

PRELIMINARY INFORMATION SHEET (BRIDGE 82)

LRFD

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FINAL HYDRAULIC REPORT

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STANDARDS LIST

B-5	SLOPE GRADING, EMBANKMENTS, MUCK	06-01-1994
E-119	UTILITY WORK ZONE	03-01-2004
E-125	TRAVEL INFORMATION SIGNS	08-08-1995
E-136B	STATE ROUTE MARKER SIGN DETAILS	08-08-1995
E-193	PAVEMENT MARKING DETAILS	08-18-1995
G-1	STEEL BEAM GUARDRAIL DETAILS (POST, DELINEATOR, TYPICALS)	02-10-2014
G-1D	STEEL BEAM GUARDRAIL DETAILS (END TERMINAL, ANCHOR, MEDIAN)	02-10-2014
G-4	PLANK RAIL, GUIDE POSTS, MARKER POSTS	06-01-1994
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-35	CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS	08-06-2012
T-36	CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS FOR PAVING	08-06-2012
T-40	DELINEATORS AND MILEPOSTS	01-02-2013
T-42	BRIDGE NUMBER PLAQUE	04-09-2014
T-45	SQUARE TUBE SIGN POST AND ANCHOR	01-02-2013

STRUCTURES DETAIL SHEETS

SD-366.00	LONGSPAN STEEL BEAM GUARDRAIL, GALVANIZED	11/25/2013
SD-501.00	CONCRETE DETAILS AND NOTES	2/9/2012

HYDROLOGIC DATA

Date: December 2013

DRAINAGE AREA: 80 acres
 CHARACTER OF TERRAIN: Mountainous, open and forested, steep
 STREAM CHARACTERISTICS: Alluvial and sinuous
 NATURE OF STREAMBED: Large gravel, cobbles and boulders

PEAK FLOW DATA

Q 2.33 =	35 cfs	Q 50 =	75 cfs
Q 10 =	55 cfs	Q 100 =	90 cfs
Q 25 =	65 cfs	Q 500 =	125 cfs

DATE OF FLOOD OF RECORD: Unknown
 ESTIMATED DISCHARGE: Unknown
 WATER SURFACE ELEV.: Unknown
 NATURAL STREAM VELOCITY: @ Q50 = 5.5 fps
 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? Possibly
 IF YES, DESCRIBE: Flood stage of Winhall River

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

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Corrugated Metal Pipe
 YEAR BUILT:
 CLEAR SPAN(NORMAL TO STREAM): 5.5'
 VERTICAL CLEARANCE ABOVE STREAMBED: 5.5'
 WATERWAY OF FULL OPENING: 23.8 sq. ft.
 DISPOSITION OF STRUCTURE: Remove and replace
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: See borings

WATER SURFACE ELEVATIONS AT:

Q2.33 =	1122.3'	VELOCITY =	8.5 fps
Q10 =	1123.0'	"	9.7 fps
Q25 =	1123.3'	"	10.1 fps
Q50 =	1123.6'	"	10.6 fps
Q100 =	1124.0'	"	11.2 fps

LONG TERM STREAMBED CHANGES: None noted

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: N/A
 RELIEF ELEVATION: 1128.0'
 DISCHARGE OVER ROAD @Q100: N/A

UPSTREAM STRUCTURE

TOWN: Jamaica DISTANCE: 2640'
 HIGHWAY #: TH6 STRUCTURE #:
 CLEAR SPAN: CLEAR HEIGHT:
 YEAR BUILT: FULL WATERWAY:
 STRUCTURE TYPE:

DOWNSTREAM STRUCTURE

TOWN: Jamaica DISTANCE: 500'
 HIGHWAY #: STRUCTURE #:
 CLEAR SPAN: CLEAR HEIGHT:
 YEAR BUILT: FULL WATERWAY:
 STRUCTURE TYPE: Confluence with Winhall River

LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	H-20	HL-93	SS2	6 AXLE	3A STR	4A STR	5A SEMI
TONNAGE	20	36	36	66	30	34.5	38
INVENTORY							
POSTING							
OPERATING							
COMMENTS:	TABLE TO BE COMPLETED BY CONTRACTOR'S DESIGNER						

STA. 12+32.46 SKEWED 104' 8"00.24' LT
 1.) PROPOSED CULVERT IS A PRECAST CONCRETE STRUCTURE (10'-0" X 7'-0" X 63'-0" BOX)
 2.) CULVERT ENDS ARE NOT SKEWED.
 3.) CULVERT WILL BE SET AT A SLOPE OF 21.6 IN. ON 63 FT.
 4.) CULVERT WILL REQUIRE FISH PASSAGE ACCOMMODATIONS.
 5.) CULVERT CONSTRUCTION WILL REQUIRE A TEMPORARY STREAM BYPASS.
 6.) ALL REINFORCING STEEL SHALL BE LEVEL I

PROPOSED STRUCTURE

STRUCTURE TYPE: Precast Concrete Box Culvert
 CLEAR SPAN(NORMAL TO STREAM): 10'
 VERTICAL CLEARANCE ABOVE STREAMBED: 5'
 WATERWAY OF FULL OPENING: 50 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	1121.0'	VELOCITY =	5.9 fps
Q10 =	1121.4'	"	7.2 fps
Q25 =	1121.6'	"	7.4 fps
Q50 =	1121.7'	"	7.9 fps
Q100 =	1121.9'	"	8.5 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY:
 RELIEF ELEVATION: 1128.0'
 DISCHARGE OVER ROAD @Q100: N/A

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 1125.0'
 VERTICAL CLEARANCE: @ Q50 = 3.3'

SCOUR: Scour is not calculated for a box.

REQUIRED CHANNEL PROTECTION: Stone Fill, Culvert Lining

PERMIT INFORMATION

AVERAGE DAILY FLOW: 1 cfs DEPTH OR ELEVATION:
 ORDINARY LOW WATER: 0.5 cfs <-0.5'
 ORDINARY HIGH WATER: 15 cfs ~1'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: Detour will be used.
 CLEAR SPAN (NORMAL TO STREAM):
 VERTICAL CLEARANCE ABOVE STREAMBED:
 WATERWAY AREA OF FULL OPENING:

ADDITIONAL INFORMATION

TRAFFIC MAINTENANCE NOTES

1. MAINTAIN TRAFFIC ON AN OFFSITE DETOUR
2. TRAFFIC SIGNALS ARE NOT NECESSARY
3. SIDEWALKS ARE NOT NECESSARY

DESIGN VALUES

1. DESIGN LIVE LOAD	HL-93
2. FUTURE PAVEMENT	dp: 7.0 INCH
3. DESIGN SPAN	L: 63 FT
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: 3.5 KSI
11. CONCRETE, CLASS C	f'c:
12. REINFORCING STEEL (LEVEL I)	fy: 60 KSI
13. STRUCTURAL STEEL AASHTO M270	fy:
14. NOMINAL BEARING RESISTANCE OF SOIL	SEE GEOTECHNICAL REPORT
15. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: 0.45
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: \$:
23.	
24.	
25.	
26.	

TRAFFIC DATA

YEAR	ADT	DHV	%D	%T	ADTT	10 year ESAL for flexible pavement from 2014 to 2024 : 545,000
2014	2400	330	5.7	9.8	235	20 year ESAL for flexible pavement from 2014 to 2034 : 1,371,000
2024	2500	350	5.7	9.8	245	Design Speed: 50 mph

PROJECT NAME: JAMAICA
 PROJECT NUMBER: ER STP 013-2(12)

FILE NAME: z12b474p11.dgn PLOT DATE: 02/27/2015
 PROJECT LEADER: E. ATKINS DRAWN BY: M. BRADLEY
 DESIGNED BY: M. BRADLEY CHECKED BY: E. ATKINS
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