

PRELIMINARY INFORMATION SHEET



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VTRANS STANDARD DRAWINGS

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA Date: 09/19/01
 DRAINAGE AREA : 77 sq. km
 CHARACTER OF TERRAIN : wooded, mountainous, rural
 STREAM CHARACTERISTICS : semi-alluvial, straight, not braided or anabranching
 NATURE OF STREAMBED : mostly cobbles

PEAK FLOW DATA
 Q 2.33 = 45 cms Q 50 = 130 cms
 Q 10 = 85 cms Q 100 = 150 cms
 Q 25 = 110 cms Q 500 = 200 cms

DATE OF FLOOD RECORD : unknown
 ESTIMATED DISCHARGE : unknown
 WATER SURFACE ELEV. : unknown
 NATURAL STREAM VELOCITY : @ Q25 = 3.2 mps
 ICE CONDITIONS : light to 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:

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

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Steel beam bridge
 YEAR BUILT: 1939 (recon. 1973)
 CLEAR SPAN(NORMAL TO STREAM): 17.6 m
 VERTICAL CLEARANCE ABOVE STREAMBED: 3.9 m (ave. low bm. el. = 296.3m)
 WATERWAY OF FULL OPENING: 62.2 sq. m
 DISPOSITION OF STRUCTURE: removal
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: Refer to borings if available.

WATER SURFACE ELEVATIONS AT:
 Q2.33 = 294.0 m VELOCITY = 2.4 mps
 Q10 = 294.6 m " 2.9 mps
 Q25 = 295.0 m " 3.2 mps
 Q50 = 295.2 m " 3.6 mps
 Q100 = 295.5 m " 3.8 mps

LONG TERM STREAMBED CHANGES: none noted

IS THE ROADWAY OVERTOPPED BELOW Q100: no
 FREQUENCY: greater than Q100
 RELIEF ELEVATION: approx. 295.7 m
 DISCHARGE OVER ROAD @Q100: none

UPSTREAM STRUCTURE

TOWN: Lincoln DISTANCE: 800 m
 HIGHWAY #: TH 1 (SA - 1) STRUCTURE #: BR 19
 CLEAR SPAN: 35 m CLEAR HEIGHT: 4.3 m
 YEAR BUILT: 1934 FULL WATERWAY: unknown
 STRUCTURE TYPE: 2 - span steel beam bridge

DOWNSTREAM STRUCTURE

TOWN: Lincoln DISTANCE: 2600 m
 HIGHWAY #: TH 6 STRUCTURE #: BR 46
 CLEAR SPAN: 18 m CLEAR HEIGHT: 4.8 m
 YEAR BUILT: 1899 FULL WATERWAY: unknown
 STRUCTURE TYPE: Pony truss bridge

PROPOSED STRUCTURE

STRUCTURE TYPE: steel beam bridge
 CLEAR SPAN(NORMAL TO STREAM): 20.7 m
 VERTICAL CLEARANCE ABOVE STREAMBED: 3.2 m
 WATERWAY OF FULL OPENING: 55.1 sq. m

WATER SURFACE ELEVATIONS AT:
 Q2.33 = 294.0 m VELOCITY = 2.7 mps
 Q10 = 294.6 m " 2.9 mps
 Q25 = 294.9 m " 3.0 mps
 Q50 = 295.1 m " 3.3 mps
 Q100 = 295.3 m " 3.6 mps

IS THE ROADWAY OVERTOPPED BELOW Q100: no
 FREQUENCY: greater than Q100
 RELIEF ELEVATION: approx. 296.0 m
 DISCHARGE OVER ROAD @Q100: none

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 295.6 m
 VERTICAL CLEARANCE: @ Q25 = 0.7 m

SCOUR: 0.1 m contraction scour at Q500

REQUIRED CHANNEL PROTECTION: Type III Stone Fill

PERMIT INFORMATION

AVERAGE DAILY FLOW: 1.7 cms DEPTH OR ELEVATION:
 ORDINARY LOW WATER: 0.8 cms 0.3 m
 ORDINARY HIGH WATER: 19.3 cms 1.0 m

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: single span bridge (to be removed before winter)
 CLEAR SPAN (NORMAL TO STREAM): 14 m min.
 VERTICAL CLEARANCE ABOVE STREAMBED: Low beam el. = 295.2 m min.
 WATERWAY AREA OF FULL OPENING: 35.5 sq. m min.

ADDITIONAL INFORMATION

DESIGN CRITERIA

- DESIGN LIVE LOAD AASHTO MS 22.5
- DESIGN SPAN 28m CENTER TO CENTER OF BEARINGS
- ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL 190 kPa
ON LEDGE N/A
- ALLOWABLE LOAD FOR PILING N/A
TYPE N/A
ESTIMATED LENGTH N/A
- STRUCTURAL STEEL AASHTO M270/MM270 GRADE 345W
- REINFORCING STEEL GRADE 420
- CONCRETE, HIGH PERFORMANCE CLASS A fc: 30 Mpa
CONCRETE, HIGH PERFORMANCE CLASS B fc: 25 Mpa
- DESIGN SOIL UNIT WEIGHT 22.00 kN/m³
- DESIGN LOAD FOR SPREAD FOOTINGS ON SOIL 177 kPa

TRAFFIC MAINTENANCE

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

LOAD FACTOR - LOAD RATING (METRIC TONS)

LOADING LEVELS	TRUCK						
	M	MS	3S2	6 AXLE	3A. STR.	4A. STR.	5A. SEMI
INVENTORY	47	64					
POSTED	66	90	107		83	85	98
OPERATING		108	128	153	99	101	

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2003	410	55	59	<1	5
2023	540	75	59	<1	10

20 year ESAL for flexible pavement from 2003 to 2023 : 53,000
 40 year ESAL for flexible pavement from 2003 to 2043 : 121,000
 Design Speed : 30 km/h

PROJECT NAME: LINCOLN

PROJECT NUMBER: BRO 1445 (25)

FILE NAME: s96j266pi.xls PLOT DATE: 2/5/2009
 PROJECT MANAGER: R. WHITCOMB DRAWN BY: T. LACKEY
 DESIGNED BY: S. SCRIBNER CHECKED BY: R. WHITCOMB
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