STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

Version 11.06.15

LRFD

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STRUCTURAL DETAIL SHEETS

STANDARDS LIST

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2005	1100	170	54	9	140
2025	1500	220	54	7	150

20 year ESAL for flexible pavement from 2005 to 2025 : 1681000

40 year ESAL for flexible pavement from 2005 to 2045 : 4381000

Design Speed : 50 mph

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: July 2010

DRAINAGE AREA : 45.4 sq. mi.
CHARACTER OF TERRAIN : Hilly to mountainous, mostly forested with some open areas.
STREAM CHARACTERISTICS : Incised, sinuous, with a confluence 100' upstream
NATURE OF STREAMBED : Gravel, cobbles, sand, silt and boulders

PEAK FLOW DATA

Q 2.33 =	1200 cfs	Q 50 =	3700 cfs
Q 10 =	2450 cfs	Q 100 =	4200 cfs
Q 25 =	3125 cfs	Q 500 =	5900 cfs

DATE OF FLOOD OF RECORD : Unknown
ESTIMATED DISCHARGE: Unknown
WATER SURFACE ELEV.: Unknown
NATURAL STREAM VELOCITY : @ Q50 = 11.6 fps
ICE CONDITIONS : Moderate
DEBRIS: Moderate
DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? No
IS ORDINARY RISE RAPID? Yes
IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? No
IF YES, DESCRIBE:

WATERSHED STORAGE: 1% HEADWATERS:
UNIFORM: X
IMMEDIATELY ABOVE SITE:

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Single span steel beam bridge with concrete deck
YEAR BUILT: 1929
CLEAR SPAN(NORMAL TO STREAM): 49'
VERTICAL CLEARANCE ABOVE STREAMBED: 8'
WATERWAY OF FULL OPENING: 314 sq. ft.
DISPOSITION OF STRUCTURE: Remove superstructure and north abutment
TYPE OF MATERIAL UNDER SUBSTRUCTURE: See boring information

WATER SURFACE ELEVATIONS AT:

Q2.33 =	1013.5'	VELOCITY =	7.2 fps
Q10 =	1015.6'	"	11.1 fps
Q25 =	1019.3'	"	10.4 fps
Q50 =	1020.0'	"	11.6 fps
Q100 =	1020.5'	"	12.8 fps

LONG TERM STREAMBED CHANGES: Minor scour in the center of the channel through the bridge area.

IS THE ROADWAY OVERTOPPED BELOW Q100: Yes
FREQUENCY: Between Q25 and Q50
RELIEF ELEVATION: 1019.6'
DISCHARGE OVER ROAD @Q100: 730 cfs

UPSTREAM STRUCTURE

TOWN: Newark DISTANCE: 4200'
HIGHWAY # : VT 114 STRUCTURE #: 19
CLEAR SPAN: 52' CLEAR HEIGHT: 11'
YEAR BUILT: 1929 FULL WATERWAY: 572 sq. ft.
STRUCTURE TYPE: Single span steel beam bridge with concrete deck

DOWNSTREAM STRUCTURE

TOWN: East Haven DISTANCE: 3100'
HIGHWAY # : T.H. 4 STRUCTURE #: 10
CLEAR SPAN: 35' CLEAR HEIGHT: 10'
YEAR BUILT: 1960 FULL WATERWAY: 350 sq. ft.
STRUCTURE TYPE: Single span steel beam bridge with timber deck & stone abutments

LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	H-20	HL-93	3S2	6 AXLE	3A. STR.	4A. STR.	5A. SEMI
TONNAGE	20	36	36	66	30	34.5	38
INVENTORY	2.84	1.46					
POSTING							
OPERATING	3.68	1.89	3.03	2.02	2.61	1.88	
COMMENTS:							

PILE DRIVING AND TESTING REQUIREMENTS

1. NOMINAL PILE DRIVING CAPACITY — R_{nr}: 350.00 KIP
2. PILE TEST RESISTANCE FACTOR — ϕ: 0.65
3. MAXIMUM PILE TIP ELEVATION: 987.00 FT
4. 0

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span prestressed concrete box beam bridge

CLEAR SPAN(NORMAL TO STREAM): 65'
VERTICAL CLEARANCE ABOVE STREAMBED: 10'
WATERWAY OF FULL OPENING: 455 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	1013.4'	VELOCITY=	6.7 fps
Q10 =	1015.2'	"	9.7 fps
Q25 =	1016.1'	"	11.3 fps
Q50 =	1016.9'	"	12.7 fps
Q100 =	1017.7'	"	13.6 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: Above Q100
RELIEF ELEVATION: 1019.9'
DISCHARGE OVER ROAD @Q100: 0 cfs

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 1018.2'
VERTICAL CLEARANCE: @ Q50 = 1.3'

SCOUR: 3' of contraction scour at Q100.
Maximum scour up to Q500 = 4' of contraction scour, at incipient overtopping flow.
REQUIRED CHANNEL PROTECTION: Stone Fill, Type IV

PERMIT INFORMATION

AVERAGE DAILY FLOW:	90 cfs	
ORDINARY LOW WATER:	40 cfs	DEPTH OR ELEVATION: Elevation 1010'
ORDINARY HIGH WATER:	515 cfs	Elevation 1012'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: No temporary bridge required.
CLEAR SPAN (NORMAL TO STREAM):
VERTICAL CLEARANCE ABOVE STREAMBED:
WATERWAY AREA OF FULL OPENING:

ADDITIONAL INFORMATION

TRAFFIC MAINTENANCE NOTES

1. MAINTAIN ONE-WAY TRAFFIC ON THE EXISTING STRUCTURE.
2. INSTALL AND MAINTAIN TRAFFIC SIGNALS.
3. SIDEWALKS ARE NOT NECESSARY

DESIGN VALUES

1. DESIGN LIVE LOAD		HL-93
2. FUTURE PAVEMENT	d_p:	3.0 INCH
3. DESIGN SPAN	L:	67.00 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ:	- - -
5. PRESTRESSING STRAND (0.60 INCH DIAMETER - LOW RELAX)	f_y:	270 KSI
6. PRESTRESSED CONCRETE STRENGTH	f'_c:	7.0 KSI
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f'_{ci}:	5.5 KSI
8. CONCRETE, HIGH PERFORMANCE CLASS AA	f'_c:	4.0 KSI
9. CONCRETE, HIGH PERFORMANCE CLASS A	f'_c:	4.0 KSI
10. CONCRETE, HIGH PERFORMANCE CLASS B	f'_c:	3.5 KSI
11. CONCRETE, CLASS C	f'_c:	3.0 KSI
12. REINFORCING STEEL	f_y:	60 KSI
13. STRUCTURAL STEEL AASHTO M270	f_y:	- - -
14. SOIL UNIT WEIGHT	γ:	0.140 KCF
15. NOMINAL BEARING RESISTANCE OF SOIL	q_n:	4.0 KSF
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	- - -
17. NOMINAL BEARING RESISTANCE OF ROCK	q_n:	10.0 KSF
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	- - -
19. NOMINAL AXIAL PILE RESISTANCE	q_p:	350 kips
20. PILE YIELD STRENGTH ASTM A572	f_y:	50
21. PILE SIZE		14X102
22. EST. PILE LENGTH	L_p:	39 FT
23. PILE RESISTANCE FACTOR	ϕ:	- - -
24. LATERAL PILE DEFLECTION	Δ:	- - -
25. BASIC WIND SPEED	V_{3s}:	- - -
26. MINIMUM GROUND SNOW LOAD	p_g:	- - -
27. SEISMIC DATA PGA: - - -	S_s:	- - -
	S_1:	- - -

PROJECT NAME: **EAST HAVEN**
PROJECT NUMBER: **BRF 0269(11)**

FILE NAME: **s00c162 PI Sheet Builder.xls**
PROJECT LEADER: **K. HIGGINS**
DESIGNED BY: **J. LACROIX**
PRELIMINARY INFORMATION SHEET (BRIDGE)

PLOT DATE: 8/9/2011
DRAWN BY: **R. PELLETT**
CHECKED BY: **J. LACROIX**