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8.1. SCOPE

This section of the Standards sets out the engineering requirements for landscape works carried out within reserves and streetscape areas and associated land development projects. This includes all street frontages, parks and reserves, and other public amenity areas. It provides the relevant criteria for performance, specification for design, construction and materials.

This section provides:

- a. The relevant criteria for Council goals and objectives.
- b. Specifications for design, construction and materials.
- c. Details of standard designs.
- d. Developer maintenance details and requirements.

8.2. COUNCIL GOALS AND OBJECTIVES

The Council's objective is to plan for, and provide a network of parks, reserves, beach areas, road berms and road corridors in a manner that meets community needs. All works will:

- a. meet all standards and criteria of the District Plan and any Regional Plan;
- b. meet Health and Safety requirements; and
- c. provide for future development.

8.2.1. Legislative Framework

8.2.1.1. The legislative framework that controls the management of the Council's reserves and streetscapes include the following:

- a. Resource Management Act 1991
- b. Local Government Act 2002
- c. Reserves Act 1977



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- d. Public Works Act 1981
- e. Building Act 1991
- f. Health and Safety in Employment Act 1992
- g. Health and Safety Regulations 1995.
- h. The requirements of this legislation shall be adhered to in any development or works in reserves and streetscapes.

Note: further legislative requirements are detailed in the Appendices of this section.

8.3. LANDSCAPE SPECIFICATIONS

8.3.1. Objective

8.2.1.3. All landscape design of reserves and streetscapes will provide community desired settings that are aesthetically pleasing, safe and enjoyable, incorporating existing natural features, and compliment the district and environment.

8.3.2. General

8.3.2.1. Landscape design for reserves and streetscape spaces is required at all levels of the subdivision and development process, in order to promote the social, economic, environmental, and cultural well-being of communities, in the present and for the future. The landscape component of any subdivision is an integral component and is required to ensure new development is designed to:

- a. enhance and compliment the character and amenity of each development and surrounding neighbourhood;
- b. provide recreation opportunities;
- c. increase the region's biodiversity;
- d. provide areas for social interaction;
- e. contribute to the character, shape and form of the district's townships and surrounding environments.



8.3.3. Environmentally responsive design

8.3.3.1. All landscape developments should seek to optimise long-term community and environmental benefits whilst minimising ongoing maintenance costs, in order to provide for the safe use and enjoyment of the public assets.

8.3.3.2. Establish the overall objectives for the landscape design, such as wildlife corridors, the provision of reserves, the connection of open spaces, access to and location of watercourses and wetlands and protection of existing valued vegetation, at the outset and incorporate them into the initial concept for the development. Ensure the subsequent engineering design and works are compatible with these objectives.

8.3.3.3. The designer of all reserves and streetscapes that are to be developed as Thames Coromandel District Council assets must possess both experience and qualifications that are relevant to the scope of the project.

8.3.3.4. The Design Report must include a design statement that:

- a. shows an understanding of the inherent characteristics and values of the site (e.g. social, cultural, environmental / ecological, economic, historic, recreational), including the existing landform and vegetation;
- b. outlines the design philosophy and intent;
- c. confirms compliance with the infrastructure design standards;
- d. follows safe environmental design outlined in the Crime Prevention Through Environmental Design (CEPTED) guidelines.

8.3.3.5. Consideration of where a reserve or streetscape space is proposed should also take into consideration existing land features.

A: Waterways and Wetlands

Where possible the retention and enhancement of natural waterways and wetlands should be an integral part of any development. This provides for opportunities such as; walkways and cycleways along their banks, specific planting themes, and designing streetscapes that feature them.



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Consideration should be given to:

- a. ensuring sufficient space is provided in wetland areas to enable ease of access for pedestrians, cyclists and maintenance machinery.
- b. provision of adequate drainage of paths and grassed areas in these environments.

B: Vegetation


The Council may:

- a. undertake an inspection of existing vegetation on land to be subdivided at the time of the application for subdivision consent,
- b. require that some trees and other existing vegetation deemed to be of ecological importance or significant amenity value e.g. vegetation that provides a visual screen, be protected and retained.
- c. All existing vegetation should be marked on the engineering drawings, including notable examples of trees, the plotting and extent of all tree canopies, out to their drip lines.
- d. All potentially notable/historic trees shall be identified for consideration of retention and protection. Details of these trees and any particular protection measures during construction will be identified.
- e. A Council approved and qualified arborist must undertake any arboricultural maintenance. Any trenching, excavation and filling within the drip line of an identified historic / notable / protected tree must be undertaken by the on-site supervision of a qualified arborist.

C: Historic & Cultural

Identification of, including and where required the protect and/or retention of;

- a. culturally significant areas,

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- b. historic areas,
- c. objects and buildings protected under the District Plan or by other formal/legal means,
- d. those features of importance to the community,
- e. monuments and memorials.
- f. The treatment of archaeological remains discovered during any development or exploration must be in accordance with the requirements of the Historic Places Act and Antiquities Act and any accidental discovery protocol.

D: Natural landforms

Where practicable, protect natural landforms as they not only convey the natural heritage of the site, but also provide landscape features that add to the sense of place and local identity.

8.3.4. Reserves – including Parks and Open Space

8.3.4.1. Council has developed reserve management categories which are in use throughout the district.

The categories are;

- a. **Community Open Space** – reserves that serve the wider community, providing unique assets and settings, developed and maintained to a high standard.
- b. **Active Recreation Areas** – primarily designed and managed for a variety of sports and recreational activities, including sports fields, ball courts, skate and youth facilities, or other built recreation facilities, which are maintained to a high standard.



- c. **Neighbourhood Open Space** – providing open space within neighbourhoods for small-scale ball games, children’s and / or family play.
- d. **Historic / Scenic / Forest / Cultural Reserves** –reserves that have unique features relating to one or more of these points. Access may be limited to walking only, with open space dependent upon the setting.

Full definition of these reserve management categories are detailed in the Reserve Management Plans for each area.

8.3.5. Streetscapes – including Street Plantings and Berms

- 8.3.5.1. Streetscapes applies to grassed areas and street plantings (including trees), in berms and in traffic islands and other planting areas within the public road and public access. It also covers landscaping structures.
- 8.3.5.2. Streetscape design shall have regard for any Council policy on urban design.
- 8.3.5.3. All new and existing designs shall be considered against Council’s criteria on the basis of all options being available to the designer.
- 8.3.5.4. Opportunities for streetscape design are diverse, ranging from specimen tree planting within the standard or altered road berm to planting associated with traffic calming devices and specific landscape features within the development.
- 8.3.5.5. In instances where a road reserve is to be developed and vested in Council the relevant minimum requirements and means of compliance outlined in section 3 of this Code shall apply in addition to the requirements of this section where landscape works are proposed within the road reserve.

a. Minimum Requirements

Streetscape plans shall conform with the requirements of this Code and with New Zealand Transport Agency (NZTA) requirements where the works are adjacent to any Crown owned land administered by NZTA, and any land within a site designated by NZTA in accordance with the Resource Management Act 1991, unless otherwise agreed with the relevant Area Managers.



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8.4. DESIGN PHASE

8.4.1. Objective

8.4.1.1. All design details will ensure that community needs are met, accessibility is enhanced, protection of existing features, low levels of maintenance and the provision of safe and enjoyable settings are provided.

8.4.2. General considerations

8.4.2.1. For all proposed works affecting existing or proposed parks, reserves and beach areas, such as developments, subdivisions and landscaping works, approval is required from the Area Manager.

8.4.2.2. The developer may be required to engage a Landscape Architect and discuss reserve and streetscape concepts with the Council, to ensure that the provision of these areas will satisfy all requirements. It is preferable for this process to begin at a pre-application meeting before applying for resource consent. The need for the engagement of a landscape architect may be determined at the pre-application meeting or at a later stage.

8.4.2.3. The requirements for each reserve and streetscape area may be specific and will depend on what has generally been agreed between the Council and the developer. Refer to the Council's Tree Masterplans.

8.4.2.4. A developer who wishes to contribute to the early development of recreation facilities and/or landscape features on a proposed reserve or streetscape should refer to the Developers Contribution policy in the District Plan.

8.4.2.5. Any reserve or streetscape will only be vested in Council once;


- a. the area is developed to the agreed level;
- b. the 224(c) certificate is signed off although maintenance responsibilities will not be transferred to Council until the maintenance period is completed.

The Council will if necessary carry out further landscape development as and when capital funding becomes available.



8.4.3. Design Details

- 8.4.3.1. Landscaping plans will be submitted for approval at the same time as other plans, e.g. engineering plans. These shall generally be at a scale of 1:500 for general design and 1:250 for planting and irrigation designs, and show all pertinent information such as the finished levels of the reserve, trees, pathways, playgrounds and other structures, drainage/swales including dewatering areas adjacent to stormwater ponds/marshes, accessways, etc. The location of existing services must also be detailed.
- 8.4.3.2. Landscape plans shall ensure that future maintenance requirements [both short (two summer establishment period) and long term] have been considered when designing layouts to minimise ongoing costs.
- 8.4.3.3. A Landscape Implementation Plan will be submitted outlining methodology, scope of works, features, timing and details of the proposed landscape plans.
- 8.4.3.4. Scale drawings of playgrounds, structures and any other proposed asset not detailed in this Standard will be submitted for approval by the Area Manager.
- 8.4.3.5. Planting plans must have a plant list. This should detail:
- a. both botanical and common names,
 - b. PB and grade size at planting, suitable size dependent on location.
 - c. quantity of individual species,
 - d. staking, planting medium and other planting requirements.
 - e. the source of the plants for revegetation projects
- 8.4.3.6. Planting programs will be developed to optimise growing conditions for plants and trees. Planting is to occur between April and September, wherever possible to maximize plant establishment. Consideration may be given to planting earlier or later depending on seasonal conditions. Approval to plant outside of this timeframe must be obtained from the Area Manager and may require bonding. Refer to 8.12.2.

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8.4.4. Design Considerations

8.4.4.1. Council will use the following assessment criteria when evaluating reserve and streetscape layouts and designs:

- a. Community -The provision of recreational assets that cater for the needs of the surrounding community, as identified by the Council in Activity Management Plans / LTCCP and through analysis of local demographics, residential densities, and activity and leisure trends.
- b. Accessibility -The provision of logical, safe and attractive access from the surrounding community and good linkages within and between reserves and community facilities.
- c. Existing features – protection of existing features (natural, cultural, heritage, vegetation, water).
- d. Use and enjoyment -The provision of assets which are safe, function efficiently, have high aesthetic appeal, and do not cause unjustified nuisance for adjoining landowners.
- e. Maintenance -The provision of durable assets whose on-going maintenance and eventual replacement will not place a disproportionate burden on Council resources.

The following factors should also be considered when designing reserves and streetscapes:

- a. The suitability of the site for its intended purpose;
- b. The extent and nature of the topsoil and subsoil, including their fertility, structure, moisture-holding capacity and drainage;
- c. Existing and proposed levels and their relationship to the levels of the surrounding land and to the provision of underground services;
- d. The presence of contaminants and/or imported materials and how any adverse effects can be accommodated and/or mitigated;



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- e. The stability of the site and how any instability can be accommodated and/or mitigated;
- f. Opportunities for shared use of the land for both recreational and infrastructural purposes, such as drainage easements and stormwater retention in an extreme event (20 year return period or greater), provided the main purpose of the reserve is not unduly compromised;
- g. Access through the area for pedestrians and cyclists;
- h. The relationship of one reserve to another, to avoid duplication.

8.4.5. Utilities on Reserves and Streetscapes

- 8.4.5.1. Any proposed primary utility lines and structures located on reserves or streetscapes must be shown accurately and to scale on the landscape drawings.
- 8.4.5.2. Aboveground structures, such as power kiosks and pump stations, must not be located on recreation reserves. Where there may be hazards created by the placement of utilities on reserves e.g. gas storage, these will have adequate physical separation from recreation reserves.
- 8.4.5.3. Utilities should only be located on other types of reserve where they do not reduce the use of the reserve for its prime purpose or interfere with pedestrian and cycle paths.
- 8.4.5.4. The Area Manager must approve the location of any above-ground structure and underground utilities in any reserve. Wherever reserves are to be provided, the developer shall supply a water connection as specified in the resource consent conditions and show this on the reserve development plan. This shall be installed over the legal boundary into the reserve and to the specified location.



8.5. CONSTRUCTION AND MAINTENANCE

8.5.1. Objective

8.5.1.1. The construction and maintenance phase will ensure that best practice and principals are adhered to, too provide a finished setting that is healthy, safe, appears and functions with high aesthetic appeal.

8.5.2. Consents and Inspections

8.5.2.1. Generally, applicants shall apply for consents in their own name rather than on behalf of Council. It is the responsibility of the applicant to ensure all necessary approvals have been obtained and submitted with the application for consent.

8.5.2.2. The Area Manager or nominee may from time to time inspect works to ensure the plans submitted in the design phase and the requirements of this Standard are fully complied with. Inspections may occur during the earthworks stage, to check contours, topsoil quality and plant stock health during the construction and planting stages.

8.5.2.3. The Landscape Implementation Plan as in Section 8.3.2: will be referenced to determine the timing of inspections.

8.5.3. Earthworks

8.5.3.1. Where earthworks are to be undertaken, contours will be shaped to eliminate ponding in grass areas and promote good drainage.

8.5.3.2. Grassed batter slopes that will require mowing are to be no steeper than 1 vertical to 5 horizontal (1 in 5).

8.5.3.3. Batters steeper than 1 in 5 shall be densely planted and mulched. Batters that have been planted should include edging, terracing or horizontal timber strips to avoid the movement of mulch down the slope.

8.5.3.4. Heavily compacted soils shall be ripped, preferably during the summer period, to a depth of 300mm, with rip lines 1m apart, then rolled with a sheep foot roller or similar, before any laying of topsoil is undertaken.



8.5.3.5. Lightly compacted soils shall be scarified or disced to a depth of 100mm, with balancing fertilizers as indicated by soil tests applied at this point. Rolling with a sheep foot roller or similar should be undertaken before any laying of topsoil.

8.5.3.6. All heavy topsoils may be amended by the addition of compost or sand. Stony soils can be lightly machined with a cultivator or similar piece of equipment.

8.5.4. Topsoil

Table 8.1: Topsoil Depths for landscape purposes

	Minimum settled depth (mm)
Grass Areas	100
Amenity Plantings	300

Refer to NZS 4404: Pt 7.4, p 186.

8.5.4.1. Topsoil shall be sourced from an original surface layer of grassland or cultivated land and be clean, highgrade and free flowing. Imported soil shall be approved before application on site. Soil arising from reclaimed land, industrial sites, or which has been used for the disposal of any industrial, domestic or agricultural wastes shall not be used.

8.5.4.2. Topsoil shall exhibit the presence of biological activity as evidenced by adequate aggregation and organic matter content. The material shall be acceptable for growing all of the appropriate turf grass species given adequate management and be stone, weed and debris free.

8.5.5. Irrigation

8.5.5.1. The approval of the Area Manager is required prior to the installation of any permanent or semipermanent irrigation system. Where required a duct for a water connection shall be provided to amenity or garden planting areas. The applicant shall apply and pay for a metered water connection and water costs for irrigation purposes where required for maintenance purposes. Permanent irrigation is dealt with on a case by case basis.

8.5.5.2. All materials used in the installation of any irrigation system shall be constructed of quality materials.



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- 8.5.5.3. Irrigation of trees will be required during the first summer season, (1 December to 30 April of the following year) or when conditions dictate. Irrigation of amenity plantings and grass areas will also be required during the following two summer periods following establishment. The developer shall comply with any Council water restrictions.
- 8.5.5.4. The Council's long-term goal is efficient and sustainable use of the District's water supply. The reliance on irrigation should therefore be minimised by matching plant species to the local site conditions.
- 8.5.5.5. Generally permanent irrigation in streets and reserves will be necessary in order to overcome difficulties with local site conditions that could prevent the reasonable establishment and growth of amenity tree and shrub plantings. Pop up irrigation for maintaining a green sward in summer may be required especially in reserves in high profile locations. Once the maintenance period is completed, the Council will require the developer to demonstrate the successful, fault free operation of the system prior to hand over of ownership and maintenance of the installed irrigation system.
- 8.5.5.5.1. Revegetated and restored sites are not to be watered unless extreme drought conditions prevail during establishment.
- 8.5.6. Protection of existing trees / plantings**
- 8.5.6.1. All identified bush areas and trees shall be cordoned off to protect the rootzone and vegetation, prior to commencement of works and remain until completion. Root zone is defined as area 1 metre out from the canopy drip-line of any vegetation, or as determined by a qualified professional. Protection is to be provided by erecting visibility barriers – High visibility plastic or steel mesh fencing to minimum height of 1 metre.
- 8.5.6.2. If excavation is required within the root zone, a Council approved arborist shall be onsite during the project to supervise works. Resource consents for work within this zone shall be obtained. If excavations are necessary, these shall be limited to use of hand held tools.
- 8.5.6.3. Exposed surface roots shall be covered by materials such as sandbags, track metal, planking, old carpet or mulch, to prevent scuffing and abrasion.



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- 8.5.6.4. All attempts will be made to retain all roots over 35mm in diameter uncovered by excavation. All roots exposed shall be kept damp, covered from direct sunlight and protected from damage by a suitable material such as Hessian or shade cloth. When a root greater than 35mm is consented for removal, the arborist shall only prune back to the excavation face by the use of hand held tools and the root shall be immediately covered to protect from desiccation and further damage. The excavation face shall be covered with geotextile mat and weed cloth, and pinned into place until backfilling occurs, upon which it shall be removed.
- 8.5.6.5. No storage of construction materials/machinery/equipment/spoil/waste shall occur within 3 metres of the rootzone, or where there is a risk of spills or runoff reaching and damaging the rootzones.
- 8.5.6.6. No operation of machinery shall occur within 3m of the cordoned off rootzone without prior approval from the Area Manager. If machinery has to operate within this zone a temporary geotextile mat and mulch layer shall be laid over the ground to protect the tree roots from compaction and root damage.
- 8.5.6.7. Silt protection shall be undertaken as outlined within Waikato Regional Council requirements.
- 8.5.7. Pest Control**
- 8.5.7.1. Weeds shall be controlled within the streetscape / reserve areas in accordance with the Waikato Regional Council Plant Pest Management Strategy. Note: Some pest plants may require repeat applications to eradicate. All large woody weed and seed sources debris will be removed from site.
- 8.5.7.2. Any weed spraying shall be undertaken in accordance to the manufacturer's recommendations and Growsafe Standards¹.

¹ Anyone who uses weed or pest sprays for commercial purposes is required to hold a standard GROWSAFE certificate. This course trains people to apply agrichemicals safely and accurately in accordance with the Agrichemical Users' Code of Practice



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8.5.7.3. The applicant shall also be responsible for animal pest control during the defects liability period, which will be undertaken to Waikato Regional Council Pest Control Standards of operation.

8.5.8. Litter Control

8.5.8.1. All areas once established shall be kept free of litter and debris, including paper, plastic, stones, bricks, bottles, glass, cans, tree branches and other forms of inorganic and organic matter.

8.5.8.2. The Developer or contractor shall arrange for the disposal of litter and debris, which shall be removed to an appropriate disposal site.

8.6. GRASS AREAS

8.6.1. Objective


8.6.1.1. A healthy sward of grass with a strike rate of 95% per square metre.

8.6.2. Requirements

8.6.2.1. All grass lawn areas and berms must have gradients that ensure that surface water drains to a suitable area or outlet. Wherever gradients are flat the subsurface must have sufficient free drainage to ensure that water does not pond or settle, to maintain grass growth and health and to ensure that use of the area is not compromised. Areas that may be inundated by water regularly or for long periods are not appropriate for lawns. Consider establishing a wetland area instead.

8.6.2.2. Provide access for mowers to all lawns and berms. Lay out lawns in reserves so that the tractor-mounted or ride-on mowers typically used by maintenance staff can mow them. This will require a minimum width clearance of 2.5 metres to all grassed areas that will be mown by ride on mowers.

8.6.2.3. All grass slopes must be no steeper than a 1 vertical to 5 horizontal (1 in 5). On mounds, or where there is a significant change in gradient, design and construct lawns to avoid mowers scalping the ground surface.

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8.6.3. Selection of Grass Species

Table 8.2: Grass Species for Reserves and Streetscapes

	Preferred Grass Mix
Urban Turf and Berms	60% (0.6 kg) Turf Perennial Ryegrass - high endophyte 20% (0.2 kg) Chewings Fescue 20% (0.2 kg) Brown Top
Rural Clay banks and berms	40% (0.4 kg) Turf Perennial Ryegrass 30% (0.3 kg) Creeping Red Fescue 10% (0.1 kg) Browntop 10% (0.1 kg) Cocksfoot 10% (0.1 kg) Plantain

8.6.3.1. Grass seed mix for berms and reserves shall be as detailed in Table 8.2 or an approved turf species blend. Other special purpose varieties may be used with prior approval of the Area Manager.

8.6.3.2. All ryegrass seed used shall have an endophyte level of greater than or equal to 80%, a purity of greater than or equal to 99% and a germination final count of greater than or equal to 95%.

8.6.4. Site Preparation

8.6.4.1. The ground area shall be presented in a level uniform manner, free of hollows and humps. The ground surface area shall either:

- a. Follow contour of land, and/or
- b. Be formed with a maximum gradient of 10° to assist with water run-off and/or drainage. All grass areas are to be levelled prior to fertilising and seeding.

8.6.5. Inspection Traps, Grates, etc.

8.6.5.1. Topsoil shall be level with the top edges of kerbs, grates, inspection portals and any other ground level structural edge that is located in parks, reserves or on road reserve areas. Suitable silt traps should be placed at grates and inspection portals to avoid silt blockage until turf cover is established.



8.6.6. Ground Preparation

- 8.6.6.1. Soil pH shall be brought to a range suitable for grass growth by the addition of lime and a starter fertiliser.
- 8.6.6.2. The area for seeding shall be free of all weed species (such as kikuyu, couch grass, gorse, and blackberry).
- 8.6.6.3. Grass seed for lawn areas shall be under and oversown at a rate of 400 kg/ha. Seeds should be under sown for better strike and reduced loss to birds. Broadcast of grass seed is acceptable for areas where the soil is too wet for tractors.
- 8.6.6.4. All newly grass seeded areas are to be rolled with a Cambridge roller (or similar roller to minimise compaction) after seeding.

8.6.7. Grass Establishment

- 8.6.7.1. First mowing of newly sown grass areas can be undertaken using a rotary mower when 50% of the grass coverage has reached a height of 100mm.
- 8.6.7.2. Irrigation may be required at the direction of the Area Manager.
- 8.6.7.3. The grassed area shall be maintained for a minimum period of 12 months after sowing to ensure dense, even turf coverage has been established. 95% grass coverage is required for all grass areas and 99% weed free at the time of handover.

8.7. SPECIMEN TREES

8.7.1. Objective

- 8.7.1.1. All trees of good form and health with a single dominant stem.

8.7.2. Tree Selection and Placement

- 8.7.2.1. Selection of reserve and street trees is to be in accordance with the Council's Tree Policy and Tree Masterplans.
- 8.7.2.2. Landscape plans should specify reserve and street trees including species, size at planting and grade, to be approved by the Area Manager.



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- 8.7.2.3. Trees will not be planted during summer months or during drought conditions.
- 8.7.2.4. Locate trees to minimise ongoing pruning requirements and maintenance costs. Tree placement is to be in accordance with the following guidelines, with prescribed planting offsets from boundaries with residential properties, utilities services, sightlines to and from vehicles, or from hard surfaces like kerbs, footpaths and cycleways.
- 8.7.2.5. Trees or other tall growing vegetation shall not be planted closer to the structures listed than the following minimum distances.
- a. Power poles carrying 400/230 volt lines 6.0 metres
 - b. Taller trees may be planted to the side of low voltage overhead lines
 - c. Power poles carrying 11,000 volt plus lines 10.0 metres
 - d. Overhead lines - for planting under 400/230 volt lines use low growing trees that will only grow to 3 metres in height.
 - e. Under 11,000 volt lines – trees no more than 3 metres in height.
 - f. Power pylons and 66,000 volt lines or greater– no planting of trees directly beneath lines, low vegetation only. Trees species planted to the side must not exceed a size in maturity that if falling towards the pylons or lines, will encroach no closer than 3.5 metres of them.
 - g. Street light poles – tree planting distance - 6.0 metres
 - h. Traffic signals and sign posts - tree planting distance – 6.0 metres
 - i. Pedestrian crossings – tree planting distance 6.0 metres
 - j. Sewer and stormwater mains and laterals - 3.0 metres
 - k. Driveways - business, (right side when exiting) distance 6.0 metres
 - l. Driveways – business (left side when exiting) distance 3.0 metres
 - m. Driveways – residential, rightside when exiting distance 6.0 metres
 - n. Driveways – residential, left side when exiting distance 2.0 metres
 - o. Berms – wider than 1.5m wide. Where the berm is under 2.0m width, carefully consider the relationship between the final tree trunk size and



the clearances required.

- 8.7.2.6. Alternative location and design proposals will be encouraged, such as: boulevards, the provision of trees in a dedicated “non-services” berm on either side of a footpath; meandering footpaths; trees placed in specialised tree planting pits within the carriageway but outside of the live lane. Provide protection for trees planted within the carriageway from vehicles being parked.
- 8.7.2.7. Variation of the boundary lines along streets can create spaces for trees to be planted in groups and can help accentuate road perception, particularly at intersections. Strategically placed grouped plantings of trees may have more impact than individual trees placed outside each house. Where road alignment runs east to west, planting proposals on the southern berm will be discouraged.
- 8.7.2.8. Placement of trees shall consider:
 - a. landscape and amenity views from adjoining boundaries,
 - b. placement at boundary intersections
 - c. mature height and spread to limit shading
- 8.7.2.9. All trees should be of good form with a single dominant stem.
- 8.7.2.10. Native plantings are to be eco sourced where possible.

8.7.3. Tree Planting and Establishment

8.7.3.1. Requirements for tree plantings are detailed in Table 8.3

Table 8.3: Specimen Tree Planting Requirements

	Greater than 2m tall
Weed free circle / mulching	Undertake spraying out of planting sites, for weed and grass species at least two weeks prior to commencement of planting - min 1 m wide area
Hole size (minimum)	6 x diameter of PB and 2x depth of PB, backfilled with 50/50 topsoil compost mix



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	Greater than 2m tall
Planting level	Trees shall preferably be bowl planted particularly in light sandy soils of the east coast.
Topsoil	Topsoil shall be free of stones and other inorganic matter. Compost shall be well decomposed, pH neutral and shall not contain organic matter with a particle size greater than 10mm.
Fertiliser	A 200 gram application of slow release fertiliser is to be applied to each tree during the planting process or 4 fertiliser tablets spread around the hole. Additional fertiliser is to be applied to each tree in September of each year. This fertiliser shall be in the form of a balanced slow release fertiliser which has a 12-month release period.
Staking Posts (size)	50x50 mm stake or 70mm peeler post
Staking Posts (length)	2.4m, buried 800mm depth
Staking posts	3 posts— triangle formation to maintain and assist their form for the first three to five years. Regular bimonthly maintenance of specimen trees must include checking of the ties and stakes to maintain proper form on 2 posts diametrically apposed.
Ties	Minimum 1 tie per post
Ties Type	Semi permanent 50mm jute webbing, set up in a figure 8 configuration between stake and tree. Bicycle inner tubes can also be used.
Tree protectors	Where required specimen trees may need be protected and supported during any maintenance works with tree surrounds/ protectors as detailed by Area Manager.
Irrigation Coil	Irrigation (drainage) coil of no less than 50 mm diameter to be installed into and below each rootball to assist with irrigation purposes (refer to diagram). Perforated for heavy soils and non-perforated light soils.
Watering	Trees shall be watered within 2 hours of planting to assist in the bedding in of the plant. Trees shall be watered to maintain healthy vigorous growth throughout the summer season. At least 40 litres of water will be fed to each tree per visit in a manner that ensures full soakage of the rootball.
Mulching	A minimum one metre weed free area shall be maintained around unprotected trees, or the whole area inside tree surround. Mulching shall be maintained to a 75-100mm thickness when settled. The mulch shall be graded away from the trunk of the tree to minimise any trunk burn. Edge surrounds when used shall be kept full of mulch and weed free. The Developer shall maintain the level of mulch around the trees during the defects liability period. Mulching around specimen trees encourages water retention and controlling weed growth.



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8.7.4. Pruning

- 8.7.4.1. Any pruning shall be approved by the Area Manager, and carried out to maintain healthy and sustainable tree specimens.
- 8.7.4.2. All pruning shall be undertaken by a Council approved arborist, a list of which may be obtained from the Council.

8.7.5. Replacement Trees

- 8.7.5.1. Plants damaged, vandalised, and stolen or dead shall be replaced as required to maintain the original numbers, grades and species as per the approved plans.
- 8.7.5.2. Any trees damaged or in poor form shall be replaced at the Developer's expense. These replacement plants shall be subject to a defects liability period for a further two growing seasons.

8.8. AMENITY PLANTINGS

8.8.1. Objective

- 8.8.1.1. All amenity plantings will provide a 100% ground coverage within 2 years of planting, compliment the character of the development and provide for a low level of maintenance.

8.8.2. Amenity Gardens

- 8.8.2.1. Amenity gardens require significant horticultural management and as such will be generally restricted to town centres and major arterial collectors. The high cost of establishment and maintenance of such gardens may make them unsuitable for most streets and reserves. Approval for any amenity garden proposal will only be given by the Area Manager.

8.8.3. Selection of Planting Type and Design

- 8.8.3.1. All plans for the development or landscaping of reserves or streetscapes should have regard for all the desirable plant attributes stated in 8.2 of this Section.



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- 8.8.3.2. Specify shrubs or groundcovers with minimum grades and sizes of amenity plantings to be approved by Area Manager.
- 8.8.3.3. Select and space shrubs and groundcover plants to achieve good form and coverage of the planted site within 2 to 3 years and to grow healthily for a design life of 7 to 15 years depending upon species without unduly compromising services, safety or amenities, or causing unacceptable shading.
- 8.8.3.4. Planting must not result in congestion that requires removal, pruning or thinning in the short to medium term. Shrub and groundcover placement is to be in accordance Section 8.8 and prescribed planting offsets from residential boundaries, sightlines to and from vehicles, or from hard surfaces like kerbs, footpaths and cycleways.
- 8.8.3.5. Plant low maintenance shrubs and/or groundcovers in medians, traffic islands and other places where grass mowing would be difficult. Planting in busy medians is to be discouraged.
- 8.8.3.6. All shrubs and/or groundcovers should be grouped together in mulched plant beds that are designed to minimise maintenance requirements.
- 8.8.3.7. The edge definition may be a boundary fence, footpath, kerb, timber batten synthetic material or informal trench margin. Informal trench margins are not appropriate in sandy soils.
- 8.8.3.8. Amenity planting designs shall allow for 3m spacing between mulched plantings and other assets for maintenance and mowing purposes.
- 8.8.3.9. All plantings shall have densities that achieve 100% coverage of soil within 2 growing seasons (except re-vegetation plantings where 3 growing seasons is acceptable).
- 8.8.3.10. In anticipation of plant dieback, all amenity plantings shall be over planted at a minimum of 5%, depending on the plant grade used.
- 8.8.3.11. All plants should be of good form with side branches evenly spaced and less than 1/3 of the diameter of the main stem in size. Plants should be hardened off to cope with climatic conditions of the site and be free of pests and disease. Plant root system shall show no evidence of 'spiralling' or being root bound. .



8.8.4. Site Preparation and Planting

8.8.4.1. Requirements for tree plantings are detailed in Table 8.4

Table 8.4: Amenity Planting Requirements

	Less than 2m tall
Weed free circle	Undertake spraying out of planting sites, for weed and grass species at least two weeks prior to commencement of planting
Plant preparation	Rootballs shall be saturated prior to planting and roots loosened if appropriate.
Hole size (minimum)	Planting holes shall be 2x rootball diameter in width and 1-1.5 x rootball height. The bottom and sides of the planting holes are to be roughened to encourage root movement into the surrounding soil. Soil removed from the planting hole shall be amended with 30% fresh topsoil and fertiliser before planting/fertiliser tablet per plant is required.
Planting level	Plants shall be set slightly lower to the surrounding soil to avoid wicking, and the planting hole is to be backfilled in 150mm layers and consolidated so as to remove air pockets. Surplus planting material from the holes shall be spread evenly over the surrounding area (leaving no soil on top of the mulch layer) taking care not to cover the surface of the newly planted rootballs with additional fill.
Topsoil	Topsoil can be mounded in amenity planting areas. Topsoil shall be friable have a mix of organic matter, free of stones and other inorganic matter.
Fertiliser	An 80 gram application of slow release fertiliser, or 1 fertiliser tablet is to be applied to each plant during the planting process. Additional fertiliser is to be applied to each plant in September of each year. This fertiliser shall be in the form of a balanced slow release fertiliser which has a 12-month release period.
Staking Posts (size)	Where required, specimen shrubs and plants shall be staked after planting to provide support during their establishment as follows. Under 1 m at planting 25x25 mm – 1 stake per plant Over 1 m height at planting – 25x25 mm – 2 stakes per plant Note: For plants over 2m high, refer to staking requirements for trees and specimen trees in Table 8.3: Specimen Tree Planting Requirements.
Staking Posts (length)	1.8m, buried 400mm depth



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	Less than 2m tall
Staking posts	Shrubs – 1 post Grasses / flaxes – no posts required
Ties	Minimum 1 tie per post
Ties Type	Semi permanent 20mm jute webbing, set up in a figure 8 configuration between stake and tree.
Plant protectors	Where plants may be susceptible to animal damage during the establishment period, plant surrounds may be used on individual plants to protect shrub or plant species, as detailed by Area Manager.
Weed mat	Permanent weed mat is not permitted in any amenity plantings on parks, reserves and streetscapes. Biodegradable weed mat may be used if approved.
Watering	Plants shall be watered within 2 hours of planting to assist in the bedding in of the plant. Plants shall be watered to maintain healthy vigorous growth throughout the summer season. At least 20 litres of water will be fed to each plant per visit in a manner that ensures full soakage of the rootball. The use of saturaid for amenity plantings may be undertaken as per the manufacturer's instructions and guidelines.
Mulching	Shrub beds shall be mulched to suppress weed growth and maintain soil moisture levels. Mulch type should ensure a consistent size material and type not prone to being scattered or blown about i.e. consolidates and binds together well. Mulching shall be maintained to a 75-100mm thickness when settled. The Developer shall maintain the level of mulch around the plantings during the defects liability period. Mulching around amenity plantings encourages water retention and controlling of weed growth. Where the gradient exceeds 1:4 in re-vegetation plantings, shredded pine mulch or similar Area Manager approved mulch shall be used to encourage mulch retention on the slopes. Hard mulches such as shell and stone chip will only be allowed where approved by Area Manager. These shall be applied to a settled depth of between 75-100mm.
Edging	All planted areas shall have a maintained edge. An edge is typically comprised of a minimum vertical cut of 100mm deep on the bed perimeter, with soils pulled back into the bed from the cut to provide a smooth, rounded and defined edge. All curved edges shall be smooth and regular. Where the edge is straight, a



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	Less than 2m tall
	string line must be used in order to ensure a true straight line. All edging will be maintained by the developer during the defects liability period

8.8.5. Re-vegetation Plantings

- 8.8.5.1. Re-vegetation plantings shall provide a variety of species that complement the neighbouring forest or scrub areas. Plantings shall include those native plants that provide food sources for native bird populations.
- 8.8.5.2. Native re-vegetation projects shall include district-sourced species.
- 8.8.5.3. Re-vegetation plantings in open areas shall be planted at a density and size of plant that achieves 100% coverage of soil in 3 growing seasons. Beds shall be over planted to compensate for plant dieback at a minimum of 10%. Plants shall be of a minimum of root trainer grade.
- 8.8.5.4. Plants shall be spaced unevenly in the planting layout to encourage a natural appearance and setting.

8.8.6. Replacement Plants

- 8.8.6.1. All plants damaged, vandalised, stolen or dead shall be replaced to maintain numbers and unity of the display. Plants and planting standards shall be of the same quality as specified in Section 8.8: Amenity Plantings.

8.9. RIPARIAN AREAS (Swales, Raingardens, Lakes, Ponds & River Edges)

8.9.1. Outcome

- 8.9.1.1. Riparian areas will provide for the passage and/or storage of water with minimal maintenance requirements.



8.9.2. General Design and Layout

- 8.9.2.1. Lakes, ponds raingardens and swales within open space and street berm areas shall be designed and constructed in accordance with Section 6: Stormwater and Land Drainage.
- 8.9.2.2. As detailed in Section 8.3: watercourses shall remain in a natural state wherever possible. This includes retention of the natural topography and vegetation.
- 8.9.2.3. Riparian streams, swales, pond and lake zones shall be protected, preserved or revegetated. Revegetation plantings shall be undertaken when the slope is higher than 1 vertical to 5 horizontal (1 in 5) and as deemed appropriate by the Council.
- 8.9.2.4. All streams on reserves shall be planted with native plants to a minimum width of 3.0 m from the edge of the stream.
- 8.9.2.5. Access shall be provided to any ponds or lakes for maintenance, such as future removal of sediment. Vehicle access routes shall have adequate means against vehicle erosion of the surfaces. This may be achieved by the use of appropriate erosion matting or reinforced grass surface areas.

8.9.3. Planting Design and Species

- 8.9.3.1. All riparian areas are to be planted except where access strips are required and where the slope is minimal and it is appropriate to have a maintained grass edge.
- 8.9.3.2. Any planting of riparian areas shall be designed for minimum long-term maintenance requirements and high water quality outflow.
- 8.9.3.3. The plants shall be New Zealand native species; district sourced, and shall be appropriate to and tolerant of the particular site conditions.
- 8.9.3.4. Plantings should be carried out to achieve a minimum 1.0m spacing along stream and pond banks. Swales shall be planted at densities in relation to the plant size to achieve a 100% cover in after the second year following planting.
- 8.9.3.5. Site-specific plantings plans are to be submitted to the Area Manager for approval at the design phase.



8.9.4. Swales

- 8.9.4.1. Vegetated swales have a variety of objectives and designs. In general the objectives are to slow stormwater flows, capture some contaminants and allow for some reduction in the total volume of runoff.
- 8.9.4.2. Swales shall be constructed as detailed in Section 6 Stormwater and Land Drainage. Site specific planting plans shall be submitted to the Area Manager for approval at the design phase.
- 8.9.4.3. The preparation for planting shall be undertaken as follows.
- 8.9.4.4. Hard clay layers shall be aerated by deep ripping to a depth of 500mm then rolled with a sheep foot roller or similar, before any laying of topsoil is undertaken.
- 8.9.4.5. Weed species are to be sprayed out at least two weeks prior to planting.
- 8.9.4.6. Swales shall have at least 100mm of friable topsoil as per 8.4.
- 8.9.4.7. All plant holes shall be a minimum of 2x width of PB and 1.5x height (depth) of PB. Hole is to be backfilled with 50/50 mix of topsoil and compost.
- 8.9.4.8. An approved time-release fertiliser shall be applied to all plants.
- 8.9.4.9. All plants shall be watered in within two hours of planting to assist with plant establishment.
- 8.9.4.10. Swale areas shall not be blanket sprayed with herbicide for any more than 10% of every 100m length of swale area. Broadleaf targeted sprays may be used following approval from the Area Manager.

8.9.5. Raingardens

- 8.9.5.1. Raingardens allow for the temporary ponding of stormwater, which then can be absorbed through ground soakage. Run-offs from storm events can overflow into a swale system including raingardens.
- 8.9.5.2. The design of raingardens shall follow the requirements of Section 4: Stormwater.



8.9.5.3. The Council will approve the appropriateness of raingardens at each location.

8.9.6. Ponds and Lakes

8.9.6.1. The design of constructed ponds and lakes in reserve and berms shall be in accordance with those specified in ARC Technical Publication No.10.

8.9.6.2. Ponds may be classified either as stormwater detention and treatment ponds or as an amenity landscape feature, depending upon the primary function of the pond. Dry ponds are not permitted on parks, reserves and beach areas.

8.9.6.3. Rock weirs may on occasions be required to prevent scouring of streams. A culvert head wall may be needed around culverts entering ponds and lakes, appropriate safety fencing shall be provided around headwalls to ensure public safety.

8.9.6.4. The perimeter shelf of any pond is to be planted in dense wetland species. Pond and lake banks are generally to be planted in native revegetation plantings, with access points provided for future maintenance. Grass areas may be permitted if the slope is appropriate and it is desirable to have visual access to the water.

8.9.6.5. The external slope of the pond shall be at a maximum of 1 vertical to 4 horizontal (1 in 4).

8.10. BUILT ASSETS

8.10.1. Objective

8.10.1.1. Built assets will be of standard Council design must be robust, low-maintenance, and safe for use by the public, and appropriate to the setting and locality.

8.10.2. Asset Requirements

8.10.2.1. The design and model of reserve assets shall require the approval of the Council. The life-span of built assets should be considered, to reduce the frequency of renewing or replacing such assets in the future.



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8.10.2.2. Assets will be of a standard Council design, including colour and construction materials and fit within the appropriate setting and locality.

8.10.2.3. Note that the developer is responsible for gaining all necessary building consents and Code of Compliance Certificates required under the Building Act. These will be applied for and granted to the developer as the applicant and owner of the asset at the time of construction/installation.

8.10.3. Playgrounds and play structures

8.10.3.1. The Council's objective is to provide and develop interesting and exciting playgrounds that meet the needs of the local community and, in the case of district facilities, the needs and aspirations of the wider community. Not all sites will be suitable for playgrounds.

8.10.3.2. Approval shall be obtained from the Council for any play equipment within a reserve, including the types and style of equipment. This prevents oversupply or duplication of play facilities in other reserves nearby.

8.10.3.3. It is important that any proposal integrates the formal and informal play equipment into the entire landscape design for the reserve. The use of natural features in conjunction with formal play structures is desirable. Provide structures which cater for a wide range of ages and abilities that are challenging and provide learning opportunities for children.

8.10.3.4. All play facilities must comply with:

- a. NZS 5828:2004 Playground equipment and surfacing;
- b. Reserves Activity Management Plan
- c. The Building Act
- d. Reserve Management Plan.

8.10.4. Recreational hard surfaces, ball courts and skate-boarding facilities

8.10.4.1. Recreational hard surfaces are designed to be suitable for many different uses such as skateboarding, rollerblading or handball games.



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8.10.4.2. Approval must be obtained from the Council for any recreational hard surfaces, ball courts and skateboarding facilities within a reserve, including the types and style of equipment. This prevents oversupply or duplication of these facilities in other reserves.

8.10.5. Structures

8.10.5.1. Structures where desired, will only be approved at the discretion of the Council. These include: pergolas, bridges, jetties, boardwalks, barbeques and internal walls, fences, entrance walls/features and screens.

8.10.5.2. The design of structures must fulfil both functional and aesthetic requirements.

8.10.5.3. They must be durable and vandal resistant and not require a high level of maintenance.

8.10.5.4. Where building consents are required these will be applied for and final inspections undertaken with Code of compliance certificate issued in the name of the developer prior to Council taking ownership of that asset.

8.10.6. Artworks and sculptures

8.10.6.1. The Council will consider any requests to install sculptural or other artworks on their merits.

8.10.6.2. The Council will only accept artworks that are durable and do not require a high degree of maintenance.

8.10.6.3. Any artwork must be acceptable to the majority of the public, appropriate to the character of its setting and other structural features.

8.10.6.4. Integrated or functional artworks are preferred, such as bridges, light standards and seats.

8.10.7. Signs

8.10.7.1. Any Reserve signage required will be installed by the Council following vesting of the reserve.



8.10.8. Seats and picnic tables

8.10.8.1. The installation of proposed seating and tables must be consistent with the character of the reserve and its locality.

8.10.8.2. The proposed seating and tables must be robust, low-maintenance and safe for use by the public. Council has details on preferred styles and designs. Variation of these styles will require prior approval from Council.

8.10.9. Drinking fountains and litter bins

8.10.9.1. These items must be durable, vandal-resistant and consistent with other proposed site furniture and the overall character of the reserve. The Council must approve the design and installation of these items.

8.10.10. Boundary fencing

8.10.10.1. Fencing covenants are required as a condition of consent for new reserves, including drainage reserves. The developer should co-ordinate fence designs around any reserve or waterway before the subdivision is completed and sections are sold, in order to establish a consistent character.

8.10.10.2. The Council encourages the use of open frontages onto reserves, where acceptable to the residents. This concept ranges from no fence, so that private gardens merge with the reserve landscaping, to a low fence up to 1.2m high, pool type fences are encouraged. Hedges, climbers on trellis and other “green living” barriers are encouraged up to this height.

8.10.10.3. Where required, reserves bordering road frontages shall be fenced with one of the following:

- a. Parks wooden bollard and chain fence, (pre-drilled, maximum spacing 1.8m apart, with 30mm galvanised chain).
- b. Parks wooden bollards, (maximum spacing 1.2m apart).

8.10.10.4. A 300mm wide x 100mm thick mowing strip shall be provided under the road frontage fence for the full length of a solid fence, or where bollards are used concrete mowing surrounds shall be installed.



8.10.11. Gates

8.10.11.1. Vehicular maintenance accessway gates shall be provided in all road frontage fences, adjacent to the Vehicle Accessways.

8.10.11.2. Gates shall be in keeping with the selected fence style.

8.10.12. Other Park Furniture

8.10.12.1. The design, style and positioning of all other park furniture (not detailed in this section) that is proposed for parks, reserves or beaches shall be approved by Council.

8.11. PEDESTRIAN ACCESSWAYS, CYCLEWAYS AND STRUCTURES

8.11.1. Objective

8.11.1.1. Walking paths, tracks and cycleways will provide alternative easy access between different locations and reserves


8.11.2. Vehicle Access and Parking

8.11.2.1. Access points to reserves are required for vehicles to undertake mowing, waterway management, rubbish collection, general maintenance, and for emergency vehicles. Consider the location of the vehicle access points as part of the overall design.

8.11.2.2. Vehicle access points must be large enough to allow the entry of heavy machinery to clear dangerous vegetation and blocked waterways during storm events and fire fighting equipment wherever structures or planting present a potential hazard.

8.11.2.3. Access roadways and off-street parking may be required for reserve areas such as the starting points of tracks. Consult the Council to ensure that adequate parking areas are provided.

8.11.2.4. Where removable barriers are considered necessary by Council to prevent unauthorised vehicles from damaging the reserve, the design of barriers must be consistent with other design elements in the reserve and be located to best achieve their purpose.

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8.11.2.5. The design and construction of roadways, parking areas, vehicle crossings and cut downs must comply with Section 3: Roding.

8.11.3. Design, Construction and Maintenance

8.11.3.1. The design, layout and location plan for any roading and/or parking within a reserve area shall be submitted to the Council for approval.

8.11.3.2. Disabled parking shall be provided for in accordance with NZS 4121 and NZMP 4122.

8.11.3.3. The use of permeable or semi-permeable surfaces shall be used where possible for parking and low traffic areas. Drainage swales /filter strips shall be used where ever possible as an alternative to concrete kerbing and channelling for parking and roads to receive and assist in the treatment of stormwater. Refer to Section 3: Roding and Section 6: Stormwater and Land Drainage for further guidance and direction.

8.11.3.4. Carparks, roads or other paved or metalled areas are to be constructed in accordance with Section 3: Roding, and the Council District Plan.

8.11.3.4.1. Paved carparks are to be marked out accordingly by an approved road-marking Contractor and must comply with TNZ/LMOTSAM Manual of Traffic Signs and Markings.

8.11.3.5. The defects liability period and maintenance requirements shall be as detailed in Section 3: Roding.

8.11.4. Pedestrian and Cycle Paths

8.11.4.1. Pedestrian and cycle paths are an integral part of the reserve design, as they connect access points and activity areas within and across the reserve. They must be accessible, convenient and safe, in accordance with CPTED principles.

8.11.4.2. Formed pedestrian-only paths should be about 2.0m wide, and paths shared by pedestrians and cyclists should be at least 2.5m wide. Increase the width to 3.0m wherever a lot of people are expected to use the path. Walking, mountain bike and multi-use tracks and bridle paths are also integral to the development of some reserves and the enhancement of existing networks, if



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new tracks can be linked to them. Design mountain bike tracks in accordance with Trail Solutions. Design and construct walkways or other tracks to comply with NZS/AS 1657 and SNZ HB 8630:2004.

8.11.4.3. In some reserves, boardwalks may be required as part of the path or walkway/track network to allow the area to be accessible to disabled people and to protect sensitive areas such as wetlands and the root zones of protected trees. These must be durable, made of suitable materials and slip resistant and necessary building consents approved.

8.11.4.4. All pedestrian way designs shall meet the classifications and related standards in Table 8.5: Pedestrian Way Standards, based on SNZ HB 8630: 2004. Cycle ways, where permitted shall be provided by extending the width of the various pedestrian ways and provision of markings and signs.

Table 8.5: Pedestrian Way Standards

	Cycleway	Short Walk	Walking Track	Walkway
Location	Suitable for highly populated to rural areas, linking towns, locations and reserves	Suitable for larger urban park areas with maximum grade of 1:6, no vegetation or obstacles limit width	Suitable for recreation / scenic reserve areas with maximum grade of 1:4.	
Accessibility	Cycles. Urban areas may have wheelchair, pram and disabled walker access, while rural areas may have no allowance for wheelchairs or prams.	Wheelchairs, prams and disabled walkers. Low fitness & most ages.	Disabled walkers. No allowance for wheelchairs or prams. Low to medium fitness & most ages.	No allowance for disabled persons or pram access. Medium fitness and most ages. There may be an element of physical challenge for persons of low fitness.
Length / Time	Minimum of 1 kilometre return length (20 mins cycle at 3 km/hr).	Minimum of 1 kilometre return length (40 mins walk at 1.5km/hr).	Maximum of 3 kilometres return length (1.5hrs walk at 2km/hr).	Minimum of 3 kilometres return length (1.5hrs walk at 2km/hr).



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	Cycleway	Short Walk	Walking Track	Walkway
Surface	Urban. Either Compacted aggregate or broomed concrete. Rural. Compacted aggregate Timber boardwalk / bridges.	Asphaltic concrete, concrete with broom of exposed aggregate finish, profile decking timber, natural stone with rough finish, paving bricks with abrasive finish, compacted aggregate or other suitable finish.	Compacted aggregate or other suitable finish. Timber boardwalk / bridges.	Compacted aggregate, Timber boardwalk / bridges.
Maximum Grade	1:14 ideal, to absolute maximum 1:6.	1:12 ideal, to 1:6 maximum.	Max of 1:4, 1:8 ideal. Steps are required in areas exceeding 1:6.	
Width	Minimum width of 2000mm may be reduced for short sections for aesthetic reasons. Width of combined pedestrian/cycle way shall be increased to 2500mm, with provision of paint marking along path and signage indicating dual use.	Between 750mm and 2000mm wide. Min width barrier free 1200mm.	750mm to 2000mm	
Vegetation Clearance	Clearance 2500mm high and provide 500mm either side of track width All vegetation is to be removed off track.	Clearance 2500mm high and provide 500mm either side of track width. All vegetation is to be removed off track.	Clearance 2500mm high and provide 300mm width clearance with sensitivity to vegetation contributing to the bush experience within the envelope.	
Steps	No steps	No steps, unless suitable adjacent ramps are provided. Steps shall have maximum riser height of 180mm and minimum tread length of 310mm.	Steps shall be constructed with a maximum riser height of 200mm and a minimum tread length of 300mm.	

8.11.4.5. Building Consent is the responsibility of the developer and may be required for all new structures such as platforms, boardwalks, footbridges, handrails/barriers and stairways. On completion of the structure a copy of the



signed building certificate is to be provided to the Council. Resource Consent may be required for some structures in certain areas.

- 8.11.4.6. All pedestrian ways are to be aligned to maintain grade limits as outlined in Table 8.5: Grades are to be measured in planning stages to ensure suitable limits are maintained.
- 8.11.4.7. Cycle ways shall be extensions of the pedestrian ways and their respective standards, with pavement markings and signage indicating dual use.
- 8.11.4.8. All pedestrian ways are to be crowned or angled across the natural slope wherever possible to minimise flow of surface runoff over surface treatments.
- 8.11.4.9. Corners and junctions are to follow desire lines to minimize unformed shortcuts causing damage to areas outside the pedestrian way. This will include radii at urban path intersections and aesthetic considerations at areas of transition such as rest areas, switch backs and viewing platforms.
- 8.11.4.10. Gradient changes are to be indicated to the pedestrian through the use of transition zones as set out in NZS 4121. Localised variation in height must be minimised to provide a uniform gradient and to eliminate ponding.

8.11.5. General Site Preparation and Reinstatement

- 8.11.5.1. Adjacent areas shall be protected from damage and silt runoff throughout construction.
- 8.11.5.2. Pedestrian ways shall be benched into the side of slopes and retained where required.
- 8.11.5.3. Surfaces are to be compact, firm, stable, non-slip and obstacle free with no loose metal or stone. Edges shall be well defined. The surface shall be of sufficient standard to prevent high density impact on the reserve while maintaining easy access.
- 8.11.5.4. Following installation of any pedestrian way or structure, the ground will be back filled and compacted to level. All excess materials and construction debris shall be removed from site. Where the paths abut grass areas, the disturbed area outside of the path shall be reinstated as outlined in Section 8.6 Grass Areas.



8.11.6. Drainage

- 8.11.6.1. All pedestrian ways are to be free draining. All non-sealed surfaces shall be crowned to shed water from the pedestrian way and to eliminate ponding.
- 8.11.6.2. All sealed surfaces shall have an ideal 1.5% and maximum 2% crossfall. Reverses in crossfall to be minimised. 10m transition to be used in cases where crossfall transition is necessary.
- 8.11.6.3. Where topography does not allow evenly distributed runoff, drainage culverts shall be installed in paths and tracks. The run-off from these tracks shall not result in concentrated runoff that may erode the ground surface. All pedestrian way types to be water tabled, culverted, benched and bridged as required.
- 8.11.6.4. Dish channels or drainage may be provided on the high side of a footpath with subsoil drainage to prevent run-off from higher land discharging onto the paths and tracks.

8.11.7. Steps, Handrails, Barriers

- 8.11.7.1. Steps shall be constructed to enable comfortable use by children and older people.
- 8.11.7.2. The SNZ HB 8630:2004 standards for steps for each pedestrian way type shall apply for all situations where steps may be required. Steps shall be built to the specifications of Council, and are to comply with the New Zealand Building Code.
- 8.11.7.3. All step treads must have an even surface; they must not be muddy or rough. In boxed steps, the treads must have an even surface of well-graded and compacted aggregate on compacted soil. All wooden steps shall have ss tensor geogrid affixed. Aggregate shall have a good range of particle size distribution to facilitate compaction.
- 8.11.7.4. All timber to be H4 treated.
- 8.11.7.5. Handrails and barriers shall be constructed where visitors (including children) may experience a perceived or significant hazard or where the fall height exceeds 1.0m.



8.11.7.6. The SNZ HB 8630: 2004 standard shall apply to all situations where handrails and barriers are or may be required.

8.11.7.7. Grab rails are to be provided in areas where a safety rail is not required but visitors experience significant danger, as outlined in SNZ HB 8630: 2004 Standard or in conjunction to safety rails where required for disabled access. Significant danger is defined as falls that may result in serious harm, as determined by fall height, secondary consequences of fall i.e. landing surface, propensity to roll.

8.11.8. Footbridges

8.11.8.1. The developer will be required to obtain any building and resource consents.

8.11.8.2. Footbridges shall be used in conjunction with pathways across any perennial waterways. Footbridges may be used across any seasonal riparian area where required. The width shall match that of the pedestrian way.

8.11.8.3. The design and positioning of footbridges is to be approved by the Council.

8.11.8.4. The design and construction of footbridges shall be in accordance with SNZ HB 8630:2004. Footbridges shall be designed to meet the specific requirements of a particular site.

8.11.9. Boardwalks

8.11.9.1. Boardwalks may be used over wet, swampy, muddy or sensitive track areas to achieve a mainly dry surface (i.e. for visitor comfort) as well as to protect the environment.

8.11.9.2. The design and positioning of boardwalks is to be approved by the Council.

8.11.9.3. The construction and design of boardwalks shall be in accordance with SNZ HB 8630:2004 and the Standard Design for Boardwalks. Variations on design will be required to have a Producer Statement meeting construction and design codes of compliance.



8.11.10. Platforms

- 8.11.10.1. The use of viewing platforms can enhance people's appreciation of a feature or scenic point. Any platform built will be based upon achieving minimum long-term maintenance of structure and placement.
- 8.11.10.2. The design and positioning of platforms is to be approved by the Council.
- 8.11.10.3. The construction and design of platforms shall be in accordance with SNZ HB 8630:2004 and the Standard Design for Platforms. Variations on design will be required to have a Producer Statement meeting construction and design codes of compliance.


8.12. COMPLETION OF RESERVES AND STREETSCAPES

At the time of Practical Completion, all reserves and street gardens must be presented in a tidy condition in accordance with the agreement negotiated with the Council.

Any variation to the design plans requires Council's acceptance in accordance with any agreement made between the party (developer) and Council.

Landscaped areas that have been developed must, as a minimum, meet the following general requirements:

- a. Be free of weeds species, tree stumps (above and below ground) and other specified vegetation;
- b. Be free of surplus, unwanted construction materials, debris, waste (liquid or solid) and rubbish;
- c. Present an established cover of grass complying with clause Part 8.6;
- d. Meet the minimum standards and specifications for all trees and planted areas;
- e. Be completed by the developer to agreed plans and standards, within the agreed timeframes and to the satisfaction of the Council.

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The Council will inspect all new assets prior to the release of the 224(c) certificate to ensure that the minimum standards and specifications in Section 8 are met before the Council will accept ownership. This will include the operation of assets such as irrigation systems, drinking fountains, and lighting to ensure their operational fitness.

8.12.1. Completion – Data Requirements

- 8.12.1.1. As-Built data of completed works shall be supplied. It shall conform to the Council's requirements, as specified in Part One of this Standard.
- 8.12.1.2. Drawings may also be required in a format for Council addition to GIS system (Refer to Appendix G2).
- 8.12.1.3. Completed Building Consent certification – where required.
- 8.12.1.4. Completed Resource Consent certification – where required.
- 8.12.1.5. Playground certification of compliance by an independent playground specialist. Documentation shall include test results and checklists to certify that the materials and construction conforms to AS/NZS4422, AS/NZS4486 and all their parts and amendments.
- 8.12.1.6. Written manufacturers guarantee for playgrounds and any other products where warranties available/applicable.
- 8.12.1.7. Certificates of Compliance and Producer Statements for works covered by legislative requirements.

8.12.2. Completion - Maintenance Requirements

- 8.12.2.1. The developer is responsible (and may be bonded) for the establishment, routine maintenance and any replacement of the planting, lawns and associated works during the maintenance period which is for a minimum of two summer periods, ending 30th April in the final or any subsequent additional year.
- 8.12.2.2. The length of the maintenance period for streetscape and reserve plantings is two summer seasons from 'sign-off' of 224. The maintenance period is to demonstrate that the plants are well established, healthy and fit for purpose.

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	<p>Section 8 Landscape - Reserves and Streetscape</p>

- 8.12.2.3. The developer shall rectify any damage to turf or surrounding areas including scalping, wheel rutting and damage caused by faulty machinery and third party contractors.
- 8.12.2.4. All dead, dying, diseased or damaged trees and plants (damage includes inappropriate pruning, vandalism, theft and acts of God) or those trees and plants that do not conform to the standards set out in Part 8 shall be replaced at the developer's cost as required to maintain the original numbers, grade and species as per the approved plans. Replacement shall take place as soon as favourable planting conditions exist (i.e. winter months). Replacement trees/plants shall be subject to a further two summer maintenance period.
- 8.12.2.5. Paths, roads and all other accessways shall be kept clear of excess growth. This includes sightlines and clearance heights.
- 8.12.2.6. A qualified arborist must undertake pruning of trees, once planted. All pruning must comply with recognised international arboricultural practice. A qualified horticulturalist must undertake any required pruning of plants (e.g. shrubs and groundcovers) once planted. All pruning must comply with recognised horticultural best practice.
- 8.12.2.7. Part 8 outlines the minimum establishment and maintenance standards required, and the recommended procedures to be followed, to ensure that all landscape works are at an acceptable standard prior to final inspection and release of the bond (if a bond was required).
- 8.12.3. Appendix 1 - Documents Relevant to this Section**
- 8.12.3.1. The current relevant standards that control the design, construction and installation of the Council's reserves and streetscape assets, which are referred to throughout this section, include:

Planning and Policy

- a. Thames Coromandel District Plan (District Plan) <http://www.tcdc.govt.nz/>
- b. Resource Management Act (RMA) (1991)



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- c. Building Act (2004)
- d. Fencing Act (1978)
- e. Historic Places Act (1993)
- f. Reserves Act (1977)
- g. Thames Coromandel District Tree Strategy (*TCDC, 28 May 2003*)
- h. Thames Coromandel Reserves Strategy (TCDC 2002)?
- i. Thames Coromandel District Council Reserves Activity Management Plan (*TCDC 2009*)
- j. Reserve Management Plan

Design

- a. NZS 5828: 2004 Playground equipment and surfacing
- b. NZS 4404: 2010 Land development and subdivision engineering
- c. NZS/AS 1657: 1992 Fixed platforms, walkways, stairways and ladders. Design, construction and installation
- d. SNZ HB 8630: 2004 Tracks and outdoor visitor structures
- e. Transit New Zealand Guidelines for Planting for Road Safety

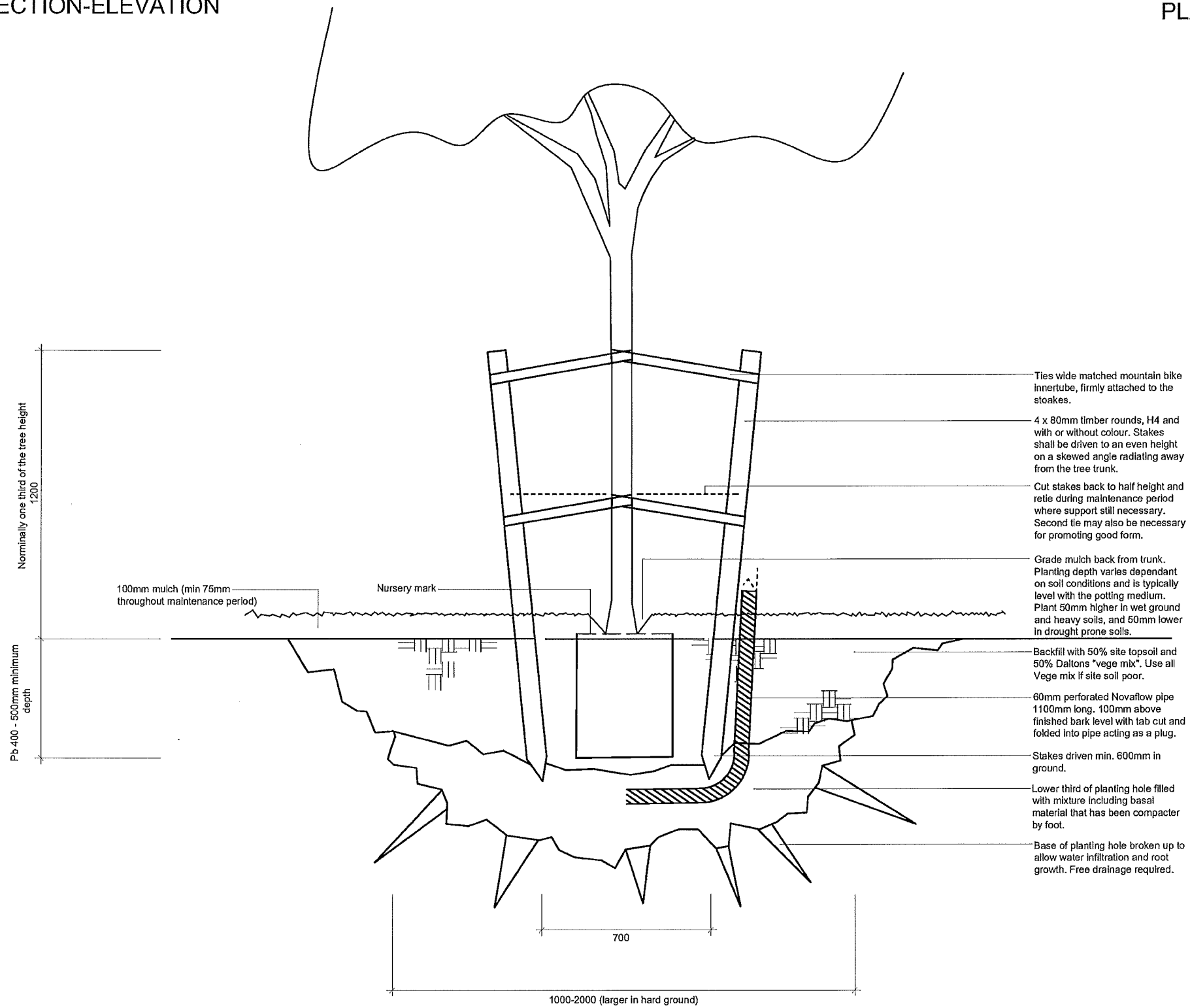


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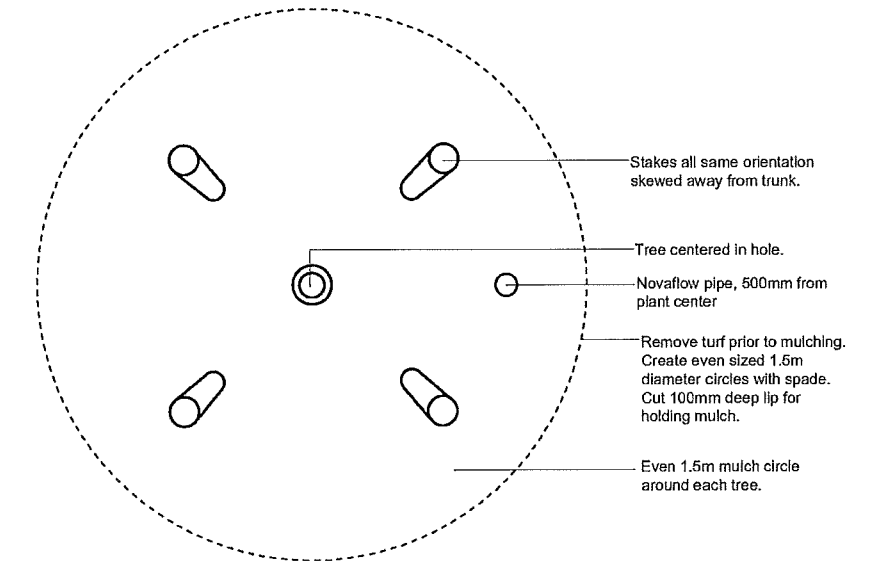
Section 8
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8.13. Appendix 2 - Drawings

TREE PLANTING SECTION-ELEVATION



TREE STAKING AND NOVAFLOW PIPE PLAN



Scale - 1:20 at A3

Tree Staking for Street Trees with no Kerb



Marker Posts - Supplied from 'Art Effects' Thames

- Walkway post - 150mm x 150mm H4 posts, 2700mm long
 - Painted in Dulux 'Storm blue'
 - Install 900mm in the ground, 1800mm above ground level
 - Concreted in with 3 bags of Dricon
- Boundary post- 150mm x 150mm H4 posts, 1500mm long
 - Painted in Dulux 'Storm blue'
 - Install 50mm in the ground, 1000mm above ground level
 - Concreted in with 3 bags of Dricon

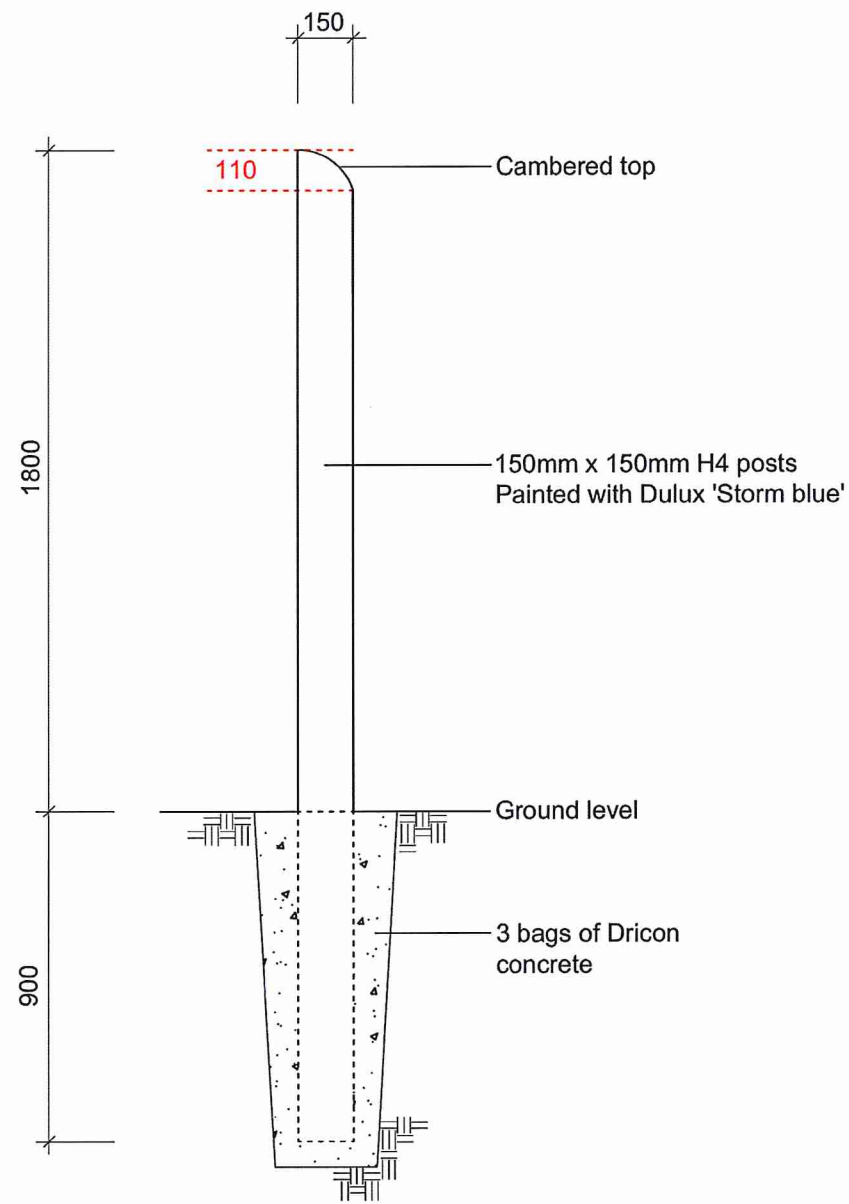
Dulux 'storm blue' paint is available from Guthrie Bowron Whitianga and ColourPlus Thames.

Guthrie Bowron Whitianga (stocks brand):

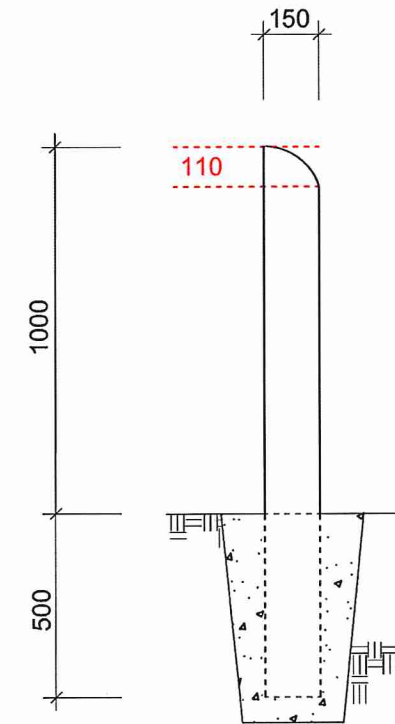
Address: Shop 1, 1 Blacksmith Lane
 Phone: 07 866 0035
 Fax: 07 866 0601
 Email: sales@gbwhitianga.co.nz
 Website: www.guthriebowron.co.nz

ColourPlus Thames (colour match):

Address: 448 Pollen Street
 Phone: 07 868 6695
 Fax: 07 868 6695
 Email: thames@colourplus.co.nz
 Website: www.colourplus.co.nz



Walkway Post



Boundary Post

Scale- 1:20 at A4
 All measurements in mm

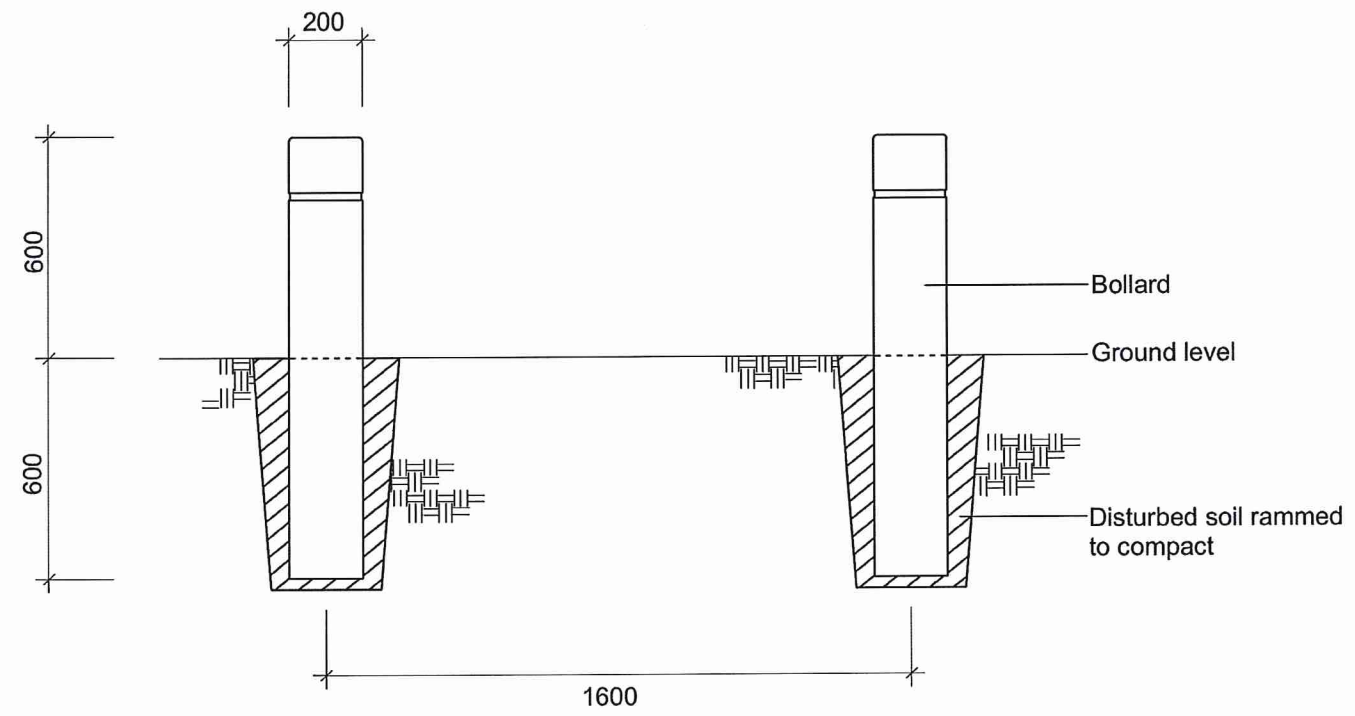


Bollards

-1200mm x 200mm H4 roundwood UniLog bollards Supplied by TTT Products.

-Bevelled top with routed collar

-Install-1600mm centres (1400mm gap between bollards)
600mm in the ground, 600mm above ground level
Disturbed soil around bollard to be rammed



Scale- 1:20 at A4
All measurements in mm

