

PRELIMINARY INFORMATION SHEET (BRIDGE)

LRFD

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STANDARDS LIST

B-5	SLOPE GRADING, EMBANKMENTS, MUCK	06-01-1994
E-100	CONSTRUCTION APPROACH SIGNS	01-02-2004
E-100A	SIDE ROAD CONSTRUCTION - APPROACH SIGNS	01-02-2004
E-101	CONSTRUCTION SIGN DETAILS	05-30-2003
E-102	CONSTRUCTION SIGN DETAILS	05-30-2003
E-102A	CONSTRUCTION SIGN DETAILS	05-01-2004
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-134	BRIDGE NUMBER PLAQUE	08-08-1995
E-164	SQUARE STEEL SIGN POST	08-08-2009
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
SB-R4B-82	GUARD RAIL APPROACH SECTION, TYPE I & II	03-30-1988
SB-R6-82	BRIDGE RAILING - HEAVY DUTY STEEL BEAM	01-06-1995
SB-R7-90	BRIDGE RAILING - HEAVY DUTY STEEL BEAM	01-11-1995

STRUCTURAL DETAIL SHEETS

SD-501.00	CONCRETE DETAILS AND NOTES
SD-502.00	CONCRETE DETAILS AND NOTES

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA Date: June 2009

DRAINAGE AREA : 4.3 sq. mi.
 CHARACTER OF TERRAIN : Hilly to mountainous, mostly forested with ski area development
 STREAM CHARACTERISTICS : Incised, sinuous
 NATURE OF STREAMBED : Cobbles, gravel, sand

PEAK FLOW DATA

Q 2.33 =	325 cfs	Q 50 =	1000 cfs
Q 10 =	650 cfs	Q 100 =	1150 cfs
Q 25 =	850 cfs	Q 500 =	1500 cfs

DATE OF FLOOD OF RECORD : Unknown
 ESTIMATED DISCHARGE : Unknown
 WATER SURFACE ELEV. : Unknown
 NATURAL STREAM VELOCITY : @ Q25 = 12.8 fps
 ICE CONDITIONS : Moderate to heavy
 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:

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

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Steel beam with concrete deck
 YEAR BUILT: 1960, reconstructed in 1976
 CLEAR SPAN(NORMAL TO STREAM): 21'
 VERTICAL CLEARANCE ABOVE STREAMBED: 7'
 WATERWAY OF FULL OPENING: 140 sq. ft.
 DISPOSITION OF STRUCTURE: Remove and replace
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: See borings

WATER SURFACE ELEVATIONS AT:

Q2.33 =	997.0'	VELOCITY =	7.8 fps
Q10 =	998.2'	"	14.0 fps
Q25 =	999.2'	"	12.4 fps
Q50 =	999.9'	"	12.5 fps
Q100 =	1000.4'	"	12.6 fps

LONG TERM STREAMBED CHANGES: None noted

IS THE ROADWAY OVERTOPPED BELOW Q100: Yes
 FREQUENCY: Below Q10
 RELIEF ELEVATION: 997.5'
 DISCHARGE OVER ROAD @Q100: 40 cfs

UPSTREAM STRUCTURE

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

DOWNSTREAM STRUCTURE

TOWN: Mendon DISTANCE: 2,110'
 HIGHWAY #: TH 7 STRUCTURE #: BR 19
 CLEAR SPAN: 27' CLEAR HEIGHT: 7' +/-
 YEAR BUILT: 1981 FULL WATERWAY: _____
 STRUCTURE TYPE: Concrete Slab

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	1.66	1.19					
POSTING							
OPERATING	2.15	1.54	2.59	1.33	1.83	1.68	
COMMENTS:							

PROPOSED STRUCTURE

STRUCTURE TYPE: Concrete Slab Bridge

CLEAR SPAN(NORMAL TO STREAM): 32'
 VERTICAL CLEARANCE ABOVE STREAMBED: 8'
 WATERWAY OF FULL OPENING: 215 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	997.0'	VELOCITY =	7.8 fps
Q10 =	998.2'	"	9.1 fps
Q25 =	999.2'	"	15.5 fps
Q50 =	999.6'	"	15.6 fps
Q100 =	999.9'	"	15.4 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: N/A
 RELIEF ELEVATION: 997.6'
 DISCHARGE OVER ROAD @Q100: None

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 1000.7'
 VERTICAL CLEARANCE: @ Q25 = 1.5'

SCOUR: 2.5' at Q500

REQUIRED CHANNEL PROTECTION: Stone Fill, Type IV

PERMIT INFORMATION

AVERAGE DAILY FLOW: 10 cfs DEPTH OR ELEVATION:
 ORDINARY LOW WATER: 5 cfs 0.5'
 ORDINARY HIGH WATER: 140 cfs 2.0'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: N/A
 CLEAR SPAN (NORMAL TO STREAM): _____
 VERTICAL CLEARANCE ABOVE STREAMBED: _____
 WATERWAY AREA OF FULL OPENING: _____

ADDITIONAL INFORMATION

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	dp: 2.0 INCH
3. DESIGN SPAN	L: 39.00 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ: ---
5. PRESTRESSING STRAND (0.60 INCH DIAMETER - LOW RELAX)	fy: 270 KSI
6. PRESTRESSED CONCRETE STRENGTH	f'c: 6.0 KSI
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f'ci: 5.0 KSI
8. CONCRETE, HIGH PERFORMANCE CLASS AA	f'c: 4.0 KSI
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: 3.0 KSI
12. REINFORCING STEEL	fy: 60 KSI
13. STRUCTURAL STEEL AASHTO M270 (WEATHERING)	fy: 60 KSI
14. SOIL UNIT WEIGHT	γ: 0.125 KCF
15. NOMINAL BEARING RESISTANCE OF SOIL	qn: ---
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: ---
17. NOMINAL BEARING RESISTANCE OF ROCK	qn: ---
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: ---
19. NOMINAL AXIAL PILE RESISTANCE	qp: 162.0 KIPS
20. PILE YIELD STRENGTH ASTM A572	fy: 50 KSI
21. PILE SIZE	HP 12X 84
22. EST. PILE LENGTH	Lp: 30 FT
23. PILE RESISTANCE FACTOR	φ: 0.65
24. LATERAL PILE DEFLECTION	Δ: 0.25 INCH
25. BASIC WIND SPEED	V3s: ---
26. MINIMUM GROUND SNOW LOAD	pg: ---
27. SEISMIC DATA	PGA: --- S: ---

PROJECT NAME: MENDON
 PROJECT NUMBER: BRO 1443(43)

FILE NAME: s01j272pi.xls PLOT DATE: 9/14/2010
 PROJECT LEADER: K. HIGGINS DRAWN BY: R. PELLETT
 DESIGNED BY: G. LAROCHE CHECKED BY: G. LAROCHE
 PRELIMINARY INFORMATION SHEET 1 SHEET 2 OF 32

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT	20 year ESAL for flexible pavement from 2012 to 2032 : 25000
2012	200	25	52	7	5	40 year ESAL for flexible pavement from 2012 to 2052 : 55000
2032	120	30	52	8.9	10	Design Speed : 35 mph

PILE DRIVING AND TESTING REQUIREMENTS

1. NOMINAL PILE DRIVING CAPACITY R_{vd} : 250.00 KIP
2. PILE TEST RESISTANCE FACTOR ϕ : 0.65
3. MAXIMUM PILE TIP ELEVATION: 963.00 FT
4. 0