

PART 1 - GENERAL

1.1 SECTION INCLUDES

- .1 Materials and installation of polymeric geotextiles used in breakwaters, 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 26 - Rock Fill and Class "A".
- .4 Section 31 53 13 - Timber Cribwork.

1.3 REFERENCES

- .1 American Society for Testing and Materials (ASTM)
 - .1 ASTM D4491-99a(2004)e1, Standard Test Methods for Water Permeability of Geotextiles by Permittivity.
 - .2 ASTM D4595-05, Standard Test Method for Tensile Properties of Geotextiles by the Wide-Width Strip Method.
 - .3 ASTM D4716-04, 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 D4751-04, 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 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 1m of roll
width of geotextile.

- | | | |
|--|----|---|
| <u>1.5 MILL CERTIFICATES</u> | .1 | Submit to Departmental Representative a copy of mill test data and certificate at least 2 weeks prior to start of work. |
| <u>1.6 DELIVERY AND STORAGE</u> | .1 | During delivery and storage, protect geotextiles from direct sunlight, ultraviolet rays, excessive heat, mud, dirt, dust, debris and rodents. |
| <u>1.7 WASTE MANAGEMENT AND DISPOSAL</u> | .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. |

PART 2 - PRODUCTS

- | | | |
|---------------------|----|--|
| <u>2.1 MATERIAL</u> | .1 | Geotextile: woven or non-woven synthetic fibre fabric, supplied in rolls. |
| | .1 | Width: 3.5m minimum. |
| | .2 | Length: 50m minimum. |
| | .3 | Composed of: minimum 85% by mass of polyester with inhibitors added to base plastic to resist deterioration by ultra-violet and heat exposure. |

- .2 Physical properties:
 - .1 Thickness: to CAN/CGSB-148.1, No.3, minimum 2.5mm.
 - .2 Mass per unit area: to CAN/CGSB-148.1, No. 2, minimum 400g/m².
 - .3 Tensile strength and elongation (in any principal direction): to ASTM D4595.
 - .1 Tensile strength: minimum 1200 N, wet condition.
 - .2 Elongation at break: 50 to 100 percent.
 - .3 Seam strength: equal to or greater than tensile strength of fabric.
 - .4 Mullen burst strength: to CAN/CGSB-4.2, method 11.1, minimum 3100 kPa.
- .3 Hydraulic properties:
 - .1 Apparent opening size (AOS): to ASTM D4751, 50 to 150 micrometres.
 - .2 Permittivity: to ASTM D4491, 0.25 cm per second.
- .4 Securing pins and washers: to CAN/CSA-G40.21, Grade 300W, hot-dipped galvanized with minimum zinc coating of 600 g/m² to CAN/CSA G164.

PART 3 - EXECUTION

3.1 INSTALLATION

- .1 Place geotextile material from base elevation of crib to top of crib and retain in position with securing pins and washers.
- .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.
- .5 Overlap each successive strip of geotextile 600 mm over previously laid strip.
- .6 Protect installed geotextile material from displacement, damage or deterioration before, during and after placement of material layers.
- .7 After installation, cover with overlying layer within 4 hours of placement.
- .8 Replace damaged or deteriorated geotextile to approval of Departmental Representative.

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.