

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	08-01-1994
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

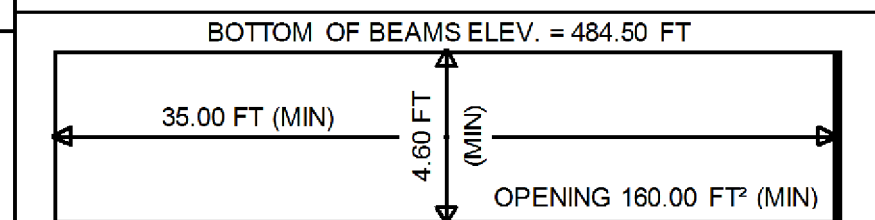
LRFR LOAD RATING FACTORS

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	2.39	1.32					
POSTING							
OPERATING	3.15	1.73	3.08	1.74	2.26	2.05	2.39
COMMENTS:							

AS BUILT "REBAR" DETAIL

LEVEL I	LEVEL II	LEVEL III
TYPE:	TYPE:	TYPE:
GRADE:	GRADE:	GRADE:

TEMPORARY BRIDGE PROFILE ALONG TEMP CL



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

PROPOSED STRUCTURE

STRUCTURE TYPE : Single span concrete bridge NEXT 24F
 CLEAR SPAN(NORMAL TO STREAM) : 50'
 VERTICAL CLEARANCE ABOVE STREAMBED : ~9'
 WATERWAY OF FULL OPENING : 360 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	HL-93
2. FUTURE PAVEMENT	d _p : 3.0 INCH
3. DESIGN SPAN	L: 56.00 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' _c : 8.0 KSI
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f' _c : 6.5 KSI
8. CONCRETE, HIGH PERFORMANCE CLASS AA	f' _c : ---
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	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	

SEE REVISION: OCT-28-2014

PROJECT NAME : JOHNSON
 PROJECT NUMBER : BRF 030-2(26)

FILE NAME : s88b193pi.dgn PLOT DATE : 7/11/2014
 PROJECT LEADER : C. CARLSON DRAWN BY : G. ROY
 DESIGNED BY : H. SALLS CHECKED BY : H. SALLS
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