Part 1 General

1.1 SECTION INCLUDES

.1 Materials and installation of polymeric geotextiles used in revetments, breakwaters, retaining wall structures, filtration, drainage structures, roadbeds and railroad beds 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 SECTIONS

.1 Section 33 41 23 – Sanitary Sewer Lagoon

.2 Section 31 36 10 - Gabions and gabion Mats

.3 Section 01 74 11 - Cleaning

1.3 MEASUREMENT PROCEDURES

.1 Measure geotextiles in square metres of surface covered by material. No allowance will be made for seams and overlaps.

1.4 REFERENCES

.1 American Society for Testing and Materials International, (ASTM)

.1 ASTM D4491-2014, Standard Test Methods for Water Permeability of Geotextiles by Permittivity.

.2 ASTM D4595-86 (2011), Standard Test Method for Tensile Properties of Geotextiles by the Wide-Width Strip Method.

.3 ASTM D4716-02, Test Method for Determining the (In-Plane) Flow Rate Per Unit Width and Hydraulic Transmissivity of a Geosynthetic Using a Constant Head.

.4 ASTM D4751-2004, Standard Test Method for Determining Apparent Opening Size of a Geotextile.

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-4.2 No. 11.2-M89(2013), 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.

.3 Canadian Standards Association (CSA International)

.1 CAN/CSA-G40.20/G40.21-2013, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.

.2 CAN/CSA-G164-M92(2003), Hot Dip Galvanizing of Irregularly Shaped Articles.

1.5 SUBMITTALS

.1 Submit to Engineer following samples at least 4 weeks prior to beginning Work.

.1 Minimum length of 2 m of roll width of geotextile.

.2 Submit to Engineer 2 copies of mill test data and certificate at least 2 weeks prior to start of Work, and in accordance with Section 01 33 00 - Submittal Procedures.

1.6 DELIVERY, STORAGE AND HANDLING

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

Part 2 Products

2.1 MATERIAL

.1 Geotextile: non-woven synthetic fibre fabric, supplied in rolls.

.1 Width: 3.8 m minimum.

.2 Length: 110 m minimum.

.3 Composed of: minimum 85% by mass of polypropylene with inhibitors added to base plastic to resist deterioration by ultra-violet and heat exposure for 60 days.

.2 Physical properties:

.1 Mass per unit area: to CAN/CGSB-148.1, No.2, minimum 165 g/m^2.

.2 Grab tensile strength and elongation: to ASTM D4632.

.1 Breaking force: minimum 800 N, wet condition.

.2 Elongation at future maximum 50%.

.3 Mullen burst strength: to ASTM D3786, minimum 190 kPa wet condition.

.4 Puncture strength to ASTM D4833, 375 N.

.5 Trapezoidal tearing strength ASTM D4533, 265 N.

.3 Hydraulic properties:

.1 Apparent opening size (AOS): to ASTM D4751, 0.212 mm.

.2 Filtration opening size (FOS): to CAN/CGSB-148.1 No.10 OPSS 1860.

.3 Permitivity: to ASTM D4491, 1.3 pers.

Part 3 Execution

3.1 INSTALLATION

.1 Place geotextile material by unrolling onto graded surface in orientation, manner and locations indicated and retain in position with sand bags.

.2 Place geotextile material smooth and free of tension stress, folds, wrinkles and creases.

.3 Place geotextile material on sloping surfaces in one continuous length from toe of slope to upper extent of geotextile.

.4 Overlap each successive strip of geotextile [600] mm over previously laid strip.

.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 h of placement.

.7 Replace damaged or deteriorated geotextile to approval of Engineer.

.8 Place and compact soil layers in accordance with Section 31 36 10 Gabions and Gabion Mats and Section 33 47 23 – Sanitary Sewage Lagoons.

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.

END OF SECTION