

PRELIMINARY INFORMATION SHEET (BRIDGE)

INDEX OF SHEETS

FINAL HYDRAULIC REPORT

PLAN SHEETS

1	TITLE SHEET
2	PRELIMINARY INFORMATION SHEET
3 - 4	PROJECT NOTES
5 - 8	QUANTITY SHEETS
9 - 10	TYPICAL SECTIONS
11	CONVENTIONAL SYMBOLGY LEGEND
12	TIE SHEET
13 - 14	LAYOUT SHEETS
15	VT 100 PROFILE SHEET
16 - 17	TRAFFIC CONTROL SHEETS
18	BORING INFORMATION SHEET
19 - 21	BORING LOG SHEETS
22	PLAN AND ELEVATION
23 - 24	ABUTMENT GRADING PLANS
25	PRECAST DECK PANEL LAYOUT
26	PRECAST DECK DETAILS
27 - 28A	MISCELLANEOUS DECK DETAILS - NOT USED
29	BRIDGE RAIL LAYOUT SHEET
30	FRAMING PLAN & GIRDER ELEVATION
31	MISCELLANEOUS GIRDER DETAILS
32	CAMBER DETAILS
33 - 34	BEARING DETAILS
35	APPROACH SLAB DETAILS
36	ABUTMENT NO. 1 PLAN AND ELEVATION
37 - 39	ABUTMENT NO. 1 DETAILS
40 - 41A	ABUTMENT NO. 1 WINGWALL DETAILS
42	ABUTMENT NO. 2 PLAN AND ELEVATION
43 - 45	ABUTMENT NO. 2 DETAILS
46 - 47	ABUTMENT NO. 2 WINGWALL DETAILS
48	ABUTMENT NO. 2 HOPPER DETAILS
49	RETAINING WALL DETAILS
50 - 50A	REINFORCING STEEL SCHEDULES
51 - 58	VT 100 CROSS SECTIONS
56 - 58	CHANNEL CROSS SECTIONS
59	EPSC NARRATIVE
60 - 61	EPSC EXISTING LAYOUT SHEETS
62 - 63	EPSC CONSTRUCTION LAYOUT SHEETS
64 - 65	EPSC FINAL LAYOUT SHEETS
66 - 68	EPSC DETAILS SHEETS
69	UTILITY RELOCATION PLAN

STANDARDS LIST

B-5	SLOPE GRADING, EMBANKMENTS, MUCK	06-01-1994
B-71	STANDARD FOR RESIDENTIAL AND COMMERCIAL DRIVES	07-08-2005
E-120	STANDARD SIGN PLACEMENT - EXPRESSWAY & FREEWAY	08-08-1995
E-121	STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD	08-08-1995
E-123	GUIDE SIGN PLACEMENT - MISCELLANEOUS DETAILS	03-16-2004
E-127	ROUTE MARKINGS AT RURAL INTERSECTIONS	08-08-1995
E-136B	STATE ROUTE MARKER SIGN DETAILS	08-08-1995
E-136C	STATE NUMBERED TOWN HIGHWAY SIGN DETAILS	08-08-1995
E-193	PAVEMENT MARKING DETAILS	08-18-1995
G-1	STEEL BEAM GUARDRAIL DETAILS (POST, DELINEATOR, TYPICALS)	02-10-2014
G-19	GENERIC GRADING PLANS FOR GUARDRAIL END TERMINALS	11-15-2002
S-360A	BRIDGE RAILING, GALVANIZED 2 RAIL BOX BEAM	04-23-2012
S-360B	GUARDRAIL APPROACH SECTION, GALVANIZED 2 RAIL BOX BEAM	04-23-2012
S-363	THREE BEAM TO STANDARD STEEL BEAM TRANSITION SECTION	04-23-2012
T-1	TRAFFIC CONTROL GENERAL NOTES	08-06-2012
T-30	CONSTRUCTION SIGN DETAILS	08-06-2012
T-36	CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS FOR PAVING	08-06-2012
T-42	BRIDGE NUMBER PLAQUE	04-09-2014
T-45	SQUARE TUBE SIGN POST AND ANCHOR	01-02-2013

STRUCTURES DETAIL SHEETS

SD-501.00	CONCRETE DETAILS AND NOTES	2/9/2012
SD-502.00	CONCRETE DETAILS AND NOTES	10/10/2012
SD-516.10	BRIDGE JOINT ASPHALTIC PLUG	8/29/2011
SD-516.11a	BRIDGE EXPANSION JOINT, VERMONT	2/24/2011
SD-516.11b	BRIDGE EXPANSION JOINT, VERMONT	2/24/2011
SD-601.00	STRUCTURAL STEEL DETAILS AND NOTES	6/4/2010
SD-602.00	STRUCTURAL STEEL PLATE GIRDER DETAILS AND NOTES	5/2/2011

HYDROLOGIC DATA

Date: February 2015

DRAINAGE AREA : 56.2 sq. mi.
 CHARACTER OF TERRAIN : Mountainous, rural, mix of woods and meadow
 STREAM CHARACTERISTICS : Sinuous, incised, alluvial
 NATURE OF STREAMBED : Sand and gravel

PEAK FLOW DATA

Q 2.33 =	2975 cfs	Q 50 =	8550 cfs
Q 10 =	5250 cfs	Q 100 =	10,300 cfs
Q 25 =	6950 cfs	Q 500 =	15,450 cfs

DATE OF FLOOD OF RECORD : Unknown
 ESTIMATED DISCHARGE : Unknown
 WATER SURFACE ELEV. : Unknown
 NATURAL STREAM VELOCITY : @ Q50 = 8.0 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: 2-span continuous rolled beam bridge
 YEAR BUILT: 1938
 CLEAR SPANNORMAL TO STREAM: 122' - 6' pier = 116'
 VERTICAL CLEARANCE ABOVE STREAMBED: ~16'
 WATERWAY OF FULL OPENING: 1760 sq. ft.
 DISPOSITION OF STRUCTURE: Remove and replace
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: See borings

WATER SURFACE ELEVATIONS AT:

Q2.33 =	713.6'	VELOCITY =	6.0 fps
Q10 =	716.5'	"	6.8 fps
Q25 =	717.8'	"	7.8 fps
Q50 =	719.0'	"	8.6 fps
Q100 =	720.1'	"	9.5 fps

LONG TERM STREAMBED CHANGES: Some undermining during high flows and scour hole through the bridge

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: N/A
 RELIEF ELEVATION: 725.9'
 DISCHARGE OVER ROAD @Q100: N/A

UPSTREAM STRUCTURE

TOWN: Waitsfield DISTANCE: 8960'
 HIGHWAY #: TH 29 STRUCTURE #: 22
 CLEAR SPAN: 57' CLEAR HEIGHT:
 YEAR BUILT: 1999 FULL WATERWAY:
 STRUCTURE TYPE: Welded pony truss

DOWNSTREAM STRUCTURE

TOWN: Waitsfield DISTANCE: 7970'
 HIGHWAY #: TH 1 STRUCTURE #: CB 4
 CLEAR SPAN: 99' CLEAR HEIGHT:
 YEAR BUILT: 1833, reconstructed 1973 FULL WATERWAY:
 STRUCTURE TYPE: King post wooden covered bridge

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	4.94	4.47	4.46	1.57										
POSTING														
OPERATING	2.52	5.79	4.89	2.29	2.62	3.05	4.54	1.75	2.84	3.31	2.47	2.98	2.4	2.82
COMMENTS:														

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span steel beam bridge

CLEAR SPAN(NORMAL TO STREAM): 134'
 VERTICAL CLEARANCE ABOVE STREAMBED: ~14'
 WATERWAY OF FULL OPENING: 1575 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	713.5'	VELOCITY =	6.1 fps
Q10 =	716.5'	"	6.9 fps
Q25 =	717.7'	"	7.9 fps
Q50 =	718.9'	"	8.6 fps
Q100 =	720.0'	"	9.5 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: N/A
 RELIEF ELEVATION: 725.9'
 DISCHARGE OVER ROAD @Q100: N/A

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 722.0' 722.17'
 VERTICAL CLEARANCE: @ Q50 = 3.1'

SCOUR: Contraction scour 0' up to Q200

REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

PERMIT INFORMATION

AVERAGE DAILY FLOW: 115 cfs DEPTH OR ELEVATION:
 ORDINARY LOW WATER: 55 cfs ~709'
 ORDINARY HIGH WATER: 1280 cfs ~712'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: None required.
 CLEAR SPAN (NORMAL TO STREAM):
 VERTICAL CLEARANCE ABOVE STREAMBED:
 WATERWAY AREA OF FULL OPENING:

ADDITIONAL INFORMATION

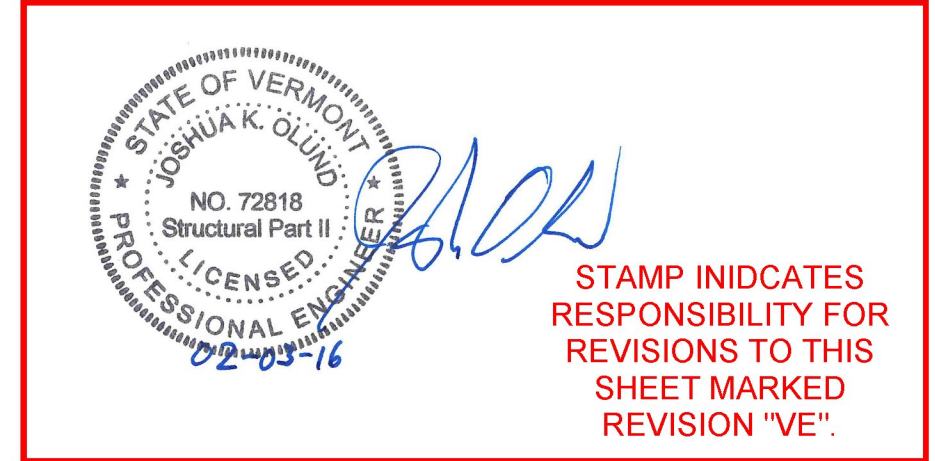
TRAFFIC MAINTENANCE NOTES

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 3 INCHES dp = 9.0 INCH
3. DESIGN SPAN L: 172.00 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS) Δ: 0.00 INCH
5. PRESTRESSING STRAND fy: 270 KSI
6. PRECAST CONCRETE STRUCTURE f'c: 5.0 KSI
7. PRESTRESSED CONCRETE RELEASE STRENGTH f'cr: 4.0 KSI
8. SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) f'c: 5.0 KSI
9. CONCRETE, HIGH PERFORMANCE CLASS A f'c: 4.0 KSI
10. CONCRETE, HIGH PERFORMANCE CLASS B f'c: 3.5 KSI
11. SPECIAL PROVISION (ULTRA HIGH PERFORMANCE CONCRETE)(FPQ) f'c: 14.5 KSI
12. REINFORCING STEEL fy: 60 KSI
13. STRUCTURAL STEEL AASHTO M270 (WEATHERING) fy: 50 KSI
14. SOIL UNIT WEIGHT γ: 0.140 KSI
15. NOMINAL BEARING RESISTANCE OF SOIL qn: ---
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD) φ: ---
17. NOMINAL BEARING RESISTANCE OF ROCK qn: 70.0 KSF
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD) φ: 0.45
19. PILE YIELD STRENGTH ASTM A572 fy: 50 KSI
20. PILE SIZE HP 14x89
21. ESTIMATED PILE LENGTH Lp: 50 FT
22. NOMINAL AXIAL PILE RESISTANCE (SEE PROJECT NOTES)
23. LATERAL PILE DEFLECTION Δ: 0.50 INCH
24. BASIC WIND SPEED V3s: 100 MPH
25. MINIMUM GROUND SNOW LOAD pg: ---
26. SEISMIC DATA PGA: --- Ss: ---
27. ---
28. ---

PROJECT NAME: WAITSFIELD
 PROJECT NUMBER: BF 013-4(39)
 FILE NAME: z12b136quantity.xlsm PLOT DATE: 10/13/2015
 PROJECT LEADER: R.YOUNG DRAWN BY: S.MERKWAN
 DESIGNED BY: VTRANS/D.KULL CHECKED BY: T.KENDRICK
 PRELIMINARY INFORMATION SHEET 1 SHEET 2 OF 69



REV	DATE	DESCRIPTION	AS BUILT "REBAR" DETAIL		
			LEVEL I	LEVEL II	LEVEL III
VE	02/03/16	MODIFICATIONS FOR CHANGED DECK TYPE	TYPE:	TYPE:	TYPE:
			GRADE:	GRADE:	GRADE:

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT	20 year ESAL for flexible pavement from 2015 to 2035 : 1143000
2015	4100	610	55	6.2	230	40 year ESAL for flexible pavement from 2015 to 2055 : 2684000
2035	4400	650	55	10.1	400	Design Speed : 40 mph