

# PRELIMINARY INFORMATION SHEET

INDEX OF SHEETS

FINAL HYDRAULIC REPORT

**HYDROLOGIC DATA** Date: April 2009

DRAINAGE AREA : 5.8 sq. mi.  
 CHARACTER OF TERRAIN : Hilly to mountainous, a mixture of forested and open areas  
 STREAM CHARACTERISTICS : Steep, sinuous  
 NATURE OF STREAMBED : Cobbles, gravel and ledge

PEAK FLOW DATA

Q 2.33 = 300 cfs	Q 50 = 1000 cfs
Q 10 = 600 cfs	Q 100 = 1200 cfs
Q 25 = 800 cfs	Q 500 = 1700 cfs

DATE OF FLOOD OF RECORD : Unknown  
 ESTIMATED DISCHARGE : Unknown  
 WATER SURFACE ELEV. : Unknown  
 NATURAL STREAM VELOCITY : @ Q50 = 12.8 fps at outlet  
 ICE CONDITIONS : 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: 12.0' CGMPP  
 YEAR BUILT: 1968  
 CLEAR SPAN(NORMAL TO STREAM): 12.0'  
 VERTICAL CLEARANCE ABOVE STREAMBED: 12.0'  
 WATERWAY OF FULL OPENING: 113 sq. ft.  
 DISPOSITION OF STRUCTURE: Insert liner  
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: Unknown

WATER SURFACE ELEVATIONS AT:

Q2.33 = 461.0'	VELOCITY = 12.7 fps
Q10 = 463.7'	" 15.6 fps
Q25 = 465.5'	" 16.9 fps
Q50 = 467.2'	" 17.9 fps
Q100 = 469.1'	" 18.7 fps

LONG TERM STREAMBED CHANGES: None noted

IS THE ROADWAY OVERTOPPED BELOW Q100: No  
 FREQUENCY: Above Q100  
 RELIEF ELEVATION: Above elevation 510'  
 DISCHARGE OVER ROAD @Q100: None

**UPSTREAM STRUCTURE**

TOWN: Sharon DISTANCE: 2800'  
 HIGHWAY #: TH 26 STRUCTURE #: 28  
 CLEAR SPAN: 12.5' CLEAR HEIGHT: 9.2'  
 YEAR BUILT: Unknown FULL WATERWAY: 78 sq. ft.  
 STRUCTURE TYPE: CGMPPA

**DOWNSTREAM STRUCTURE**

TOWN: Sharon DISTANCE: 250'  
 HIGHWAY #: VT 14 STRUCTURE #: 16  
 CLEAR SPAN: 12.0' CLEAR HEIGHT: 12.5'  
 YEAR BUILT: 1939 FULL WATERWAY: 150 sq. ft.  
 STRUCTURE TYPE: R.C. Box

**0 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
2007	6000	780	50	18	1.08

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

**PROPOSED STRUCTURE**

STRUCTURE TYPE: 11.0' CAAP liner, with full beveled inlet headwall

CLEAR SPAN(NORMAL TO STREAM): 11.0'  
 VERTICAL CLEARANCE ABOVE STREAMBED: 11.0'  
 WATERWAY OF FULL OPENING: 95 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 = 461.2'	VELOCITY = 12.9 fps
Q10 = 463.9'	" 15.7 fps
Q25 = 465.5'	" 16.9 fps
Q50 = 467.0'	" 17.8 fps
Q100 = 468.7'	" 18.5 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No  
 FREQUENCY: Above Q100  
 RELIEF ELEVATION: Above elevation 510'  
 DISCHARGE OVER ROAD @Q100: None

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 466.9' (Top of pipe at inlet)  
 VERTICAL CLEARANCE: @ Q50 = Inlet submerged at Q50

SCOUR: Not applicable for a culvert

REQUIRED CHANNEL PROTECTION: Stone Fill, Type IV or match existing as needed.

**PERMIT INFORMATION**

AVERAGE DAILY FLOW: 12 cfs DEPTH OR ELEVATION:  
 ORDINARY LOW WATER: 6 cfs Depth = 1.0'  
 ORDINARY HIGH WATER: 130 cfs Depth = 3.0'

**TEMPORARY BRIDGE REQUIREMENTS**

STRUCTURE TYPE: No temporary bridge required.  
 CLEAR SPAN (NORMAL TO STREAM): \_\_\_\_\_  
 VERTICAL CLEARANCE ABOVE STREAMBED: \_\_\_\_\_  
 WATERWAY AREA OF FULL OPENING: \_\_\_\_\_

**ADDITIONAL INFORMATION**

The above final hydraulics is based on the following information shown on the Preliminary Plans.  
 Existing 144" pipe inlet elev. = 455.4', outlet elev. 433.7', length = 558.6', slope = 3.9%  
 New 132" liner pipe inlet elev. = 455.9', outlet elev. 434.2', length = 558.6', slope = 3.9%

- DESIGN CRITERIA**
- DESIGN LIVE LOAD AASHTO: N/A
  - DESIGN SPAN: N/A
  - ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL: 4 ksf  
ON LEDGE: 10 ksf
  - ALLOWABLE LOAD FOR PILING: N/A  
TYPE: N/A  
ESTIMATED LENGTH: N/A
  - STRUCTURAL STEEL AASHTO M270M/M270 GRADE: 50W
  - REINFORCING STEEL GRADE: 60
  - CONCRETE, HIGH PERFORMANCE CLASS A f<sub>c</sub>: 4000 psi  
CONCRETE, HIGH PERFORMANCE CLASS B f<sub>c</sub>: 3500 psi
  - 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? ON EXISTING STRUCTURE  
OR ON TEMPORARY BRIDGE? \_\_\_\_\_  
ONE OR TWO-WAY TRAVEL? \_\_\_\_\_
  - TRAFFIC CONTROL SIGNALS REQUIRED? NO
  - ARE SIDEWALKS REQUIRED? NO  
IF SO, ON WHAT SIDE? \_\_\_\_\_

PROJECT NAME: SHARON  
 PROJECT NUMBER: IM CULV (18)  
 FILE NAME: engpi2.xls PLOT DATE: 6/18/2009  
 PROJECT LEADER: DMB DRAWN BY: RPH  
 DESIGNED BY: RPH CHECKED: BRC  
**PRELIMINARY INFORMATION SHEET (14-2)** SHEET 3 OF 36

