

PRELIMINARY INFORMATION SHEET



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LIST OF STANDARDS

B-71M	02-01-2004
E-100	01-02-2004
E-101	05-30-2003
E-102	06-30-2003
E-102A	05-01-2004
E-106	03-01-2004
E-107	06-30-2003
E-107A	08-08-1995
E-110	08-08-1995
E-121	08-08-1995
E-142	09-20-1995
E-143	06-15-2004
E-150	05-01-2004
E-152	05-01-2004
E-160	05-20-1999
E-190	06-30-2003
E-193	08-18-1995
G-1M	01-03-2000
G-1dM	01-03-2000
G-18M	06-13-1997
J-3M	06-13-1997

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: February 2000

DRAINAGE AREA : 1270 sq. km
 CHARACTER OF TERRAIN : Flat at site, to hilly and mountainous upstream, mixed cover.
 STREAM CHARACTERISTICS : Alluvial, sinuous, probably incised, flat slope, wide flood plain.
 NATURE OF STREAMBED : Fine material, mostly clay and silt.

PEAK FLOW DATA

Q 2.33 =	120 cms	Q 50 =	405 cms
Q 10 =	260 cms	Q 100 =	465 cms
Q 25 =	345 cms	Q 500 =	620 cms

DATE OF FLOOD RECORD : November 1927
 ESTIMATED DISCHARGE : 485 cms +/-
 WATER SURFACE ELEV. : 109 m +/-
 NATURAL STREAM VELOCITY : @ Q25 = 1.2 mps
 ICE CONDITIONS : Moderate
 DEBRIS : Low to moderate
 DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? No
 IS ORDINARY RISE RAPID? No
 IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? Yes
 IF YES, DESCRIBE : Water surface elevations at this site are controlled by a dam downstream approximately 10 miles, in Middlebury. Top of dam at elevation 102.4 m.

WATERSHED STORAGE : * HEADWATERS : * There is a lot of floodplain immediately ABOVE SITE: storage upstream

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE : 3-span steel beam bridge with concrete deck
 YEAR BUILT : 1932
 CLEAR SPAN(NORMAL TO STREAM): 43 m
 VERTICAL CLEARANCE ABOVE STREAMBED: 6.5 m
 WATERWAY OF FULL OPENING: 181 sq. m
 DISPOSITION OF STRUCTURE: Remove
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: Clay

WATER SURFACE ELEVATIONS AT:

Q2.33 =	105.1 m	VELOCITY=	1.0 mps
Q10 =	106.2 m	"	1.6 mps
Q25 =	106.6 m	"	1.9 mps
Q50 =	107.1 m	"	2.2 mps
Q100 =	107.3 m	"	2.0 mps

LONG TERM STREAMBED CHANGES: None noted.

IS THE ROADWAY OVERTOPPED BELOW Q100: Yes
 FREQUENCY: Q15
 RELIEF ELEVATION: 106.4 m
 DISCHARGE OVER ROAD @Q100: 170 cms

UPSTREAM STRUCTURE

TOWN: Leicester DISTANCE: 122 m
 HIGHWAY#: VT Railway STRUCTURE #: -
 CLEAR SPAN: 49 m CLEAR HEIGHT: 4.0 m +/-
 YEAR BUILT: - FULL WATERWAY: -
 STRUCTURE TYPE: Single span steel truss bridge.

DOWNSTREAM STRUCTURE

TOWN: Salisbury DISTANCE: 4.8 km
 HIGHWAY#: T.H. 1 STRUCTURE #: 8
 CLEAR SPAN: 37 m CLEAR HEIGHT: 7.3 m
 YEAR BUILT: 1865 FULL WATERWAY: -
 STRUCTURE TYPE: Covered Bridge

LOAD FACTOR - LOAD RATING (TONS)

LOADING LEVELS	TRUCK						
	M	MS	3S2	6 AXLE	3A. STR.	4A. STR.	SA. SEMI
INVENTORY	37	57					
POSTED	52	80	90		75	76	85
OPERATING		96	108	121	90	91	

COMMENTS:

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2002	1150	160	56	2	60
2022	1530	215	56	2	65

20 year ESAL for flexible pavement from 2002 to 2022 : 539,000
 40 year ESAL for flexible pavement from 2002 to 2042 : 1,300,000
 Design Speed : 65 km/h

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span steel girder bridge, with concrete deck.
 CLEAR SPAN(NORMAL TO STREAM): 32.7 m
 VERTICAL CLEARANCE ABOVE STREAMBED: 6.7 m
 WATERWAY OF FULL OPENING: 174 sq. m

WATER SURFACE ELEVATIONS AT:

Q2.33 =	105.1	VELOCITY=	1.0 mps
Q10 =	106.2	"	1.7 mps
Q25 =	106.6	"	2.1 mps
Q50 =	106.9	"	2.2 mps
Q100 =	107.3	"	2.1 mps

IS THE ROADWAY OVERTOPPED BELOW Q100: Yes
 FREQUENCY: Q15
 RELIEF ELEVATION: 106.4
 DISCHARGE OVER ROAD @Q100: 97 cms

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 106.8 m
 VERTICAL CLEARANCE: @ Q25 = 0.2 m

SCOUR: Contraction scour = 0.9 m @ Q100, 2.4 m @ Q500

REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

PERMIT INFORMATION

AVERAGE DAILY FLOW: 30 cms DEPTH OR ELEVATION:
 ORDINARY LOW WATER: 15 cms Elev. 103.0 m
 ORDINARY HIGH WATER: 50 cms Elev. 104.0 m

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: Single span bridge
 CLEAR SPAN (NORMAL TO STREAM): 32 m minimum
 VERTICAL CLEARANCE ABOVE STREAMBED: Low steel elev. 106.6 minimum
 WATERWAY AREA OF FULL OPENING: 160 sq. m minimum

ADDITIONAL INFORMATION

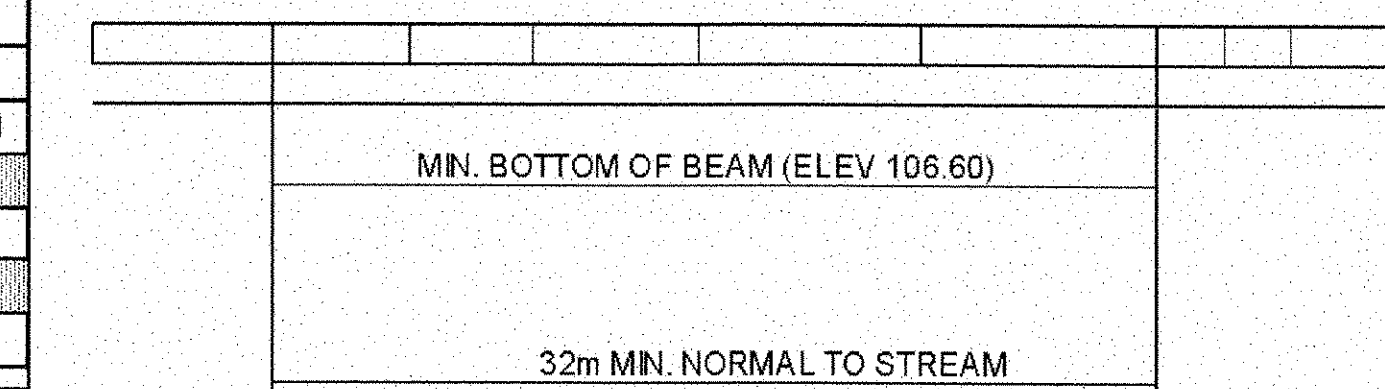
Water surface elevations at this site are controlled by a downstream dam in Middlebury. Starting water surface elevations are taken from the 1984 Middlebury Flood Insurance Study. There is a very wide flood plain at this site. The project survey does not extend far enough to accurately model the hydraulics. The information in this report is based on the survey available.

DESIGN CRITERIA

1. DESIGN LIVE LOAD AASHTO : MS 22.5
2. DESIGN SPAN : 33.50 m
3. ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL : N/A
ON LEDGE : N/A
4. DESIGN LOAD FOR PILING : 600 kN
TYPE : HP 360 x 108 ASTM A572/A572M GR 345
ESTIMATED LENGTH : SEE BORING LOGS
5. STRUCTURAL STEEL AASHTO M270/M270M GRADE : 345W
6. REINFORCING STEEL GRADE : 420
7. CONCRETE CLASS A (HPC-A) f'c : 30 Mpa
CONCRETE CLASS B (HPC-B) f'c : 25 Mpa
8. SOIL UNIT WEIGHT
9. 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
 ONE OR TWO-WAY TRAVEL? TWO
2. TRAFFIC CONTROL SIGNALS REQUIRED? NO



TEMPORARY BRIDGE DETAIL

PROJECT NAME: LEICESTER
 PROJECT NUMBER: BRF 0160(3)S
 FILE NAME: \PW\95\288\Structures\sj288pi.xls PLOT DATE: 04/01/2005
 PROJECT MANAGER: R. R. WHITCOMB DRAWN BY: J. GILMORE
 DESIGNED BY: C. CARLSON CHECKED BY: C. CARLSON
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