

PRELIMINARY INFORMATION SHEET



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LIST OF STANDARDS		
A-76	STANDARD FOR DEVELOPMENT ROADS	3/3/2003
B-71	RESIDENTIAL AND COMMERCIAL DRIVES	7/8/2005
C-3A	SIDEWALK RAMPS	3/10/2008
D-3	TREATED GUTTERS	6/1/1994
D-6	REINFORCED CONCRETE DROP INLET W/ GRATE (DITCHES)	6/1/1994
D-15	PRECAST REINFORCED CONC. MH-GRATES (BICYCLE SAFE) CAST IRON GRATE WITH FRAME, TYPE D CAST IRON GRATE WITH FRAME, TYPE E	6/1/1994
D-33	REINFORCED CONCRETE STRAIGHT HEADWALL	3/12/2007
E-100	CONSTRUCTION APPROACH SIGNS	1/2/2004
E-100A	SIDE ROAD CONSTRUCTION - APPROACH SIGNS	1/2/2004
E-101	CONSTRUCTION SIGN DETAILS	5/30/2003
E-102	CONSTRUCTION SIGN DETAILS	6/30/2003
E-102A	CONSTRUCTION SIGN DETAILS	5/1/2004
E-106	TRAFFIC CONTROL - MISCELLANEOUS	3/1/2004
E-107	DELINEATION, BARRICADES, AND DETOURS FOR CONSTRUCTION AREAS	6/30/2003
E-107A	BREAKAWAY BARRICADE DETAILS	6/8/2009
E-121	STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD	8/8/1995
E-138	MILEMARKER DETAILS - STATE & TOWN HIGHWAYS	5/30/2003
E-141	REGULATORY SIGN DETAILS	9/20/1995
E-142	REGULATORY SIGN DETAILS	9/20/1995
E-143	REGULATORY SIGN DETAILS	6/15/2004
E-164	SQUARE STEEL SIGN POST	6/8/2009
E-191	PAVEMENT MARKING DETAILS	2/1/1999
E-193	PAVEMENT MARKING DETAILS	8/18/1995
G-1	STEEL BEAM GUARDRAIL (50MPH & OVER) HEAVY DUTY STEEL BEAM GUARDRAIL TWISTED END TERMINAL ANCHOR FOR STEEL BEAM RAIL	1/3/2000
G-1D	STEEL BEAM GUARDRAIL (40MPH & LESS) HEAVY DUTY STEEL BEAM GUARDRAIL STEEL BEAM MEDIAN BARRIER ANCHOR FOR STEEL BEAM RAIL	1/3/2000
SB-R6-82M	BRIDGE RAILING - HEAVY DUTY STEEL BEAM	7/10/1997

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA Date: Dec. 11, 2009

DRAINAGE AREA : 79.38 Square Kilometers
 CHARACTER OF TERRAIN : Mountainous and Wooded
 STREAM CHARACTERISTICS : Sinuous, Non-Alluvial, Stable Channel
 NATURE OF STREAMBED : Boulders to Cobles

PEAK FLOW DATA

Q 2.33 =	39.6 cms	Q 50 =	151.5 cms
Q 10 =	87.8 cms	Q 100 =	179.8 cms
Q 25 =	124.6 cms	Q 500 =	305.7 cms

DATE OF FLOOD OF RECORD : unknown
 ESTIMATED DISCHARGE : unknown
 WATER SURFACE ELEV. : unknown
 NATURAL STREAM VELOCITY : @ Q25 = 5.2 m/s
 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: 3.7% HEADWATERS: X
 UNIFORM: _____
 IMMEDIATELY ABOVE SITE: _____

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Single Span Steel Beam Bridge w/ concrete slab.
 YEAR BUILT: 1948
 CLEAR SPAN(NORMAL TO STREAM): 27.5 m
 VERTICAL CLEARANCE ABOVE STREAMBED: 6.0 m
 WATERWAY OF FULL OPENING: 109 sm
 DISPOSITION OF STRUCTURE: Rehabilitation
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: unknown

WATER SURFACE ELEVATIONS AT:

Q2.33 =	376.5 m	VELOCITY=	3.2 m/s
Q10 =	377.0 m	"	4.2 m/s
Q25 =	377.4 m	"	4.7 m/s
Q50 =	377.8 m	"	4.9 m/s
Q100 =	378.1 m	"	5.2 m/s

LONG TERM STREAMBED CHANGES: Channel is stable with some sliding and settlement of heavy stone fill in front of abutments.

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: above Q100
 RELIEF ELEVATION: 380.7 m
 DISCHARGE OVER ROAD @Q100: None

UPSTREAM STRUCTURE

TOWN: Readsboro DISTANCE: 1,500 m
 HIGHWAY #: VT 100 STRUCTURE #: 23
 CLEAR SPAN: 9.1 m CLEAR HEIGHT: 4.6 m
 YEAR BUILT: 1970 FULL WATERWAY: 39 sm
 STRUCTURE TYPE: Concrete arch

DOWNSTREAM STRUCTURE

TOWN: Readsboro DISTANCE: 460 m
 HIGHWAY #: TH2 STRUCTURE #: 32
 CLEAR SPAN: 36 m total CLEAR HEIGHT: 5.5 m
 YEAR BUILT: reconstructed 1967 FULL WATERWAY: 190 sm
 STRUCTURE TYPE: 2 span steel beam bridge with concrete deck.

LRFR LOAD RATING (TONS)

LOADING LEVELS	TRUCK					
	HL-93	3S2	6 AXLE	3A. STR.	4A. STR.	5A. SEMI
INVENTORY	48.51	84.18	97.35	69.12	70.37	81.55
OPERATING	63.03	109.44	126.8	89.64	91.45	105.7

COMMENTS: SERVICE II CONTROLS

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2009	310	65	63	9.2	25
2029	380	70	63	11.9	40

20 year ESAL for flexible pavement from 2009 to 2029 : 67,000
 40 year ESAL for flexible pavement from 2009 to 2049 : 129,000
 Design Speed : 40 km/h

PROPOSED STRUCTURE

STRUCTURE TYPE: New single span bridge, with concrete deck on steel plate girders

CLEAR SPAN(NORMAL TO STREAM): 27.5 m
 VERTICAL CLEARANCE ABOVE STREAMBED: 5.9 m
 WATERWAY OF FULL OPENING: 112 sm

WATER SURFACE ELEVATIONS AT:

Q2.33 =	376.5 m	VELOCITY=	3.2 m/s
Q10 =	377.0 m	"	4.2 m/s
Q25 =	377.4 m	"	4.7 m/s
Q50 =	377.8 m	"	4.9 m/s
Q100 =	378.1 m	"	5.2 m/s

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: above Q 100
 RELIEF ELEVATION: 381.3 m
 DISCHARGE OVER ROAD @Q100: None

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 379.7 m
 VERTICAL CLEARANCE: @ Q25 = 2.3 m

SCOUR: Q100 contraction scour = 0.5 m and Q500 contraction scour = 1.1 m

REQUIRED CHANNEL PROTECTION: Type IV Stone Fill

PERMIT INFORMATION

AVERAGE DAILY FLOW: 2 cms DEPTH OR ELEVATION:
 ORDINARY LOW WATER: 1 cms 0.3 m
 ORDINARY HIGH WATER: 35 cms 1.0 m

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: Bridge (Must be removed before winter)
 CLEAR SPAN (NORMAL TO STREAM): 20 m minimum *
 VERTICAL CLEARANCE ABOVE STREAMBED: Elevation 377.3 m minimum *
 WATERWAY AREA OF FULL OPENING: 52 sm minimum *

ADDITIONAL INFORMATION

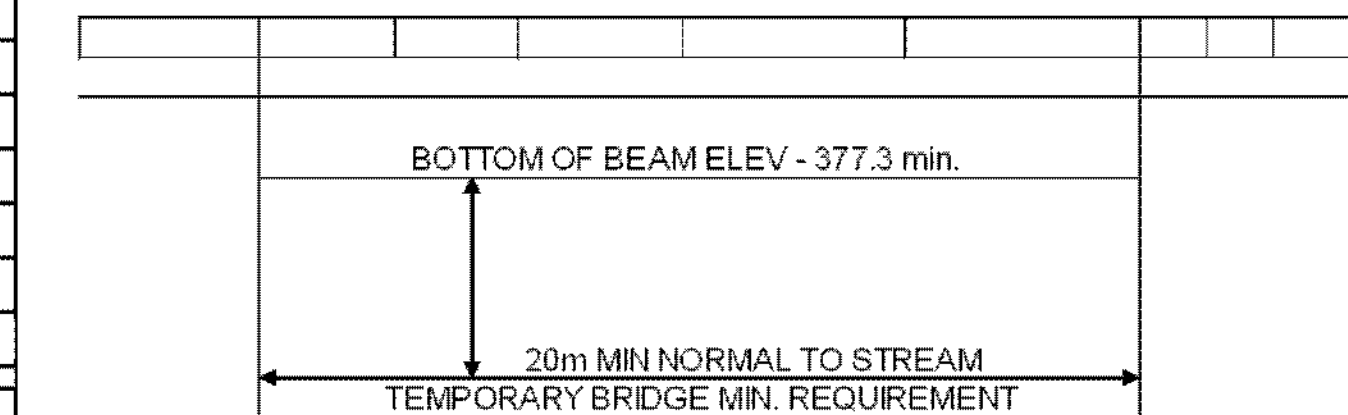
* A larger temporary bridge may be required to fit the site conditions.
 No temporary fill should be placed that will reduce the waterway area below elevation 377.0 m.

DESIGN CRITERIA

- DESIGN LIVE LOAD AASHTO HL-93
- DESIGN SPAN 29.5 METERS
- MAX. FACTORED BEARING RESISTANCE ON SOIL 300 kPa
ON LEDGE N/A
- ALLOWABLE LOAD FOR PILING N/A
TYPE N/A
ESTIMATED LENGTH N/A
- STRUCTURAL STEEL AASHTO M270M/M270 GRADE 345W
- REINFORCING STEEL GRADE 420
- CONCRETE, HIGH PERFORMANCE CLASS A f_c: 30 Mpa
CONCRETE, HIGH PERFORMANCE CLASS B f_c: 25 Mpa
CONCRETE, CLASS B f_c: 25 Mpa
- DESIGN SOIL UNIT WEIGHT 22.00 kN/m³
- DESIGN FACTORED BEARING RESISTANCE ON SOIL 299 Kpa
- RESISTANCE FACTOR USED 0.45

TRAFFIC MAINTENANCE

- IS TRAFFIC TO BE MAINTAINED? YES
IF YES, ON EXISTING STRUCTURE? NO
OR ON TEMPORARY BRIDGE? YES
ONE OR TWO-WAY TRAVEL? ONE-WAY
- TRAFFIC CONTROL SIGNALS REQUIRED? NO
- ARE SIDEWALKS REQUIRED? NO
IF SO, ON WHAT SIDE?



PROJECT NAME: READSBORO
 PROJECT NUMBER: BRO 1441(25)

FILE NAME: /TransFANS/94j070/sj070pi.xls PLOT DATE: 4/13/2010
 PROJECT MANAGER: C.P. WILLIAMS DRAWN BY: H.I. SALLS
 DESIGNED BY: H.I. SALLS CHECKED BY: K.M. HIGGINS
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