CHRISTCHURCH CITY COUNCIL

CONSTRUCTION STANDARD SPECIFICATION

PART 7 – LANDSCAPES

CSS: PART 7 2025

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APPENDICES

STANDARD DETAILS

1 FOREWORD

This Specification forms Part 7 of the Christchurch City Council Civil Engineering Construction Standard Specification (abbreviated as CSS). All parts of the CSS should be read in conjunction with each other and the Christchurch City Council Infrastructure Design Standard (abbreviated as IDS).

The full Specification includes the most recently published versions of the following Parts:

CSS: Part 1 - General
CSS: Part 2 - Earthworks
CSS: Part 3 - Utility Drainage
CSS: Part 4 - Water Supply
CSS: Part 5 - Lighting
CSS: Part 6 - Roads
CSS: Part 7 - Landscapes

Part 7 of the Standard Specification includes those Standard Details (SD) relating to this part only. The Standard Details (SD) are not to scale, and all units are in millimetres (mm) unless otherwise shown. All rights reserved on Standard Details.

Council seeks high quality landscape outcomes. In order to achieve this consideration of all aspects of the works is required, and landscape works must be a key consideration in the sequence of the wider construction project. Engineering, earthworks and landscape designs must be compatible and facilitate healthy tree and plant growth to maturity. Site preparation, topsoil quality, drainage, plant material, standard of planting and associated materials, timing of planting, programmed establishment works, and pest and disease control are all critical to the required outcomes.

2 RELATED DOCUMENTS

The latest versions of the following documents shall be read and form part of this standard specification, together with revisions, replacements and amendments up to the date of calling tenders. The requirements of this specification supersede the requirements of any related documents listed or referred to within this specification, except acts of parliament. Where this document is referred to in a contract, the requirements of that contract supersede the requirements of this specification.

Christchurch City Council Infrastructure Design Standards 2022
https://www.ccc.govt.nz/consents-and-licences/construction-requirements/infrastructure-design-standards/download-the-ids/

Christchurch City Council Waterways, Wetlands and Drainage Guide 2003
Waterways, Wetlands and Drainage Guide : Christchurch City Council
https://www.ccc.govt.nz/environment/water/water-policy-and-strategy/waterways-wetlands-and-drainage-guide

Christchurch City Council Streamside Planting Guide http://www.ccc.govt.nz/environment/water/waterways/waterway-restoration/	
NZS 3602:2003	Timber and wood-based products for use in building
AS/NZS 4680:2006	Hot-dip galvanized (zinc) coatings on fabricated ferrous articles
AS/NZS 4787:2001	Timber - Assessment of drying quality
MIS 308	Tree Pruning
MIS 313	Tree Health & Maintenance

3 APPROVAL OF MATERIALS, OPERATORS/CONTRACTORS, LABORATORIES AND WORKMANSHIP

'Approved' in this document means:

- A material listed on the Approved Materials List, with a current Certificate Status and an Approval Status permitting that use;
- A Council-approved contractor authorised to do that specific work and listed on the relevant register;
- approved by the Engineer.

Schedules of approved materials and contractors can be found on the Christchurch City Council web page at:
www.ccc.govt.nz/consents-and-licences/construction-requirements/approved-materials-list/search/
www.ccc.govt.nz/consents-and-licences/construction-requirements/approved-contractors/

Selected materials are specified in CSS: Part 1 - General.

Approved testing laboratories are IANZ accredited to carry out the particular test being requested.

Landscape contractors shall be a member of the Registered Master Landscapers Association and/or hold the relevant horticultural qualifications and have proven experience and track record with similar projects. Acceptance of contractors shall be at the discretion of the Council, and contractors must be approved by the Council prior to works commencing.

Pre – existing trees and vegetation that is to be retained must be inspected by Council to ensure the trees are healthy and structurally sound.

4 SUPPLY OF TREE AND PLANT MATERIALS

4.1 Scope of Work

This specification is for the supply of healthy, vigorous tree and plant materials, true to form and shape, that do not have diseases, damage or structural defects.

4.2 Inspection and Acceptance

Acceptance of trees and plants shall be at the discretion of the Council.

The 'Tree Supply Inspection Form' appended shall be accurately used to certify that trees meet the requirements of this specification.

Where trees are not purchased by Council, the Supplier and the Purchaser/Contractor shall be responsible for their own quality control processes and must ensure that trees and plant materials are the correct species as specified in the accepted landscape plans and are of an acceptable quality as specified below.

Council recommends that trees be quality inspected by a suitably experienced Arborist to ensure that trees comply with the required quality standards outlined in 4.3 and 4.4 below, prior to planting.

In addition to any inspections and documentation, the Contractor shall be responsible for ensuring that trees are free of unacceptable defects at the time of planting.

Trees and plants that are not acceptable may be rejected by the Council following planting.

4.3 Trees

4.3.1 Above Ground

- Identification

  Trees shall be clearly labelled until planted. Where eco-sourcing from a particular ecological area is specified, indigenous plant labels shall include evidence of provenance, or ecological region where sourced from.

- Health and Vigour

  The size, colour and appearance of leaves should be typical for the time of year and stage of growth of the species/cultivar. Canopy should be full, and foliage evenly distributed throughout the canopy. Foliage shall be hardened off for Christchurch conditions and extension growth should be typical for the time of year and stage of growth of the species/cultivar with no die back.

- Pest and Disease

  Trees shall be free of pest or disease infestation.

- Injury

  Trees shall show no substantial evidence of damage (e.g. ties too tight, sunburn, rough handling, mechanical, inappropriate care in transit, frost damage, wind damage, snow damage).

- Self-Supporting

  Trees shall be able to support themselves in an upright position with a full head of foliage while standing in the container and also after planting without the use of canes or stakes. The trunk should be rigid for the lower quarter to half of its height, becoming gradually more flexible through the upper half.

  Within container trees there shall be no evidence of movement of the stem within the rootball or evidence of cracking or socketing within the rootball when the stem of the tree is rocked side to side.

  These tests shall be undertaken after any cane or other support has been removed.

- Trunk

  The trunk shall be strong, upright and reasonably straight. The calliper at any given point on the trunk must be greater than the calliper at any higher point on the trunk.

  Trunk taper is the increase in calliper size down the stem and is a response to the tree's physical movement and presence of branch attachments while it is growing. An un-tapered, parallel trunk may be accepted by Council where it is a species/cultivar characteristic e.g. standard cherry or *Pseudopanax* species. Straightness of trunk can be species dependent (e.g. *Araucaria columnaris, Carpinus betulus, Koelreutaria paniculata,* and some *Sophora).*

- Pruning

  Pruning practices shall benefit the tree's development into maturity through formative pruning that promotes the tree's branching structure free from any major physical weaknesses. Pruning shall be undertaken to internationally recognised arboricultural standards, practices and procedures.

  With the exception of standard cultivars (e.g. Flowering Cherry) clean trunk height shall not exceed 40% of the total tree height. The diameter of any wound shall not exceed 50% of the diameter of the trunk.

- Apical Dominance

  Species with a juvenile excurrent form shall have a clearly defined central leader for the height of the tree, with the apical bud intact.

- Crown Symmetry

  Crowns shall be free of co-dominant stems (multiple leaders). The difference in crown distribution on opposite sides in any aspect shall not exceed 20%. Branches shall be distributed radially around (species dependent) and vertically along the trunk and shall be no greater than 50% of the diameter of the trunk, measured 20mm above the branch bark ridge.

  It is recognised that tree species vary in their branching habit; and some species are sparingly branched as juveniles, some native trees have a marked juvenile stage that differs from the adult tree, and some decurrent species may not have apical dominance and may have multiple leaders where true to type.

- Included Bark

  Included bark is where the branch bark ridge fails to expand outwards and, as the trunk and branch continue growing, it fails to produce interlocking wood grain at the branch apex and becomes more and more enclosed.

  Trees shall be free of included bark.

- Trunk Position

  The distance from the centre of the trunk to the edge of the container shall not vary by more than 10% of the radius of the container. The trunk shall be firm and upright in the container.

  This allows roots to have an even 360˚ spread.

- Graft Unions

  Graft unions shall be sound and the scion and rootstock compatible, so they bond and continue to grow as one. The union of the scion and rootstock shall be well knitted and show no obvious signs of incompatibility for the entire circumference of the graft.

  Graft unions are often different diameters, and this does not indicate incompatibility.

4.3.2 Below Ground

Roots shall be free of disease, pest infestation, decay and damage, and bends or twists that hinder plant development. Pruning shall be undertaken to internationally recognised horticultural standards, practices and procedures.

Container trees shall be weed free and moist.

- Root Direction

  Tree roots shall grow in a generally outwards and downwards direction. Tree roots that are distorted as a result of inappropriate growing practices shall not be accepted. The root collar shall be free of girdling roots.

  Trees with distorted roots can become structurally weak and this may not be apparent for years after planting. Even non-woody roots, if left untreated, can eventually strangle a tree, and cause it to fail.

- Rootball Occupancy

  The root system shall fully occupy and be well established in the container. Once the container is removed, at least 90% of the soil volume shall remain intact. When gently lifted by the base of the trunk, the trunk and rootball shall move as one unit. The outer edge of the rootball shall be free of woody circling roots and the base free of matted roots. The trunk shall not be loose in the container or root ball.

- Height of Root Collar

  The root collar shall be at or just below (i.e. ≤ 2 cm) the surface of the root ball.

4.3.3 Open Ground Trees

Open ground trees shall comply with the requirements in clause 4.3.1 – Above Ground, excluding the requirement to be self-supporting without stakes at the time of planting.

Open ground trees shall be lifted at the nursery with minimum damage to the roots and with maximum retention of roots. Open ground trees shall have as much soil as possible retained around the rootball.

Open ground trees shall comply with the requirements in clause 4.3.2 – Below Ground excluding Rootball Occupancy and height of Root Collar.

Evergreen trees shall be individually wrapped. All rootballs shall be contained in moisture retentive material.

4.4 Plant Materials

4.4.1 Above Ground

- Identification

  Plants shall be clearly labelled until planted. Where eco-sourcing from a particular ecological area is specified, indigenous plant labels shall include evidence of provenance, or ecological region where sourced from.

- Health and Vigour

  The size, colour and appearance of leaves should be typical for the time of year and stage of growth of the species/cultivar. Leaves should not

be stunted, misshapen, discoloured or otherwise atypical. Foliage shall be hardened off for Christchurch conditions and substantially free from chlorosis and necrosis. Extension growth should be typical for the time of year and stage of growth of the species/cultivar with no die back.

- Pest and Disease
  Plants shall be free of pest or disease infestation.

- Injury
  Plants shall show no evidence of foliage damage (e.g. distortion from herbicides or frost) or trunk or branch damage (e.g. ties too tight, sunburn, rough handling, mechanical, inappropriate care in transit, frost damage, wind damage, snow damage).

- Pruning
  Pruning practices shall benefit the plant's development. Pruning shall be undertaken to internationally recognised horticultural standards, practices and procedures. Plants shall not be pruned just before shipping.

- Trunk Position
  The distance from the centre of the trunk/plant base to the edge of the container shall not vary by more than 10% of the radius of the container. The plant shall be firm and upright in the container.

  This allows roots to have an even 360˚ spread.

- Graft Unions
  Graft unions shall be sound and the scion and rootstock compatible, so they bond and continue to grow as one. The union of the scion and rootstock shall be well knitted and show no obvious signs of incompatibility for the entire circumference of the graft.

  Graft unions are often different diameters, and this does not indicate incompatibility.

4.4.2 Below Ground

Roots shall be free of pests and disease, damage and deformities that hinder plant development. Pruning shall be undertaken to internationally recognised horticultural standards, practices and procedures.

Container plants shall be weed free and moist.

- Root Direction
  Roots shall grow in a generally outwards and downwards direction. Roots that are distorted as a result of inappropriate growing practices shall not be accepted. The root collar shall be free of girdling roots.

Plants with distorted roots can become structurally weak and this may not be apparent for years after planting. Even non-woody roots, if left untreated, can eventually strangle a plant and cause it to fail.

- Rootball Occupancy
  The root system shall fully occupy and be well established in the container. Once the container is removed, at least 90% of the soil volume shall remain intact. When lifted by the trunk, the trunk and rootball shall move as one unit. The outer edge of the rootball shall be free of woody circling roots and the base free of matted roots. The plant shall not be loose in the container.

- Height of Root Collar
  The root collar shall be at or just below (i.e. ≤ 2 cm) the surface of the rootball.

4.5 Measurement of Work and Basis for Payment

Supply of tree and plant materials shall be paid at the individual rate for the specified size.

Any costs related to tree or plant inspections are at the Contractor's expense.

5 TRANSPORT OF TREE AND PLANT MATERIALS

5.1 Scope of Work

This specification is for the transportation and storage of tree and plant materials.

5.2 Supply and Collection

Trees and plants shall be handled with care at all times and lifted by the container when placed on the ground or into vehicles. Trees or plants shall not be substituted without the Engineer's approval for Council initiated projects, or acceptance by Council via non-conformance report (NCR) for subdivision developments.

Tree and plant materials for Council initiated projects shall be supplied by the Christchurch City Council's nursery, unless otherwise specified. For non-Council initiated projects, such as subdivision developments, trees and plants may be supplied by the Christchurch City Council's nursery if sufficient stock is on hand. Where supplied by the Christchurch City Council, they have been pre-ordered and can be collected from the Nursery. All open ground trees are usually available between 1 May and 31 August subject to seasonal conditions. Open ground (bare root stock) and container trees, and small grade plants can be collected from the Christchurch City Council's nursery. The collection location for other suppliers will be specified.

The Contractor shall advise the nursery of the intended pick-up date for the trees and plants at least five working days in advance (contact Christchurch City Council Nursery, between the hours of 7.30am-3.45pm, telephone 941 6667 for small grade

plants and telephone 941 7476 for open ground and container trees. The Contractor shall give at least twenty-four hours' notice of the intended time of pick-up. Open ground trees will require a pre-agreed date for collection to allow adequate time for preparation.
The Contractor shall inspect the trees and plants from all nurseries at the time of collection or upon delivery and, if they are not considered to be of a suitable standard, shall inform the Engineer.

It is the Contractor's responsibility to ensure trees and plants as specified are thoroughly watered before they are transported from the nursery. Once trees and plants leave the nursery, they are the responsibility of the Contractor unless otherwise agreed by the Engineer.

5.3 Transportation and Storage

All tree and plant material shall be carefully packed and protected during transport to the site to prevent damage. Where trees are too tall for the transportation vehicle the tops shall be rested against a padded "H" frame or similar to prevent damage occurring. Foliage shall be protected from desiccation during transportation. Polythene sheets shall not be used for this as this may reduce air circulation and trap heat, causing excess moisture loss. Container grown plants shall not be bundled together.

Plant roots shall be protected at all times from drying out. Bare rooted plants, such as trees, shall have individual rootballs contained in moisture retentive material.

Trees and plants shall be planted within 48 hours of delivery. The Engineer shall be informed where this is not achieved. Plants that cannot be planted immediately on delivery shall be kept in the shade, well protected, sheltered and the soil kept moist.

If damage occurs the trees or plants shall be replaced at the Contractor's expense.

Pots and other protective materials shall not be removed until immediately prior to planting and shall be disposed of off the site after planting. Plastic pots from plants supplied by the Christchurch City Council's nursery must be returned to the nursery for reuse.

5.4 Measurement of Work and Basis for Payment

Collection, transportation and storage of tree or plant materials shall be included in the rate for planting.

6 PLANTING OF SPECIMEN TREES

6.1 Scope of Work

This specification is for setting out, planting, fertilising and establishment of specimen trees. Site preparation and topsoil placement is specified in CSS: Part 2 clause 9.0 – Topsoil Placement.

6.2 Timing

Planting shall generally take place between 1 April and 31 August (the planting season for trees). Planting may only occur outside these times with the approval of the Engineer for Council initiated projects, or acceptance by Council via non-conformance report (NCR) for subdivision developments.

Depending upon seasonal conditions, these dates may vary as instructed by the Engineer for Council initiated projects, or Council for subdivision developments (for example planting trees from 1 May could be more suitable than early April).

6.3 Setting Out

Planting positions shall be in accordance with the planting plans.

The Engineer may require minor refinement to the design with adjustments to the final locations of trees as the planting proceeds.

6.4 Container Trees

Containerised trees shall be thoroughly moistened at the time of planting. If the soil is dry, the trees shall be submerged in water until air bubbles stop rising. Allow time to drain before planting.

Balled and container grown trees shall have the cloth, cordage, container, wire containment and hessian removed immediately prior to planting. Care shall be taken to ensure that the root ball is not damaged during container removal or planting.

If trees are slightly pot bound the roots shall be loosened, pruned and spread out to ensure a natural and healthy growth pattern. Roots shall not be exposed to the sun or wind.

Trees that are found to have excessively pot bound and/or girdling, inadequate, damaged or otherwise defective root systems that cannot be mitigated at the time of planting shall be rejected.

6.5 Transplanted Trees

Transplanted trees shall be handled in accordance with a site-specific methodology that is approved by the Engineer for the transplanting and re-establishment of the specified trees.

6.6 Tree Pit

For the purpose of this document, a tree pit is defined as the purpose-built area immediately adjacent to the tree.

Tree pits must be designed and constructed in association with the site and geotechnical conditions to ensure that the soil quality, volume, depth and drainage will be appropriate for successful tree establishment and long-term tree growth and development.
Where required the bottom of the pit shall be forked over to an additional depth of 300mm to facilitate root penetration, air movement and free drainage. Backfill and site soil below the rootball shall be compacted using body weight or hand tamping to prevent post planting settlement. See SD702 sheets 1 or 2 for standard installation details.

Root barriers shall not be installed within tree pits. See clause 10.0 – Root Barriers and SD704 for root barrier installation details.

Backfill soil is to be first class unscreened topsoil in accordance with CSS: Part 1 clause 38.0 – Topsoil lightly compacted by bodyweight or specified tree pit soil mix. In some situations, the existing site soil may be suitable for use where approved by the Engineer.

Where existing site conditions are unlikely to support long term tree growth and development, site specific tree pit design will be required (e.g. including increased soil volumes, drainage, etc).

6.6.1 Tree Pits (hard surface areas)

Tree pits in hard surface areas such as urban streetscape areas shall be constructed as specified by the Engineer.

6.7 Planting

Trees shall be set upright in the centre of the pit at such a depth that the top of the root crown (buttress flair) is level with the surrounding ground surface within the tree pit. Soil shall be heeled in using natural body weight and not compacted by machinery or ‘stamped’ down. Any major roots that accidentally break off or fray shall be cleanly pruned using sharp secateurs.

Where roots are pot bound and/or girdling they shall be cleanly severed at the edge of the root ball and gently teased out in a radial fashion. The tree shall be rejected where girdling roots constrict the vascular tissue in a stem and where their removal, or other defects that cannot be mitigated would compromise future growth patterns and/or structural integrity.

Loose roots shall be spread out in a radial fashion and the pit progressively backfilled with approved backfill soil, carefully placed under and amongst them to fill all voids and consolidated so that no air pockets are present, and the tree is firmly held. For bare root stock the soil shall be heeled firmly and carefully.

Where specified, soil conditioners and/or fertilisers shall be applied as per the manufacturer's specifications and thoroughly mixed with the backfill soil prior to planting.

Each tree shall be watered thoroughly immediately after planting, ensuring that the moisture has penetrated to the full depth of the root ball (initial watering is also important to settle the soil around the roots).

Unless otherwise specified, all newly planted trees shall be mulched in accordance with clauses 8.0 – Mulching and staked where required in accordance with clause 9.0 – Staking Trees and Shrubs.

6.8 Practical Completion Acceptance Criteria

All tree planting shall be 100% complete at Practical Completion. All trees are to be planted as specified on the Landscape Plans in the correct locations.

The following acceptance criteria must be 80% complete at Practical Completion. All trees planted shall:

- Be healthy with no evidence of decline, defects or damage (e.g. dead/dying/diseased foliage/tips/branches, poor canopy shape, density or discoloured foliage that is uncharacteristic of healthy trees of the species, pests and diseases, poor/excessive pruning, structural defects, decay, mechanical damage, poor trunk taper, broken/fractured trunks, branches or roots).
- Be upright and firm in the ground.
- Have the top of the root crown (buttress flair) level with the surrounding ground surface within the tree pit.
- Be able to support themselves in an upright position without the use of canes or stakes (if planted more than 12 months prior).
- Be securely staked as specified where applicable.
- Have mulch as specified.
- Have tree pits that are free of weeds, litter and debris.

The following is to be provided at Practical Completion:

- As built data and drawings.
- An Engineers Report (for all subdivisions) from a qualified Arborist.

The Contractor shall be responsible for ensuring that trees are free of unacceptable defects at the time of planting and maintained to the required standards for the duration of the establishment period.

6.9 Establishment

Works to achieve establishment of the trees shall be carried out by the Contractor, in accordance with CSS Part 7 clause 14.0 – Establishment. An Establishment Programme shall be produced by the Contractor and submitted to the Engineer for approval as part of the Contract Quality Plan.

The Contractor shall be responsible for monitoring and reporting on the condition of the trees, and making recommendations for remedial works, additional watering and provisions for replacement planting (within the specified tree planting season) as and where required. The acceptance criteria set out below shall be used to assess the trees throughout the establishment period.

The Establishment Programme shall be for a period of at least 24 months following practical completion acceptance, unless otherwise specified. Establishment tasks will mainly consist of monitoring moisture levels and the condition of the trees, watering as and when required, replenishment of mulch including mulch matting, repair of support systems, weed control, removal of litter, and other remedial actions.

A Monthly Establishment Report on tree condition and establishment works undertaken shall be submitted to the Engineer within five days of the end of each month. A prescribed Landscape Construction Establishment Checklist to form part of the report is shown in the appendices. Information to be provided in this report is set out in clause 14.0 – Establishment.

6.10 Final Completion Acceptance Criteria

All tree planting shall be 100% complete at Final Completion.

If any trees have been replaced during the establishment period, Final Completion for all trees will be delayed for 24 months from time of last planting unless agreed by the Council Engineer.

Tree stakes and ties are to be removed prior to final inspection by Council, with the exception of replacement trees planted less than 12 months prior which have an extended maintenance period.

All the Acceptance Criteria listed in Practical Completion must be 80% complete at Final Completion.

For Subdivisions:

- All trees are to be planted as specified on the accepted Landscape Plans in the correct locations.
- If there have been any changes to planting during the establishment period, an updated Landscape Plan and accepted Non – Conformance Report (NCR) is to be provided to the Council Engineer prior to the Final Completion acceptance.
- An Engineer's Completion Certificate is to be provided at Final Completion. For all subdivisions an Engineers Completion Certificate is to be provided as per IDS Part 3 Appendix V11.

6.11 Measurement of Work and Basis of Payment

6.11.1 Planting of Specimen Trees

Planting shall be paid per tree and shall include tree transport, site preparation, setting out, fertiliser and/or soil conditioner, tree planting and

mulching of tree pits only. Excavation and filling of tree pits is paid separately.

Where a tree is not acceptable, all costs relating to the removal and replacement of the tree including replacement tree supply and establishment shall be at the Contractor's expense.

6.11.2 Establishment

Establishment shall be paid per tree per month. Establishment shall include all items as set out in clause 14.0 - Establishment. The 'Monthly Establishment Report' for the period being claimed must be presented with the claim before payment will be made.

The establishment of trees that require replacement at the end of the Defects Liability period or during the planting season immediately prior to the end of the Defects Liability period shall be at the Contractor's expense and for the duration of the specified establishment period (typically 24 months), unless the reason for replacement is through no fault of the Contractor.

Where trees are not replaced and /or established by the Contractor, the costs will be at Council's unit rates. Costs will include but not be limited to removing defective trees, supply of replacement trees, planting, staking, mulching, tree establishment, and associated traffic management where applicable.

7 PLANTING OF SHRUBS, GROUNDCOVER AND WETLAND PLANTS

7.1 Scope of Work

This specification is for setting out, planting, fertilising and establishment of plant materials. Site preparation and topsoil placement is specified in CSS: Part 2 clause 9.0 – Topsoil Placement and soils are specified in CSS: Part 1 clause 38.0 Topsoil.

7.2 Timing

Planting shall take place between 1 April and 30 September (the planting season for shrubs, groundcover and wetland plants).

Wetland areas that involve permanently or regularly saturated soils, e.g. inter-tidal zones and stream margins may be planted outside the recognised planting season on a case-by-case basis, and with the approval of the Engineer for Council initiated projects or acceptance by Council via non-conformance report (NCR) for subdivision developments

7.3 Setting Out

Planting positions shall be in accordance with the planting plans and spacing shall be as specified. Plants shall be a minimum of 500mm from the edge of the plant bed. Greater distances may be required for some species where the plants have the

potential to extend over footpaths, kerbs or lawns when mature (for example strap-leaved species such as Phormium).

The Engineer may require minor refinement to the design with adjustments to lines, levels and grouping of shrubs, groundcover or wetland plants locally as the planting proceeds.

In areas of block planting, plants shall be spaced so that when established they will completely and evenly fill the areas indicated, unless otherwise specified. Plants shall be spaced around the perimeter first to define the extent of the area to be filled by each species. The remaining plants shall then be used to fill the centre of the area in an informal manner avoiding straight lines and regular geometric patterns, unless otherwise specified.

7.4 Containerised Shrubs and Groundcover

Containerised plants shall be thoroughly moistened at the time of planting. If plants are dry, they shall be submerged in water for five minutes until all air bubbles stop rising. Allow time to drain before planting.

Balled and container grown plants shall have cloth, cordage, containers, wire containment and hessian removed immediately prior to planting. Care shall be taken to ensure that the root ball is not disturbed during container removal or planting.

If plants are slightly pot bound the roots shall be loosened, trimmed and spread out to ensure healthy growth. Roots shall not be exposed to the sun or wind.

Plants that are found to have excessively pot bound and/or girdling, inadequate, damaged or otherwise defective root systems that cannot be mitigated at the time of planting shall be rejected.

7.5 Planting Hole

The planting hole shall be twice the root ball width and twice the root ball depth. Planting holes, except for wetland plants, shall be loosened for at least 75mm each side of and under the plant prior to planting.

7.6 Fertilisers

The specified fertiliser shall be thoroughly mixed with the soil in the base of the planting hole, prior to planting.

Apply quantities as recommended by the manufacturer. The Engineer may vary the amount depending on conditions and stock. The Contractor shall allow for a minimum average fertiliser application rate of 50 grams of 8–9-month slow release fertiliser or approximately one handful and the application of a balanced NPK mix per shrub or ground cover. Wetland plants shall not be fertilised.

7.7 Planting Shrubs and Groundcover

The Contractor shall carry out the works to protect the existing subsoil structures and prevent excessive soil structural damage.

Plants shall be set upright in the centre of the planting hole at such a depth that the soil, when firmed down is at the same height as the top of the root ball. Soil shall be heeled in using natural body weight and not compacted by machinery or 'stamped' down. Any major roots that accidentally break off or fray shall be cleanly cut off from the plant.

Loose roots shall be spread out in a radial fashion, and the pit progressively backfilled with approved backfill soil, carefully placed under and amongst them to fill all voids and consolidated so that no air pockets are present and the plant is firmly held.

Where roots are pot bound and/or girdling they shall be cleanly severed at the edge of the root ball and gently teased out in a radial fashion.

Each plant shall be watered thoroughly after planting, ensuring that the moisture has penetrated to the full depth of the root ball (initial watering is also important to settle the soil around the roots).

Unless otherwise specified all newly planted shrubs and groundcover shall be mulched in accordance with clause 8.0 - Mulching.

7.8 'Wetland' Plants

Plants identified for 'Wetland' areas shall be planted into permanently or temporarily saturated areas. Planting of aquatic and semi aquatic wetland plants (in stream beds and inter-tidal zones) requires roots to be buried to ensure they do not float away. These plants may also require pinning down or a small amount of gravel may be added to weigh down the soil.

Plant in bands or lines following natural contours or as required by the Engineer.

Extreme care is required to ensure 'wetland' plants do not dry out during storage, transportation and planting. If drought conditions occur, planting into some areas should be delayed until soil moisture levels are sufficient to sustain the plants. The Contractor shall consult the Engineer over any concerns with soil moisture levels.

Any waterway riparian planting shall be in accordance with the Christchurch City Council Streamside Planting Guide.

7.9 Practical Completion Acceptance Criteria

All planting shall be 100% complete at Practical Completion. All plants are to be planted as specified on the Landscape Plans in the correct locations.

The following acceptance criteria must be 80% complete at Practical Completion. All plants and planting areas shall:

- Be upright and firm in the ground.
- Have the top of the root ball level with the surrounding surface.
- Have mulch as specified.

- Be free of weeds, litter and debris.
- Be healthy with no evidence of decline or damage (e.g. dead/dying/diseased foliage/tips/branches, loss of foliage that is uncharacteristic to the species, discoloured foliage, pests and diseases).
- Have a minimum 300mm depth of first–class soil

The following is to be provided at Practical Completion:

- As built data and drawings.
- An Engineers Report (for all subdivisions).

The Contractor shall be responsible for ensuring that plants and plant beds are free of unacceptable defects at the time of planting and maintained to the required standards for the duration of the establishment period.

7.10 Establishment

Works to achieve establishment of the plants shall be carried out by the Contractor, in accordance with clause 14.0 - Establishment. An Establishment Programme shall be produced by the Contractor and submitted to the Engineer for approval as part of the Contract Quality Plan.

The Contractor shall be responsible for monitoring and reporting on the condition of the site and planting, and making recommendations for remedial works, additional watering and provisions for replacement planting (within the specified planting season) as and where required. The acceptance criteria set out below shall be used to assess the planting throughout the establishment period.

A Monthly Establishment Report on plant condition and establishment works undertaken shall be submitted to the Engineer within five days of the end of each month. A sample Landscape Construction Establishment Checklist is shown in the appendices. Information to be provided in this report is set out in clause 14.0 - Establishment.

7.11 Final Completion Acceptance Criteria

All planting areas shall be 100% complete at Final Completion.

If any plants have been replaced during the establishment period, Final Completion for all planting areas will be delayed for 24 months from time of last planting unless agreed by the Council Engineer.

All the Acceptance Criteria listed in Practical Completion must be 80% complete at Final Completion. A maximum 20% of plant loss (including shrub, groundcover, and wetland plants) is acceptable at Final Completion, provided that the losses are spread evenly throughout the planting, there are no noticeable bare patches, and 80% canopy cover from established plants is achieved.

For Subdivisions:

- All plants are to be planted as specified on the accepted Landscape Plans in the correct locations.
- If there have been any changes to planting during the establishment period, an updated Landscape Plan and accepted Non – Conformance Report (NCR) is to be provided to the Council Engineer prior to the Final Completion acceptance.
- Engineer's Completion Certificate is to be provided at Final Completion. For all subdivisions an Engineers Completion Certificate is to be provided as per IDS Part 3 Appendix V11.

7.12 Measurement of Work and Basis of Payment

7.12.1 Shrubs, Groundcover and Wetland Plants

Shrubs, groundcover and wetland plants shall be paid per plant. Payment shall include plant transport, excavation of the planting holes and disposal of spoil, planting preparation, setting out, filling, fertiliser where specified and planting.

Where a plant is not acceptable, all costs relating to the removal and replacement of the plant including replacement plant supply and establishment shall be at the Contractor's expense.

7.12.2 Additional Subgrade Modification

Additional subgrade modification shall be per m2 and shall include excavation, disposal of excavated material, supply of second-class soil and its placement.

7.12.3 Establishment

Establishment shall be paid per m2 of plant bed per month. Establishment shall include all items as set out in clause 14.0 - Establishment. The 'Monthly Establishment Report' for the period being claimed must be presented with the claim before payment will be made.

The establishment of plants that require replacement at the end of the Defects Liability period or during the planting season immediately prior to the end of the Defects Liability period shall be at the Contractor's expense and for the duration of the specified establishment period (typically 24 months), unless the reason for replacement is through no fault of the Contractor.

Where plants are not replaced and/or established by the Contractor, the costs will be at Council's unit rates. Costs will include but not be limited to removing defective plants, supply of replacement plants, planting, mulching, establishment, and associated traffic management where applicable.

8 MULCHING AND POST-PLANTING SPRAYING

8.1 Scope of Work

This specification is for mulching and post-planting spraying with pre-emergent herbicides.

8.2 Preparation

Grass and weeds shall be removed by careful hand excavation or shall be standing dead (i.e. not recently sprayed), ground should be level, compacted soils aerated, and dry soil watered prior to mulch being applied.

Where applicable, spraying and the use of herbicides shall comply with the requirements of CSS: Part 2 - Earthworks. Pre-emergent herbicides shall be applied as specified and at the manufacturer's recommended rate.

Spraying with pre-emergent herbicides shall occur after planting and before mulching. The topsoil surface shall be smooth, uniform and lightly consolidated prior to spraying. If the ground is dry, a thorough watering shall be carried out before spraying.

Where necessary, compacted soil shall be aerated by gently forking the soil in advance of the mulch application to improve drainage and limit prolonged waterlogging, as this can make trees and plants more susceptible to certain pathogens (such as Phytophthora spp.).

8.3 Mulch

Mulch shall be as specified, and applied as soon as practicable after planting

8.3.1 Decomposed Tree Chip, Cambium Grade Bark, Bark Nuggets, Crushed Shell, Other Medium

The surface of the mulch shall be even and free of hollows and mounds.

The Contractor shall identify the origin of the mulch supplied. Materials derived from plant species that have naturally occurring toxicity should be composted for at least a month, preferably at a high temperature (c. 60 ºC), in order to make them innocuous. High-temperature composting should also be used to kill pests and pathogens.

Materials that cannot be detoxified, including those that have been contaminated by herbicides or other chemicals, or in contact with a primary pathogen such as Phytophthora, shall not be used for mulching. Materials that have the potential for the regrowth or spread or weed species shall also not be used.

Mulch to tree pits in reserves shall be placed radially from the trunk of the tree to the diameter specified in the table below. Mulch to tree pits in streets shall be spread to cover a square or rectangle, to the dimensions in the table.

Tree Size	Mulch Width: Streets	Mulch Diameter: Parks
25-45 litre	750mm	2000mm
100 litre	750mm	2000mm
150 litre	1800mm	2000mm
320 litre	2700mm	2700mm

Where the tree pit's mulch outside edge is within 300mm of the kerb or path, extend the mulch to that edge.

Mulch shall not touch the stems of plants. For plants, a small circle shall be cleared (diameter of 50mm minimum) around the stem to avoid stem rot. For trees, mulch shall be pulled back to 100mm off the trunk to prevent collar rot.

Unless specified otherwise, mulch shall be placed and maintained to a consolidated depth of 100mm for planting beds and tree pits.

Topsoil shall not be present in the mulch during placement, planting or weeding.

Organic aggregate (e.g. wood chip, bark, etc) mulch shall not be placed below the flood levels of waterways or within regularly inundated tidal margins.

8.3.2 Wool Mulch Matting and Other Matting Type Mulches

Wool mulch matting and other matting type mulches and any required fastenings shall be 100% biodegradable, unless otherwise specified. Matting must not include plastic mesh or strands.

Unless specified otherwise, wool mulch matting and other matting type mulches shall be installed and maintained as outlined below:

Rolls shall be laid out as per the manufacturer's specifications and pegged down with specified fixings. Fixings shall be at least 200mm long and shall be spaced at a minimum of 1.0m centres. The soil conditions and gradient may require fixings to be placed at closer centres. Overlap between rolls shall be at least 200mm. Where applicable the top surface or uppermost edge shall lie on top of the bottom edge of the adjacent sheet. Where specified 1m x 1m square mats shall be placed around individual plants. A fixing shall peg down these mats at least three per side.

Repeat applications of wool mulch matting and other matting type mulches will be required, where the product is damaged, deteriorates or is otherwise not effective throughout the duration of the contract, including the Defects Liability Period.

8.3.3 Cardboard/Paper Mats

Cardboard circular mulch mats and paper mats shall be placed around each plant after planting where specified. Cardboard or paper mats or circles shall be securely pegged down. Pre-emergent herbicide shall not be placed under these mats.

8.4 Surface Boxes

Surface boxes shall be accessible, adjusted and repainted in accordance with the requirements of CSS: Part 1 - General. Water supply surface boxes shall be adjusted and repainted in accordance with the requirements of CSS: Part 4 clause 12.4 – Surface Boxes Installed or Adjusted Separately from Watermain Works. Manholes shall be adjusted in accordance with the requirements of CSS: Part 3 clause 16.0 – Adjusting Manholes to Altered Surface Levels

8.5 Acceptance Criteria

8.5.1 Decomposed Tree Chip, Cambium Grade Bark, Crushed Shell, Other Medium

Mulch shall be free of weeds and a consolidated depth of 100mm or as specified at Practical Completion, during the Defects Liability Period and at the issue of the Defects Liability Certificate.

Mulch shall cover the specified area.

Mulch shall not spread onto paved surfaces or onto lawn areas. Where a mulched area is adjacent to a hard surface, mulch shall be flush with or no more than 25mm below the surrounding surfaces.

Topsoil shall not be mixed into the mulch.

8.5.2 Wool Mulch, Other Matting Type Mulches, and Cardboard or Paper Mats

Wool Mulch, Other Matting Type Mulches, and paper or cardboard mats shall be in place, provide the specified coverage and be securely pegged down at Practical Completion, during the Defects Liability Period and at the issue of the Defects Liability Certificate.

8.6 Measurement of Work and Basis of Payment

8.6.1 Decomposed Tree Chip, Cambium Grade Bark, Crushed Shell, Other Medium

Mulch shall be paid by m2, to the nearest m2. Mulch rates shall include supply and application of pre-emergent herbicide. Mulching of tree pits shall be included in the rate for planting of specimen trees.

8.6.2 Wool Mulch and Other Matting Type Mulches

Wool mulch and other matting type mulches shall be paid by m2, to the nearest m2. The supply and application of pre-emergent herbicide shall be included as a separate item

8.6.3 Cardboard/Paper Mats

Cardboard and paper mats shall be paid per item and shall include supply, installation and fixing.

8.6.4 Surface Boxes

The Contractor shall include the cost of adjustment of all water supply service boxes, including repainting, vents, sewer gully traps, existing storm water inspection openings, and traffic signal loop toby boxes in the rate for the placement of mulch.

Payment for the adjustment of storm water and sewerage manhole tops shall allow for all work involved.

9 STAKING TREES AND SHRUBS

9.1 Scope of Work

This specification is for the staking of specimen trees and the identification and stem protection of trees and shrubs.

9.2 Tree Stakes

Where stakes are required newly planted specimen trees shall be supported by stakes complying with SD 702, unless specified otherwise by Council Arborist.

Unless specified otherwise stakes shall be untreated timber, free of knots and other structural defects, 50mm x 50mm dimension, uniform in appearance, straight and finished to a uniform height.

Stakes shall be driven into the ground outside the rootball to a depth sufficient to support the tree and shall be upright and immoveable.

All tree ties shall be jute (Hessian) to allow minor swaying movement without chafing of the stems and to allow the natural development of supportive 'reaction/adaptive wood' and a strong and even connection/transition to the supporting root system. Other tree ties shall be approved by the Engineer prior to use.

Unless otherwise specified, tree ties shall be placed at one third the height of the tree from ground level.

Stakes and ties shall be removed after 12 months from the time of planting, unless otherwise specified.

9.3 Identification Stakes

Identification stakes shall be installed to plants as specified. These shall be inserted at the time of planting to ensure that roots are not damaged. The identification stake shall be of untreated timber or similar and shall be no longer than 1.0m.

9.4 Stem Protectors

Planting shall be protected with flexible corrugated and perforated PVC pipe where specified. Trees shall have 150mm diameter 300mm long protectors and shrubs shall have 150mm diameter 200mm long protectors. The protectors shall be installed around the base of the plant and secured into the ground.

9.5 Measurement of Work and Basis of Payment

Tree staking, identification stakes and stem protectors shall be per item, and shall include the supply, installation and removal of all items

10 ROOT BARRIERS

10.1 Scope of Work

This specification is for the supply and installation of tree root barriers.

10.2 Construction

Root barriers shall be installed where trees are planted in close proximity to underground power cables and shall be supplied and installed in accordance with SD 704 and IDS Part 10 Table 1 – Root barrier clearances, reproduced below. Each barrier shall be impermeable to penetration by roots and a minimum of 0.5mm thick.

The clearance between the tree and the cable of at least 2.0m for 400v cables and of at least 3.0m for 11kv cables shall be maintained where root barriers are not used.

When planting in closer proximity to 400v and 11,000v cables:

- A tree root barrier shall be installed within the minimum 1.0m clearance between the tree and the cables.
- The 3.0 metre continuous root barrier shall be placed centrally to the tree, as far as possible away from the tree (not within the tree pit) and at least 300mm distance from the underground cables.
- The root barrier shall be at least 600mm deep and greater depths (e.g. 1.2m) may be required depending upon cable depth.

IDS Part 10 Table 1 – Root barrier clearances

Clearances from cable (to barrier) to tree				
Cable voltage (kV)	66	33	11	0.4
Minimum tree clearance without barrier (m)	5.0	5.0	3.0	2.0
Minimum tree clearance with barrier (m)	2.5	2.5	1.0	1.0
Minimum cable to barrier clearance (m)	2.0	2.0	0.3	0.3

The clearance specifications for 33,000v and 66,000v cables are also listed in the above table. The installation of root barrier may also be required in other locations as specified.

10.3 Measurement of Work and Basis of Payment

Root barriers shall be paid per barrier or per metre, as specified, and shall include supply of all materials, installation, backfilling and restoration.

11 TREE GRATES

11.1 Scope of Work

This specification is for the supply and installation of tree grates.

11.2 Construction

Foundations for tree grates shall comply with SD 708, SD 709 or SD 710, as specified. Tree grates shall comply with SD 706, as specified.

11.3 Measurement of Work and Basis for Payment

Tree grates and grate foundations shall be paid per item and shall include supply and installation.

12 TURF SUPPLY AND LAYING

12.1 Scope of Work

This Specification is for the supply, laying and establishment of pre-prepared turf mat products. This differs from grass areas which are established through either the top-sowing or hydroseeding of grass seed.

12.2 Materials

The turf shall be of good quality, free of weeds and pests and of a minimum thickness of 20mm.

The turf grass mix shall be as specified. The turf shall be sufficiently fibrous for turves to hold together when handled, but excess fibre or thatch is undesirable.

The Contractor shall inform the Engineer of the location of the supply so that the turves can be inspected prior to lifting.

12.3 Surface Boxes

Surface boxes shall be accessible, adjusted and repainted in accordance with the requirements of CSS: Part 1 - General. Water supply surface boxes shall be adjusted and repainted in accordance with the requirements of CSS: Part 4 clause 12.4 – Surface Boxes Installed or Adjusted Separately from Watermain Works. Manholes shall be adjusted in accordance with the requirements of CSS: Part 3 clause 16.0 – Adjusting Manholes to Altered Surface Levels.

12.4 Traffic Signs

All regulatory traffic signs shall be reinstated prior to the removal of the traffic management. All information signs shall be reinstated as soon as practicable. All traffic signs shall be reinstated in terms of CSS: Part 6 clause 25.0 - Traffic Signs.

12.5 Laying

Turf shall be delivered to the site and installed within 36 hours of lifting. Turf shall be kept damp. Slow-release fertiliser shall be applied as specified to the turf prior to watering.

Turf shall be laid on topsoil placed to CSS: Part 2 - Earthworks. Topsoil shall be cultivated to 25mm to form a fine even bed.

The Contractor shall carry out the works to protect the existing subsoil structures and prevent excessive soil structural damage.

Turf shall be handled with care and laid in a stretcher bond pattern. The turf shall be laid from planks working over turves previously laid.

The turves shall be thoroughly watered until the turf mat and top 50mm of soil is wet. Allow a 'soaking in' period prior to lightly and evenly rolling so that the turf mat and the soil surface are thoroughly bonded.

Any inequalities in finished levels owing to variation in turf thickness or uneven consolidation of soil shall be adjusted by raking and/or packing fine soil under the turf, not by topdressing the turf surface.

12.6 Practical Completion Acceptance Criteria

All turf shall be 100% complete at Practical Completion. All turf areas are to be planted as specified on the Landscape Plans.

The following acceptance criteria must be 80% complete at Practical Completion. All turf areas shall:

- Have a minimum 100mm depth of topsoil.
- Be evenly and moderately consolidated without undue settlement or compaction.
- Have effective surface drainage.
- Be free from stones or similar debris.
- Not contain any non – specified grasses or weeds,
- Be free from hollows arising from uneven consolidation of the ground.
- Within two months of laying, at least 80% of the ground surface shall be covered and with no bare area greater than 30mm in diameter.
- Be an even sward of vegetation at a uniform height (of between 25mm and 50mm, swales between 50mm and 150mm), with healthy colour throughout.

The following is to be provided at Practical Completion:

- As built data and drawings.
- An Engineers Report (for all subdivisions).

The Contractor shall be responsible for ensuring that all turf areas are free of unacceptable defects at the time of planting and maintained to the required standards for the duration of the establishment period.

12.7 Establishment

Works to achieve establishment of the turf shall be carried out, by the Contractor, in accordance with clause 14.0 - Establishment. This will mainly consist of watering, mowing and weed control. The acceptance criteria set out below may be used to assess the turf throughout the establishment period.

The turf shall be maintained over the establishment period at a height of between 25mm and 50mm as measured by the Rising Disc test method 'New Zealand Sports Turf Institute'.

12.8 Final Completion Acceptance Criteria

All turf areas shall be 100% complete at Final Completion.

If any turf areas have been replaced during the establishment period, Final Completion for all turf areas will be delayed for 24 months from time of last planting unless agreed by the Council Engineer.

All the Acceptance Criteria listed in Practical Completion must be 80% complete at Final Completion. All turf areas shall have at least 80% of the ground surface covered and with no bare area greater than 30mm in diameter.

For Subdivisions:

- All turf areas are to be planted as specified on the accepted Landscape Plans.
- If there have been any changes to turf areas during the establishment period, an updated Landscape Plan and accepted Non – Conformance Report (NCR) is to be provided to the Council Engineer prior to the Final Completion acceptance.
- Turf is to be maintained until the entire area is handed over and accepted by Council.
- Engineer's Completion Certificate is to be provided at Final Completion. For all subdivisions an Engineers Completion Certificate is to be provided as per IDS Part 3 Appendix V11.

12.9 Measurement of Work and Basis of Payment

12.9.1 Turf

Turf shall be paid by m2, to the nearest m2 and shall include preparation of the bed, fertiliser, rolling and establishment, and temporary fencing.

12.9.2 Surface Boxes

The Contractor shall include the cost of adjustment of all water supply service boxes, including repainting, vents, sewer gully traps, existing storm water inspection openings, and traffic signal loop toby boxes in the rate for the placement of turf.

Payment for the adjustment of storm water and sewerage manhole tops shall allow for all work involved.

12.9.3 Traffic signs

Payment for the relocation of traffic signs shall be by lump sum or per sign relocated as specified.

12.9.4 Establishment

Establishment shall be included in the rate for turf laying and shall include any temporary fencing, and the disposal of clippings from mowing.

13 SOWING OF LAWN

13.1 Scope of Work

This Specification is for the formation, sowing and establishment of lawn areas in roadways (berms), parks and reserves (amenity areas and playing fields) and swales.

13.2 Seed Mixture

The seed mix shall be as specified. Mixes shall be in accordance with CSS: Part 1 - General.

The Contractor shall provide the Engineer with a certificate from the seed merchant supplying the seed verifying that the mixture is as specified and that the seed is no more than one year old.

13.3 Sowing

Prior to sowing, the site shall be prepared in accordance with CSS: Part 2 – Earthworks.

The method of sowing shall achieve a uniform distribution of seed at the following rates, unless otherwise specified: 300kg per hectare (30 grams per square metre) for berm and high-profile amenity areas; 250kg per hectare (25 grams per square metre) for playing field areas, swales and other amenity areas; 50kg per hectare for pasture.

The seed shall be applied and cultivated to 20mm depth so that the minimum of seed is exposed. The seeded ground shall be levelled and lightly consolidated to ensure good soil/seed contact.

Slow-release fertiliser shall be applied as specified before or during sowing at the manufacturer's specified application rates. Fertiliser shall not be applied in waterway areas.

A low-pressure system shall be used to avoid surface rilling or erosion.

13.4 Hydroseeding

The grass hydroseeding mulch, or pulp, shall be a mixture of the specified grass seed, wood-fibre based mulch, fertiliser and a binding agent. The percentage of wood fibre in the hydroseeding mulch shall be no less than 75%.

The mulch shall be applied to a minimum depth of 5mm. Application rates for berms and high-profile amenity areas shall be no less than 200kg/ 1000m2.

Products such as "Hydra red" or an equivalent are acceptable hydroseeding mulches.

Mulch shall be applied using a suitable pumping system with mixing abilities, to prevent settling between applications.

All existing site features, such as paths and fences, shall be protected during mulch application. Any overspray shall be removed promptly.

A low-pressure system shall be used to avoid surface rilling or erosion.

13.5 Surface Boxes

Surface boxes shall be accessible, adjusted and repainted in accordance with the requirements of CSS: Part 1 - General. Water supply surface boxes shall be adjusted and repainted in accordance with the requirements of CSS: Part 4 clause 12.4 – Surface Boxes Installed or Adjusted Separately from Watermain Works. Manholes shall be adjusted in accordance with the requirements of CSS: Part 3 clause 16.0 – Adjusting Manholes to Altered Surface Levels

13.6 Traffic Signs

All regulatory traffic signs shall be reinstated prior to the removal of the traffic management. All information signs shall be reinstated as soon as practicable. All traffic signs shall be reinstated in terms of CSS: Part 6 clause 25.0 - Traffic Signs.

13.7 Practical Completion Acceptance Criteria

All lawn shall be 100% complete at Practical Completion. All lawn areas are to be planted as specified on the Landscape Plans.

The following acceptance criteria must be 80% complete at Practical Completion. All lawn areas shall:

- Have a minimum 100mm depth of topsoil.
- Be evenly and moderately consolidated without undue settlement or compaction.
- Have effective surface drainage.
- Be free from stones or similar debris.
- Not contain any non – specified grasses or weeds,
- Be free from hollows arising from uneven consolidation of the ground.
- Within two months of laying, at least 80% of the ground surface shall be covered and with no bare area greater than 30mm in diameter.
- Be an even sward of vegetation at a uniform height (of between 25mm and 50mm, swales between 50mm and 150mm), with healthy colour throughout.

The following is to be provided at Practical Completion:

- As built data and drawings.
- An Engineers Report (for all subdivisions).

The Contractor shall be responsible for ensuring that all lawn areas are free of unacceptable defects at the time of planting and maintained to the required standards for the duration of the establishment period.

13.8 Establishment

Works to achieve establishment of the lawn shall be carried out, by the Contractor, in accordance with clause 14.0 - Establishment. This will mainly consist of barricading, watering, fertilising, mowing and weed control. The acceptance criteria set out below shall be used to assess the lawn throughout the establishment period.

The grass shall be first cut at 50mm and then maintained over the establishment period at a height of between 25mm and 50mm, as measured by the Rising Disc test method 'New Zealand Sports Turf Institute'. Swale areas shall have their first cut at 50mm grass height and shall be maintained over the establishment period at a height of between 50mm and 150mm.

13.9 Final Completion Acceptance Criteria

All lawn areas shall be 100% complete at Final Completion.

If any lawn areas have been replaced during the establishment period, Final Completion for all lawn areas will be delayed for 24 months from time of last planting unless agreed by the Council Engineer.

All the Acceptance Criteria listed in Practical Completion must be 80% complete at Final Completion. All lawn areas shall have at least 80% of the ground surface covered and with no bare area greater than 30mm in diameter

For Subdivisions:

- All lawn areas are to be planted as specified on the accepted Landscape Plans.
- If there have been any changes to lawn areas during the establishment period, an updated Landscape Plan and accepted Non – Conformance Report (NCR) is to be provided to the Council Engineer prior to the Final Completion acceptance.
- Lawn is to be maintained until the entire area is handed over and accepted by Council.
- Engineer's Completion Certificate is to be provided at Final Completion. For all subdivisions an Engineers Completion Certificate is to be provided as per IDS Part 3 Appendix V11.

13.10 Measurement of Work and Basis of Payment

13.10.1 Berms

Berms shall be paid by m2, to the nearest m2, and shall include excavation and disposal of spoil, ripping, cultivation and scarification, topsoil supply and finishing, sowing or hydroseeding and establishment.

Separate rates will be provided for saw cutting and for the installation of battens.

13.10.2 Repair of Existing Lawn

Repair of existing lawn shall be measured by the m2, to the nearest m2, and shall include preparation of existing landscape or grassed area, sowing and establishment.

13.10.3 Playing Fields and Amenity Areas

Playing fields and amenity areas shall be measured by the m2, to the nearest m2, and shall include preparation, sowing and establishment.

13.10.4 Swales

Swales shall be measured by the m2, to the nearest m2, and shall include preparation, sowing and establishment.

13.10.5 Surface Boxes

The Contractor shall include the cost of adjustment of all water supply service boxes, including repainting, vents, sewer gully traps, existing stormwater inspection openings, and traffic signal loop toby boxes in the rate for the construction of lawn.

Payment for the adjustment of stormwater and sewerage manhole tops shall allow for all work involved.

13.10.6 Traffic signs

Payment for the relocation of traffic signs shall be by lump sum or per sign relocated as specified.

13.10.7 Establishment

Establishment shall be included in the rate for the item and shall include any temporary fencing and the disposal of clippings from mowing where specified.

14 ESTABLISHMENT

14.1 Scope of Work

This Specification covers the work typically undertaken to provide optimum conditions to establish the constructed landscape, over the Defects Liability period.

Establishment shall be for a period of at least 24 months following practical completion acceptance, unless otherwise specified.

Establishment will mainly consist of monitoring moisture levels and the condition of the turf/plants/trees, watering as and when required, replenishment of mulch including mulch matting, checking and repair/removal of stakes and ties or any temporary fencing, weed control, cultivation, control of pests and diseases, removal of litter, trimming/pruning, mowing and other accepted horticultural operations necessary to ensure healthy landscape establishment and growth, and producing Monthly Establishment Reports of observations and the works carried out under this clause.

All defects shall have been progressively rectified during the defects period and prior to the final completion acceptance. Throughout the establishment period, the Contractor shall regularly visit the site as and when necessary and carry out works required to ensure successful tree/plants/turf/lawn establishment.

Details of the proposed methods and frequency of such activities, and the reporting of these, shall be set out in the Establishment Programme as outlined in the Contractor's Contract Quality Plan.

14.2 Watering

Contractor shall provide sufficient water to all lawn areas, trees and planting to maintain plants in a healthy condition.

14.3 Weed Control

At the end of the defect's liability period tree pits, mulched plant beds, unmulched revegetation zones, and wetlands shall be free of weeds. During the defects liability period the following shall apply unless otherwise approved by the Engineer.

14.3.1 Trees

Weed control shall be frequent enough to prevent weed species flowering and seeding. At no time shall any individual weed be larger than 100mm. Weeds that are 50mm or more in size shall not exceed more than five per

square metre. Weeds shall be controlled without the use of residual herbicides.

The Engineer may approve the use of herbicides. Herbicide use shall comply with CSS: Part 2 clause 6.0 – Pesticide, Herbicide and Fertiliser Application.

At handover all tree mulch areas shall be free of weeds.

14.3.2 Mulched Plant Beds

Weed control shall be frequent enough to prevent weed species flowering and seeding. At no time shall any individual weed be larger than 100mm. Weeds that are 50mm or more in size shall not exceed more than five per square metre. Weeds shall be controlled without the use of residual herbicides.

The Engineer may approve the use of herbicides. Herbicide use shall comply with CSS: Part 2 clause 6.0 – Pesticide, Herbicide and Fertiliser Application.

The Contractor (herbicide users) shall follow the manufacturer's specifications and comply with all the herbicide instructions and directions on the label completely.

At handover all mulched plant beds shall be free of weeds.

14.3.3 Unmulched and Revegetation Zones

Weed control shall be frequent enough to prevent weed species flowering and seeding. Weeds shall not encroach within 0.5m of the centre of any plant. At no time shall any individual weed be larger than 250mm.

Weeds shall be controlled manually within this area unless otherwise approved by the Engineer. When hoeing/pulling, care shall be taken to avoid damage to plants and their roots.

The Engineer may approve the use of herbicides. Herbicide use shall comply with CSS: Part 2 clause 6.0 – Pesticide, Herbicide and Fertiliser Application.

At handover all unmulched plant beds shall be free of weeds.

14.3.4 Wetlands

Weed control shall be frequent enough to prevent weed species flowering and seeding. Weeds shall not encroach within 0.5m of the centre of any plant. At no time shall any individual weed be larger than 250mm.

Hand weeding and releasing shall be the only control method employed within and up to one metre from the waterway. In all other areas, weeds shall be controlled manually unless otherwise approved by the Engineer. When hoeing/pulling, care shall be taken to avoid damage to plants and their roots.

The removal of aquatic and semi-aquatic vegetation shall retain any natural stream meander within the channel.

Aquatic vegetation removed from the channel shall be left on the bank margin within one metre of the channel for a period of 24 hours. This allows stream fauna to migrate back into the channel prior to removal of the debris off site. Volumes less than 0.5m3 may be removed from site immediately.

At handover all wetlands shall be free of weeds.

14.4 Pests and Diseases

The Contractor shall promptly report all animal, insect or fungal infestations to the Engineer.

14.5 Rubbish and Litter Collection and Removal

The Contractor shall remove all litter from the landscape area and berms or swales.

Litter is defined as any refuse, garbage, rubbish, dead animal remains, plant debris including fallen leaves, glass (broken or whole), metal, organic or inorganic waste matter or any other material, which is detrimental to the appearance of the site including fly tipping. Fly tipping includes items such as rubbish bags, builders' rubble, motor vehicle bodies or larger items requiring removal by machine.

The Contractor shall notify the Engineer of suspected fly tipping.

14.6 Pruning

All weak, dead, diseased or damaged growth, including spent flower heads (excluding trees), shall be removed. Sight lines at intersections and driveways shall be maintained and signs shall not be obscured.

Pruning shall not be carried out during leaf burst or leaf fall or periods that favour pathogens.

14.6.1 Pruning of Shrubs

Pruning shall be carried out on shrubs and groundcover by an appropriately qualified horticulturalist to maintain a high standard of presentation, display and plant vigour and to maintain the desired shape and size.

The following pruning techniques shall be employed where appropriate:

- Tips shall be pinched or purged, as appropriate for species, to give desired shape and size.

- Form pruning of young plants to ensure compact form and shape.
- Undercutting of groundcovers at border edges.
- Plants shall be pruned so that they do not smother neighbouring plants.
- Plants shall be pruned off footpaths and access ways and hard surfaces.

14.6.2 Pruning of Trees

All tree pruning shall be undertaken by a qualified and experienced Works Arborist to accepted modern international arboriculture standards. The name and qualifications of the arborist shall be submitted to the Council through the Contract Quality Plan.

Pruning shall consist only of removal of broken or dead/dying or diseased branches and shall be documented in the Monthly Establishment Report.

14.7 Plant/Tree Vandalism, Losses and Replacement

14.7.1 Vandalism and Theft of Plants/Trees

Any plants and trees vandalised or stolen shall be reported promptly to the Engineer and recorded on the 'Monthly Establishment Report'. The likely cause of damage shall also be reported. The plants/trees shall be removed and replaced where instructed by the Engineer.

Plant or tree loss due to vandalism or theft about which the Engineer is not notified shall be assumed a result of planting operations and replacement shall be at the Contractor's cost.

The Engineer will determine the value of plants, trees or other landscape works lost due to vandalism or theft.

14.7.2 Losses

Where the Contractor has provided adequate establishment work, the Engineer may determine losses of a single plant species greater than 25% are due to extreme weather or other reasons outside of the Contractor's control and are therefore not the Contractor's responsibility.

14.7.3 Replacements

Replacement plants make good any defects shall be planted during the planting season. If discovery of their loss is not within the planting season, then replacement planting shall occur during the next planting season. Replacements shall be the same as those specified, unless otherwise specified by the Engineer.

The establishment of plants and trees that require replacement at the end of the Defects Liability period or during the planting season immediately prior to the end of the Defects Liability period shall be at the Contractor's expense

and for the duration of the specified establishment period (typically 24 months), unless the reason for replacement is through no fault of the Contractor.

Where plants/trees are not replaced and/or established by the Contractor, the costs will be at Council's unit rates. Costs will include but not be limited to removing defective plants/trees, supply of replacement plants/trees, planting, staking, mulching, establishment, and associated traffic management where applicable.

The Engineer may order replacement of plants/trees that require replacement through no fault of the Contractor.

Any defective stakes, ties, etc shall be replaced by the Contractor as soon as possible.

14.8 Lawn Vandalism and Damage

The Contractor shall be responsible for any lawn/berm damage that occurs prior to the first cut at 50mm or that is traceable to this period. Subsequent lawn damage from public vandalism, including vehicle, bicycle and foot damage, shall be promptly reported to the Engineer. The likely cause of damage shall also be reported.

The Contractor shall notify the Engineer of grassed areas damaged by others during the course of their legitimate work, as opposed to vandalism. The Contractor shall notify the Engineer of areas that in his/her opinion have become worn due to wear and tear.

14.9 Monthly Establishment Report

An accurate and up to date monthly report, on plant/tree/grassed area condition and establishment works undertaken, shall be submitted to the Engineer within five days of the end of each month, and contain details documenting each establishment related site visit.

Information to be provided in this report shall include descriptions, site photographs and the dates of the works carried out to maintain and aid establishment of plants/trees, landscape and grassed areas, as specified in the above clauses, and information relating to issues identified, action taken and/or recommendations.

The sample Landscape Construction Establishment Checklist form shown in the appendices, for recording the required site/establishment information, or a similar form produced by the Contractor shall be appended to Monthly Establishment Reports. The Monthly Establishment Report shall also provide a summary of pertinent information.

Unforeseen damage, for example vandalism, and plant/tree losses shall be reported to the Engineer at the time of inspection and documented in the Monthly Establishment Report for the period.

Any unreported damage or plant/tree losses will be deemed the responsibility of the Contractor.

14.10 Measurement of Work and Basis of Payment

Establishment shall include watering, replenishment of mulch including mulch matting, repair of support systems, weed control, cultivation, control of pests and diseases, checking of stakes and ties, trimming, pruning or mowing and removal of clippings where required, removal of litter, other accepted horticultural operations necessary to ensure normal and healthy landscape establishment and growth, and the monthly reporting of the works carried out under this clause.

The 'Monthly Establishment Report' for the period being claimed must be presented with the claim before payment will be made.

14.10.1 Establishment of Specimen Trees

Establishment shall be paid per tree per month.

14.10.2 Establishment of Shrubs, Groundcover and Wetland Plants

Establishment shall be paid per m2 of plant bed per month.

14.10.3 Replacements

The supply and planting of replacement plants/trees shall be at the Contractor's cost, unless otherwise agreed by the Engineer.

14.10.4 Lawn Vandalism and Damage

The repair of lawn damage and vandalism prior to the first cut at 50mm or that is traceable to this period shall be at the Contractor's cost.

15 RESERVE FENCING

15.1 Scope of Work

This specification is for the supply and installation of post and cable or post and chain fence. It shall include entrances where specified.

15.2 Construction

Fences shall comply with SD 714, SD 715 or SD 716, as specified.

15.3 Measurement of Work and Basis for Payment

Fences shall be paid per lineal metre, to the nearest metre. They shall include supply of all materials, footings, installation and restoration.

16 AS-BUILT RECORDS

The Contractor shall provide Council with as-built records to the requirements set out in CSS: Part 1 clause 5.0 – Quality Assurance. All as – built records, including new and existing assets are to be provided at Practical Completion.

LANDSCAPE CONSTRUCTION ESTABLISHMENT CHECKLIST (EXAMPLE)
(To be included as part of the Contractor's Monthly Establishment Reports)

Contract Name & No:

Site Name/Description:

Contractor:

Defects Liability Period: From: To:

Date of Visit: Signed:

Activity	Checked	Actions Required/Comments	Actions Completed
Watering			
Mulch			
Stakes/Ties			
Weed Control			
Litter Removal			
Turf/Lawn Management			
Other			
Issues Identified (e.g. Vandalism, Decline, Pests and Diseases, Losses and Damage and Likely Causes, etc)			
Details			
Action Taken			
Photographs			

COMPLIANCE REQUIREMENTS CHECKSHEET - LANDSCAPES

ITEM	CSS REF	TASK	TEST STD/ DESCRIP	COMPLIANCE REQUIREMENTS	TEST FREQ.	PASS YES/NO	TEST BY	ACTIONS
1		**SUPPLY OF PLANT MATERIALS**						
	Pt 7, 4.3	Trees	Inspect	Grade, species and provenance as specified. Healthy, vigorous and sturdy, well grown, prepared for planting, no evidence of decline, defects or damage.				
	Pt 7, 4.4	Plant Materials	Inspect	Grade, species and provenance as specified. Healthy, vigorous and sturdy, well rooted, no evidence of decline, defects or damage.				
2		**TRANSPORT OF PLANT MATERIALS**						
	Pt 7 5.2	Handling	Inspect	Handled with care, thoroughly watered.				
	Pt 7 5.3	Transportation	Inspect	Not damaged, stems, foliage and roots protected.				
	Pt 7 5.3	Storage	Inspect	Planted within 48 hours. Protected and watered for intervening period.				
3		**PLANTING TREES**						
	Pt 7 6.2	Timing	Inspect	Planted between 1/04 and 31/8, unless otherwise approved.				
	Pt 7 6.3	Planting positions	Inspect	Complies with plan.				
	Pt 7 6.4	Container trees	Inspect	Thoroughly moistened before planting.				
	Pt 7 6.5	Transplanted trees	Inspect	Complies with site specific methodology.				

ITEM	CSS REF	TASK	TEST STD/ DESCRIP	COMPLIANCE REQUIREMENTS	TEST FREQ.	PASS YES/NO	TEST BY	ACTIONS
	Pt 7 6.6	Tree pit construction	Inspect/ Measure	Dimensions and treatment appropriate for tree size and site conditions.				
	Pt 7 6.6	Installation	Inspect/ Measure	Complies with SD where applicable				
	Pt 7 6.7	Planting	Inspect	Rootball level with surrounding ground, roots spread and voids filled, tree firm, watered, staked and mulched.				
	Pt 7 6.8, 6.10	Tree acceptance criteria	Inspect	Located as specified, upright, firmly in ground, self-supporting, healthy with no evidence of decline, defects or damage, staked where applicable.				
4		**PLANTING SHRUBS GROUNDCOVER, WETLAND PLANTS**						
	Pt 7 7.2	Timing	Inspect	Plant between 1/04 and 30/9, unless approved or wet area.				
	Pt 7 7.3	Planting positions	Inspect	Complies with plan.				
	Pt 7 7.4	Container shrubs	Inspect	Thoroughly moistened before planting.				
	Pt 7 7.5	Planting hole	Measure	Width and depth to be twice rootball, loosen 75mm all around.				
	Pt 7 7.6	Fertilisers	Inspect	Mixed thoroughly, specified amount.				
	Pt 7 7.7	Planting shrubs and groundcover	Inspect	Soil at top of rootball, roots spread, and voids filled, plant firm, watered, upright.				
	Pt 7 7.8	Planting wetland plants	Inspect	Plants anchored, surrounding soil moist.				
	Pt 7 7.9, 7.11	Plant acceptance criteria	Inspect	Located as specified, upright, firmly in ground, planted at correct levels, healthy with no evidence of decline, defects or damage.				

ITEM	CSS REF	TASK	TEST STD/ DESCRIP	COMPLIANCE REQUIREMENTS	TEST FREQ.	PASS YES/NO	TEST BY	ACTIONS
5		**MULCHING**						
	Pt 7 8.2	Grass removal	Inspect	Remove by hand or standing dead.				
	Pt 7 8.2	Herbicide application	Inspect	Used only where specified, complies with CSS Part 2, standing dead vegetation prior to mulch application.				
	Pt 7 8.3	Mulch material	Inspect/ Measure	Complies with applicable specification				
	Pt 7 8.3.1	Mulch placement	Inspect	+0mm, -25mm surrounding surface, 100mm depth, no topsoil present, organic aggregate not placed below flood or tide level.				
	Pt 7 8.3.1	Mulch placement to tree pits and plant beds	Measure	Consolidated depth of 100mm, to table dimensions.				
	Pt 7 8.3.1	Mulch placement to trees and plants	Measure	Clear of plant stems by 50mm, clear of tree trunks by 100mm.				
	Pt 7 8.3.2	Wool mulch matting and other mulch matting	Inspect/ Measure	100% biodegradable unless otherwise specified, located where specified, securely pegged down, 200mm long fixings at 1m centres, 100mm overlap, top edge on top.				
	Pt 7 8.3.3	Cardboard/paper	Inspect	Located where specified, securely pegged down, no herbicide under mats.				
	Pt 7 8.4	Surface boxes adjustment	Inspect	Complies with CSS Part 1, accessible, adjusted and repainted as specified.				
	Pt 7 8.5	Mulch acceptance criteria	Inspect	Complies with specification.				

ITEM	CSS REF	TASK	TEST STD/ DESCRIP	COMPLIANCE REQUIREMENTS	TEST FREQ.	PASS YES/NO	TEST BY	ACTIONS
6		**STAKING**						
	Pt 7 9.2	Tree stakes	Inspect/ Measure	Complies with specification and SD, or as otherwise specified.				
	Pt 7 9.3	Identification stakes	Inspect/ Measure	Installed at time of planting, untreated timber, under 1m.				
	Pt 7 9.4	Stem protector materials	Inspect/ Measure	150mm diameter, flexible corrugated perforated PVC pipe, to specified length.				
	Pt 7 9.4	Stem protectors - trees	Measure	300mm long, secured to ground.				
	Pt 7 9.4	Stem protectors - shrubs	Measure	200mm long, secured to ground.				
7		**ROOT BARRIERS**						
	Pt 7 10.2	Materials	Inspect/ Measure	Complies with SD 704, or as otherwise specified.				
	Pt 7 10.2	Installation	Inspect	Located and installed as specified.				
8		**TREE GRATES**						
	Pt 7 11.2	Construction	Inspect/ Measure	Complies with SD, or as otherwise specified.				
9		**TURF SUPPLY AND LAYING**						
	Pt 7 12.2	Turf materials	Inspect/ Measure	Good quality, weed free, +20mm thick, grass as specified, holds together.				

ITEM	CSS REF	TASK	TEST STD/ DESCRIP	COMPLIANCE REQUIREMENTS	TEST FREQ.	PASS YES/NO	TEST BY	ACTIONS
	Pt 7 12.3	Surface boxes adjustment	Inspect	Complies with CSS Part 1, accessible, adjusted and repainted as specified.				
	Pt 7 12.5	Laying	Inspect/ Measure	Stretcher bond pattern, on 25mm cultivated topsoil, with levelling soil underneath.				
	Pt 7 12.5	Laying	Inspect/ Measure	Laid within 36 hours of lifting, kept damp, fertilised prior to watering, watered until top 50mm of soil is wet.				
	Pt 7 12.6, 12.7	Turf acceptance criteria	Inspect/ Measure	Even healthy sward, uniform 25mm – 50mm height, no hollows or stones, ground covered, no weeds.				
10		**SOWING LAWN**						
	Pt 7 13.2	Seed mixture	Inspect	Complies with specification. Certificate received, seed less than 12 months old.				
	Pt 7 13.3	Sowing weights	Inspect/ Measure	Uniform 30g/m^2 berm, high profile, 20g/m^2 other lawn, swale, 50kg/ha pasture.				
	Pt 7 13.3	Sowing method	Inspect/ Measure	Cultivated to 20mm, lightly consolidated, fertilised (excluding waterway areas), erosion avoided.				
	Pt 7 13.4	Hydroseeding materials	Inspect/ Measure	Complies with specification, +75% wood fibre.				
	Pt 7 13.4	Hydroseeding application	Inspect/ Measure	+5mm depth, 200kg/1000m2 berms, overspray removed promptly.				
	Pt 7 13.5	Surface boxes adjustment	Inspect	Complies with CSS Part 1, accessible, adjusted and repainted as specified.				

ITEM	CSS REF	TASK	TEST STD/ DESCRIP	COMPLIANCE REQUIREMENTS	TEST FREQ.	PASS YES/NO	TEST BY	ACTIONS
	Pt 7 13.7, 13.9	Sown acceptance criteria - lawn	Inspect/ Measure	Even healthy sward, uniform 25mm – 50mm height, no hollows or stones, 90% ground covered, <10% weeds, bare areas <30mm diameter.				
	Pt 7 13.10. 4	Sown acceptance criteria - swales	Inspect/ Measure	Even healthy sward, uniform 50mm – 150mm height, no hollows or stones, 90% ground covered, <10% weeds, bare areas <30mm diameter.				
11		**ESTABLISHMENT**						
	Pt 7 14.2	Watering	Inspect/ Measure	Plants maintained in healthy condition. Tree soil have 20-30% average volumetric water content.				
	Pt 7 14.3.1	Weed control - trees	Inspect/ Measure	No flowering or seeding weeds. Control individual weeds under 100mm height or spread, <5 weeds/m^2 over 50mm height or spread. Herbicide use CSS: Part 2.compliant. Free of any weeds at handover.				
	Pt 7 14.3.2	Weed control – mulched plant beds	Inspect/ Measure	No flowering or seeding weeds. Control individual weeds under 100mm height or spread, <5 weeds/m^2 over 50mm height or spread. Herbicide use CSS: Part 2.compliant. No damage to plants. Free of any weeds at handover.				
	Pt 7 14.3.3	Weed control – unmulched planting	Inspect/ Measure	No flowering or seeding weeds. No weeds within 0.5m of plants. All weeds under 250mm height or spread. Area hand weeded, unless otherwise specified. No damage to plants. Free of any weeds at handover.				

ITEM	CSS REF	TASK	TEST STD/ DESCRIP	COMPLIANCE REQUIREMENTS	TEST FREQ.	PASS YES/NO	TEST BY	ACTIONS
	Pt 7 14.3.4	Weed control – wetlands	Inspect/ Measure	No flowering or seeding weeds. No weeds within 0.5m of plants. All weeds under 250mm height or spread, hand weeded within 1m of waterway. Natural meanders kept in channel. Vegetation left on riverbank 24 hours. Free of any weeds at handover.				
	Pt 7 8.3	Mulch management	Inspect/ Measure	Decomposed tree chip, cambium grade bark, bark nuggets, crushed shell, other medium consolidated depth of 100mm, with specified clearance from stems/trunks.				
	Pt 7 8.3	Mulch management	Inspect/ Measure	Wool mulch matting and other matting type mulches reapplied where damaged or deteriorated around specimen trees and other areas where specified.				
	Pt 7 9.0	Staking	Inspect	Stakes immovable and tree ties securely fastened, with no damage to trunks. Stakes and ties removed after 12 months.				
	Pt 7 14.4	Pests and diseases	Inspect	Infestations reported promptly.				
	Pt 7 14.5	Rubbish and litter	Inspect	Landscape areas, tree pits, berms and swales free of rubbish and litter.				
	Pt 7 14.6	Pruning – shrubs/plants	Inspect	Shrubs/plants healthy, vigorous, not damaged, well-shaped, sight lines, signs clear.				
	Pt 7 14.6.2	Pruning – trees	inspect	Pruning to specified arboricultural standards, Arborist qualified, details provided in CQP.				
	Pt 7 14.7.1	Vandalism	Inspect	Reported promptly and recorded.				
	Pt 7 14.7.3	Replacements	Inspect	Specified trees/plants, within planting season.				

ITEM	CSS REF	TASK	TEST STD/ DESCRIP	COMPLIANCE REQUIREMENTS	TEST FREQ.	PASS YES/NO	TEST BY	ACTIONS
	Pt 7 14.7	Turf and Lawn Establishment	Inspect/ Measure	Even healthy sward, uniform 25mm – 50mm height, no hollows or stones, 90% ground covered, <10% non-specified grasses and weeds, bare areas <30mm diameter.				
	Pt 7 14.8	Lawn vandalism	Inspect	Reported promptly.				
	Pt 7 14.9	Establishment report	Inspect/ Measure	Accurate and adequate reporting detail, submitted within 5 days of end of month.				

TREE SUPPLY INSPECTION FORM

This form shall be completed prior to shipping and sent by the supplier to the purchaser/contractor. It must be signed off by both the supplier and purchaser/contractor before trees are planted.

Name and address of nursery supplier:		
Purchaser/Contractor:	Developer …….. Council …….. Other (name) ……..	
Date of departure from nursery:		
Date of arrival in Christchurch:	To site ……. Other ……..	
Number of trees/plants sent:	Species:	Container volume: (Litre or PB)
Labelling of trees/plants correct:	Yes □ No □	

	YES	NO	Is it correctable?	Details of corrections
Below ground assessment				
Roots free of damage / decay				
Root direction outwards, downwards				
Rootball occupancy correct				
Height of root collar correct				
Rootball free of circling roots				
Root collar free of girdling roots				
Above ground assessment				
Health and vigour acceptable				
Pest, diseases and injuries free				
Trunk free of damage				
Self-supporting				
Passed stem bending tests				
Pruning acceptable				
Apical dominance acceptable (typical of species)				
Crown symmetry acceptable				
Included bark absent				
Trunk position in bag/pot acceptable				
Graft unions compatible				

Free of weeds				

Conformance with Specification

Does the above assessment conform to the CSS: Part 7 Landscapes, clause 4.0 Supply of Tree and Plant Material? Yes □ No □

If no, please outline details: ……

Supplied by: (Name and signature of nursery inspector)	
Date:	
Accepted by: (Name and signature of purchaser/contractor)	
Date:	