

PRELIMINARY INFORMATION SHEET (BRIDGE)

LRFD

INDEX OF SHEETS

FINAL HYDRAULIC REPORT

PLAN SHEETS

1	TITLE
2	PRELIMINARY INFORMATION
3	TYPICAL SECTIONS
4	PROJECT NOTES
5 - 7	QUANTITY SHEET 1-3
8	BRIDGE QUANTITY SHEET
9	SYMBOLOLOGY LEGEND
10	TIE
11 - 12	LAYOUT 1-2
13 - 14	PROFILE 1-2
15	BORING LAYOUT
16	BORING LOGS
17	PLAN AND ELEVATION
18	BRIDGE DECK PLAN
19 - 20	BRIDGE VOIDED SLAB DETAILS 1-2
21	APPROACH SLAB DETAILS
22	ABUTMENT 1 & 2 PLAN & ELEVATION
23 - 24	ABUTMENT 1 & 2 REINFORCING DETAILS 1-2
25	BRIDGE RAIL DETAILS
26	TRANSITION RAIL DETAILS
27 - 31	MAINLINE CROSS SECTIONS 1-5
32 - 34	CHANNEL CROSS SECTIONS 1-3
35	BANKING / MATERIAL TRANSITION
36	EPSC NARRATIVE
37 - 38	EPSC EXISTING LAYOUT 1-2
39 - 40	EPSC CONSTRUCTION LAYOUT 1-2
41 - 42	EPSC FINAL LAYOUT 1-2
43 - 44	EPSC DETAILS 1-2

STANDARDS LIST

A-76	STANDARDS FOR TOWN & DEVELOPMENT ROADS	03-03-2003
B-12	SIDE ROAD INTERSECTION, DEPRESSED RAMP	06-01-1994
B-71	STANDARD FOR RESIDENTIAL AND COMMERCIAL DRIVES	07-08-2005
C-10	CURBING	02-11-2008
D-22	SANITARY SEWER SYSTEMS	03-10-1995
G-1	STEEL BEAM GUARDRAIL DETAILS (POST, DELINEATOR, TYPICALS)	01-03-2000
G-1D	STEEL BEAM GUARDRAIL DETAILS (END TERMINAL, ANCHOR, MEDIAN)	01-03-2000

WATER & SEWER REPLACEMENT PLANS

1 - 2	WATER AND SEWER NOTES 1 - 2	BY CLD
3 - 4	WATER/SEWER DETAILS 1 - 2	BY CLD
5	WATER/SEWER LAYOUT 1	BY CLD
6	SEWER PROFILE	BY CLD
7	WATER PROFILE	BY CLD

STRUCTURES DETAIL SHEETS

SD-501.00	CONCRETE DETAILS AND NOTES	5/7/2010
SD-502.00	CONCRETE DETAILS AND NOTES	5/7/2010
SD-516.10	BRIDGE JOINT ASPHALTIC PLUG	5/7/2010

HYDROLOGIC DATA

Date: Nov. 2012

DRAINAGE AREA : 8.3 sq. mi.
 CHARACTER OF TERRAIN : Flat at site to hilly and mountainous uplands.
 STREAM CHARACTERISTICS : Sinuous, alluvial, not incised, wide flood plain
 NATURE OF STREAMBED : Gravel and cobbles

PEAK FLOW DATA

Q 2.33 =	325 cfs	Q 50 =	1150 cfs
Q 10 =	725 cfs	Q 100 =	1400 cfs
Q 25 =	950 cfs	Q 500 =	2000 cfs

DATE OF FLOOD OF RECORD : Unknown
 ESTIMATED DISCHARGE : Unknown
 WATER SURFACE ELEV. : Unknown
 NATURAL STREAM VELOCITY : @ Q50 = 6.4 fps (1.7 fps)*
 ICE CONDITIONS : Moderate
 DEBRIS : Moderate
 DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? No
 IS ORDINARY RISE RAPID? Yes
 IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? Yes
 IF YES, DESCRIBE : Otter Creek is about 1300' downstream. This site is in the Otter Creek floodplain, and thus hydraulics at this site are sometimes controlled by the Otter Creek.

WATERSHED STORAGE : 1% HEADWATERS :
 UNIFORM : X
 IMMEDIATELY ABOVE SITE :

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE : Two span steel beam bridge with concrete deck
 YEAR BUILT : 1900
 CLEAR SPAN(NORMAL TO STREAM) : Two 10' spans = 20' total
 VERTICAL CLEARANCE ABOVE STREAMBED : 8'
 WATERWAY OF FULL OPENING : 157 sq. ft.
 DISPOSITION OF STRUCTURE : Remove
 TYPE OF MATERIAL UNDER SUBSTRUCTURE : See boring logs

WATER SURFACE ELEVATIONS AT:

Q2.33 =	525.3' (525.6')*	VELOCITY =	4.6 fps (4.2 fps)*
Q10 =	527.3' (530.3')	"	6.9 fps (4.6 fps)
Q25 =	528.2' (531.6')	"	8.6 fps (4.1 fps)
Q50 =	528.9' (532.5')	"	10.1 fps (2.8 fps)
Q100 =	530.0' (533.4')	"	12.2 fps (2.3 fps)

LONG TERM STREAMBED CHANGES : None noted

IS THE ROADWAY OVERTOPPED BELOW Q100: No (Yes)*
 FREQUENCY: Above Q100 without tailwater (About Q10 with Otter Creek tailwater)
 RELIEF ELEVATION: 530.1'
 DISCHARGE OVER ROAD @Q100: None without tailwater (1045 cfs with tailwater)

UPSTREAM STRUCTURE

TOWN: N.A. - Stream divides DISTANCE: _____
 HIGHWAY #: _____ STRUCTURE #: _____
 CLEAR SPAN: _____ CLEAR HEIGHT: _____
 YEAR BUILT: _____ FULL WATERWAY: _____
 STRUCTURE TYPE: _____

DOWNSTREAM STRUCTURE

TOWN: N.A. - Otter Creek confluence DISTANCE: _____
 HIGHWAY #: _____ STRUCTURE #: _____
 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 SEM
TONNAGE	20	36	36	66	30	34.5	38
INVENTORY	2.18	1.16					
POSTING							
OPERATING	2.82	1.51	2.43	1.43	1.99	1.81	1.97
COMMENTS:							

AS BUILT "REBAR" DETAIL		
LEVEL I	LEVEL II	LEVEL III
TYPE: _____	TYPE: _____	TYPE: _____
GRADE: _____	GRADE: _____	GRADE: _____

PILE DRIVING AND TESTING REQUIREMENTS

1. NOMINAL PILE DRIVING CAPACITY	440.00 KIP
2. PILE TEST RESISTANCE FACTOR	0.65
3. MAXIMUM PILE TIP ELEVATION	503.00 FT
4. 0	

PROPOSED STRUCTURE

STRUCTURE TYPE : Single span, prestressed concrete voided slab
 CLEAR SPAN(NORMAL TO STREAM): 48'
 VERTICAL CLEARANCE ABOVE STREAMBED: 7'
 WATERWAY OF FULL OPENING: 310 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	525.2' (525.5')*	VELOCITY =	5.0 fps (4.5 fps)*
Q10 =	526.7' (530.0')	"	6.4 fps (2.9 fps)
Q25 =	527.2' (531.4')	"	7.3 fps (2.9 fps)
Q50 =	527.5' (532.5')	"	8.0 fps (2.1 fps)
Q100 =	528.0' (533.4')	"	8.8 fps (1.9 fps)

IS THE ROADWAY OVERTOPPED BELOW Q100: No (Yes)*
 FREQUENCY: Above Q100 without tailwater (About Q10 with Otter Creek tailwater)
 RELIEF ELEVATION: 530.1'
 DISCHARGE OVER ROAD @Q100: None without tailwater (800 cfs with tailwater)

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 528.5'
 VERTICAL CLEARANCE: @ Q50 = 1.0' without tailwater (.4.0' with tailwater)

SCOUR: Total contraction scour and long term degradation is 2' at Q100 and Q500.

REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

PERMIT INFORMATION

AVERAGE DAILY FLOW:	20 cfs	DEPTH OR ELEVATION:	
ORDINARY LOW WATER:	10 cfs	Elev. 521.5'	
ORDINARY HIGH WATER:	140 cfs	Elev. 524.0'	

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE : The road will be closed. No temporary bridge required.
 CLEAR SPAN (NORMAL TO STREAM): _____
 VERTICAL CLEARANCE ABOVE STREAMBED: _____
 WATERWAY AREA OF FULL OPENING: _____

ADDITIONAL INFORMATION

*Hydraulics at this site are controlled by floodwaters from the Otter Creek. Water surface elevations and velocities listed first, are without tailwater from Otter Creek. They are followed by values in (), that represent conditions with equal frequency floods on the Otter Creek and Moon Brook.

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: 50.00 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ: 0.55 INCH
5. PRESTRESSING STRAND (0.60 INCH DIAMETER - LOW RELAX)	f _y : 270 KSI
6. PRESTRESSED CONCRETE STRENGTH	f' _c : 7.5 KSI
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f' _{cr} : 5.0 KSI
8. CONCRETE, HIGH PERFORMANCE CLASS AA	f' _c : ---
9. CONCRETE, HIGH PERFORMANCE CLASS A	f' _c : ---
10. CONCRETE, HIGH PERFORMANCE CLASS B	f' _c : ---
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: 0.140 KCF
15. NOMINAL BEARING RESISTANCE OF SOIL	q _n : 4.0 KSF
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: ---
17. NOMINAL BEARING RESISTANCE OF ROCK	q _n : 10.0 KSF
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: ---
19. NOMINAL AXIAL PILE RESISTANCE	q _p : 440.0 KIPS
20. PILE YIELD STRENGTH ASTM A572	f _y : 50 KSI
21. PILE SIZE	HP 10X57
22. EST. PILE LENGTH	L _p : 53 FT
23. PILE RESISTANCE FACTOR	φ: 0.65
24. LATERAL PILE DEFLECTION	Δ: ---
25. BASIC WIND SPEED	V _{3s} : ---
26. MINIMUM GROUND SNOW LOAD	p _g : ---
27. SEISMIC DATA	P _{GA} : --- S ₁ : ---

PROJECT NAME: RUTLAND CITY

PROJECT NUMBER: BRF 3000(18)

FILE NAME: s96j244pi.xls PLOT DATE: 2/28/2014
 PROJECT LEADER: C. CARLSON DRAWN BY: R. PELLET
 DESIGNED BY: M. EVANS-MONGEON CHECKED BY: M. E-M
PRELIMINARY INFORMATION SHEET 2 OF 44

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT	20 year ESAL for flexible pavement from 2012 to 2032 : 387000
2012	3000	340	51	4.9	110	40 year ESAL for flexible pavement from 2012 to 2052 : 750000
2032	3200	360	51	3	70	Design Speed : 30 mph