

# PRELIMINARY INFORMATION SHEET (BRIDGE)

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## FINAL HYDRAULIC REPORT

### PLAN SHEETS

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J-2	CONCRETE STEPS-HAND RAILING	1-Jun-94

**HYDROLOGIC DATA** Date: April 2000

DRAINAGE AREA : 408 square miles

CHARACTER OF TERRAIN : Mountainous, rolling hills and agricultural lands

STREAM CHARACTERISTICS : Perennial, sinuous, not braided, equiwidth

NATURE OF STREAMBED : Gravel to cobble and boulders with some ledge

PEAK FLOW DATA

Q 2.33 =	11,600 cfs	Q 50 =	42,000 cfs
Q 10 =	25,400 cfs	Q 100 =	51,000 cfs
Q 25 =	34,300 cfs	Q 500 =	76,000 cfs

DATE OF FLOOD RECORD : November 1927

ESTIMATED DISCHARGE : Unknown

WATER SURFACE ELEV. : 542 feet ( Approximate according to COE 12/73 Study)

NATURAL STREAM VELOCITY : @ Q50 = 11.6 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 :

**PROPOSED STRUCTURE**

STRUCTURE TYPE : Through truss main span w/1 rolled beam approach span on south side

CLEAR SPAN(NORMAL TO STREAM): Total = 311 feet

VERTICAL CLEARANCE ABOVE STREAMBED: 25 feet (over main channel)

WATERWAY OF FULL OPENING: Total = 6250 square feet

WATER SURFACE ELEVATIONS AT:

Q2.33 =	527.7 feet *	VELOCITY=	6.0 fps
Q10 =	532.3 feet *	"	9.8 fps
Q25 =	535.3 feet *	"	11.2 fps
Q50 =	537.9 feet *	"	11.6 fps
Q100 =	540.6 feet *	"	12.1 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No

FREQUENCY: Above Q100

RELIEF ELEVATION: 539.8 feet

DISCHARGE OVER ROAD @Q100: None - due to drawdown through the bridge

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 540.3 feet

VERTICAL CLEARANCE: @ Q50 = 2.4 feet

SCOUR: Maximum contraction scour @ Q100 = 4 feet  
Maximum pier scour @ Q500 = 9 feet

REQUIRED CHANNEL PROTECTION: Type IV Stone Fill

**WATERSHED STORAGE:** 1% Est. HEADWATERS: UNIFORM: X IMMEDIATELY ABOVE SITE:

**EXISTING STRUCTURE INFORMATION**

STRUCTURE TYPE: Through truss w/ 5 rolled beam approach spans, 4 to south, 1 to north

YEAR BUILT: 1928

CLEAR SPAN(NORMAL TO STREAM): Total = 330 feet

VERTICAL CLEARANCE ABOVE STREAMBED: 25 feet (over main channel)

WATERWAY OF FULL OPENING: Total = 6200 square feet

DISPOSITION OF STRUCTURE: Remove

TYPE OF MATERIAL UNDER SUBSTRUCTURE: Unknown

WATER SURFACE ELEVATIONS AT:

Q2.33 =	527.7 feet *	VELOCITY =	6.0 fps
Q10 =	532.4 feet *	"	9.8 fps
Q25 =	535.3 feet *	"	11.2 fps
Q50 =	537.9 feet *	"	11.6 fps
Q100 =	540.7 feet *	"	12.2 fps

LONG TERM STREAMBED CHANGES: Unknown

**PERMIT INFORMATION**

AVERAGE DAILY FLOW: 850 cfs DEPTH OR ELEVATION: 515 feet

ORDINARY LOW WATER: 375 cfs 520 feet

ORDINARY HIGH WATER: 5000 cfs

**TEMPORARY BRIDGE REQUIREMENTS**

STRUCTURE TYPE: 4-span rolled beam \*\*\*

CLEAR SPAN (NORMAL TO STREAM): Total = 385 feet

VERTICAL CLEARANCE ABOVE STREAMBED: 23 feet (B.O.S. elev = 537.0 feet)

WATERWAY AREA OF FULL OPENING: 4700 square feet

**ADDITIONAL INFORMATION**

\* WSE's are reported 250 feet upstream of the existing and proposed bridge(s) centerlines.

\*\* Confluence of White River and the Third Branch of the White River.

\*\*\* Temporary bridge designed to be in through the winter.

Pier piles should be designed to be freestanding above elevation 505.5 feet.

**TRAFFIC MAINTENANCE NOTES**

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

**DESIGN VALUES**

1. DESIGN LIVE LOAD	HL-93
2. FUTURE PAVEMENT	dp: 3 IN
3. DESIGN SPAN 1 (TO THE NEAREST 10TH OF A FOOT)	L1: 67.5 FT
DESIGN SPAN 2	L2: 250 FT
[ DESIGN SPAN 3 (LEAVE BLANK IF NOT REQUIRED) ]	L3: ?
4. CONCRETE, HIGH PERFORMANCE, MASS POUR	fc: 3.5 KSI
5. CONCRETE, HIGH PERFORMANCE CLASS A	fc: 4 KSI
6. CONCRETE, HIGH PERFORMANCE CLASS B	fc: 3.5 KSI
7. CONCRETE, CLASS C	fc: 3 KSI
8. REINFORCING STEEL	fy: 60 KSI
9. STRUCTURAL STEEL AASHTO M270	fy: 36,50.70 KSI
TYPE OF STEEL	GEN. NOTES
10. SOIL UNIT WEIGHT	g: 0.14 K/FT <sup>3</sup>
11. NOMINAL BEARING RESISTANCE OF SOIL	qn: 4.7 KSF
12. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	f: 0.45
13. NOMINAL BEARING RESISTANCE OF ROCK	qn: 10 KSF
14. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	f: N/A
15. PILE SIZE	(14X17)(14X89)
16. PILE YIELD STRENGTH ASTM A572	fy: 50 KSI
17. NOMINAL AXIAL PILE RESISTANCE PIER	qp: 390 KIPS
NOMINAL AXIAL PILE RESISTANCE ABUTMENT 2	qp: 252 KIPS
ENTER PILES AS OVERALL AVERAGE OR FOR EACH SUBSTRUCTURE	
18. EST. PILE LENGTH AT PIER (TO THE NEAREST TENTH FOOT)	L1: 40.4 FT
EST. PILE LENGTH AT ABUTMENT 2	L2: 18.5 FT
19. PILE RESISTANCE FACTOR (REFER TO AASHTO LRFD)	f: 0.65
20. LATERAL PILE DEFLECTION	Δ: GEN. NOTES
21. BASIC WIND SPEED	Vbc: 100 MPH
22. MINIMUM GROUND SNOW LOAD	pg: N/A
23. SEISMIC DATA (AASHTO LRFD)	PGA: ZONE 1

IS THE ROADWAY OVERTOPPED BELOW Q100: No

FREQUENCY: Above Q100

RELIEF ELEVATION: 539.4 feet

DISCHARGE OVER ROAD @Q100: None - due to drawdown through the bridge

**UPSTREAM STRUCTURE**

TOWN: N/A - confluence 600 feet upstream\*\* DISTANCE: \_\_\_\_\_

HIGHWAY #: \_\_\_\_\_ STRUCTURE #: \_\_\_\_\_

CLEAR SPAN: \_\_\_\_\_ CLEAR HEIGHT: \_\_\_\_\_

YEAR BUILT: \_\_\_\_\_ FULL WATERWAY: \_\_\_\_\_

STRUCTURE TYPE: \_\_\_\_\_

**DOWNSTREAM STRUCTURE**

TOWN: Royalton DISTANCE: 3.2 miles

HIGHWAY #: I-89 STRUCTURE #: 26-S

CLEAR SPAN: 889 feet CLEAR HEIGHT: 17 feet

YEAR BUILT: 1968 FULL WATERWAY: 12,600 sf

STRUCTURE TYPE: 6-span continuous welded plate girder

**LRFR LOAD RATING FACTORS**

LOADING LEVELS	TRUCK					
	HL-93	3S2	6 AXLE	3A. STR.	4A. STR.	5A. SFM
TONNAGE	36	36	66	30	34.5	38
INVENTORY	1.07					
OPERATING	1.43					
LEGAL		1.81	1.19	1.46	1.40	1.14
COMMENTS:						

**PILE DRIVING AND TESTING REQUIREMENTS**

1. NOMINAL PILE DRIVING CAPACITY
2. PILE TEST RESISTANCE FACTOR  $\phi$ : 0.65
3. MAXIMUM PILE TIP ELEVATION

PROJECT NAME: **BETHEL**

PROJECT NUMBER: **BRF 022-1(14)**

FILE NAME: **sf161forms.dgn** PLOT DATE: 6/15/2011

PROJECT LEADER: **M. EVANS-MONGEON** DRAWN BY: **M. LONGSTREET**

DESIGNED BY: **S. SCRIBNER** CHECKED BY: **S. SCRIBNER**

**PRELIMINARY INFORMATION SHEET** SHEET 2 OF 148

### STRUCTURES DETAIL SHEETS

SD-501.00	CONCRETE DETAILS AND NOTES
SD-502.00	CONCRETE DETAILS AND NOTES
SD-516.10	BRIDGE JOINT ASPHALTIC PLUG
SD-801.00	STRUCTURAL STEEL DETAILS AND NOTES
SD-802.00	STRUCTURAL STEEL PLATE GIRDER DETAILS AND NOTES

**TRAFFIC DATA**

YEAR	ADT	DHV	% D	% T	ADTT
2013	5400	610	52	14	670
2033	5900	660	52	21	1100

20 year ESAL for flexible pavement from 2013 to 2033 : 5101000

40 year ESAL for flexible pavement from 2013 to 2053 : 11436000

Design Speed : 25 mph

