

# PRELIMINARY INFORMATION SHEET (BRIDGE)

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## FINAL HYDRAULIC REPORT

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### STANDARDS LIST

C-10	CURBING	02-11-2008
E-100	CONSTRUCTION APPROACH SIGNS	01-02-2004
E-101	CONSTRUCTION SIGN DETAILS	05-30-2003
E-102	CONSTRUCTION SIGN DETAILS	06-30-2003
E-102a	CONSTRUCTION SIGN DETAILS	05-01-2004
E-106	TRAFFIC CONTROL - MISCELLANEOUS DETAILS	03-01-2004
E-107	DELINEATION, BARRICADES AND DETOURS FOR CONSTRUCTION AREAS	06-30-2003
E-107A	BREAKAWAY BARRICADE DETAILS	06-08-2009
E-108	CONSTRUCTION ZONE LONGITUDINAL DROP OFFS	06-08-2009
E-121	STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD	08-08-1995
E-193	PAVEMENT MARKING DETAILS	08-18-1995
G-1	STEEL BEAM GUARDRAIL DETAILS (POST, DELINEATOR, TYPICALS)	01-03-2000
G-17A	MODIFIED ECCENTRIC LOADER TERMINAL (MELT)	09-27-2002
G-17B	MODIFIED ECCENTRIC LOADER TERMINAL (MELT)	09-27-2002
G-19	GENERIC GRADING PLANS FOR GUARDRAIL END TERMINALS	11-15-2002
S-360a	BRIDGE RAILING, GALVANIZED NETC 2 RAIL	12-14-2009
S-360b	GUARDRAIL APPROACH SECTION, GALVANIZED NETC 2 RAIL	12-14-2009
S-363	GUARDRAIL APPROACH SECTION, GALVANIZED NETC 2 & 4 RAIL	12-14-2009

### WATERLINE UTILITY SHEETS

C-101	WATER MAIN ON BRIDGE
C-501	WATERLINE DETAILS

### STRUCTURES DETAIL SHEETS

SD-501.000	CONCRETE DETAILS AND NOTES	05-07-2010
SD-502.00	CONCRETE DETAILS AND NOTES	06-04-2010
SD-601.00	STRUCTURAL STEEL DETAILS & NOTES	06-04-2010
SD-602.00	STRUCTURAL STEEL PLATE GIRDER DETAILS AND NOTES	05-02-2011

### HYDROLOGIC DATA

Date: Dec 2011

DRAINAGE AREA : 37.7 SQ MI  
 CHARACTER OF TERRAIN : HILLY TO MOUNTAINOUS, MOSTLY FORESTED  
 STREAM CHARACTERISTICS :  
 NATURE OF STREAMBED : WELL ARMORED - MEDIUM TO LARGE COBBLES & BOULDER

### PEAK FLOW DATA

Q 2.33 =	2400 CFS	Q 50 =	6000 CFS
Q 10 =	4000 CFS	Q 100 =	7000 CFS
Q 25 =	5000 CFS	Q 500 =	

DATE OF FLOOD OF RECORD : N/A  
 ESTIMATED DISCHARGE : N/A  
 WATER SURFACE ELEV. : N/A  
 NATURAL STREAM VELOCITY : @ Q50 = 12.9 fps  
 ICE CONDITIONS : LIGHT  
 DEBRIS : MODERATE  
 DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? YES  
 IS ORDINARY RISE RAPID? YES  
 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 : THREE SPAN CONTINUOUS PLATE GIRDER BRIDGE  
 YEAR BUILT : 2005  
 CLEAR SPAN(NORMAL TO STREAM) : 183 FT  
 VERTICAL CLEARANCE ABOVE STREAMBED : 10 FT  
 WATERWAY OF FULL OPENING : 2200 SQ FT  
 DISPOSITION OF STRUCTURE : REPAIR  
 TYPE OF MATERIAL UNDER SUBSTRUCTURE :

### WATER SURFACE ELEVATIONS AT:

Q2.33 =	1132.4 FT	VELOCITY =	10.4 FPS
Q10 =	1133.7 FT	"	10.6 FPS
Q25 =	1134.1 FT	"	11.4 FPS
Q50 =	1134.5 FT	"	12.1 FPS
Q100 =	1134.9 FT	"	12.7 FPS

LONG TERM STREAMBED CHANGES : Channel is highly unstable and subject to lateral shifting

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

### UPSTREAM STRUCTURE

TOWN : N/A DISTANCE :  
 HIGHWAY # : STRUCTURE # :  
 CLEAR SPAN : CLEAR HEIGHT :  
 YEAR BUILT : FULL WATERWAY :  
 STRUCTURE TYPE :

### DOWNSTREAM STRUCTURE

TOWN : Bennington DISTANCE : 1.7 MI  
 HIGHWAY # : VT 9 STRUCTURE # : 9  
 CLEAR SPAN : 209 FT CLEAR HEIGHT : 17'  
 YEAR BUILT : FULL WATERWAY :  
 STRUCTURE TYPE :

### LFD LOAD RATING (TONS)

STRESS LEVELS	TRUCK						
	H	HS	3S2	6AXLE	3A STR	4A STR	5A SEMI
INVENTORY	46	52					
POSTING	52	73	85		67	69	79
OPERATING		87	101	116			
COMMENTS:							

### PROPOSED STRUCTURE

STRUCTURE TYPE : THREE SPAN PLATE GIRDER BRIDGE  
 CLEAR SPAN(NORMAL TO STREAM) : 53' + 77' + 53' = 183 FT TOTAL  
 VERTICAL CLEARANCE ABOVE STREAMBED : 10 FT  
 WATERWAY OF FULL OPENING : 2200 SQ FT

### WATER SURFACE ELEVATIONS AT:

Q2.33 =	1132.4 FT	VELOCITY =	10.4 FPS
Q10 =	1133.7 FT	"	10.6 FPS
Q25 =	1134.1 FT	"	11.4 FPS
Q50 =	1134.5 FT	"	12.1 FPS
Q100 =	1134.9 FT	"	12.7 FPS

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

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE : 1139.1 FT  
 VERTICAL CLEARANCE : @ Q100 = 4.2 FT

SCOUR : 1 FT

REQUIRED CHANNEL PROTECTION : STONE FILL, TYPE IV

### PERMIT INFORMATION

AVERAGE DAILY FLOW : 80 CFS DEPTH OR ELEVATION :  
 ORDINARY LOW WATER : 40 CFS DEPTH = 0.5 FT  
 ORDINARY HIGH WATER : 1150 CFS DEPTH = 3.0 FT

### TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE : Single span structure  
 CLEAR SPAN (NORMAL TO STREAM) : 131' minimum clear span (normal to channel)  
 VERTICAL CLEARANCE ABOVE STREAMBED : Minimum low beam elev. 1140'  
 WATERWAY AREA OF FULL OPENING : 1315 SQ FT

### ADDITIONAL INFORMATION

HYDROLOGIC AND HYDRAULIC INFORMATION TAKEN FROM 2005 PLANS.  
 2011 SURVEY SHOWED SOME CHANGES IN CHANNEL, BUT LITTLE EFFECT ON NET CROSS SECTIONAL AREA.

2011 SURVEY DOES NOT REPRESENT A LONG TERM CONDITION OF THE CHANNEL.

1. MAINTAIN TWO-WAY TRAFFIC ON A TEMPORARY BRIDGE.
2. TRAFFIC SIGNALS ARE NOT NECESSARY.
3. SIDEWALKS ARE NOT NECESSARY
4. THE APPROACHES FOR THE TEMPORARY BRIDGE SHALL BE PAVED.

### DESIGN VALUES

1. DESIGN LIVE LOAD	HS-25
2. FUTURE PAVEMENT	d <sub>p</sub> : 0.0 INCH
3. ABUTMENT BEARING TO BEARING LENGTH (THREE SPANS)	L: 272.00 FT (79.00 - 114.00 - 79.00) FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ: ---
5. PRESTRESSING STRAND	f <sub>y</sub> : ---
6. PRESTRESSED CONCRETE STRENGTH	f' <sub>c</sub> : ---
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f' <sub>cr</sub> : ---
8. CONCRETE, HIGH PERFORMANCE CLASS AA	f' <sub>c</sub> : ---
9. CONCRETE, HIGH PERFORMANCE CLASS A	f' <sub>c</sub> : 4.0 KSI
10. CONCRETE, HIGH PERFORMANCE CLASS B	f' <sub>c</sub> : 3.5 KSI
11. CONCRETE, CLASS C	f' <sub>c</sub> : ---
12. REINFORCING STEEL	f <sub>y</sub> : 60 KSI
13. STRUCTURAL STEEL AASHTO M270 (WEATHERING)	f <sub>y</sub> : 50 KSI
14. SOIL UNIT WEIGHT	γ: 0.140 KCF
15. NOMINAL BEARING RESISTANCE OF SOIL	q <sub>n</sub> : 4.0 KSF
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: ---
17. NOMINAL BEARING RESISTANCE OF ROCK	q <sub>n</sub> : ---
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: ---
19. NOMINAL AXIAL PILE RESISTANCE	q <sub>p</sub> : ---
20. PILE YIELD STRENGTH ASTM A572	f <sub>y</sub> : ---
21. PILE SIZE	---
22. EST. PILE LENGTH	L <sub>p</sub> : ---
23. PILE RESISTANCE FACTOR	φ: ---
24. LATERAL PILE DEFLECTION	Δ: ---
25. BASIC WIND SPEED	V <sub>30</sub> : ---
26. MINIMUM GROUND SNOW LOAD	p <sub>g</sub> : ---
27. SEISMIC DATA	PgA: --- S: --- S <sub>1</sub> : ---

PROJECT NAME : WOODFORD

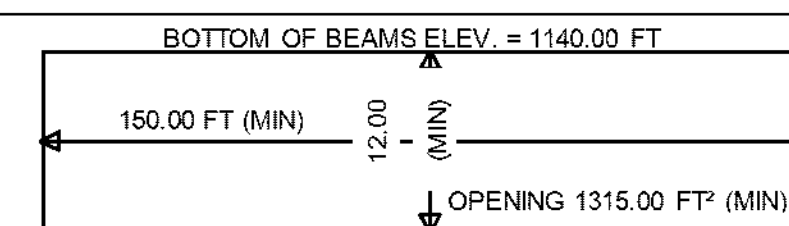
PROJECT NUMBER : ER BHF 010-1(44)

FILE NAME : s11b214pi.dgn PLOT DATE : 3/23/2012  
 PROJECT LEADER : C. CARLSON DRAWN BY : G. ROY  
 DESIGNED BY : M. EVANS-MONGEON CHECKED BY : M. EVANS-MONGEON  
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### TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2012	4000	620	56	10.7	500
2032	4300	660	56	13.1	660

### TEMPORARY BRIDGE PROFILE ALONG TEMP CL



20 year ESAL for flexible pavement from 2012 to 2032 : 4789000

40 year ESAL for flexible pavement from 2012 to 2052 : 10386000

Design Speed : 50 mph