

PRELIMINARY INFORMATION SHEET (CULVERT)

LRFD

INDEX OF SHEETS						FINAL HYDRAULIC REPORT																																																																		
PLAN SHEETS						STANDARDS LIST						HYDROLOGIC DATA						PROPOSED STRUCTURE																																																						
						<p>HYDROLOGIC DATA Date: June 2012</p> <p>DRAINAGE AREA : 1.9 sq. mi. CHARACTER OF TERRAIN : Hilly to mountainous, mostly forested, drainage basin STREAM CHARACTERISTICS : Small perennial stream, Sinuous and semi-alluvial NATURE OF STREAMBED : Mostly cobbles with some gravel and boulders</p> <p>PEAK FLOW DATA</p> <table style="width:100%;"> <tr> <td>Q 2.33 = 150 cfs</td> <td>Q 50 = 550 cfs</td> </tr> <tr> <td>Q 10 = 340 cfs</td> <td>Q 100 = 650 cfs</td> </tr> <tr> <td>Q 25 = 450 cfs</td> <td>Q 500 = 900 cfs</td> </tr> </table> <p>DATE OF FLOOD OF RECORD : unknown ESTIMATED DISCHARGE : unknown WATER SURFACE ELEV. : unknown NATURAL STREAM VELOCITY : @ Q50 = 13.5 fps ICE CONDITIONS : Moderate DEBRIS : Moderate DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? Yes IS ORDINARY RISE RAPID? Yes IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? No IF YES, DESCRIBE:</p> <p>WATERSHED STORAGE: < 1% HEADWATERS: UNIFORM: X IMMEDIATELY ABOVE SITE:</p> <p>EXISTING STRUCTURE INFORMATION</p> <p>STRUCTURE TYPE: Concrete box YEAR BUILT: 1936 CLEAR SPAN(NORMAL TO STREAM): 7' VERTICAL CLEARANCE ABOVE STREAMBED: 7' WATERWAY OF FULL OPENING: 49 sq. ft. DISPOSITION OF STRUCTURE: Remove TYPE OF MATERIAL UNDER SUBSTRUCTURE: unknown</p> <p>WATER SURFACE ELEVATIONS AT:</p> <table style="width:100%;"> <tr> <td>Q2.33 = 728.1'</td> <td>VELOCITY = 14.6 fps</td> </tr> <tr> <td>Q10 = 731.0'</td> <td>" 17.5 fps</td> </tr> <tr> <td>Q25 = 732.7'</td> <td>" 18.6 fps</td> </tr> <tr> <td>Q50 = 734.3'</td> <td>" 19.3 fps</td> </tr> <tr> <td>Q100 = 734.9'</td> <td>" 19.6 fps</td> </tr> </table> <p>LONG TERM STREAMBED CHANGES: None known</p> <p>IS THE ROADWAY OVERTOPPED BELOW Q100: Water overtops drive before road FREQUENCY: Fire department drive overtopped at slightly less than Q50. RELIEF ELEVATION: 734.0' DISCHARGE OVER ROAD @Q100: 76 cfs over drive at Q100</p> <p>UPSTREAM STRUCTURE</p> <p>TOWN: Jamaica DISTANCE: 400' HIGHWAY #: TH 52 STRUCTURE #: 18 CLEAR SPAN: 11' CLEAR HEIGHT: 5' YEAR BUILT: unknown FULL WATERWAY: 55 sq. ft. STRUCTURE TYPE: Bridge</p> <p>DOWNSTREAM STRUCTURE</p> <p>TOWN: N.A. - confluence with Ball Mountain Brook DISTANCE: < 100' HIGHWAY #: STRUCTURE #: CLEAR SPAN: CLEAR HEIGHT: YEAR BUILT: FULL WATERWAY: STRUCTURE TYPE:</p>						Q 2.33 = 150 cfs	Q 50 = 550 cfs	Q 10 = 340 cfs	Q 100 = 650 cfs	Q 25 = 450 cfs	Q 500 = 900 cfs	Q2.33 = 728.1'	VELOCITY = 14.6 fps	Q10 = 731.0'	" 17.5 fps	Q25 = 732.7'	" 18.6 fps	Q50 = 734.3'	" 19.3 fps	Q100 = 734.9'	" 19.6 fps	<p>PROPOSED STRUCTURE</p> <p>STRUCTURE TYPE: Precast concrete box with the invert buried 3' below channel bottom.</p> <p>CLEAR SPAN(NORMAL TO STREAM): 16' VERTICAL CLEARANCE ABOVE STREAMBED: 5' WATERWAY OF FULL OPENING: 80 sq. ft.</p> <p>WATER SURFACE ELEVATIONS AT:</p> <table style="width:100%;"> <tr> <td>Q2.33 = 726.1' (726.1)*</td> <td>VELOCITY= 8.6 fps (8.6)*</td> </tr> <tr> <td>Q10 = 727.6' (727.6)</td> <td>" 12.0 fps (8.6 fps)</td> </tr> <tr> <td>Q25 = 728.3' (728.3)</td> <td>" 13.3 fps (9.7 fps)</td> </tr> <tr> <td>Q50 = 729.0' (730.1)</td> <td>" 14.5 fps (8.9 fps)</td> </tr> <tr> <td>Q100 = 729.8' (731.7)</td> <td>" 15.4 fps (8.1 fps)</td> </tr> </table> <p>IS THE ROADWAY OVERTOPPED BELOW Q100: No FREQUENCY: Above Q100 RELIEF ELEVATION: 734.3' over fire department drive DISCHARGE OVER ROAD @Q100: No overtopping of road or drive at Q100</p> <p>AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: Top of box = 729.1' at inlet VERTICAL CLEARANCE: @ Q50 = 0.1' at inlet (inlet submerged with Q50 tailwater)</p> <p>SCOUR: Not applicable for a box</p> <p>REQUIRED CHANNEL PROTECTION: Stone Fill, Type III at inlet and Type IV at outlet</p> <p>PERMIT INFORMATION</p> <p>AVERAGE DAILY FLOW: 4 cfs DEPTH OR ELEVATION: ORDINARY LOW WATER: 2 cfs Depth = < 0.5' ORDINARY HIGH WATER: 65 cfs Depth = 1.0'</p> <p>TEMPORARY BRIDGE REQUIREMENTS</p> <p>STRUCTURE TYPE: No temporary bridge needed. CLEAR SPAN (NORMAL TO STREAM): VERTICAL CLEARANCE ABOVE STREAMBED: WATERWAY AREA OF FULL OPENING:</p> <p>ADDITIONAL INFORMATION</p> <p>* Hydraulics of the new box is affected by high tailwater on Ball Mountain Brook. Water surface elevations and velocities are first listed for conditions without Ball Mountain Brook tailwater, followed by values based on equal frequency floods on both streams in (). The existing box is in inlet control, so is not affected by Ball Mountain Brook tailwater.</p>						Q2.33 = 726.1' (726.1)*	VELOCITY= 8.6 fps (8.6)*	Q10 = 727.6' (727.6)	" 12.0 fps (8.6 fps)	Q25 = 728.3' (728.3)	" 13.3 fps (9.7 fps)	Q50 = 729.0' (730.1)	" 14.5 fps (8.9 fps)	Q100 = 729.8' (731.7)	" 15.4 fps (8.1 fps)																													
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						<p>PROJECT NAME: JAMAICA</p> <p>PROJECT NUMBER: ER-BRF 015-1(23)</p> <p>FILE NAME: s11b316pi_BoxCulvert.xls PLOT DATE: 11/30/2012 PROJECT LEADER: K. HIGGINS DRAWN BY: K. FRIEDLAND DESIGNED BY: G. LAROCHE CHECKED BY: J. SALVATORI PRELIMINARY INFO SHEET (BOX CULVERT) SHEET 3 OF 82</p>																																																																		