

SECTION 210 - GEOTEXTILES IN EARTHWORKS

210.01 GENERAL

This section covers the requirements for the supply, handling and placing of geotextiles as a separation layer, or as a separation and filtration layer, in earthworks at locations shown on the drawings or specified.

210.02 SUPPLY OF MATERIALS

- (b) The Contractor shall supply the geotextiles as specified, in accordance with the requirements of Clause 210.03 of this Section. After delivery of the geotextiles to site, the Contractor shall ensure that the geotextiles are kept clean and undamaged and stored away from direct sunlight until covered. Any damaged or improperly stored geotextiles shall be replaced by the Contractor.

210.03 PROPERTIES OF GEOTEXTILES

- (a) General

The geotextile shall consist of fabric manufactured from synthetic fibres of a long chain polymer such as polypropylene, polyethylene, polyester or similar. The geotextile shall be stabilised against deterioration due to ultra-violet light. After forming, the geotextile shall be processed so that the fibres retain their relative positions with respect to each other. The geotextile shall be free from defects or flaws which significantly affect its physical and/or filtering properties.

- (b) Robustness

The geotextile shall have a robustness (Geotextile Strength Rating - G) complying with the requirements of Table 210.031.

Table 210.031

Classification	Robustness (G)
Moderately Robust	900 - 1350
Robust	1350 - 2000
Very Robust	2000 - 3000
Extremely Robust	Greater than 3000

$$G = \sqrt{(L \times h50)}$$

G = Geotextile Strength Rating

L = Plunger failure load (N) as determined by AS 3706.4
Determination of Burst Strength; CBR Plunger Method

h50 = Normalised drop height (mm) as determined by AS 3706.5
Determination of Puncture Resistance; Drop Cone Method

(c) Equivalent Opening Size

Where specified as a separation/filtration material, both woven and non-woven geotextiles shall have an equivalent opening size between 85 and 230 microns. The equivalent opening size determination shall be carried out in accordance with AS 3706.7 (Determination of Pore Size Distribution - Dry Sieving Method).

210.04 PREPARATION

Unless otherwise specified, prior to placing any geotextiles the Contractor shall excavate the surface material to the depth shown on the drawings. The area shall then be trimmed to provide a uniform surface freely draining to points clear of the formation.

Where the surface to be trimmed becomes unstable due to the Contractor's negligence or use of inappropriate methods, the Contractor shall treat in situ or remove and replace the unstable material to its original condition and no additional payment will be made for this work.

210.05 PLACING GEOTEXTILES AND BACKFILLING

(a) General

The Contractor shall roll out the specified geotextile to the limits shown on the drawings or specified. The geotextiles shall be subject to a visual inspection during placing and any rolls with imperfections shall not be used. All joints shall be overlapped or sewn in accordance with requirements as specified. Geotextiles shall be covered by filling within 24 hours of placement.

(b) Type B (Common) Filling

Unless otherwise specified, the Contractor shall supply and place over the geotextile common filling of maximum particle size of not more than 150 mm and moisture ratio of not less than 85% as determined by test using the Standard compactive effort. The initial layer of common filling shall be placed and compacted to the maximum density practicable without causing further instability in the underlying materials upon which the geotextile has been placed. Subsequent layers of common filling shall also be placed to the maximum density practicable until stability is achieved and a layer satisfies the test rolling requirements specified in Section 204 as applicable. Any remaining layers of filling to be placed above the stable layer shall be placed and compacted in accordance with the requirements of Section 204 as applicable.

(c) Permeable Filling

Where shown on the drawings or specified, the Contractor shall supply and place permeable filling of the depth as specified, over the geotextile. The permeable filling shall comply with the requirements of Clause 210.06 and have a moisture content compatible with achieving maximum density practicable. The initial layer of permeable filling shall be placed and compacted to the maximum density practicable without causing further instability or loss of shape to the trimmed surface upon which the geotextile has been placed. Any subsequent layers of permeable filling shall also be placed to the maximum density practicable until the full depth of permeable fill specified has been placed.

Following placement of the specified depth of permeable filling, a second layer of geotextile shall be placed as specified to completely enclose the permeable filling before placement of common filling commences.

210.06 SUPPLY OF PERMEABLE FILLING

Unless otherwise specified, for the purpose of this section, permeable filling shall be:

- (b) Permeable filling consisting of hard, durable and clean sand or gravel, or crushed stone from a source rock with a Los Angeles Abrasion Loss of not more than 45. Unless otherwise specified, the filling shall have maximum particle size not exceeding 19 mm and a permeability not less than 10^{-2} cm/sec when compacted to a density ratio value of 100% based on Standard compactive effort.

210.07 DELETED