Federal

CONNECTICUT DEPARTMENT OF TRANSPORTATION

The Honorable Emil H. Frankel, Acting Commissioner

PRELIMINARY APPLICATION FOR THE LOCAL BRIDGE PROGRAM

Preliminary application is hereby made by the Town/City/Borough of Plainfield for possible inclusion in the Local Bridge Program for Fiscal Year **2009** for the following structure:

Bridge Location: Sterling Hill Road over Ekonk Brook

Bridge Number: 04751 Length of Span: 23 feet

Sufficiency Rating: 49.98 Priority Rating: 48.92

Evaluation & Rating Performed by: xx State Forces _____ Others

If Others, Name of Professional Engineer: _____

Connecticut Professional Engineers License Number: _____

Engineering Firm: _____

Engineer's Address: _____

Engineer's E-mail Address: _____

Description of Existing Condition of Structure: *(attach description)* see attached

Description of Project Scope: A *(note repair code; attach narrative/preliminary plans & specifications).*

Municipal Official to Contact *(name & title)*: Paul E. Sweet, First Selectman

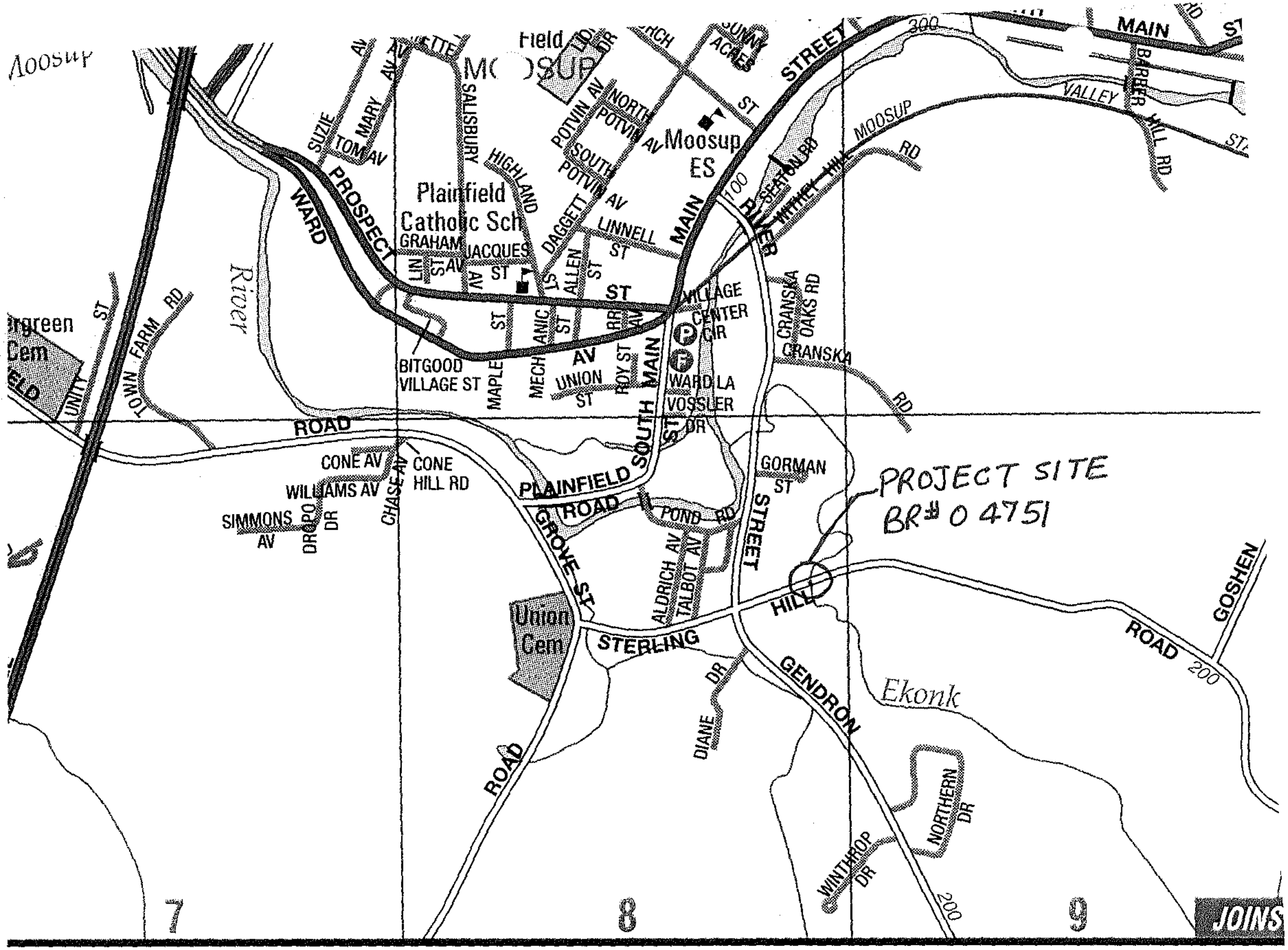
Mailing Address: 8 Community Avenue, Plainfield, CT 06374

Telephone: (860)230-3001 FAX: (860)230-3033

E-mail: selectman@plainfieldCT.com

Schedule: (Anticipated Dates)

Public Hearing Conducted:	September, 2008
Design Completion:	November, 2009
Property Acquisition Completion:	N/A
Utilities Coordination Completion:	September, 2009
Construction Advertising:	January, 2010
Supplemental Application Submission:	March, 2010
Start of Construction:	April, 2010
Completion of Construction:	November, 2010


PROJECT SITE
BR# 04751
Moosup
Plainfield
Catholic Sch
Moosup
ES
MAIN STREET
RIVER
SOUTH MAIN ST
PLAINFIELD ROAD
GROVE ST
STERLING
HILL
ROAD
GENDRON
GOSHEN
STREET
PROSPECT
WARD
River
Ekonk
Union
Cem
CONE AV
WILLIAMS AV
SIMMONS AV
DROPO DR
CHASE AV
CONE HILL RD
TOWN FARM RD
UNITY
BITGOOD VILLAGE ST
MAPLE
MECHANIC ST
UNION ST
ROY ST
WARD LA
VOSSLER DR
VILLAGE CENTER CIR
CRANSKA OAKS RD
CRANSKA RD
GORMAN ST
POND RD
ALDRICH AV
TALBOT AV
DIANE DR
NORTHERN DR
WINTHROP DR
MOOSUP RD
WITHEY HILL
SEATON RD
VALLEY
BARBER HILL RD
LINNELL ST
ALLEN ST
DAGGETT AV
HIGHLAND
SALISBURY
GRAHAM AV
JACQUES ST
LIN ST
SUZIE
MARY AV
TOM AV
POTVIN AV
NORTH POTVIN AV
SOUTH POTVIN AV
SUNNY ACRES
ST
AV
100
200
300
7
8
9
JOINS

Replacement of Sterling Hill Road Bridge over Ekonk Brook, Bridge No. 04751
Plainfield, CT

Existing Conditions:
Sterling Hill Road is a two-lane rural major access road in the town of Plainfield. The road carries local vehicular traffic, including school buses and commercial trucks, and runs east-west between Plainfield Road and Route 14A. Average Daily Traffic (ADT 1992) is 1,000 of which 7% is trucks. Estimated detour length is 3 miles.

The Sterling Hill Road Bridge (No. 04751) was constructed in 1950. The bridge is a single span structure with a clear span of 23' and total length of approximately 30'. The bridge has a roadway width of 20.2' between metal bridge railings. There are no curbs or parapets. The bridge is located on a straight tangent portion of the road and has a down grade from west to east.

The bridge superstructure consists of steel stringers and corrugated metal deck pan filled with bituminous concrete. The substructure consists of dry laid stone masonry abutments and flared wingwalls.

The structure opening appears to be hydraulically inadequate, as significant ponding occurs upstream of the bridge causing flooding to the adjacent property. The banks show significant erosion.

The roadway profile needs improvement to diminish sharp drop on the west approach. Minimum roadway width for the rural collector will be 26' (11' lanes and 2' shoulders).

There are overhead utilities on the downstream side.

The bridge is in poor condition and requires full replacement.

Proposed Construction:
1. Remove existing superstructure and the stone masonry superstructure to 2yr. flow elevation for critter passage use.
2. Construct 34' clearspan precast concrete rigid trane structure with reinforced concrete footing supported on steel H-piles. U-type concrete wingwall will be used.
3. Roadway width between curbs will be 26' and out to out bridge width will be 30'.
4. 3-bar aluminum bridge railing with concrete endposts will be used.
5. Roadway profile will be adjusted to meet the AASHTO/CDOT minimum criteria for 40 to 45 mph speed.
6. R-B 350 guiderailing will be used on the approaches. Approximately 500 L.F. of roadway will be reconstructed.

Bridge Number **04751**

Inspected By: _____ & _____

Sufficiency Rating 49.7
Previous Inspection Date 1/10/2006

BS&E Received ☐ Data Entry By: _____
Copies Made ☐ Data Entry Date: _____

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	Inspection Team	91) Freq	cy Class:
	3	24	01

Indepth Insp	Deck Survey	Access	Flagman
4/8/2002		0	0

CRITICAL FEATURE INSPECTIONS

	Type	Frequency	Team	Date
Fracture:				
Uwater:				
Special:				

RED FLAG ☐

IDENTIFICATION

Bridge Name
Town Name PLAINFIELD Town Code 59980
5) Inventory Route:
A) Record Type 1
B) Signing Prefix 5 City Street
C) Level of Service 0 None of the bel
D) Route Number 00000
E) Directional Suffix 0 NA
6) Feature Intersected EKONK BROOK
7) Facility Carried STERLING HILL ROAD
9) Location 575 FT EAST OF GENDRON RD
11) Milepoint 1.41 Miles
16) Latitude 41 deg 42 min 42.00 sec
17) Longitude 71 deg 52 min 36.00 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 1
46) Number of Approach Spans 0
107) Deck Structure Type 6 Corrugated Steel
108) Wearing Surface/Protective System:
A) Type of Wearing Surface 6 Bituminous
B) Type of Membrane 0 None
C) Type of Deck Protection 0 None

AGE AND SERVICE

27) Year Built 1950
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 1000
Half ADT?: No
109) Percent Truck 7 %
30) Year of ADT 1992
19) Bypass, Detour Length 3 miles

GEOMETRIC DATA

48) Length of Max Span 23 ft
49) Structure Length 30 ft
50) Curb or Sidewalk Widths:
A) Left 0.0 ft
B) Right 0.0 ft
51) Brg Rdwy width,curb-curb 20.2 ft
52) Deck Width, Out-Out 20.5 ft
32) Approach Roadway Width 18 ft
33) Bridge Median 0 No Median
Deck Area 615 sqft
34) Skew Angle 23 deg
35) Structure Flared 0
10)Inv. Rte. Min. Vert Clearance 99 ft 99 in
47) Log Inv. Rte. Total Horiz Clr.: 20.2 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
55) Min Lat Under Clearance on Right N Ref 99.9 ft
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_____ OF_____ (INSP. REPORT)

Bridge Number	04751	NBIS Length
Town Name	PLAINFIELD	Yes 30
Facility Carried	STERLING HILL ROAD	
Feature Crossed	EKONK BROOK	

Inspected By: _____ &

CLASSIFICATION

112) NBIS Bridge Length	Yes	
104) Highway System	0	Off System
26) Functional Class	9	Rural Local
100) Defense Highway	0	Not 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	3	Town or Township Highway Agency
22) Owner	3	Town or Township Highway Agency
Report Class	L	LOCAL
37) Historical Significance	5	Bridge is not eligible for National Register

WATERWAY

DrainageBasinCode	3503	
38) Navigation Control	0	No navigation control on waterway
39) Navigation Vert Clr.	0	
40) Navigation Horiz Clr.	0	
116) Vert-Lift Brg Nav Min		
111) Pier Abutment Protection		

PROPOSED IMPROVEMENTS

75A) Type of Work Proposed		
75B) Work Done By		
76) Length of Struct. Improvement		ft
94) Bridge Improvement Cost	$	
95) Roadway Improvement Cost	$	
96) Total Project Cost	$	
97) Year of Improvement Cost Est.		
114) Future ADT		115) Year Future ADT

List No. _____ Project No. _____ Advertised _____

POSTED SIGNS & UTILITIES

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

LOAD RATING AND POSTING

31) Design Load	0	Evaluation Code	L
63) Operating Rating Type	1	Year of Evaluation	2002
64) Operating Rating	53.5	70) Bridge Posting	5
65) Inventory Rating Type	2	41) Structure Status	A
66) Inventory Rating	34.5	Open, no restriction	

CONDITION

	Rating	By
58) Deck	6	
59) Superstructure	5	
60) Substructure	4	
61) Channel & Chan. Protection	7	
62) Culverts	N	

APPRAISALS

	Rating	By
67) Structure Evaluation	4	
68) Deck Geometry	3	
69) Under Clear Vert & Horiz	N	
71) Waterway Adequacy	5	
72) Approach Rdwy Alignment	6	
113) Scour Critical	3	

Items 58 Thru 72 Checked By: _____

36) Traffic Safety Features:

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

OTHER FEATURES

Fence Required	No		Barrel Ladder	No	
Fence Present	No		Stand Pipes	No	
Fence Height	0.0 ft	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	carlsondm
Supervisor	kozlowskijc

REVIEWED BY: _____ Date _____

Connecticut Department of Transportation
Bridge Inspection Report BRI-18

BRIDGE #: 04751 **INSPECTION DATE:** 5/4/2004

INSPECTION TYPE: Routine **PREVIOUS INSPECTION DATE:** 4/8/2002 **SNOOPER REQUIRED:** No
INSPECTION PERFORMED BY: Team 3 **SNOOPER USED:** No

TOWN: PLAINFIELD **FEATURE CARRIED:** STERLING HILL ROAD **YEAR BUILT:** 1950
LOCATION: 575 FT EAST OF GENDRON **FEATURE INTERSECTED** EKONK BROOK **YEAR REBUILT:** 0
MAIN MATERIAL: Steel **MAIN DESIGN:** Stringer/Multi-beam or Gird

INSPECTION VISITS:
Inspection Date: 5/4/2004 **Start Time:** 12:30 PM
Temperature: ° F **End Time:** 2:00 PM

INSPECTORS:
Inspector: D. Willis **Task:** INSPECTION
Inspector: T.Kahak **Task:** INSPECTION

58. DECK

OVERALL RATING 7

	RATING	
OVERLAY	7	BITUMINOUS CONCRETE - HAIRLSAND BUILD-UP AT SHOULDERS.INE TRANSVERSE AND LONGITUDINAL CRACKS. OVERLAY DOESN'T EXTEND TO SHOULDERS. SAND BUILD-UP AT SHOULDERS.
DECK STR. CONDITION	7	GALVANIZED METAL BRIDGE PLANKING - SMALL AREAS OF SPOTTY RUST. SINGLE METAL BEAM RAIL WITH H-BEAM POSTS AND CHANNEL IRON CAP - MINOR PAINT PEELING WITH RUST BLEEDING THROUGH. METAL BEAM RAIL EXTENDS ACROSS STRUCTURE. STAND-OFF AT THE SOUTHEAST CORNER HAS 100% SECTION LOSS AREA AT THE BOTTOM OF THE WEB.
CURBS	N	
MEDIAN	N	
SIDEWALKS	N	
PARAPET	N	
RAILING	7	NO SAW CUTS AT DECK ENDS. HAIRLINE TRANSVERSE CRACKS AT DECK ENDS. OPEN 1/4"+/-.
PAINT	N	
FENCE		
DRAINS	N	
LIGHTING STANDARD	N	
UTILITIES TYPE/SIZE	N	
CONSTRUCTION JOINTS	N	
EXPANSION JOINTS	7	

59. SUPERSTRUCTURE

OVERALL RATING 6

	RATING	
BEARING DEVICES	6	STEEL PLATES ENCASED IN CONCRETE BLOCKS. MEDIUM TO HEAVY RUST TO SPOTTY HEAVY LAMINATING RUST ON EXPOSED AREAS.
STRINGERS	6	8 BEAMS BOTTOM FLANGES AND WEBS AT BOTH ABUTMENTS HAVE HEAVY LAMINATING RUST WITH SECTION LOSS. WORST AREA, BEAM # 8 ABUTMENT # 2 HAS 3/8"+/- SECTION LOSS AT BOTTOM FLANGE AND BEAM # 1 ABUTMENT # 1 BOTTOM FLANGE WITH UP TO 1/8+/- SECTION LOSS. AREAS OF HEAVY LAMINATED RUST AND SECTION LOSS IN STIFFINERS IN TOP FLANGES THRU-OUT. WORST AREAS OVER ABUTMENTS. SEE SKETCH FOR SECTION LOSS AMOUNTS.
GIRDERS	N	
FLOOR BEAMS	N	

BRIDGE #: 04751 **INSPECTION DATE:** 5/4/2004

59. SUPERSTRUCTURE

OVERALL RATING 6

TRUSSES-GENERAL	N	
TRUSSES-PORTALS	N	
TRUSSES-BRACING	N	
PAINT	5	SEE ABOVE ITEMS. REMAINING STEEL HAS MEDIUM TO HEAVY RUST THROUGHOUT WITH PAINT PEELING. SPOTTY HEAVY LAMINATING RUST WITH 1/8"+/- PITTING TYPE SECTION LOSS ON TOP FLANGES ON BEAMS #3 #4 #5 AT MIDSPAN.
RUST	5	SEE ABOVE ITEMS.
MACHINERY MOV SPAN	N	
RIVETS & BOLTS	6	MEDIUM TO HEAVY RUST ON BOLTS AND NUTS FOR DIAPHRAGMS.
WELDS & CRACKS	8	
TIMBER DECAY	N	
CONCRETE CRACKING	N	
COLLISION DAMAGE	8	
MEMBER ALIGNMENT	8	
DEFLECT. UNDER LOAD	N	
VIBR. UNDER LOAD	N	
STAND PIPES		
BARREL LADDERS		

ARE BARREL LADDERS OSHA COMPLIANT?

60. SUBSTRUCTURE

OVERALL RATING 4

	RATING	
ABUTMENTS-STEM	4	MASONRY - FILLER STONE VOIDS ON BOTH ABUTMENTS AT WATERLINE. RULER CAN BE EXTENDED UP TO 26"+/-.
ABUTMENTS-BACKWALL	4	CONCRETE BLOCKS ON ABUTMENT CAPS, CRACKING WITH SOME HOLLOW AREAS UNDR BEAMS # 1 AND # 4 AND # 5 AT ABUTMENT # 1 AND BEAMS # 2 AND # 5 AND # 8 AT ABUTMENT # 2. (SEE ITEM 60-4).
ABUTMENTS-FOOTINGS	N	NOT VISIBLE.
ABUT.-SETTLEMENT	8	
ABUTMENTS-WINGWALLS	6	MASONRY - LARGE STONE VOIDS AND SOME STONE MOVEMENT AT ALL WINGS.
PIERS/BENTS-CAPS	N	
PIERS/BENTS-PILE BENT	N	
PIERS/BENTS-COLUMN	N	
PIERS/BENTS-FOOTINGS	N	
PIERS/BENTS-SETTLEMent	N	
EROSION-SCOUR	8	
CONCRETE CRACK-SPALL	4	LARGE SURFACE SPALL IN CONCRETE BLOCK BACKWALL AT ABUTMENT # 1, BEAM # 5 - 7-1/2" HIGH X 6" WIDE X 8 " DEEP WIT BOTTOM OF BEARING PLATE EXPOSED. POTENTIAL SPALL AT BEAM # 4 AT ABUTMENT # 1. ADJACENT BLOCKS HOLLOW. SPALL AREA UNDER BEAM # 1 AT ABUTMENT # 2, 8-1/2" LONG x 6" HIGH X 4 " DEEP WITH

Connecticut Department of Transportation
Bridge Inspection Report BRI-18

BRIDGE #: 04751 **INSPECTION DATE:** 5/4/2004

60. SUBSTRUCTURE — OVERALL RATING 4

BEARING PLATE EXPOSED. SEE PHOTO.

STEEL CORROSION	N
PAINT	N
TIMBER DECAY	N
COLLISION DAMAGE	8
DEBRIS	N

61. CHANNEL PROTECTION — OVERALL RATING 7

	RATING	
CHANNEL SCOUR	7	MINOR AT ABUTMENTS.
EMBANKMENT EROSION	7	MINOR UNDERCUTTING UP AND DOWN STREAM.
DEBRIS	7	EARTH BUILD-UP SOUTH.
VEGETATION	7	GROWTH ALONG BROOK AND SURROUNDING STRUCTURE.
CHANNEL CHANGE	8	
FENDER SYSTEM	N	
SPUR DIKES & JETTIES	N	
RIP RAP	N	

62. CULVERTS & RETAINING WALL — OVERALL RATING N

APPROACH CONDITION — OVERALL RATING 6

	RATING	
APPROACH SLAB	N	
RELIEF JOINTS	N	
APPROACH GUIDE RAIL	7	METAL BEAM RAIL WITH TERMINAL ENDS - RAILS EXTEND ACROSS STRUCTURE.
APPROACH PAVEMENT	7	OVER-LAY. HAIRLINE TRANSVERSE AND LONGITUDINAL CRACKS. BITUMINOUS PATCHED AREA AND DEPRESSION AREA AT THE NORTHWEST CORNER.
APPROACH EMBANKMENT	6	EROSION NORTHWEST AND NORTHEAST.

TRAFFIC SAFETY FEATURES:

BRIDGE RAILINGS	1
TRANSITIONS	0
APPROACH GUARDRAILS	0
APPR. GUARDRAIL ENDS	0

LOAD POSTING

SINGLE UNIT (TONS)	
HS (TONS)	
4 AXLE (TONS)	
3S2 (TONS)	

Connecticut Department of Transportation
Bridge Inspection Report BRI-18

BRIDGE #: 04751 **INSPECTION DATE:** 5/4/2004

ADVANCE WARNING Y/N	N	
LEGIBILITY	N	
VISIBILITY/LOCATION	N	

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	LIGHT VOLUME/CARS AND HEAVY TRUCKS. TRUE DIRECTION WEST TO EAST.	

ADDITIONAL NOTES

ADDITIONAL COMMENTS:

Inspectors' Signatures:

1) _____ **Date:** __/__/__

2) _____ **Date:** __/__/__

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

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

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

P.E.#: _____

Reviewed by: _____ **CDOT** **Date:** __/__/__

Bridge No.:	04751	**Inspected by:**	Victor Luzhanskiy
Town:	Plainfield, Ct.	**Inspected by:**	Jagdeesh Gopal
Feature Carried:	Sterling Hill Rd	**Date Inspected:**	April 23, 2008
Feature Crossed:	Ekonk Brook	**Project No.:**	

Photo # 1: Bridge and west approach

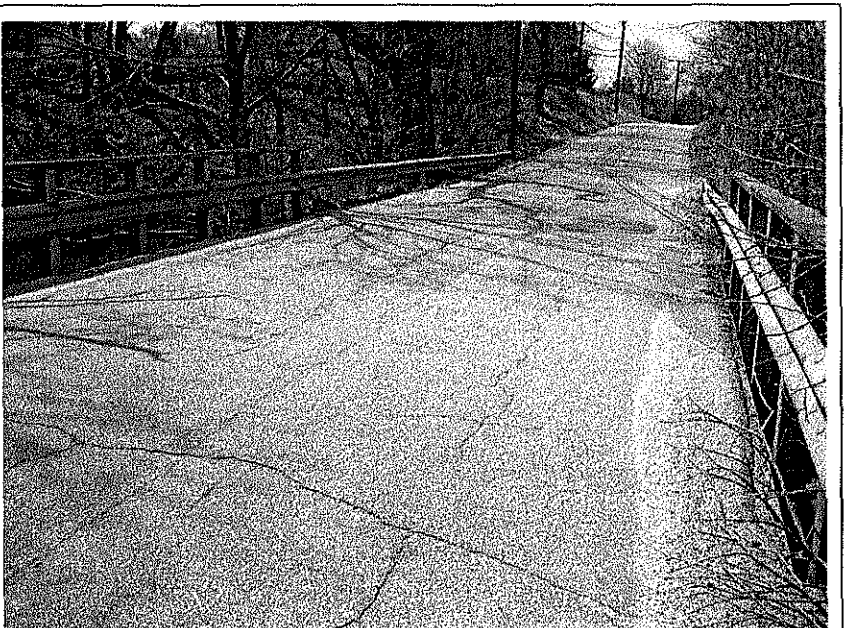


Photo # 2: Typical top of deck

Bridge No.:	04751	**Inspected by:**	Victor Luzhanskiy
Town:	Plainfield, Ct.	**Inspected by:**	Jagdeesh Gopal
Feature Carried:	Sterling Hill Rd	**Date Inspected:**	April 23, 2008
Feature Crossed:	Ekonk Brook	**Project No.:**	

Photo # 3: Typical condition of the overlay. Note up to ½" cracking of bituminous

Photo # 4: Bridge and east approach

Bridge No.:	04751	**Inspected by:**	Victor Luzhanskiy
Town:	Plainfield, Ct.	**Inspected by:**	Jagdeesh Gopal
Feature Carried:	Sterling Hill Rd	**Date Inspected:**	April 23, 2008
Feature Crossed:	Ekonk Brook	**Project No.:**	

Photo # 5: Channel upstream

Photo # 6: Channel downstream

Bridge No.:	04751	**Inspected by:**	Victor Luzhanskiy
Town:	Plainfield, Ct.	**Inspected by:**	Jagdeesh Gopal
Feature Carried:	Sterling Hill Rd	**Date Inspected:**	April 23, 2008
Feature Crossed:	Ekonk Brook	**Project No.:**	

Photo # 7: Typical railing configuration

Photo # 8: North elevation

Bridge No.:	04751	**Inspected by:**	Victor Luzhanskiy
Town:	Plainfield, Ct.	**Inspected by:**	Jagdeesh Gopal
Feature Carried:	Sterling Hill Rd	**Date Inspected:**	April 23, 2008
Feature Crossed:	Ekonk Brook	**Project No.:**	

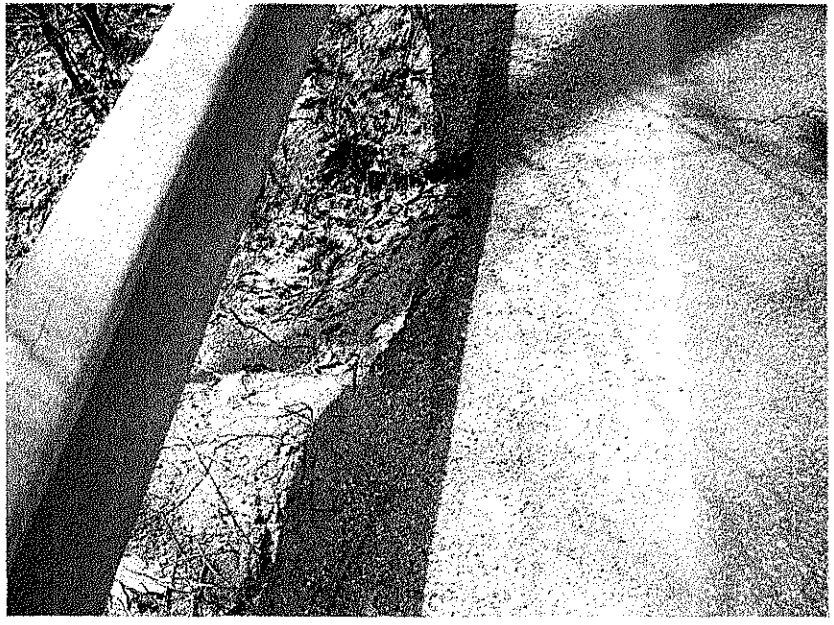


Photo # 9: Roadway erosion at southwest corner

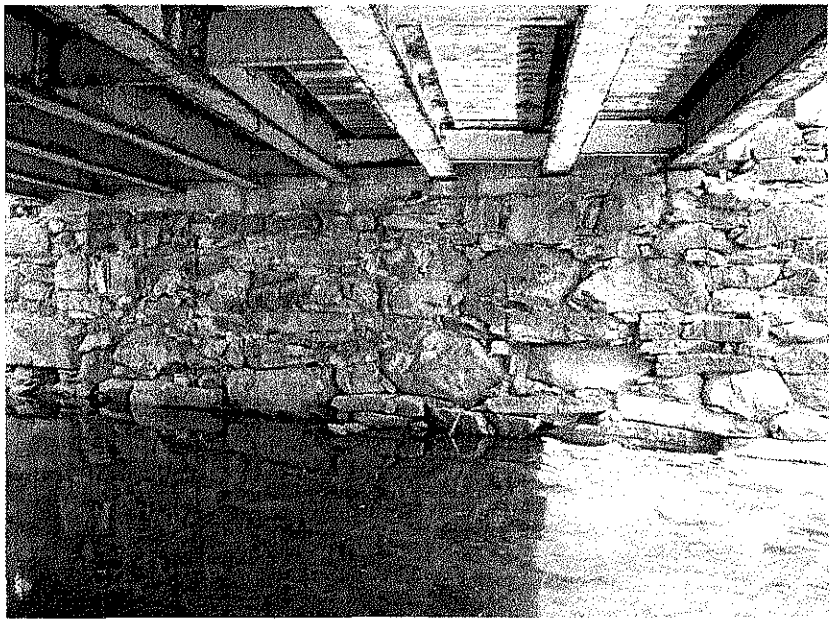


Photo # 10: West abutment

Bridge No.:	04751	**Inspected by:**	Victor Luzhanskiy
Town:	Plainfield, Ct.	**Inspected by:**	Jagdeesh Gopal
Feature Carried:	Sterling Hill Rd	**Date Inspected:**	April 23, 2008
Feature Crossed:	Ekonk Brook	**Project No.:**	

Photo # 11: Typical underside of deck

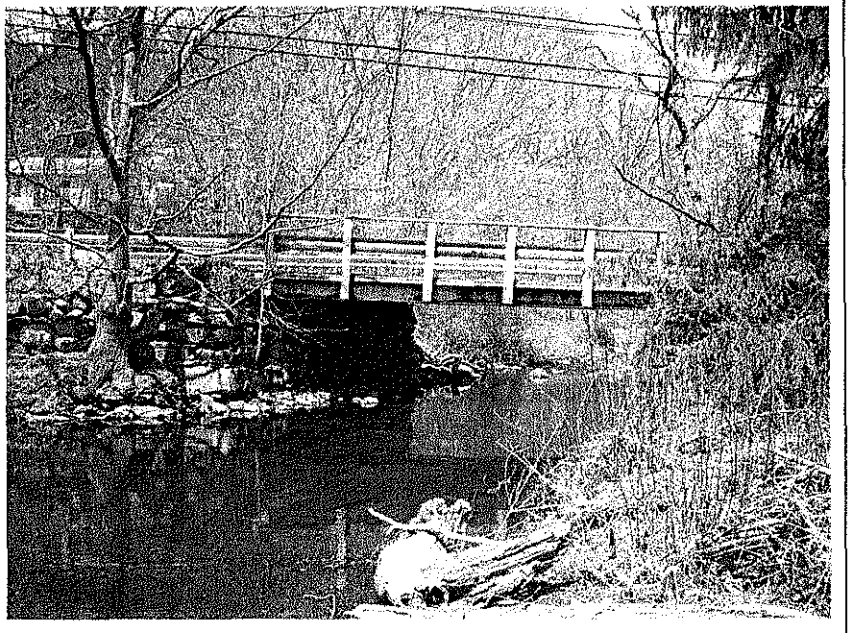


Photo # 12: South elevation