

PRELIMINARY INFORMATION SHEET (BRIDGE)

LRFD

INDEX OF SHEETS

FINAL HYDRAULIC REPORT

PLAN SHEETS

STANDARDS LIST

HYDROLOGIC DATA

Date: February 2013

DRAINAGE AREA : 39.2 sq. mi.
 CHARACTER OF TERRAIN : Hilly, rural, mix of forest and meadow
 STREAM CHARACTERISTICS : Sinuous, alluvial, incised
 NATURE OF STREAMBED : Clay and silt

PEAK FLOW DATA

Q 2.33 = 1750 cfs Q 50 = 4050 cfs
 Q 10 = 2650 cfs Q 100 = 4740 cfs
 Q 25 = 3450 cfs Q 500 = 6050 cfs

DATE OF FLOOD OF RECORD: Unknown
 ESTIMATED DISCHARGE: Unknown
 WATER SURFACE ELEV.: Unknown
 NATURAL STREAM VELOCITY: @ Q25 = 7.4 cfs
 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 rolled beam bridge
 YEAR BUILT: 1919
 CLEAR SPAN(NORMAL TO STREAM): 27'
 VERTICAL CLEARANCE ABOVE STREAMBED: ~11'
 WATERWAY OF FULL OPENING: 265 sq. ft.
 DISPOSITION OF STRUCTURE: Replace
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: See borings

WATER SURFACE ELEVATIONS AT:

Q2.33 = 366.7' VELOCITY = 9.3 fps
 Q10 = 368.9' " 7.7 fps
 Q25 = 369.4' " 8.8 fps
 Q50 = 369.4' " 8.6 fps
 Q100 = 369.4' " 8.2 fps

LONG TERM STREAMBED CHANGES: None noted

IS THE ROADWAY OVERTOPPED BELOW Q100: Yes
 FREQUENCY: Below Q10
 RELIEF ELEVATION: 367.0'
 DISCHARGE OVER ROAD @Q100: 1010 cfs

UPSTREAM STRUCTURE

TOWN: Fairfield DISTANCE: 120'
 HIGHWAY #: Lamoille Valley Rail Trail STRUCTURE #:
 CLEAR SPAN: 115' CLEAR HEIGHT: ~14'
 YEAR BUILT: FULL WATERWAY: 1060 sq. ft.
 STRUCTURE TYPE: 2-span steel girder

DOWNSTREAM STRUCTURE

TOWN: Fairfield DISTANCE: 5350'
 HIGHWAY #: VT 36 STRUCTURE #: BR 9
 CLEAR SPAN: 80' CLEAR HEIGHT: 17'
 YEAR BUILT: 1983 FULL WATERWAY: 1250 sq. ft.
 STRUCTURE TYPE: Welded 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	1.82	1.04					
POSTING							
OPERATING	2.35	1.35	2.39	1.3	1.7	1.55	1.88
COMMENTS:							

PROPOSED STRUCTURE

STRUCTURE TYPE: Concrete solid slab bridge
 CLEAR SPAN(NORMAL TO STREAM): 48'
 VERTICAL CLEARANCE ABOVE STREAMBED: ~11'
 WATERWAY OF FULL OPENING: 360 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 = 365.7' VELOCITY = 8.9 fps
 Q10 = 367.6' " 11.3 fps
 Q25 = 369.1' " 8.1 fps
 Q50 = 369.4' " 8.8 fps
 Q100 = 369.4' " 10.2 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: Yes
 FREQUENCY: Below Q10
 RELIEF ELEVATION: 366.8'
 DISCHARGE OVER ROAD @Q100: 1100 cfs

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 367.6'
 VERTICAL CLEARANCE: @ Q25 = -1.5'

SCOUR: Contraction scour ~ 6' at Q2.33 and 10' at Q10.

REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

PERMIT INFORMATION

AVERAGE DAILY FLOW: 80 cfs DEPTH OR ELEVATION:
 ORDINARY LOW WATER: 40 cfs 358'
 ORDINARY HIGH WATER: 750 cfs 363'

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 ONE-WAY TRAFFIC ON THE EXISTING STRUCTURE.
2. TRAFFIC SIGNALS ARE NOT NECESSARY.
3. SIDEWALKS ARE NOT NECESSARY

DESIGN VALUES

1. DESIGN LIVE LOAD	HL-93
2. FUTURE PAVEMENT	dp: 3.0 INCH
3. DESIGN SPAN	L: 51.00 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ: ---
5. PRESTRESSING STRAND (0.60 INCH DIAMETER - LOW RELAX)	fy: 270 KSI
6. PRESTRESSED CONCRETE STRENGTH	f'c: 8.0 KSI
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f'cr: 6.0 KSI
8. CONCRETE, HIGH PERFORMANCE CLASS AA	f'c: 4.0 KSI
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	fy: 60 KSI
13. STRUCTURAL STEEL AASHTO M270	fy: ---
14. NOMINAL BEARING RESISTANCE OF SOIL	qn: 4.0 KSF
15. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: ---
16. NOMINAL BEARING RESISTANCE OF ROCK	qn: 10.0 KSF
17. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: ---
18. PILE RESISTANCE FACTOR	φ: 0.65
19. LATERAL PILE DEFLECTION	Δ: 0.94 INCH
20. BASIC WIND SPEED	V3s: ---
21. MINIMUM GROUND SNOW LOAD	pg: ---
22. SEISMIC DATA	PGA: 0.65 Ss: --- S1: ---
23.	---
24.	---
25.	---
26.	---

PROJECT NAME: **FAIRFIELD**
 PROJECT NUMBER: **BRO 1448 (41)**

FILE NAME: s12j170excel.dgn PLOT DATE: 8/18/2014
 PROJECT LEADER: R. YOUNG DRAWN BY: K. FRIEDLAND
 DESIGNED BY: R. KLINFELTER CHECKED BY: J. SALVATORI
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TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT	20 year ESAL for flexible pavement from 2015 to 2035 : 4000
2015	20	5	60	7.8	5	40 year ESAL for flexible pavement from 2015 to 2055 : 8000
2035	20	5	60	9.6	5	Design Speed : 15 mph

AS BUILT "REBAR" DETAIL

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