

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

LRFD

Version 12.09.13

INDEX OF SHEETS

PLAN SHEETS

1

TITLE

2

PRELIMINARY INFORMATION

3

TYPICAL SECTIONS

4

PROJECT NOTES

5 - 7

QUANTITY SHEET 1-3

8

BRIDGE QUANTITY SHEET

9

SYMBOLOLOGY LEGEND

10

TIE

11 - 12

LAYOUT 1-2

13 - 14

PROFILE 1-2

15

BORING LAYOUT

16

BORING LOGS

17

PLAN AND ELEVATION

18

BRIDGE DECK PLAN

19 - 20

BRIDGE VOIDED SLAB DETAILS 1-2

21

APPROACH SLAB DETAILS

22

ABUTMENT 1 & 2 PLAN & ELEVATION

23 - 24

ABUTMENT 1 & 2 REINFORCING DETAILS 1-2

25

BRIDGE RAIL DETAILS

26

TRANSITION RAIL DETAILS

27 - 31

MAINLINE CROSS SECTIONS 1-5

32 - 34

CHANNEL CROSS SECTIONS 1-3

35

BANKING / MATERIAL TRANSITION

36

EPSC NARRATIVE

37 - 38

EPSC EXISTING LAYOUT 1-2

39 - 40

EPSC CONSTRUCTION LAYOUT 1-2

41 - 42

EPSC FINAL LAYOUT 1-2

43 - 44

EPSC DETAILS 1-2

STANDARDS LIST

A-76

STANDARDS FOR TOWN & DEVELOPMENT ROADS

03-03-2003

B-12

SIDE ROAD INTERSECTION, DEPRESSED RAMP

06-01-1994

B-71

STANDARD FOR RESIDENTIAL AND COMMERCIAL DRIVES

07-08-2005

C-10

CURBING

02-11-2008

D-22

SANITARY SEWER SYSTEMS

03-10-1995

G-1

STEEL BEAM GUARDRAIL DETAILS (POST, DELINEATOR, TYPICALS)

01-03-2000

G-1D

STEEL BEAM GUARDRAIL DETAILS (END TERMINAL, ANCHOR, MEDIAN)

01-03-2000

WATER & SEWER REPLACEMENT PLANS

1 - 2

WATER AND SEWER NOTES 1 - 2

BY CLD

3 - 4

WATER/SEWER DETAILS 1 - 2

BY CLD

5

WATER/SEWER LAYOUT 1

BY CLD

6

SEWER PROFILE

BY CLD

7

WATER PROFILE

BY CLD

STRUCTURES DETAIL SHEETS

SD-501.00

CONCRETE DETAILS AND NOTES

5/7/2010

SD-502.00

CONCRETE DETAILS AND NOTES

5/7/2010

SD-516.10

BRIDGE JOINT ASPHALTIC PLUG

5/7/2010

TRAFFIC DATA

YEAR

ADT

DHV

% D

% T

ADTT

20 year ESAL for flexible pavement from 2012 to 2032 : 387000

40 year ESAL for flexible pavement from 2012 to 2052 : 750000

Design Speed : 30 mph

AS BUILT "REBAR" DETAIL

LEVEL I

LEVEL II

LEVEL III

TYPE:

TYPE:

TYPE:

GRADE:

GRADE:

GRADE:

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: Nov. 2012

DRAINAGE AREA : 8.3 sq. mi.

CHARACTER OF TERRAIN : Flat at site to hilly and mountainous uplands.

STREAM CHARACTERISTICS : Sinuous, alluvial, not incised, wide flood plain

NATURE OF STREAMBED : Gravel and cobbles

PEAK FLOW DATA

Q 2.33 = 325 cfs

Q 50 = 1150 cfs

Q 10 = 725 cfs

Q 100 = 1400 cfs

Q 25 = 950 cfs

Q 500 = 2000 cfs

DATE OF FLOOD OF RECORD : Unknown

ESTIMATED DISCHARGE: Unknown

WATER SURFACE ELEV : Unknown

NATURAL STREAM VELOCITY : @ Q50 = 6.4 fps (1.7 fps)*

ICE CONDITIONS : Moderate

DEBRIS: Moderate

DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? No

IS ORDINARY RISE RAPID? Yes

IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? Yes

IF YES, DESCRIBE: Otter Creek is about 1300' downstream. This site is in the Otter Creek floodplain, and thus hydraulics at this site are sometimes controlled by the Otter Creek.

WATERSHED STORAGE: 1% HEADWATERS: UNIFORM: X IMMEDIATELY ABOVE SITE:

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Two span steel beam bridge with concrete deck

YEAR BUILT: 1900

CLEAR SPAN(NORMAL TO STREAM): Two 10' spans = 20' total

VERTICAL CLEARANCE ABOVE STREAMBED: 8'

WATERWAY OF FULL OPENING: 157 sq. ft.

DISPOSITION OF STRUCTURE: Remove

TYPE OF MATERIAL UNDER SUBSTRUCTURE: See boring logs

WATER SURFACE ELEVATIONS AT:

Q2.33 = 525.3' (525.6')*

VELOCITY = 4.6 fps (4.2 fps)*

Q10 = 527.3' (530.3')

6.9 fps (4.6 fps)

Q25 = 528.2' (531.6')

8.6 fps (4.1 fps)

Q50 = 528.9' (532.5')

10.1 fps (2.8 fps)

Q100 = 530.0' (533.4')

12.2 fps (2.3 fps)

LONG TERM STREAMBED CHANGES: None noted

IS THE ROADWAY OVERTOPPED BELOW Q100: No (Yes)*

FREQUENCY: Above Q100 without tailwater (About Q10 with Otter Creek tailwater)

RELIEF ELEVATION: 530.1'

DISCHARGE OVER ROAD @Q100: None without tailwater (1045 cfs with tailwater)

UPSTREAM STRUCTURE

TOWN: N.A. - Stream divides

DISTANCE:

HIGHWAY# :

STRUCTURE #:

CLEAR SPAN:

CLEAR HEIGHT:

YEAR BUILT:

FULL WATERWAY:

STRUCTURE TYPE:

DOWNSTREAM STRUCTURE

TOWN: N.A. - Otter Creek confluence

DISTANCE:

HIGHWAY# :

STRUCTURE #:

CLEAR SPAN:

CLEAR HEIGHT:

YEAR BUILT:

FULL WATERWAY:

STRUCTURE TYPE:

LRFR LOAD RATING FACTORS

LOADING LEVELS

H-20

HL-93

3S2

6 AXLE

3A STR.

4A STR.

5A SEM

TONNAGE

20

36

36

66

30

34.5

38

INVENTORY

2.18

1.16

POSTING

OPERATING

2.82

1.51

2.43

1.43

1.99

1.81

1.97

COMMENTS:

1. NOMINAL PILE DRIVING CAPACITY

440.00 KIP

2. PILE TEST RESISTANCE FACTOR

0.65

3. MAXIMUM PILE TIP ELEVATION

503.00 FT

4. 0

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span, prestressed concrete voided slab

CLEAR SPAN(NORMAL TO STREAM): 48'

VERTICAL CLEARANCE ABOVE STREAMBED: 7'

WATERWAY OF FULL OPENING: 310 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 = 525.2' (525.5')*

VELOCITY= 5.0 fps (4.5 fps)*

Q10 = 526.7' (530.0')

6.4 fps (2.9 fps)

Q25 = 527.2' (531.4')

7.3 fps (2.6 fps)

Q50 = 527.5' (532.5')

8.0 fps (2.1 fps)

Q100 = 528.0' (533.4')

8.8 fps (1.9 fps)

IS THE ROADWAY OVERTOPPED BELOW Q100: No (Yes)*

FREQUENCY: Above Q100 without tailwater (About Q10 with Otter Creek tailwater)

RELIEF ELEVATION: 530.1'

DISCHARGE OVER ROAD @Q100: None without tailwater (800 cfs with tailwater)

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 528.5'

VERTICAL CLEARANCE: @ Q50 = 1.0' without tailwater (-4.0' with tailwater)

SCOUR: Total contraction scour and long term degradation is 2' at Q100 and Q500.

REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

PERMIT INFORMATION

AVERAGE DAILY FLOW: 20 cfs DEPTH OR ELEVATION:

ORDINARY LOW WATER: 10 cfs Elev. 521.5'

ORDINARY HIGH WATER: 140 cfs Elev. 524.0'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: The road will be closed. No temporary bridge required.

CLEAR SPAN (NORMAL TO STREAM):

VERTICAL CLEARANCE ABOVE STREAMBED:

WATERWAY AREA OF FULL OPENING:

ADDITIONAL INFORMATION

*Hydraulics at this site are controlled by floodwaters from the Otter Creek. Water surface elevations and velocities listed first, are without tailwater from Otter Creek. They are followed by values in (), that represent conditions with equal frequency floods on the Otter Creek and Moon Brook.

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 : 3.0 INCH

3. DESIGN SPAN L : 50.00 FT

4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS) Δ: 0.55 INCH

5. PRESTRESSING STRAND (0.60 INCH DIAMETER - LOW RELAX) f y : 270 KSI

6. PRESTRESSED CONCRETE STRENGTH f ' c : 7.5 KSI

7. PRESTRESSED CONCRETE RELEASE STRENGTH f ' c r : 5.0 KSI

8. CONCRETE, HIGH PERFORMANCE CLASS AA f ' c : ---

9. CONCRETE, HIGH PERFORMANCE CLASS A f ' c : ---

10. CONCRETE, HIGH PERFORMANCE CLASS B f ' c : ---

11. CONCRETE, CLASS C f ' c : ---

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 : 4.0 KSF

16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD) ϕ : ---

17. NOMINAL BEARING RESISTANCE OF ROCK q n : 10.0 KSF

18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD) ϕ : ---

19. NOMINAL AXIAL PILE RESISTANCE q p : 440.0 KIPS

20. PILE YIELD STRENGTH ASTM A572 f y : 50 KSI

21. PILE SIZE HP 10X57

22. EST. PILE LENGTH L p : 53 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 P G A : --- S s : --- S t : ---

PROJECT NAME: RUTLAND CITY

PROJECT NUMBER: BRF 3000(18)

FILE NAME: s96j244pi.xls PLOT DATE: 2/28/2014

PROJECT LEADER: C. CARLSON DRAWN BY: R. PELLET

DESIGNED BY: M. EVANS-MONGEON CHECKED BY: M. E-M

PRELIMINARY INFORMATION SHEET 2 OF 44