

# PRELIMINARY INFORMATION SHEET (BRIDGE)

LRFD

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STANDARDS LIST

FINAL HYDRAULIC REPORT

**HYDROLOGIC DATA** Date: 4/16/13

DRAINAGE AREA: 79.5 sq. mi.  
 CHARACTER OF TERRAIN: Mountainous Valley  
 STREAM CHARACTERISTICS: Sinuous, not braided  
 NATURE OF STREAMBED: Sand and gravel

PEAK FLOW DATA

Q 2.33 = 4560 cfs	Q 50 = 13175 cfs
Q 10 = 8100 cfs	Q 100 = 16220 cfs
Q 25 = 10840 cfs	Q 500 = 23000 cfs

DATE OF FLOOD OF RECORD: Unknown  
 ESTIMATED DISCHARGE: Unknown  
 WATER SURFACE ELEV.: Unknown  
 NATURAL STREAM VELOCITY: @ Q50 = 5.1 ft/s  
 ICE CONDITIONS: Moderate  
 DEBRIS: 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: <1% HEADWATERS: UNIFORM: X  
 IMMEDIATELY ABOVE SITE:

**EXISTING STRUCTURE INFORMATION**

STRUCTURE TYPE: Concrete Deck with Steel Beams  
 YEAR BUILT: 1974  
 CLEAR SPAN(NORMAL TO STREAM): 70'-0"  
 VERTICAL CLEARANCE ABOVE STREAMBED: 17'-0"  
 WATERWAY OF FULL OPENING: 1,098 sf  
 DISPOSITION OF STRUCTURE: Damaged during Irene, Replaced with Temp. Br.  
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: See Borings

WATER SURFACE ELEVATIONS AT:

Q2.33 = 816.6 ft	VELOCITY = 4.4 ft/s
Q10 = 820.3 ft	" 5.5 ft/s
Q25 = 822.4 ft	" 6.6 ft/s
Q50 = 827.0 ft	" 7.3 ft/s
Q100 = 828.5 ft	" 8.0 ft/s

LONG TERM STREAMBED CHANGES: Lateral Movement

IS THE ROADWAY OVERTOPPED BELOW Q100: Yes  
 FREQUENCY: Q50  
 RELIEF ELEVATION: 824.80'  
 DISCHARGE OVER ROAD @Q100: 1269 cfs

**UPSTREAM STRUCTURE**

TOWN: Rochester DISTANCE: 5280 feet  
 HIGHWAY #: River Brook Dr (TH 21) STRUCTURE #: B34  
 CLEAR SPAN: 90'-0" CLEAR HEIGHT: 15'-0"  
 YEAR BUILT: 2012 FULL WATERWAY: 950 sf  
 STRUCTURE TYPE: Single Span Precast Concrete Box Beams

**DOWNSTREAM STRUCTURE**

TOWN: Rochester DISTANCE: 2640 feet  
 HIGHWAY #: State Garage Rd (TH 35) STRUCTURE #: B36  
 CLEAR SPAN: 110'-0" CLEAR HEIGHT: 21'-0"  
 YEAR BUILT: 2002 FULL WATERWAY: 1940 sf  
 STRUCTURE TYPE: Single Span Steel Girder with Concrete Deck

**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	2.8	1.14					
POSTING							
OPERATING	3.63	1.48	2.05	1.23	2.11	1.86	1.85

•SEE PROJECTS NOTES.

**PILE DRIVING AND TESTING REQUIREMENTS**

- NOMINAL PILE DRIVING CAPACITY
- PILE TEST RESISTANCE FACTOR  $\phi$ : 0.65
- MAXIMUM PILE TIP ELEVATION
- A MINIMUM OF 2 DYNAMIC TESTS SHALL BE PERFORMED AT ABUTMENT NO 1 DURING INSTALLATION. THE REMAINING PILES SHOULD BE CALIBRATED BY WAVE EQUATION ANALYSIS.

**PROPOSED STRUCTURE**

STRUCTURE TYPE: Single Span Steel Plate Girder with Concrete Deck

CLEAR SPAN(NORMAL TO STREAM): 124'-6"  
 VERTICAL CLEARANCE ABOVE STREAMBED: 15'-6"  
 WATERWAY OF FULL OPENING: 1,837 sf

WATER SURFACE ELEVATIONS AT:

Q2.33 = 816.1 ft	VELOCITY = 4.7 ft/s
Q10 = 819.3 ft	" 5.5 ft/s
Q25 = 820.9 ft	" 6.6 ft/s
Q50 = 823.6 ft	" 7.4 ft/s
Q100 = 824.6 ft	" 8.2 ft/s

IS THE ROADWAY OVERTOPPED BELOW Q100: No  
 FREQUENCY: N/A  
 RELIEF ELEVATION: 825.06  
 DISCHARGE OVER ROAD @Q100: N/A

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 821.7 ft  
 VERTICAL CLEARANCE: @ Q50 = -1.9 ft

SCOUR: Contraction Scour up to Q100 = 6.7 ft and up to Q500 = 9.4 ft

REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

**PERMIT INFORMATION**

AVERAGE DAILY FLOW: 140 cfs DEPTH OR ELEVATION:  
 ORDINARY LOW WATER: 40 cfs 1.5 ft  
 ORDINARY HIGH WATER: 2850 cfs 11.0 ft

**TEMPORARY BRIDGE REQUIREMENTS**

STRUCTURE TYPE: Acrow Thru Truss  
 CLEAR SPAN (NORMAL TO STREAM): 124'-0"  
 VERTICAL CLEARANCE ABOVE STREAMBED: 17.67 ft  
 WATERWAY AREA OF FULL OPENING: 1815 sf

**ADDITIONAL INFORMATION**

**TRAFFIC MAINTENANCE NOTES**

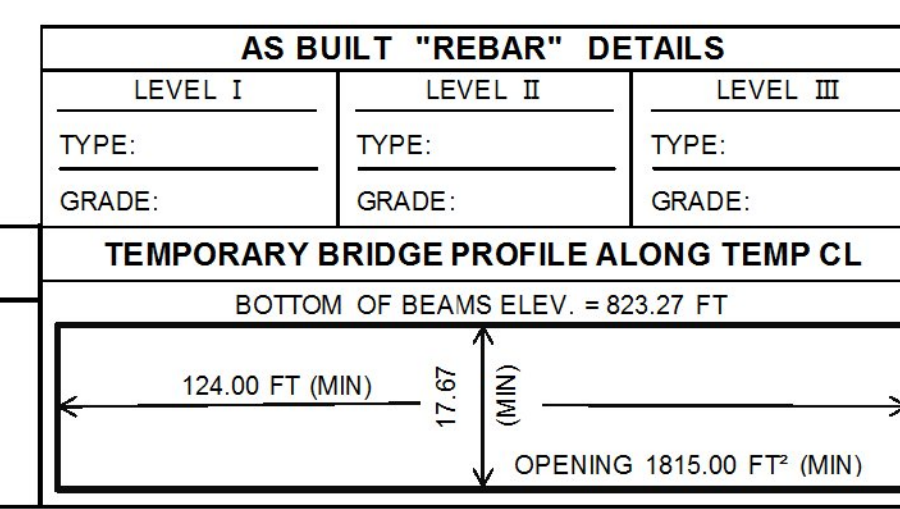
- MAINTAIN TWO-WAY TRAFFIC ON A TEMPORARY BRIDGE.
- INSTALL TEMPORARY TRAFFIC SIGNALS ON VT 100
- SIDEWALKS ARE NOT NECESSARY
- THE APPROACHES FOR THE TEMPORARY BRIDGE SHALL BE PAVED.

**DESIGN VALUES**

1. DESIGN LIVE LOAD	HL-93
2. FUTURE PAVEMENT	$d_p$ : 2.5 INCH
3. DESIGN SPAN	L: 127'-6" FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	$\Delta$ : ---
5. PRESTRESSING STRAND	$f_y$ : ---
6. PRESTRESSED CONCRETE STRENGTH	$f'_c$ : ---
7. PRESTRESSED CONCRETE RELEASE STRENGTH	$f'_{cr}$ : ---
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	$f_y$ : 60 KSI
13. STRUCTURAL STEEL AASHTO M270 (WEATHERING)	$f_y$ : 50 KSI
14. SOIL UNIT WEIGHT	$\gamma$ : 0.140 KCF
15. NOMINAL BEARING RESISTANCE OF SOIL	$q_n$ : ---
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	$\phi$ : ---
17. NOMINAL BEARING RESISTANCE OF ROCK	$q_n$ : 70 KSF
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	$\phi$ : ---
19. NOMINAL AXIAL PILE RESISTANCE	$q_p$ : 409 KIPS
20. PILE YIELD STRENGTH ASTM A572	$f_y$ : 50 KSI
21. PILE SIZE	HP 12X 84
22. EST. AVG. PILE LENGTH	L: 70 FT (ONE SUBSTRUCTURE)
23. PILE RESISTANCE FACTOR	$\phi$ : ---
24. LATERAL PILE DEFLECTION	$\Delta$ : ---
25. BASIC WIND SPEED	V3s: ---
26. MINIMUM GROUND SNOW LOAD	$p_g$ : ---
27. SEISMIC DATA	PGA: --- S: --- SI: ---

PROJECT NAME: ROCHESTER  
 PROJECT NUMBER: ER BRF 0162(18)

FILE NAME: z11c332PI Sheet.xls PLOT DATE: 8/19/2013  
 PROJECT LEADER: S.E. BURBANK DRAWN BY: C.L. CILLEY  
 DESIGNED BY: M.C. HANSEN CHECKED BY: G.S. GOODRICH  
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**TRAFFIC DATA**

YEAR	ADT	DHV	% D	% T	ADTT	Notes
2014	1500	190	57	6.9	130	20 year ESAL for flexible pavement from 2014 to 2034 : 614000
2034	1600	200	57	10.1	190	40 year ESAL for flexible pavement from 2014 to 2054 : 1399000 Design Speed : 35 mph

