

PRELIMINARY INFORMATION SHEET (BRIDGE)

LRFD

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FINAL HYDRAULIC REPORT

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STANDARDS LIST

D-15	PRECAST REINF CONC. MH-GRATES, CAST IRON GRATE WITH FRAME, TYPE D & E	06-01-1994
E-121	STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD	08-08-1995
E-141	REGULATORY SIGN DETAILS	09-20-1995
E-142	REGULATORY SIGN DETAILS	09-20-1995
E-160	FLANGED CHANNEL STEEL SIGN POST	05-20-1999
E-161	W-SHAPED STEEL SIGN POST	08-18-1995
E-162	TUBULAR ALUMINUM SIGN POST	05-20-1999
E-163	TUBULAR STEEL SIGN POST	05-20-1999
E-191	PAVEMENT MARKING DETAILS	02-01-1999
E-192	PAVEMENT MARKING DETAILS	10-12-2000
E-193	PAVEMENT MARKING DETAILS	08-18-1995
G-18M	BOX BEAM GUARD RAIL	06-13-1997
S-364A	BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM	02-10-2014
S-364B	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM	02-10-2014
S-364C	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM	02-10-2014
S-364D	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM	04-23-2012
T-1	TRAFFIC CONTROL GENERAL NOTES	08-06-2012
T-10	CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNING	08-06-2012
T-28	CONSTRUCTION SIGN DETAILS	08-06-2012
T-35	CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS	08-06-2012
T-42	BRIDGE NUMBER PLAQUE	04-09-2014
T-45	SQUARE TUBE SIGN POST AND ANCHOR	01-02-2013

HYDROLOGIC DATA

Date: Nov. 2012

DRAINAGE AREA : 9.4 sq. mi.
 CHARACTER OF TERRAIN : Hilly to mountainous, mostly forested.
 STREAM CHARACTERISTICS : Sinuuous, semi-alluvial and probably incised.
 NATURE OF STREAMBED : Mostly cobbles and boulders with some gravel.

PEAK FLOW DATA

Q 2.33 =	900 cfs	Q 50 =	3550 cfs
Q 10 =	1900 cfs	Q 100 =	4300 cfs
Q 25 =	2800 cfs	Q 500 =	5800 cfs

DATE OF FLOOD OF RECORD : Unknown
 ESTIMATED DISCHARGE : Unknown
 WATER SURFACE ELEV. : Unknown
 NATURAL STREAM VELOCITY : @ Q50 = 14.2 fps
 ICE CONDITIONS : Moderate
 DEBRIS : Moderate
 DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? Yes
 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): _____
 VERTICAL CLEARANCE ABOVE STREAMBED: 14'
 WATERWAY OF FULL OPENING: 570 sq. ft.
 DISPOSITION OF STRUCTURE: Remove
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: See boring logs.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	1408.6'	VELOCITY =	9.9 fps
Q10 =	1410.8'	"	12.2 fps
Q25 =	1412.5'	"	13.6 fps
Q50 =	1413.7'	"	14.4 fps
Q100 =	1414.7'	"	15.1 fps

LONG TERM STREAMBED CHANGES: Comparing current survey to record plans and the flood insurance study, it appears there may have been some degradation in the past.

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: Above Q100
 RELIEF ELEVATION: 1418.6'
 DISCHARGE OVER ROAD @Q100: N/A

UPSTREAM STRUCTURE

TOWN: Wardsboro DISTANCE: 3000'
 HIGHWAY #: TH 29 STRUCTURE #: 26
 CLEAR SPAN: 69' CLEAR HEIGHT: 7.5'
 YEAR BUILT: 1939 FULL WATERWAY: N/A
 STRUCTURE TYPE: Single span steel beam bridge with timber deck.

DOWNSTREAM STRUCTURE

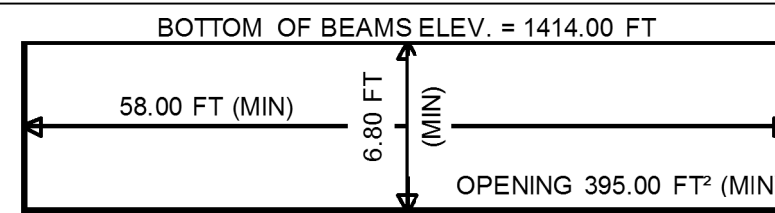
TOWN: Wardsboro DISTANCE: 8000'
 HIGHWAY #: TH 6 STRUCTURE #: 27
 CLEAR SPAN: 96' CLEAR HEIGHT: 19'
 YEAR BUILT: 1978 FULL WATERWAY: N/A
 STRUCTURE TYPE: Single span steel beam bridge.

LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	H-20	HL-93	3S2	6 AXLE	3A STR.	4A STR.	5A SEM
TONNAGE	20	36	36	66	30	34.5	38
INVENTORY	2.61	1.33					
POSTING							
OPERATING	3.39	1.73	2.79	1.85	2.4	2.15	2.35
COMMENTS:							

AS BUILT "REBAR" DETAIL		
LEVEL I	LEVEL II	LEVEL III
TYPE: _____	TYPE: _____	TYPE: _____
GRADE: _____	GRADE: _____	GRADE: _____

TEMPORARY BRIDGE PROFILE ALONG TEMP CL



PILE DRIVING AND TESTING REQUIREMENTS

- NOMINAL PILE DRIVING CAPACITY $R_{nd} = 346.00 \text{ KIP}$
- PILE TEST RESISTANCE FACTOR $\phi = 0.65$
- MINIMUM PILE TIP ELEVATION $\phi = 1377.00 \text{ FT}$
- ONE DYNAMIC PILE LOAD TEST REQUIRED PER ABUTMENT.

STRUCTURES DETAIL SHEETS

SD-501.00	CONCRETE DETAILS AND NOTES	02-09-2012
SD-502.00	CONCRETE DETAILS AND NOTES	10-10-2012
SD-516.10	BRIDGE JOINT ASPHALTIC PLUG	08-29-2011
SD-601.00	STRUCTURAL STEEL DETAILS AND NOTES	06-04-2010
SD-602.00	STRUCTURAL STEEL PLATE GIRDER DETAILS AND NOTES	05-02-2011

SEE REVISED SHEET 2B
DATED 10/5/15

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT	20 year ESAL for flexible pavement from 2013 to 2033 : 878000	40 year ESAL for flexible pavement from 2013 to 2053 : 2064000	Design Speed : 30 mph
2013	1300	190	51	11.4	160			
2033	1500	220	51	17.3	270			

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span steel beam bridge with concrete deck.

CLEAR SPAN (NORMAL TO STREAM): 65'
 VERTICAL CLEARANCE ABOVE STREAMBED: 14'
 WATERWAY OF FULL OPENING: 590 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	1408.6'	VELOCITY =	9.9 fps
Q10 =	1410.8'	"	12.2 fps
Q25 =	1412.5'	"	13.6 fps
Q50 =	1413.7'	"	14.4 fps
Q100 =	1414.7'	"	15.1 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: Above Q100
 RELIEF ELEVATION: 1418.6'
 DISCHARGE OVER ROAD @Q100: N/A

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 1416.2'
 VERTICAL CLEARANCE: @ Q50 = 2.5'

SCOUR: Total long term degradation and contraction scour = 2' at Q100 and 4' at Q500.

REQUIRED CHANNEL PROTECTION: Stone Fill, Type IV

PERMIT INFORMATION

AVERAGE DAILY FLOW: 20 cfs DEPTH OR ELEVATION: _____
 ORDINARY LOW WATER: 10 cfs Depth = 0.5'
 ORDINARY HIGH WATER: 390 cfs Depth = 3.0'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: Single span bridge
 CLEAR SPAN (NORMAL TO STREAM): 58' minimum
 VERTICAL CLEARANCE ABOVE STREAMBED: _____ Elev. 1414.0' minimum
 WATERWAY AREA OF FULL OPENING: 395 sq. ft. minimum

ADDITIONAL INFORMATION

TRAFFIC MAINTENANCE NOTES

- MAINTAIN TWO-WAY TRAFFIC ON A TEMPORARY BRIDGE.
- TRAFFIC SIGNALS ARE NOT NECESSARY.
- SIDEWALKS ARE NOT NECESSARY
- THE APPROACHES FOR THE TEMPORARY BRIDGE SHALL BE PAVED.

DESIGN VALUES

1. DESIGN LIVE LOAD	HL-93
2. FUTURE PAVEMENT	d_p : 2.5 INCH
3. DESIGN SPAN	L : 68.00 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ : ---
5. PRESTRESSING STRAND	f_y : ---
6. PRESTRESSED CONCRETE STRENGTH	f'_c : ---
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f'_{ci} : ---
8. CONCRETE, HIGH PERFORMANCE CLASS AA	f'_c : ---
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 : ---
12. REINFORCING STEEL	f_y : 60 KSI
13. STRUCTURAL STEEL AASHTO M270 (WEATHERING)	f_y : 50 KSI
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 : 346.0 KIPS
20. PILE YIELD STRENGTH ASTM A572	f_y : 50 KSI
21. PILE SIZE	HP 12X74
22. EST. PILE LENGTH	L_p : 77 FT
23. PILE RESISTANCE FACTOR	ϕ : 0.65
24. LATERAL PILE DEFLECTION	Δ : 0.37 INCH
25. BASIC WIND SPEED	V_{3s} : ---
26. MINIMUM GROUND SNOW LOAD	p_g : ---
27. SEISMIC DATA	PGA : --- S_s : --- S_1 : ---

PROJECT NAME: **WARDSBORO**
 PROJECT NUMBER: **BRF 013-1(15)**

FILE NAME: **s92b283pi.xls** PLOT DATE: 7/9/2015
 PROJECT LEADER: **C. CARLSON** DRAWN BY: **R. PELLETT**
 DESIGNED BY: **D. PETERSON** CHECKED BY: **D. PETERSON**
 PRELIMINARY INFORMATION SHEET SHEET **2A** OF **51**