

PRELIMINARY INFORMATION SHEET

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LIST OF STANDARDS

E-100	CONSTRUCTION APPROACH SIGNS	1/2/2004
E-100A	SIDE ROAD CONSTRUCTION - APPROACH SIGNS	1/2/2004
E-101	CONSTRUCTION SIGN DETAILS	5/30/2003
E-102	CONSTRUCTION SIGN DETAILS	6/30/2003
E-102A	CONSTRUCTION SIGN DETAILS	5/1/2004
E-106	TRAFFIC CONTROL - MISCELLANEOUS DETAILS	3/1/2004
E-107	DELINEATION, BARRICADES AND DETOURS FOR CONSTRUCTION AREAS	6/30/2003
E-107A	BREAKAWAY BARRICADE DETAILS	8/8/1995
E-121	STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD	8/8/1995
E-160	FLANGED CHANNEL STEEL SIGN POST	5/20/1999
G-18	BOX BEAM GUARD RAIL	1/3/2000

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA Date: October 2006

DRAINAGE AREA : 114.8 sq. mi.
 CHARACTER OF TERRAIN : Hilly to mountainous, mostly forested.
 STREAM CHARACTERISTICS : Sinuous, semi-alluvial, stable channel.
 NATURE OF STREAMBED : Sand, cobbles and boulders.

PEAK FLOW DATA

Q 2.33 =	3,500 cfs	Q 50 =	15,000 cfs
Q 10 =	9,200 cfs	Q 100 =	18,500 cfs
Q 25 =	12,000 cfs	Q 500 =	27,800 cfs

DATE OF FLOOD OF RECORD : June & July 1973
 ESTIMATED DISCHARGE : Unknown
 WATER SURFACE ELEV. : 585.6' at a point 300' upstream of covered bridge.
 NATURAL STREAM VELOCITY : @ Q25 = 10.1 fps
 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: Covered bridge
 YEAR BUILT: 1840
 CLEAR SPAN(NORMAL TO STREAM): 90' minimum at bottom (93' average at inlet)
 VERTICAL CLEARANCE ABOVE STREAMBED: 26'
 WATERWAY OF FULL OPENING: 2330 sq. ft.
 DISPOSITION OF STRUCTURE: Rehabilitate
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: See boring logs.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	574.9'	VELOCITY =	7.2 fps
Q10 =	579.1'	"	11.8 fps
Q25 =	581.0'	"	13.1 fps
Q50 =	583.0'	"	14.2 fps
Q100 =	584.9'	"	16.0 fps

LONG TERM STREAMBED CHANGES: There is some minor local scour along the abutments. Otherwise the channel is stable with no apparent changes noted.

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: above Q100
 RELIEF ELEVATION: 596.7'
 DISCHARGE OVER ROAD @Q100: None

UPSTREAM STRUCTURE

TOWN: Cavendish DISTANCE: 3.9 mi.
 HIGHWAY #: T.H. 29 STRUCTURE #: 45
 CLEAR SPAN: 87' CLEAR HEIGHT: 14'
 YEAR BUILT: 1890 FULL WATERWAY: 1200 sq. ft.
 STRUCTURE TYPE: Single span truss bridge

DOWNSTREAM STRUCTURE

TOWN: Weathersfield DISTANCE: 2.0 mi.
 HIGHWAY #: VT 106 STRUCTURE #: 8
 CLEAR SPAN: 273' total CLEAR HEIGHT: 31
 YEAR BUILT: 1988 FULL WATERWAY: 6500 sq. ft.
 STRUCTURE TYPE: 3 span plate girder

LOAD FACTOR - LOAD RATING (TONS)

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

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2002	10	15	54	6	5
2022	130	20	54	6	10

20 year ESAL for flexible pavement from 2002 to 2022 : <50,000
 40 year ESAL for flexible pavement from 2002 to 2042 : 109,000
 Design Speed : mph

PROPOSED STRUCTURE

STRUCTURE TYPE: Rehabilitated covered bridge. All information the similar as existing.

CLEAR SPAN(NORMAL TO STREAM): 90' min. at bot. (93' ave. at inlet)
 VERTICAL CLEARANCE ABOVE STREAMBED: 26'
 WATERWAY OF FULL OPENING: 2310 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	575.0'	VELOCITY =	7.5 fps
Q10 =	579.3'	"	12.1 fps
Q25 =	581.2'	"	13.5 fps
Q50 =	583.2'	"	14.5 fps
Q100 =	585.2'	"	16.4 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: Above Q100
 RELIEF ELEVATION: 596.7'
 DISCHARGE OVER ROAD @Q100: None

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 594.0'
 VERTICAL CLEARANCE: @ Q100 8.8'

SCOUR: Calculated 2.3' of contraction scour at Q100 and 6.4' at Q500.

REQUIRED CHANNEL PROTECTION: Stone Fill, Type IV

PERMIT INFORMATION

AVERAGE DAILY FLOW: 240cfs DEPTH OR ELEVATION:
 ORDINARY LOW WATER: 110 cfs 2'
 ORDINARY HIGH WATER: 1500 cfs 5'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: No temporary bridge required. The road will be closed.
 CLEAR SPAN (NORMAL TO STREAM):
 VERTICAL CLEARANCE ABOVE STREAMBED:
 WATERWAY AREA OF FULL OPENING:

ADDITIONAL INFORMATION

- DESIGN CRITERIA**
- DESIGN LIVE LOAD AASHTO 12500 lb Truck
 - DESIGN SPAN 121 ft
 - ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL ON LEDGE
 - ALLOWABLE LOAD FOR PILING TYPE ESTIMATED LENGTH
 - STRUCTURAL STEEL AASHTO M270MM270 GRADE 50
 - REINFORCNG STEEL GRADE 60
 - CONCRETE, HIGH PERFORMANCE CLASS A fc: CONCRETE, HIGH PERFORMANCE CLASS B fc: 3500 psi
 - DESIGN SOIL UNIT WEIGHT
 - DESIGN LOAD FOR SPREAD FOOTINGS ON SOIL

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

PROJECT NAME: WEATHERSFIELD
 PROJECT NUMBER: BHO 1442(29)

FILE NAME: /96j234/str/sj234pi.xls PLOT DATE: 3/14/2007
 PROJECT MANAGER: W.SYMONDS DRAWN BY: G. SHANGRAW
 DESIGNED BY: T. SUMNER CHECKED BY: T. SUMNER
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