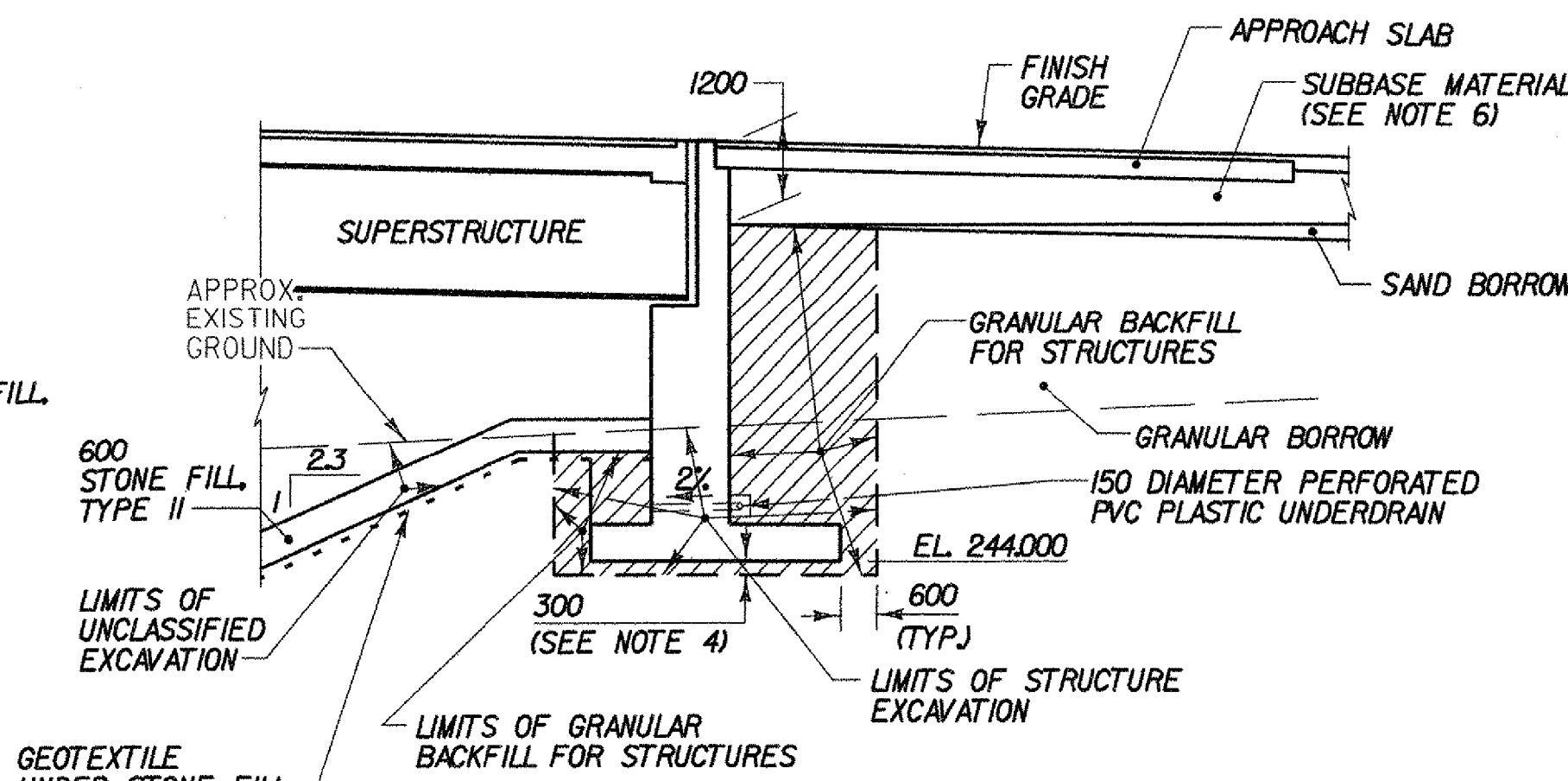
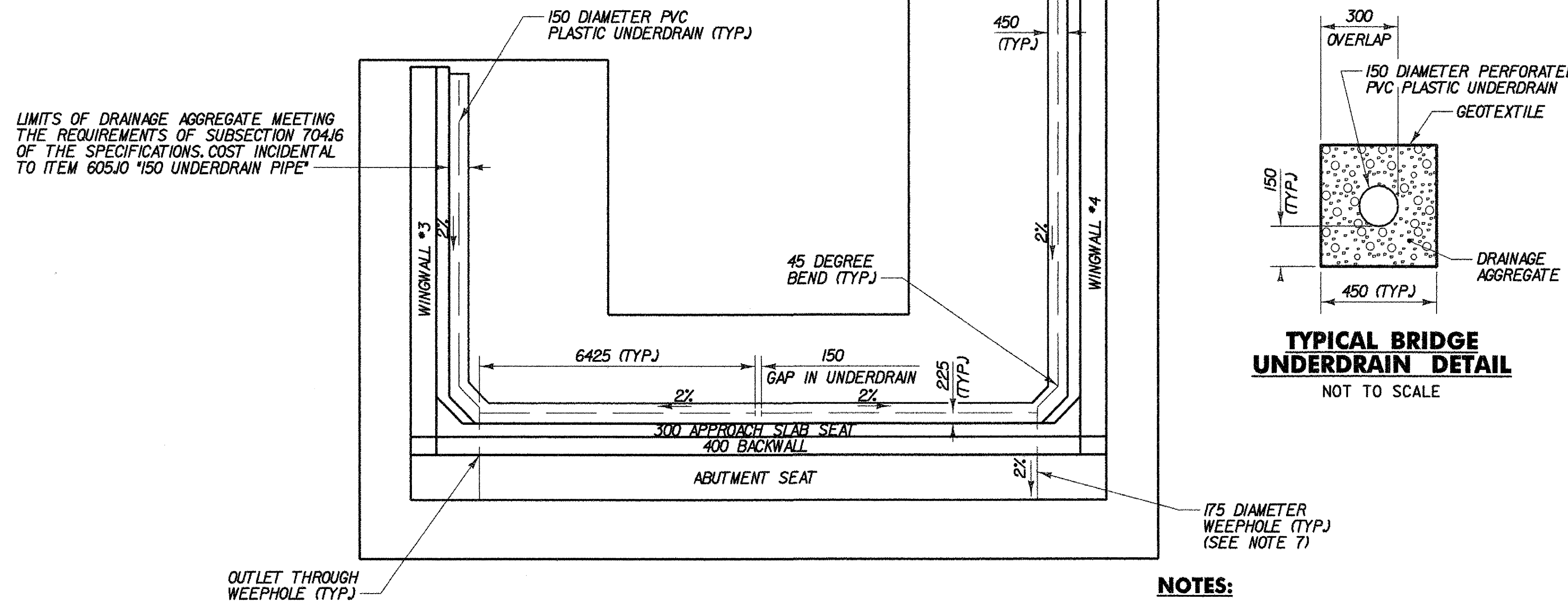


TYPICAL ABUTMENT 1 SECTION
NOT TO SCALE

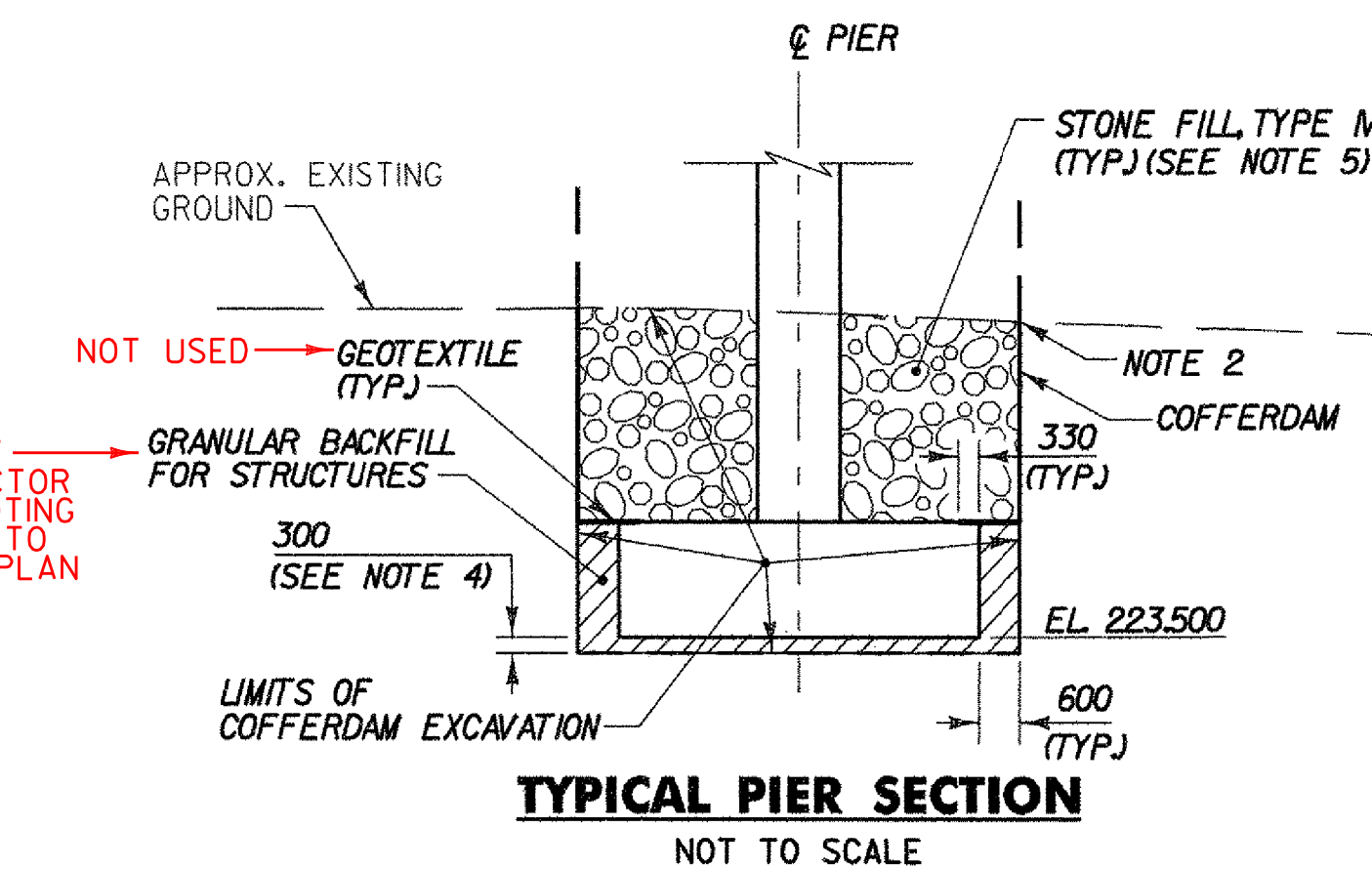


TYPICAL ABUTMENT 2 SECTION
NOT TO SCALE



TYPICAL BRIDGE UNDERDRAIN DETAIL
NOT TO SCALE

ABUTMENT 2 UNDERDRAIN LAYOUT
NOT TO SCALE



TYPICAL PIER SECTION
NOT TO SCALE

NOTES:

- COFFERDAM SIZE TO BE DETERMINED BY THE CONTRACTOR.
- CUT OFF THE COFFERDAM STEEL SHEET PILING AT THE GROUND SURFACE ELEVATION (SO IT IS NOT VISIBLE), WITH THE PORTION BELOW GROUND TO BE LEFT IN PLACE, AFTER THE PIER HAS BEEN CONSTRUCTED. THE COST OF THE SHEET PILING THAT IS TO REMAIN IN PLACE SHALL BE INCIDENTAL TO THE COFFERDAM ITEM. STEEL SHEET PILING THAT IS LEFT IN PLACE SHALL MEET THE REQUIREMENTS OF SUBSECTION 107.22 OF THE SPECIFICATION.
- THE PAY LIMITS OF "COFFERDAM EXCAVATION, EARTH" AND "COFFERDAM EXCAVATION, ROCK" SHALL BE 600 OUTSIDE THE PERIMETER OF THE FOOTING.
- 300 UNDERCUT AS DETERMINED NECESSARY BY THE RESIDENT ENGINEER. 300 UNDERCUT WAS USED
- THE CONTRACTOR SHALL PLACE THE TYPE IV STONE FILL SO AS NOT TO DAMAGE THE PIER AND PIER FOOTING. THE STONE SHALL BE PLACED AROUND THE PIER AND NOT DROPPED.
- TRANSITION THE SUBBASE OVER 15 m FROM THE BACK OF ABUTMENT. REFER TO THE HIGHWAY PLANS FOR DETAILS.
- THE CONTRACTOR SHALL OUTLET THE 150 DIAMETER UNDERDRAIN THROUGH THE 175 DIAMETER WEEP. AFTER INSTALLATION OF THE UNDERDRAIN, THE ANNULAR SPACE BETWEEN THE UNDERDRAIN AND WEEP SHALL BE FILLED WITH TYPE IV MORTAR CONFORMING TO SECTION 707.03 OF THE SPECIFICATIONS.
- ALL DIMENSIONS ON SHEETS BR50J TO BR554 ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

HYDROLOGIC DATA

DRAINAGE AREA= 29.1 sq. km
 CHARACTER OF TERRAIN: Mountainous
 CHARACTER & TYPE OF STREAM: Sinuous, perennial in alluvium
 NATURE OF STREAMBED: Cobble layer interlaced with sand & gravel
 Q2.33= 27 cms Q50= 63 cms
 Q10= 46 cms Q100= 71 cms
 Q25= 56 cms Q500= 121 cms
 DATE OF FLOOD OF RECORD: Unknown
 WATER SURFACE ELEV.: Unknown ESTIMATED DISCHARGE: Unknown
 NATURAL STREAM VELOCITY @ Q50 = 2.49 mps
 ICE CONDITIONS: Moderate DEBRIS: Slight
 DOES THE STREAM REACH MAXIMUM HIGHWATER ELEVATION RAPIDLY? Yes
 IS ORDINARY FICE RAPID? Yes
 IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? No
 IF YES, DESCRIBE.
 WATERSHED STORAGE: HEADWATERS UNIFORM THROUGHOUT WATERSHED IMMEDIATELY ABOVE SITE

EXISTING STRUCTURE

STRUCTURE TYPE: N/A YEAR BUILT: N/A
 CLEAR SPAN (NORMAL TO STREAM): N/A
 VERTICAL CLEARANCE ABOVE STREAMBED: N/A
 WATERWAY OF FULL OPENING: N/A
 DISPOSITION OF STRUCTURE: N/A
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: N/A
 WATER SURFACE ELEV. @ Q2.33= 230.4 VELOCITY= 1.94 mps
 Q10= 230.8 " 2.31 mps
 Q25= 231.0 " 2.44 mps
 Q50= 231.1 " 2.49 mps
 Q100= 231.2 " 2.60 mps
 LONG TERM STREAM BED CHANGES: N/A
 IS THE ROADWAY OVERTOPPED BELOW THE Q100? N/A FREQUENCY: N/A
 RELIEF ELEVATION: N/A DISCHARGE OVER ROAD @ Q100: N/A
 UPSTREAM STRUCTURE: TOWN: N/A DISTANCE: _____
 HIGHWAY NO.: _____ STRUCTURE NO.: _____
 STRUCTURE TYPE: _____
 CLEAR SPAN: _____ CLEAR HEIGHT: _____
 YEAR BUILT: _____ FULL WATERWAY: _____
 DOWNSTREAM STRUCTURE: TOWN: BENNINGTON DISTANCE: 0.9 km
 HIGHWAY NO.: N. BRANCH ST. STRUCTURE NO.: 24
 STRUCTURE TYPE: SINGLE SPAN PRECAST CONCRETE VOIDED SLAB BRIDGE
 CLEAR SPAN: 12.50 m CLEAR HEIGHT: 1.70 m
 YEAR BUILT: 2000 FULL WATERWAY: 18.50 m

PROPOSED STRUCTURE

STRUCTURE TYPE: Two span curved plate girder bridge
 CLEAR SPAN (NORMAL TO STREAM): 143 m
 VERTICAL CLEARANCE ABOVE STREAMBED: 20 m
 WATERWAY OF FULL OPENING: 2100 sq. m
 WATER SURFACE ELEV. @ Q2.33= 230.5 VELOCITY= 1.81 mps
 Q10= 230.9 " 2.18 mps
 Q25= 231.0 " 2.35 mps
 Q50= 231.1 " 2.48 mps
 Q100= 231.2 " 2.61 mps
 IS THE ROADWAY OVERTOPPED BELOW THE Q100? No FREQUENCY: N.A.
 RELIEF ELEVATION: N.A. DISCHARGE OVER ROAD @ Q100: None
 AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 251.8
 VERTICAL CLEARANCE @ Q 100 = 19 m
 SCOUR: Channel = 0.8 m, Pier = 4.5 m
 REQUIRED CHANNEL PROTECTION: Stone Fill, Type IV

PERMIT INFORMATION

AVERAGE DAILY FLOW: 4.3 cms
 ORDINARY LOW WATER: 2.3 cms ELEV.: 229.3
 ORDINARY HIGH WATER: 12.7 cms ELEV.: 230.0

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: N/A
 CLEAR SPAN (NORMAL TO STREAM): N/A
 VERTICAL CLEARANCE ABOVE STREAMBED: N/A
 WATERWAY OF FULL OPENING: N/A

DESIGN CRITERIA:

- DESIGN METHOD: SUPERSTRUCTURE - LOAD FACTOR DESIGN; SUBSTRUCTURE - SERVICE LOAD DESIGN
 - DESIGN LIVE LOAD: AASHTO MS-22.5
 - DESIGN SPAN: 71.50 m - 71.50 m
 - ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL: 290 kPa (ABUT. 1), 480 kPa (PIER) & 380 kPa (ABUT. 2) ON LEDGE: N/A
 - ALLOWABLE LOAD FOR PILING: N/A TYPE: N/A ESTIMATED LENGTH: N/A
 - STRUCTURAL STEEL: AASHTO GRADE AASHTO M270M/M270 GR345W Fy = 345 MPa HYBRID WITH AASHTO M270M/M270 GR485W, Fy = 485 MPa WEATHERING STEEL
 - REINFORCING STEEL: GRADE 420
 - CONCRETE, HIGH PERFORMANCE CLASS A f'c = 30 MPa (MOD. - STAY-IN-PLACE CORRUGATED METAL FORMS) (FP)
 CONCRETE, HIGH PERFORMANCE CLASS A f'c = 30 MPa
 CONCRETE, HIGH PERFORMANCE CLASS B f'c = 25 MPa
- 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 (NORMAL TO STREAM): N/A VERTICAL CLEARANCE ABOVE STREAMBED: N/A
 WATERWAY AT FULL OPENING: N/A
 ARE SIDEWALKS REQUIRED? N/A IF SO, ON WHAT SIDE? N/A

LOAD FACTOR LOAD RATING (LFR) (METRIC TONS)

LOADING LEVELS (LOAD FACTOR)	TRUCK						
	M18	M518	3S2	6 AXLE	3A. STR.	4A. STR.	5A. SEMI
INVENTORY A=2.17; B=1.00	24	45					
POSTED A=1.55; B=1.40	34	63	166		154	153	169
OPERATING A=1.30; B=1.67		75	199	204	184	182	

STRENGTH RF = $\frac{0.85 M - 1.3 M_{DL}}{A \times M_{LL+1}}$ SERVICEABILITY RF = $B \left[\frac{0.95 F_y S_{LL+1} - M_{DL}}{1.67 M_{LL+1}} - M_{SOL} \right]$

STATE OF VERMONT AGENCY OF TRANSPORTATION

Town of BENNINGTON Bridge No. B12
 Highway No. VT RTE 279 Log Sta. _____
 Surv. Sta. _____
 VT ROUTE 279 OVER FURNACE BROOK
PRELIMINARY INFORMATION SHEET
 Designed By J.J. MANUSE Drawn By D.J. HENDERSON
 Checked By B.J. CARLSON Date 04/07 Bridge Design Supervisor K.M. WOJTKOWSKI
 PROJECT BENNINGTON PROJECT NO. AC NH F019-1(53)
 TVGA CAD Drawing No. FBPI5.dgn Date 04/11/2007
 Bridge Sheet No. BR50I Sheet 193 of 577

