

# PRELIMINARY INFORMATION SHEET

INDEX OF SHEETS

FINAL HYDRAULIC REPORT

INDEX OF SHEETS

1	TITLE SHEET	STANDARDS LIST
2	PRELIMINARY INFORMATION SHEET	
3-5	TYPICAL SECTIONS	A-76 3/3/2003
6-9	QUANTITY SHEETS	B-5 6/1/1994
10-11	TIE SHEETS	B-12 6/1/1994
12-14	LAYOUT SHEETS	B-71 7/8/2005
15-16	DITCH LAYOUT SHEETS	C-10 2/11/2008
17-19	US 2 PROFILE SHEETS	D-1 6/1/1994
20	TH#9 PROFILE SHEET	E-100 1/2/2004
21-22	EROSION CONTROL NARRATIVE	E-100A 1/2/2004
23-25	EPSC EXISTING CONDITIONS SHEETS	E-101 5/30/2003
26-28	EPSC CONSTRUCTION SHEETS	E-102 6/30/2003
29-31	EPSC FINAL CONDITIONS SHEETS	E-102A 5/1/2004
32-34	EPSC DETAIL SHEETS	E-107 6/30/2003
35	LANDSCAPE TREE PLANTING DETAIL	E-107A 8/8/1995
36	TRAFFIC CONTROL SHEET	E-121 8/8/1995
37	TRAFFIC SIGN LAYOUT SHEET	E-124 8/8/1995
38	TRAFFIC SIGN SUMMARY SHEET	E-134 8/8/1995
39	BORING LAYOUT SHEET	E-141 9/20/1995
40-42	BORING LOG SHEET	E-142 9/20/1995
43	PLAN AND ELEVATION SHEET	E-143 6/15/2004
44	GENERAL NOTES SHEET	E-151 5/1/2004
45	DECK REINFORCING PLAN	E-155 5/1/2004
46-47	FRAMING PLAN SHEETS	E-160 5/20/1999
48	STRUCTURAL STEEL DETAILS	E-193 8/18/1995
49	BEAM SPLICE/HAUNCH DETAILS	F-4 6/1/1994
50-52	BEARING DETAILS	G-1 1/3/2000
53	EXPANSION JOINT PLAN ABUTMENT 1	G-1D 1/3/2000
54	EXPANSION JOINT PLAN ABUTMENT 2	J-3 8/7/1995
55	EXPANSION JOINT DETAILS	
56	CURB EXPANSION JOINT DETAILS	
57	APPROACH SLAB DETAILS	
58	DOWNSPOUT DETAILS	
59-60	MID SPAN DOWNSPOUT DETAILS	
61-62	SUPERSTRUCTURE DETAILS	
63	BACKWALL DETAILS	
64	ABUTMENT #1 DETAILS	
65	ABUTMENT #2 DETAILS	
66	WINGWALL #1 & #2 DETAILS	
67	PILE LAYOUT SHEET	
68	WINGWALL #3 & #4 DETAILS	
69	PIER DETAILS	
70	FOOTING REINFORCING PLAN	
71	REINFORCING STEEL SCHEDULE	
72	BRIDGE RAILING DETAILS	
73	APPROACH SLAB RAILING DETAILS	
74	APPROACH RAILING DETAILS	
75-76	R.O.W. DETAIL SHEETS	
77-79	R.O.W. LAYOUT SHEETS	
80	BANKING DIAGRAM	
81	MATERIAL TRANSITION DIAGRAM	
82-91	ROADWAY CROSS-SECTION SHEETS	
92-98	CHANNEL CROSS-SECTION SHEETS	
99-102	TH#9 CROSS-SECTION SHEETS	
103	DRIVE SECTION 265+34.00 RT	

**HYDROLOGIC DATA** Date: August 24, 2004

DRAINAGE AREA : 670 sq. mi  
 CHARACTER OF TERRAIN : Hilly to Mountainous  
 STREAM CHARACTERISTICS : Sinuous, Alkaline, probably incised  
 NATURE OF STREAMBED : Gravel, Silty Sand, Ledge

**PEAK FLOW DATA**

Q 2.33 = 12,000 cfs	Q 50 = 33,500 cfs
Q 10 = 22,250 cfs	Q 100 = 39,300 cfs
Q 25 = 28,400 cfs	Q 500 = 55,500 cfs

DATE OF FLOOD OF RECORD : November 1927, per FEMA, FIS, Town of Moretown, 1984  
 ESTIMATED DISCHARGE : unknown  
 WATER SURFACE ELEV. : unknown  
 NATURAL STREAM VELOCITY : @ Q50 = 9.0 f/s  
 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 : Two span steel truss bridge with additional approach span  
 YEAR BUILT : 1928  
 CLEAR SPAN(NORMAL TO STREAM): Span 1 = 47', Span 2 = 118', Span 3 = 118'  
 VERTICAL CLEARANCE ABOVE STREAMBED : 25.0' (low steel E.L. = 452.4')  
 WATERWAY OF FULL OPENING : 4.915 sf  
 DISPOSITION OF STRUCTURE : Removal of old structure  
 TYPE OF MATERIAL UNDER SUBSTRUCTURE : Abut. 1 Ledge, Abut. 2 Silty Sand

**WATER SURFACE ELEVATIONS AT:**

Q2.33 = 438.4'	VELOCITY = 7.6 f/s
Q10 = 442.4'	" 8.8 f/s
Q25 = 444.1'	" 9.0 f/s
Q50 = 445.8'	" 8.8 f/s
Q100 = 447.3'	" 8.8 f/s

LONG TERM STREAMBED CHANGES : F.I.S. show 5ft scour through bridge. Comparison of record plans to current conditions also show 5' of scour at pier.

IS THE ROADWAY OVERTOPPED BELOW Q100: No  
 FREQUENCY: N/A  
 RELIEF ELEVATION: 453.7'  
 DISCHARGE OVER ROAD @Q100: N/A

**UPSTREAM STRUCTURE**

TOWN: Moretown-Middlesex DISTANCE: 7,700'  
 HIGHWAY #: VT 100B STRUCTURE #: 8  
 CLEAR SPAN: 140' & 120' CLEAR HEIGHT: 48' max  
 YEAR BUILT: 2001 FULL WATERWAY: 4,200 sf  
 STRUCTURE TYPE: Two span continuous welded plate curved girder

**DOWNSTREAM STRUCTURE**

TOWN: Waterbury-Duxbury DISTANCE: 18,000'  
 HIGHWAY #: U.S. 2 STRUCTURE #: 48  
 CLEAR SPAN: 105' & 120' CLEAR HEIGHT: 23.5'  
 YEAR BUILT: 1992 FULL WATERWAY: 4690 sf  
 STRUCTURE TYPE: 2 span plate girder

**SERVICE II LOAD RATING**

RATING FACTORS	HL-93	3S2	6 AXLE	3 AXLE	4 AXLE	5 AXLE
INVENTORY	1.22	2.02	1.13	2.27	1.99	1.86
OPERATING	1.58	2.61	1.46	2.94	2.58	2.41

**TRAFFIC DATA**

YEAR	ADT	DHV	% D	% T	ADTT
2007	4200	580	62	2	190
2027	5500	730	62	2	200

20 year ESAL for flexible pavement from 2007 to 2027 : 1,874,000  
 40 year ESAL for flexible pavement from 2007 to 2047 : 4,530,000  
 Design Speed : 50 mph

**PROPOSED STRUCTURE**

STRUCTURE TYPE: Two span steel haunched girder bridge, concrete deck

CLEAR SPAN(NORMAL TO STREAM): Span 1 = 117.5', Span 2 = 117.5'  
 VERTICAL CLEARANCE ABOVE STREAMBED: 25.4' Average  
 WATERWAY OF FULL OPENING: 5015 sf

**WATER SURFACE ELEVATIONS AT:**

Q2.33 = 438.9'	VELOCITY = 7.2 f/s
Q10 = 442.9'	" 8.2 f/s
Q25 = 444.5'	" 8.6 f/s
Q50 = 445.9'	" 8.6 f/s
Q100 = 447.1'	" 8.9 f/s

IS THE ROADWAY OVERTOPPED BELOW Q100: No  
 FREQUENCY: N/A  
 RELIEF ELEVATION: 453.7'  
 DISCHARGE OVER ROAD @Q100: N/A

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 450.9' Span 2  
 VERTICAL CLEARANCE: @ Q100 3.8' Average Span 2

SCOUR: Contraction scour 0' up to Q 500. Pier scour 5' @ Q500

REQUIRED CHANNEL PROTECTION: Type IV Stone Fill

**PERMIT INFORMATION**

AVERAGE DAILY FLOW: 1,410 cfs DEPTH OR ELEVATION:  
 ORDINARY LOW WATER: 600 cfs Elev. 428.0'  
 ORDINARY HIGH WATER: 5,150 cfs Elev. 431.0'

**TEMPORARY BRIDGE REQUIREMENTS**

STRUCTURE TYPE: N/A  
 CLEAR SPAN (NORMAL TO STREAM): N/A  
 VERTICAL CLEARANCE ABOVE STREAMBED: N/A  
 WATERWAY AREA OF FULL OPENING: N/A

**ADDITIONAL INFORMATION**

- DESIGN CRITERIA**
- DESIGN LIVE LOAD AASHTO HL-93
  - DESIGN SPAN 2 @ 140' EACH
  - NOMINAL BEARING RESISTANCE ON ROCK 11.25 KSF
  - NOMINAL AXIAL PILE RESISTANCE ABUTMENT #2, PIER 330 kips
  - ESTIMATED LENGTH PIER 28'-6" (INCLUDING 1'-0" EMBEDMENT IN FOOTING)
  - ESTIMATED LENGTH ABUTMENT #2 72'-6" (SAME AS ABOVE)
  - STRUCTURAL STEEL AASHTO M270MM270 GRADE 50W
  - REINFORCING STEEL GRADE 60
  - SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, CLASS A LOW CEMENT A fc: 4000 psi  
 CONCRETE, HIGH PERFORMANCE CLASS B fc: 3500 psi  
 CONCRETE, CLASS C fc: 3000 psi)
  - DESIGN SOIL UNIT WEIGHT 140 pcf
  - DESIGN LOAD FOR SPREAD FOOTINGS ON SOIL N/A

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

PROJECT NAME: BRS 0284(14)  
 PROJECT NUMBER: MORETOWN-MIDDLESEX

FILE NAME: 78f219/strs219pl.dgn PLOT DATE: 4/27/2009  
 PROJECT MANAGER: M.EVANS-MONGEON DRAWN BY: L. Duquette  
 DESIGNED BY: S. Scribner CHECKED BY: S. Scribner  
**PRELIMINARY INFORMATION SHEET** SHEET 2 OF 103