

PRELIMINARY INFORMATION SHEET

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STANDARDS	DATE
B-71 RESIDENTIAL AND COMMERCIAL DRIVES	7/8/2005
G-1 STEEL BEAM GUARDRAIL (50MPH & LESS) 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
G-17a MODIFIED ECENTRIC LOADER TERMINAL (MELT)	9/27/2002
G-18 PRECAST CONCRETE TEMPORARY TRAFFIC BARRIER	6/1/1994

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: October 2006

DRAINAGE AREA: 1.9 sq. mi.
 CHARACTER OF TERRAIN: Hilly, mostly open areas with some woods.
 STREAM CHARACTERISTICS: Small, sinuous stream. Probably incised.
 NATURE OF STREAMBED: Gravel and cobbles.

PEAK FLOW DATA

Q 2.33 = 65 cfs	Q 50 = 230 cfs
Q 10 = 150 cfs	Q 100 = 275 cfs
Q 25 = 190 cfs	Q 500 = 385 cfs

DATE OF FLOOD OF RECORD: Unknown
 ESTIMATED DISCHARGE: Unknown
 WATER SURFACE ELEV.: Unknown
 NATURAL STREAM VELOCITY: @ Q50 = 8.9 fps (0.8 fps)*
 ICE CONDITIONS: Moderate
 DEBRIS: Light
 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: This site is 180' upstream of the confluence with the New Haven River.
 Hydraulics at this site are controlled by that river during high flows.

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

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Corrugated Metal Plate Arch. This structure has failed & is not in use.
 YEAR BUILT: Unknown
 CLEAR SPAN (NORMAL TO STREAM): 14'
 VERTICAL CLEARANCE ABOVE STREAMBED: 6'
 WATERWAY OF FULL OPENING: 73.2 sq. ft.
 DISPOSITION OF STRUCTURE: Remove
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: Unknown

WATER SURFACE ELEVATIONS AT:

Q2.33 = 333.8' (333.8)*	VELOCITY = 7.5 fps (7.5 fps)*
Q10 = 334.5' (338.8)*	" 8.4 fps (1.1 fps)*
Q25 = 334.8' (339.7)*	" 8.7 fps (0.9 fps)*
Q50 = 335.0' (340.5)*	" 8.9 fps (0.7 fps)*
Q100 = 335.2' (341.1)*	" 9.0 fps (0.6 fps)*

LONG TERM STREAMBED CHANGES: Possible deposition upstream.

IS THE ROADWAY OVERTOPPED BELOW Q100: No (Yes)*
 FREQUENCY: Above Q100 (Between Q25 and Q50)*
 RELIEF ELEVATION: 340.0'
 DISCHARGE OVER ROAD @Q100: None (100 cfs)*

UPSTREAM STRUCTURE

TOWN: None DISTANCE: _____
 HIGHWAY #: _____ STRUCTURE #: _____
 CLEAR SPAN: _____ CLEAR HEIGHT: _____
 YEAR BUILT: _____ FULL WATERWAY: _____
 STRUCTURE TYPE: _____

DOWNSTREAM STRUCTURE

TOWN: N.A. - confluence with the New Haven River DISTANCE: 180'
 HIGHWAY #: _____ STRUCTURE #: _____
 CLEAR SPAN: _____ CLEAR HEIGHT: _____
 YEAR BUILT: _____ FULL WATERWAY: _____
 STRUCTURE TYPE: _____

XXXX LOAD RATING (TONS)

LOADING LEVELS	TRUCK						
	H	HS	3S2	6 AXLE	3A. STR.	4A. STR.	5A. SEMI
INVENTORY							
POSTED							
OPERATING							

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2000	4200				

20 year ESAL for flexible pavement from _____ to _____
 40 year ESAL for flexible pavement from _____ to _____
 Design Speed: 40 mph

PROPOSED STRUCTURE

STRUCTURE TYPE: Precast concrete box
 CLEAR SPAN (NORMAL TO STREAM): 14'
 VERTICAL CLEARANCE ABOVE STREAMBED: 5' Maximum (4.7' average)
 WATERWAY OF FULL OPENING: 65 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 = 333.8' (333.8)*	VELOCITY = 7.5 fps (7.5 fps)*
Q10 = 334.5' (338.8)*	" 8.4 fps (1.1 fps)*
Q25 = 334.8' (339.6)*	" 8.7 fps (0.9 fps)*
Q50 = 335.0' (340.5)*	" 8.9 fps (0.7 fps)*
Q100 = 335.2' (341.1)*	" 9.0 fps (0.7 fps)*

IS THE ROADWAY OVERTOPPED BELOW Q100: No (Yes)*
 FREQUENCY: Above Q100 (Between Q25 and Q50)*
 RELIEF ELEVATION: 340.0'
 DISCHARGE OVER ROAD @Q100: None (94 cfs)*

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 337.0' at inlet
 VERTICAL CLEARANCE: @ Q50 = 2.0' (-3.5)*

SCOUR: Not applicable to a box structure.

REQUIRED CHANNEL PROTECTION: Stone Fill, Type II

PERMIT INFORMATION

AVERAGE DAILY FLOW: 4 cfs DEPTH OR ELEVATION:
 ORDINARY LOW WATER: 2 cfs Depth = <0.5'
 ORDINARY HIGH WATER: 28 cfs Depth = 1.0'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: A temporary bridge is already in place.
 CLEAR SPAN (NORMAL TO STREAM): _____
 VERTICAL CLEARANCE ABOVE STREAMBED: _____
 WATERWAY AREA OF FULL OPENING: _____

ADDITIONAL INFORMATION

*The hydraulics at this site are controlled by the New Haven River. Some lines on this report have two answers. The first answer is based on low flows on the New Haven River, and therefore no effects from that river on the hydraulics. Answers in () represent equal frequency flows on both streams.

DESIGN CRITERIA

- DESIGN LIVE LOAD AASHTO HS 25
- DESIGN SPAN 15 FEET
- ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL 3 KSF
ON LEDGE
- ALLOWABLE LOAD FOR PILING N/A
TYPE ESTIMATED LENGTH
- STRUCTURAL STEEL AASHTO M270/M270 GRADE N/A
- REINFORCING STEEL GRADE 60
- CONCRETE, HIGH PERFORMANCE CLASS A fc: 4000 psi
CONCRETE, HIGH PERFORMANCE CLASS B fc: N/A
- DESIGN SOIL UNIT WEIGHT 140 PCF
- DESIGN LOAD FOR SPREAD FOOTINGS ON SOIL

TRAFFIC MAINTENANCE

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

PROJECT NAME: Bristol
 PROJECT NUMBER: ER ST 021-1 (22)

FILE NAME: s05b126excel.dgn PLOT DATE: 3/1/2007
 PROJECT LEADER: M. Evans-Mongeon DRAWN BY: L. Duquette
 DESIGNED BY: M. Evans-Mongeon CHECKED: G. Rokes
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