STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

Version 11.05.15

LRFD

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SD-602.00	STRUCTURAL STEEL PLATE GIRDER AND NOTES

LRFR LOAD RATING FACTORS

LOADINGLEVELS	TRUCK						
	H-20	HL-93	3S2	6AXLE	3A.STR.	4A.STR.	5A.SEMI
TONNAGE	20	36	36	66	30	34.5	38
INVENTORY	2.22	1.22					
POSTING							
OPERATING	2.87	1.58	2.69	1.59	2.06	1.87	2.18
COMMENTS:							

NOTE: LOAD RATINGS TABLE
VALUES CHANGED PER
G. LAROCHE (PROJ. ENGINEER)

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2013	3400	380	53	3	180
2033	4100	460	53	3.6	260

20 year ESAL for flexible pavement from 2013 to 2033 : 594000
40 year ESAL for flexible pavement from 2013 to 2053 : 1323000
Design Speed : 25 mph

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: vised October 2010

DRAINAGE AREA : 34.0 sq. mi.
CHARACTER OF TERRAIN : Hilly to mountainous, mostly rural, mostly forested
STREAM CHARACTERISTICS : Sinuous, incised, gorge at bridge site
NATURE OF STREAMBED : Mixed upstream, ledge at bridge

PEAK FLOW DATA

Q 2.33 =	1600 cfs	Q 50 =	5950 cfs
Q 10 =	3325 cfs	Q 100 =	7225 cfs
Q 25 =	4750 cfs	Q 500 =	10,850 cfs

DATE OF FLOOD OF RECORD : 1927
ESTIMATED DISCHARGE: unknown
WATER SURFACE ELEV.: unknown
NATURAL STREAM VELOCITY : @ Q25 = 25.2 fps
ICE CONDITIONS : moderate
DEBRIS: moderate
DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? no
IS ORDINARY RISE RAPID? no
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
YEAR BUILT: 1949
CLEAR SPAN(NORMAL TO STREAM): 89'
VERTICAL CLEARANCE ABOVE STREAMBED: 36' +/-
WATERWAY OF FULL OPENING: 1965 sq. ft.
DISPOSITION OF STRUCTURE: Replace
TYPE OF MATERIAL UNDER SUBSTRUCTURE: See borings

WATER SURFACE ELEVATIONS AT:

Q2.33 =	707.9'	VELOCITY =	21.2 fps
Q10 =	710.1'	"	24.1 fps
Q25 =	711.5'	"	25.8 fps
Q50 =	712.6'	"	26.8 fps
Q100 =	713.7'	"	27.7 fps

LONG TERM STREAMBED CHANGES: None noted

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: N/A
RELIEF ELEVATION: 732.6'
DISCHARGE OVER ROAD @Q100: N/A

UPSTREAM STRUCTURE

TOWN: Barre Town — DISTANCE: 2000'
HIGHWAY # : VT 63 — STRUCTURE #: BR 5
CLEAR SPAN: 15' + 15' = 30' — CLEAR HEIGHT: 12'
YEAR BUILT: 1970 — FULL WATERWAY: 360 sf
STRUCTURE TYPE: Twin cell RC Box

DOWNSTREAM STRUCTURE

TOWN: Barre Town — DISTANCE: 3200'
HIGHWAY # : Parkside Terrace — STRUCTURE #: BR 13
CLEAR SPAN: 82' — CLEAR HEIGHT: 26'
YEAR BUILT: 1997 — FULL WATERWAY: 1750 sf
STRUCTURE TYPE: Welded plate girder

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	2.47	1.1					
POSTING							
OPERATING	3.2	1.42	2.11	1.46	2.2	2.11	2.15
COMMENTS:							

PILE DRIVING AND TESTING REQUIREMENTS

1. NOMINAL PILE DRIVING CAPACITY	Rndr:	627.00 KIP
2. PILE TEST RESISTANCE FACTOR	ϕ:	0.65
3. MAXIMUM PILE TIP ELEVATION		VARIES
4. THREE DYNAMIC PILES TESTS REQUIRED		

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span curved steel girder

CLEAR SPAN(NORMAL TO STREAM): 116'
VERTICAL CLEARANCE ABOVE STREAMBED: 38'
WATERWAY OF FULL OPENING: 2145 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	#REF!	VELOCITY=	21.2 fps
Q10 =	#REF!	"	24.1 fps
Q25 =	#REF!	"	25.8 fps
Q50 =	#REF!	"	26.8 fps
Q100 =	#REF!	"	27.7 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: N/A
RELIEF ELEVATION: 734.3'
DISCHARGE OVER ROAD @Q100: N/A

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 732.3'
VERTICAL CLEARANCE: @ Q25 = 20.8'

SCOUR: Abutments to be founded on ledge

REQUIRED CHANNEL PROTECTION: Stone Fill, Type II

PERMIT INFORMATION

AVERAGE DAILY FLOW:	70 cfs	DEPTH OR ELEVATION:
ORDINARY LOW WATER:	30 cfs	1.5'
ORDINARY HIGH WATER:	700 cfs	4.0'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: None required
CLEAR SPAN (NORMAL TO STREAM):
VERTICAL CLEARANCE ABOVE STREAMBED:
WATERWAY AREA OF FULL OPENING:

ADDITIONAL INFORMATION

TRAFFIC MAINTENANCE NOTES

1. MAINTAIN TRAFFIC ON AN OFF SITE DETOUR.
2. TRAFFIC SIGNALS ARE NOT NECESSARY.
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:	120.00 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ:	--- INCH
5. PRESTRESSING STRAND (0.60 INCH DIAMETER - LOW RELAX)	f_y:	270 KSI
6. PRESTRESSED CONCRETE STRENGTH	f'_c:	6.0 KSI
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f'_{ci}:	5.0 KSI
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:	3.0 KSI
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:	---
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
17. NOMINAL BEARING RESISTANCE OF ROCK	q_n:	22.2 KSF
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	0.45
19. NOMINAL AXIAL PILE RESISTANCE	q_p:	
20. PILE YIELD STRENGTH ASTM A572	f_y:	50 KSI
21. PILE SIZE		HP 14X117
22. EST. AVG. PILE LENGTH	L_p:	25 FT
23. PILE RESISTANCE FACTOR	ϕ:	0.65
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: **BARRE TOWN**
PROJECT NUMBER: **BRF 6100(7)**

FILE NAME: **s06j002pi.xls**
PROJECT LEADER: **J. LACROIX**
DESIGNED BY: **T. FILLBACH**
PRELIMINARY INFORMATION SHEET 1

PLOT DATE: 9/19/2012
DRAWN BY: **R. PELLETT**
CHECKED BY: **T. FILLBACH**
SHEET 2 OF 70