STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

Version 12.01.01c

LRFD

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: October 2012

DRAINAGE AREA : 6.0 sq. mi.
CHARACTER OF TERRAIN : Mountainous, forested, steep
STREAM CHARACTERISTICS : Incised, semi-alluvial
NATURE OF STREAMBED : Cobbles and gravel

PEAK FLOW DATA

Q 2.33 =	400 cfs	Q 50 =	1400 cfs
Q 10 =	860 cfs	Q 100 =	1650 cfs
Q 25 =	1150 cfs	Q 500 =	2300 cfs

DATE OF FLOOD OF RECORD: Unknown
ESTIMATED DISCHARGE: Unknown
WATER SURFACE ELEV.: Unknown
NATURAL STREAM VELOCITY : @ 50 = 11.4 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: Concrete T-beam
YEAR BUILT: 1929
CLEAR SPAN(NORMAL TO STREAM): 18'
VERTICAL CLEARANCE ABOVE STREAMBED: 8'
WATERWAY OF FULL OPENING: 150 sq. ft.
DISPOSITION OF STRUCTURE: Replace
TYPE OF MATERIAL UNDER SUBSTRUCTURE: See borings

WATER SURFACE ELEVATIONS AT:

Q2.33 =	945.8'	VELOCITY =	9.0 fps
Q10 =	947.7'	"	11.5 fps
Q25 =	948.6'	"	12.8 fps
Q50 =	950.5'	"	13.6 fps
Q100 =	951.5'	"	14.3 fps

LONG TERM STREAMBED CHANGES: None noted

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: N/A
RELIEF ELEVATION: 952.6'
DISCHARGE OVER ROAD @Q100: N/A

UPSTREAM STRUCTURE

TOWN: Rochester
DISTANCE: 1900'
HIGHWAY # : TH 40 (NFS 226)
STRUCTURE #:
CLEAR SPAN: 23.5'
CLEAR HEIGHT: ~7.5'
YEAR BUILT:
FULL WATERWAY:
STRUCTURE TYPE: I-beam bridge with wood deck

DOWNSTREAM STRUCTURE

TOWN: Rochester
DISTANCE: 900'
HIGHWAY # :
STRUCTURE #:
CLEAR SPAN:
CLEAR HEIGHT:
YEAR BUILT:
FULL WATERWAY:
STRUCTURE TYPE: Confluence with West Branch White River

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span prestressed concrete next beam

CLEAR SPAN(NORMAL TO STREAM): 46'
VERTICAL CLEARANCE ABOVE STREAMBED: 8.5'
WATERWAY OF FULL OPENING: 315 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	945.0'	VELOCITY=	9.4 fps
Q10 =	946.5'	"	10.7 fps
Q25 =	947.3'	"	11.0 fps
Q50 =	947.9'	"	11.4 fps
Q100 =	948.4'	"	12.0 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: N/A
RELIEF ELEVATION: 952.6'
DISCHARGE OVER ROAD @Q100: N/A

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 950.6'
VERTICAL CLEARANCE: @ Q50 = 2.7'

SCOUR: Contraction scour = 2.0' up to Q500

REQUIRED CHANNEL PROTECTION: Stone Fill, Type IV

PERMIT INFORMATION

AVERAGE DAILY FLOW:	12 cfs	
ORDINARY LOW WATER:	6 cfs	DEPTH OR ELEVATION: ~0.5'
ORDINARY HIGH WATER:	175 cfs	~1.5'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: None needed - detour will be in place during construction
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:	58.00 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ:	---
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}:	---
8. CONCRETE, HIGH PERFORMANCE CLASS AA	f'_c:	---
9. CONCRETE, HIGH PERFORMANCE CLASS A	f'_c:	---
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	f_y:	---
14. SOIL UNIT WEIGHT	γ:	---
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:	14'
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:	---

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							
POSTING							
OPERATING							
COMMENTS:							

AS BUILT "REBAR" DETAILS

LEVEL I	LEVEL II	LEVEL III
TYPE:	TYPE:	TYPE:
GRADE:	GRADE:	GRADE:

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2014	770	160	65	8.7	65
2034	810	160	65	12.6	100

20 year ESAL for flexible pavement from 2014 to 2034 : 398000
40 year ESAL for flexible pavement from 2014 to 2054 : 950000
Design Speed : 45 mph

PROJECT NAME: ROCHESTER
PROJECT NUMBER: BRF 0162(17)

FILE NAME: r85e035_pi.dgn
PROJECT LEADER: J. FITCH
DESIGNED BY: E.A. FIALA
PRELIMINARY INFORMATION SHEET

PLOT DATE: 25-MAR-2013
DRAWN BY: E.A. FIALA
CHECKED BY: S.E. BURBANK
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