STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

Version 09.02.03

LRFD

INDEX OF SHEETS

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TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2012	470	55	57	4.5	35
2032	500	55	57	7.2	55

20 year ESAL for flexible pavement from 2012 to 2032 : 109000

40 year ESAL for flexible pavement from 2012 to 2052 : 258000

Design Speed : 50 mph

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: June 2011

DRAINAGE AREA : 13.1 sq. mi.
CHARACTER OF TERRAIN : Hilly, mostly forested, rural
STREAM CHARACTERISTICS : Perennial, meandering, locally braided
NATURE OF STREAMBED : Sand to small cobbles with some exposed ledge

PEAK FLOW DATA

Q 2.33 =	700 cfs	Q 50 =	2400 cfs
Q 10 =	1400 cfs	Q 100 =	2900 cfs
Q 25 =	1900 cfs	Q 500 =	4080 cfs

DATE OF FLOOD OF RECORD: Unknown
ESTIMATED DISCHARGE: Unknown
WATER SURFACE ELEV.: Unknown
NATURAL STREAM VELOCITY : @ Q50 = 7.9 fps
ICE CONDITIONS : Mild
DEBRIS: Moderate
DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? Yes
IS ORDINARY RISE RAPID? Yes
IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? Yes
IF YES, DESCRIBE: Upstream RR bridge abutment and roadway constrict the channel approximately 100 feet above this bridge

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

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Single span concrete T-beam bridge
YEAR BUILT: 1928
CLEAR SPAN(NORMAL TO STREAM): 37'
VERTICAL CLEARANCE ABOVE STREAMBED: 7.9'
WATERWAY OF FULL OPENING: 257 sq. ft.
DISPOSITION OF STRUCTURE: Replace superstructure
TYPE OF MATERIAL UNDER SUBSTRUCTURE: Abut #1 on ledge, abut #2 unknown

WATER SURFACE ELEVATIONS AT:

Q2.33 =	872.4'	VELOCITY =	6.2 fps
Q10 =	873.4'	"	10.5 fps
Q25 =	876.0'	"	11.8 fps
Q50 =	877.0'	"	13.1 fps
Q100 =	878.3'	"	11.2 fps

LONG TERM STREAMBED CHANGES: None noted

IS THE ROADWAY OVERTOPPED BELOW Q100: Yes
FREQUENCY: Below the Q50
RELIEF ELEVATION: 877.0'
DISCHARGE OVER ROAD @Q100: 1440 cfs

UPSTREAM STRUCTURE

TOWN: Roxbury
DISTANCE: 100'
HIGHWAY # : NECR Bridge
STRUCTURE #: 39
CLEAR SPAN: 65'
CLEAR HEIGHT: 26'
YEAR BUILT: unknown
FULL WATERWAY: 316.6 sq. ft
STRUCTURE TYPE: Single span side girder birdge

DOWNSTREAM STRUCTURE

TOWN: Granville
DISTANCE: 10,990'
HIGHWAY # : NECR Bridge
STRUCTURE #: 38
CLEAR SPAN: 70'
CLEAR HEIGHT: 11.2'
YEAR BUILT: unknown
FULL WATERWAY: 764 sq. ft.
STRUCTURE TYPE: Single span side girder 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	N/A	1.24					
POSTING							
OPERATING	N/A	1.82	2.8	1.59	2.07	1.88	
COMMENTS:							

PROPOSED STRUCTURE

STRUCTURE TYPE: Replace bridge deck and beams - no abutment or in stream work

CLEAR SPAN(NORMAL TO STREAM): 37'
VERTICAL CLEARANCE ABOVE STREAMBED: 7.9'
WATERWAY OF FULL OPENING: 257 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	872.4'	VELOCITY=	6.2 fps
Q10 =	873.4'	"	10.5 fps
Q25 =	876.0'	"	11.8 fps
Q50 =	877.0'	"	13.1 fps
Q100 =	878.3'	"	11.2 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: Yes
FREQUENCY: Below the Q50
RELIEF ELEVATION: 877.0'
DISCHARGE OVER ROAD @Q100: 1440 cfs

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 874.4'
VERTICAL CLEARANCE: @ Q10 = 1.0'; Water into the beams at Q25

SCOUR: Scour not calculated as project is only replacing superstructure

REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

PERMIT INFORMATION

		DEPTH OR ELEVATION:
AVERAGE DAILY FLOW:	35 cfs	
ORDINARY LOW WATER:	<35 cfs	0.5'
ORDINARY HIGH WATER:	320 cfs	2.0'

TEMPORARY BRIDGE REQUIREMENTS

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

ADDITIONAL INFORMATION

1. BRIDGE CLOSED TO TRAFFIC

DESIGN VALUES

1. DESIGN LIVE LOAD		HL-93
2. FUTURE PAVEMENT	d_P:	0.0 INCH
3. DESIGN SPAN	L:	51.90 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:	---
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
17. NOMINAL BEARING RESISTANCE OF ROCK	q_n:	---
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
19. NOMINAL AXIAL PILE RESISTANCE	q_p:	---
20. PILE YIELD STRENGTH ASTM A572	f_y:	---
21. PILE SIZE		---
22. EST. PILE LENGTH	L_p:	
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: ROXBURY
PROJECT NUMBER: BHF 0187(8)

FILE NAME: s10c420pi.dgn
PROJECT LEADER: C. P. WILLIAMS
DESIGNED BY: T. FILLBACH
PRELIMINARY INFORMATION SHEET

PLOT DATE: 9/21/2011
DRAWN BY: G. ROY
CHECKED BY: T. FILLBACH