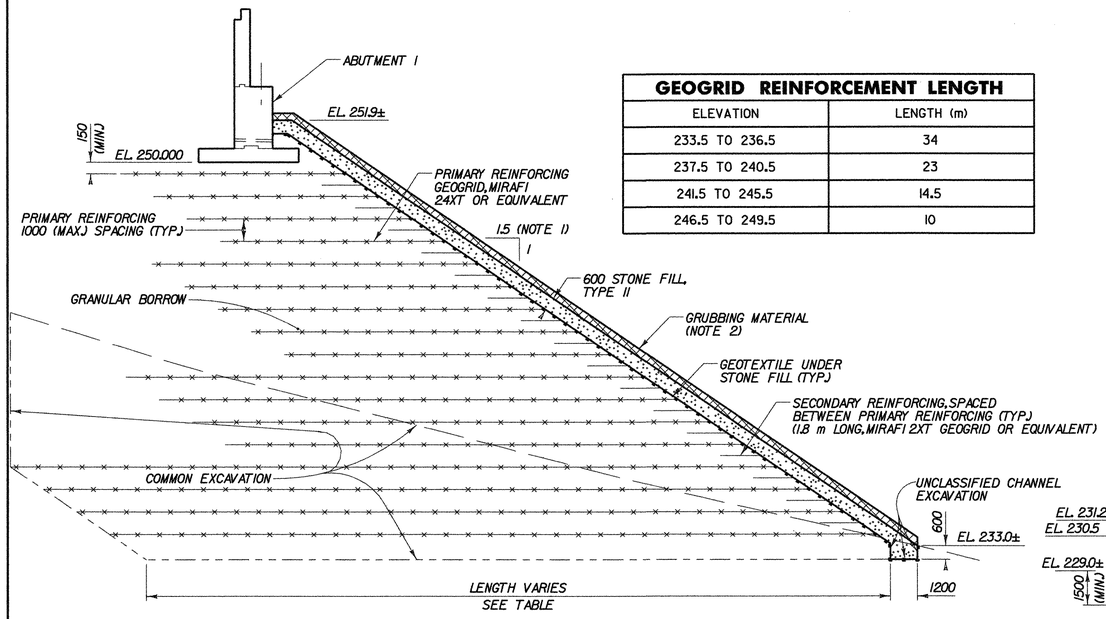
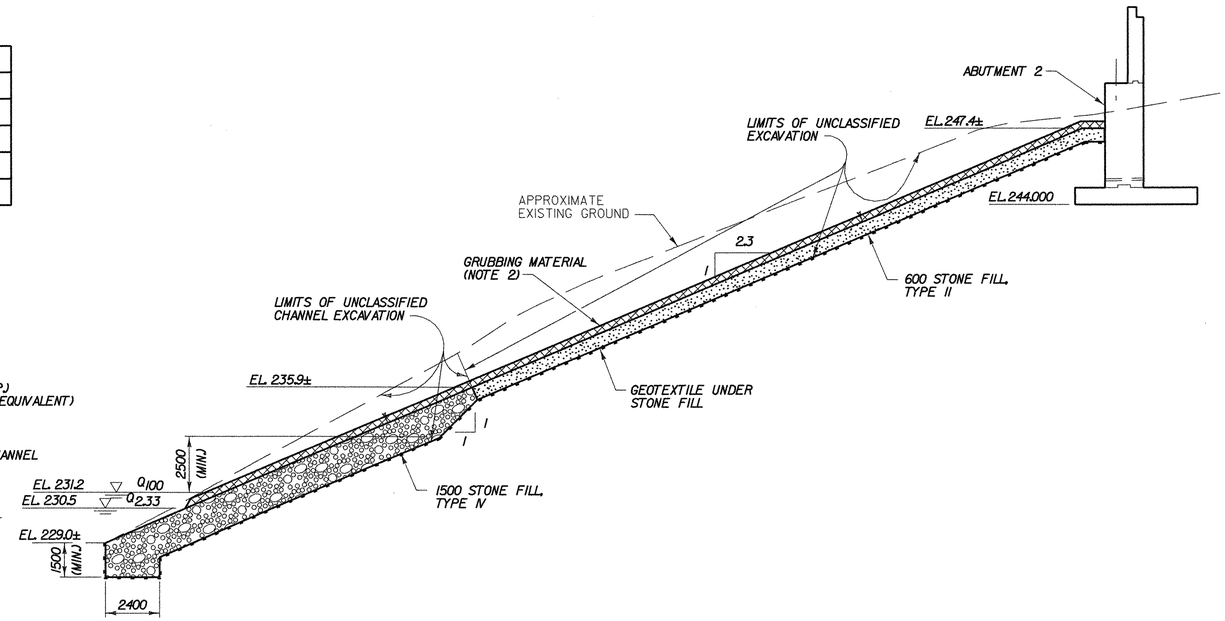
Metric

GEOGRID REINFORCEMENT LENGTH	
ELEVATION	LENGTH (m)
233.5 TO 236.5	34
237.5 TO 240.5	23
241.5 TO 245.5	14.5
246.5 TO 249.5	10





ABUTMENT #1 REINFORCED SOIL SLOPE TYPICAL SECTION
SCALE 1:125

ABUTMENT #2 STONE FILL TYPICAL SECTION
SCALE 1:125

REINFORCED SOIL SLOPE GENERAL CONSTRUCTION NOTES:

1. HANDLING AND STORAGE

   UPON DELIVERY TO THE SITE, ALL GEOGRID MATERIALS SHALL BE INSPECTED TO ENSURE PROPER MATERIAL STRENGTHS. A PRODUCT CERTIFICATION SHALL BE PROVIDED WITH EACH SHIPMENT STATING THAT THE MATERIAL CONFORMS TO PRODUCT SPECIFICATIONS PUBLISHED BY THE SUPPLIER. SEE SPECIAL PROVISION SECTION 900.675 REINFORCED SOIL SLOPE FOR MORE INFORMATION.

2. GEOGRID PLACEMENT

   PRIOR TO PLACING THE REINFORCEMENT, THE EXCAVATION SHALL BE CLEANED OF ALL EXCESS MATERIAL AND THE FOUNDATION BASE PROOFROLLED. THE GEOGRID STRIPS MUST BE PLACED PERPENDICULAR TO THE SLOPE FACE. THE GEOGRID STRIPS MUST EXTEND BACK FROM THE SLOPE FACE TO THE DISTANCE SPECIFIED ON THE REINFORCED SOIL SLOPE TYPICAL SECTION. AFTER BEING ROLLED OUT, THE GEOGRID SHALL BE TENSIONED BY HAND UNTIL TAUT, FREE OF WRINKLES, AND LYING FLAT. ADJACENT GEOGRID STRIPS SHALL BE BUTTED TOGETHER SIDE-BY-SIDE WITHOUT OVERLAP. INDIVIDUAL LAYERS OF GEOGRID SHALL BE PLACED LEVEL AND TERMINATED AS THEY 'DAY LIGHT' TO THE PROPOSED GRADES.

3. FILL PLACEMENT AND COMPACTION

   FILL CAN BE PLACED AND SPREAD DIRECTLY UPON THE GEOGRIDS. EXTREME CARE SHOULD BE TAKEN TO PREVENT WRINKLES AND/OR SLIPPAGE OF GEOGRID DURING FILL PLACEMENT AND SPREADING. WHEN PRACTICAL, FILL IS TO BE PLACED IN THE DIRECTION IN WHICH THE GEOGRID WAS LAID OUT, TO AVOID TENSIONING. HOWEVER, IF FILL MUST BE PLACED TRANSVERSE TO THE ROLL LENGTH, SLIGHT (100) OVERLAPS BETWEEN ROLL WIDTHS WITH THE TOP PIECE OF GEOGRID BEING THE FIRST TO RECEIVE FILL, WILL PREVENT PERMANENT FOLDING OF REINFORCEMENT. RUBBER-TIRED EQUIPMENT IS ALLOWED TO PASS OVER BARE GEOGRID AT SLOW SPEEDS (LESS THAN 10 KPH) AND WITHOUT SUDDEN BRAKING. TRACK EQUIPMENT SHOULD NEVER BE ALLOWED ONTO BARE REINFORCEMENT. THERE MUST BE A MINIMUM OF 150 OF FILL ON TOP OF THE GEOGRID BEFORE TRACK EQUIPMENT CAN BE OPERATED. EACH FILL LIFT SHALL BE COMPACTED TO 95% OF AASHTO T-99.

4. LIMITS OF GEOGRID REINFORCEMENT

   THE PURPOSE OF THE GEOGRID IS TO REINFORCE THE NEW EMBANKMENT FILLS. THE PROPOSED EMBANKMENTS SHALL BE REINFORCED TO THE LIMITS ABOVE AND SHOWN IN THE SECTIONS OR AS APPROVED BY THE ENGINEER.

5. PAYMENT

   FOR ROADWAY AND EMBANKMENT, PRIMARY GEOGRID WITH UNIAXIAL T AL= 156.6 KN/M SHALL BE MADE UNDER THE ITEM 900.675 'SPECIAL PROVISION (REINFORCED SOIL SLOPE).'

REINFORCED SOIL SLOPE MATERIAL NOTES:

1. THE GEOGRID USED IN THE REINFORCED SOIL SLOPE SHALL BE COMPOSED OF HIGH-TENACITY POLYESTER, HIGH-DENSITY POLYETHYLENE, OR HIGH-DENSITY POLYPROPYLENE. ALL GEOGRID REINFORCEMENT SHALL HAVE UNIAXIAL DESIGN STRENGTH WITH THE PRIMARY AXIS PLACED PERPENDICULAR TO THE FACE OF THE REINFORCED SOIL SLOPE.

2. THE GEOGRID SHALL BE RESISTANT TO ULTRAVIOLET DEGRADATION, INERT TO BIOLOGICAL DEGRADATION, AND RESISTANT TO NATURALLY ENCOUNTERED CHEMICALS.

3. THE ROADWAY AND EMBANKMENT GEOGRID SHALL BE APPROVED BY THE ENGINEER PRIOR TO PLACEMENT AND SHALL MEET THE FOLLOWING REQUIREMENTS:

PROPERTY	REQUIREMENT	TEST METHOD
LONG TERM STRENGTH AT 10% STRAIN	156.6 kN/M (MIN.) PRIMARY REINFORCEMENT 11.1 kN/M (MIN.) SECONDARY REINFORCEMENT	GRI-GG4
PULLOUT RESISTANCE FACTOR (F*)	0.42 (MIN.)	ASTM D6706

   THE TOTAL LONG TERM ALLOWABLE TENSILE STRENGTH (T AL) SHALL BE DETERMINED BY USING THE FOLLOWING FORMULA:

$$T\ AL = \frac{T\ ULT}{RFDU \times RFCD \times RFCR}$$

   WHERE T ULT = THE ULTIMATE (OR YIELD) TENSILE STRENGTH FROM TENSILE STRENGTH TESTS, TESTED IN ACCORDANCE WITH ASTM D6637 AND BASED ON THE MINIMUM AVERAGE ROLL VALUE (MARV) FOR THE PRODUCT.

   RFDU = THE DURABILITY REDUCTION FACTOR - PRODUCT OF THE PARTIAL SAFETY FACTORS FOR THE BIOLOGICAL AND CHEMICAL DEGRADATION OF THE GEOSYNTHETIC AND THE JOINT SEAM STRENGTH OF THE GEOGRID. (1.1 MIN.)

   RFCD = THE CONSTRUCTION DAMAGE REDUCTION FACTOR AS DETERMINED IN ACCORDANCE WITH ASTM D 5818 (MINIMUM VALUE = 1.1)

   RFCR = THE CREEP REDUCTION FACTOR AS DETERMINED IN ACCORDANCE WITH ASTM D 5262; BASED ON A 100-YEAR DESIGN LIFE.

   REDUCTION FACTORS ARE TO BE PROVIDED BY THE MANUFACTURER AS A DIRECT RESULT OF TESTS PERFORMED IN ACCORDANCE WITH EACH TEST'S CORRESPONDING SPECIFICATION.

4. GRANULAR BORROW SHALL BE USED AS THE EMBANKMENT BACKFILL MATERIAL.

5. THE GEOGRID SHALL BE PLACED AROUND DRAINAGE ELEMENTS AND ANY OTHER UTILITY COMPONENTS IN A MANNER THAT WILL MINIMIZE WRINKLING. A MINIMUM NUMBER OF GEOGRID ELEMENTS SHALL BE CUT TO LOCATE THE DRAINAGE ELEMENTS. EXCAVATION IN PREVIOUSLY BACKFILLED REINFORCED ZONES TO PLACE DRAINAGE ELEMENTS WILL NOT BE PERMITTED.

6. THE LENGTH OF THE GEOGRID AS SPECIFIED SHALL BE MEASURED FROM THE BACK FACE OF THE STONE FILL.

NOTES:

1. THE REINFORCED SOIL SLOPE VARIES FROM 1.5:1 TO 1.2:1. SEE THE GENERAL PLAN AND ELEVATION, BRIDGE SHEET BR510 FOR MORE INFORMATION.
2. GRUBBING MATERIAL SHALL NOT BE PLACED ON THE STONE FILL UNDER THE FURNACE BROOK STRUCTURE.

0 2.5 5.0 7.5 10.0 12.5m

SCALE 1:125

TVGA CONSULTANTS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of BENNINGTON	Bridge No. BI2
Highway No. VT RTE 279	Log Sta. Surv. Sta.
VT ROUTE 279 OVER FURNACE BROOK	
SLOPE AND CHANNEL DETAILS	
Designed By J.J. MANUSE	Drawn By D.J. HENDERSON
Checked By Date B.J. CARLSON 04/07	Bridge Design Supervisor K.M. WOJTKOWSKI Date 04/07
PROJECT BENNINGTON	PROJECT NO. AC NH F019-1(53)
TVGA CAD Drawing No. FBChanDet.dgn	Date 04/10/2007
Bridge Sheet No. BR544	Sheet 236 of 577