

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

LRFD

Version 09.02.03

INDEX OF SHEETS

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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 10 = 1400 cfs
Q 25 = 1900 cfs
Q 50 = 2400 cfs
Q 100 = 2900 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'
Q10 = 873.4'
Q25 = 876.0'
Q50 = 877.0'
Q100 = 878.3'
VELOCITY = 6.2 fps
10.5 fps
11.8 fps
13.1 fps
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 bridge

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	1.62	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'
Q10 = 873.4'
Q25 = 876.0'
Q50 = 877.0'
Q100 = 878.3'
VELOCITY= 6.2 fps
10.5 fps
11.8 fps
13.1 fps
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
AVERAGE DAILY FLOW: 35 cfs
ORDINARY LOW WATER: <35 cfs
ORDINARY HIGH WATER: 320 cfs
DEPTH OR ELEVATION: 0.5'
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 dp: 0.0 INCH
3. DESIGN SPAN L: 51.90 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS) Δ: ---
5. PRESTRESSING STRAND fy: ---
6. PRESTRESSED CONCRETE STRENGTH fc: ---
7. PRESTRESSED CONCRETE RELEASE STRENGTH f'cl: ---
8. CONCRETE, HIGH PERFORMANCE CLASS AA fc: ---
9. CONCRETE, HIGH PERFORMANCE CLASS A fc: 4.0 KSI
10. CONCRETE, HIGH PERFORMANCE CLASS B fc: 3.5 KSI
11. CONCRETE, CLASS C fc: ---
12. REINFORCING STEEL fy: 60 KSI
13. STRUCTURAL STEEL AASHTO M270 (WEATHERING) fy: 50 KSI
14. SOIL UNIT WEIGHT γ: 0.140 KCF
15. NOMINAL BEARING RESISTANCE OF SOIL qn: ---
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD) φ: ---
17. NOMINAL BEARING RESISTANCE OF ROCK qn: ---
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD) φ: ---
19. NOMINAL AXIAL PILE RESISTANCE qp: ---
20. PILE YIELD STRENGTH ASTM A572 fy: ---
21. PILE SIZE ---
22. EST. PILE LENGTH Lp: ---
23. PILE RESISTANCE FACTOR φ: ---
24. LATERAL PILE DEFLECTION Δ: ---
25. BASIC WIND SPEED V3s: ---
26. MINIMUM GROUND SNOW LOAD pg: ---
27. SEISMIC DATA PGA: --- Ss: --- S1: ---

PROJECT NAME: ROXBURY
PROJECT NUMBER: BHF 0187(8)
FILE NAME: s10c420pi.dgn PLOT DATE: 9/21/2011
PROJECT LEADER: C. P. WILLIAMS DRAWN BY: G. ROY
DESIGNED BY: T. FILLBACH CHECKED BY: T. FILLBACH
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TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT	20 year ESAL for flexible pavement from 2012 to 2032 : 109000
2012	470	55	57	4.5	35	40 year ESAL for flexible pavement from 2012 to 2052 : 258000
2032	500	55	57	7.2	55	Design Speed : 50 mph