

**Part 1 General****1.1 MEASUREMENT AND PAYMENT**

- .1 Geotextile soil stabilization used for pipe culvert installation according to Section 33 42 13 – Pipe Culverts will be considered incidental and will not be measured or paid for separately.
- .2 Measurement of geotextile fabric will be on area installed with no allowance for overlap and slope.

**1.2 REFERENCE STANDARDS**

- .1 ASTM International
  - .1 ASTM A123/A123M-[09], Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
  - .2 ASTM D4632 / D4632M-[15a], Standard Test Method for Grab Breaking Load and Elongation of Geotextiles.
  - .3 ASTM D4533 / D4533M-[15], Standard Test Method for Trapezoid Tearing Strength of Geotextiles.
  - .4 ASTM D6241-[14], Standard Test Method for Static Puncture Strength of Geotextiles and Geotextile-Related Products Using a 50-mm Probe.
- .2 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-4.2 No. 11.2-[2004], Textile Test Methods - Bursting Strength - Ball Burst Test (Extension of September 1989).
  - .2 CAN/CGSB-148.1, Methods of Testing Geotextiles and Complete Geomembranes.
    - .1 No.2-[M85], Methods of Testing Geosynthetics - Mass per Unit Area.
    - .2 No.3-[M85], Methods of Testing Geosynthetics - Thickness of Geotextiles.
    - .3 No.6.1-[93], Methods of Testing Geotextiles and Geomembranes - Bursting Strength of Geotextiles Under No Compressive Load.
    - .4 No.7.3-[92], Methods of Testing Geotextiles and Geomembranes - Grab Tensile Test for Geotextiles.
    - .5 No. 10-[94], Methods of Testing Geosynthetics - Geotextiles - Filtration Opening Size.

**1.3 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for geotextiles and include product characteristics, performance criteria, physical size, finish and limitations.

- .2 Test and Evaluation Reports:
  - .1 Submit copies of mill test data and certificate at least 4 weeks prior to start of Work.

#### **1.4 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .2 Storage and Handling Requirements:
  - .1 Store materials off ground in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect geotextiles from direct sunlight and UV rays.
  - .3 Replace defective or damaged materials with new.
- .3 Packaging Waste Management: remove for reuse and return by manufacturer of pallets, crates, padding, and packaging materials as specified in Construction Waste Management Plan.

### **Part 2 Products**

#### **2.1 MATERIAL**

- .1 Geotextile: woven/ non-woven synthetic fibre fabric, supplied in rolls.
  - .1 Width: 3.8 m minimum.
  - .2 Length: 76 m minimum.
- .2 Physical properties:
  - .1 Woven:
    - .1 Minimum Grab Strength: to ASTM D4632, minimum 1400 N
    - .2 Minimum Puncture Resistance: to ASTM D6241, minimum 4000 N
    - .3 Tear Strength: to ASTM D4533, minimum 500 N
  - .2 Non-woven:
    - .1 Minimum Grab Strength: to ASTM D4632, minimum 900 N
    - .2 Minimum Puncture Resistance: to ASTM D6241, minimum 2300 N
    - .3 Tear Strength: to ASTM D4533, minimum 350 N
- .3 Securing pins and washers: to CSA G40.21, Grade 300W, hot-dipped galvanized with minimum zinc coating of 600 g/m<sup>2</sup> to ASTM A123/A123M.
- .4 Factory seams: sewn in accordance with manufacturer's recommendations.
- .5 Thread for sewn seams: equal or better resistance to chemical and biological degradation than geotextile.

**Part 3 Execution**

**3.1 EXAMINATION**

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for geotextile material installation in accordance with manufacturer's written instructions.
  - .1 Visually inspect substrate in presence of Departmental Representative.
  - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
  - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

**3.2 INSTALLATION**

- .1 Place geotextile material by unrolling onto graded surface in orientation, manner and locations indicated.
- .2 Place geotextile material smooth and free of tension stress, folds, wrinkles and creases.
- .3 Overlap each successive strip of geotextile 600 mm over previously laid strip.
- .4 Join successive strips of geotextile by pinning with securing pins at 500 mm intervals or by retaining overlap in place by placing of weights.
- .5 Protect installed geotextile material from displacement, damage or deterioration before, during and after placement of material layers.
- .6 After installation, cover with overlying layer within 4 hours of placement.
- .7 Replace damaged or deteriorated geotextile to approval of Departmental Representative.

**3.3 PROTECTION**

- .1 Vehicular traffic not permitted directly on geotextile.
- .2 Do not overload soil or aggregate covering on geotextile.

**END OF SECTION**