

# PRELIMINARY INFORMATION SHEET (BRIDGE)

LRFD

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STANDARDS LIST

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C-3A	SIDEWALK RAMP S	10-Mar-08
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C-10	CURBING	11-Feb-08
D-8	REINFORCED CONCRETE DROP INLET WITH PRECAST COVER ::	3-Jan-00
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E-100	CONSTRUCTION APPROACH SIGNS	2-Jan-04
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E-108	CONSTRUCTION ZONE LONGITUDINAL DROP OFFS	8-Jun-09
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E-110	MAJOR MAINTENANCE OPERATION LANE CLOSURE	8-Aug-05
E-121	STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD	8-Aug-05
E-123	GUIDE SIGN PLACEMENT - MISCELLANEOUS DETAILS	16-Mar-04
E-164	SQUARE STEEL SIGN POST	8-Jun-09
	PRECAST REINFORCED CONCRETE CURB OR :: CAST-IN-PLACE CONCRETE CURB	
	REINFORCED CONCRETE DROP INLET WITH GRATE (BOTTOM SECTION)	
	REINFORCED CONCRETE DROP INLET :: THROAT ADAPTER	
	PRECAST REINFORCED CONCRETE MANHOLE W/CAST IRON COVER ::	
	CAST IRON GRATE WITH FRAME, TYPE D :: CAST IRON GRATE WITH FRAME, TYPE E	
E-191	PAVEMENT MARKING DETAILS	2-Jan-09
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F-2	CHAIN LINK FENCE (TYPE 1)	1-Jun-04
	DRIVE GATE FOR CHAIN-LINK FENCE (TYPE 1)	
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J-3	MAILBOX SUPPORT DETAIL (SINGLE AND MULTIPLE SUPPORT)	7-Aug-05
SB-R6-82	BRIDGE RAILING HEAVY DUTY STEEL BEAM (TYPE A, TYPE B, TYPE C, AND TYPE D)	6-Jan-05
	BRIDGE RAILING HEAVY DUTY STEEL BEAM W/ BOX BEAM HAND RAIL (TYPE E)	

FINAL HYDRAULIC REPORT

**HYDROLOGIC DATA** Date: July 2008  
 DRAINAGE AREA : 21.6 sq. mi.  
 CHARACTER OF TERRAIN : Hilly, mixture of forest and meadows, small urban areas  
 STREAM CHARACTERISTICS : Sinuous, semi-alluvial, low relief valley  
 NATURE OF STREAMBED : Ledge, cobbles, boulders, gravel

**PEAK FLOW DATA**  
 Q 2.33 = 650 cfs Q 50 = 2100 cfs  
 Q 10 = 1300 cfs Q 100 = 2450 cfs  
 Q 25 = 1700 cfs Q 500 = 3400 cfs

DATE OF FLOOD OF RECORD 1927  
 ESTIMATED DISCHARGE: Unknown  
 WATER SURFACE ELEV.: Unknown  
 NATURAL STREAM VELOCITY: @ Q50 = 14.1 fps  
 ICE CONDITIONS: 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: 3% HEADWATERS:  
 UNIFORM: X  
 IMMEDIATELY ABOVE SITE:

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Concrete T-Beam w/CIP Concrete Deck  
 YEAR BUILT: 1932  
 CLEAR SPAN(NORMAL TO STREAM): 30'  
 VERTICAL CLEARANCE ABOVE STREAMBED: 14' +/-  
 WATERWAY OF FULL OPENING: 400 sq. ft.  
 DISPOSITION OF STRUCTURE: Rehabilitate  
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: Ledge

**WATER SURFACE ELEVATIONS AT:**  
 Q2.33 = 359.2' VELOCITY = 10.3 fps  
 Q10 = 361.7' " 14.2 fps  
 Q25 = 362.9' " 15.0 fps  
 Q50 = 364.0' " 15.8 fps  
 Q100 = 364.8' " 16.3 fps

LONG TERM STREAMBED CHANGES: None

IS THE ROADWAY OVERTOPPED BELOW Q100: No  
 FREQUENCY: N/A  
 RELIEF ELEVATION: 371.0'  
 DISCHARGE OVER ROAD @Q100: N/A

UPSTREAM STRUCTURE

TOWN: Fairfax DISTANCE: 1350'  
 HIGHWAY#: TH 24 STRUCTURE #: BR 23  
 CLEAR SPAN: 20' CLEAR HEIGHT: 12'  
 YEAR BUILT: 1978 FULL WATERWAY:  
 STRUCTURE TYPE: Concrete Slab

DOWNSTREAM STRUCTURE

TOWN: Fairfax DISTANCE: 1050'  
 HIGHWAY#: TH 35 STRUCTURE #: BR 25  
 CLEAR SPAN: 42' CLEAR HEIGHT: 11'  
 YEAR BUILT: 1865, Reconstructed in 1990 FULL WATERWAY:  
 STRUCTURE TYPE: Town Lattice Covered 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	2.05	1.82					
POSTING							
OPERATING	2.96	2.84	3.23	3.26	4.57	5.3	
COMMENTS:	0						

PROPOSED STRUCTURE

STRUCTURE TYPE: Concrete Prestressed Voids Slab  
 CLEAR SPAN(NORMAL TO STREAM): 30'  
 VERTICAL CLEARANCE ABOVE STREAMBED: 14' +/-  
 WATERWAY OF FULL OPENING: 400 sq. ft.

**WATER SURFACE ELEVATIONS AT:**  
 Q2.33 = 359.2' VELOCITY = 10.3 fps  
 Q10 = 361.7' " 14.2 fps  
 Q25 = 362.9' " 15.0 fps  
 Q50 = 364.0' " 15.8 fps  
 Q100 = 364.8' " 16.3 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No  
 FREQUENCY: N/A  
 RELIEF ELEVATION: 371.0'  
 DISCHARGE OVER ROAD @Q100: N/A

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 369.8'  
 VERTICAL CLEARANCE: @ Q50 = 5.8'

SCOUR: Abutments founded on ledge

REQUIRED CHANNEL PROTECTION: N/A

PERMIT INFORMATION

AVERAGE DAILY FLOW: 45 cfs DEPTH OR ELEVATION:  
 ORDINARY LOW WATER: 20 cfs 1.0'  
 ORDINARY HIGH WATER: 280 cfs 3.0'

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. TRAFFIC WILL BE DETOURED.

DESIGN VALUES

1. DESIGN LIVE LOAD	HL-93
2. FUTURE PAVEMENT	d <sub>p</sub> : 0.0 INCH
3. DESIGN SPAN	L: 31.00 FT
4. MN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ: ---
5. PRESTRESSING STRAND (0.60 INCH DIAMETER - LOW RELAX)	f <sub>y</sub> : 270 KSI
6. PRESTRESSED CONCRETE STRENGTH	f' <sub>c</sub> : 6.0 KSI
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f' <sub>cr</sub> : 5.0 KSI
8. CONCRETE, HIGH PERFORMANCE CLASS AA	f' <sub>c</sub> : ---
9. CONCRETE, HIGH PERFORMANCE CLASS A	f' <sub>c</sub> : 4.0 KSI
10. CONCRETE, HIGH PERFORMANCE CLASS B	f' <sub>c</sub> : 3.5 KSI
11. CONCRETE, CLASS C	f' <sub>c</sub> : ---
12. REINFORCING STEEL	f <sub>y</sub> : 60 KSI
13. STRUCTURAL STEEL AASHTO M270	f <sub>y</sub> : ---
14. SOIL UNIT WEIGHT	γ: ---
15. NOMINAL BEARING RESISTANCE OF SOIL	q <sub>n</sub> : ---
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: ---
17. NOMINAL BEARING RESISTANCE OF ROCK	q <sub>n</sub> : ---
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: ---
19. NOMINAL AXIAL PILE RESISTANCE	q <sub>p</sub> : ---
20. PILE YIELD STRENGTH ASTM A572	f <sub>y</sub> : ---
21. PILE SIZE	---
22. EST. PILE LENGTH	L <sub>p</sub> : ---
23. PILE RESISTANCE FACTOR	φ: ---
24. LATERAL PILE DEFLECTION	Δ: ---
25. BASIC WIND SPEED	V <sub>3s</sub> : ---
26. MINIMUM GROUND SNOW LOAD	p <sub>g</sub> : ---
27. SEISMIC DATA	PGA: --- S <sub>s</sub> : --- S <sub>f</sub> : ---

PROJECT NAME: FAIRFAX

PROJECT NUMBER: BHF 023-1(5)

FILE NAME: 86e064pi\_v3.xls PLOT DATE: 7/21/2009  
 PROJECT LEADER: C. CARLSON DRAWN BY: C. MOONEY  
 DESIGNED BY: C. CARLSON CHECKED BY: C. CARLSON  
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TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT	20 year ESAL for flexible pavement from 2013 to 2033 : 7665000	40 year ESAL for flexible pavement from 2013 to 2053 : 20813000
2013	8300	930	57	4.3	880		
2033	11500	1300	57	6.3	1800	Design Speed: 35 mph	