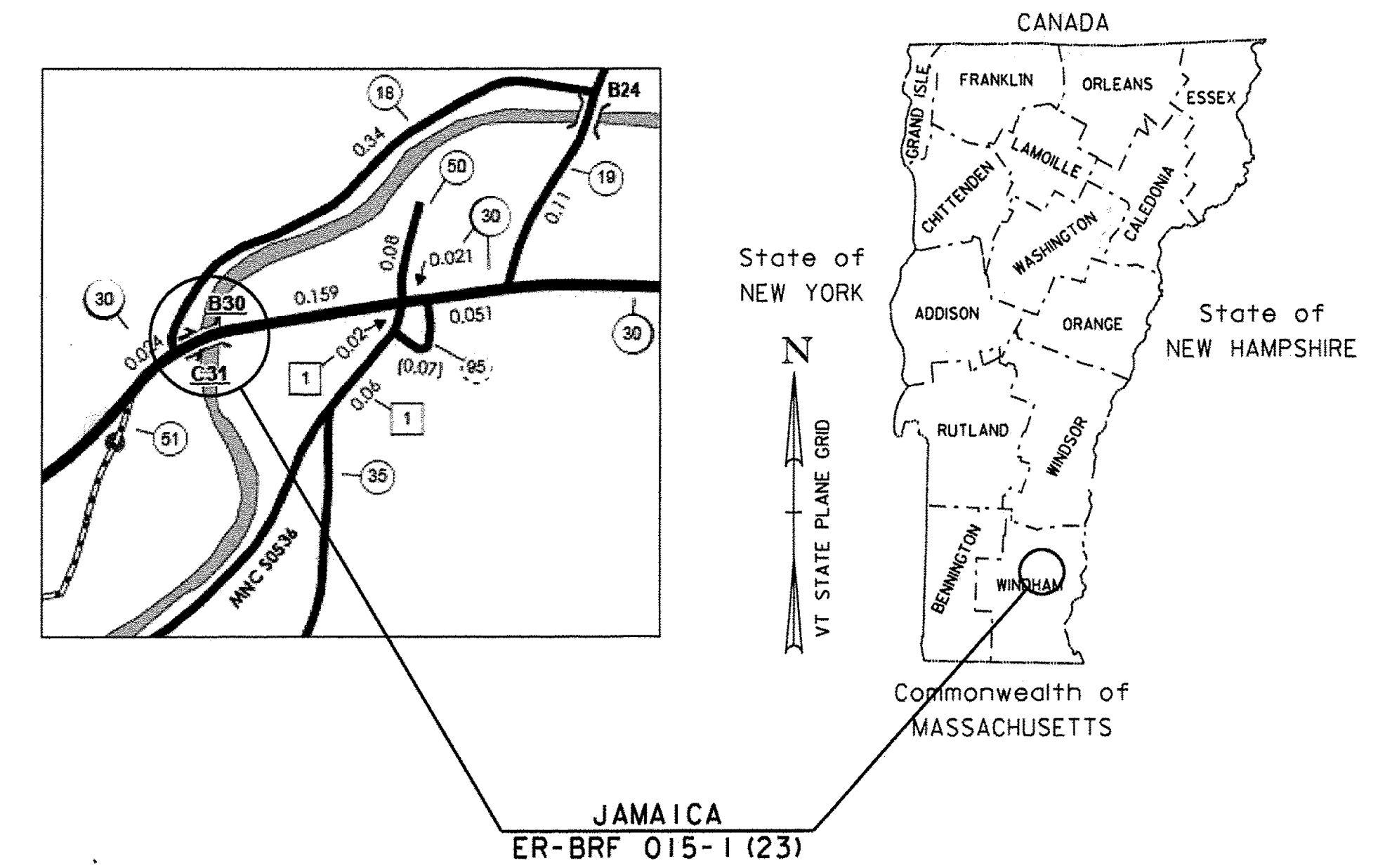


# STATE OF VERMONT AGENCY OF TRANSPORTATION



## PROPOSED IMPROVEMENT BRIDGE PROJECT

TOWN OF JAMAICA  
COUNTY OF WINDHAM



ROUTE NO : VT RTE 30 (MINOR ARTERIAL) BRIDGE NO : 30

PROJECT LOCATION : LOCATED 4.8 MILES SOUTH OF THE NORTHERN JUNCTION OF VT 100 AND VT 30 AT MILE MARKER 3.99 (STA 209+75) AND PROCEEDS SOUTHWESTERLY FOR 375 FEET TO MILE MARKER 4.06 (STA 213+50).

PROJECT DESCRIPTION : REPLACE EXISTING BRIDGE AND BOX CULVERT WITH RELATED ROADWAY APPROACH AND CHANNEL WORK.

LENGTH OF STRUCTURE : 131.66 FEET.  
LENGTH OF ROADWAY : 243.34 FEET.  
LENGTH OF PROJECT : 375.00 FEET.

BEGIN PROJECT  
STA 209+75.00

BEGIN BRIDGE  
STA 210+30.17

END BRIDGE  
STA 211+61.83

END PROJECT  
STA 213+50.00

QUALITY ASSURANCE PROGRAM: LEVEL 2

### CONVENTIONAL SYMBOLS

COUNTY LINE	
TOWN LINE	
LIMITS OF ACCESS	
POINT OF ACCESS	
FENCE LINE	
STONE WALL	
TRAVELED WAY	
GUARD RAIL	
RAILROAD	
SURVEY LINE	
CULVERT	
POWER POLE	
TELEPHONE POLE	
TREES	
CONTROL OF ACCESS	
PROPERTY LINE	
R.O.W. TAKING LINE	
SLOPE RIGHTS	
TOP OF CUT	
TOE OF SLOPE	

SURVEYED BY : R. GILMAN  
SURVEYED DATE : 12/2011

DATUM  
VERTICAL : NAVD 88  
HORIZONTAL : NAD 83

SCALE 1" = 40' - 0"  
40 0 40

THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE DIRECTOR OF PROGRAM DEVELOPMENT.  
CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JULY 20, 2011 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

DIRECTOR OF PROGRAM DEVELOPMENT	
APPROVED	DATE 11-29-12
PROJECT MANAGER :	KRISTIN HIGGINS
PROJECT NAME :	JAMAICA
PROJECT NUMBER :	ER-BRF 015-1 (23)
SHEET 1 OF 82 SHEETS	

# PRELIMINARY INFORMATION SHEET (BRIDGE)

LRFD

INDEX OF SHEETS		STANDARDS LIST		FINAL HYDRAULIC REPORT										
<b>PLAN SHEETS</b>				<b>HYDROLOGIC DATA</b> Date: March 2012										
1	TITLE SHEET	C-2A	PORTLAND CEMENT CONCRETE SIDEWALK DRIVE ENTRANCES WITH SIDEWALK A	10-14-2005	DRAINAGE AREA : 33.4 sq. mi. CHARACTER OF TERRAIN : Hilly to mountainous, mostly forested with some open areas STREAM CHARACTERISTICS : Sinuous and alluvial. Currently flood damaged and unstable. NATURE OF STREAMBED : Mostly cobbles with some gravel and boulders									
2	PRELIMINARY INFORMATION SHEET (BRIDGE)	C-10	CURBING	02-11-2008										
3	PRELIMINARY INFORMATION SHEET (BOX CULVERT)	D-1	PRECAST REINFORCED CONCRETE DROP INLET DETAILS	06-01-1994	PEAK FLOW DATA  Q 2.33 = 2,400 cfs      Q 50 = 9,300 cfs Q 10 = 5,100 cfs      Q 100 = 11,500 cfs Q 25 = 7,200 cfs      Q 500 = 19,000 cfs									
4	GENERAL NOTES	E-100	CONSTRUCTION APPROACH SIGNS	01-02-2004										
5 - 7	QUANTITY SHEET 1-3	E-100A	SIDE ROAD CONSTRUCTION - APPROACH SIGNS	01-02-2004	DATE OF FLOOD OF RECORD : Unknown ESTIMATED DISCHARGE : Unknown WATER SURFACE ELEV. : Unknown NATURAL STREAM VELOCITY : @ Q50 = 18.1 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 :									
8	BRIDGE QUANTITY SHEET	E-101	CONSTRUCTION SIGN DETAILS	05-30-2003										
9 - 10	TYPICAL SECTIONS 1-2	E-102	CONSTRUCTION SIGN DETAILS	06-30-2003	WATERSHED STORAGE : < 1%      HEADWATERS : UNIFORM : X IMMEDIATELY ABOVE SITE :									
11	TIE SHEET	E-102A	CONSTRUCTION SIGN DETAILS	05-01-2004										
12	ALIGNMENT	E-107	DELINEATION, BARRICADES AND DETOURS FOR CONSTRUCTION AREAS	06-30-2003	EXISTING STRUCTURE INFORMATION  STRUCTURE TYPE : Two span steel beam bridge with concrete deck.      Removed in 2011. YEAR BUILT : Built in 1936 and widened in 1979 CLEAR SPAN(NORMAL TO STREAM) : Two 55' clear spans = 110' total clear span VERTICAL CLEARANCE ABOVE STREAMBED : 14' maximum on upstream side WATERWAY OF FULL OPENING : 1040 sq. ft. DISPOSITION OF STRUCTURE : It has been removed. TYPE OF MATERIAL UNDER SUBSTRUCTURE : See boring logs.									
13 - 14	LAYOUT 1-2	E-107A	BREAKAWAY BARRICADE DETAILS	06-08-2009										
15 - 16	MAINLINE PROFILE 1-2	E-121	STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD	08-08-1995	WATER SURFACE ELEVATIONS AT:  Q2.33 = 723.7'      VELOCITY = 9.9 fps Q10 = 726.0'      "      13.9 fps Q25 = 727.4'      "      14.0 fps Q50 = 728.6'      "      15.2 fps Q100 = 729.6'      "      16.3 fps									
17	FIRE DRIVE & WATER STREET PROFILES	E-134	BRIDGE NUMBER PLAQUE	08-08-1995										
18	BOX CULVERT PROFILE	E-140	REGULATORY SIGN DETAILS	08-30-1996	LONG TERM STREAMBED CHANGES : Up to 6' of channel degradation and scour from 1936 to 2007. Recent flooding changed the river and future changes are expected.									
19	DRAINAGE PIPE PROFILE	E-141	REGULATORY SIGN DETAILS	09-20-1995										
20	DRAINAGE DETAIL SHEET	E-143	REGULATORY SIGN DETAILS	06-15-2004	IS THE ROADWAY OVERTOPPED BELOW Q100: No FREQUENCY: Above Q100 RELIEF ELEVATION: 729.5' within project survey limits DISCHARGE OVER ROAD @Q100: None									
21 - 22	SIGN & PAVEMENT MARKINGS 1-2	E-152	WARNING SIGN DETAILS	05-01-2004										
23	PROPOSED UTILITY LAYOUT	E-154	WARNING SIGN DETAILS	05-01-2004	TEMP. IN PLACE									
24	RAIL LAYOUT	E-164	SQUARE STEEL SIGN POST	06-08-2009										
25	BRIDGE RAIL DETAILS	E-191	PAVEMENT MARKING DETAILS	02-01-1999	DESIGN VALUES									
26	APPROACH RAIL WW1 AND WW3	E-193	PAVEMENT MARKING DETAILS	08-18-1995										
27	APPROACH RAIL WW2 AND WW4	G-1B	BOX BEAM GUARD RAIL	06-01-1994	1. DESIGN LIVE LOAD      HL-93 2. FUTURE PAVEMENT      dp: 3.0 INCH 3. DESIGN SPAN      L: 130.00 FT									
28 - 29	APPROACH RAIL DETAILS 1-2	S-352A	BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION	08-22-2012										
30	BORING LAYOUT SHEET	S-352B	BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION	08-22-2012	4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)      Δ: --- 5. PRESTRESSING STRAND      fy: --- 6. PRESTRESSED CONCRETE STRENGTH      f'c: 6.0 KSI 7. PRESTRESSED CONCRETE RELEASE STRENGTH      f'cr: 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: 50 KSI 14. SOIL UNIT WEIGHT      γ: 0.140 KCF 15. NOMINAL BEARING RESISTANCE OF SOIL      qn: 4.0 KSF 16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)      φ: --- 17. NOMINAL BEARING RESISTANCE OF ROCK      qn: 10.0 KSF 18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)      φ: --- 19. NOMINAL AXIAL PILE RESISTANCE      qd: SEE GEN. NOTES 20. PILE YIELD STRENGTH ASTM A572      fy: 50 KSI 21. PILE SIZE      HP 12X 84 22. EST. PILE LENGTH      Lp: ---									
31 - 33	BORING LOGS 1-3	S-352C	BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION	08-22-2012		23. PILE RESISTANCE FACTOR      φ: --- 24. LATERAL PILE DEFLECTION      Δ: --- 25. BASIC WIND SPEED      V3s: --- 26. MINIMUM GROUND SNOW LOAD      pg: --- 27. SEISMIC DATA      PGA: ---      Ss: ---      S1: ---								
34	DECK REINFORCING PLAN				PROJECT NAME: JAMAICA PROJECT NUMBER: ER-BRF 015-1(23) FILE NAME: s11b316pi.xls      PLOT DATE: 1/3/2013 PROJECT LEADER: K. HIGGINS      DRAWN BY: K. FRIEDLAND DESIGNED BY: G. LAROCHE      CHECKED BY: J. SALVATORI PRELIMINARY INFORMATION SHEET (BRIDGE)      SHEET 2 OF 82									
35	FRAMING PLAN & GIRDER ELEVATION													
36	CAMBER & DEFLECTION				PILE DRIVING AND TESTING REQUIREMENTS									
37	BEARING DETAILS													
38	APPROACH SLAB DETAILS				1. NOMINAL PILE DRIVING CAPACITY      f'pd: SEE GEN. NOTES 2. PILE TEST RESISTANCE FACTOR      φ: 0.65 3. MAXIMUM PILE TIP ELEVATION      SEE GEN. NOTES 4. A MINIMUM OF 3 DY NAIMC TESTS SHALL BE PERFORMED DURING INSTALLATION. NO LESS THAN 1 TEST SHALL BE PERFORMED AT EACH ABUTMENT. THE REMAINING PILES SHALL BE CALIBRATED BY WAVE EQUATION ANALYSIS.									
39 - 40	ABUTMENTS 1-2													
41 - 42	WINGWALLS 1-2				LOADING LEVELS									
43	BOX LAYOUT													
44	EPSC NARRATIVE				TRUCK									
45 - 46	EPSC EXISTING CONDITIONS SHEET 1-2													
47 - 48	EPSC DURING CONSTRUCTION SHEET 1-2				H-20      HL-93      3S2      6 AXLE      3A, STR.      4A, STR.      5A, SEMI									
49 - 50	EPSC FINAL CONDITIONS SHEET 1-2													
51 - 53	EPSC DETAILS 1-3				TONNAGE      20      36      36      66      30      34.5      38									
54 - 55	MATERIAL TRANSITION / BANKING DIAGRAMS 1-2													
56 - 61	MAINLINE SECTIONS 1-6				INVENTORY      2.95      1.2									
62 - 63	WATER STREET SECTIONS 1-2													
64 - 65	FIRE DRIVE SECTIONS 1-2				POSTING									
66 - 69	BOX CULVERT SECTIONS 1-4													
70 - 79	CHANNEL SECTIONS 1-10				OPERATING      3.82      1.56      2.57      1.54      2.64      2.32      2.32									
80	ROW DETAIL SHEET													
81 - 82	ROW LAYOUT SHEETS 1-2				COMMENTS:									
<b>STRUCTURES DETAILS</b>				<b>AS BUILT "REBAR" DETAIL</b>										
SD-501.00	CONCRETE DETAILS AND NOTES	04-07-2010	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;">LEVEL I</td> <td style="width:33%;">LEVEL II</td> <td style="width:33%;">LEVEL III</td> </tr> <tr> <td>TYPE:</td> <td>TYPE:</td> <td>TYPE:</td> </tr> <tr> <td>GRADE:</td> <td>GRADE:</td> <td>GRADE:</td> </tr> </table>			LEVEL I	LEVEL II	LEVEL III	TYPE:	TYPE:	TYPE:	GRADE:	GRADE:	GRADE:
LEVEL I	LEVEL II	LEVEL III												
TYPE:	TYPE:	TYPE:												
GRADE:	GRADE:	GRADE:												
SD-502.00	CONCRETE DETAILS AND NOTES	05-04-2010												
SD-516.10	BRIDGE JOINT ASPHALTIC PLUG	04-07-2010												
SD-601.00	STRUCTURAL STEEL DETAILS & NOTES	05-04-2010												
SD-602.00	STRUCTURAL STEEL PLATE GIRDER DETAILS AND NOTES	04-02-2011												
<b>TRAFFIC DATA</b>														
YEAR	ADT	DHV	% D	% T	ADTT	20 year ESAL for flexible pavement from 2013 to 2033 : 1219000								
2013	2700	440	53	9	240	40 year ESAL for flexible pavement from 2013 to 2053 : 2834000								
2033	2900	480	53	14.5	410	Design Speed : 30 mph								

# PRELIMINARY INFORMATION SHEET (CULVERT)

**LRFD**

INDEX OF SHEETS						FINAL HYDRAULIC REPORT																																																											
PLAN SHEETS						STANDARDS LIST						HYDROLOGIC DATA						PROPOSED STRUCTURE																																															
<p style="text-align: center;">INDEX OF SHEETS</p>						<p style="text-align: center;">STANDARDS LIST</p>						<p style="text-align: center;">HYDROLOGIC DATA</p> <p>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: &lt; 1% HEADWATERS:            UNIFORM: X            IMMEDIATELY ABOVE SITE:</p> <p style="text-align: center;"><b>EXISTING STRUCTURE INFORMATION</b></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 style="text-align: center;"><b>UPSTREAM STRUCTURE</b></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 style="text-align: center;"><b>DOWNSTREAM STRUCTURE</b></p> <p>TOWN: N.A. - confluence with Ball Mountain Brook DISTANCE: &lt; 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 style="text-align: center;">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 style="text-align: center;"><b>PERMIT INFORMATION</b></p> <p>AVERAGE DAILY FLOW: 4 cfs DEPTH OR ELEVATION:            ORDINARY LOW WATER: 2 cfs Depth = &lt; 0.5'            ORDINARY HIGH WATER: 65 cfs Depth = 1.0'</p> <p style="text-align: center;"><b>TEMPORARY BRIDGE REQUIREMENTS</b></p> <p>STRUCTURE TYPE: No temporary bridge needed.            CLEAR SPAN (NORMAL TO STREAM):            VERTICAL CLEARANCE ABOVE STREAMBED:            WATERWAY AREA OF FULL OPENING:</p> <p style="text-align: center;"><b>ADDITIONAL INFORMATION</b></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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## GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2011 STANDARD SPECIFICATIONS FOR CONSTRUCTION, AND THE 2012 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, AND THEIR LATEST REVISIONS.
2. A TEMPORARY BRIDGE WAS PLACED UPSTREAM OF THE EXISTING, FAILED STRUCTURE. REMOVAL OF THIS TEMPORARY BRIDGE AND ITS APPROACHES SHALL BE PAID FOR UNDER ITEM 900.645 "SPECIAL PROVISION (REMOVAL OF TEMPORARY BRIDGE AND APPROACHES)". THE TEMPORARY BRIDGE IS THE PROPERTY OF VTRANS AND SHALL BE RETURNED TO THE VTRANS MAINTENANCE FACILITY IN SPRINGFIELD, VT. CONTACT HOBERT GATES AT (802) 524-5926 TO MAKE NECESSARY ARRANGEMENTS AS PER THE SPECIAL PROVISIONS.
3. DURING CONSTRUCTION, TRAFFIC SHALL BE MAINTAINED ON AN EXISTING TWO-WAY TEMPORARY BRIDGE LOCATED UPSTREAM OF THE EXISTING STRUCTURE. ALL WORK ASSOCIATED WITH THE MAINTENANCE OF THE EXISTING TEMPORARY BRIDGE AND ITS APPROACHES, INCLUDING TEMPORARY TRAFFIC BARRIER, ENERGY ABSORPTION ATTENUATORS, PAVEMENT AND PAVEMENT MARKINGS WILL BE INCLUDED IN THE UNIT PRICE FOR CONTRACT ITEM 527.10, "MAINTENANCE OF STRUCTURES AND APPROACHES".
4. PAYMENT FOR ALL NEW ON AND OFF-PROJECT CONSTRUCTION SIGNING AND TRAFFIC CONTROL DEVICES, INCLUDING DRUMS AND BARRICADES, WILL BE MADE UNDER CONTRACT ITEM 900.645, "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)".
5. FULL ACCESS TO ALL SIDE ROADS AND DRIVES WITHIN THE PROJECT LIMITS SHALL BE MAINTAINED AT ALL TIMES. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 900.645 "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)".
6. ALL DIMENSIONS SHOWN IN THE PLANS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 68 DEGREES FAHRENHEIT, UNLESS NOTED OTHERWISE.
7. THE CONTRACTOR SHALL INSTALL TWO GRANITE PLAQUES SUPPLIED BY THE STATE IN LOCATIONS AS SHOWN ON THE PLANS. THE PLAQUES SHALL BE INSTALLED TO THE SATISFACTION OF THE TOWN OF JAMAICA AND THE ENGINEER. INSTALLATION OF THE PLAQUES SHALL BE INCIDENTAL TO THE BRIDGE RAIL CONCRETE.
8. THE CONTRACTOR SHOULD NOTE THAT THE EXISTING TEMPORARY BRIDGE APPROACH AND APPROACH RAIL CONFLICTS WITH THE LOCATION OF WINGWALL #1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DEVELOP A PLAN, ACCEPTABLE TO THE ENGINEER, FOR THE CONSTRUCTION OF WINGWALL #1 IN ITS PROPOSED LOCATION AND DIMENSION. THIS PLAN SHALL BE SUBMITTED TO THE ENGINEER AT THE PRECONSTRUCTION MEETING. THE DEVELOPMENT OF THIS PLAN, ALL MATERIALS, LABOR, ETC. REQUIRED TO CONSTRUCT WINGWALL #1 AS PER THE CONTRACTOR'S PLAN WILL BE CONSIDERED INCLUDED IN THE BID PRICE FOR ITEM 501.33 "CONCRETE, HIGH PERFORMANCE, CLASS A"; AND ITEM 501.34 "CONCRETE, HIGH PERFORMANCE CLASS B." MECHANICAL SPLICE CONNECTORS ARE SHOWN IN THE DETAILS FOR WINGWALL #1 SHOULD THE CONTRACTOR CHOOSE TO PHASE ITS CONSTRUCTION. TEMPORARY TRAFFIC WILL BE ALLOWED ON THE NEW BRIDGE ONCE THE DECK HAS CURED AND PROVISIONS HAVE BEEN MADE FOR SAFE VEHICULAR TRAVEL. THE APPROACH SLAB AT ABUTMENT #1 NEED NOT BE IN PLACE FOR TEMPORARY TRAFFIC.

## EARTHWORK AND RELATED ITEMS

9. THE "STONE FILL, TYPE IV" UNDER THE BRIDGE AS SHOWN IN THE PLANS SHALL BE PLACED BEFORE THE NEW STEEL GIRDERS ARE SET.

## STRUCTURAL STEEL

10. STRUCTURAL STEEL MEMBERS DESIGNATED "CVN" IN THE PLANS SHALL BE CHARPY V-NOTCH TESTED IN ACCORDANCE WITH SUBSECTION 714.01.
11. ANY HOLES IN THE WEBS OF FASCIA GIRDERS NOT OTHERWISE FILLED SHALL BE FILLED WITH BUTTON HEAD BOLTS. THESE BOLTS SHALL BE TIGHTENED IN ACCORDANCE WITH SUBSECTIONS 506.19.
12. ANY CONNECTIONS NOT DETAILED ON THE PLANS SHALL BE DETAILED BY THE FABRICATOR AND SUBMITTED TO THE STRUCTURES ENGINEER FOR APPROVAL.
13. ALL WELDING SHALL CONFORM TO THE PROVISIONS OF SUBSECTION 506.10.
14. ALL FIELD CONNECTIONS SHALL BE MADE WITH 7/8" DIAMETER HIGH STRENGTH BOLTS IN 15/16" DIAMETER HOLES, PER SECTION 506 UNLESS OTHERWISE NOTED.
15. FLEMING BRACKETS OR SIMILAR FALSE WORK SHALL BE PLACED AT A MAXIMUM SPACING OF 4 FEET. THE BRACKETS SHALL BEAR NEAR THE BOTTOM FLANGE AND IN NO CASE SHALL THEY BEAR ABOVE THE BOTTOM QUARTER WEB.
16. AFTER THE GIRDERS HAVE BEEN ERECTED, ELEVATIONS SHALL BE TAKEN ALONG THE TOP OF THE GIRDERS AS DIRECTED BY THE RESIDENT ENGINEER, FOR USE IN DETERMINING THE FINISHED GRADE.
17. GIRDER WEBS AND CROSS FRAMES SHALL BE PLUMB IN FINAL POSITION.

## PILES

18. THE PILES SHALL BE HP 12 X 84.
19. IF NO BEDROCK IS ENCOUNTERED, THE PILES SHALL BE DRIVEN TO A NOMINAL PILE DRIVING RESISTANCE OF 380 KIPS WITH A MINIMUM DEPTH OF 20 FEET BELOW THE BOTTOM OF THE PILE CAP AND THEREFORE NO PRE-BORING IS REQUIRED. IF BEDROCK IS ENCOUNTERED AT DEPTHS SHALLOWER THAN 20 FEET BELOW THE BOTTOM OF PILE CAP, THE PILE LOCATIONS SHALL BE PRE-BORED WITH A PENETRATION OF 3 FEET INTO BEDROCK. IF BEDROCK IS ENCOUNTERED SHALLOWER THAN 5 FEET, PRE-BORING TO A MINIMUM DEPTH OF 8 FEET BELOW THE PILE CAP IS REQUIRED WHILE ONLY BACKFILLING THE BOTTOM THREE FEET WITH CONCRETE.
20. ALL PRE-BORED HOLES SHALL BE 24 INCHES IN DIAMETER. THE BOTTOM THREE (3) FEET IN BEDROCK SHALL BE FILLED WITH CONCRETE AFTER PLACEMENT OF THE PILE. SAND SHALL BE USED TO BACKFILL THE ANNULAR SPACE ABOVE THE CONCRETE TO THE BOTTOM OF GRANULAR BACKFILL FOR STRUCTURES. REFER TO THE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.
21. TO PREVENT DAMAGE TO THE PILES, PILE SHOES ARE REQUIRED FOR DRIVEN PILES AND SHALL CONFORM TO SUBSECTION 505.04 (f).
22. PILE TESTING AND SEQUENCE
  - A. A MINIMUM OF 3 DYNAMIC TESTS SHALL BE PERFORMED DURING INSTALLATION. NO LESS THAN 1 TEST SHALL BE PERFORMED AT EACH ABUTMENT. THE REMAINING PILES SHOULD BE CALIBRATED BY WAVE EQUATION ANALYSIS.
  - B. ABUTMENT PILES SHALL BE DRIVEN STARTING AT THE CENTERLINE OF VT 30 AND WORKING OUTWARD SO THAT THE EXTERIOR PILES ARE DRIVEN LAST.
23. FOR ESTIMATING PURPOSES, THE PILE TIP ELEVATIONS WERE ASSUMED AS SHOWN ON THE BORING LOGS. THE ACTUAL IN PLACE LENGTHS MAY VARY.
24. THE TOPS OF THE PILES AFTER DRIVING SHALL NOT VARY FROM THE POSITION SHOWN ON THE PLANS BY MORE THAN 3 INCHES. THE PILE ORIENTATION SHALL NOT VARY BY MORE THAN 5 DEGREES. THE CONTRACTOR SHALL DEMONSTRATE TO THE SATISFACTION OF THE ENGINEER HOW THE TOLERANCES WILL BE MET. THESE MEASURES SHALL BE DEMONSTRATED IN A SUBMITTAL TO BE ACCEPTED BEFORE PILE DRIVING COMMENCES.
25. PRE-BORING AT ABUTMENT 1 PILE LOCATIONS IS OPTIONAL, PROVIDED ALL PILE DRIVING REQUIREMENTS CAN BE MET. PRE-BORING AT ABUTMENT 2 PILE LOCATIONS IS REQUIRED. PAYMENT SHALL BE PAID FOR UNDER ITEM 900.640 "SPECIAL PROVISION (PRE-EXCAVATION OF INTEGRAL ABUTMENTS PILES, EARTH)" OR ITEM 900.640 "SPECIAL PROVISION (PRE-EXCAVATION OF INTEGRAL ABUTMENTS PILES, ROCK)".

## CONCRETE

26. THE DECK, BRIDGE RAIL, ABUTMENTS & WINGWALLS ABOVE BRIDGE SEAT SHALL BE CONCRETE, HIGH PERFORMANCE CLASS A.
27. ALL OTHER SUBSTRUCTURE CONCRETE SHALL BE CONCRETE, HIGH PERFORMANCE CLASS B.
28. CONCRETE PORTIONS OF ABUTMENTS AND WINGWALLS ABOVE ADJACENT BRIDGE SEAT ELEVATIONS SHALL NOT BE PLACED UNTIL FINISH GRADES HAVE BEEN DETERMINED BY THE RESIDENT ENGINEER.
29. IN ACCORDANCE WITH SUBSECTION 506.23(A) AND AS DIRECTED BY THE RESIDENT ENGINEER, THE CONTRACTOR SHALL TAKE MEASURES NECESSARY TO PROTECT ALL SUBSTRUCTURE CONCRETE FROM STAINING DUE TO OXIDE FORMATION ON THE STRUCTURAL STEEL PRIOR TO PLACEMENT OF THE DECK. THESE MEASURES WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE CONSIDERED INCIDENTAL TO ITEM 501.34, "CONCRETE, HIGH PERFORMANCE CLASS B". ANY SUCH STAINING THAT OCCURS PRIOR TO DECK PLACEMENT SHALL BE REMOVED AT NO ADDITIONAL COST TO THE STATE.
30. THE DECK IS TO BE POURED IN ONE CONTINUOUS POUR WITH A MAXIMUM DURATION OF EIGHT HOURS. IF CIRCUMSTANCES BEYOND THE CONTRACTOR'S CONTROL PREVENT THIS FROM BEING ACCOMPLISHED, A TRANSVERSE CONSTRUCTION JOINT SHALL BE USED BETWEEN ADJACENT POURS. A MINIMUM 96 HOUR DELAY BETWEEN ADJACENT POURS SHALL BE OBSERVED.
31. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1 INCH X 1 INCH.
32. ITEM 514.10 "WATER REPELLENT, SILANE", SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES, EXCEPT THE UNDERSIDE OF THE DECK BETWEEN DRIP NOTCHES.
33. JOINTS AND SCORE MARKS IN CONCRETE SHALL BE CONSTRUCTED AS SHOWN IN THE PLANS OR AS DIRECTED BY THE RESIDENT ENGINEER.
34. THE KEY IN CONCRETE CONSTRUCTION JOINTS SHALL BE MONOLITHIC AND CONTINUOUS FOR THE FULL LENGTH OF THE JOINT. UPWARD KEYS SHALL BE PLACED INTEGRALLY WITH THE CONCRETE BELOW THE JOINT.
35. REINFORCING STEEL ABOVE THE BRIDGE SEATS IN THE ABUTMENTS, BRIDGE RAIL, AND APPROACH SLABS SHALL BE LEVEL II REINFORCING STEEL IN ACCORDANCE WITH SECTION 507.
36. REINFORCING STEEL BELOW THE BRIDGE SEATS IN THE ABUTMENTS SHALL BE LEVEL I REINFORCING STEEL IN ACCORDANCE WITH SECTION 507.

37. MINIMUM COVER FOR REINFORCING STEEL SHALL BE AS INDICATED IN THE PLANS.

38. REINFORCING STEEL PLACEMENT TOLERANCES SHALL BE:

- A. SPACING: +/- 1 INCH
- B. CLEARANCE: +/- 1/4 INCH

## PRECAST CONCRETE STRUCTURE

39. DESIGN CRITERIA:
  - A. SOIL UNIT WEIGHT = 140 PCF
  - B. DESIGN LIVE LOAD = HL-93
  - C. NOMINAL BEARING RESISTANCE = 6.7 KSF
  - D. BEARING RESISTANCE FACTOR = 0.45
  - E. DESIGN FILL OVER BOX = 3 FEET
  - F. CONCRETE COMPRESSIVE STRENGTH = SEE SUBSECTION 540.05 (e)
40. ALL CONCRETE SHALL BE PRECAST. ITEM 540.10 "PRECAST CONCRETE STRUCTURE" INCLUDES ALL BOX SEGMENTS, RETENTION SILLS, HEADWALLS, CUTOFF WALLS AND WINGWALLS. ALL CONNECTIONS SHALL BE DESIGNED BY THE FABRICATOR AND SHALL BE CONSIDERED INCIDENTAL TO ITEM 540.10.
41. THE PRECAST BOX SECTIONS ARE SHOWN FOR REFERENCE ONLY. THE ACTUAL DIMENSIONS AND SHAPE WILL BE DEPENDENT ON THE FABRICATOR. THE MINIMUM INSIDE DIMENSIONS SHALL BE 8'-0" IN HEIGHT AND 16'-0" IN WIDTH. THE OVERALL LENGTH OF THE BOX SHALL BE 85'-0" ALONG THE STREAMBED GRADE. THE EXPOSED ENDS OF THE FIRST AND LAST UNITS SHALL BE VERTICAL.
42. THE EXTERIOR (TOP AND SIDES) OF ALL CONCRETE BOX JOINTS ALONG WITH ALL LIFTING HOLES SHALL BE FILLED WITH MORTAR TYPE IV AFTER BEING SET IN THEIR FINAL POSITION. THIS WORK WILL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 540.10.
43. MEMBRANE WATERPROOFING SHALL BE APPLIED TO THE ENTIRE TOP OF THE CONCRETE BOX. A TWO (2) FOOT WIDE STRIP OF MEMBRANE SHALL BE PLACED AT EACH VERTICAL JOINT (SIDES). MEMBRANE SHALL BE CENTERED ON THE JOINT AND COVER THE FULL HEIGHT. THE SIDES SHALL BE COVERED PRIOR TO THE TOP. ANY OVERLAPPING OF MEMBRANE SHALL BE DONE IN A SHINGLE TYPE STYLE TO SHED WATER AND SHALL OVERLAP A MINIMUM OF ONE FOOT. PAYMENT FOR MEMBRANE WILL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 540.10.
44. THE CONTRACTOR SHALL CONSIDER THE PLACEMENT OF THE BOX CULVERT SECTIONS BEGINNING AT THE OUTLET AS TO MATCH THE WINGWALL ELEVATION TO THE FINISH GRADE OF THE ABUTMENT.
45. WATER REPELLENT, SILANE SHALL BE SHOP APPLIED TO ALL EXPOSED CONCRETE SURFACES OF THE PRECAST CONCRETE STRUCTURE. PAYMENT FOR SILANE WILL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 540.10.
46. REINFORCING STEEL FOR THE PRECAST WINGWALLS AND HEADWALLS SHALL BE LEVEL II REINFORCING STEEL IN ACCORDANCE WITH SECTION 507. ALL REMAINING REINFORCING STEEL SHALL BE LEVEL I REINFORCING STEEL IN ACCORDANCE WITH SECTION 507.

## MISCELLANEOUS

47. AFTER REMOVAL OF THE TEMPORARY BRIDGE, THE CONTRACTOR SHALL CONTACT TODD MENEES AT 802-786-8921, FOR CONSULTATION REGARDING FINAL GRADING TO CHANNEL ON THE BECKWITH PROPERTY.
48. UTILITY RELOCATION SHALL BE COMPLETE WITHIN 28 DAYS OF THE COMPLETE REMOVAL OF THE TEMPORARY BRIDGE AND DETOUR. THE CONTRACTOR SHALL CONTACT THE RESPECTIVE UTILITY COMPANY PRIOR TO THE REMOVAL OF THE DETOUR. SEE UTILITY SPECIAL PROVISION FOR CONTACT INFORMATION.
49. AN URBAN SEED MIX SHALL BE USED WHEN RESEEDING THE AREA IMPACTED FROM REMOVAL OF THE TEMPORARY BRIDGE AND DETOUR.
50. THE REMOVAL OF THE PIPE UNDER THE EXISTING DETOUR SHALL BE INCIDENTAL TO CONTRACT ITEM 900.645 "SPECIAL PROVISION (REMOVAL OF TEMPORARY BRIDGE AND APPROACHES)".
51. THE REMOVAL OF THE WINGWALLS AND HEADWALLS FOR THE CONCRETE BOX THAT CROSSES UNDERNEATH VT ROUTE 30 SHALL BE PAID FOR UNDER ITEM 529.20 "PARTIAL REMOVAL OF STRUCTURE (7'-0" x 7'-0" x 90'-0" BOX).
52. ONCE THE NEW BOX CULVERT IS CONSTRUCTED, ITEM 541.45 "CONTROLLED DENSITY (FLOWABLE) FILL" SHALL BE USED TO FILL THE EXISTING BOX CULVERT THAT CROSSES UNDERNEATH VT ROUTE 30.
53. A PULL OFF SHALL BE CONSTRUCTED FROM FIRE DRIVE STA 20+38 - STA 21+42, AS SHOWN ON THE PLANS, TO ACCOMMODATE ACCESS TO A FUTURE DRY HYDRANT TO BE INSTALLED ALONG THE BANK OF BALL MOUNTAIN BROOK.
54. THE SEPTIC TANK RISER AT STATION 209+95.00 LT AND DRY WELL AT STATION 31+93.00 RIGHT SHALL NOT BE DISTURBED.

PROJECT NAME: JAMAICA  
PROJECT NUMBER: ER-BRF 015-1(23)

FILE NAME: s11b316notes.dgn	PLOT DATE: 19-DEC-2012
PROJECT LEADER: K. HIGGINS	DRAWN BY: K. FRIEDLAND
DESIGNED BY: G. LAROCHE	CHECKED BY: J. SALVATORI
GENERAL NOTES	SHEET 4 OF 82

# QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES			
					ROADWAY	CULVERT	EROSION CONTROL	TRAINING	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
					1						1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10				
					1600						1600		CY	COMMON EXCAVATION	203.15				
						1700			2300		4000		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27				
					260						260		CY	SAND BORROW	203.31				
					85						85		CY	TRENCH EXCAVATION OF EARTH	204.20				
					15	1700			240		1955		CY	STRUCTURE EXCAVATION	204.25				
					55	1075			200		1330		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30				
					450						450		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10				
														BEGIN OPTION AA					
					1100						1100		CY	SUBBASE OF GRAVEL	301.15				
					1100						1100		CY	SUBBASE OF CRUSHED GRAVEL, COARSE GRADED	301.25				
					1100						1100		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35				
														END OPTION AA					
					55						55		CY	AGGREGATE SURFACE COURSE	401.10				
					12						12		CWT	EMULSIFIED ASPHALT	404.65				
					1						1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50				
									249		249		CY	CONCRETE, HIGH PERFORMANCE CLASS A	501.33				
									144		144		CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34				
									1		1		LS	FURNISHING EQUIPMENT FOR DRIVING PILING	504.10				
									333		333		LF	STEEL PILING, HP 12 X 84	505.165				
									3		3		EACH	DYNAMIC PILE LOADING TEST	505.45				
									300860		300860		LB	STRUCTURAL STEEL, CURVED PLATE GIRDER	506.56				
									20000		20000		LB	REINFORCING STEEL, LEVEL I	507.11				
									68000		68000		LB	REINFORCING STEEL, LEVEL II	507.12				
									1		1		LS	SHEAR CONNECTORS (2216-7/8" X 7")	508.15				
									15		15		GAL	WATER REPELLENT, SILANE	514.10				
									68		68		LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10				
									500		500		SY	SHEET MEMBRANE WATERPROOFING, TORCH APPLIED	519.20				
									68		68		LF	JOINT SEALER, HOT Poured	524.11				
									265		265		LF	BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION	525.45				
					1						1		LS	MAINTENANCE OF STRUCTURES AND APPROACHES	527.10				
						1					1		EACH	PARTIAL REMOVAL OF STRUCTURE (7'-0" x 7'-0" x 90'-0" BOX)	529.20				
									14		14		EACH	BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD	531.17				
						1					1		LS	PRECAST CONCRETE STRUCTURE (16'-0" x 8'-0" x 85'-0" BOX)	540.10				
						200					200		CY	CONTROLLED DENSITY (FLOWABLE) FILL	541.45				
														BEGIN OPTION BB					
					110						110		LF	24" CAAP .060 (2-2/3 X 1/2)	601.0225				
					110						110		LF	24" PCCSP .064 (2-2/3 X 1/2)	601.0425				
					110						110		LF	24" CPEP	601.0920				
														END OPTION BB					

PROJECT NAME: JAMAICA  
PROJECT NUMBER: ER-BRF 015-1(23)  
FILE NAME: s1lb316quantitysheet.dgn  
PROJECT LEADER: K. HIGGINS  
DESIGNED BY: G. LAROCHE  
QUANTITY SHEET 1  
PLOT DATE: 14-DEC-2012  
DRAWN BY: G. LAROCHE  
CHECKED BY: K. FRIEDLAND  
SHEET 5 OF 82

# QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES			
					ROADWAY	CULVERT	EROSION CONTROL	TRAINING	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
					1						1		EACH	PRECAST REINFORCED CONCRETE DROP INLET WITH CAST IRON GRATE	604.18				
					1						1		EACH	CHANGING ELEVATION OF DROP INLETS, CATCH BASINS, OR MANHOLES	604.40				
							10				10		HR	ALL PURPOSE EXCAVATOR RENTAL, TYPE I	608.25				
							1				1		TON	DUST AND ICE CONTROL WITH CALCIUM CHLORIDE	609.15				
					45						45		CY	STONE FILL, TYPE II	613.11				
						1100					1100		CY	STONE FILL, TYPE III	613.12				
									2550		2550		CY	STONE FILL, TYPE IV	613.13				
					195						195		LF	CAST-IN-PLACE CONCRETE CURB, TYPE B	616.28				
					120						120		SY	PORTLAND CEMENT CONCRETE SIDEWALK, 5 INCH	618.10				
					8						8		SF	DETECTABLE WARNING SURFACE	618.30				
					5						5		EACH	STEEL MARKER POSTS	619.16				
					292						292		LF	BOX BEAM GUARDRAIL	621.30				
					1						1		EACH	MANUFACTURED TERMINAL SECTION, TANGENT	621.51				
					98						98		LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80				
					200						200		HR	UNIFORMED TRAFFIC OFFICERS	630.10				
					600						600		HR	FLAGGERS	630.15				
										1	1		LS	FIELD OFFICE, ENGINEERS	631.10				
										1	1		LS	TESTING EQUIPMENT, CONCRETE	631.16				
										1	1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17				
										5000	5000		DL	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.26				
								520			520		HR	EMPLOYEE TRAINEESHIP	634.10				
					1						1		LS	MOBILIZATION/DEMobilIZATION	635.11				
					1150						1150		LF	4 INCH WHITE LINE	646.20				
					1190						1190		LF	4 INCH YELLOW LINE	646.21				
					12						12		LF	24 INCH STOP BAR	646.26				
					4						4		EACH	LETTER OR SYMBOL	646.30				
						1000			2400		3400		SY	GEOTEXTILE UNDER STONE FILL	649.31				
							150				150		SY	GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED	649.515				
							400				400		SY	GEOTEXTILE FOR FILTER CURTAIN	649.61				
							40				40		LB	SEED	651.15				
							240				240		LB	FERTILIZER	651.18				
							1				1		TON	AGRICULTURAL LIMESTONE	651.20				
							1				1		TON	HAY MULCH	651.25				
							250				250		CY	TOPSOIL	651.35				
							1800				1800		SY	GRUBBING MATERIAL	651.40				
							1				1		LS	EPSC PLAN	652.10				
							100				100		HR	MONITORING EPSC PLAN	652.20				
							1				1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	652.30				
							290				290		SY	TEMPORARY EROSION MATTING	653.20				
							90				90		CY	VEHICLE TRACKING PAD	653.35				

PROJECT NAME: JAMAICA  
PROJECT NUMBER: ER-BRF 015-1(23)  
FILE NAME: s1lb316quantitysheet.dgn PLOT DATE: 03-JAN-2013  
PROJECT LEADER: K. HIGGINS DRAWN BY: G. LAROCHE  
DESIGNED BY: G. LAROCHE CHECKED BY: K. FRIEDLAND  
QUANTITY SHEET 2 SHEET 6 OF 82

# QUANTITY SHEET 3

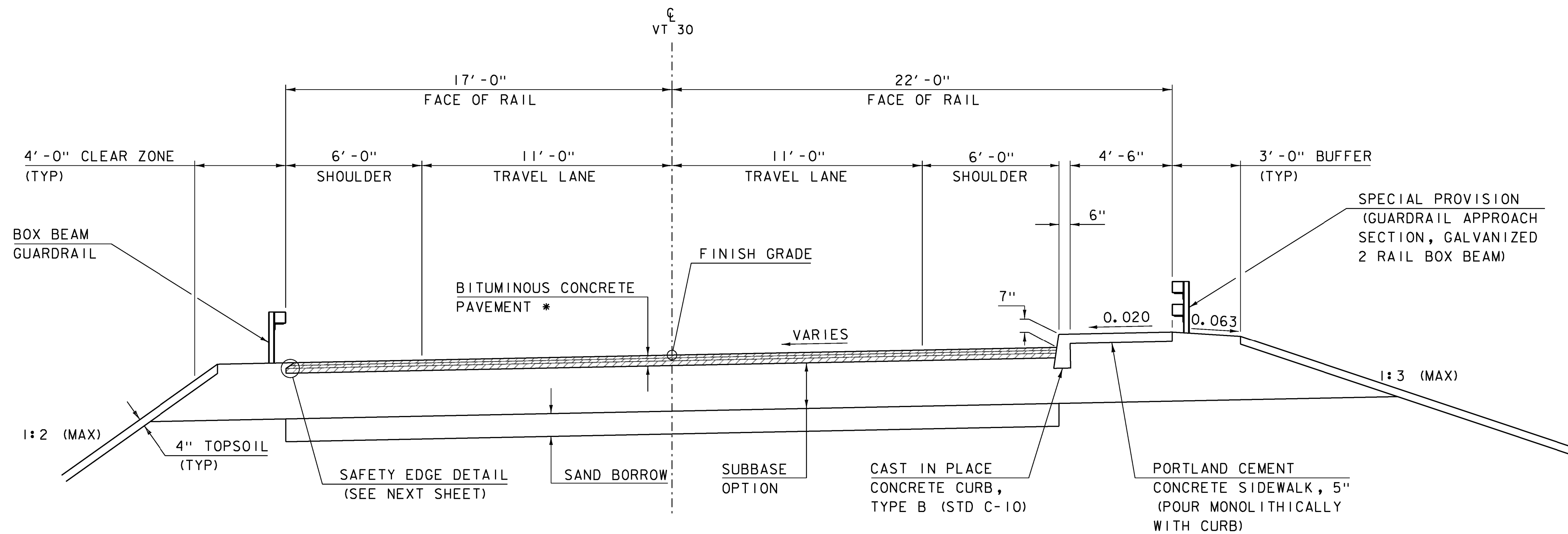
SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES			
					ROADWAY	CULVERT	EROSION CONTROL	TRAINING	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
							2				2		EACH	INLET PROTECTION DEVICE, TYPE I	653.40				
							820				820		LF	BARRIER FENCE	653.50				
							350				350		LF	PROJECT DEMARCATION FENCE	653.55				
					67						67		SF	TRAFFIC SIGNS, TYPE A	675.20				
					172						172		LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341				
					11						11		EACH	REMOVING SIGNS	675.50				
									1		1		LU	PRICE ADJUSTMENT, FUEL (N.A.B.I.)	690.50				
					4						4		EACH	SPECIAL PROVISION (GUARDRAIL APPROACH SECTION TO CONCRETE COMBINATION BRIDGE RAILING, TL-3)	900.620				
									258		258		LF	SPECIAL PROVISION (PRE-EXCAVATION OF INTEGRAL ABUTMENT PILES, EARTH)	900.640				
									45		45		LF	SPECIAL PROVISION (PRE-EXCAVATION OF INTEGRAL ABUTMENT PILES, ROCK)	900.640				
					1						1		LS	SPECIAL PROVISION (REMOVAL OF TEMPOARY BRIDGE AND APPROACHES)	900.645				
					1						1		LS	SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)	900.645				
					1						1		LU	SPECIAL PROVISION (MAT DENSITY PAY ADJUSTMENT, SMALL QUANTITY)(N.A.B.I.)	900.650				
					1						1		LU	SPECIAL PROVISION (MIXTURE PAY ADJUSTMENT)(N.A.B.I.)	900.650				
					665						665		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680				

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 PROJECT NUMBER: ER-BRF 015-1(23)  
 FILE NAME: s1b316quantitysheet.dgn  
 PROJECT LEADER: K. HIGGINS  
 DESIGNED BY: G. LAROCHE  
 QUANTITY SHEET 3  
 PLOT DATE: 14-DEC-2012  
 DRAWN BY: G. LAROCHE  
 CHECKED BY: K. FRIEDLAND  
 SHEET 7 OF 82

# BRIDGE QUANTITY SHEET 1

SUMMARY OF BRIDGE QUANTITIES										TOTALS		DESCRIPTIONS			DETAILED SUMMARY OF QUANTITIES		
					APPROACH SLAB #1	ABUTMENT #1	SUPER - STRUCTURE	ABUTMENT #2	APPROACH SLAB #2	BRIDGE TOTAL	UNIT	ITEMS	ITEM NUMBER	QUANTITIES	UNIT	ITEMS	
						1200		1100		2300	CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27				
						130		110		240	CY	STRUCTURE EXCAVATION	204.25				
						115		85		200	CY	GRANULAR BACKFILL FOR STRUCTURES	204.30				
						34	184	31		249	CY	CONCRETE, HIGH PERFORMANCE CLASS A	501.33				
					32	39		41	32	144	CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34				
						1				1	LS	FURNISHING EQUIPMENT FOR DRIVING PILING	504.10				
						189		144		333	LF	STEEL PILING, HP 12 X 84	505.165				
						2		1		3	EACH	DYNAMIC PILE LOADING TEST	505.45				
							300860			300860	LB	STRUCTURAL STEEL, CURVED PLATE GRDER	506.56				
							9400	10600		20000	LB	REINFORCING STEEL, LEVEL I	507.11				
					3250	4100	53300	4100	3250	68000	LB	REINFORCING STEEL, LEVEL II	507.12				
							1			1	LS	SHEAR CONNECTORS (2216-7/8" X 7")	508.15				
						5	7	3		15	GAL	WATER REPELLENT, SILANE	514.10				
					34				34	68	LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10				
							500			500	SY	SHEET MEMBRANE WATERPROOFING, TORCH APPLIED	519.20				
					34				34	68	LF	JOINT SEALER, HOT Poured	524.11				
							265			265	LF	BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION	525.45				
						7		7		14	EACH	BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD	531.17				
						1150		1400		2550	CY	STONE FILL, TYPE IV	613.13				
						1100		1300		2400	SY	GEOTEXTILE UNDER STONE FILL	649.31				
						1				1	LU	PRICE ADJUSTMENT, FUEL (N.A.B.I.)	690.50				
						154		104		258	LF	SPECIAL PROVISION (PRE-EXCAVATION OF INTEGRAL ABUTMENT PILES, EARTH)	900.640				
						21		24		45	LF	SPECIAL PROVISION (PRE-EXCAVATION OF INTEGRAL ABUTMENT PILES, ROCK)	900.640				

PROJECT NAME: JAMAICA  
 PROJECT NUMBER: ER-BRF 015-1(23)  
 FILE NAME: s1b316quantitysheet.dgn  
 PROJECT LEADER: K. HIGGINS  
 DESIGNED BY: G. LAROCHE  
 BRIDGE QUANTITY SHEET 1  
 PLOT DATE: 14-DEC-2012  
 DRAWN BY: G. LAROCHE  
 CHECKED BY: K. FRIEDLAND  
 SHEET 8 OF 82

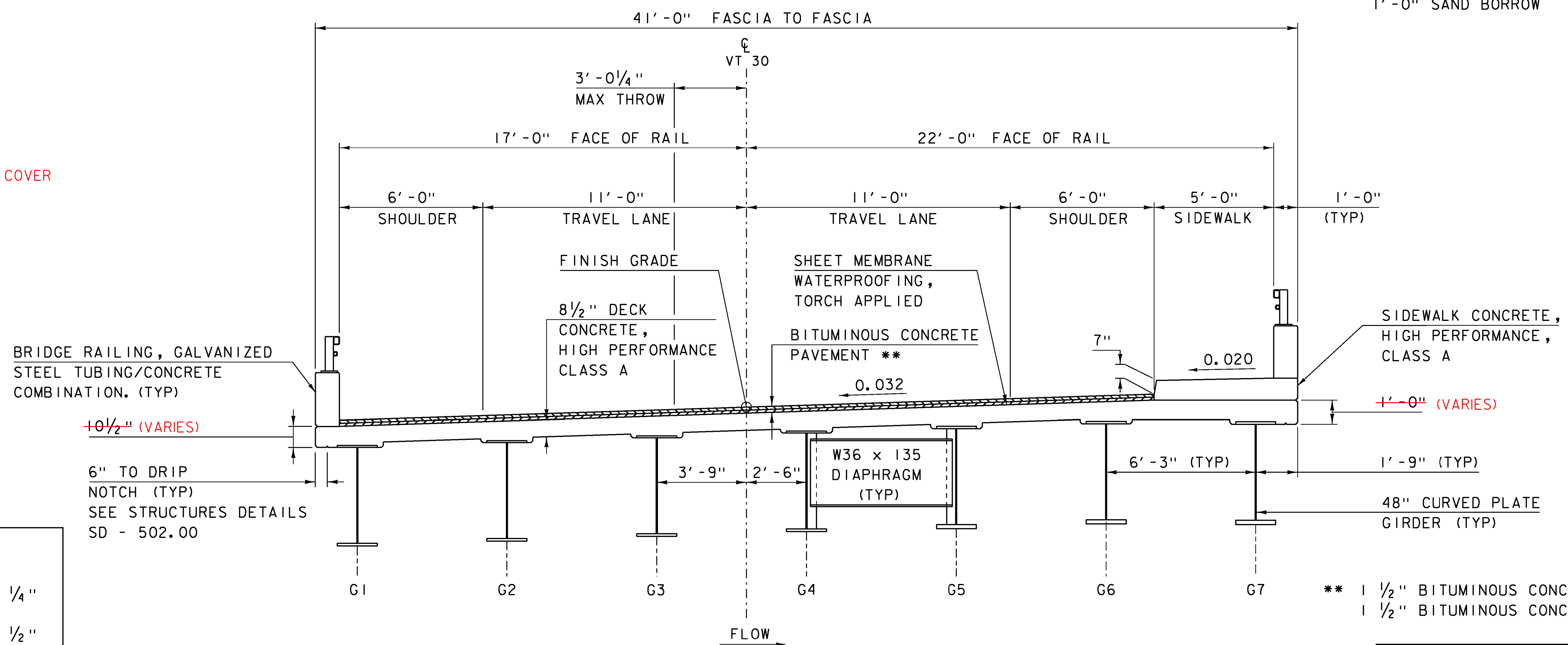


TYPICAL ROAD SECTION

SCALE 1" = 3'-0"

- \* 1 1/2" BITUMINOUS CONCRETE PAVEMENT (TYPE IVS)
- 1 1/2" BITUMINOUS CONCRETE PAVEMENT (TYPE IVS)
- 2 1/2" BITUMINOUS CONCRETE PAVEMENT (TYPE IIS)
- 2'-0" SUBBASE OPTION
- 1'-0" SAND BORROW

DECK REINFORCING STEEL COVER  
2 1/2" TOP  
1 1/2" BOTTOM



TYPICAL BRIDGE SECTION

SCALE 1" = 3'-0"

- \*\* 1 1/2" BITUMINOUS CONCRETE PAVEMENT (TYPE IVS) OVER
- 1 1/2" BITUMINOUS CONCRETE PAVEMENT (TYPE IVS)

MATERIAL TOLERANCES  
(IF USED ON PROJECT)

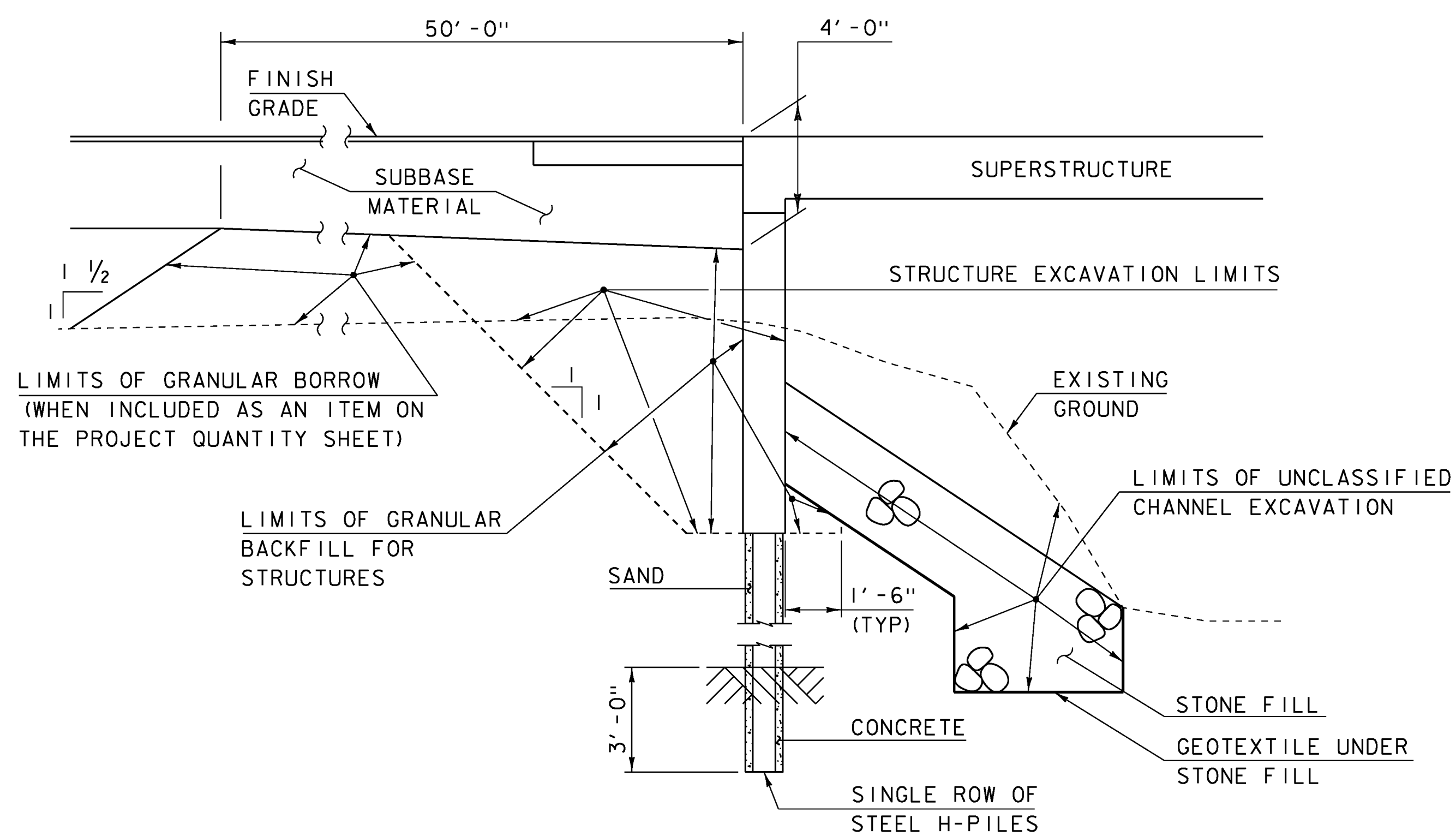
SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- 1/4"
- AGGREGATE SURFACE COURSE	+/- 1/2"
SUBBASE	
	+/- 1"
SAND BORROW	
	+/- 1"

6" TO DRIP NOTCH (TYP)  
SEE STRUCTURES DETAILS  
SD - 502.00

PROJECT NAME: JAMAICA  
PROJECT NUMBER: ER-BRF 015-1(23)

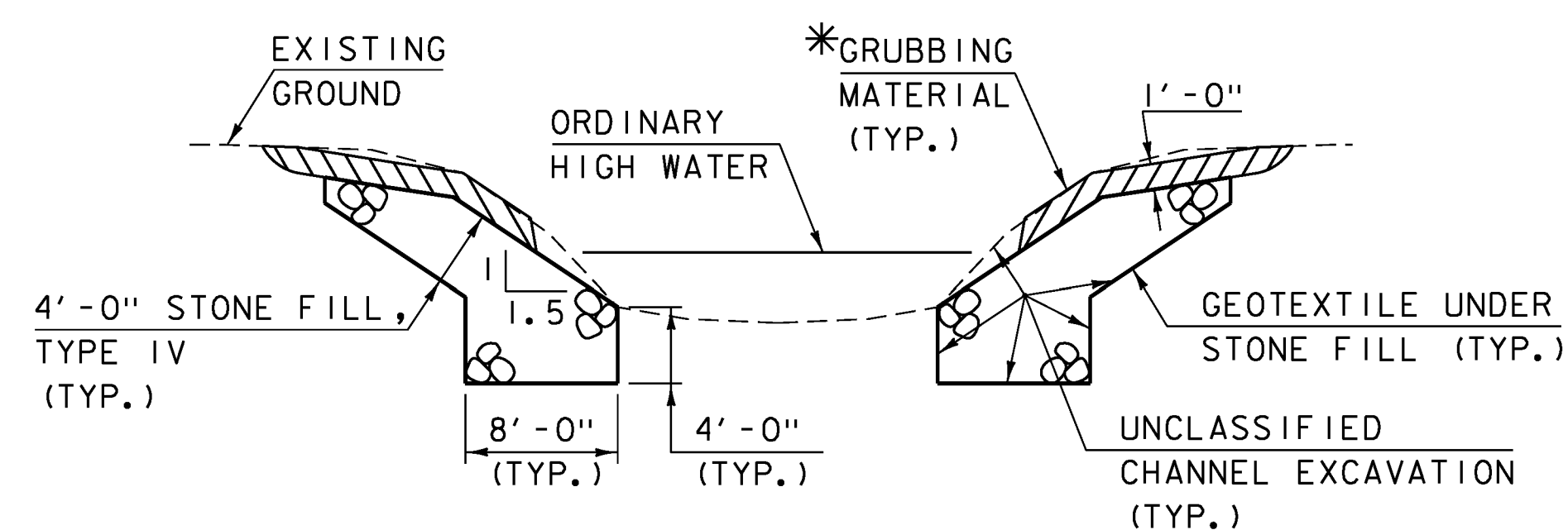
FILE NAME: s1lb316typ.dgn  
PROJECT LEADER: K. HIGGINS  
DESIGNED BY: G. LAROCHE  
TYPICAL SECTIONS I

PLOT DATE: 07-DEC-2012  
DRAWN BY: K. FRIEDLAND  
CHECKED BY: W. LAMMER  
SHEET 9 OF 82



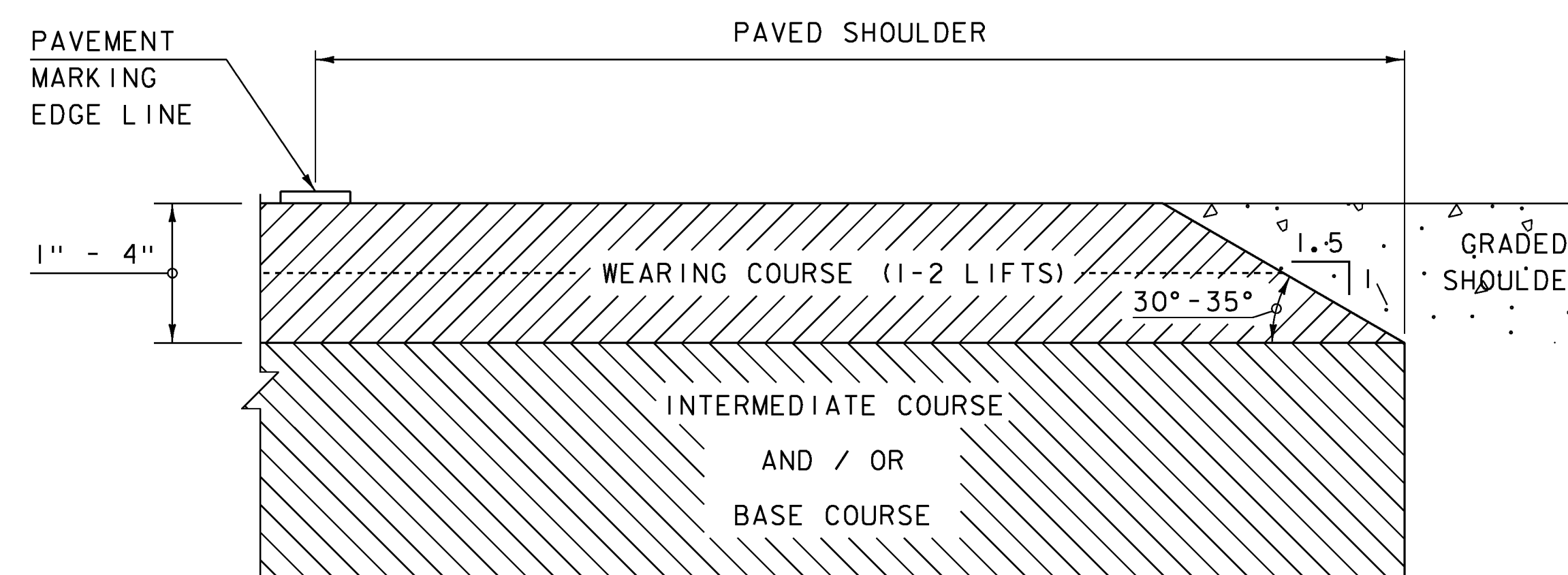
**TYPICAL INTEGRAL ABUTMENT SECTION**  
NOT TO SCALE

ACTUAL LIMITS OF STRUCTURE EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR. HOWEVER, ONLY THE EXCAVATION BETWEEN THE LIMITS SHOWN WILL BE PAID FOR UNDER ITEM 204.25 "STRUCTURE EXCAVATION". EXCAVATION BY THE CONTRACTOR OUTSIDE OF THESE LIMITS WILL BE AT THE EXPENSE OF THE CONTRACTOR.



**TYPICAL CHANNEL SECTION**  
(NOT TO SCALE)

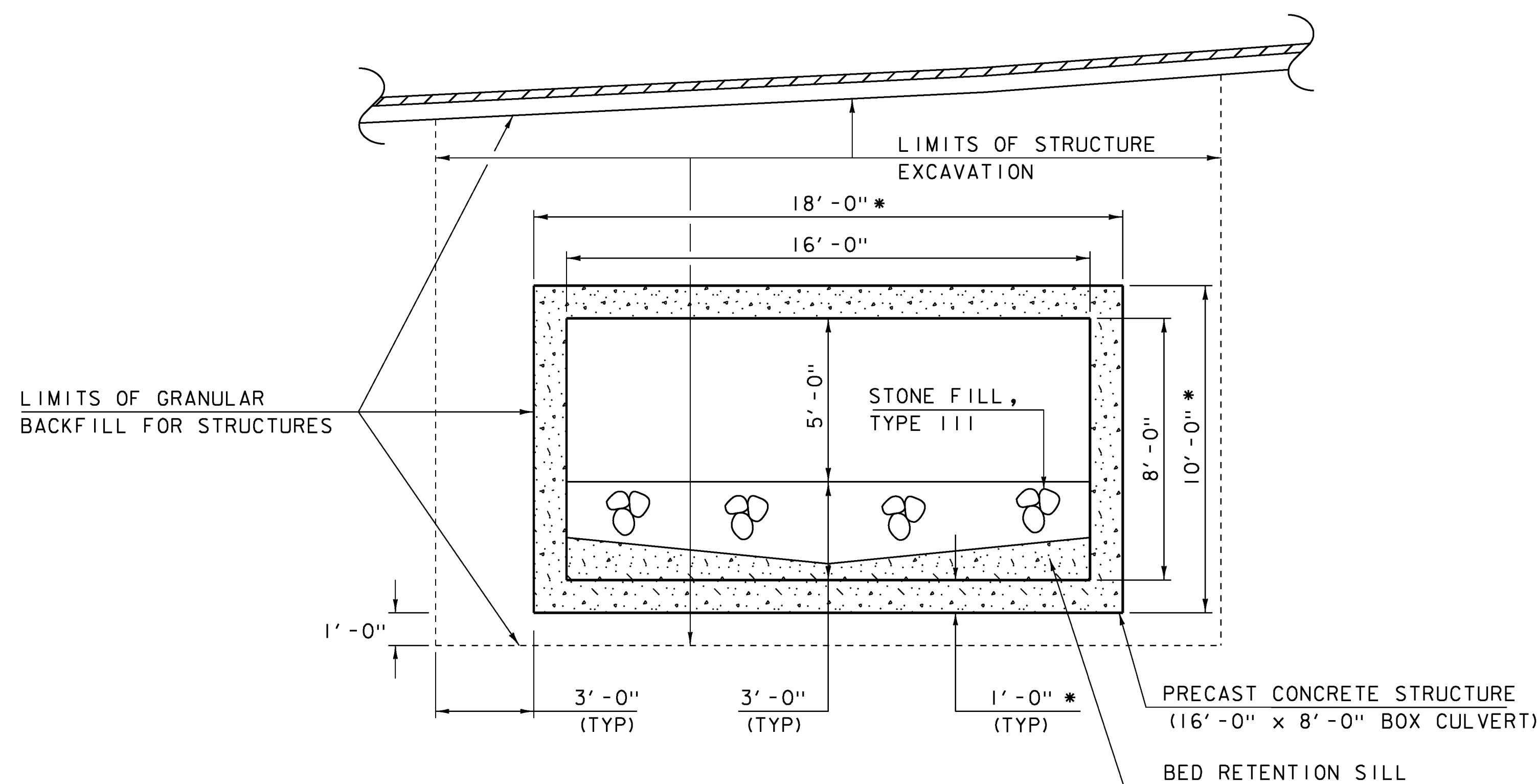
\*GRUBBING MATERIAL SHALL NOT BE PLACED ON THE STONE FILL IN THE AREA UNDER THE BRIDGE. WHENEVER CHANNEL SLOPE INTERSECTS ROADWAY SUBBASE, GRUBBING MATERIAL SHALL BEGIN AT THE BOTTOM OF SUBBASE.



**SAFETY EDGE DETAIL**

NOT TO SCALE

NOTE: LEVELING COURSE MAY INCLUDE THE "SAFETY EDGE" AT THE CONTRACTOR'S CHOICE.



**BOX CULVERT TYPICAL SECTION**

SCALE 1" = 3'-0"

\* FOR ESTIMATING PURPOSES ONLY. ACTUAL DIMENSION SHALL BE DETERMINED BY THE CONTRACTOR

PROJECT NAME: JAMAICA  
PROJECT NUMBER: ER-BRF 015-1(23)

FILE NAME: s11b316typ.dgn  
PROJECT LEADER: K. HIGGINS  
DESIGNED BY: G. LAROCHE  
TYPICAL SECTIONS 2

PLOT DATE: 07-DEC-2012  
DRAWN BY: K. FRIEDLAND  
CHECKED BY: W. LAMMER  
SHEET 10 OF 82