

PART 1 - GENERAL

- 1.1 SECTION INCLUDES
- .1 Materials and installation of polymeric geotextiles, 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 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.

Wharf/Breakwater Reconstruction  
Shoal Cove West, NL  
R.082547.001

Page 2  
2016-09-22

- .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 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.

Wharf/Breakwater Reconstruction  
Shoal Cove West, NL  
R.082547.001

Page 3  
2016-09-22

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.

PART 2 - PRODUCTS

2.1 MATERIAL

- .1 Geotextile: woven or non-woven synthetic fibre fabric, supplied in rolls.
  - .1 Width: 3.5 m minimum.
  - .2 Length: 50 m 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 2.5 mm.
  - .2 Mass per unit area: to CAN/CGSB-148.1, No. 2, minimum 400 g/m<sup>2</sup>.
  - .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/m<sup>2</sup> to CAN/CSA G164.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION

- .1 Place one (1) layer of 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

Wharf/Breakwater Reconstruction  
Shoal Cove West, NL  
R.082547.001

Page 5  
2016-09-22

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 mid point of lap to satisfaction of Departmental Representative.
- .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 For full cribs, extend geotextile over top of cribwork, in portion of cribwork not containing a concrete deck.

### 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.