

PRELIMINARY INFORMATION SHEET (BRIDGE)

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STANDARDS LIST

B-5	SLOPE GRADING, EMBANKMENTS, MUCK	06-01-1994
B-71	STANDARD FOR RESIDENTIAL AND COMMERCIAL DRIVES	07-08-2005
D-15	PRECAST REINF CONC. MH-GRATES, CAST IRON GRATE WITH FRAME, TY	06-01-1994
E-121	STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD	08-08-1995
E-127	ROUTE MARKINGS AT RURAL INTERSECTIONS	08-08-1995
E-136B	STATE ROUTE MARKER SIGN DETAILS	08-08-1995
E-193	PAVEMENT MARKING DETAILS	08-18-1995
G-1BM	BOX BEAM GUARD RAIL	06-13-1997
S-352A	BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION	08-22-2012
S-352B	BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION	08-22-2012
S-352C	BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION	08-22-2012
S-364C	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM	02-10-2014
S-364D	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM	04-23-2012
T-1	TRAFFIC CONTROL GENERAL NOTES	04-25-2016
T-2	TRAFFIC SIGN GENERAL NOTES	04-25-2016
T-10	CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNING	08-06-2012
T-17	TRAFFIC CONTROL MISCELLANEOUS DETAILS	08-06-2012
T-30	CONSTRUCTION SIGN DETAILS	08-06-2012
T-42	BRIDGE NUMBER PLAQUE	04-09-2014
T-45	SQUARE TUBE SIGN POST AND ANCHOR	01-02-2013
T-92	ROUTE MARKER FRAME DETAILS	10-26-2015

DETAIL SHEETS

SD-501.00	CONCRETE DETAILS AND NOTES	02-09-2012
SD-502.00	CONCRETE DETAILS AND NOTES	10-10-2012
SD-516.10	BRIDGE JOINT ASPHALTIC PLUG	08-29-2011
SD-601.00	STRUCTURAL STEEL DETAILS AND NOTES	06-04-2010
HSD-400.01	SAFETY EDGE DETAIL	03-29-2016
HSD-621.06	GUARDRAIL TERMINAL LABEL DETAIL	11-03-2015

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT	20 year ESAL for flexible pavement from 2015 to 2035 : 1511000
2015	4100	540	51	6.5	340	40 year ESAL for flexible pavement from 2015 to 2055 : 3385000
2035	4300	560	51	9.3	500	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: March 2015

DRAINAGE AREA : 23.8 sq. mi.
 CHARACTER OF TERRAIN : Hilly to mountainous, mostly forested drainage basin
 STREAM CHARACTERISTICS : Perennial, sinuous and alluvial
 NATURE OF STREAMBED : Gravel and cobbles

PEAK FLOW DATA

Q 2.33 =	300 cfs	Q 50 =	1,070 cfs
Q 10 =	700 cfs	Q 100 =	1,260 cfs
Q 25 =	900 cfs	Q 500 =	1,750 cfs

DATE OF FLOOD OF RECORD : Unknown
 ESTIMATED DISCHARGE : Unknown
 WATER SURFACE ELEV. : Unknown
 NATURAL STREAM VELOCITY : @ Q50 = 6.0 fps (0.9 fps)
 ICE CONDITIONS : Slight
 DEBRIS : Slight
 DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? No
 IS ORDINARY RISE RAPID? No
 IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? Yes
 IF YES, DESCRIBE : Flows to the site are reduced by storage in Crystal Lake upstream.
 Water may back up through this site from the Barton River, during high water on that river.

WATERSHED STORAGE : 6.2% HEADWATERS :
 UNIFORM : X
 IMMEDIATELY ABOVE SITE : X

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE : Two span stone slab bridge, with stone abutments and pier
 YEAR BUILT : 1919
 CLEAR SPAN(NORMAL TO STREAM): 21' face to face of abutments - 4' wide pier = 17'
 VERTICAL CLEARANCE ABOVE STREAMBED : 8'
 WATERWAY OF FULL OPENING : 130 sq. ft.
 DISPOSITION OF STRUCTURE : Remove and replace
 TYPE OF MATERIAL UNDER SUBSTRUCTURE : See boring logs

WATER SURFACE ELEVATIONS AT:

Q2.33 =	850.1' (850.3')	VELOCITY =	5.5 fps (4.7 fps)
Q10 =	852.5' (857.0')	"	9.3 fps (1.7 fps)
Q25 =	853.6' (857.6')	"	11.2 fps (1.9 fps)
Q50 =	855.4' (858.1')	"	8.0 fps (1.8 fps)
Q100 =	855.8' (858.6')	"	8.9 fps (1.8 fps)

LONG TERM STREAMBED CHANGES : No information available.

IS THE ROADWAY OVERTOPPED BELOW Q100 : Yes (Yes)
 FREQUENCY : Below Q50 (Below Q10)
 RELIEF ELEVATION : 855.3'
 DISCHARGE OVER ROAD @Q100 : 110 cfs (not determined)

UPSTREAM STRUCTURE

TOWN : Barton Village DISTANCE : ##
 HIGHWAY # : TH 424 (West Street) STRUCTURE # : 53
 CLEAR SPAN : NA CLEAR HEIGHT : NA
 YEAR BUILT : NA FULL WATERWAY : NA
 STRUCTURE TYPE : NA

DOWNSTREAM STRUCTURE

TOWN : Barton Village DISTANCE : 260'
 HIGHWAY # : Confluence with Barton River 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 SEM
TONNAGE	20	36	36	66	30	34.5	38
INVENTORY	1.74	1.06					
POSTING							
OPERATING	2.25	1.38	2.47	1.29	1.72	1.58	2.06
COMMENTS:							

PROPOSED STRUCTURE

STRUCTURE TYPE : Single span prestressed concrete Solid Slab bridge

CLEAR SPAN(NORMAL TO STREAM): 41'
 VERTICAL CLEARANCE ABOVE STREAMBED : 9'
 WATERWAY OF FULL OPENING : 295 sq. Ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	849.7' (850.1')	VELOCITY=	3.9 fps (3.3 fps)
Q10 =	851.4' (857.0')	"	6.1 fps (1.9 fps)
Q25 =	852.0' (857.6')	"	7.1 fps (1.8 fps)
Q50 =	852.6' (858.1')	"	8.0 fps (1.8 fps)
Q100 =	853.1' (858.6')	"	8.9 fps (1.8 fps)

IS THE ROADWAY OVERTOPPED BELOW Q100 : No (Yes)
 FREQUENCY : Above Q100 (Below Q10)
 RELIEF ELEVATION : 855.3'
 DISCHARGE OVER ROAD @Q100 : 0 cfs (Not determined)

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE : 854.9'
 VERTICAL CLEARANCE : @ Q50 = 2.3' (-3.2')

SCOUR : 0' of contraction scour up to Q500
 Piles should be designed to be freestanding 6' below stream bottom.
 REQUIRED CHANNEL PROTECTION : Stone Fill, Type II

PERMIT INFORMATION

AVERAGE DAILY FLOW : 50 cfs DEPTH OR ELEVATION :
 ORDINARY LOW WATER : 25 cfs Elevation 847'
 ORDINARY HIGH WATER : 130 cfs Elevation 850'

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

Hydraulics at this site is affected by high water events on the downstream Barton River.
 Headwater elevations and velocities listed first are based on just the Crystal Lake outlet stream
 and do not include Barton River effects. Values listed in parentheses are based on equal
 frequency flows on both rivers. Barton River information is from the Barton flood insurance study.

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: 44.00 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ: 0.98 INCH
5. PRESTRESSING STRAND (0.60 INCH DIAMETER - LOW RELAX)	f _y : 270 KSI
6. PRESTRESSED CONCRETE STRENGTH	f'c: 9.0 KSI
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f'ci: 6.0 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. NOMINAL BEARING RESISTANCE OF SOIL	q _n : ---
15. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: ---
16. NOMINAL BEARING RESISTANCE OF ROCK	q _n : ---
17. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: ---
18. PILE RESISTANCE FACTOR	φ: 0.65
19. LATERAL PILE DEFLECTION	Δ: 0.25 INCH
20. BASIC WIND SPEED	V _{3s} : 100 MPH
21. MINIMUM GROUND SNOW LOAD	p _g : ---
22. SEISMIC DATA	PGA: 8 %g S _s : 18 %g S _r : 6 %g
23.	---
24.	---
25.	---
26.	---

PROJECT NAME : BARTON VILLAGE
 PROJECT NUMBER : BHF 0286(5)

FILE NAME : z12j172pi.dgn PLOT DATE : 3/15/2016
 PROJECT LEADER : J. OLUND DRAWN BY : S. MORGAN
 DESIGNED BY : J. OLUND CHECKED BY : J. HOWE
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