

# PRELIMINARY INFORMATION SHEET (BRIDGE)

LRFD

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FINAL HYDRAULIC REPORT

PLAN SHEETS

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STANDARDS LIST

|        |  |            |
|--------|--|------------|
| D-1    | PRECAST REINFORCED CONCRETE DROP INLET DETAILS         | 06-01-1994 |
| 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-141  | REGULATORY SIGN DETAILS                                | 09-20-1995 |
| E-143  | REGULATORY SIGN DETAILS                                | 06-15-2004 |
| E-150  | WARNING SIGN DETAILS                                   | 05-01-2004 |
| E-151  | WARNING SIGN DETAILS                                   | 05-01-2004 |
| E-152  | WARNING SIGN DETAILS                                   | 05-01-2004 |
| E-191  | PAVEMENT MARKING DETAILS                               | 02-01-1999 |
| E-193  | PAVEMENT MARKING DETAILS                               | 08-18-1995 |
| G-1B   | BOX BEAM GUARD RAIL                                    | 06-01-1994 |
| G-19   | GENERIC GRADING PLANS FOR GUARDRAIL END TERMINALS      | 11-15-2002 |
| J-3    | MAIL BOX SUPPORT DETAILS                               | 08-07-1995 |
| S-364A | BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM             | 04-23-2012 |
| S-364B | GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM | 04-23-2012 |
| S-364C | GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM | 04-23-2012 |
| S-364D | GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM | 04-23-2012 |
| T-1    | TRAFFIC CONTROL GENERAL NOTES                          | 08-06-2012 |
| T-10   | CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNING       | 08-06-2012 |
| T-17   | TRAFFIC CONTROL MISCELLANEOUS DETAILS                  | 08-06-2012 |
| T-28   | CONSTRUCTION SIGN DETAILS                              | 08-06-2012 |
| T-29   | CONSTRUCTION SIGN DETAILS                              | 08-06-2012 |
| T-30   | CONSTRUCTION SIGN DETAILS                              | 08-06-2012 |
| T-31   | CONSTRUCTION SIGN DETAILS                              | 08-06-2012 |
| T-35   | CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS               | 08-06-2012 |
| T-40   | DELINEATORS AND MILEPOSTS                              | 01-02-2013 |
| T-42   | BRIDGE NUMBER PLAQUE                                   | 04-09-2014 |
| T-44   | MILEMARKER DETAILS STATE AND TOWN HIGHWAYS             | 04-09-2014 |
| T-45   | SQUARE TUBE SIGN POST AND ANCHOR                       | 01-02-2013 |

STRUCTURES DETAIL SHEETS

|           |                             |          |
|-----------|-----------------------------|----------|
| SD-501.00 | CONCRETE DETAILS AND NOTES  | 5/7/2010 |
| SD-502.00 | CONCRETE DETAILS AND NOTES  | 5/7/2010 |
| SD-518.10 | BRIDGE JOINT ASPHALTIC PLUG | 5/7/2010 |

HYDROLOGIC DATA

Date: Sept. 2012

DRAINAGE AREA: 16.0 sq. mi.  
 CHARACTER OF TERRAIN: Hilly to mountainous  
 STREAM CHARACTERISTICS: Semi-alluvial, sinuous, laterally and vertically stable  
 NATURE OF STREAMBED: Mostly ledge

PEAK FLOW DATA

|          |          |         |          |
|----------|----------|---------|----------|
| Q 2.33 = | 500 cfs  | Q 50 =  | 1900 cfs |
| Q 10 =   | 1150 cfs | Q 100 = | 2250 cfs |
| Q 25 =   | 1550 cfs | Q 500 = | 3150 cfs |

DATE OF FLOOD OF RECORD: Unknown  
 ESTIMATED DISCHARGE: Unknown  
 WATER SURFACE ELEV.: Unknown  
 NATURAL STREAM VELOCITY: @ Q50 = 10.7 fps  
 ICE CONDITIONS: Light to moderate  
 DEBRIS: Light to moderate  
 DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? No  
 IS ORDINARY RISE RAPID? No  
 IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? No  
 IF YES, DESCRIBE:

WATERSHED STORAGE: 2% HEADWATERS: X  
 UNIFORM: \_\_\_\_\_  
 IMMEDIATELY ABOVE SITE: \_\_\_\_\_

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Single span concrete T-beam bridge  
 YEAR BUILT: 1933  
 CLEAR SPAN(NORMAL TO STREAM): 29'  
 VERTICAL CLEARANCE ABOVE STREAMBED: 13'  
 WATERWAY OF FULL OPENING: 375 sq. ft.  
 DISPOSITION OF STRUCTURE: Remove and replace  
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: Ledge

WATER SURFACE ELEVATIONS AT:

|         |         |            |          |
|---------|---------|------------|----------|
| Q2.33 = | 1618.8' | VELOCITY = | 6.3 fps  |
| Q10 =   | 1620.9' | "          | 10.2 fps |
| Q25 =   | 1621.4' | "          | 12.0 fps |
| Q50 =   | 1622.3' | "          | 13.0 fps |
| Q100 =  | 1623.9' | "          | 14.5 fps |

LONG TERM STREAMBED CHANGES: None known

IS THE ROADWAY OVERTOPPED BELOW Q100: No  
 FREQUENCY: Above Q100  
 RELIEF ELEVATION: 1631.3'  
 DISCHARGE OVER ROAD @Q100: None

UPSTREAM STRUCTURE

TOWN: Walden DISTANCE: 0.9 mi.  
 HIGHWAY #: TH 2 STRUCTURE #: 7  
 CLEAR SPAN: 70' CLEAR HEIGHT: 10'  
 YEAR BUILT: 1945 FULL WATERWAY: NA  
 STRUCTURE TYPE: Single span bridge

DOWNSTREAM STRUCTURE

TOWN: Walden DISTANCE: 1.1 mi.  
 HIGHWAY #: TH 45 STRUCTURE #: 21  
 CLEAR SPAN: 26' CLEAR HEIGHT: 9'  
 YEAR BUILT: NA FULL WATERWAY: NA  
 STRUCTURE TYPE: Single span 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      | 2.99  | 1.12  |      |        |        |        |         |
| POSTING        |       |       |      |        |        |        |         |
| OPERATING      | 4.13  | 1.54  | 3.13 | 1.35   | 2.57   | 2.18   | 2.46    |
| COMMENTS:      |       |       |      |        |        |        |         |

NOTE FOR DESIGN VALUES # 16 & 17  
 NOMINAL BEARING RESISTANCE OF ROCK  
 ABUTMENT #1 70 KSF  
 ABUTMENT #2 40 KSF  
 ROCK BEARING RESISTANCE FACTORED (REFER TO AASHTO LRFD)  
 ABUTMENT #1 31.5 KSF  
 ABUTMENT #2 18 KSF

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span NEXT Beam bridge  
 CLEAR SPAN(NORMAL TO STREAM): 40'  
 VERTICAL CLEARANCE ABOVE STREAMBED: 14'  
 WATERWAY OF FULL OPENING: 475 sq. ft.

WATER SURFACE ELEVATIONS AT:

|         |         |            |          |
|---------|---------|------------|----------|
| Q2.33 = | 1618.5' | VELOCITY = | 5.7 fps  |
| Q10 =   | 1620.4' | "          | 9.3 fps  |
| Q25 =   | 1621.4' | "          | 10.6 fps |
| Q50 =   | 1622.2' | "          | 11.7 fps |
| Q100 =  | 1623.1' | "          | 12.9 fps |

IS THE ROADWAY OVERTOPPED BELOW Q100: No  
 FREQUENCY: Above Q100  
 RELIEF ELEVATION: 1631.3'  
 DISCHARGE OVER ROAD @Q100: None

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 1628.8'  
 VERTICAL CLEARANCE: @Q50 = 6.6'

SCOUR: Abutments will be founded on sound ledge.

REQUIRED CHANNEL PROTECTION: Stone Fill, Type IV

PERMIT INFORMATION

AVERAGE DAILY FLOW: 30 cfs DEPTH OR ELEVATION:  
 ORDINARY LOW WATER: 15 cfs Elev. 1618'  
 ORDINARY HIGH WATER: 215 cfs Elev. 1618'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: No temporary bridge 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  $d_p$ : 3.0 INCH
3. DESIGN SPAN L: 53.00 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)  $\Delta$ : 2.802
5. PRESTRESSING STRAND (0.60 INCH DIAMETER - LOW RELAX)  $f_y$ : 270 KSI
6. PRESTRESSED CONCRETE STRENGTH  $f'_{ci}$ : 10.0 KSI
7. PRESTRESSED CONCRETE RELEASE STRENGTH  $f'_{cr}$ : 8.0 KSI
8. CONCRETE, HIGH PERFORMANCE CLASS AA  $f'_{ci}$ : ---
9. CONCRETE, HIGH PERFORMANCE CLASS A  $f'_{ci}$ : ---
10. CONCRETE, HIGH PERFORMANCE CLASS B  $f'_{ci}$ : ---
11. CONCRETE, CLASS C  $f'_{ci}$ : 3.0 KSI
12. REINFORCING STEEL  $f_y$ : 60 KSI
13. STRUCTURAL STEEL AASHTO M270  $f_y$ : ---
14. NOMINAL BEARING RESISTANCE OF SOL  $q_n$ : 4.0 KSF
15. SOL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)  $\phi$ : 0.45
16. NOMINAL BEARING RESISTANCE OF ROCK  $q_n$ : SEE NOTE
17. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)  $\phi$ : SEE NOTE

18. PILE RESISTANCE FACTOR  $\phi$ : -
19. LATERAL PILE DEFLECTION  $\Delta$ : ---
20. BASIC WIND SPEED  $V_{3s}$ : ---
21. MINIMUM GROUND SNOW LOAD  $p_g$ : ---
22. SEISMIC DATA  $P_gA$ : -  $S_s$ : ---  $S_1$ : ---

23. ---  
 24. ---  
 25. ---  
 26. ---

PROJECT NAME: WALDEN  
 PROJECT NUMBER: BRF 030-3(5)  
 FILE NAME: s09b308pi.xls PLOT DATE: 12/4/2014  
 PROJECT LEADER: C. CARLSON DRAWN BY: R. PELLET  
 DESIGNED BY: H. SALLS CHECKED BY: H. SALLS  
 PRELIMINARY INFORMATION SHEET 2 OF 56

TRAFFIC DATA

| YEAR | ADT  | DHV | % D | % T  | ADTT |  |
|------|------|-----|-----|------|------|--|
| 2013 | 2400 | 270 | 51  | 12.9 | 350  | 20 year ESAL for flexible pavement from 2013 to 2033 : 2877000 |
| 2033 | 2700 | 300 | 51  | 18.8 | 570  | 40 year ESAL for flexible pavement from 2013 to 2053 : 6650000 |
|      |      |     |     |      |      | Design Speed : 30 mph  |

| AS BUILT "REBAR" DETAIL |          |           |
|-------------------------|----------|-----------|
| LEVEL I                 | LEVEL II | LEVEL III |
| TYPE:                   | TYPE:    | TYPE:     |
| GRADE:                  | GRADE:   | GRADE:    |