



CS2 – Streetscape

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CS2 Streetscape

2.1 Scope

2.1.1 General

This section sets out the requirements for the installation of street landscaping in new development areas and for retrofitting landscaping into already developed areas. It covers the specifications for finishing grass berms and for preparing, planting and maintaining landscaping including gardens and street trees.

Landscape works shall be maintained throughout the maintenance period. Maintenance shall include but not be limited to sound horticultural practices such as the few following examples:

- The replacement of dead plants and broken stakes
- The removal of weeds and dead plant material
- The removal of garden centre labels
- And the replacement of mulch and irrigation as required.

Evidence of a regular maintenance contract, including contact details shall be submitted for Council approval prior to the consideration by Council of the release of either the s224 certificate or certificate of practical completion.

2.2 Definitions

Definitions are set out in Section 1 of the Development Code: Design, unless otherwise described.

2.3 Related Documents

The following Drawings and other documents form part of this contract Document as listed:

Design Standard DS2: Streetscape
Drawing Number: Name:
Construction Standard CS4: Transportation



2.4 Materials

Materials shall be as listed in the appropriate section of the Development Code: Construction, or as defined in this document.

Fertiliser and Grass seed shall be as specified within this document, unless otherwise specifically agreed with Council.

2.5 Grassing and Turfing

2.5.1 General

All areas within the road reserve that are not paved or developed as a street garden shall be finished with topsoil and grass. This includes berms, lawns and banks. The specifications in this section apply generally to all areas that are to be grassed as part of any development and for the reinstatement of all grassed areas that are damaged as part of an infrastructure development contract

Contouring works shall have regard for the protection of trees to be retained in the final landform. This protection shall also include not operating machinery beneath the 'drip line' of the trees while performing ground contouring activities

All landscape works shall meet the required standards at the end of the maintenance period.

The consent holder or Contractor is responsible (and will be bonded) for routine maintenance and replacement of turf and lawn areas including weed control and removal, watering and fertilising for the maintenance period required.

2.5.2 Preparation for Sowing or Turfing

Fertilising and grassing by way of grass 'renovation' shall be carried out over all existing grassed areas disturbed by contract activity and other specified areas which may require reinstatement. In existing grassed areas, excessive compaction of the subsoil shall be relieved by subsoiling or similar as required, to achieve satisfactory long term growing conditions.

All debris and residual spoil shall be removed from site prior to working the ground or adding additional soil.

All topsoil removed to permit development or for contract works to be carried out shall be stockpiled for reuse. This should preferably be 'mined' from the area and the subsequent stockpile maintained



as clean topsoil so as not to incorporate unwanted materials. The stockpile shall be regularly controlled for the establishment of weeds to be prevented, or if stored for long periods of time, sown in seed mix as specified below and maintained as a turf surface. In both cases the soil stockpile shall be chemically treated to cease all living weed presence prior to re-use.

All new grass areas shall be built on subgrades prepared to a CBR of not less than 5 and no greater than 7. A minimum 75mm layer of clean, friable peat loam or sandy loam topsoil, free of all perennial weeds, stones and rubbish shall be placed on the subgrade. If the subgrade has been backfilled with sand or if the existing subgrade material is of a sandy nature then the 75mm topsoil shall be of a heavier silt loam.

The topsoil shall NOT be specifically compacted but instead consolidated by way of the weight of the equipment involved in its movement and contouring. The soil may be laid proud of adjoining features (such as kerb and channel, path, crossings etc) by not more than 25mm to allow for settlement, provided that it does not cause water to pond on any footpath or vehicle crossing area. All finished levels shall be those specified on the plans or to a 2 to 2.5% slope. New areas shall be neatly contoured into adjoining grassed areas. The top 25mm of topsoil shall have a loose tilth. No soil shall be cultivated or handled when the moisture content is at a level where soil structure damage will result.

If soil is deemed to be 'compacted', that is, roading compaction practices have been employed to compress the topsoil, the Council reserves the right for the soil to be 'deep ripped' and relaid appropriately prior to consideration by Council of the release of either the s224 certificate or certificate of practical completion, or as a cost from the maintenance bond.

Prior to cultivation, all perennial weeds shall be controlled with Glyphosate. If remnant kiwifruit, woody perennial weeds, or difficult to control broadleaf weeds are present, e.g., if clover, thistles, 'Grazon' or 'Versatil' chemical applications are to be used according to manufacturer's instructions and at least 14 days before cultivation. Once the majority of debris has been removed from the grassing site, the whole area is to be rotary hoed to the depth of the topsoil or 150mm, whichever is the lesser. All remaining stones, rubbish and foreign materials shall be removed from the areas to be grassed, prior to grass seed being applied.

2.5.3 Fertilisers

All fertilisers shall be delivered to the site immediately before they are required for spreading and shall be thoroughly mixed on site. The Engineer may prohibit the use of any fertilisers which have deteriorated because of interaction, wetting etc. Fertilisers shall be lightly harrowed into the topsoil, 2 to 3 days prior to seed sowing, at the following rates:



30% Potassic Superphosphate	150 kg/ha (15g/m ²)
Sulphate of Ammonia	<u>50 kg/ha (5g/m²)</u>
	200 kg/ha

This shall be followed one month after sowing with an application of the following:

Di-ammonium Phosphate (DAP)	100 kg/ha
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2.5.4 Sowing

With the exception of the New Zealand Browntop component, all seed shall be certified and less than 12 months old at the time of sowing. Ryegrass component to be certified as having greater than 80% live endophyte content. The Engineer may prohibit the use of seed which has deteriorated because of wetting, fertiliser-burning etc.

Seed mixture is to be:

NZ Browntop	50 kg/ha
High endophyte Turf Rye	200 kg/ha

On large areas, the seed shall be "check" sown in at least two directions (i.e., North- South, then East-West) to ensure an even spread, and then a seed 'cover' ensured by 'brush' or light harrowing. The surface may be then rolled with a suitable light flat roller, e.g., a 'Cambridge' roller, if necessary.

On small areas, grass seed shall be evenly applied to the prepared surface and raked thoroughly into the soil so that little seed remains exposed.

2.5.5 Establishment of Sown Areas

During establishment of sown areas, the Contractor shall:

- i. Protect the grass from damage by pedestrian and vehicular traffic until such time as the grass growth has reached a durable, self-sustaining state.
- ii. Not allow grazing as a maintenance means over larger such areas, although permission can be sought from Council in certain circumstances. Approval of such and the duration and conditions of such arrangements is entirely at the sole discretion of Council.
- iii. Water the grassed areas as required, to achieve an efficient germination of the seed and maintain satisfactory growth throughout the Maintenance Period. Watering shall commence when the root zone moisture is depleted to 50% and shall ensure full re-wetting of the root zone to 200mm depth.



- iv. Maintain the newly grassed areas as follows:
 - a. Upon the grass reaching 100mm in height, it shall be cut to 50-75mm high.
 - b. For subsequent mowings, the mowing frequency shall be governed by growth rate. Minimum grass height to be 30mm – maximum grass height to be 50mm.
 - c. The turf shall be maintained free of all broadleaf weeds.
 - d. Areas where there has been a poor strike of grass shall be either recultivated and resown or undersown at the Contractor's expense.
 - e. Upon completion of mowing, all grass clippings shall be collected and removed from all sown grass areas except non-kerb & channel berms.
All clippings shall be removed from adjacent hard surfaces on the same day as the mowing itself, and preferably immediately after mowing has been completed.
 - f. Edges of all sown grass adjoining cultivated gardens, borders, hard paving, sealed surfaces or landscape structures shall be trimmed to the edge or controlled by herbicide to within but no more than 25mm from flat surfaces or within but no more than 50mm from vertical structures. Grass shall not be allowed to encroach over flat, sealed or paved surfaces by more than 25mm.

2.5.6 Turfing

The turf shall be of good quality, free of weeds and pests and with an even thickness of approximately 20mm deep x 450mm wide and of a consistent length. The constituent grasses of the turf should include Browntop and Fescue to provide grass of a close texture of even density and green in colour, i.e. "Readylawn" or similar approved by the Engineer. The turf should be sufficiently fibrous for turfs to hold together when handled but excess fibre or thatch is undesirable.

Turf should be packed to avoid drying out in transit. In hot weather it shall be sprayed with water and covered with hessian as required. Turf shall be delivered to the site within 24 hours of lifting and shall be off-loaded by hand unless arranged on pallets for mechanical handling. Any turf permitted to dry out shall be rejected when, in the opinion of the Engineer, its survival after placement is doubtful. All turf should be laid immediately after delivery to site. Where this is not possible, the turfs shall be unloaded and stacked on clear ground to maximum height of one metre and suitably protected.

No turf shall be laid in exceptionally wet or frosty soil or weather conditions, nor shall any turf be laid until the topsoiling has been satisfactorily completed by being brought to an even tilth and firmness.

Turf shall be handled carefully to ensure minimum breakage to prevent soil dropping from the roots. The turf shall be laid from planks working over turfs previously laid.

The turfs must be thoroughly watered until the turf mat and top 50mm of soil is wet. After allowing a "soaking in" period the turfs shall be lightly and evenly firmed with a wooden tamper so that the underside of the turf mat and the wet soil surface are thoroughly bonded.



The finished level of the turf shall conform to the levels indicated. Where the turf meets paths, mowing strips, etc the finished level shall be 12mm above these features at the edge. 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 lawn surface.

2.5.7 Establishment of Turf

During the establishment the Contractor shall maintain the turf as follows:

- i. Prevent any pedestrian traffic until grass is well established and uniformly covered with a strong sward of grass.
- ii. Apply lawn fertiliser e.g. "Readylawn Food", at a rate according to manufacturer's instructions, at monthly intervals during the growing season.
- iii. Remove weeds and replace soil if necessary.
- iv. Water regularly. The turf shall not be allowed to dry out for at least three weeks after laying, then it shall be watered normally. "Normal" watering shall commence when the root zone moisture is depleted to 50% and shall ensure full re-wetting of the root zone to 200mm depth, In summer this will require watering at least daily. Watering shall normally be carried out prior to 7am and shall not be done in hot sunny conditions.
- v. Initial mowing shall be carried out when first growth is apparent, and lush growth can be cut with blades set no lower than two-thirds of the height of the grass. A mower fitted with a following roller as part of the implement at time of manufacture shall be used for first cuts. Grass shall be in a reasonably dry condition prior to cutting. All clippings shall be collected and removed from site. All clippings shall also be removed from adjacent hard surfaces on the same day as the mowing itself, and preferably immediately after mowing has been completed.
- vi. Edges of all turf areas adjoining cultivated gardens, borders, hard paving, sealed surfaces or landscape structures shall be trimmed to the edge or controlled by herbicide to within but no more than 25mm from flat surfaces or within but no more than 50mm from vertical structures. Grass shall not be allowed to encroach over flat, sealed or paved surfaces by more than 25mm.

Areas of turf where there has been a poor establishment shall be relaid at the Contractor's expense.



2.5.8 Defects Liability Period

After initial establishment, during and at the end of the defects liability period, the following minimum standards shall be maintained:

- i. All kerb & channeled verges shall have grass growth no more than 50mm high, non kerb & channeled verges shall have grass growth no more than 200mm high and banks shall have grass growth not more than 250mm high
- ii. The sward shall be maintained in a healthy, weed and disease free state without bare patches
- iii. Trees and other plantings shall be protected from damage by maintenance or mowing operations and if damaged shall be reinstated and/or entirely replaced with an equal grade of plant and in equal quantities within 1 week of the damage occurring, and additional maintenance undertaken to ensure their survival, e.g., specific watering, until the replacements are established and flourishing. Trees of any age shall not be contacted by any mowing or mechanical equipment at any time during other maintenance operations
- iv. Maintenance and mowing operations shall be carried out at times which minimise disruption to the public
- v. Maintenance and mowing operations shall be carried out only in conditions and with equipment that ensures maintenance of good soil structure, minimum deformation of ground surfaces and ongoing establishment of the grass sward
- vi. Litter shall be removed prior to commencing maintenance or mowing operations. Highly visible shredded litter shall be removed following maintenance and mowing
- vii. Grass clippings, when not required to be collected during mowing, shall be spread evenly over the sward.

2.6 Landscape Construction and Maintenance

2.6.1 General

Where landscaping and the formation of gardens are incorporated into the design of a subdivision or redevelopment the provisions of these specifications shall apply.

All landscape works meet the required standards at the end of the maintenance period.

The Consent Holder or Contractor is responsible (and will be bonded) for the routine maintenance and replacement of the planting, including dead wooding, weed control, mulching, replacing dead trees, shrubs and plants and watering for the maintenance period.



2.6.2 Quality Requirements

Juvenile trees shall be of minimum size of PB150 grade when planted on arterial and collector and sub collector routes and a minimum of PB95 grade on local roads.

Bare root stock excluding whips may be accepted for less common or specific species commonly grown this way. Acceptance of bare root stock and the grade of this material, e.g., caliper of stem, height, age is at the sole discretion of the City Arborist.

All shrubs shall be PB5 grade when planted.

Smaller sizes e.g. Root trainer/fans may be used in special applications with Council consent.

All plant material shall be sound, healthy, vigorous and free of any defects which may be detrimental to plant growth and development. Defects may include, but are not limited to the following:

- Pests
- Diseases
- Sun scalds
- Abrasions
- Cankers
- Detrimental cracks
- Excess dead leaf material
- Plants not hardened off
- Tree proportion (i.e. trunk caliper, tree size, root ball compared to canopy)
- Included bark unions
- Form not consistent with species
- Multi-leaders, where undesired
- Dead wood
- Girdling roots
- Weed and parasites
- Breakages
- Spent flower heads
- Frost damage
- Root bound

Generally only species adapted to the site conditions shall be planted.

2.6.3 Soil and Fertility

The consent holder shall be responsible for the supply and spreading of fertiliser. A proprietary fertiliser suited to the species shall be applied where plants are showing signs of lack of fertility, or to ensure maximum health and vigour.

Application rates and type of fertiliser vary according to size and species. A typical application rate of fertiliser is 40gms per square metre of soil evenly spread within the drip line of the plant, but not against the trunk.

Given the generally modified nature of soil within the subdivisional environment is essential that a suitable garden be prepared. Decomposed and treated organic matter is to be mixed into the soil used to backfill garden beds to a minimum depth of 500mm at a rate of 50:50 to ensure rapid establishment of plants and shrubs.



2.6.4 Weeds

At the end of the maintenance period no individual weed may be larger than 50mm x 50mm x 25mm high. Furthermore, no weeds that are 15mm x 15mm x 15mm in size shall exceed more than 7 per square metre.

It is preferable that weeds are controlled manually. When hoeing / pulling weeds care shall be taken to avoid damage to desired plants and their roots.

2.6.5 Mulch

Mulch shall be a minimum grade of approved arb mulch (also known as 'Tree chip') and an allowed maximum grade of Cambium grade bark, shell or other medium acceptable to Council. Bark mulch shall be clean, free of sawdust and dirt and with individual pieces no larger than 100mm. Mulch for gardens and shrubberies shall be a uniform 100mm in final depth. Edges shall hold mulch without spillage.

Only arb mulch that has sufficiently 'broken down' shall be used. Freshly chipped arb mulch is may have a detrimental effect on plantings.

Mulching should be carried out on an ongoing basis to all shrubberies and juvenile trees to maintain specified depth at end of maintenance period.

Mulch shall only be spread after the soil surface is leveled off to remove bumps and hollows. Weeds and grass are to be removed prior to mulching. Plants must not be damaged or buried during the mulching process. It is also permitted to apply mulch first to a prepared garden, for planting to then occur; provided that the post planting reinstatement results in a consistently mulched garden to the correct mulch depths afterward.

Where it is known that bark mulch affects certain species the use of alternative mulches shall be approved.

Weed matting shall not be used.

2.6.6 Juvenile Tree Planting

Juvenile trees shall be of minimum size of PB150 grade when planted on arterial and collector and sub collector routes and a minimum of PB95 grade on local roads.

Bare root stock excluding whips may be accepted for less common or specific species commonly grown this way. Acceptance of bare root stock and the grade of this material, e.g., caliper of stem, height, age is at the sole discretion of the City Arborist.

Planting pits shall be prepared as shown on the drawings.



The Consent Holder or Contractor shall ensure that trees are protected during the further development of the subdivision (i.e. construction of dwellings/buildings) during the maintenance period.

Attention is to be paid to the requirements set down in the PIM report with respect to distance at driveways in relation to trees, and the installation of root barrier as shown in the drawings.

Juvenile trees must be sound, healthy, vigorous, and free of any defects.

Final planted depth is to be consistent with finished ground level.

Ties are to be either jute (hessian) or rubber bicycle inner tube (refer to the drawings for suggested tree tie configuration). All other ties are to have the approval of the Council Arborist prior to planting.

Staking shall be uniformly low and visually consistent throughout the subdivision stage. Only untreated hardwood timber stakes shall be used (as a guideline refer the drawings. Stakes shall be one third of height of tree). The minimum sized stake shall be 50mm x 50mm x 1500mm.

Mulch type and depth to be in accordance with Clause 6.5. Trees shall be radially mulched in accordance with the drawings.

2.6.7 Pruning

Pruning should be carried out on shrubs using sound horticultural practice to maintain a high standard of presentation, display and plant vigour. Paths, roads and all other accessways should be kept clear of excess growth. Pruning is also necessary to ensure signs are not obscured.

All weak, dead, diseased and damaged growth should be removed and pruning carried out to maintain the desired shape and size.

Pruning should not be carried out during leaf burst or leaf fall. Pruning shall have regard for the specific species and knowledge of the plants' horticultural requirements shall be followed, i.e., deciduous shrubs about to flower prior to leaf burst in late winter, etc.

The following pruning techniques (for shrubs only) should be employed where appropriate:

- tips to be pinched or pruned as appropriate for species to give desired shape and size
- form pruning of young plants to ensure compact form and shape
- pruning of groundcovers at edges generally
- plants are to be pruned so that they do not smother neighbouring plants, and ongoing decisions about garden density may have to be made instead of ruining all plants via pruning as the garden matures



Pruning to provide adequate sight visibility at intersections and driveways is required. This is to ensure the safety of pedestrians and motorists.

All prunings should be removed to waste as they occur leaving the gardens and surrounding area in a clean and tidy condition.

Spent flower heads should be removed including but not limited to the following species: Agapanthus, Flax, grass species and Arthropodium.

All tree pruning shall be undertaken by a certified arborist or Council's arboricultural contractor.

Where Council's arboricultural contractor is not utilized, details of the intended contractor are to be supplied to the council Arborist for approval prior to commencement of works.

It is recommended that all pruning shall be undertaken to recognised arboricultural practices as set out in "Modern Arboriculture" by Alex Shigo¹ and for individual species the guidelines contained in the "Sunset Pruning Handbook"² to promote the natural form and habit of the plant. Where a species is not included in the Sunset publication, other approved publications may be referred to.

2.6.8 Restoration and Tidy Up

The consent holder or Contractor shall remove all temporary services, machinery and surplus materials that have been used for the work from the area and leave the site in a tidy condition.

The consent holder shall clean all paths and surrounding areas. All plant labels shall be removed where they are retail attachments or garden centre style/ promotional labeling. Weed matting shall not be used. Channels shall be cleaned and weeded. All damage shall be made good to the satisfaction of the Authorising Officer.

The consent holder shall ensure that plants are picked over to remove prunings, dead or damaged leaves and any other object or material, including retail attachments such as labels. The edges of the beds shall be left evenly shaped and sloped.

For high maintenance areas such as roses, annual bedding and perennial areas, the consent holder shall ensure that footprints are removed by lightly raking over the bed with a fork or hoe and that all surrounding areas are swept clean. Grass restoration where resowing is involved shall be included as a requirement under the maintenance period.

¹ Shigo, A., (1991). *Modern Arboriculture*. Durham: Shigo and Trees

² Edinger, P., (1983). *Sunset pruning handbook*. Sunset Pub. Corporation