STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET

FINAL HYDRAULIC REPORT

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McFarland Johnson

HYDROLOGIC DATA

DRAINAGE AREA : 71.4 sq. mi.
CHARACTER OF TERRAIN :
STREAM CHARACTERISTICS : Small, meandering floodplain w/ perennial but flashy flow habit
NATURE OF STREAMBED : Gravel, cobbles, Ledge

PEAK FLOW DATA

Q 2.33 = 2200 cfs
Q 10 = 4300 cfs
Q 25 = 6500 cfs
Q 50 = 7900 cfs
Q 100 = 9700 cfs
Q 500 =

DATE OF FLOOD OF RECORD : 1927, 1936, 1938, 1973, 1976, 1999
ESTIMATED DISCHARGE : unknown
WATER SURFACE ELEVATION : unknown
NATURAL STREAM VELOCITY : @ Q25 = 8.1 fps
ICE CONDITIONS : heavy
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
IMMEDIATE ABOVE SITE :

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE : Iron Pony Truss
YEAR BUILT : 1889
CLEAR SPAN (NORMAL TO STREAM) : 68.0 FT.
VERTICAL CLEARANCE ABOVE STREAMBED : 13.8 FT.
WATERWAY OF FULL OPENING : 937 SQ. FT.
DISPOSITION OF STRUCTURE : Existing historic structure to be rehabilitated
TYPE OF MATERIAL UNDER SUBSTRUCTURE : Ledge (presumed)

WATER SURFACE ELEVATIONS AT:

Q 2.33 = 595.3' VELOCITY = 5.6 fps
Q 10 = 597.8' VELOCITY = 8.0 fps
Q 25 = 599.8' VELOCITY = 10.0 fps
Q 50 = 600.8' VELOCITY = 11.3 fps
Q 100 = 605.0' VELOCITY = 10.4 fps

LONG TERM STREAMBED CHANGES: Unknown

IS THE ROADWAY OVERTOPPED BELOW Q100 : No
FREQUENCY : >Q100
RELIEF ELEVATION : N/A
DISCHARGE OVER ROAD @ Q100 : 0 cfs

UPSTREAM STRUCTURE

TOWN : Tunbridge
HIGHWAY # : Larkin Road
CLEAR SPAN :
YEAR BUILT :
STRUCTURE TYPE :
DISTANCE :
STRUCTURE # :
CLEAR HEIGHT :
FULL WATERWAY :

DOWNSTRUCTURE STRUCTURE

TOWN : Tunbridge
HIGHWAY # : VT 110
CLEAR SPAN :
YEAR BUILT :
STRUCTURE TYPE :
DISTANCE :
STRUCTURE # : 4
CLEAR HEIGHT :
FULL WATERWAY :

ASD LOAD RATING (TONS)

LOADING LEVELS	TRUCK						
	H	HS	3S2	6 AXLE	3A. STR.	4A. STR.	5A. SEMI
INVENTORY	15	18					
POSTED	17	20	25		18	19	22
OPERATING		22	29	32	20	21	

COMMENTS: TRUSS DIAGONALS CONTROL THE LOAD RATING

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2009	30	0	0	0	2
0	0	0	0	0	0

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

PROPOSED STRUCTURE

STRUCTURE TYPE : See note 2

CLEAR SPAN (NORMAL TO STREAM) : 18' for approach, 64' for bridge
VERTICAL CLEARANCE ABOVE STREAMBED :
WATERWAY OF FULL OPENING :

Q 2.33 = VELOCITY =
Q 10 = VELOCITY =
Q 25 = VELOCITY =
Q 50 = VELOCITY =
Q 100 = VELOCITY =

IS THE ROADWAY OVERTOPPED BELOW Q100 :
FREQUENCY :
RELIEF ELEVATION :
DISCHARGE OVER ROAD @ Q100 :

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE :
VERTICAL CLEARANCE :

SCOUR : See note 3

REQUIRED CHANNEL PROTECTION :

PERMIT INFORMATION

AVERAGE DAILY FLOW : 150 cfs
ORDINARY LOW WATER : 70 cfs — DEPTH OR ELEVATION 2.0' (+/-)
ORDINARY HIGH WATER : 1500 cfs — 5.0' (+/-)

TEMPORARY BRIDGE REQUIREMENTS

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

ADDITIONAL INFORMATION

1. Water surface elevations are provided at location 50 feet upstream of existing bridge. Velocities are provided at bridge.
2. Hydraulic conditions for proposed structure are similar to existing structure.
3. No channel scour was observed by inspectors. Abutments are founded on ledge.

DESIGN CRITERIA

1. DESIGN LIVE LOAD AASHTO H-8 (POSTED)
2. DESIGN SPAN 73.0 FT.
3. ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL N/A
   ON LEDGE UNKNOWN
4. ALLOWABLE LOAD FOR PILING N/A
   TYPE N/A
   ESTIMATED LENGTH N/A
5. STRUCTURAL STEEL AASHTO M270M/M270 GRADE 50
6. REINFORCING STEEL GRADE 60
7. CONCRETE, HIGH PERFORMANCE CLASS A f'c: 4000 PSI
   CONCRETE, HIGH PERFORMANCE CLASS B f'c: 3500 PSI
8. DESIGN SOIL UNIT WEIGHT 140 pcf
9. DESIGN LOAD FOR SPREAD FOOTINGS ON SOIL N/A

TRAFFIC MAINTENANCE (SEE NOTE 4)

1. IS TRAFFIC TO BE MAINTAINED? SEE NOTE 4 BELOW
   IF YES, ON EXISTING STRUCTURE?
   OR ON TEMPORARY BRIDGE?
   ONE OR TWO-WAY TRAVEL? N/A
2. TRAFFIC CONTROL SIGNALS REQ'D? N/A
3. ARE SIDEWALKS REQUIRED? NO
   IF SO, ON WHAT SIDE?
4. BRIDGE TO BE CLOSED DURING CONSTRUCTION WITH TRAFFIC DETOURED AROUND BRIDGE SITE.

PROJECT NAME: TUNBRIDGE
PROJECT NUMBER: BRO 1444(39)

FILE NAME: z99J110engpi.xls
PROJECT LEADER: K.M. Higgins
DESIGNED BY: S. Delia / N. Powelson
PRELIMINARY INFORMATION SHEET

PLOT DATE: 5/22/2009
DRAWN BY: P. Dustin
CHECKED BY: R. Joy