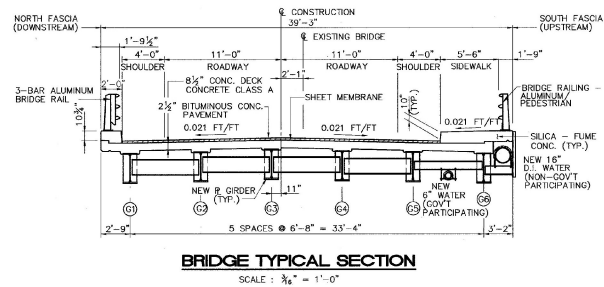


(SEE HIGHWAY TYPICAL SECTIONS)

NEW HIGHWAY SECTION - BRIDGE APPROACHES



BRIDGE TYPICAL SECTION

SCALE: 3/8" = 1'-0"

GENERAL NOTES:

- ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO STATE OF VERMONT AGENCY OF TRANSPORTATION, STANDARD SPECIFICATIONS, 1990 AND ITS LATEST REVISIONS. DESIGN IS FOR HS-20-44 LOADING MODIFIED FOR THE NATIONAL SYSTEM OF INTERSTATE HIGHWAYS, APPLIED IN ACCORDANCE WITH THE PROVISIONS OF AASHTO STANDARD SPECIFICATIONS.
- ALL STRUCTURAL STEEL SHALL CONFORM TO AASHTO DESIGNATION M270, GRADE 50 PAINTED EXCEPT AS NOTED IN THE PLANS. ALL FIELD CONNECTIONS SHALL BE MADE WITH 7/8" DIAMETER ASTM A-325, TYPE 1 (GALVANIZED) BOLTS IN 1 1/2" DIA. HOLES EXCEPT AS NOTED IN THE PLANS. WHERE CONNECTIONS ARE NOT DETAILED ON THE PLANS, THEY SHALL BE DETAILED BY THE FABRICATOR AND SUBMITTED TO THE ENGINEER FOR APPROVAL.
- ALL WELDING AND DIMENSIONAL TOLERANCES OF WELDED MEMBERS SHALL CONFORM TO AWS D1.5-88 "BRIDGE WELDING CODE" AND ITS LATEST REVISIONS.
- AFTER SUPERSTRUCTURE STEEL HAS BEEN ERECTED, ELEVATIONS ALONG THE TOP OF ERECTED BEAMS SHALL BE TAKEN UNDER THE DIRECTION OF THE ENGINEER FOR USE IN DETERMINING THE FINAL GRADE.
- WHERE THE GALVANIZING HAS BEEN REMOVED FROM BRIDGE COMPONENTS (INCLUDING DOWNSPOUTS) EITHER BY CUTTING, BURNING, WELDING, PLACING OR ANY MEANS, IT SHALL BE REPAIRED BY THOROUGHLY CLEANING THE DAMAGED AREAS WITH A WIRE BRUSH AND PAINTING THE DAMAGED AREAS WITH TWO COATS OF AN APPROVED SEALANT.
- ABUTMENT CONCRETE ABOVE THE ADJACENT BRIDGE SEAT ELEVATIONS SHALL NOT BE PLACED UNTIL GIRDERS HAVE BEEN ERECTED, BEAM PROFILES HAVE BEEN TAKEN, AND FINAL FINISHED GRADE OF DECK IS ESTABLISHED BY THE ENGINEER.
- MINIMUM COVER FOR REINFORCING STEEL (EXCEPT IN THE DECK) SHALL BE 2" IN BACK FACES OF SUBSTRUCTURE AGAINST EARTH AND 3" ELSEWHERE, UNLESS OTHERWISE SHOWN.
- ALL EXPOSED EDGES OF CONCRETE IN THE SUBSTRUCTURE AND THE SUPERSTRUCTURE SHALL BE CHAMFERED 1" X 1", UNLESS OTHERWISE SHOWN.
- DECK CONCRETE (INCLUDING BACKWALL HEADER) SHALL BE CONCRETE, CLASS A. BRUSH CURB CONCRETE AND SIDEWALK CONCRETE ON BRIDGE SHALL BE SILICA-FUME CONCRETE. ALL OTHER CONCRETE SHALL BE CONCRETE, CLASS B.
- BRIDGE SEATS OF BOTH ABUTMENTS SHALL BE SLOPED 1/2" PER FOOT EXCEPT UNDER BEARING PLATES WHERE THE SURFACES SHALL BE LEVEL. ABUTMENTS SHALL BE SLOPED FULL WIDTH. THE ENTIRE BRIDGE SEAT SURFACE SHALL BE SMOOTH STEEL TROWEL FINISHED.
- ANY FORM BRACKET HOLES IN FASCIA BEAMS OR GIRDER WEBS SHALL BE FILLED WITH BUTTONHEAD OR HEX-HEAD BOLTS (TYPE III).
- BORINGS INDICATED ON THE DRAWINGS HAVE BEEN MADE FOR DESIGN PURPOSES ONLY AND DO NOT WARRANT ACTUAL SUB-SURFACE CONDITIONS.
- ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL, AND ARE GIVEN AT 88 DEGREES F, EXCEPT AS NOTED ON THE PLANS.
- REINFORCING PLACEMENT TOLERANCES SHALL BE AS FOLLOWS:
SPACING TOLERANCE = +/- 1"
CLEARANCE TOLERANCE = +/- 1/4"
- "WATER REPELLENT" SHALL BE APPLIED TO ALL EXPOSED CONCRETE ON BOTH SUBSTRUCTURE AND SUPERSTRUCTURE, EXCEPT THE BOTTOM OF DECK BETWEEN FASCIA GIRDERS.
- IN ALL HORIZONTAL AND VERTICAL CONSTRUCTION JOINTS, SHEAR KEYS SHALL BE FORMED AS SHOWN ON BR119 AND THEY SHALL BE CONTINUOUS UP TO 3" FROM EACH END OF THE JOINT. THE UPWARD KEY SHALL BE PLACED INTEGRALLY WITH THE CONCRETE BELOW THE JOINT.

- THE COST OF INSTALLING P.V.C. WATERSTOPS, AS SHOWN IN THE PLANS, SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONCRETE, CLASS B. THE TYPE OF P.V.C. WATERSTOP TO BE USED SHALL BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER FOR APPROVAL.
- REMOVAL OF THE EXISTING SUPERSTRUCTURE SHALL BE PAID FOR UNDER ITEM 525.15. REMOVAL OF STRUCTURE. THIS WORK SHALL INCLUDE REMOVAL OF UTILITIES AND OTHER SUPERSTRUCTURE APPURTENANCES. THE CITY SHALL RETAIN OWNERSHIP OF SELECTED "NEEDLE BEAMS".
- REMOVAL OF THE EXISTING ABUTMENTS IN THEIR ENTIRETY. REMOVAL OF THE EXISTING ABUTMENTS OUTSIDE THE PAYMENT LIMITS OF COFFERDAM SHALL BE PAID FOR UNDER REMOVAL OF STRUCTURE.
- IN-STREAM CONSTRUCTION SHALL BE CONDUCTED DURING THE PERIOD JUNE 1 - OCTOBER 1 UNLESS THE CONTRACTOR OBTAINS PERMISSION FROM THE VERMONT AGENCY OF NATURAL RESOURCES TO DO WORK OUTSIDE THAT TIME PERIOD.
- FLAME CUTTING OF EPOXY COATED REINFORCING STEEL SHALL NOT BE PERMITTED.
- BRIDGE SHALL BE CLOSED TO ALL TRAFFIC DURING CONSTRUCTION.
- SHOP APPLIED STRUCTURAL COATINGS WILL BE ONE OF THE APPROVED SYSTEMS LISTED ON THE QUALIFIED PRODUCTS LIST MAINTAINED AT THE AGENCY'S LABORATORY.
- WATER MAINS ON BRIDGE SHALL HAVE MECHANICAL JOINT CONNECTIONS.

INDEX OF SHEETS:

BR100	PRELIMINARY INFORMATION SHEET
BR101	BRIDGE QUANTITY SHEET
BR102	PLAN & ELEVATION
BR103	BORING INFORMATION SHEET (1 OF 2)
BR104	BORING INFORMATION SHEET (2 OF 2)
BR105	TRANSVERSE SECTION
BR106	DECK PLAN
BR107	DECK END DETAILS
BR108	FRAMING PLAN
BR109	UTILITY DIAGRAM DETAILS
BR110	GIRDER ELEVATION
BR111	PLATE GIRDER BEARING DETAILS
BR112	ABUTMENT 1 MASONRY
BR113	ABUTMENT 1 REINFORCING
BR114	ABUTMENT 2 MASONRY
BR115	ABUTMENT 2 REINFORCING
BR116	WINGWALL REINFORCING AND DETAILS
BR117	ABUTMENT DETAILS
BR118	BRIDGE RAILING LAYOUT
BR119	STANDARD BRIDGE DETAILS
BR120	REINFORCING STEEL SCHEDULE
BR121	ALUMINUM BRIDGE RAILING DETAILS
BR122	ALUMINUM BRIDGE RAILING DETAILS
BR123	ALUMINUM APPROACH RAILING DETAILS

EXISTING STRUCTURE

- STRUCTURE TYPE OPEN STEEL GRID DECK ON BEAMS OVERALL LENGTH 83' INVENTORY RATING N/A
- SPAN LENGTH(S) CENTER TO CENTER OF BEARINGS 80'
- CLEAR SPAN LENGTH(S) NORMAL TO STREAM 674' VERTICAL CLEARANCE ABOVE STREAMBED 12'
- WATERWAY AREA OF FULL OPENING (NORMAL TO STREAM) 674' WATER SURFACE ELEVATION @ Q 100 596.97
- WATER SURFACE ELEVATION @ Q 2.33 591.04
- WATER SURFACE ELEVATION AT FLOOD OF RECORD YEAR 1977 ESTIMATED DISCHARGE 602' ESTIMATED DISCHARGE
- DOES ALL WATER PASS THROUGH EXISTING STRUCTURE? NO IF NOT, AT WHAT FREQUENCY AND ELEVATION DOES RELIEF OCCUR? 0.2% 593.50
- ADDITIONAL WATERWAY AREA PROVIDED BY RELIEF
- TYPE OF SUBSTRUCTURE FOUNDATION MATERIAL GRANITE BLOCK ABUTMENTS
- DISPOSITION OF STRUCTURE DEMOLISH

NEW STRUCTURE

- STRUCTURE GEOMETRY:
- STRUCTURE TYPE CONC. DECK OVER STEEL PLATE GIRDERS OVERALL LENGTH 81'
 - SPAN LENGTH(S) CENTER TO CENTER OF BEARINGS 79'
 - VERTICAL CLEARANCE ABOVE STREAM OR ROAD UNDER 12'
 - CLEAR SPAN LENGTH(S) NORMAL TO STREAM 674'
 - WATERWAY AREA OF FULL OPENING (NORMAL TO STREAM) 674'
 - ARE PROVISIONS TO BE MADE FOR PUBLIC UTILITIES? YES

HYDRAULIC DATA:

Q 2.33	2,900 cfs	WATER ELEVATION	590.99	VELOCITY	4.72
Q 10	5,340 cfs	WATER ELEVATION	592.40	VELOCITY	9.63
Q 25	9,800 cfs	WATER ELEVATION	594.49	VELOCITY	19.56
Q 50	18,500 cfs	WATER ELEVATION	596.40	VELOCITY	10.38
Q 100	33,800 cfs	WATER ELEVATION	597.98	VELOCITY	10.89

- DRAINAGE AREA 260.5 SQ. MI. CHARACTER OF TERRAIN ROLLING TO MOUNTAINOUS
- ARE THERE OBJECTIONS TO A PIKE IN THE STREAM? YES
- DOES STREAM REACH ITS MAXIMUM HIGH WATER ELEVATION RAPIDLY? YES
- NATURE OF NATURAL STREAMBED SANDY SILT
- ESTIMATED SCOUR DEPTH OF CONNECTIONS COMMENT ON: DRIFT SLOSH ICE LOGDEPOT
- WILL ALL WATER PASS THROUGH NEW STRUCTURE? NO IF NOT, WHAT FREQUENCY AND ELEVATION WILL RELIEF OCCUR? 0.2% 593.50
- ADDITIONAL WATERWAY AREA PROVIDED BY RELIEF N/A
- VERTICAL CLEARANCE ABOVE Q 100 STRUCTURE IS SUBMERGED
- ALLOWABLE WATER SURFACE ELEVATION 597.80 LIMITED BY BOTTOM OF LOW GIRDER
- IS DESIGN STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? NO IF YES, DESCRIBE
- STREAMBANK OR CHANNEL PROTECTION REQUIRED? STONE FILL TYPE II
- DISTANCE TO EXISTING UPSTREAM STRUCTURE 700' SPAN N/A WATERWAY AREA OF FULL OPENING N/A Q N/A
- DISTANCE TO EXISTING DOWNSTREAM STRUCTURE 1405' SPAN N/A WATERWAY AREA OF FULL OPENING N/A Q N/A
- ORDINARY HIGH WATER = 1073 cfs WATER ELEV. = 585.15
- ORDINARY LOW WATER = 80 cfs WATER ELEV. = 582.36

ALLOWABLE STRESSES:

- DESIGN LIVE LOAD AASHTO HS-20-44
- ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL N/A ON LEDGE N/A
- ALLOWABLE LOAD FOR PILING (SIPS) TYPE HP14X80 (GRADE 36) ESTIMATED LENGTH 40'
- ALLOWABLE STRESS FOR STRUCTURAL STEEL AASHTO M270, GRADE 50 TENSION 27,000 psi
- ALLOWABLE STRESS FOR REINFORCING STEEL GRADE 60 TENSION 25,000 psi COMPRESSION 20,000 psi
- ALLOWABLE STRESS FOR CONCRETE SILICA FUME f'c 4000 psi f'c 1600 psi

H = HORIZONTAL CLASS A f'c 4000 psi
V = VERTICAL CLASS B f'c 3000 psi

TRAFFIC MAINTENANCE:

- IS TRAFFIC TO BE MAINTAINED? NO IF YES, ON EXISTING STRUCTURE N/A OR ON TEMPORARY BRIDGE N/A
- TEMPORARY BRIDGE REQUIREMENTS: ONE OR TWO WAY N/A TRAFFIC CONTROL SIGNALS REQUIRED N/A
- MINIMUM CLEAR SPAN N/A MINIMUM CLEAR HEIGHT N/A
- ARE SIDEWALKS REQUIRED? IF SO, ON WHAT SIDE? N/A MINIMUM WATERWAY AREA N/A

ESTIMATED SCOUR DEPTHS (FEET)

SCOUR TYPE @ Q100		LOCATION	
		WEST ABUTMENT	EAST ABUTMENT
DEGRADATION	0	0	
CONTRACTION	1	1	
LOCAL			
TOTAL SCOUR	1	1	
FOUNDATION TYPES		PILE SUPPORTED	PILE SUPPORTED

LOAD RATING (TONS)

STRESS (psi)	LEVEL	TRUCK							
		H	HS	3S2	B AXLE	3A	3R	4A	5R
INVENTORY	25	46							
POSTED	30	56	53			43	47	53	
OPERATING	63	59	92	48	53				

ADDITIONAL DESIGN CONSIDERATIONS

STATE OF VERMONT AGENCY OF TRANSPORTATION

CITY OF BARRE BRIDGE NO. B-10
STREET NAME BLACKWELL STREET LOC. STA. SURV. STA.
BLACKWELL STREET OVER STEVENS BRANCH

PRELIMINARY INFORMATION SHEET

DESIGNED BY V. Deangelo DRAWN BY G. Saucier
CHECKED BY J. Potusky DATE BRIDGE DESIGN SUPERVISOR DATE 12/98
PROJECT BARRE CITY PROJECT NO. BRM 6000(13)
B&C DRAWING NO. 9203887/1-1 DATE 12/98
BRIDGE SHEET NO. BR100 SHEET 13 OF 46

BETTIGOLE ANDREWS & CLARK, INC.
Consulting Engineers