

PRELIMINARY INFORMATION SHEET (BRIDGE)

LRFD

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA Date: N/A

DRAINAGE AREA: Approximately 5.5 sq. mi.
 CHARACTER OF TERRAIN: Hilly and mountainous, mostly forested
 STREAM CHARACTERISTICS: Sinuous, slightly incised with minimal floodplain
 NATURE OF STREAMBED: Gravel, cobbles, boulders and ledge

PEAK FLOW DATA

Q 2.33 = 300 cfs	Q 50 = 1100 cfs
Q 10 = 650 cfs	Q 100 = 1275 cfs
Q 25 = 900 cfs	Q 500 = Unknown

DATE OF FLOOD OF RECORD: 1927
 ESTIMATED DISCHARGE: Unknown
 WATER SURFACE ELEV.: Unknown
 NATURAL STREAM VELOCITY: @ Q25 = 5.8 fps
 ICE CONDITIONS: Moderate
 DEBRIS: Moderate
 DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? Unknown
 IS ORDINARY RISE RAPID? Unknown
 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 concrete encased steel beam bridge
 YEAR BUILT: 1920
 CLEAR SPAN(NORMAL TO STREAM): 12'-4"
 VERTICAL CLEARANCE ABOVE STREAMBED: 5'-6"
 WATERWAY OF FULL OPENING: 68 sq. ft.
 DISPOSITION OF STRUCTURE: Remove and replace structure
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: See borings

WATER SURFACE ELEVATIONS AT:

Q2.33 = 536.61 feet	VELOCITY = 7.13 fps
Q10 = 539.60 feet	" 11.81 fps
Q25 = 541.54 feet	" 6.99 fps
Q50 = 543.00 feet	" 3.63 fps
Q100 = 542.35 feet	" 5.77 fps

LONG TERM STREAMBED CHANGES: None noted

IS THE ROADWAY OVERTOPPED BELOW Q100: Yes
 FREQUENCY: Q25
 RELIEF ELEVATION: 541.3 feet
 DISCHARGE OVER ROAD @Q100: 1.05 feet

UPSTREAM STRUCTURE

TOWN: Brattleboro DISTANCE: 1.6 miles
 HIGHWAY #: TH 4 (Halladay Brook Road) STRUCTURE #: D16
 CLEAR SPAN: 20' CLEAR HEIGHT: 9'
 YEAR BUILT: 2005 FULL WATERWAY:
 STRUCTURE TYPE: Single Span Concrete Slab

DOWNSTREAM STRUCTURE

TOWN: Brattleboro DISTANCE: 1340'
 HIGHWAY #: Private Road (Winding Hill Road) STRUCTURE #: Private
 CLEAR SPAN: CLEAR HEIGHT:
 YEAR BUILT: FULL WATERWAY:
 STRUCTURE TYPE:

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:							

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span precast concrete voided slab bridge

CLEAR SPAN(NORMAL TO STREAM): 29'-10"
 VERTICAL CLEARANCE ABOVE STREAMBED: 6.5 ft
 WATERWAY OF FULL OPENING: 176.41 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 = 536.04 feet	VELOCITY = 3.81 fps
Q10 = 537.56 feet	" 5.45 fps
Q25 = 538.24 feet	" 6.67 fps
Q50 = 538.9 feet	" 7.45 fps
Q100 = 539.2 feet	" 8.84 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: Above Q100
 RELIEF ELEVATION: 541.1 feet
 DISCHARGE OVER ROAD @Q100: None

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 539.20'
 VERTICAL CLEARANCE: @ Q25 = 0.96'

SCOUR: Footings are bearing on bedrock
 REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

PERMIT INFORMATION

AVERAGE DAILY FLOW: 2.1 cfs DEPTH OR ELEVATION:
 ORDINARY LOW WATER: 8.7 cfs 0.83 feet
 ORDINARY HIGH WATER: 77 cfs 1.806 feet

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: Single span bridge *
 CLEAR SPAN (NORMAL TO STREAM): 44'-0"
 VERTICAL CLEARANCE ABOVE STREAMBED: 4'-0"
 WATERWAY AREA OF FULL OPENING: 176 sq. ft.

ADDITIONAL INFORMATION

* Temporary bridge designed to be in through winter

- TRAFFIC MAINTENANCE NOTES**
1. MAINTAIN TRAFFIC ON A TEMPORARY BRIDGE.
 2. TRAFFIC SIGNALS ARE 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: 45.00 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ: ---
5. PRESTRESSING STRAND	fy: ---
6. PRESTRESSED CONCRETE STRENGTH	f'c: ---
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f'cr: ---
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: ---
12. REINFORCING STEEL	fy: 60 KSI
13. STRUCTURAL STEEL AASHTO M270	fy: ---
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	ps: ---
27. SEISMIC DATA	PGA: --- S: ---

PROJECT NAME: BRATTLEBORO
 PROJECT NUMBER: BRO 1442(35)

FILE NAME: r10j062.pl.dgn PLOT DATE: 26-FEB-2013
 PROJECT LEADER: M. CHANETTE DRAWN BY: VHB
 DESIGNED BY: VHB CHECKED BY: VHB
 PRELIMINARY INFORMATION SHEET SHEET 5 OF 15

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2012	460	50	76	2.1	10
2032	490	55	76	3.6	20

20 year ESAL for flexible pavement from 2012 to 2032 : 40000
 40 year ESAL for flexible pavement from 2012 to 2052 : 93000
 Design Speed : 25 mph

