

Roads

Master Specification

RD-PV-C7 Permeable Paving for Trees

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RD-PV-C7 Permeable Paving for Trees

1 General

- 1.1 This Part specifies the requirements for site assessment, site preparation, tree root care, soil amendment and backfill, load support and permeable paving surfaces for the installation of permeable paving over tree root systems.
- 1.2 All clauses of this Part apply unless specified in the Contract Documents.
- 1.3 Where a specification differs between the Drawing and the Design Report, the Drawing shall take precedence.
- 1.4 If not specified in the Drawings, Design Report or Arborist Report, the clauses in this Part shall be followed.
- 1.5 An arborist specified in this Part shall have a minimum Certificate III in Arboriculture and be experienced in this type of work.
- 1.6 Documents referenced in this Part are listed below:
 - a) ISO 9001 Quality Management System.
 - b) AS4373 Pruning of Amenity Trees
 - c) AS1289 Methods of Testing Soils for Engineering Purposes

2 Permeable Paving Requirements

- 2.1 Refer to the Drawings or Design Report for the permeable paving requirements.
- 2.2 For installation of permeable paving around existing trees, a qualified arborist shall assess the trees that are to be retained and shall formulate a critical root zone for each individual tree before any site work occurs. The critical root zone shall be clearly marked on the project drawings.

3 Site preparation

General

- 3.1 Site preparation shall be carried out in accordance with this Specification, and the Drawings, Design Report and Arborist Report.
- 3.2 All unsuitable material including plants and debris shall be removed and disposed of by the Contractor in accordance with specification Part PC-ENV2 "Environmental Protection Requirements".

Establishment of Tree Protection Zone

- 3.3 The Arborist shall define a Tree Protection Zone (TPZ) around the tree equivalent to the area of the current canopy. The TPZ shall include both the below and above ground parts of the tree. A temporary protective fence shall be erected around the TPZ to prevent damage to the tree from other onsite machinery. The area shall be clearly signed TREE PROTECTION ZONE – NO ENTRY. The temporary protective fencing shall be constructed using 2.1 m high chain mesh panels.

Excavation Responsibilities

- 3.4 The Contractor shall arrange for an arborist experienced in root excavation to undertake a site assessment and recommend preferred methods of excavation for the project.

Excavation Method

- 3.5 All work shall be carried out or supervised by a qualified arborist experienced in excavation within a critical tree root zone or trained in non-destructive excavation techniques.
- 3.6 The volume of soil to be removed shall be determined in consultation with the Principal, and will be dependent on the site conditions, root characteristics of existing trees and future tree planting and landscape requirements.
- 3.7 Moist hessian shall be used to shade exposed tree roots from the sun. The moisture level of the hessian shall be checked frequently to prevent tree roots drying. When exposure exceeds more than 48 hours, tree roots shall be packed in moist sawdust.
- 3.8 Methods used to excavate shall not damage tree roots.

4 Tree Root Care

- 4.1 Prior to pruning any tree roots, an arborist shall assess the tree health, growth habit, structure and stability and determine the percentage of roots to be removed within the Tree Protection Zone.
- 4.2 If tree roots require pruning or are damaged, the arborist shall determine the significance of the root to the tree's health and shall treat it accordingly. Root pruning shall be undertaken in accordance with AS4373.

5 Structural Soils

- 5.1 Refer to the Drawings or Design Report for the structural soil locations.
- 5.2 Structural Soil
 - a) The estimated mature tree sizes and each individual site will determine the volume of structural soils to be used. Structural soil volume per tree shall be approximately 6 cubic metres per 9 square metres of estimated mature tree canopy projection.
 - b) Analysis of the structural soil shall be carried out so that appropriate amendments may be applied. Analysis may include pH, EC, organic matter, major and trace elements and exchangeable cations. Tests shall be conducted by a laboratory accredited under ISO 9001 and results shall be submitted to the Principal. A fertilising program shall be recommended by the Contractor and submitted to the Principal for approval.
- 5.3 Site Preparation
 - a) Unless shown otherwise on the Drawings, the proposed subgrade shall be excavated and compacted to a minimum depth of 600 mm prior to any base material or pavement being added on top of it.
 - b) The Contractor shall confirm that the subgrade is at the proper level and compacted as required. Subgrade elevations shall slope parallel to the finished grade and / or toward the subsurface drain lines as shown on the Drawings.
 - c) The excavation shall be cleared of all construction debris, trash, rubble and any foreign material. In the event that fuels, oils, concrete washout silts or other material harmful to plants have been spilled into the subgrade material, the soil shall be excavated sufficiently to remove the harmful material. Any over excavation shall be filled with approved fill and compacted to the required subgrade compaction.
 - d) The Contractor shall not proceed with the installation of the structural soil material until all walls, kerb footings and utility work in the area have been installed. For site elements dependent on structural soil for foundation support, installation shall be postponed until immediately after the installation of structural soil.
 - e) The Contractor shall install any subsurface drain lines required and ensure they are operational prior to installation of structural soil material.
- 5.4 Installation of Structural Soil Material

- a) Structural soil shall be placed directly over the exposed tree root system in increments of 150 mm deep and compacted to not less than 95% of the dry density determined using AS 1289, test method 5.2.1 (modified compaction). A layer of Bidim A14 (or equivalent) geotextile shall be placed over structural soil, with a minimum of 600 mm overlap on all fabric seams. A 25 mm deep bedding sand layer shall be installed above the geotextile and prepared for the permeable paving surface to be installed above.
- b) Structural soil shall be placed to the finished levels specified in the Drawings.

6 Permeable Paving

- 6.1 Refer to the Drawings or Design Report for the permeable paving type and installation details.

7 Hold Points

- 7.1 There are no Hold Points referenced in this Part.
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