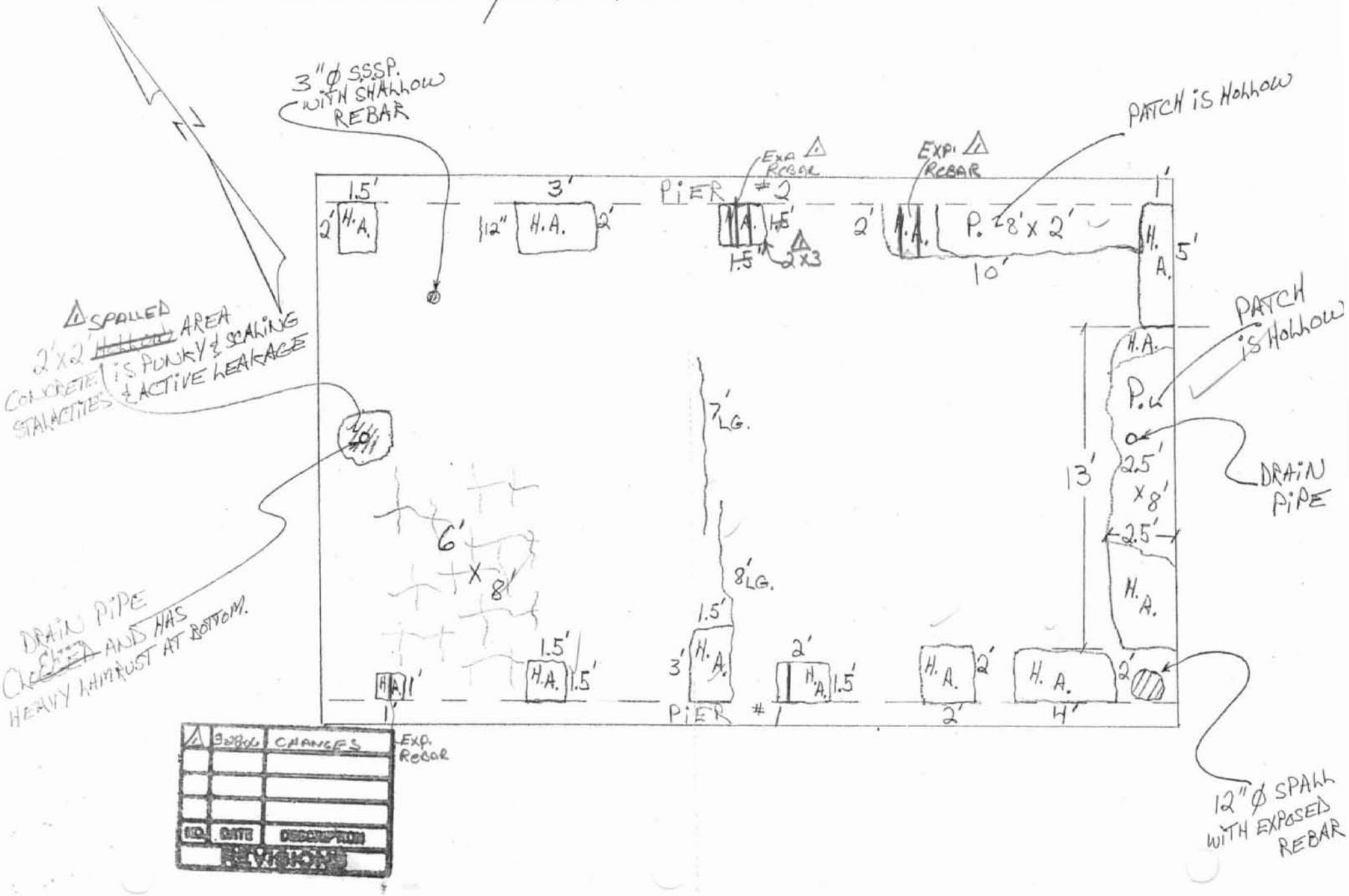


LITCHFIELD, RT. 202 OVER BANTAM RIVER, BR. NO. 908

11 OF 21 '15

1/24/02

SPAN #2 SLAB / UNDERSIDE

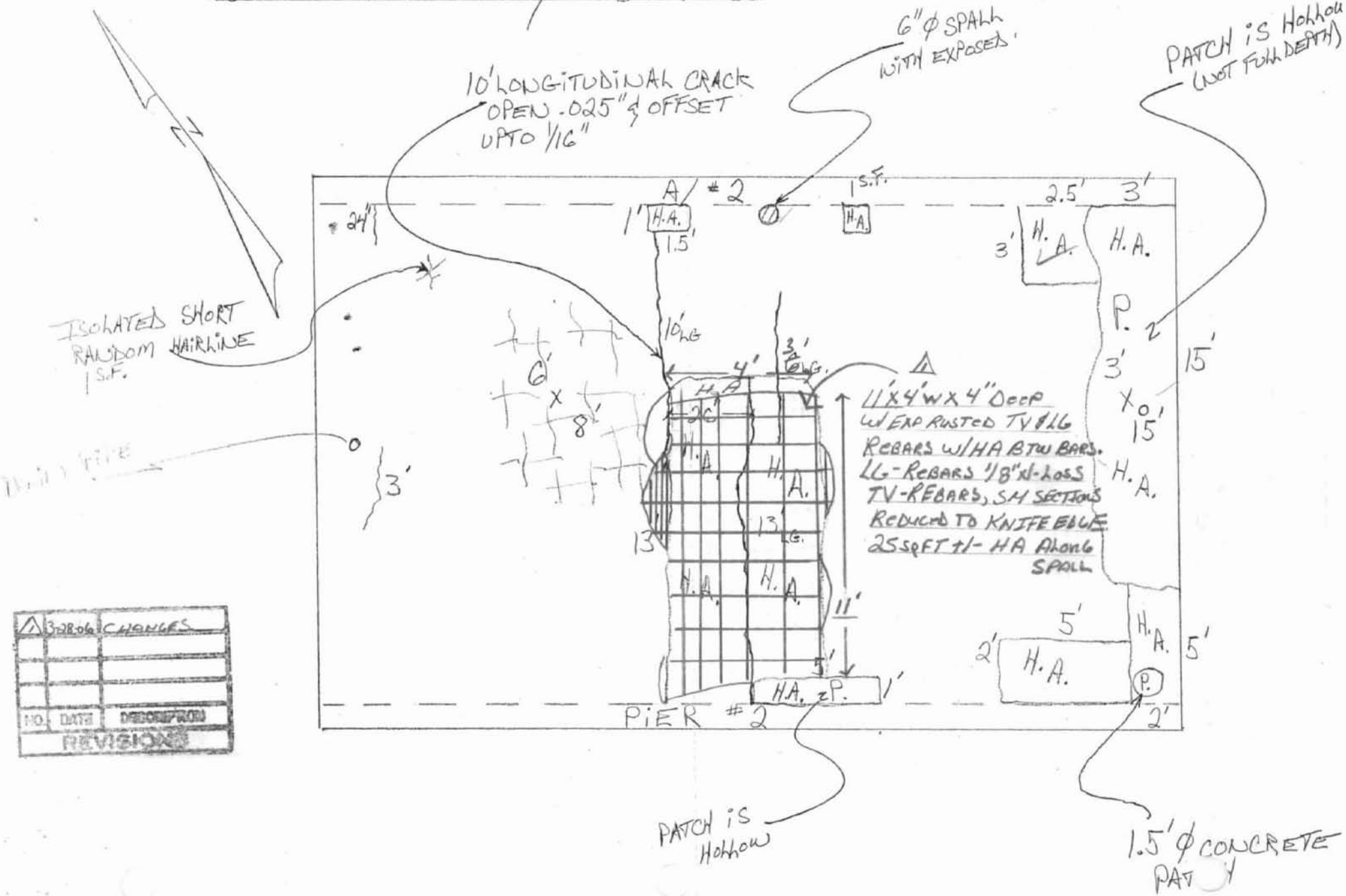


		CHANGES
NO.	DATE	DESCRIPTION

LITCHFIELD, RT. 202 OVER BANTAM RIVER, BRIDGE # 908

1/24/02

SPAN #3 SLAB/UNDERSIDE



NO.	DATE	DESCRIPTION
1	3-28-06	CHANGES

REVISIONS

3/28/2006

Bridge # ... 908 3/28/2006 Prepared by ... Team #5 checked by ...

CONCRETE DETERIORATION WORKSHEET

Form BRI-10 Rev 2001

		Deterioration By Span - In Square Feet										
		Span Number										
Deterioration Type	X	1	2	3								Total
Spalled and Delaminated Areas	Top											
	Bot.	45	87	150								282
Scale (Moderate to Severe Only)	Top											
	Bot.											
Cracks: with Efflorescence (Use 6" width x length)	Bot.	1	7.5	8								16.5
Cracks: w/o Efflo.(Use 3" width x Length)	Top											
	Bot.			2								2
Map Cracking: w/Efflorescence (Use full Area)	Bot.											168
Map Cracking: w/o Efflo.(Use 50% of Area)	Top											
	Bot.	120	24	24								168
Honeycombed Areas: (only areas more than 1 1/2" deep)	Bot.											
Totals	Top											
	Bot.	166	119	184								469
Span Area		770	770	770								2310
% Spalled and Delaminated on top												
% Deterioration on Bottom		21.5%	15.4%	23.8%								20.3%

Note:

DATE PREPARED 04-19-2004	PREPARED BY P.Y.	State of Connecticut Department of Transportation Bureau of Engineering & Highway Operations DES-003 REV 1-93 (302-06-0225) COMPUTATION SHEET	ORGANIZATION UNIT NO. 1307	WORK ORDER NO.
DATE CHECKED	CHECKED BY			SHEET NO. 14 OF 15

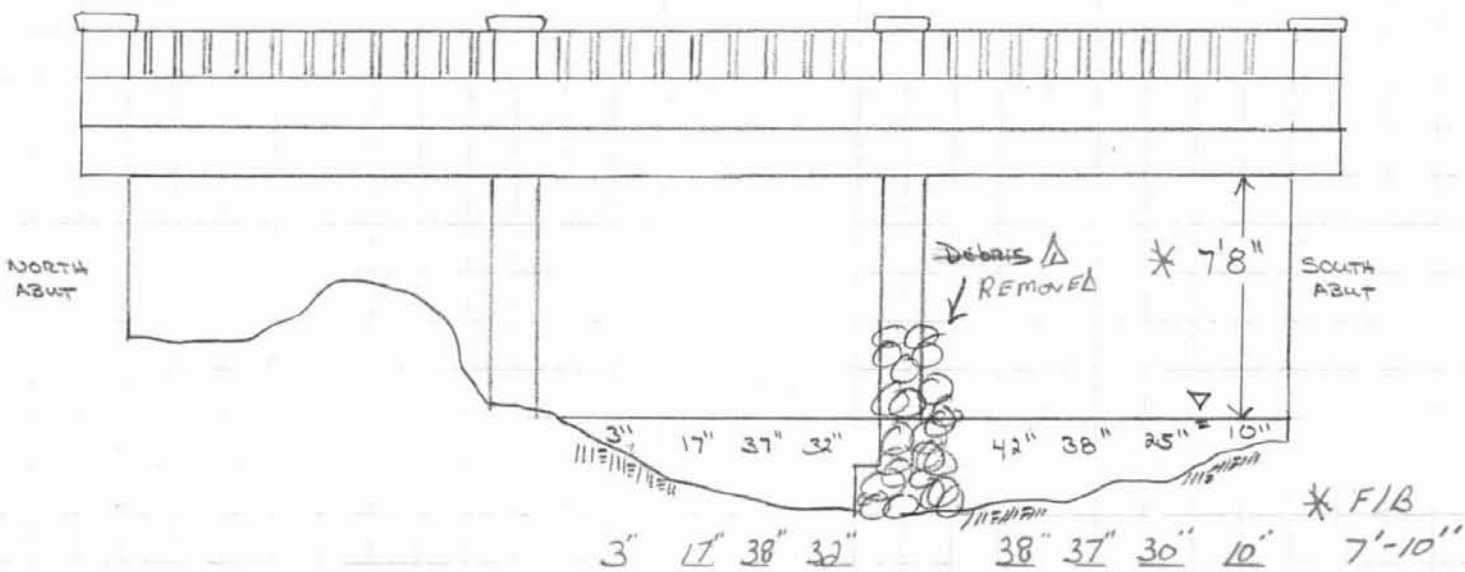
SUBJECT:
Bridge 908 Route 202 over Bantam River, Litchfield, (N.T.S)

Curb Revel

△ 9"+/- of Bituminous Concrete o/ Slabs measured along edge of Deck Drain.

	7½"	5"	6½"	5½"	6½"	5½"
South Abut						North Abut
	6½"	4"	5"	4"	4"	6"

Upstream Profile



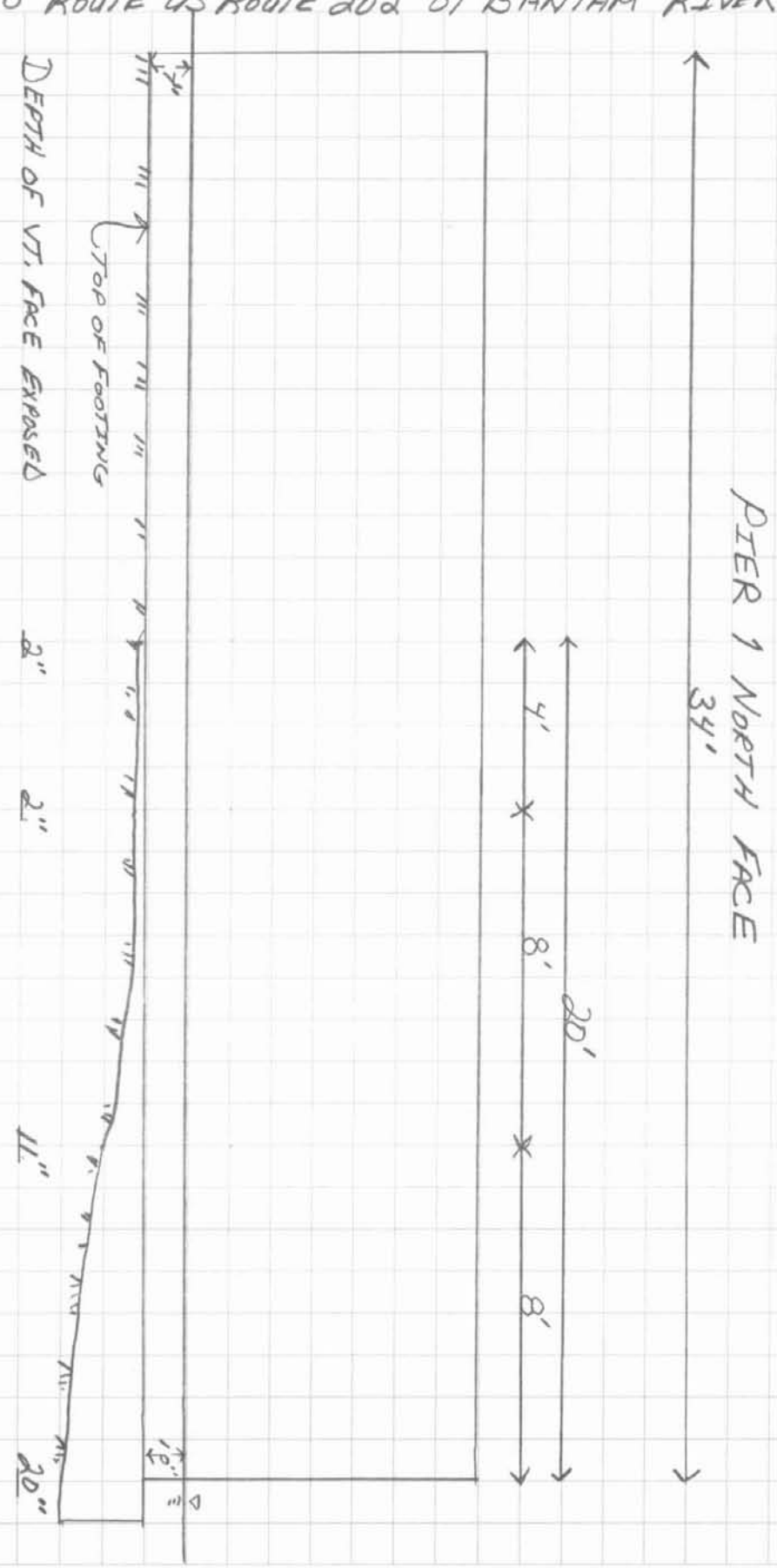
△	3-28-06	CHANGES
NO.	DATE	DESCRIPTION
REVISIONS		

Printed on Recycled or Recovered Paper

DATE PREPARED	PREPARED BY	State of Connecticut Department of Transportation Bureau of Engineering & Highway Operations DES-003 REV 1-93 (302-06-0225) COMPUTATION SHEET	ORGANIZATION UNIT NO.	WORK ORDER NO.
3-28-2006	TEAMS		1307	SHEET NO. 15 OF 15
DATE CHECKED	CHECKED BY			

SUBJECT:

LITCHFIELD BR#00908 ROUTE US ROUTE 202 O/ BANTAM RIVER



Structure Inventory and Appraisal Sheet (English Units)

Bridge Key: 00908 | Agency ID: 00908 | Sufficiency Rating: 77.1

IDENTIFICATION

State 1: 09 Connecticut | Struc Num 8: 00908
Facility Carried 7: US ROUTE 202 | Location 9: .75 MI E OF JCT RTE 63
Rte.(On/Under)5A: Route On Structure | Rte. Signing Prefix 5B: 2 U.S. Numbered Hwy
Level of Service 5C: 1 Mainline | Rte. Number 5D: 00202
Directional Suffix 5E: 0 N/A (NBI) | % Responsibility : 0
SHD District 2: 04 | County Code 3: Litchfield
Place Code 4: LITCHFIELD | Mile Post 11: 39.222 mi
Feature Intersected 6: BANTAM RIVER
Latitude 16: 41d 45' 24" | Longitude 17: 073d 10' 54"
Border Bridge Code 98: Unknown (P)
Border Bridge Number 99: NA

INSPECTION

Frequency 91: 24 months | Inspection Date 90: 3/28/2006 | Next Inspection: 03/28/2008
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: 03/28/2006 | Next Elem. Insp. Due: 03/28/2008

CLASSIFICATION

Defense Highway 100: 1 STRAHNET hwy | Parallel Structure 101: No || bridge exists
Direction of Traffic 102: 2 2-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: 02 Rural Other Princ
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:
1 Concrete | 01 Slab
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: 7 Good | Super 59: 4 Poor | Sub 60: 6 Satisfactory
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: HS19.3 | Operating Rating 64: HS32.5
Design Load 31: 4 M 18 (H 20) | Posting 70: 5 At/Above Legal Loads
Posting status 41: A Open, no restriction

AGE AND SERVICE

Year Built 27: 1931 | Year Reconstructed 106: Unknown
Type of Service on 42A: 1 Highway
Type of Service under 42B: 5 Waterway
Lanes on 28A: 2 | Lanes Under 28B: 0 | Detour Length 19: 1.2 mi
ADT 29: 9,000 | Truck ADT 109: 6 % | Year of ADT 30: 1998

APPRAISAL

Bridge Rail 36A: 0 Substandard | 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: 3 Intolerable - Correct
Underclearance, Vertical and Horizontal 69: N Not applicable (NBI)
Waterway Adequacy 71: 5 Above Tolerable | Approach Alignment 72: 8 Equal Desirable Crit
Scour Critical 113: 6 Calcs not made

GEOMETRIC DATA

Length Max Span 48: 20.0 ft | Structure Length 49: 67.9 ft
Curb/Sdwlk Width L 50A: 1.0 ft | Curb/Sidewalk Width R 50B: 1.0 ft
Width Curb to Curb 51: 29.9 ft | Width Out to Out 52: 34.1 ft
Approach Roadway Width 32: (w/ shoulders) 40.0 ft | Median 33: 0 No median
Deck Area: 2,314.2 sq. ft
Skew 34: 0.00 ° | Structure Flared 35: 0 No flare
Minimum Vertical Clearance Over Bridge 53: 328.1 ft
Minimum Vertical Underclearance Reference 54A: N Feature not hwy or RR
Minimum Vertical Underclearance 54B: 0.0 ft
Minimum Lateral Underclearance Reference R 55A: N Feature not hwy or RR
Minimum Lateral Undrclearance R 55: 327.8 ft
Minimum Lateral Undrclearance L 56: 0.0 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: 4,500
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	40/3	P Conc Slab/AC Ovly	(SF)	2,314	100 %	2,314	0 %	0	0 %	0	0 %	0	0 %	0
UNIT0	210/3	R/Conc Pier Wall	(LF)	69	0 %	0	100 %	69	0 %	0	0 %	0	0 %	0
UNIT0	215/3	R/Conc Abutment	(LF)	75	0 %	0	99 %	75	1 %	0	0 %	0	0 %	0
UNIT0	331/3	Conc Bridge Railing	(LF)	138	0 %	0	100 %	138	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	361/3	Scour Smart Flag	(EA)	1	0 %	0	100 %	1	0 %	0	0 %	0	0 %	0

Bridge No.	00908	**Inspected by:**	DENNIS TALMONT
Town:	Litchfield	**Inspected by:**	KIRK WEIR
Feature Carried:	US Route 202	**Date Inspected:**	March 28, 2006
Feature Crossed:	Bantam River		

Photo # 1
Looking North from the South approach.

Photo # 2
Wearing surface.

Bridge No.	00908	**Inspected by:**	DENNIS TALMONT
Town:	Litchfield	**Inspected by:**	KIRK WEIR
Feature Carried:	US Route 202	**Date Inspected:**	March 28, 2006
Feature Crossed:	Bantam River		

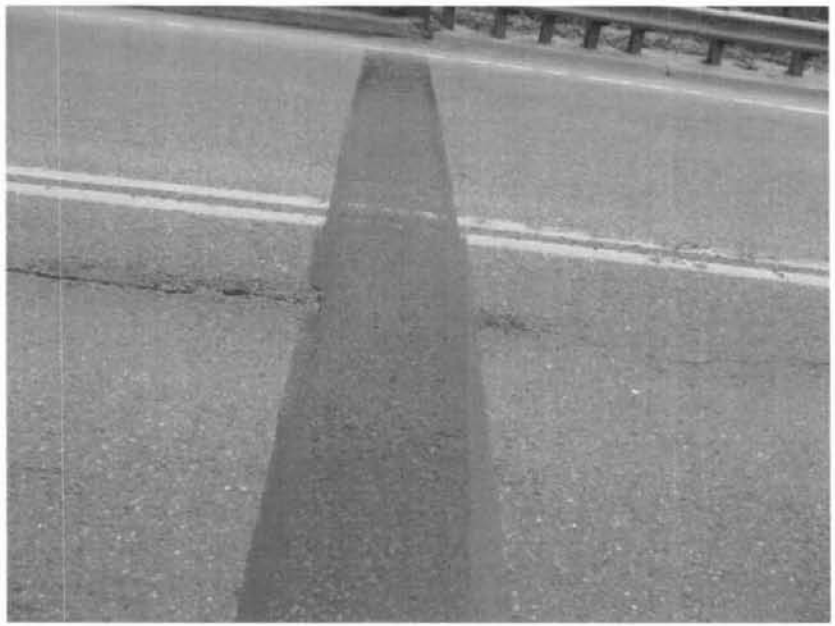


Photo # 3
Asphaltic plug joint over abutment # 1.

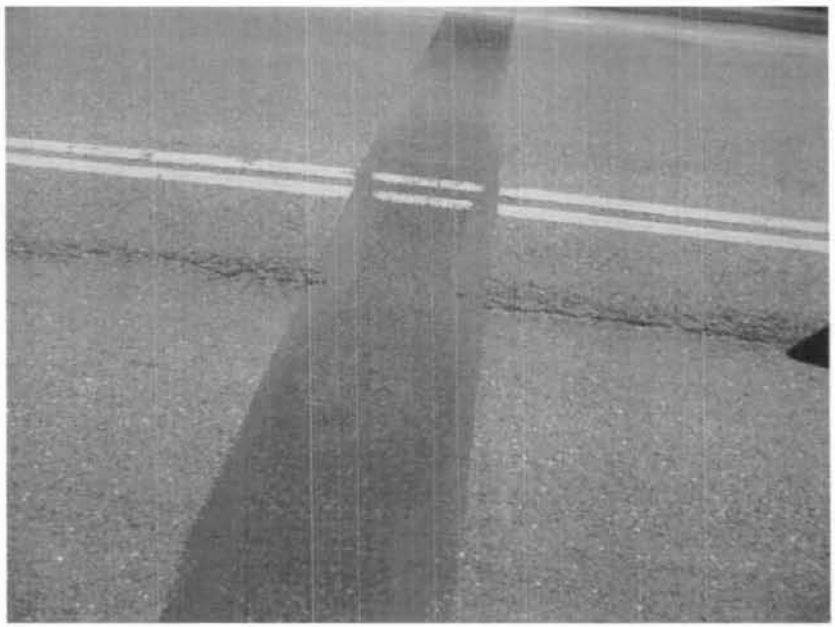


Photo # 4
Asphaltic plug joint over pier # 1.

Bridge No.	00908	**Inspected by:**	DENNIS TALMONT
Town:	Litchfield	**Inspected by:**	KIRK WEIR
Feature Carried:	US Route 202	**Date Inspected:**	March 28, 2006
Feature Crossed:	Bantam River		

Photo # 5
Asphaltic plug joint over pier # 2.

Photo # 6
Asphaltic plug joint over abutment # 2.

Bridge No.	00908	**Inspected by:**	DENNIS TALMONT
Town:	Litchfield	**Inspected by:**	KIRK WEIR
Feature Carried:	US Route 202	**Date Inspected:**	March 28, 2006
Feature Crossed:	Bantam River		

Photo # 7
Inlet. {West}

Photo # 8
Outlet. {East}

Bridge No.	00908	**Inspected by:**	DENNIS TALMONT
Town:	Litchfield	**Inspected by:**	KIRK WEIR
Feature Carried:	US Route 202	**Date Inspected:**	March 28, 2006
Feature Crossed:	Bantam River		

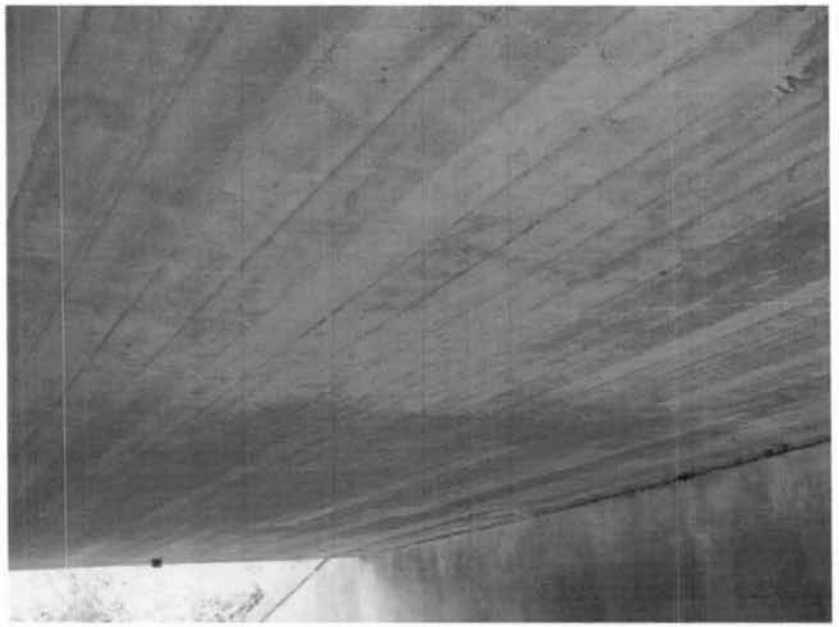


Photo # 9
Underside in span # 1.

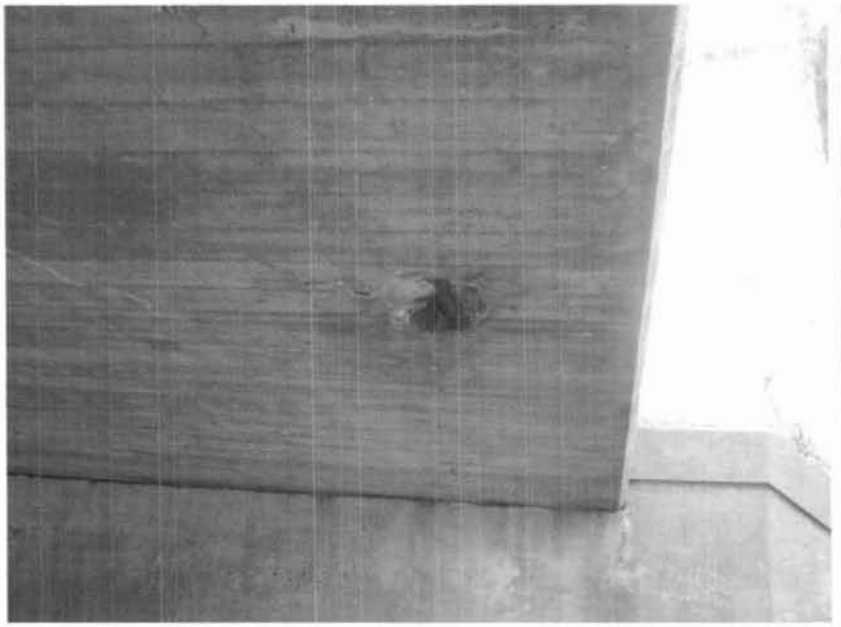


Photo # 10
Spall in the underside of deck in span # 1, around the drain at the inlet.

Bridge No.	00908	**Inspected by:**	DENNIS TALMONT
Town:	Litchfield	**Inspected by:**	KIRK WEIR
Feature Carried:	US Route 202	**Date Inspected:**	March 28, 2006
Feature Crossed:	Bantam River		

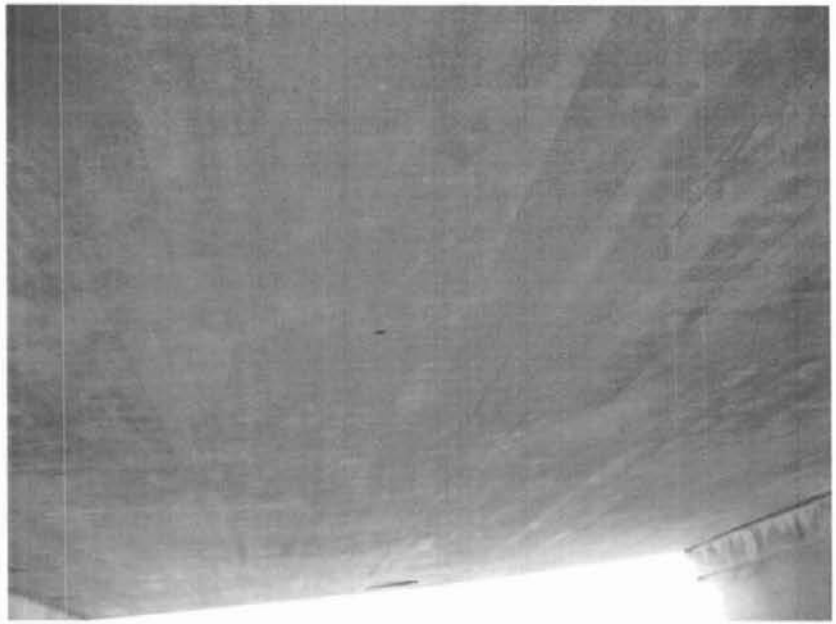


Photo # 11
Underside of deck in span # 2.

Photo # 12
Spall's with exposed rusted rebar in the underside of deck in span # 2, near pier # 2.

Bridge No.	00908	**Inspected by:**	DENNIS TALMONT
Town:	Litchfield	**Inspected by:**	KIRK WEIR
Feature Carried:	US Route 202	**Date Inspected:**	March 28, 2006
Feature Crossed:	Bantam River		

Photo # 13
Underside in span # 3.

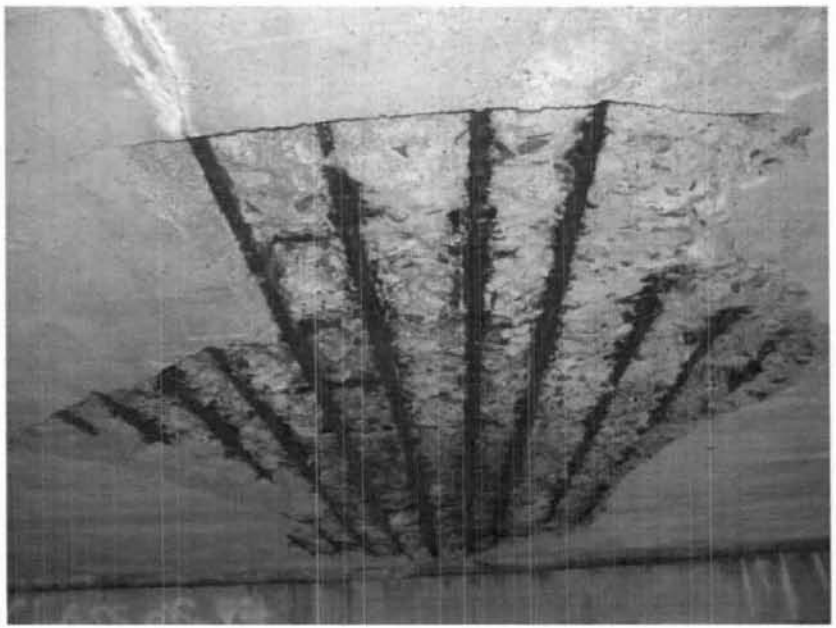


Photo # 14
Large spall with exposed rusted rebar in the underside of deck in span # 3, near mid-span.

Bridge No.	00908	**Inspected by:**	DENNIS TALMONT
Town:	Litchfield	**Inspected by:**	KIRK WEIR
Feature Carried:	US Route 202	**Date Inspected:**	March 28, 2006
Feature Crossed:	Bantam River		

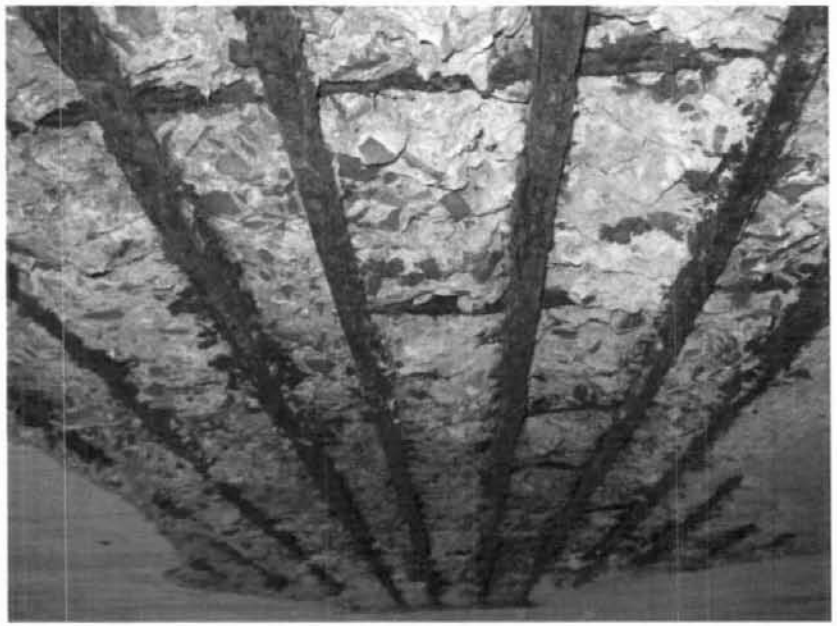


Photo # 15
A closer view of the spall with exposed rusted rebar in the underside of deck in span # 3, near mid-span.

Photo # 16
Severe section loss to the transverse rebar in the Spall shown in photo #'s 14 & 15.

Bridge No.	00908	**Inspected by:**	DENNIS TALMONT
Town:	Litchfield	**Inspected by:**	KIRK WEIR
Feature Carried:	US Route 202	**Date Inspected:**	March 28, 2006
Feature Crossed:	Bantam River		

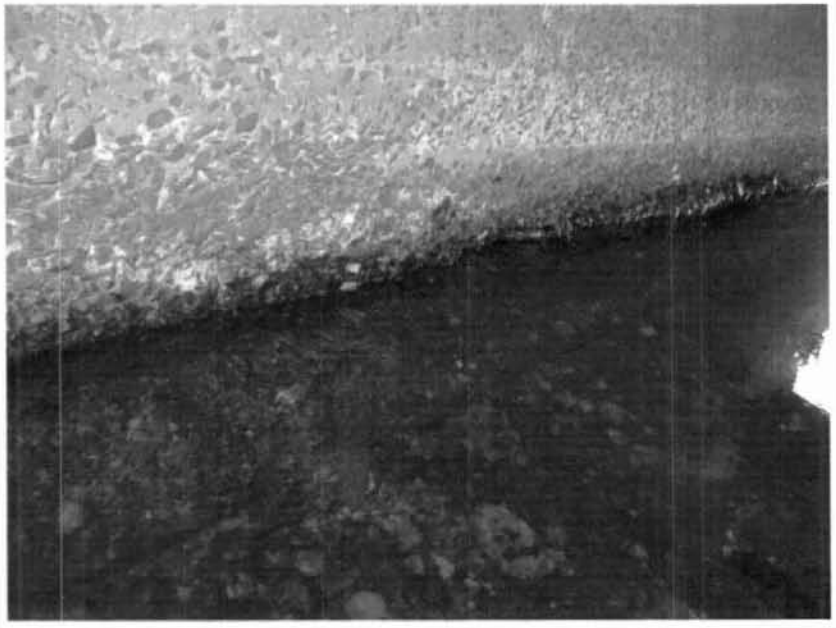


Photo # 17
Severe scale in the base of pier # 1, North side.

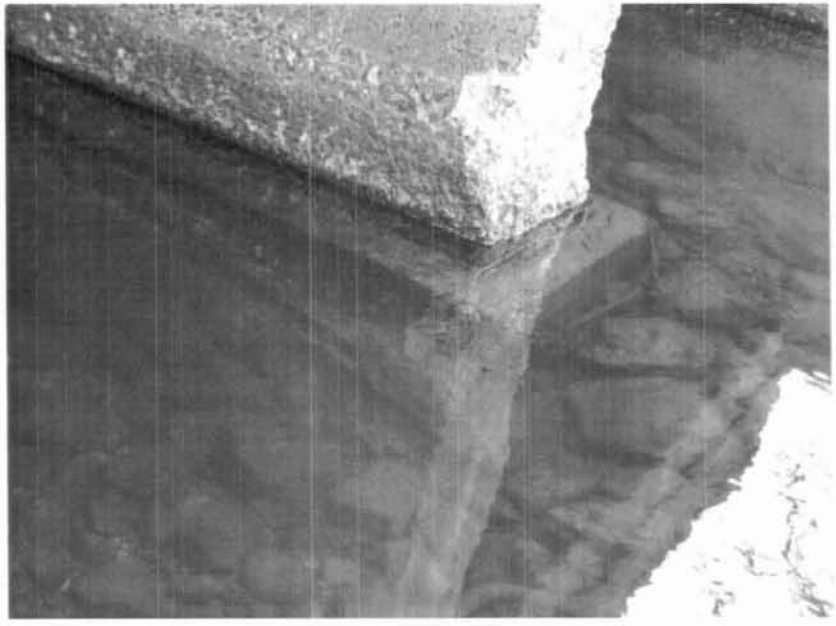


Photo # 18
Severe scale in the base of pier # 2 at the inlet. {Note footing exposed.}

Bridge No.	00908	**Inspected by:**	DENNIS TALMONT
Town:	Litchfield	**Inspected by:**	KIRK WEIR
Feature Carried:	US Route 202	**Date Inspected:**	March 28, 2006
Feature Crossed:	Bantam River		

Photo # 19
Looking upstream from the inlet in span # 2.

Photo # 20
Looking downstream from the outlet in span # 2.

Bridge No.	00908	**Inspected by:**	DENNIS TALMONT
Town:	Litchfield	**Inspected by:**	KIRK WEIR
Feature Carried:	US Route 202	**Date Inspected:**	March 28, 2006
Feature Crossed:	Bantam River		

Photo # 19
Debris built-up along the South side of pier # 2.

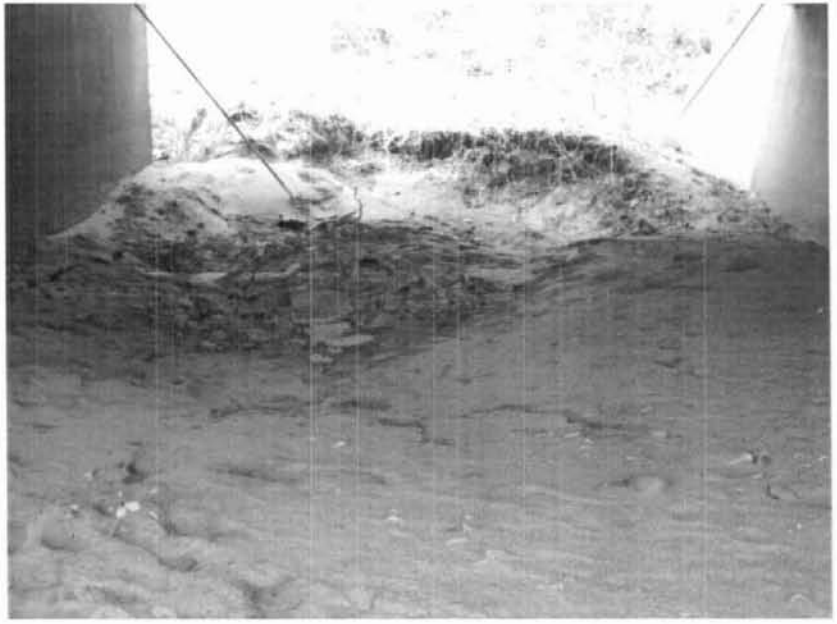


Photo # 20
Looking into span # 3 from the outlet.

McLaren ENGINEERING GROUP

structural design
entertainment engineering

bridge & highway engineering
geotechnics

civil & site engineering
curtain wall design

marine facilities
subaqueous investigation

May 11, 2007

Connecticut Department of Transportation
Bureau of Engineering and Highway Operations
2800 Berlin Turnpike
P.O. Box 317546
Newington, CT 06131

RECEIVED
MAY 15 2007
CONNECTICUT DOT
SAFETY & EVALUATION

Attention: Sandra Dumas

Subject: C.D.O.T. Emergency Underwater Bridge Safety Inspection
MGM File No. 104416.03

INTRODUCTION

As requested by the Connecticut Department of Transportation (CDOT), McLaren Engineering Group (McLaren), preformed emergency underwater inspections of bridges that are scour critical and/or were overtopped following a period of heavy rains. The purpose of the inspection was to determine the extent of scour at the substructures and along the channel.

The emergency underwater inspection of Bridge No. 00908, US Route 202 over the Bantam River in Litchfield, Connecticut, was performed on April 19, 2007. McLaren inspected and evaluated the scour conditions at all substructure units and along the channel. The result of this emergency inspection was compared to the March 28, 2006 inspection to differentiate between previously existing deficiencies and new deficiencies.

INSPECTION METHODOLOGY

Underwater inspection operations were conducted from a survey-van based dive station, using surface supplied air with continuous two-way communications. The survey was performed by a 3-man crew consisting of a team leader, a diver, and a tender. The diver was equipped with the necessary equipment and hand tools to perform the inspection, including a rock hammer, tape measure, and probing rod. Tidal zone and surface photographs were taken of significant findings and typical conditions using a housed Olympus digital camera.

DESCRIPTION

Bridge No. 00908, constructed in 1931, is approximately 68 ft long and 34 ft wide. It consists of a single span, reinforced concrete slab supported on concrete abutments. The roadway consists of two lanes (one lane in each direction) and the channel flows north to south.

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On the web: www.mgmclaren.com

Offices: New York, Connecticut, Maryland, Florida

Licensed in: Arkansas – California – Colorado – Connecticut – Delaware – District of Columbia – Florida – Georgia – Illinois - Indiana – Kentucky – Louisiana – Maryland – Massachusetts – Michigan – Minnesota – Mississippi– Missouri – Nevada – New Hampshire – New Jersey – New York – North Carolina – Ohio – Oklahoma – Oregon – Pennsylvania –South Carolina – Tennessee – Texas – Vermont – Virginia – Washington - West Virginia Wisconsin

OBSERVATIONS

Since the March 2006 inspection, the upstream profile exhibits scour up to 1.9′ at the south abutment and up to 0.7′ at south face of Pier 1. The footing was exposed by up to 3″ at pier 1 and up to 20″ at pier 2.

CONCLUSIONS AND RECOMMENDATIONS

Overall, the substructures have not sustained any significant damage due to the increased flow through the channel and do not require any emergency action. No undermining was observed and all deficiencies remain relatively unchanged since the March 2006 inspection. It is recommended that the inspection cycle remain at a routine interval.

Should you have any questions or comments, or if you require additional information, please feel free to contact our office at any time.

Very truly yours,

The Office of
McLaren Engineering Group

George F. Assis P.E., Ph.D.
Project Manager

Attachments: Sketches, Photos

cc: File 104416.03
MGM, GFA, JHR

P:\Proj104\104416.03\Reports\Emergency Inspection Reports-2007\Bridge 00908\Bridge 00908.doc

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BRIDGE SAFETY & EVALUATION

APPENDIX A

PHOTOS

Bridge No.	00908	**Inspected by:**	Brian Moody
Town:	Litchfield	**Inspected by:**	John St. Denis
Feature Carried:	US Route 202	**Date Inspected:**	04/19/07
Feature Crossed:	Bantam River	**Project No.:**	170-2687/1940

Photo # 1: Bridge Identification Number

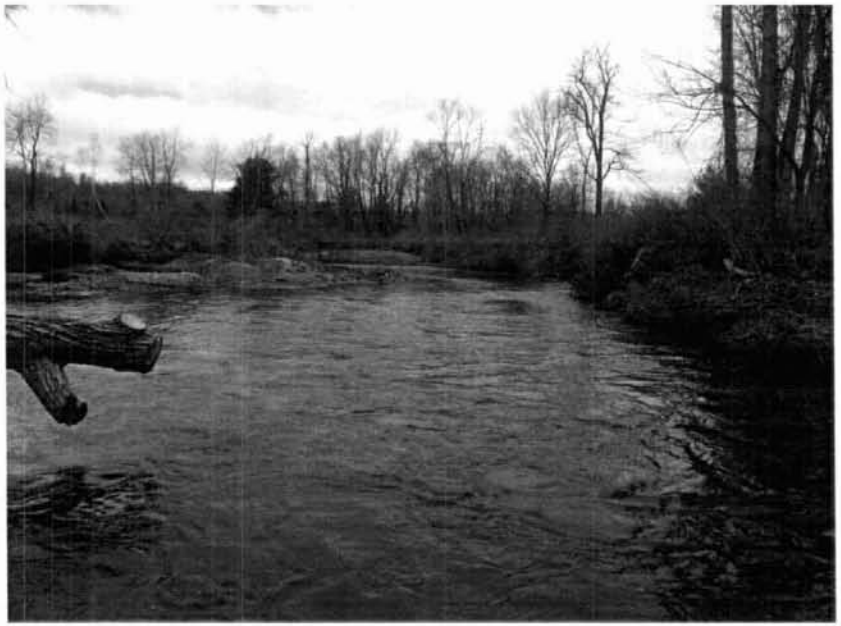


Photo # 2: Upstream view.

Bridge No.	00908	**Inspected by:**	Brian Moody
Town:	Litchfield	**Inspected by:**	John St. Denis
Feature Carried:	US Route 202	**Date Inspected:**	04/19/07
Feature Crossed:	Bantam River	**Project No.:**	170-2687/1940

Photo # 3: Downstream view.

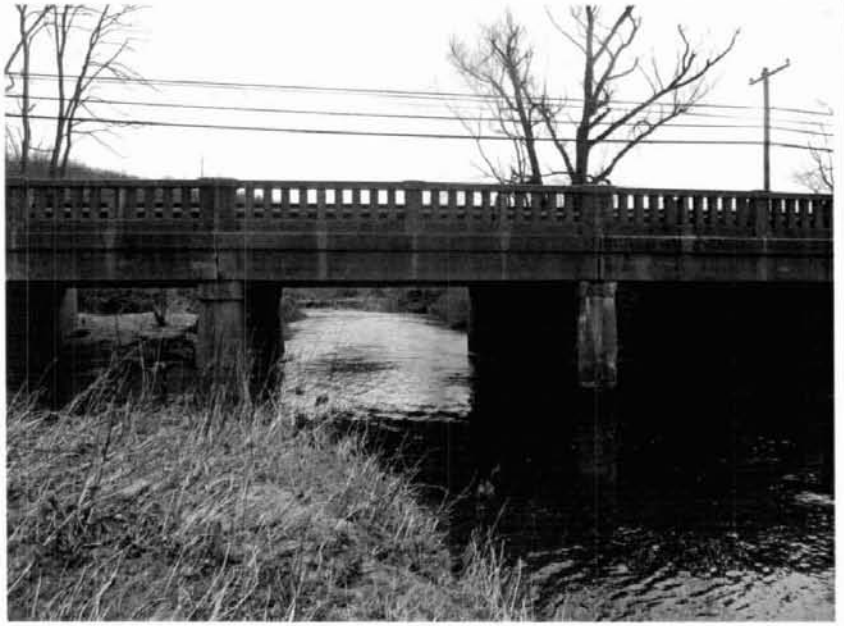


Photo # 4: West Elevation.

Bridge No.	00908	**Inspected by:**	Brian Moody
Town:	Litchfield	**Inspected by:**	John St. Denis
Feature Carried:	US Route 202	**Date Inspected:**	04/19/07
Feature Crossed:	Bantam River	**Project No.:**	170-2687/1940

Photo # 5: East Elevation.

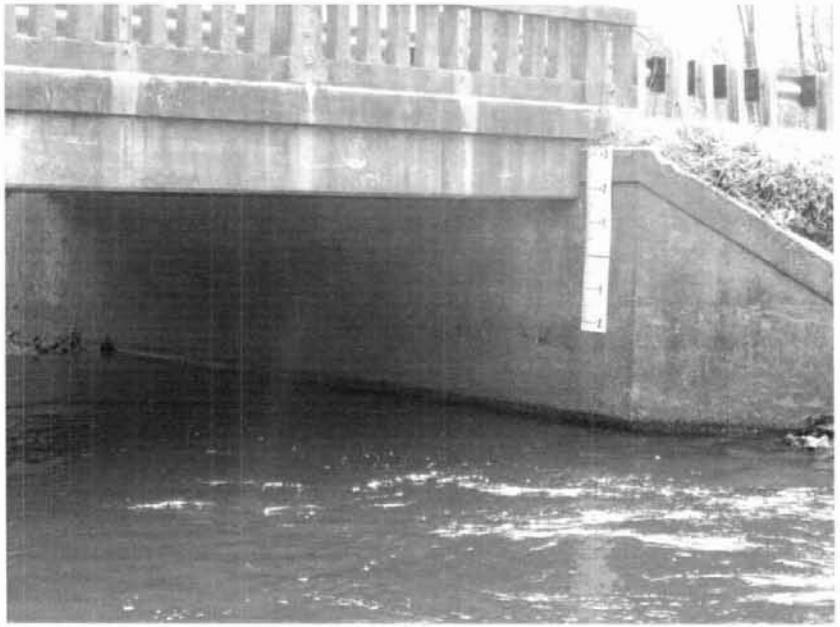


Photo # 6: South Abutment.

Bridge No.	00908	**Inspected by:**	Brian Moody
Town:	Litchfield	**Inspected by:**	John St. Denis
Feature Carried:	US Route 202	**Date Inspected:**	04/19/07
Feature Crossed:	Bantam River	**Project No.:**	170-2687/1940

Photo # 7: North Abutment.

Photo # 8: Pier 1 South Face.

Bridge No.	00908	**Inspected by:**	Brian Moody
Town:	Litchfield	**Inspected by:**	John St. Denis
Feature Carried:	US Route 202	**Date Inspected:**	04/19/07
Feature Crossed:	Bantam River	**Project No.:**	170-2687/1940

Photo # 9: Pier 1 North Face.

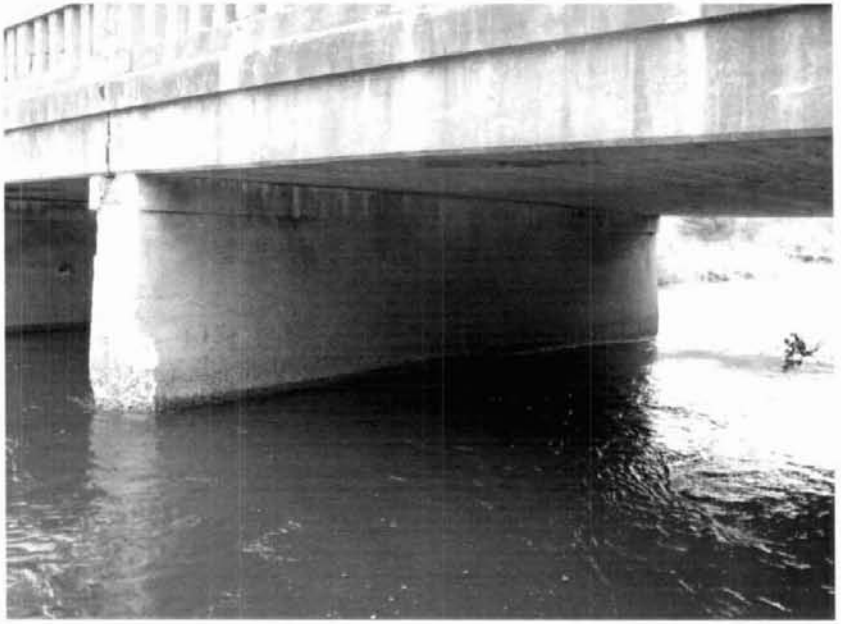


Photo # 10: Pier 2 South Face.

Bridge No.	00908	**Inspected by:**	Brian Moody
Town:	Litchfield	**Inspected by:**	John St. Denis
Feature Carried:	US Route 202	**Date Inspected:**	04/19/07
Feature Crossed:	Bantam River	**Project No.:**	170-2687/1940

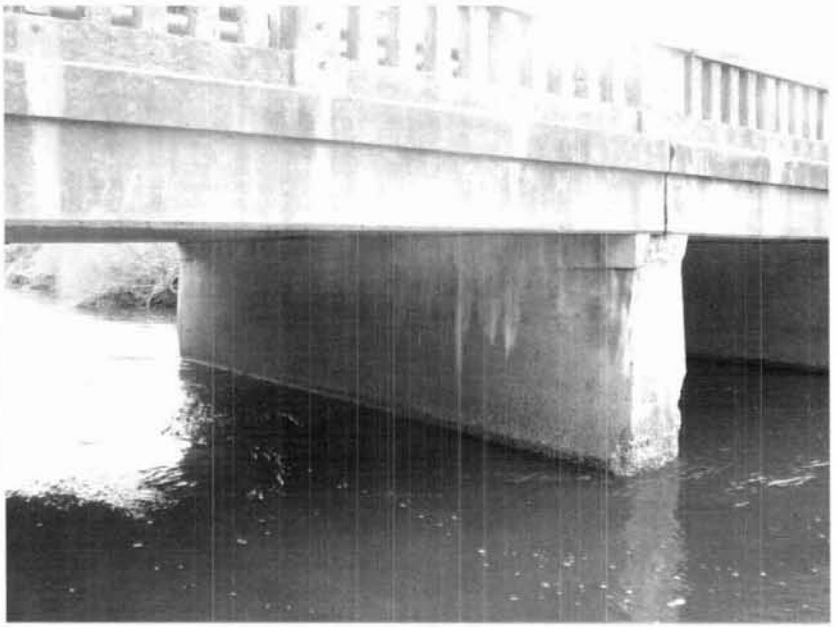


Photo # 11: Pier 2 North Face.

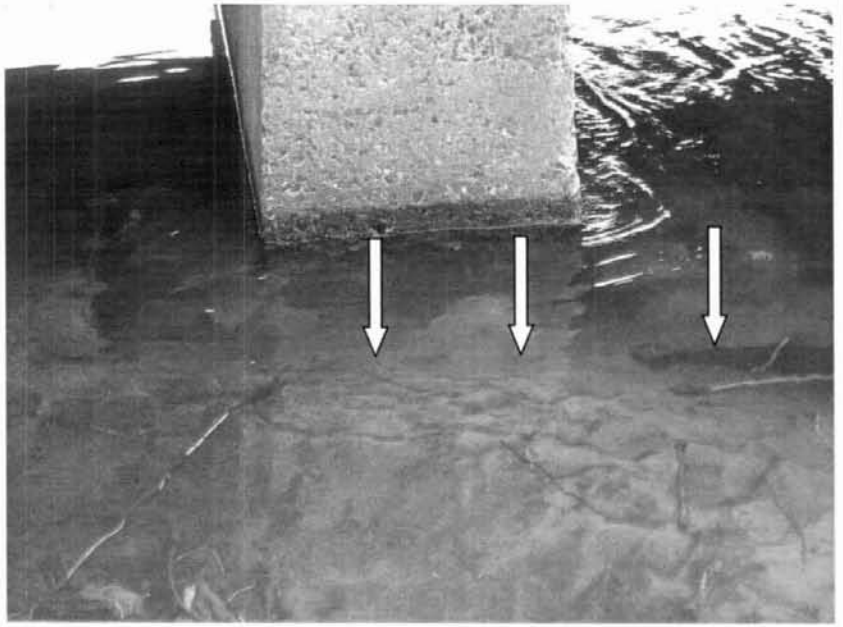
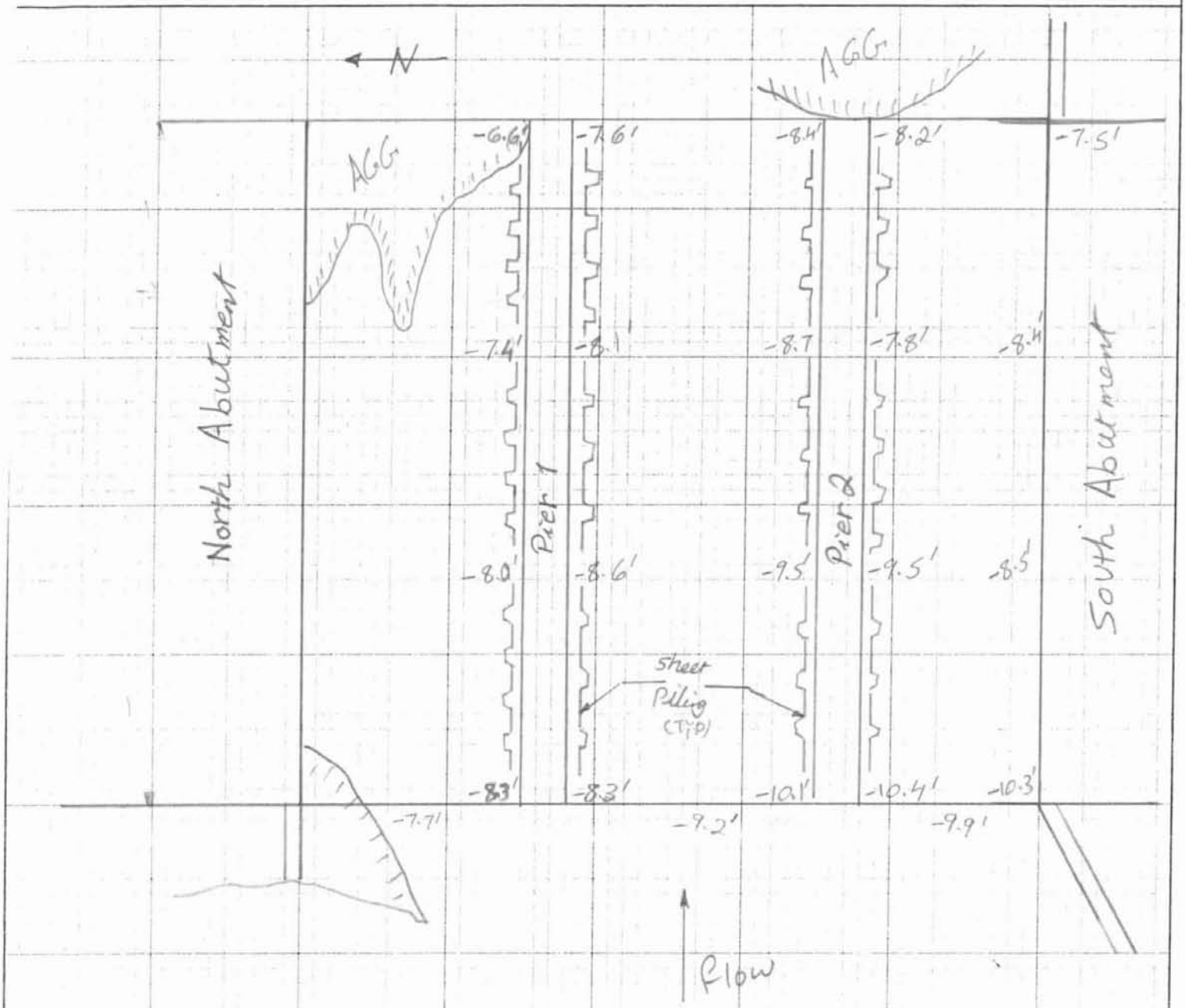


Photo # 12: Exposed sheet piling at the upstream of Pier 1.

SUPPLEMENTAL SHEET

	BRIDGE NO. 00988	DATE: 4/19/07
☐ FIELD ORIGINAL ☐ TRANSCRIBED BY: ____	CREW: JSD, SRM, BM	SHEET 1 OF 4

DESCRIPTION:



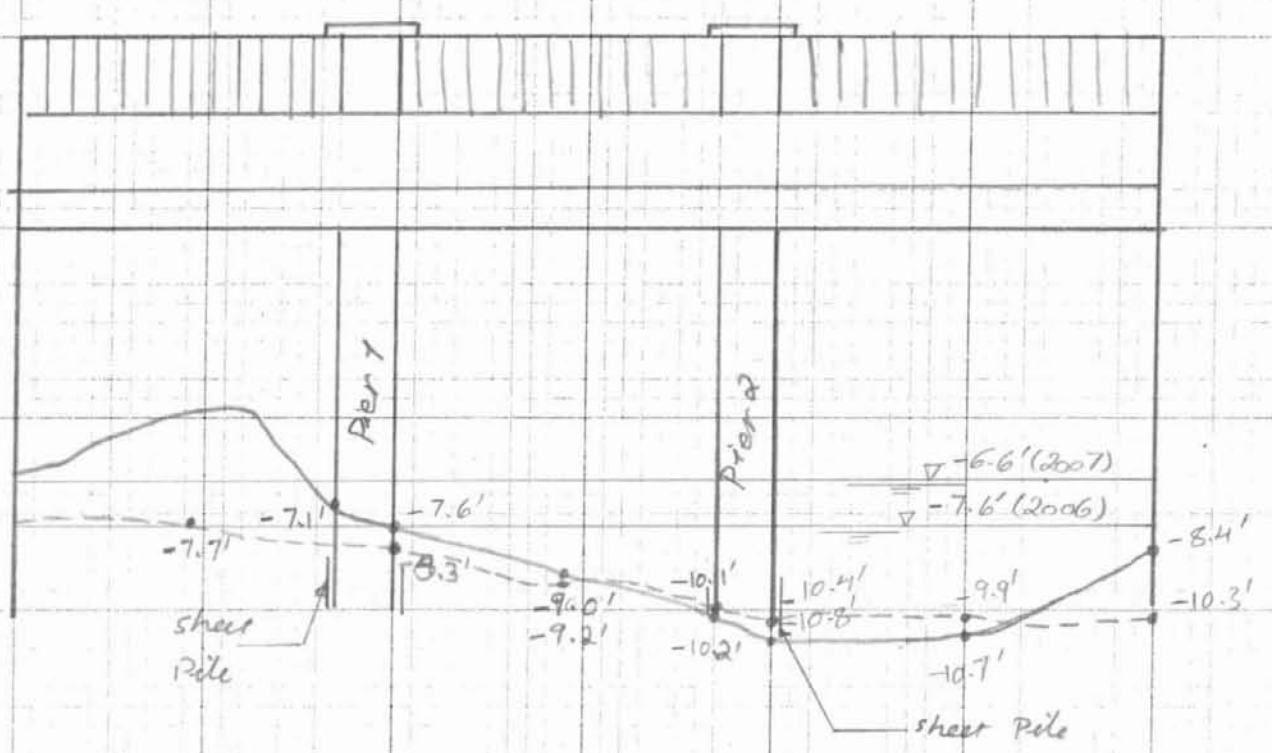
Datum = 6.6' from the bottom of the Deck on the South Abut.

UPDATE NO.	DATE	COMPANY	CREW

SUPPLEMENTAL SHEET

☐ FIELD ORIGINAL ☐ TRANSCRIBED BY: ____	BRIDGE NO. 00908	DATE: 4/19/07
	CREW: JSD, SRM, BM	SHEET 2 OF 4

DESCRIPTION:



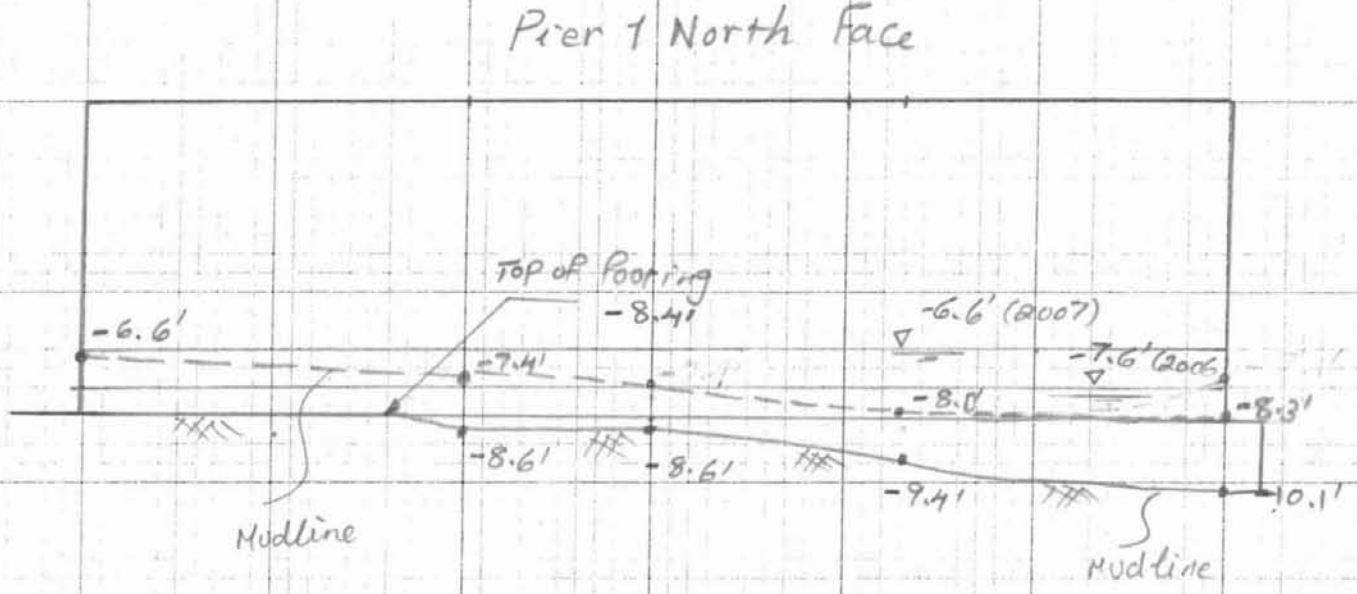
Upstream Profile
(west)

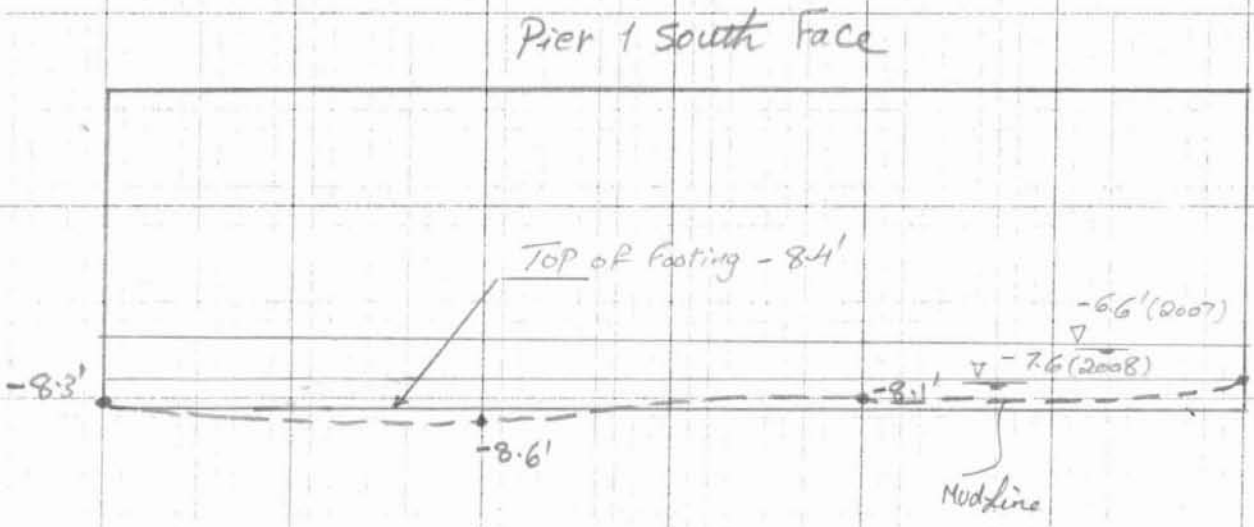
2006
2007

UPDATE NO.	DATE	COMPANY	CREW

SUPPLEMENTAL SHEET	BRIDGE NO. 00908	DATE: 4/19/07
☐ FIELD ORIGINAL ☐ TRANSCRIBED BY: ____	CREW: JSD, SRH, BM	SHEET 3 OF 4

DESCRIPTION:





2006
2007

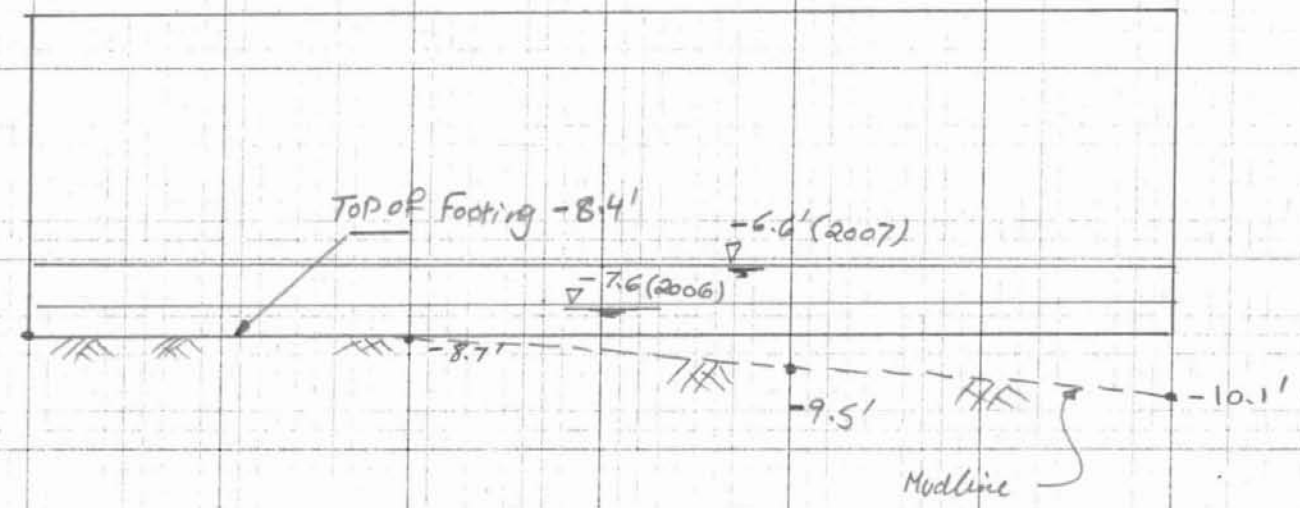
UPDATE NO.	DATE	COMPANY	CREW

SUPPLEMENTAL SHEET

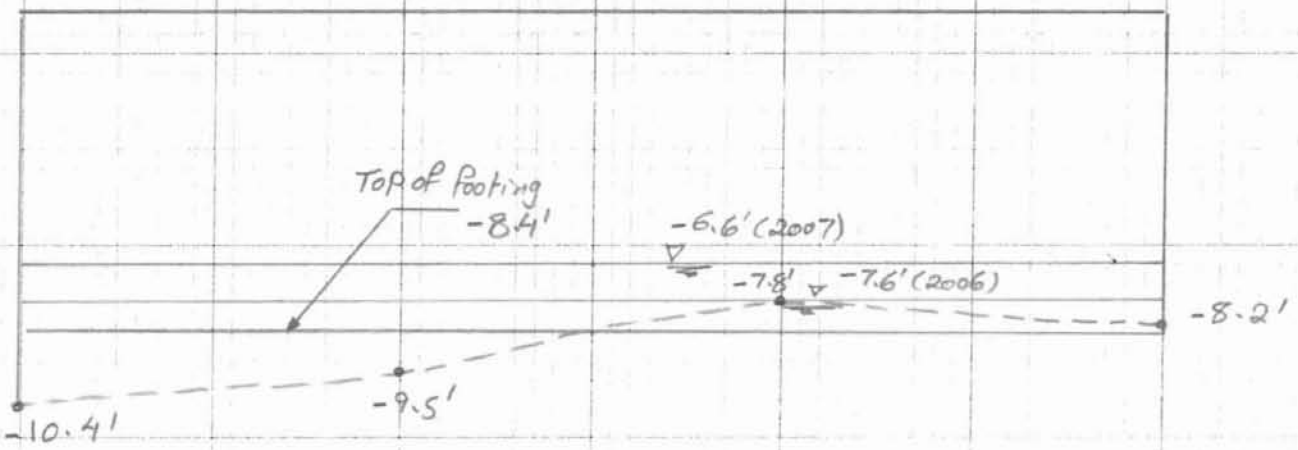
	BRIDGE NO. 00908	DATE 4/19/07
☐ FIELD ORIGINAL ☐ TRANSCRIBED BY: ____	CREW: JSD, SRM, BM	SHEET 4 OF 4

DESCRIPTION:

Pier 2 North Face



Pier 2 South Face



UPDATE NO.	DATE	COMPANY	CREW