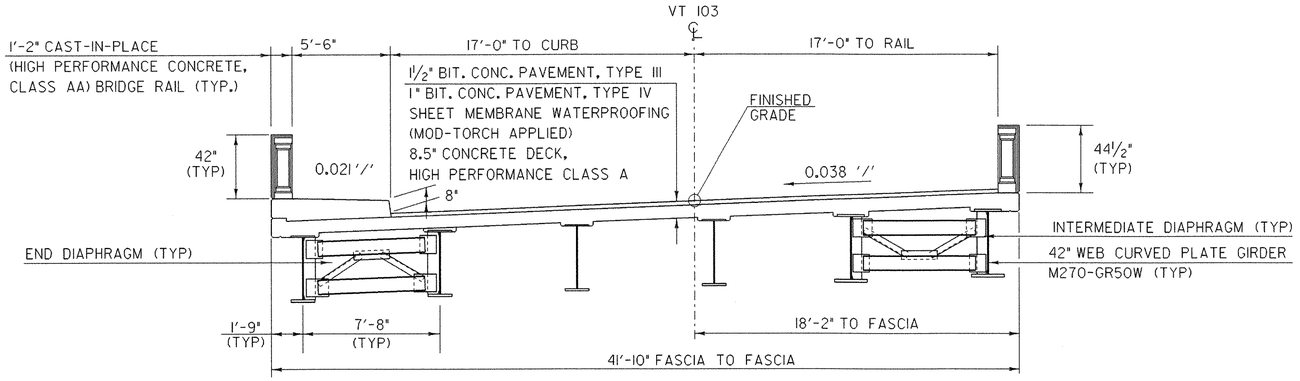
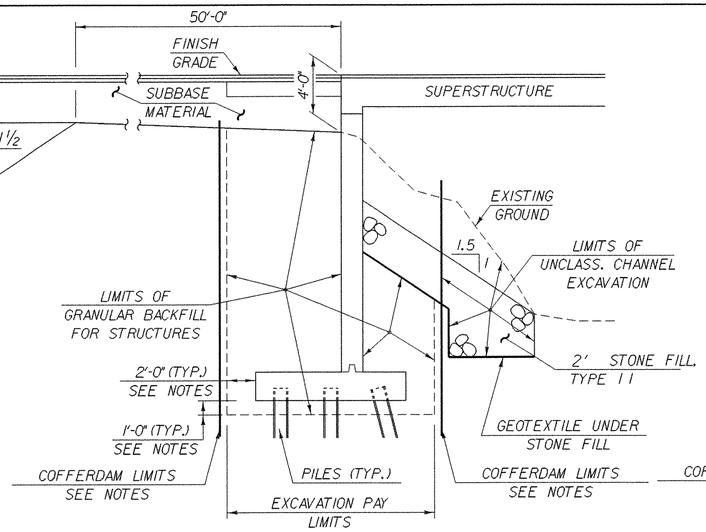


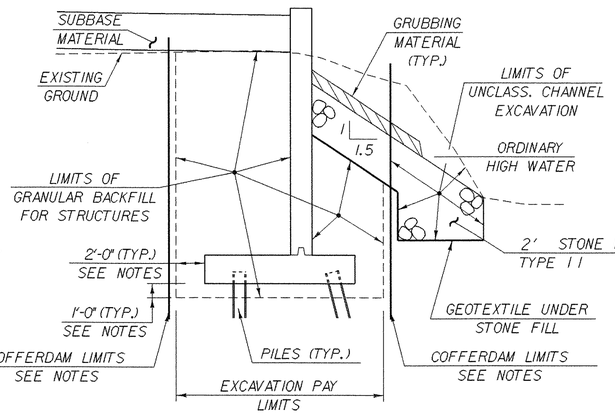
TYPICAL BRIDGE SECTION

¼" = 1'-0"



TYPICAL ABUTMENT SECTION

(NOT TO SCALE)

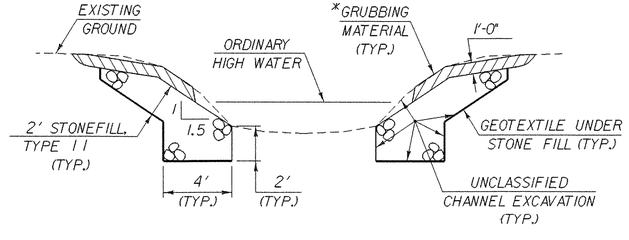


TYPICAL WINGWALL SECTION

(NOT TO SCALE)

NOTES

1. COFFERDAM LIMITS TO BE DETERMINED BY THE CONTRACTOR.
2. THE PAY LIMITS OF "COFFERDAM EXCAVATION, EARTH" AND "COFFERDAM EXCAVATION, ROCK" SHALL BE 2'-0" OUTSIDE THE PERIMETER OF THE FOOTING, UP TO EXISTING GROUND OR BOTTOM OF SUBBASE, WHICHEVER IS LOWER.
3. ONE FOOT UNDERCUT AS DETERMINED NECESSARY BY THE RESIDENT ENGINEER.
4. IF A COFFERDAM IS CONSTRUCTED WHICH IS LARGER THAN THE INDICATED COFFERDAM EXCAVATION PAY LIMITS, PAYMENT FOR ALL UNCLASSIFIED CHANNEL EXCAVATION, INCLUDING THAT PORTION WHICH IS INSIDE THE COFFERDAM BUT OUTSIDE THE COFFERDAM EXCAVATION PAY LIMITS, WILL BE MADE AT THE CONTRACT UNIT PRICE FOR UNCLASSIFIED CHANNEL EXCAVATION.



TYPICAL CHANNEL SECTION

(NOT TO SCALE)

*GRUBBING MATERIAL SHALL NOT BE PLACED ON THE STONE FILL IN THE AREA UNDER THE BRIDGE. WHENEVER CHANNEL SLOPE INTERSECTS ROADWAY SUBBASE, GRUBBING MATERIAL SHALL BEGIN AT THE BOTTOM OF SUBBASE.

FINAL HYDRAULICS REPORT

HYDROLOGIC DATA

(Dated 4-30-98)

DRAINAGE AREA= 27 SQ MI
CHARACTER OF TERRAIN: LOW ROLLING HILLS
CHARACTER & TYPE OF STREAM: STRAIGHT - PERRENIAL

NATURE OF STREAMBED: GRAVEL AND COBBLE

Q2.33= 1 200 CFS Q50= 4 800 CFS
Q10= 3 000 CFS Q100= 5 600 CFS
Q25= 4 000 CFS Q500= 8 200 CFS

DATE OF FLOOD OF RECORD: 1938
WATER SURFACE ELEV.: NA ESTIMATED DISCHARGE: NA
NATURAL STREAM VELOCITY @ Q50 = 8.5 FPS
ICE CONDITIONS: MODERATE DEBRIS: MODERATE
DOES THE STREAM REACH MAXIMUM HIGHWATER ELEVATION RAPIDLY? NO
IS ORDINARY RISE RAPID? NO
IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? YES
IF YES, DESCRIBE. DOWNSTEAM STRUCTURE - CHESTER B63 ON TH9

WATERSHED STORAGE 1% HEADWATERS UNIFORM THROUGHOUT WATERSHED X
IMMEDIATELY ABOVE SITE

EXISTING STRUCTURE

STRUCTURE TYPE: THREE-SPAN T-BEAM YEAR BUILT: 1931
CLEAR SPAN (NORMAL TO STREAM): 3 X 29 FT EACH = 87 FT TOTAL
VERTICAL CLEARANCE ABOVE STREAMBED: 12 FT
WATERWAY OF FULL OPENING: 650 SQ FT
DISPOSITION OF STRUCTURE: REMOVE

TYPE OF MATERIAL UNDER SUBSTRUCTURE: NA

WATER SURFACE ELEV. @ Q2.33= 586.4 VELOCITY= 3.8 FPS
Q10= 589.7 " = 6.0
Q25= 590.8 " = 7.4
Q50= 591.5 " = 8.5
Q100= 592.2 " = 9.7

LONG TERM STREAM BED CHANGES: NONE NOTED

IS THE ROADWAY OVERTOPPED BELOW THE Q100? YES FREQUENCY: LESS Q10
RELIEF ELEVATION: 588.6 DISCHARGE OVER ROAD @ Q100: 700 CFS

UPSTREAM STRUCTURE: TOWN: CHESTER DISTANCE: 3 000 FT
HIGHWAY NO.: TH 5 STRUCTURE NO.: B 11
STRUCTURE TYPE: TWO-SPAN I-BEAM
CLEAR SPAN: 31 FT CLEAR HEIGHT: 9 FT
YEAR BUILT: 1940 FULL WATERWAY: 280 SQ FT

DOWNSTRUCTURE: TOWN: CHESTER DISTANCE: 450 FT
HIGHWAY NO.: TH 9 STRUCTURE NO.: B 63
STRUCTURE TYPE: CONCRETE/STEEL I-BEAM
CLEAR SPAN: 32 FT CLEAR HEIGHT: 9 FT
YEAR BUILT: NA FULL WATERWAY: 280 SQ FT

PROPOSED STRUCTURE

STRUCTURE TYPE: SINGLE-SPAN CURVED PLATE GIRDER

CLEAR SPAN (NORMAL TO STREAM): 90 FT
VERTICAL CLEARANCE ABOVE STREAMBED: 14 FT
WATERWAY OF FULL OPENING: 1 000 SQ FT

WATER SURFACE ELEV. @ Q2.33= 586.3 VELOCITY= 3.8 FPS
Q10= 589.4 " = 5.8
Q25= 590.4 " = 6.9
Q50= 591.1 " = 7.9
Q100= 591.8 " = 8.9

IS THE ROADWAY OVERTOPPED BELOW THE Q100? YES FREQUENCY: LESS Q10
RELIEF ELEVATION: 588.5 DISCHARGE OVER ROAD @ Q100: 520 CFS

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 594.0 FT (LOW END =592.6)
VERTICAL CLEARANCE @ Q100 = 2.2 FT AVERAGE (0.8 ON LOW END)

SCOUR: CONTRACTION Q100 = 4 FT Q500 = 6FT
REQUIRED CHANNEL PROTECTION: TYPE II STONE FILL

PERMIT INFORMATION

AVERAGE DAILY FLOW: 55 CFS
ORDINARY LOW WATER: 26 CFS DEPTH: 1 FT
ORDINARY HIGH WATER: 515 CFS DEPTH: 4 FT

TEMPORARY BRIDGE REQUIREMENTS

TEMPORARY STRUCTURE TYPE: Single span bridge at the location shown on the plans. Temp bridge length exceeds hydraulic requirements due to need to avoid sensitive area.
VERTICAL CLEARANCE ABOVE STREAMBED: Bottom of steel min elev. = 591.0'
WATERWAY OF FULL OPENING: 560 sq ft min, perpendicular to channel

DESIGN CRITERIA:
1. DESIGN LIVE LOAD AASHTO HS25-44
2. DESIGN SPAN 107.00 FT.
3. ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL 6 KSF ON LEDGE NA
4. ALLOWABLE LOAD FOR PILING 190 KIPS TYPE HP14 X 73 (GR 50) ESTIMATED LENGTH 25 FT
5. STRUCTURAL STEEL AASHTO GRADE M 270 Grade 50W 27 KSI
6. REINFORCING STEEL GRADE 60
7. CONCRETE, HIGH PERFORMANCE CLASS A f'c : 4000 PSI
   CONCRETE, HIGH PERFORMANCE CLASS B f'c : 3500 PSI
8. SOIL UNIT WEIGHT 140 PCF
9. DESIGN LOAD FOR SPREAD FOOTINGS ON SOIL N/A

TRAFFIC MAINTENANCE:
1. IS TRAFFIC TO BE MAINTAINED? YES IF YES, ON EXISTING STRUCTURE NO OR ON TEMPORARY BRIDGE OF EXISTING IMMEDIATELY DOWNSTREAM
2. TEMPORARY BRIDGE REQUIREMENTS: ONE OR TWO WAY TWO WAY TRAFFIC CONTROL SIGNALS REQUIRED NO
   MINIMUM
   ARE SIDEWALKS REQUIRED? NO IF SO, ON WHAT SIDE?

LOAD FACTOR LOAD RATING (TONS)

LOADING LEVELS (LOAD FACTOR)	TRUCK						
	H	HS	3S2	6 AXLE	3A. STR.	4A. STR.	5A. SEMI
INVENTORY A=2.17; B=1.00	36	50	—	—	—	—	—
POSTED A=1.55; B=1.40	50	70	81	—	64	66	75
OPERATING A=1.30; B=1.67	—	83	97	114	76	78	—

STRENGTH RF = $\frac{\phi M_N - 1.3\,M_{DL}}{A \times M_{LL+I}}$ SERVICEABILITY RF = $B\left[\frac{.95\,F_y\,S_{LL+I} - M_{DL}\frac{S_{LL+I}}{S_{DL}} - M_{SDL}\frac{S_{LL+I}}{S_{SDL}}}{1.67\,M_{LL+I}}\right]$

TRAFFIC DATA
VT 103 BR 12

2002 ADT 4,420 VPD D% 53 %
2022 ADT 5,910 VPD T% 12 %
2002 ADTT 805 VPD DESIGN SPEED 30 MPH
2022 ADTT 1,240 VPD 18 KIP ESALS (2 LANES)
2022 DHV 760 VPH 20 YR - 10,260,000
40 YR - 26,986,000

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of CHESTER	Bridge No. 12
Highway No. VT 103	Log Sta. / Surv. Sta. 202-50
VT 103 OVER THE WILLIAMS RIVER	
PRELIMINARY INFORMATION	
Designed By THL / LKW	Drawn By THL / PBD
Checked By TLG Date 10/00	Bridge Design Supervisor NAP Date
PROJECT CHESTER	PROJECT NO. BRF 025-1(35)
I.G.C. Info. /user/str2/87bl34/zbl34cpl.dgn	zbl34cpl.j
Bridge Sheet No. BRI00	Sheet 3 of 79