

PRELIMINARY INFORMATION SHEET



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LIST OF STANDARDS

B-5M	1-03-00
E-100A	1-02-04
E-100	1-02-04
E-101	5-30-03
E-102A	5-01-04
E-102	6-30-03
E-107A	8-08-95
E-107	6-30-03
E-121	8-08-95
G-1dM	1-03-00
G-1M	1-03-00
SB-R6-82M	7-10-97

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA Date: February 2000

DRAINAGE AREA : 61.4 sq. km
 CHARACTER OF TERRAIN : Mountainous uplands with a wide valley at site.
 STREAM CHARACTERISTICS : Alluvial, sinuous, probably incised, flat slope, wide flood plain.
 NATURE OF STREAMBED : Gravel, cobbles, and a few boulders.

PEAK FLOW DATA

Q 2.33 =	14 cms	Q 50 =	48 cms
Q 10 =	28 cms	Q 100 =	60 cms
Q 25 =	40 cms	Q 500 =	99 cms

DATE OF FLOOD RECORD : November 1927
 ESTIMATED DISCHARGE : N/A
 WATER SURFACE ELEV. : N/A
 NATURAL STREAM VELOCITY @ Q25 = 1.4 mps
 ICE CONDITIONS : Moderate
 DEBRIS : Moderate
 DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? No
 IS ORDINARY RISE RAPID? No
 IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? No
 IF YES, DESCRIBE:

WATERSHED STORAGE: 6% HEADWATERS: X
 UNIFORM: _____
 IMMEDIATELY ABOVE SITE: _____

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Single span steel beam bridge
 YEAR BUILT: 1949
 CLEAR SPAN(NORMAL TO STREAM): 10.1 m
 VERTICAL CLEARANCE ABOVE STREAMBED: 2.4 m
 WATERWAY OF FULL OPENING: 20 m
 DISPOSITION OF STRUCTURE: Remove
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: See Boring Log Sheets

WATER SURFACE ELEVATIONS AT:

Q2.33 =	204.6 m	VELOCITY =	1.8 mps
Q10 =	205.2 m	"	2.5 mps
Q25 =	205.6 m	"	2.9 mps
Q50 =	205.8 m	"	3.0 mps
Q100 =	206.0 m	"	2.9 mps

LONG TERM STREAMBED CHANGES: There is a 0.5 m deep pool upstream of the bridge & minor scour at the bridge

IS THE ROADWAY OVERTOPPED BELOW Q100: Yes
 FREQUENCY: Q15
 RELIEF ELEVATION: 205.5 m
 DISCHARGE OVER ROAD @Q100: 8 cms

UPSTREAM STRUCTURE

TOWN: Clarendon DISTANCE: 3.4 km
 HIGHWAY #: T.H. 10 STRUCTURE #: 25
 CLEAR SPAN: 7.0 m CLEAR HEIGHT: 1.2 m
 YEAR BUILT: N.A. FULL WATERWAY: 8.4 sq. m
 STRUCTURE TYPE: Single span steel beam bridge with wood deck.

DOWNSTREAM STRUCTURE

TOWN: West Rutland DISTANCE: 3.7 km
 HIGHWAY #: T.H. 17 STRUCTURE #: 14
 CLEAR SPAN: 11.0 m CLEAR HEIGHT: 1.5 m
 YEAR BUILT: N.A. FULL WATERWAY: 42 sq. m
 STRUCTURE TYPE: Single span steel beam bridge with conc. deck.

LOAD FACTOR- LOAD RATING (METRIC TONS)

LOADING LEVELS	TRUCK						
	M	MS	3S2	6 AXLE	3A. STR.	4A. STR.	SA SEMI
INVENTORY	34	46					
POSTED	36	48	61		45	46	55
OPERATING		50	65	78	48	48	

COMMENTS: STRENGTH RF = $\frac{\phi M_N - 1.3 M_{DL}}{A \times M_{LL} + I}$

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2002	70	10	54	21	10
2022	90	15	54	21	15

20 year ESAL for flexible pavement from 2002 to 2022 : 107,000
 40 year ESAL for flexible pavement from 2002 to 2042 : 241,000
 Design Speed : 40 km/h

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span prestressed concrete voided slab bridge

CLEAR SPAN(NORMAL TO STREAM): 17.4 m
 VERTICAL CLEARANCE ABOVE STREAMBED: 3.0 m
 WATERWAY OF FULL OPENING: 45 sq. m

WATER SURFACE ELEVATIONS AT:

Q2.33 =	204.5 m	VELOCITY =	1.2 mps
Q10 =	204.9 m	"	1.5 mps
Q25 =	205.2 m	"	1.7 mps
Q50 =	205.4 m	"	1.9 mps
Q100 =	205.7 m	"	2.1 mps

IS THE ROADWAY OVERTOPPED BELOW Q100: Yes
 FREQUENCY: Q55
 RELIEF ELEVATION: 205.5 m
 DISCHARGE OVER ROAD @Q100: 1 cms

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 206.1 m
 VERTICAL CLEARANCE @ Q100 = 0.4 m

SCOUR: 0.3 m of contraction scour at Q100 and Q500

REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

PERMIT INFORMATION

AVERAGE DAILY FLOW:	1.4 cms	DEPTH OR ELEVATION:	
ORDINARY LOW WATER:	0.7 cms	Elev. 203.5 m	
ORDINARY HIGH WATER:	6.1 cms	Elev. 204.0 m	

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: Single span bridge
 CLEAR SPAN (NORMAL TO STREAM): 10 m minimum
 VERTICAL CLEARANCE ABOVE STREAMBED: Bottom of beams elev. 205.5 minimum
 WATERWAY AREA OF FULL OPENING: 18 sq. m minimum

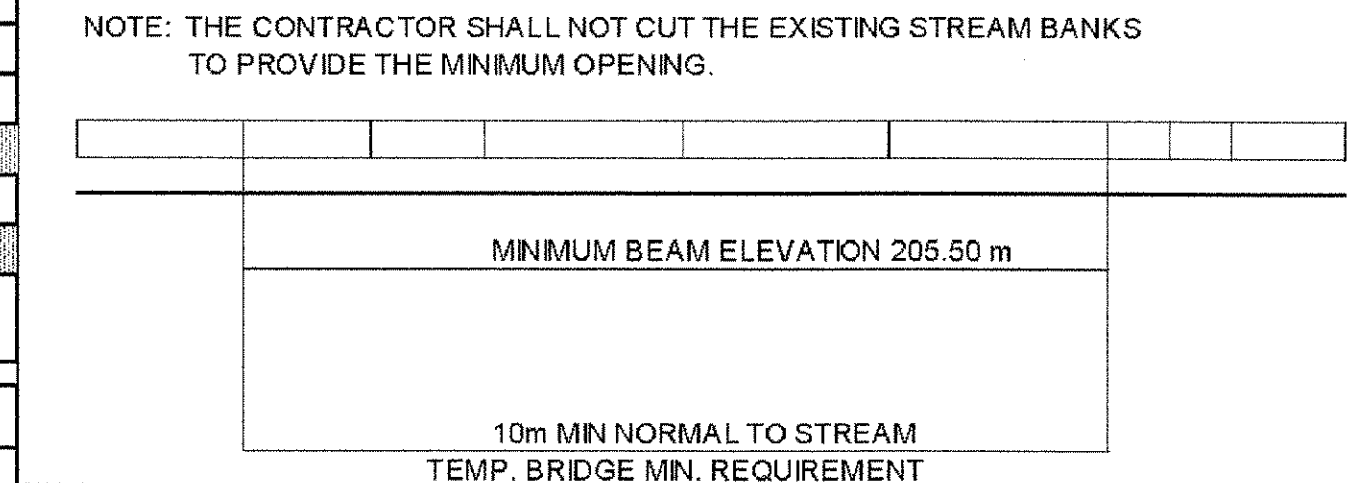
ADDITIONAL INFORMATION

DESIGN CRITERIA

- DESIGN LIVE LOAD AASHTO MS 22.5
- DESIGN SPAN 18.3 m
- ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL N/A
ON LEDGE 480 k Pa (Abutment No. 2)
- DESIGN LOAD FOR PILING 400 kN
TYPE HP 310 x 79
ESTIMATED LENGTH 4.500 m (Abutment No. 1)
- STRUCTURAL STEEL AASHTO M270/M270M GRADE N/A
- REINFORCING STEEL GRADE 420
- ALLOWABLE STRESS FOR CONCRETE
HIGH PERFORMANCE CLASS AA f'c: 30 Mpa
HIGH PERFORMANCE CLASS B f'c: 25 Mpa
- SOIL UNIT WEIGHT 22 kN/m³
- DESIGN LOAD FOR SPREAD FOOTINGS ON SOIL N/A

TRAFFIC MAINTENANCE

1. IS TRAFFIC TO BE MAINTAINED? YES
 IF YES, ON EXISTING STRUCTURE? NO
 OR ON TEMPORARY BRIDGE? YES
 2. ONE OR TWO-WAY TRAVEL? ONE
 TRAFFIC CONTROL SIGNALS REQUIRED? NO



PROJECT NAME: CLARENDON
 PROJECT NUMBER: BRO 1443(34)

FILE NAME: /str1/95j286/sj286pi.xls
 PROJECT MANAGER: R. WHITCOMB
 DESIGNED BY: C. CARLSON
 PRELIMINARY INFORMATION SHEET

PLOT DATE: 9/1/2005
 DRAWN BY: J. GILMORE
 CHECKED BY: C. CARLSON
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