

Technical Specification

Tunnel Beach Car Park

LANDSCAPE MAINTENANCE PERIOD SPECIFICATION

at Dunedin

Prepared for Dunedin City Council

By Beca Limited (Beca)

6 July 2022

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Revision History

Revision N°	Prepared By	Description	Date
0	Wade Robertson	Draft	14.06.2022
1	Jeremy Cooke	Update to include Tree Guards	06.07.2022

Document Acceptance

Action	Name	Signed	Date
Documents checked	Jeremy Cooke Work Package Verifier		06.07.2021
Approved for issue	James Taylor Job Director		06.07.2021

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C5000 – LANDSCAPE GENERAL

C5000.1 SCOPE

This section of the Contract covers maintenance of the Tunnel Beach carpark landscape planting works only, including monitoring of the works and following on from the issue of Practical Completion to the Contractor.

Under this maintenance specification the Council is to conduct maintenance in accordance with Section C5001 below.

The period of maintenance should extend for five (5) years with a right of renewal. The objective being to maintain the plantings to achieve the intended success rates set out below and to promote plant growth and the health of the planting/vegetation.

C5002 – LANDSCAPE PLANTING MAINTENANCE

C5001.1 EXTENT OF WORK

The extent of work for this Section is for the grassing and landscape planting, including trees and associated materials for a period of five (5) years following issue of Practical Completion to the Contractor.

Maintenance shall be as per NZS4404:2010 Part 7, clause 7.4.11 and to include monitoring, watering, weeding (releasing), control of insects, fungus and other diseases by means of spraying with an insecticide or fungicide that is approved by the Engineer, pruning, and other horticultural operations, including staking, necessary for the proper growth of the plants, trees and grass and for keeping the Site in good appearance.

The Council shall be pro-active in the reporting to the Engineer and treatment of anything affecting the wellbeing of the plants, trees and grass; in particular, significant adverse conditions, dieback or browning of leaves, branches or any other signs of poor health. Plants, trees and grass that are dead or dying through the maintenance phase shall be replaced at the Council's expense.

C5001.2 MONITORING AND REPORTING

.1 Annual Reporting

The Council shall, on an annual basis, undertake a survey of the planting area and prepare a report for the Engineer. The purpose of the report is to illustrate the current state of the planting on site and whether the intended plant survival rates are being met (i.e. 90% survival rate for plants/ shrubs/ grasses of Pb3 grades and 100% survival rate for trees of Pb18 and Pb28 grades).

The report shall also set out the intended maintenance activities for the year ahead in order to meet the intended success rates and shall at a minimum cover the items below, including weed control, pest control, watering, planting losses/damage/vandalism and replacement, pruning, staking and ties.

C5001.3 WEED CONTROL (RELEASING)

As part of the annual monitoring and reporting requirements above, the survey and report shall cover as a minimum the following items:

- (i) A survey of noxious weed species that remain present within the planting areas.
- (ii) A Weed Control Strategy with descriptions of the specific approach for each of the weed species identified.
- (iii) Intended insecticide and fungicide are to be submitted to engineer for approval

The Council shall use an approved non-residual herbicide (to be glyphosate-free). The Council shall monitor, and control weed growth within planted areas within the Site boundaries until the issue of the Final Completion Certificate in accordance with the approved Weed Control Strategy.

It is essential that the Council adopts a methodology that does not injure or adversely affect plants. This may incorporate a combination of knapsack weed spraying, mechanical weed-eating and hand weeding. The Council shall be responsible for the cost of any rectification of damaged trees and shrubs caused by the weeding regime, including the application of chemicals and mechanical damage.

The Council shall modify the maintenance regime in any particular area to accomplish the best outcome for the Site; for example, increasing hand or mechanical weed-eating and reducing spray applications or visa-versa. Blanket chemical application shall not be undertaken and application of sprays in proximity to established water level is to be avoided where possible.

The Council shall remove all competing vegetation within 0.5m radius of every landscape plant and tree. Mechanical weed-eating shall not be undertaken within 200mm of the stem of any plant. In all other areas within the planted site, weed vegetation shall be managed to a height not exceeding 100mm. Weed control shall be frequent enough to prevent weed species flowering and seeding. Weed coverage shall not exceed 2.5% of any 10m² of planted area.

Spraying with herbicides shall follow all required health and safety standards, District and Regional Council required conditions, the requirements of the Hazardous Substances and New Organisms (HSNO) Act 1996, NZS8409:2004 Code of Practice for the Management of Agrichemicals incorporating Amendment No.1, and the manufacturer's written instructions and recommendations.

Precautions must be taken to prevent herbicide damage to trees and vegetation that are to be retained.

C5001.4 PEST CONTROL

As part of the annual monitoring and reporting requirements above the Council shall monitor and control pests within the planted areas until completion of the five (5) year maintenance period.

C5001.5 WATERING

The Council shall provide sufficient water as required to all trees and planting to maintain plants in a healthy condition for the duration of the Maintenance Period. For trees of Pb18 and Pb28 grade, soil moisture depth when watering shall be 500mm below the topsoil surface and 300mm from the trunk for trees up to PB18 grade and 500mm from the trunk for PB28 grade trees.

For trees of Pb18 and Pb28 grade, this moisture content relates approximately to 40 litres of water per application in order to saturate the root ball. As a guide, shrubs and groundcover should receive 5 litres of water each per application in order to saturate the root ball. Applications should occur as required to meet the survival rates outlined in Section 5001.2 and/or as directed by the Engineer.

It is anticipated that this will be completed via manual application but does not preclude the Council from using additional irrigation methods to ensure plant survival and establishment. Additional methods shall be subject to the approval of the Engineer.

C5001.7 REPLACEMENTS (BLANKING)

The Council shall ensure that all landscape plants, trees and grass are in a healthy and vigorous condition and establishing well. Any dead or unhealthy landscape plants and trees shall be

replaced by the Council on an annual basis and to maintain 90% survival rate for plants/ shrubs/ grasses of Pb3 grade and 100% survival rate for trees of Pb18 and Pb28 grades.

This specifically includes the possible replanting of plants pulled out or damaged by birds, or other wildlife damage as well as human vandalism. The replacements do not cover damage from unexpected flooding or other events outside the direct control of the Contractor. Note that Principal remains liable for replacing any damage to plants caused by unexpected flooding or other events outside the direct control of the Contractor under the conditions of resource consent.

Landscape plant replacements shall in the first instance be sourced from the original suppliers. Alternative sources will be considered but are subject to approval by the Engineer. The replacement landscape plants selected shall be healthy, vigorous and free of pests and diseases. All care shall be taken by the Council to ensure no damage to the rootball and healthy establishment.

All replacements are to be planted within period of 01 April to 30 September.

C5001.8 PRUNING

All weak, dead, diseased or damaged growth shall be removed, and the Council shall carry out regular light pruning to maintain the desired shape and size. Paths are to be kept clear of excess growth. Branches overhanging paths from existing trees shall be removed. Pedestrian sight lines at pathways shall be maintained. Plants shall be pruned so that they do not smother neighbouring plants.

C5001.9 TREE STAKING AND TIES

Repair or replace staking as required. Check ties every two months, to ensure they have not broken or become too tight around the trunk. Ties should be maintained firm but not so tight as to cause damage to the bark.

C5001.10 PLANT GUARDS

Maintain all KBC combi-guards, including repairs and replacement as required. Check every two months to ensure they are not broken and or damaged in any way.

C5001.11 CLEAN UP AND MAKE GOOD

Clean up around planted area and fencing. Remove surplus materials from the Site. Any disturbance or damage to areas outside of the landscape planted areas shall be made good to match previous conditions.

Contractor to remove and dispose of all plant guards in a legal and lawful manner. The timing of the removal will be at the direction of the Engineer following review of plant establishment and growth rates.

C5001.12 FINAL COMPLETION

At the end of the five (5) year Maintenance Period, all plants, trees and grass shall be in a healthy, vigorous state in accordance with the survival percentage requirements outlined in C5001.7. Any plants that are unhealthy, damaged or dead shall be removed and replaced at the Council's expense. If at the completion of the Maintenance Period the Engineer is satisfied the planting success rates have been achieved then a Certificate of Practical Completion shall be issued.

If the planting success rates have not been achieved, the Engineer may advise that the Maintenance Period shall be extended for a minimum two (2) year period until such time as all plants are established and in a healthy, stable condition.

Should extension of the Maintenance Period be deemed necessary to achieve the intended planting success rates then all aspects of Section C5001 shall apply.