

# PRELIMINARY INFORMATION SHEET (BRIDGE)

LRFD

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FINAL HYDRAULIC REPORT

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STANDARDS LIST

A-76	STANDARDS FOR TOWN & DEVELOPMENT ROADS	03-03-2003
B-5	SLOPE GRADING, EMBANKMENTS, MUCK	06-01-1994
B-71	STANDARD FOR RESIDENTIAL AND COMMERCIAL DRIVES	07-08-2005
C-2A	PORTLAND CEMENT CONCRETE SIDEWALK DRIVE ENTRANCES WITH SIDEWALK ADJACENT TO CURB	10-14-2005
C-3A	SIDEWALK RAMPS	03-10-2008
C-3B	SIDEWALK RAMPS AND MEDIAN ISLANDS	03-10-2008
C-10	CURBING	02-11-2008
D-15	PRECAST REINF CONC. MH-GRATES, CAST IRON GRATE WITH FRAME, TYPE D & E	06-01-1994
E-121	STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD	08-08-1995
E-136B	STATE ROUTE MARKER SIGN DETAILS	08-08-1995
E-175	POWER DROP STANCHIONS	06-08-2009
E-193	PAVEMENT MARKING DETAILS	08-18-1995
G-1BM	BOX BEAM GUARD RAIL	06-13-1997
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-28	CONSTRUCTION SIGN DETAILS	08-06-2012
T-30	CONSTRUCTION SIGN DETAILS	08-06-2012
T-35	CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS	08-06-2012
T-36	CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS FOR PAVING	08-06-2012
T-40	DELINEATORS AND MILEPOSTS	01-02-2013
T-42	BRIDGE NUMBER PLAQUE	04-09-2014
T-45	SQUARE TUBE SIGN POST AND ANCHOR	01-02-2013
T-82	VERMONT WARNING SIGN DETAILS	02-16-2016

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
SD-602.00	STRUCTURAL STEEL PLATE GIRDER DETAILS AND NOTES	05-02-2011
HSD-400.01	SAFETY EDGE DETAILS	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 : 1001000
2015	1500	190	52	0.6	170	40 year ESAL for flexible pavement from 2015 to 2055 : 2418000
2035	1600	200	52	0.9	270	Design Speed : 30 mph

AS BUILT "REBAR" DETAIL

LEVEL I	LEVEL II	LEVEL III
TYPE:	TYPE:	TYPE:
GRADE:	GRADE:	GRADE:

HYDROLOGIC DATA

Date: June 2015

DRAINAGE AREA : 37.8 sq. mi.  
 CHARACTER OF TERRAIN : Hilly to mountainous, with mixed forest and open land cover  
 STREAM CHARACTERISTICS : Sinuous, incised and alluvial  
 NATURE OF STREAMBED : Mostly cobbles and gravel

PEAK FLOW DATA

Q 2.33 =	1,900 cfs	Q 50 =	6,250 cfs
Q 10 =	3,250 cfs	Q 100 =	8,200 cfs
Q 25 =	4,800 cfs	Q 500 =	16,980 cfs

DATE OF FLOOD OF RECORD : Unknown  
 ESTIMATED DISCHARGE : Unknown  
 WATER SURFACE ELEV. : Unknown  
 NATURAL STREAM VELOCITY : @ Q50 = 7.8 fps  
 ICE CONDITIONS : Moderate  
 DEBRIS : Light to 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 : 1936  
 CLEAR SPAN(NORMAL TO STREAM): 55'  
 VERTICAL CLEARANCE ABOVE STREAMBED : 8' (Ave. low beam elev. 808.1')  
 WATERWAY OF FULL OPENING : 345 sq. ft.  
 DISPOSITION OF STRUCTURE : Remove and replace superstructure  
 TYPE OF MATERIAL UNDER SUBSTRUCTURE : Unknown

WATER SURFACE ELEVATIONS AT:

Q2.33 =	807.2'	VELOCITY =	7.8 fps
Q10 =	810.4'	"	8.4 fps
Q25 =	812.0'	"	9.7 fps
Q50 =	812.7'	"	10.1 fps
Q100 =	813.5'	"	10.7 fps

LONG TERM STREAMBED CHANGES : None apparent

IS THE ROADWAY OVERTOPPED BELOW Q100: Yes  
 FREQUENCY: Below Q10  
 RELIEF ELEVATION: 809.0'  
 DISCHARGE OVER ROAD @Q100: 5070 cfs

UPSTREAM STRUCTURE

TOWN: Chelsea DISTANCE: 1,400'  
 HIGHWAY #: TH 44 STRUCTURE #: 45  
 CLEAR SPAN: 27' CLEAR HEIGHT: 9'  
 YEAR BUILT: 1921 FULL WATERWAY:  
 STRUCTURE TYPE: Single span steel beam bridge

DOWNSTREAM STRUCTURE

TOWN: Chelsea DISTANCE: 3,500'  
 HIGHWAY #: TH 3 STRUCTURE #: 11  
 CLEAR SPAN: 30' CLEAR HEIGHT: 9'  
 YEAR BUILT: 1926 FULL WATERWAY:  
 STRUCTURE TYPE: Single span concrete T-beam bridge

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	3.47	1.69					
POSTING							
OPERATING	3.86	2.20	3.03	1.99	2.71	2.43	2.61
COMMENTS:							

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span bridge with concrete deck  
 CLEAR SPAN(NORMAL TO STREAM): 55'  
 VERTICAL CLEARANCE ABOVE STREAMBED : 9'  
 WATERWAY OF FULL OPENING : 360 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	807.2'	VELOCITY=	7.8 fps
Q10 =	810.3'	"	8.4 fps
Q25 =	811.9'	"	9.7 fps
Q50 =	812.7'	"	10.1 fps
Q100 =	813.5'	"	10.7 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: Yes  
 FREQUENCY: Below Q10  
 RELIEF ELEVATION: 809.0'  
 DISCHARGE OVER ROAD @Q100: 4930 cfs

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 808.5'  
 VERTICAL CLEARANCE: @ Q50 = -4.2' (Water up to beams below Q10.)

SCOUR: Maximum contraction scour = 2' up to Q200. Any new substructure should be designed to be free-standing 6' below stream bed. Record plans show existing abutments are.  
 REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

PERMIT INFORMATION

AVERAGE DAILY FLOW: - DEPTH OR ELEVATION:  
 ORDINARY LOW WATER: -  
 ORDINARY HIGH WATER: - See other plan sheets.

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: No temporary bridge. Road to be closed with a 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 <sub>p</sub> : 3.0 INCH
3. DESIGN SPAN	L: 81.10 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ: ---
5. PRESTRESSING STRAND	f <sub>y</sub> : ---
6. PRESTRESSED CONCRETE STRENGTH	f'c: ---
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f'ci: ---
8. CONCRETE, HIGH PERFORMANCE CLASS AA	f'c: ---
9. CONCRETE, HIGH PERFORMANCE CLASS A	f'c: 4.0 KSI
10. CONCRETE, HIGH PERFORMANCE CLASS B	f'c: 3.5 KSI
11. CONCRETE, CLASS C	f'c: ---
12. REINFORCING STEEL	f <sub>y</sub> : 60 KSI
13. STRUCTURAL STEEL AASHTO M270	f <sub>y</sub> : 50 KSI
14. NOMINAL BEARING RESISTANCE OF SOIL	q <sub>n</sub> : ---
15. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: ---
16. NOMINAL BEARING RESISTANCE OF ROCK	q <sub>n</sub> : 55.0 KSF
17. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: 0.45
18. PILE RESISTANCE FACTOR	φ: ---
19. LATERAL PILE DEFLECTION	Δ: ---
20. BASIC WIND SPEED	V <sub>3s</sub> : 100 MPH
21. MINIMUM GROUND SNOW LOAD	p <sub>g</sub> : 0.05 K/FT <sup>2</sup>
22. SEISMIC DATA	PGA: 8 %g S <sub>s</sub> : 18 %g S <sub>T</sub> : 5 %g
23.	
24.	
25.	
26.	

PROJECT NAME: CHELSEA  
 PROJECT NUMBER: BHF 0169(9)

FILE NAME: z12c150pl.dgn PLOT DATE: 10/4/2016  
 PROJECT LEADER: J. OLUND DRAWN BY: S. MORGAN  
 DESIGNED BY: J. OLUND CHECKED BY: B. TOOTHAKER  
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