

PART 1 - GENERAL

1.1 SECTION  
INCLUDES

- .1 Materials and installation of polymeric geotextiles used in retaining wall structures, filtration, drainage structures and roadbeds, purpose of which is to:
  - .1 Separate and prevent mixing of granular materials of different grading.
  - .2 Act as hydraulic filters permitting passage of water while retaining soil strength of granular structure.

1.2 RELATED WORK

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .3 Section 31 23 33.01 - Excavating, Trenching and Backfilling.

1.3 REFERENCES

- .1 ASTM Society for Testing and Materials (ASTM)
  - .1 ASTM D4491-99a(2004)e1, Standard Test Methods for Water Permeability of Geotextiles by Permittivity.
  - .2 ASTM D 4595-05, Standard Test Method for Tensile Properties of Geotextiles by the Wide-Width Strip Method.
  - .3 ASTM D 4716-04, Standard Test Method for Determining the (In-Plane) Flow Rate Per Unit Width and Hydraulic Transmissivity of a Geosynthetic Using a Constant Head.
  - .4 ASTM D 4751-04, Standard Test Method for Determining Apparent Opening Size of a Geotextile.
- .2 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-4.2-M88, Textile Test Methods.
  - .2 CAN/CGSB-148.1, Methods of Testing Geotextiles and Geomembranes.
    - .1 No.2-M85, Mass per Unit Area.
    - .2 No.3-M85, Thickness of Geotextiles.
    - .3 No.7.3-92, Grab Tensile Test for Geotextiles.
    - .4 No. 6.1-93, Bursting Strength of Geotextiles Under No Compressive Load.
- .3 Canadian Standards Association (CSA)

1.3 REFERENCES  
(Cont'd)

- .3 (Cont'd)  
.1 CAN/CSA-G40.20-04/G40.21-04, General Requirements for Rolled or Welded Structural Quality Steel.  
.2 CAN/CSA-G164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.

1.4 SAMPLES

- .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.  
.2 Submit to Departmental Representative the following samples at least 2 weeks prior to commencing work.  
.1 Minimum length of 1 m of roll width of geotextile.

1.5 MILL  
CERTIFICATES

- .1 Submit to Departmental Representative a copy of mill test data and certificate at least 2 weeks prior to start of work.

1.6 DELIVERY AND  
STORAGE

- .1 During delivery and storage, protect geotextiles from direct sunlight, ultraviolet rays, excessive heat, mud, dirt, dust, debris and rodents.

1.7 WASTE  
MANAGEMENT AND  
DISPOSAL

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.  
.2 Remove from site and dispose of all packaging materials at appropriate recycling facilities.  
.3 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard, and packaging material, in appropriate on-site bins, for recycling in accordance with Waste Management Plan.  
.4 Fold up metal banding, flatten and place in designated area for recycling.

- 1.8 MEASUREMENT FOR PAYMENT .1 Geotextiles: Measurement for payment to be made under this section will be made in (m<sup>2</sup>) meters square. Include the cost of all plant, labour, equipment and materials to complete the work specified. Include costs in items of work which geotextile is required.

PART 2 - PRODUCTS

- 2.1 MATERIAL .1 Non-woven, mechanically bounded, needle punched polyester membrane, suitable for use in seawater environment, with the following material properties:
- .1 4.7 mm thickness (CAN-148.1, No. 3)
  - .2 1180 N tensile strength (ASTM D4595)
  - .3 530 N Tear propagation (CAN-12.2)
  - .4 3850 Kpa Burst (Mullen) (CAN-4.2 method 11.1)
  - .5 Elongation at Break: 50 to 100 percent
  - .6 Puncture CBR, D6241: 4620N
- .2 Hydraulic properties:
- .1 Apparent opening size (AOS): to ASTM D4751, 50 to 150 micrometres.
  - .2 Permittivity: to ASTM D4491, 2035/min/m<sup>2</sup>.
- .3 Securing pins and washers: to CAN/CSA-G40.21, Grade 300W, hot-dipped galvanized with minimum zinc coating of 600 g/m<sup>2</sup> to CAN/CSA G164.

PART 3 - EXECUTION

- 3.1 INSTALLATION .1 Place one (1) layer of geotextile material as indicated on drawings.
- .2 Place geotextile material by unrolling onto graded surface in orientation, manner and locations indicated and retain in position with securing pins and washers.
- .3 Place geotextile material on sloping surfaces in one continuous length from toe of slope to upper extent of geotextile.
- .4 Place geotextile material smooth and free of tension stress, folds, wrinkles and creases.

3.1 INSTALLATION  
(Cont'd)

- .5 Overlap each successive strip of geotextile 600 mm over previously laid strip.
- .6 Join successive strips of geotextile by sewing.
- .7 Pin successive strips of geotextile with securing pins at 300 mm interval at mid point of lap as indicated.
- .8 Protect installed geotextile material from displacement, damage or deterioration before, during and after placement of material layers.
- .9 After installation, cover with overlying layer within 4 hours of placement.
- .10 Replace damaged or deteriorated geotextile to approval of Departmental Representative.
- .11 Place and compact soil layers in accordance with Section 31 23 33.01 - Excavating, Trenching and Backfilling.

3.2 CLEANING

- .1 Remove construction debris from Project site and dispose of debris in an environmentally responsible and legal manner.

3.3 PROTECTION

- .1 Vehicular traffic not permitted directly on geotextile.