STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

Version 11.06.15

LRFD

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STANDARDS LIST

E-100	CONSTRUCTION APPROACH SIGNS	01-02-2004
E-102	CONSTRUCTION SIGN DETAILS	06-30-2003
E-102A	CONSTRUCTION SIGN DETAILS	05-01-2004
E-107	DELINEATION, BARRICADES AND DETOURS FOR CONSTRUCTION AREAS	06-30-2003
E-107A	BREAKAWAY BARRICADE DETAILS	06-08-2009
E-121	STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD	08-08-1995
E-134	BRIDGE NUMBER PLAQUE	08-08-1995
E-164	SQUARE STEEL SIGN POST	06-08-2009
E-193	PAVEMENT MARKING DETAILS	08-18-1995
G-1	STEEL BEAM GUARDRAIL DETAILS (POST, DELINEATOR, TYPICALS)	01-03-2000
G-1D	STEEL BEAM GUARDRAIL DETAILS (END TERMINAL, ANCHOR, MEDIAN)	01-03-2000
G-19	GENERIC GRADING PLANS FOR GUARDRAIL END TERMINALS	11-15-2002

STRUCTURES DETAIL SHEETS

SD-501.00	CONCRETE DETAILS AND NOTES
SD-502.00	CONCRETE DETAILS AND NOTES
SD-516.11a	BRIDGE EXPANSION JOINT, VERMONT
SD-516.11b	BRIDGE EXPANSION JOINT, VERMONT
SD-601.00	STRUCTURAL STEEL DETAILS & NOTES
SD-602.00	STRUCTURAL STEEL PLATE GIRDER AND NOTES

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2008	1100	170	59	4	60
2028	1400	200	59	5	90

20 year ESAL for flexible pavement from 2008 to 2028 : 231000

40 year ESAL for flexible pavement from 2008 to 2048 : 521000

Design Speed : 35 mph

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: June 2010

DRAINAGE AREA : 11.2 sq. mi.
CHARACTER OF TERRAIN : Moutainous, mostly forested, rural
STREAM CHARACTERISTICS : Sinuous, somewhat incised
NATURE OF STREAMBED : Cobbles, boulders and some ledge

PEAK FLOW DATA

Q 2.33 =	600 cfs	Q 50 =	2600 cfs
Q 10 =	1320 cfs	Q 100 =	3100 cfs
Q 25 =	2000 cfs	Q 500 =	4600 cfs

DATE OF FLOOD OF RECORD: 1927
ESTIMATED DISCHARGE: unknown
WATER SURFACE ELEV.: unknown
NATURAL STREAM VELOCITY : @ Q25 = 14.8 fps
ICE CONDITIONS : moderate
DEBRIS: little to 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: 2 span steel beam
YEAR BUILT: 1934
CLEAR SPAN(NORMAL TO STREAM): 97'
VERTICAL CLEARANCE ABOVE STREAMBED: 17'
WATERWAY OF FULL OPENING: 940 sq. ft.
DISPOSITION OF STRUCTURE: Replace
TYPE OF MATERIAL UNDER SUBSTRUCTURE: See borings

WATER SURFACE ELEVATIONS AT:

Q2.33 =	545.3'	VELOCITY =	8.7 fps
Q10 =	547.3'	"	10.9 fps
Q25 =	548.7'	"	12.2 fps
Q50 =	549.7'	"	13.2 fps
Q100 =	550.5'	"	13.9 fps

LONG TERM STREAMBED CHANGES: The FIS shows a 2' - 3' deep scour hole through the bridge and downstream

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: N/A
RELIEF ELEVATION: 554.8'
DISCHARGE OVER ROAD @Q100: N/A

UPSTREAM STRUCTURE

TOWN: Springfield — DISTANCE: 600'
HIGHWAY # : TH 712 — STRUCTURE #: 82
CLEAR SPAN: 20.5' — CLEAR HEIGHT: 13.5'
YEAR BUILT: 1937 — FULL WATERWAY: 211 sq. ft.
STRUCTURE TYPE: CGMPPA

DOWNSTREAM STRUCTURE

TOWN: Springfield — DISTANCE: 2500'
HIGHWAY # : TH 726 — STRUCTURE #: 48
CLEAR SPAN: 29.5' — CLEAR HEIGHT: 8'
YEAR BUILT: 1950 — FULL WATERWAY: 236 sq. ft.
STRUCTURE TYPE: Bridge

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	3.23	1.38					
POSTING							
OPERATING	4.19	1.29	2.75	1.62	2.88	2.55	2.81
COMMENTS:							

PILE DRIVING AND TESTING REQUIREMENTS

1. NOMINAL PILE DRIVING CAPACITY ..... R_{ndr}: 270.00 KIP
2. PILE TEST RESISTANCE FACTOR ..... ϕ: 0.65
3. MAXIMUM PILE TIP ELEVATION ..... 525.00 FT
4. 0

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span curved plate girder bridge

CLEAR SPAN(NORMAL TO STREAM): 89'
VERTICAL CLEARANCE ABOVE STREAMBED: 17'
WATERWAY OF FULL OPENING: 740 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	545.0'	VELOCITY=	8.8 fps
Q10 =	547.0'	"	10.9 fps
Q25 =	548.3'	"	12.2 fps
Q50 =	549.2'	"	13.2 fps
Q100 =	549.9'	"	13.9 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: N/A
RELIEF ELEVATION: 554.8'
DISCHARGE OVER ROAD @Q100: N/A

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 553.8'
VERTICAL CLEARANCE: @ Q25 = 5.5'

SCOUR: 3.0' at Q500

REQUIRED CHANNEL PROTECTION: Stone Fill Type IV

PERMIT INFORMATION

AVERAGE DAILY FLOW:	24 cfs	DEPTH OR ELEVATION:
ORDINARY LOW WATER:	10 cfs	1.0'
ORDINARY HIGH WATER:	260 cfs	3.0'

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:	128.00 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ:	N/A
5. PRESTRESSING STRAND	f_y:	N/A
6. PRESTRESSED CONCRETE STRENGTH	f'_c:	N/A
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f'_{ci}:	N/A
8. CONCRETE, HIGH PERFORMANCE CLASS AA	f'_c:	N/A
9. CONCRETE, HIGH PERFORMANCE CLASS A LOW CEMENT	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:	170 KSI
14. SOIL UNIT WEIGHT	γ:	0.140 KCF
15. NOMINAL BEARING RESISTANCE OF SOIL	q_n:	N/A
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
17. NOMINAL BEARING RESISTANCE OF ROCK	q_n:	22 KSF
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
19. NOMINAL AXIAL PILE RESISTANCE	q_p:	270.0 KIPS
20. PILE YIELD STRENGTH ASTM A572	f_y:	50 KSI
21. PILE SIZE		HP 14X 89
22. EST. PILE LENGTH	L_p:	29 FT
23. PILE RESISTANCE FACTOR	ϕ:	0.65
24. LATERAL PILE DEFLECTION	Δ:	1.00 INCH
25. BASIC WIND SPEED	V_{3s}:	---
26. MINIMUM GROUND SNOW LOAD	p_g:	---
27. SEISMIC DATA PGA: ---	S_s:	---
	S_1:	---

PROJECT NAME: **SPRINGFIELD**
PROJECT NUMBER: **BRO 1442(26)**

FILE NAME: **s95j282qs.xls**
PROJECT LEADER: **K. HIGGINS**
DESIGNED BY: **J. LACROIX**
PRELIMINARY INFORMATION SHEET 1

PLOT DATE: 8/29/2011
DRAWN BY: **R. PELLETT**
CHECKED BY: **J. LACROIX**