STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

Version 09.02.02

LRFD

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PLAN SHEETS

STANDARDS LIST

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2013	7200	1100	50	8.3	730
2033	8600	1300	50	10.8	1100

20 year ESAL for flexible pavement from 2013 to 2033 : 5927000

40 year ESAL for flexible pavement from 2013 to 2053 : 13731000

Design Speed : 30 mph

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: Jan. 8, 2009

DRAINAGE AREA : 11.0 sq. mi.
CHARACTER OF TERRAIN : Hilly to mountainous, mostly forested.
STREAM CHARACTERISTICS : Sinuous, slightly incised with a wide floodplain.
NATURE OF STREAMBED : Mostly cobbles with some gravel.

PEAK FLOW DATA

Q 2.33 =	700 cfs	Q 50 =	2570 cfs
Q 10 =	1600 cfs	Q 100 =	3080 cfs
Q 25 =	2100 cfs	Q 500 =	4510 cfs

DATE OF FLOOD OF RECORD : September 1938
ESTIMATED DISCHARGE: Unknown
WATER SURFACE ELEV.: Unknown
NATURAL STREAM VELOCITY : @ Q50 = 8.9 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: Single span steel beam bridge with concrete deck
YEAR BUILT: 1924
CLEAR SPAN(NORMAL TO STREAM): 39'
VERTICAL CLEARANCE ABOVE STREAMBED: 7'
WATERWAY OF FULL OPENING: 240 sq. ft.
DISPOSITION OF STRUCTURE: Remove and replace
TYPE OF MATERIAL UNDER SUBSTRUCTURE: See borings.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	573.9'	VELOCITY =	7.1 fps
Q10 =	575.6'	"	10.8 fps
Q25 =	576.3'	"	9.4 fps
Q50 =	577.4'	"	6.6 fps
Q100 =	577.5'	"	7.7 fps

LONG TERM STREAMBED CHANGES: None noted.

IS THE ROADWAY OVERTOPPED BELOW Q100: Yes
FREQUENCY: Between Q10 and Q25
RELIEF ELEVATION: 576.1'
DISCHARGE OVER ROAD @Q100: 1840 cfs

UPSTREAM STRUCTURE

TOWN: Chester
DISTANCE: 5,500'
HIGHWAY # : T.H. 3, VT Route 35 & FAS 0125
STRUCTURE #: 7
CLEAR SPAN: 72'
CLEAR HEIGHT: 7.5'
YEAR BUILT: 1949
FULL WATERWAY:
STRUCTURE TYPE: Single span steel beam bridge

DOWNSTRUCTURE STRUCTURE

TOWN: Confluence with Middle Branch Williams River
DISTANCE: 600'
HIGHWAY # :
STRUCTURE #:
CLEAR SPAN:
CLEAR HEIGHT:
YEAR BUILT:
FULL WATERWAY:
STRUCTURE TYPE:

LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	H-20	HL-93	3S2	6 AXLE	3A STR	4A STR	5A SEMI
TONNAGE	**20**	**36**	**36**	**66**	**30**	**34.5**	**38**
INVENTORY	1.44	1.08					
POSTING							
OPERATING	1.87	1.39	1.74	1.04	1.35	1.22	1.42
COMMENTS:							

PILE DRIVING AND TESTING REQUIREMENTS

1. NOMINAL PILE DRIVING CAPACITY — Rndr: **245.00 KIP**
2. PILE TEST RESISTANCE FACTOR — ϕ: **0.65**
3. MAXIMUM PILE TIP ELEVATION — **SEE BELOW**
4. SEE GENERAL NOTES FOR REQUIRED PILE PENETRATION ELEVATIONS.

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span pre-cast concrete beam bridge

CLEAR SPAN(NORMAL TO STREAM): 53'
VERTICAL CLEARANCE ABOVE STREAMBED: 7'
WATERWAY OF FULL OPENING: 290 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	573.9'	VELOCITY=	7.3 fps
Q10 =	575.5'	"	10.4 fps
Q25 =	576.3'	"	8.4 fps
Q50 =	576.8'	"	6.8 fps
Q100 =	577.2'	"	5.8 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: Yes
FREQUENCY: Between Q10 and Q25
RELIEF ELEVATION: 576.1'
DISCHARGE OVER ROAD @Q100: 1700 cfs

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 577.1'
VERTICAL CLEARANCE: @ Q50 = 0.3'

SCOUR: Less than 1' of contraction scour up to Q500.

REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

PERMIT INFORMATION

AVERAGE DAILY FLOW:	20 cfs	
ORDINARY LOW WATER:	10 cfs	DEPTH OR ELEVATION: 0.5'
ORDINARY HIGH WATER:	300 cfs	2.0'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: No temporary bridge required. Traffic will use an offsite detour.
CLEAR SPAN (NORMAL TO STREAM):
VERTICAL CLEARANCE ABOVE STREAMBED:
WATERWAY AREA OF FULL OPENING:

ADDITIONAL INFORMATION

TRAFFIC MAINTENANCE NOTES

1. MAINTAIN TRAFFIC ON AN OFF SITE DETOUR.
2. TRAFFIC SIGNALS ARE NOT NECESSARY.
3. SIDEWALKS ARE NOT NECESSARY

DESIGN VALUES

1. DESIGN LIVE LOAD		HL-93
2. FUTURE PAVEMENT	d_P:	0.0 INCH
3. DESIGN SPAN	L:	56.00 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ:	- - -
5. PRESTRESSING STRAND (0.60 INCH DIAMETER - LOW RELAX)	f_y:	270 KSI
6. PRESTRESSED CONCRETE STRENGTH	f'_c:	8.0 KSI
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f'_{ci}:	6.0 KSI
8. CONCRETE, HIGH PERFORMANCE CLASS AA	f'_c:	--- KSI
9. CONCRETE, HIGH PERFORMANCE CLASS A	f'_c:	--- KSI
10. CONCRETE, HIGH PERFORMANCE CLASS B	f'_c:	3.5 KSI
11. CONCRETE, CLASS C	f'_c:	--- KSI
12. REINFORCING STEEL	f_y:	60 KSI
13. STRUCTURAL STEEL AASHTO M270	f_y:	- - -
14. SOIL UNIT WEIGHT	γ:	0.140 KCF
15. NOMINAL BEARING RESISTANCE OF SOIL	q_n:	--- KSF
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	- - -
17. NOMINAL BEARING RESISTANCE OF ROCK	q_n:	120.0 KSF
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	0.45
19. NOMINAL AXIAL PILE RESISTANCE	q_p:	245.0 KIPS
20. PILE YIELD STRENGTH ASTM A572	f_y:	50 KSI
21. PILE SIZE		HP 12X 84
22. EST. PILE LENGTH	L_p:	18 FT
23. PILE RESISTANCE FACTOR	ϕ:	0.65
24. LATERAL PILE DEFLECTION	Δ:	- - -
25. BASIC WIND SPEED	V_{3s}:	- - -
26. MINIMUM GROUND SNOW LOAD	p_g:	- - -
27. SEISMIC DATA PGA: - - -	S_s:	- - -
	S_1:	- - -

PROJECT NAME: **CHESTER**

PROJECT NUMBER: **BRF 025-1(28)**

FILE NAME: **s84e061excel.dgn**
PROJECT LEADER: **C.P.WILLIAMS**
DESIGNED BY: **R.S.YOUNG**
BRIDGE #8 PRELIMINARY INFORMATION SHEET

PLOT DATE: 9/28/2010
DRAWN BY: **M.FESSEL**
CHECKED BY: **H.I.SALLS**
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