

PRELIMINARY INFORMATION SHEET (CULVERT)

INDEX OF SHEETS

PLAN SHEETS

1	TITLE SHEET
2	PRELIMINARY INFORMATION SHEET
3	CONVENTIONAL SYMBOLOGY LEGEND SHEET
4	PROJECT NOTES SHEET
5 - 10	TYPICAL SECTIONS SHEETS
11 - 14	DETAIL SHEETS
15	REINFORCING STEEL SCHEDULE
16 - 19	TIE SHEETS
20 - 22	ALIGNMENT SHEETS
23 - 24	BORING SHEETS
25 - 26	QUANTITY SHEETS
27	ITEM DETAIL AND DRAINAGE SHEET
28	EARTHWORKS SHEET
29	R.O.W. DETAIL SHEET
30 - 32	R.O.W. PLAN SHEETS
33 - 35	PLAN SHEETS
36 - 38	PROFILE SHEETS
39 - 51	EPSC SHEETS
52	UTILITY SHEET
53 - 69	CROSS SECTIONS SHEETS
70 - 72	TRAFFIC CONTROL SHEETS

STANDARDS LIST

B-5	SLOPE GRADING, EMBANKMENTS, MUCK	06-01-1994
D-16	DRAINAGE DETAILS INCLUDING DROP INLETS, IRON GRATE TYPE B&C, CONC. END SECTIONS, ETC.	06-01-1994
D-22	SANITARY SEWER SYSTEMS	03-10-1995
F-2	CHAIN LINK FENCE, TYPE I DETAILS	06-01-1994
G-1	STEEL BEAM GUARDRAIL DETAILS (POST, DELINEATOR, TYPICALS)	11-10-2015
G-19	GENERIC GRADING PLANS FOR GUARDRAIL END TERMINALS	11-15-2002
T-1	TRAFFIC CONTROL, GENERAL NOTES	08-06-2012
T-10	CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNING	08-06-2012
T-17	TRAFFIC CONTROL MISCELLANEOUS DETAILS	08-06-2012
T-28	CONSTRUCTION SIGN DETAILS	08-06-2012
T-29	CONSTRUCTION SIGN DETAILS	08-06-2012
T-30	CONSTRUCTION SIGN DETAILS	08-06-2012
T-31	CONSTRUCTION SIGN DETAILS	08-06-2012
T-36	CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS FOR PAVING	08-06-2012

STRUCTURES DETAIL SHEETS

SD-366.00	LONGSPAN STEEL BEAM GUARDRAIL, GALVANIZED	1/3/2014
-----------	---	----------

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA Date: June 2014

DRAINAGE AREA : 33.29 acres
 CHARACTER OF TERRAIN : Mountainous, forested, steep
 STREAM CHARACTERISTICS : Alluvial and sinuous
 NATURE OF STREAMBED : Large gravel, cobbles and boulders

PEAK FLOW DATA

Q 2.33 = 17.0 cfs	Q 50 = 46.7 cfs
Q 10 = 29.8 cfs	Q 100 = 55.1 cfs
Q 25 = 38.6 cfs	Q 500 = -

DATE OF FLOOD OF RECORD : 2011
 ESTIMATED DISCHARGE: Unknown
 WATER SURFACE ELEV.: Unknown
 NATURAL STREAM VELOCITY : Unknown
 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? No
 IF YES, DESCRIBE: _____

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

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Corrugated Polyethylene Pipe
 YEAR BUILT: 2011
 CLEAR SPAN(NORMAL TO STREAM): 4'
 VERTICAL CLEARANCE ABOVE STREAMBED: 4'
 WATERWAY OF FULL OPENING: 12.57 sq. ft.
 DISPOSITION OF STRUCTURE: Retain and Protect
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: See boring B-234

WATER SURFACE ELEVATIONS AT:

Q2.33 = -	VELOCITY = -
Q10 = -	"
Q25 = -	"
Q50 = -	"
Q100 = -	"

LONG TERM STREAMBED CHANGES: None noted

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

UPSTREAM STRUCTURE

TOWN: Mendon DISTANCE: 690'
 HIGHWAY #: X STRUCTURE #: N/A
 CLEAR SPAN: 2' CLEAR HEIGHT: 2'
 YEAR BUILT: N/A FULL WATERWAY: 3.14 sq. ft.
 STRUCTURE TYPE: 24" CPEP Culvert

DOWNSTREAM STRUCTURE

TOWN: Mendon DISTANCE: 49'
 HIGHWAY #: STRUCTURE #: _____
 CLEAR SPAN: CLEAR HEIGHT: _____
 YEAR BUILT: FULL WATERWAY: _____
 STRUCTURE TYPE: Confluence with Mendon Brook

LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	H-20	HL-93	3S2	6 AXLE	3A, STR.	4A, STR.	5A, SEMI
TONNAGE							
INVENTORY							
POSTING							
OPERATING							
COMMENTS:	TABLE TO BE COMPLETED BY CONTRACTOR'S DESIGNER						

1.) PROPOSED CULVERT IS A 57" X 38" PIPE OPTION
 2.) CULVERT ENDS ARE NOT SKEWED.
 3.) CULVERT WILL BE SET AT A SLOPE OF 1.62 IN. ON 90 FT.
 4.) CULVERT WILL NOT REQUIRE FISH PASSAGE.
 5.) CULVERT CONSTRUCTION WILL NOT REQUIRE A TEMPORARY PIPE.

PROPOSED STRUCTURE

STRUCTURE TYPE: Corrugated Metal Pipe Arch

CLEAR SPAN(NORMAL TO STREAM): 57"
 VERTICAL CLEARANCE ABOVE STREAMBED: 38"
 WATERWAY OF FULL OPENING: 11.6 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 = 1070.5 ft	VELOCITY= 5.8 fps
Q10 = 1071.1 ft	" 6.9 fps
Q25 = 1071.4 ft	" 7.4 fps
Q50 = 1071.7 ft	" 7.8 fps
Q100 = 1072.0 ft	" 8.2 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: -
 RELIEF ELEVATION: 1071.7 ft
 DISCHARGE OVER ROAD @Q100: N/A

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 1072.3'
 VERTICAL CLEARANCE: @ Q50 = 0.63'

SCOUR: N/A

REQUIRED CHANNEL PROTECTION: Stone Fill, Type II

PERMIT INFORMATION

AVERAGE DAILY FLOW: 1 cfs DEPTH OR ELEVATION:
 ORDINARY LOW WATER: 0.5 cfs <0.5'
 ORDINARY HIGH WATER: 17 cfs -1.33'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: None
 CLEAR SPAN (NORMAL TO STREAM): -
 VERTICAL CLEARANCE ABOVE STREAMBED: -
 WATERWAY AREA OF FULL OPENING: -

ADDITIONAL INFORMATION

The existing culvert will remain in place and an overflow swale has been designed. Flows over the Q50 will continue to discharge through the proposed culvert, but will also discharge down the swale and through the existing culvert to remain.

TRAFFIC MAINTENANCE NOTES

- TWO-WAY TRAFFIC WILL BE MAINTAINED USING A LANE SHIFT ON US ROUTE 4

DESIGN VALUES

1. DESIGN LIVE LOAD	HL-93
2. FUTURE PAVEMENT	dp: 7.0 INCH
3. DESIGN SPAN	L: 57"
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ:
5. PRESTRESSING STRAND	fy:
6. PRESTRESSED CONCRETE STRENGTH	f'c:
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f'ci:
8. CONCRETE, HIGH PERFORMANCE CLASS AA	f'c:
9. CONCRETE, HIGH PERFORMANCE CLASS A	f'c:
10. CONCRETE, HIGH PERFORMANCE CLASS B	f'c: 3500 PSI
11. CONCRETE, CLASS C	f'c:
12. REINFORCING STEEL (LEVEL II)	fy:
13. STRUCTURAL STEEL AASHTO M270	fy:
14. NOMINAL BEARING RESISTANCE OF SOIL	qn:
15. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ:
16. NOMINAL BEARING RESISTANCE OF ROCK	qn:
17. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ:
18. PILE RESISTANCE FACTOR	φ:
19. LATERAL PILE DEFLECTION	Δ:
20. BASIC WIND SPEED	V3s:
21. MINIMUM GROUND SNOW LOAD	ps:
22. SEISMIC DATA	PGA: 0 S: SI:
23.	
24.	
25.	
26.	

US ROUTE 4 TRAFFIC DATA

YEAR	ADT	DHV	%D	%T	ADTT	20 year ESAL for flexible pavement from 2014 to 2034 : 5,314,000
2014	8,600	1,100	57	8.9	960	40 year ESAL for flexible pavement from 2014 to 2054 : 11,856,000
2034	9,100	1,200	57	13.1	1500	Design Speed: 50 mph

PROJECT NAME: MENDON
 PROJECT NUMBER: ER 020-2(39)

FILE NAME: z13bi88p1.dgn PLOT DATE: 11/24/2015
 PROJECT LEADER: E. ATKINS DRAWN BY: M. BURACZYNSKI
 DESIGNED BY: M. BRADLEY CHECKED BY: E. ATKINS
 PRELIMINARY INFORMATION SHEET SHEET 2 OF 72