

TOWN OF CHAPLIN
INSPECTION
of
BEDLAM ROAD BRIDGE
over
UNNAMED STREAM

Bridge No. 024004



Prepared For:

THE TOWN OF CHAPLIN

**495 PHOENIXVILLE ROAD
CHAPLIN, CT 06235**

MAY 20, 2019

Prepared by:
Wengell, McDonnell & Costello
-Consulting Engineers-
87 Holmes Road
Newington, Connecticut 06111

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EXECUTIVE SUMMARY

GENERAL

Bridge No. 024004 carries Bedlam Road over Stream in the Town of Chaplin, Connecticut. The steel girders and concrete deck slab bridge was constructed in 1952 and was rebuilt 1992. The bridge has an approximate span of 17.5 feet and carries two lanes of traffic. The bridge consists of stone masonry and concrete abutment and wingwalls with metal guiderails parallel to the traffic direction.

WMC Consulting Engineers (WMC) performed the inspection of the steel girder bridge in May, 2019. The inspection included the visual evaluation of all bridge members and the channel through the structure, as well as just upstream and downstream of the bridge. The bridge was found to be in Serious Condition (Condition Rating = 3) mainly due to the substructure.

OVERVIEW

The Deck is in Satisfactory Condition (Condition Rating = 6). Concrete deck slab with corrugated metal deck forms left in place is in good condition.

The Channel and Channel Protection is in Poor Condition (Condition Rating = 4). There are scour holes at the upstream face of the west abutment and downstream face of the east abutment. Parts of the channel are heavily overgrown. There are a few loose stones along the west abutment embankment. No embankment erosion has been observed.

The Superstructure is in Fair Condition (Condition Rating = 5). It consists of a concrete deck slab. Both facial beams have rusting along the beams and moderate rusting at both ends due to moisture. No section loss was observed.

The Substructure is in Serious Condition (Condition Rating = 3). Mortar loss in stone abutment and wingwalls. There are full height vertical cracks from the bridge seat to the foundation on both abutments at both ends. There are also full height vertical cracks in the wingwalls. There are stone missing and minor efflorescence leakage is noticed in both wingwalls and abutment as well.

The Approach Roadway is in Fair Condition (Condition Rating = 5). Two lanes asphalt road with vegetation on the embankments. Guide rail are missing bolts and nuts. Guiderail length is insufficient to develop full strength and no wire guide rail is available with only individual posts in place. Cracks in asphalt exist on both approach of the bridge.

Bridge No. 024004
Bedlam Road over Stream
Chaplin, CT

APPENDIX A
Form BRI-18 & BRI-19

Connecticut Department of Transportation

Bridge Inspection Report BRI-18

BRIDGE #: 024004

INSPECTION DATE: 05/18/19

INSPECTION TYPE: ROUTINE **PREVIOUS INSPECTION DATE:** 02/08/17 **SNOOPER REQUIRED:** ☐
INSPECTION PERFORMED BY: WMC ENGINEERS **SNOOPER USED:** ☐

TOWN: 13810 - Chaplin **FEATURE CARRIED:** Bedlam Road **YEAR BUILT:** 1952
LOCATION: 0.92 Mi West Route 198 **FEATURE INTERSECTED:** an unnamed stream **YEAR REBUILT:** 1992
MAIN MATERIAL: 3 - Steel **MAIN DESIGN:**

INSPECTION VISITS:
 Inspection Date: 5/18/2019 Start Time: 6:30 **INSPECTORS:**
 Temperature: 65 End Time: 9:30 Inspector: Seb. Abdullah Task:
 Inspector: Nertii Semani Task:
 Inspector: Task:

58. DECK **OVERALL RATING** 6

	RATING	
OVERLAY	6	Good condition only a few transverse cracks at both ends of the bridge
DECK STR. CONDITION	6	Left in place deck forms are in satisfactory condition
CURBS	N	
MEDIAN	N	
SIDEWALKS	N	
PARAPET	N	
RAILING	6	Galvanized steel bridge rails at the bridge and approaches, with some minor rusting in the connection with the exterior beams.
PAINT	N	
FENCE	N	
DRAINS	N	
LIGHTING STANDARD	N	
UTILITIES TYPE/SIZE	N	
CONSTRUCTION JOINTS	N	
EXPANSION JOINTS	N	

59. SUPERSTRUCTURE **OVERALL RATING** 5

	RATING	
BEARING DEVICES	5	Moderate rusting on steel bearing plates.
STRINGERS	N	
GIRDERS	6	Facia girders exhibit moderate rusting all around and at each end.
FLOOR BEAMS	N	
TRUSSES-GENERAL	N	
TRUSSES-PORTALS	N	
TRUSSES-BRACING	N	
PAINT	4	
RUST	4	
MACHINERY MOV SPAN		

Connecticut Department of Transportation

Bridge Inspection Report BRI-18

BRIDGE #: **024004**

INSPECTION DATE: **5/18/2019**

RIVETS & BOLTS	☐	
WELDS & CRACKS	☐	
TIMBER DECAY	☐	
CONCRETE CRACKING	☐	
COLLISION DAMAGE	☐	
MEMBER ALIGNMENT	☐	
DEFLECT. UNDER LOAD	☐	
VIBR. UNDER LOAD	☐	
STAND PIPES	☐	
BARREL LADDERS	☐	

ARE BARREL LADDERS OSHA COMPLIANT? ☐

60. SUBSTRUCTURE

OVERALL RATING **3**

RATING

ABUTMENTS-STEM	☐	Abutments have some missing mortar, minor efflorescence and light scalling. All wingwalls have full height vertical cracks, in some parts about 3-4 inches wide with random spalls. There are full height vertical cracks causing separation between the wingwalls and west abutment.
ABUTMENTS-BACKWALL	☐	There are cracks observed in backwall where it meets wingwalls and fascia beams
ABUTMENTS-FOOTINGS	☐	
ABUT.-SETTLEMENT	☐	
ABUTMENTS-WINGWALLS	☐	
PIERS/BENTS-CAPS	☐	
PIERS/BENTS-PILE BENT	☐	
PIERS/BENTS-COLUMN	☐	
PIERS/BENTS-FOOTINGS	☐	
PIERS/BENTS-SETTLEMENT	☐	
EROSION-SCOUR	☐	On the east abutment downstream side and on west abutment upstream side about 4 feet deep, scour pools have been observed.
CONCRETE CRACK-SPALL	☐	
STEEL CORROSION	☐	
PAINT	☐	
TIMBER DECAY	☐	
COLLISION DAMAGE	☐	
DEBRIS	☐	

61. CHANNEL PROTECTION

OVERALL RATING **4**

RATING

CHANNEL SCOUR	☐	There are scour holes at the east abutment downstream side and at the west abutment upstream side about 4 feet deep.
EMBANKMENT EROSION	☐	
DEBRIS	☐	On the upstream side dead trees and branches have created a pond.
VEGETATION	☐	All banks and inside the channel is overly vegetated

Connecticut Department of Transportation

Bridge Inspection Report BRI-18

BRIDGE #: **024004**

INSPECTION DATE: **5/18/2019**

CHANNEL CHANGE	☐ N	
FENDER SYSTEM	☐ N	
SPUR DIKES & JETTIES	☐ N	
RIP RAP	☐ N	

62. CULVERTS & RETAINING WALL OVERALL RATING ☐ N

	RATING	
BARREL	☐ N	
CONCRETE	☐ N	
STEEL	☐ N	
TIMBER	☐ N	
HEADWALL	☐ N	
CUTOFF WALL	☐ N	
DEBRIS	☐ N	
RETAINING WALL STEM	☐ N	
FOOTING	☐ N	

APPROACH CONDITION OVERALL RATING ☐ 5

	RATING	
APPROACH SLAB	☐ N	
RELIEF JOINTS	☐ N	
APPROACH GUIDE RAIL	☐ 5	Guiderails look intact but there are bolt and nuts missing almost in every piece connections.
APPROACH PAVEMENT	☐ 6	Approach slab is satisfactory condition with minor longitudinal cracking.
APPROACH EMBANKMENT	☐ N	

TRAFFIC SAFETY FEATURES:

BRIDGE RAILINGS	☐ 5	Exhibit rust at the connections with facial beams.
TRANSITIONS	☐	
APPROACH GUARDRAILS	☐ 5	Guiderails are missing bolt and nuts in connections.
APPR. GUARDRAIL ENDS	☐ 5	

LOAD POSTING

SINGLE UNIT (TONS)	☐ N	
HS (TONS)	☐ N	
4 AXLE (TONS)	☐ N	
2S3 (TONS)	☐ N	
ADVANCE WARNING Y/N	☐ N	
LEGIBILITY	☐ N	
VISIBILITY/LOCATION	☐	

Connecticut Department of Transportation
Bridge Inspection Report BRI-18

BRIDGE #: **024004**

INSPECTION DATE: **5/18/2019**

MISC.

MIN VERT. UNDERCLR.	' "	
POSTED CLR UNDER BRIDGE	' "	
POSTED CLR UNIT (TONS)	' "	
ADVANCE WARNING (Y/N)		
SPEED LIMIT (IF ANY)	MPH	
CHARACTER OF TRAFFIC		

ADDITIONAL NOTES

ADDITIONAL COMMENTS:

Bridge is open to traffic

Inspectors' Signatures:	1)		DATE: --/--/--
	2)		DATE: --/--/--
	3)		DATE: --/--/--
	4)		DATE: --/--/--
P.E. Signature:			DATE: --/--/--
P.E. #:			
Reviewed by:		CDOT	DATE: --/--/--

CLASSIFICATION

- 112) NBIS Bridge Length
- 104) Highway System
- 26) Functional Class
- 100) Defense Highway
- 101) Parallel Structure
- 103) Temporary Structure
- 110) Designed National Network
- 20) Toll
- 21) Maintain
- 22) Owner
- Report Class
- 37) Historical Significance

N	8	0	0	N	0	3	0	3	0	3	4
---	---	---	---	---	---	---	---	---	---	---	---

STRUCTURE EVALUATION SHEET 2 OF 2 FORM BRI-19 REV 10/00 SHEET ____ OF ____ (INSP. REPORT)

Bridge Number	024004	NBIS LENGTH
Town Name	Chaplin	
Facility Carried	Stream	
Feature Crossed	Bedlam Road	

INSPECTED BY: EDWARD SCOVILLE P.E.

LOAD RATING AND POSTING

31) Design Load	0.5	Evaluation Code	0
63) Operating Rating Type	5	Year of Evaluation	2019
64) Operating Rating		70) Bridge Posting	0
65) Inventory Rating Type	5	41) Structure Status	A
66) Inventory Rating			

CONDITION

58) Deck	Rating	By	Rating	By
59) Superstructure	6	SA	4	SA
60) Substructure	5	SA	4	SA
61) Channel & Chan. Protection	3	SA		
62) Culverts	4	SA		
	N	SA	5	SA

STRUCTURE TYPE AND MATERIAL

Drainage Basin Code				
38) Navigation Control				
39) Navigation Vert Ctr.				
116) Vert-Lift Brg Nav Min				
111) Pier Abutment Protection				
40) Navigation Horiz Ctr.				

75A) Type of Work Proposed				
75B) Work Done By				
76) Length of Struct. Improvement				
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				

Items 58 Thru 72 Checked By: Seb. Abdullah

TRAFFIC SAFETY FEATURES:

A) Bridge Railings	5
B) Transitions	6
C) Approach Guardrail	5
D) Approach Guardrail End	5

POSTED SIGNS & UTILITIES

Other Posted Signs 1				
Other Posted Signs 2				
Actual P.L. Single Unit Truck				
Rec. P.L. Single Unit Truck				
Actual P.L. Semi-Trailer Truck				
Rec. P.L. Semi-Trailer Truck				
Rec. P.L. All Vehicles				
Posted Vert Clearance On Bridge				
Posted Vert Under Clearance				
Posted Speed Limit				
Utility				
Utility				

Fence Required				
Fence Present				
Fence Height				
Fence Type				
Fence Material				
Fence Top Type				
Proposed Next Indepth Insp Year				

OTHER FEATURES

Barrel Ladder				
Stand Pipes				
Cat Walks				
Movable Inspection System				
Loose Concrete Checked?				

REVIEWED BY: _____ Date: _____

**Bridge No. 024004
Bedlam Road over Stream
Chaplin, CT**

**APPENDIX B
Photographs**



Photo 1 - East Approach to Bridge (Facing West)

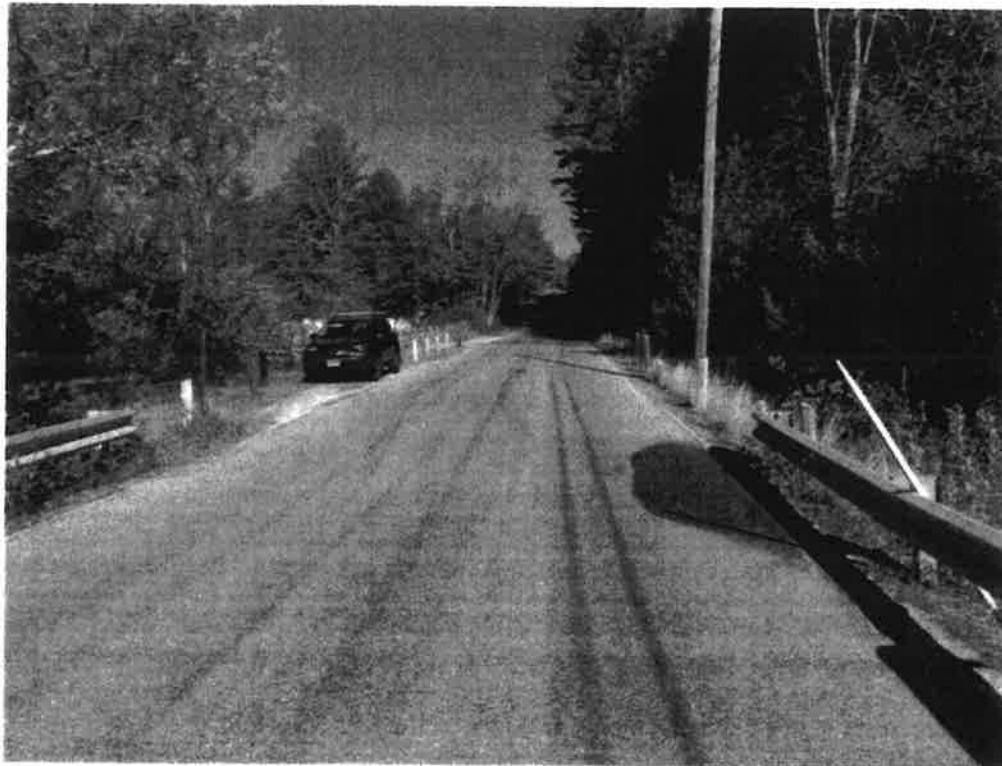


Photo 2 - West Approach to Bridge (Facing East)

BEDLAM ROAD BRIDGE OVER STREAM - BRIDGE NO. 024004



Photo 3 – West Abutment

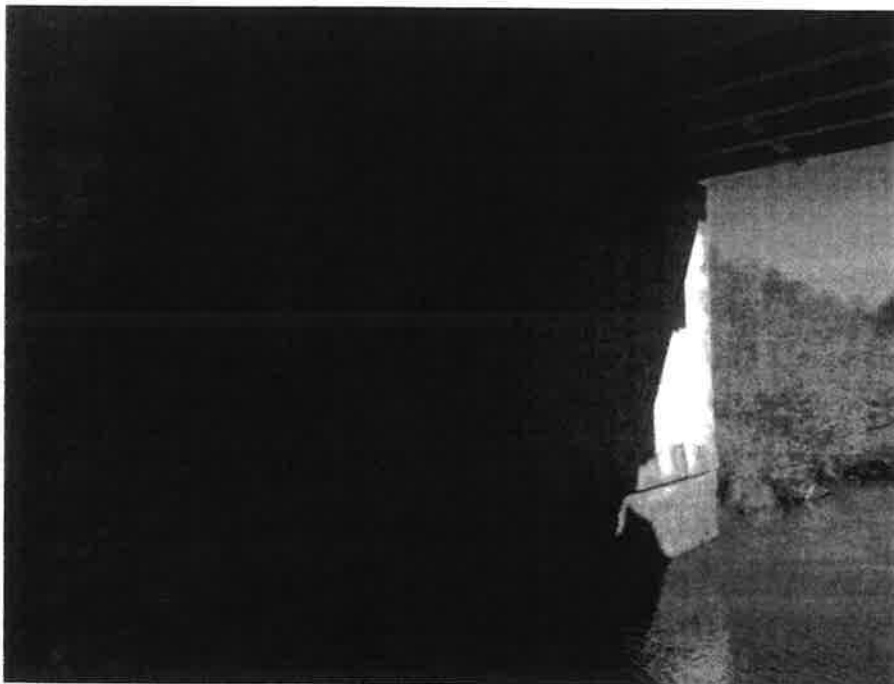
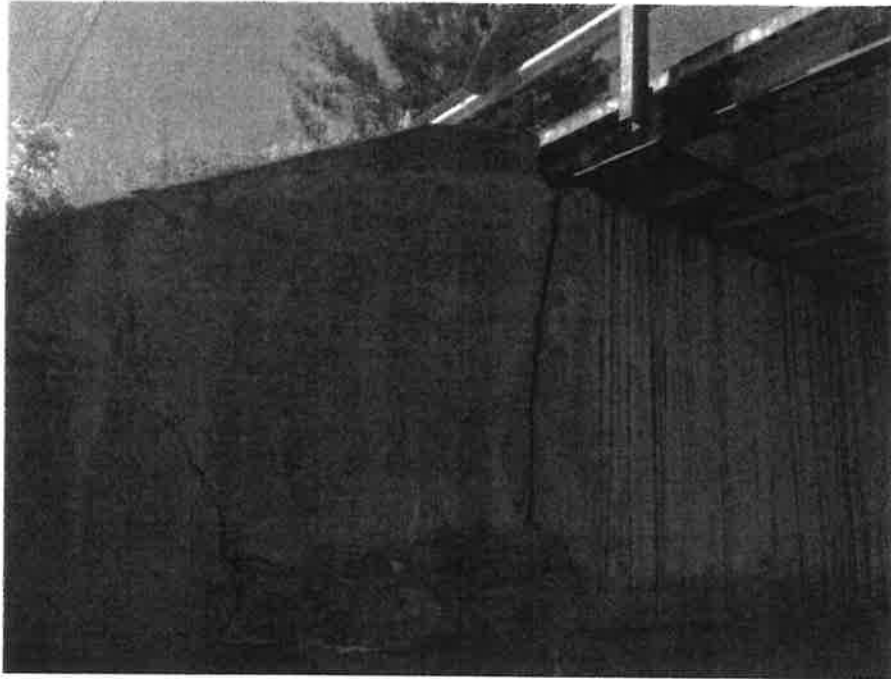
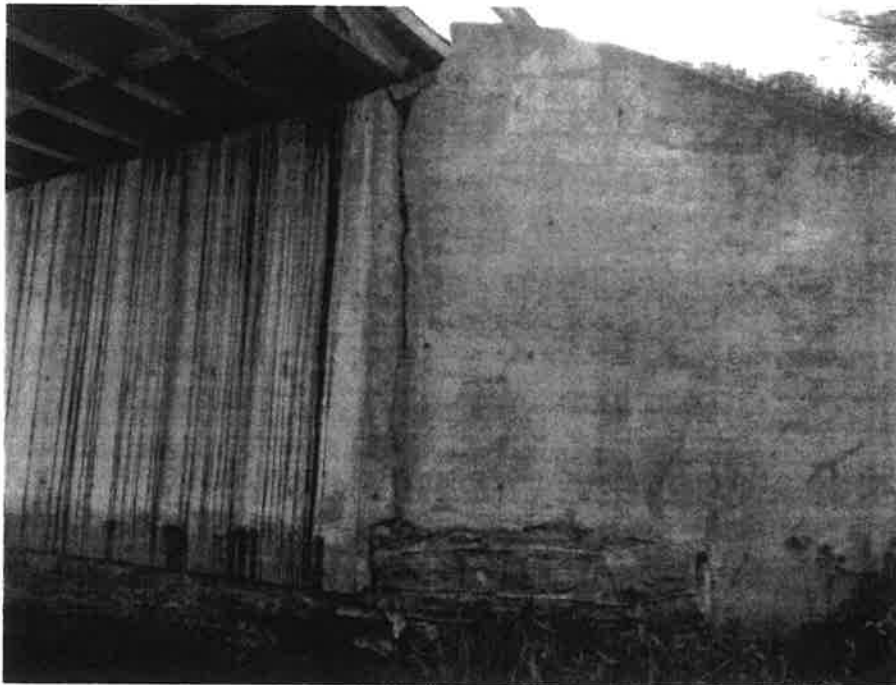


Photo 4 – East Abutment



**Photo 5 – Northwest Corner/West Abutment
Large Vertical Crack and Tilted Wingwall**



**Photo 6 – Southwest Corner/West Abutment
Large Vertical Crack and Missing Stones**

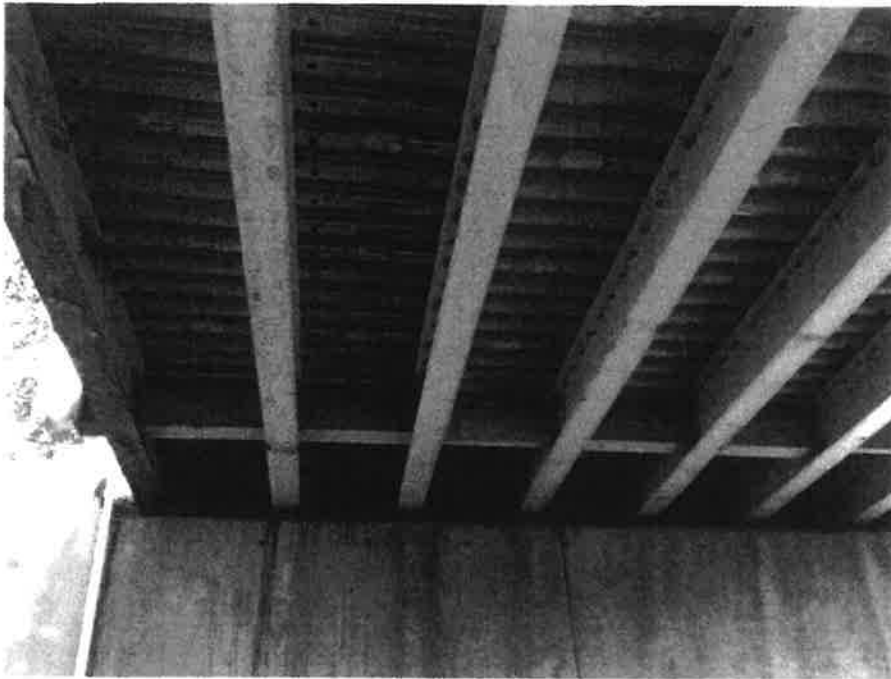


Photo 7 – Under the Bridge, Rusted Exterior Beam

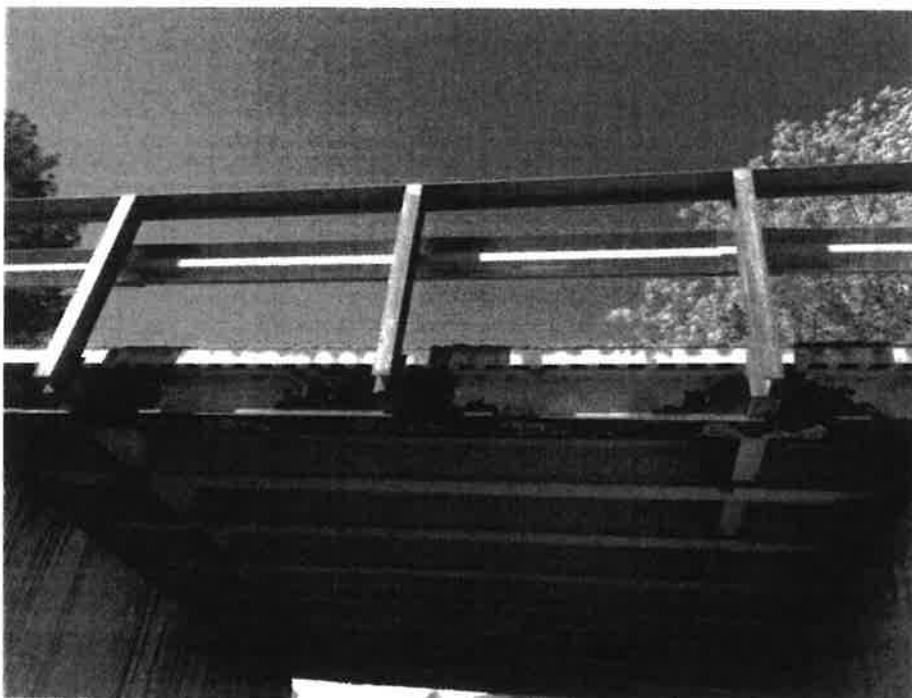


Photo 8 – Upstream Fac, Rusted Exterior Beam



Photo 9 – Downstream Face (Looking Upstream)

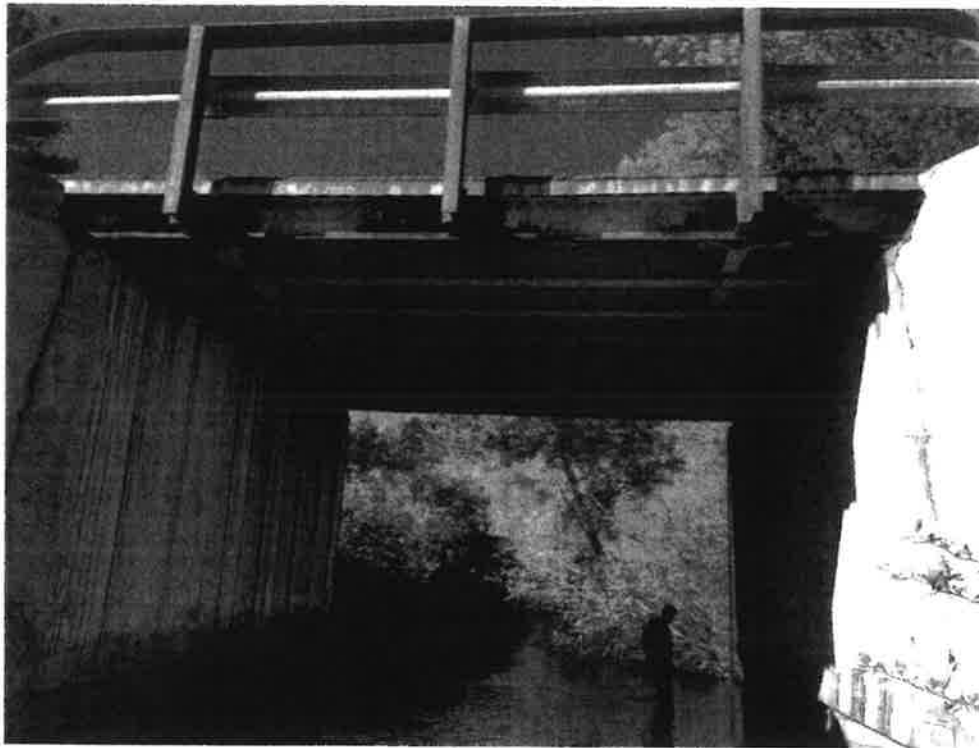


Photo 10 – Upstream Face (Looking Downstream)



Photo 11 – Northeast Corner, Large vertical crack in the wingwall

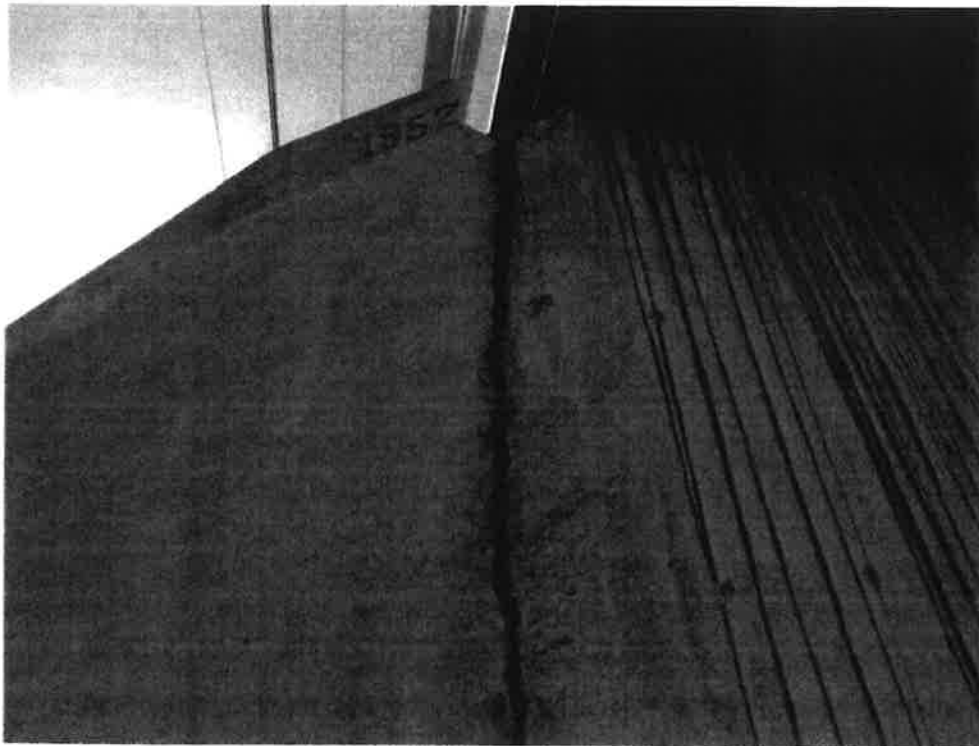


Photo 12 – Northwest Corner, Large crack and demolished top of wall



Photo 13 – Guiderails Missing Bolts at Joints

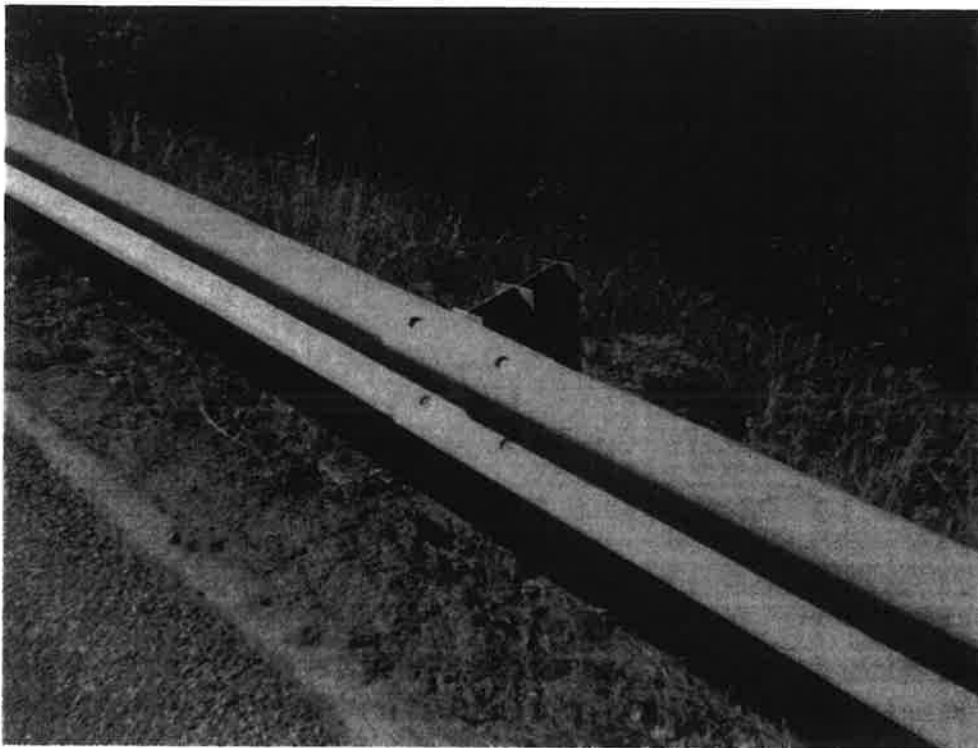


Photo 14 – Guiderails Missing Bolts at Joints



Photo 15 – Downstream (Looking from Top of Bridge)

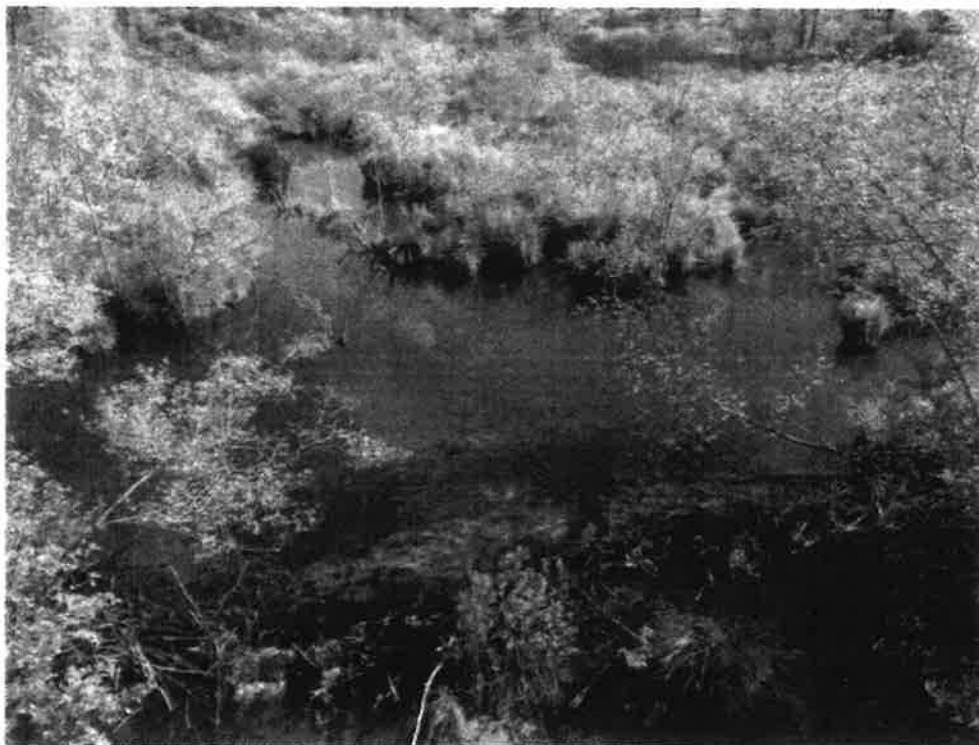


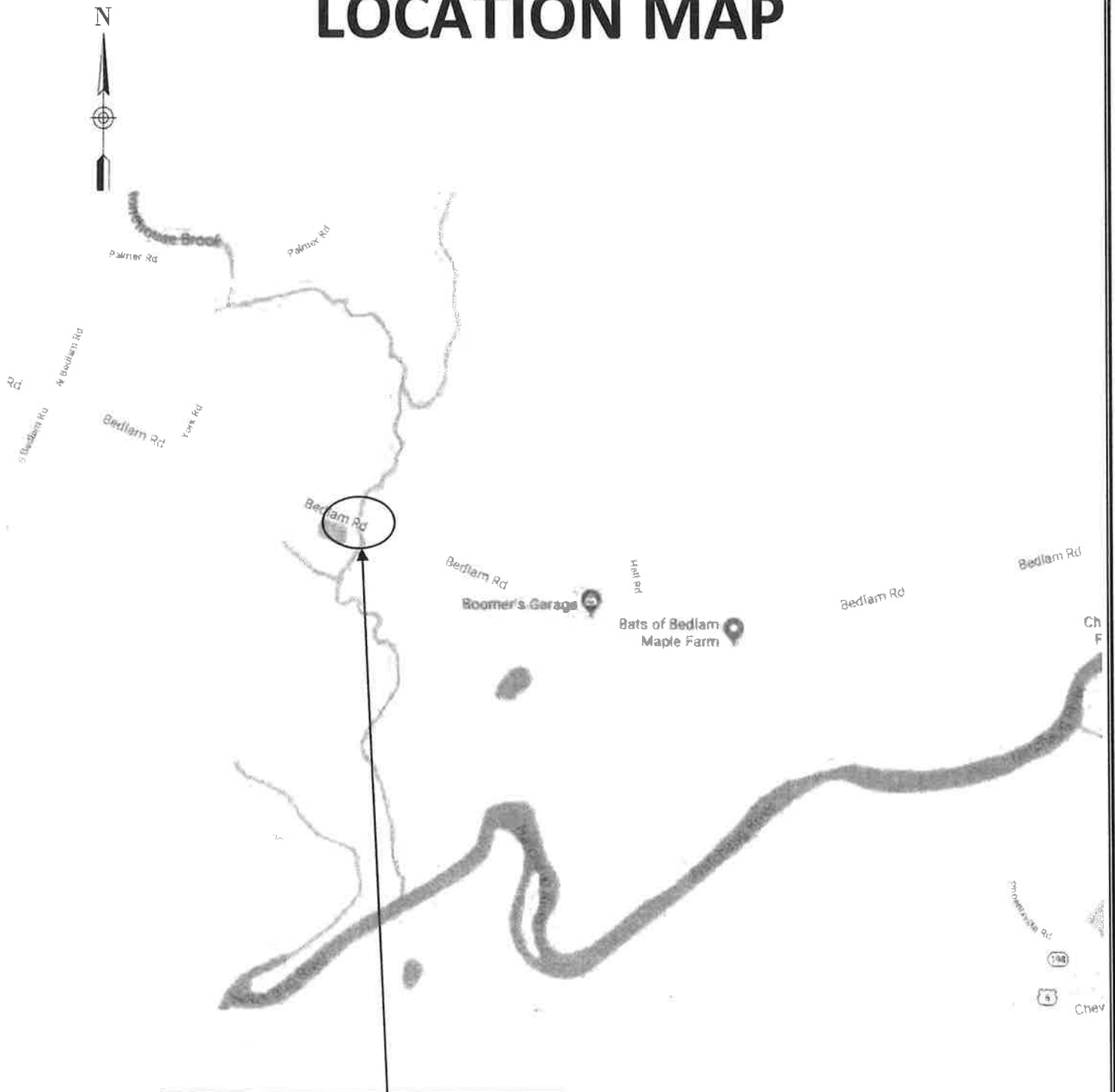
Photo 16 – Upstream (Looking from Top of Bridge)

BEDLAM ROAD BRIDGE OVER STREAM - BRIDGE NO. 024004

Bridge No. 024004
Bedlam Road over Stream
Chaplin, CT

APPENDIX D
Location Map

LOCATION MAP

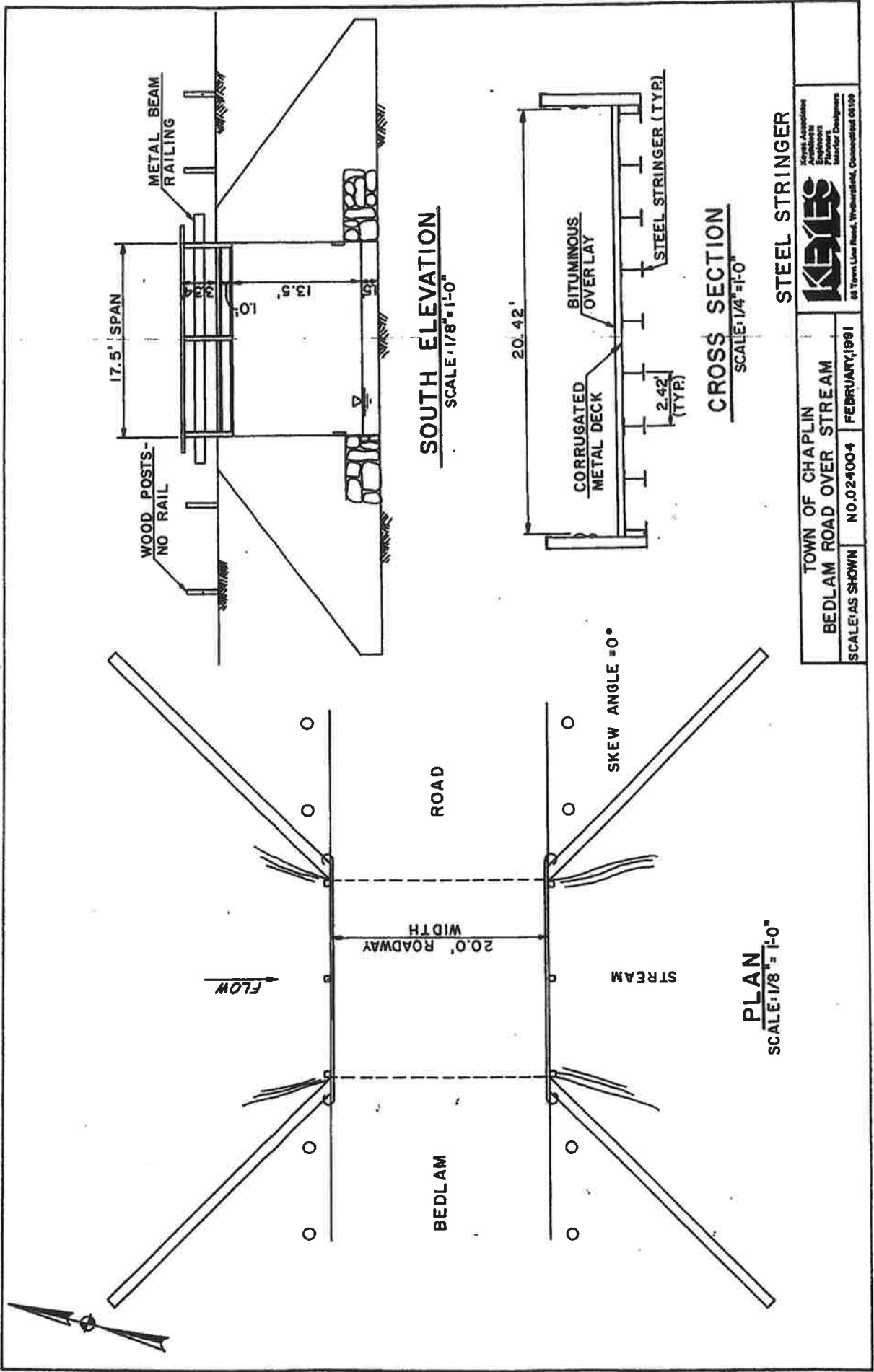


BRIDGE NO. 024004
FEATURE CARRIED: BEDLAM ROAD
FEATURE CROSSED: STREAM
TOWN: CHAPLIN, CT

BEDLAM ROAD BRIDGE OVER STREAM- BRIDGE NO. 024004

Bridge No. 024004
Bedlam Road over Stream
Chaplin, CT

APPENDIX E
Existing Plans



K&E
K&E Associates
Professional Engineers
Planners
Interior Designers
88 Town Line Road, Westbrook, Connecticut 06109