

PRELIMINARY INFORMATION SHEET (BRIDGE)

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FINAL HYDRAULIC REPORT

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STANDARDS LIST

D-30	UNDERDRAIN CONSTRUCTION DETAILS	08-13-2007
E-121	STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD	08-08-1995
E-141	REGULATORY SIGN DETAILS	09-20-1995
E-191	PAVEMENT MARKING DETAILS	02-01-1999
E-193	PAVEMENT MARKING DETAILS	08-18-1995
G-1	STEEL BEAM GUARDRAIL DETAILS (POST, DELINEATOR, TYPICALS)	02-10-2014
G-1B	BOX BEAM GUARD RAIL	06-01-1994
S-364A	BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM	04-23-2012
S-364B	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM	04-23-2012
S-364C	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM	04-23-2012
S-364D	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM	04-23-2012
T-1	TRAFFIC CONTROL GENERAL NOTES	08-06-2012
T-10	CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNING	08-06-2012
T-28	CONSTRUCTION SIGN DETAILS	08-06-2012
T-30	CONSTRUCTION SIGN DETAILS	08-06-2012
T-31	CONSTRUCTION SIGN DETAILS	08-06-2012
T-35	CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS	08-06-2012
T-44	MILEMARKER DETAILS STATE AND TOWN HIGHWAYS	04-09-2014
T-45	SQUARE TUBE SIGN POST AND ANCHOR	01-02-2013

STRUCTURES DETAIL SHEETS

SD-501.00	CONCRETE DETAILS AND NOTES	2/9/2012
SD-502.00	CONCRETE DETAILS AND NOTES	10/10/2012
SD-516.10	BRIDGE JOINT ASPHALTIC PLUG	8/29/2011
SD-601.00	STRUCTURAL STEEL DETAILS AND NOTES	6/4/2010

HYDROLOGIC DATA

Date: November 2013

DRAINAGE AREA : 4.3 sq. mi.
 CHARACTER OF TERRAIN : Mostly forested, mountainous
 STREAM CHARACTERISTICS : Sinuous, steep and probably incised
 NATURE OF STREAMBED : Mostly gravel and sand, some cobbles

PEAK FLOW DATA

Q 2.33 =	325 cfs	Q 50 =	1025 cfs
Q 10 =	650 cfs	Q 100 =	1200 cfs
Q 25 =	850 cfs	Q 500 =	1700 cfs

DATE OF FLOOD OF RECORD : Unknown
 ESTIMATED DISCHARGE : Unknown
 WATER SURFACE ELEV. : Unknown
 NATURAL STREAM VELOCITY : @ Q50 = 5.0 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? Possibly
 IF YES, DESCRIBE : Backwater from Lamoille River

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

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE : Single span concrete T-beam
 YEAR BUILT : 1926, Reconstructed in 1969
 CLEAR SPAN(NORMAL TO STREAM) : 22'
 VERTICAL CLEARANCE ABOVE STREAMBED : 6.8'
 WATERWAY OF FULL OPENING : 140 sq. ft.
 DISPOSITION OF STRUCTURE : Replace
 TYPE OF MATERIAL UNDER SUBSTRUCTURE : See borings

WATER SURFACE ELEVATIONS AT:

Q2.33 =	482.4'	VELOCITY =	6.0 fps
Q10 =	484.1'	"	8.2 fps
Q25 =	484.9'	"	9.7 fps
Q50 =	486.4'	"	9.9 fps
Q100 =	486.7'	"	11.0 fps

LONG TERM STREAMBED CHANGES: None noted

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: N/A
 RELIEF ELEVATION: 488.7'
 DISCHARGE OVER ROAD @Q100: N/A

UPSTREAM STRUCTURE

TOWN: Johnson DISTANCE: 2047'
 HIGHWAY #: Lamoille Valley Rail Trail STRUCTURE #:
 CLEAR SPAN: CLEAR HEIGHT:
 YEAR BUILT: FULL WATERWAY:
 STRUCTURE TYPE:

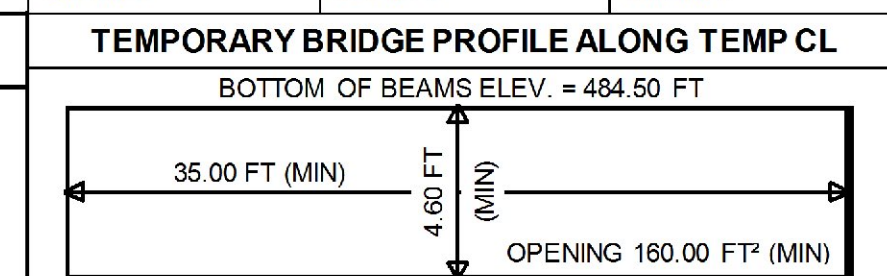
DOWNSTREAM STRUCTURE

TOWN: Johnson DISTANCE: 1000'
 HIGHWAY #: STRUCTURE #:
 CLEAR SPAN: CLEAR HEIGHT:
 YEAR BUILT: FULL WATERWAY:
 STRUCTURE TYPE: Confluence with Lamoille River

LRFD 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	2.01	1.18					
POSTING							
OPERATING	2.79	1.53	2.73	1.54	2.00	1.81	1.18
COMMENTS:							

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



PROPOSED STRUCTURE

STRUCTURE TYPE: Single span concrete bridge NEXT24F
 CLEAR SPAN(NORMAL TO STREAM): 50'
 VERTICAL CLEARANCE ABOVE STREAMBED: ~9'
 WATERWAY OF FULL OPENING: 380 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	482.2'	VELOCITY =	5.0 fps
Q10 =	483.6'	"	6.2 fps
Q25 =	484.3'	"	6.7 fps
Q50 =	484.7'	"	7.1 fps
Q100 =	485.1'	"	7.6 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: N/A
 RELIEF ELEVATION: 489.3'
 DISCHARGE OVER ROAD @Q100: N/A

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 487.8'
 VERTICAL CLEARANCE: @ Q50 = 3.1'

SCOUR: Contraction scour is 0' up to Q500.

REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

PERMIT INFORMATION

AVERAGE DAILY FLOW: 10 cfs DEPTH OR ELEVATION:
 ORDINARY LOW WATER: 5 cfs 0.5'
 ORDINARY HIGH WATER: 140 cfs 3.0'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: Single span bridge
 CLEAR SPAN (NORMAL TO STREAM): 35'
 VERTICAL CLEARANCE ABOVE STREAMBED: Low beam elevation 484.5'
 WATERWAY AREA OF FULL OPENING: 160 sq. ft.

ADDITIONAL INFORMATION

TRAFFIC MAINTENANCE NOTES

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
2. FUTURE PAVEMENT d_{fs} : 0.0 INCH
3. DESIGN SPAN L : 38.00 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS) Δ : 1.51 INCH
5. PRESTRESSING STRAND (0.60 INCH DIAMETER - LOW RELAX) f_y : 270 KSI
6. PRESTRESSED CONCRETE STRENGTH f'_{ci} : 8.0 KSI
7. PRESTRESSED CONCRETE RELEASE STRENGTH f'_{cr} : 6.5 KSI
8. CONCRETE, HIGH PERFORMANCE CLASS AA f'_{ci} : ---
9. CONCRETE, HIGH PERFORMANCE CLASS A f'_{ci} : 4.0 KSI
10. CONCRETE, HIGH PERFORMANCE CLASS B f'_{ci} : 3.5 KSI
11. CONCRETE, CLASS C f'_{ci} : ---
12. REINFORCING STEEL f_y : 60 KSI
13. STRUCTURAL STEEL AASHTO M270 f_y : ---
14. NOMINAL BEARING RESISTANCE OF SOIL q_n : 4.0 KSF
15. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD) ϕ : ---
16. NOMINAL BEARING RESISTANCE OF ROCK q_n : 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 : 0.16 INCH
20. BASIC WIND SPEED V_{3s} : ---
21. MINIMUM GROUND SNOW LOAD p_g : ---
22. EST. PILE LENGTHS (TWO SUBSTRUCTURES) S_s : ---
 (ABUTMENT 1 = 50 AND ABUTMENT 2 = 48) FT
 6 PILES PER ABUTMENT

PROJECT NAME: JOHNSON

PROJECT NUMBER: BRF 030-2(26)

FILE NAME: s88b193pi.dgn PLOT DATE: 11/5/2014
 PROJECT LEADER: C. CARLSON DRAWN BY: G. ROY
 DESIGNED BY: H. SALLS CHECKED BY: H. SALLS
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TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT	20 year ESAL for flexible pavement from 2012 to 2032 : 4615000
2012	5000	560	56	4	510	40 year ESAL for flexible pavement from 2012 to 2052 : 11448000
2032	5700	640	56	5.7	830	Design Speed : 50 mph

REVISION	DATE	DESCRIPTION	BY
1	OCT-28-2014	ADD 3" PAYMENT, LOWER BRIDGE SEAT, ADD 3" CONCRETE PEDESTAL	GNR