

Part 10: Reserves, Streetscape and Open Spaces

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10.1 Referenced Documents

Planning and Policy

- > The *Christchurch City District Plan*
www.ccc.govt.nz/the-council/plans-strategies-policies-and-bylaws/plans/christchurch-district-plan
- > Resource Management Act (RMA) (1991)
- > Building Act (2004)
- > Fencing Act (1978)
- > Heritage New Zealand Pouhere Taonga Act 2014
- > New Zealand *Building Code* (Schedule 1, Building Regulations 1992)
- > Ōtautahi Christchurch Climate Resilience Strategy (2021) www.ccc.govt.nz/assets/Documents/Environment/Climate-Change/Otautahi-Christchurch-Climate-Resilience-Strategy.pdf
- > Christchurch City Council *Equity and Access for People with Disabilities Policy* (2001)
www.ccc.govt.nz/the-council/plans-strategies-policies-and-bylaws/policies/community-policies/equity-and-access-for-people-with-disabilities-policy
- > Christchurch City Council *Footpath Berm Policy* (1999)
www.ccc.govt.nz/the-council/plans-strategies-policies-and-bylaws/policies/streets-roads-and-pavements-policies/footpath-berms-policy
- > Christchurch City Council *Parks and Waterways Access Policy (PWAP)* (2002)
www.ccc.govt.nz/the-council/plans-strategies-policies-and-bylaws/policies/parks-and-reserves-policies/parks-and-waterways-access-policy-2002
- > Christchurch City Council *Artworks in Public Places Policy* (2002)
www.ccc.govt.nz/the-council/plans-strategies-policies-and-bylaws/policies/community-policies/artworks-in-public-places-policy
- > Christchurch City Council Tree Policy (2021) www.ccc.govt.nz/the-council/plans-strategies-policies-and-bylaws/policies/trees-policies/tree-policy
- > Christchurch City Council *Safer Christchurch Strategy* (2016) www.ccc.govt.nz/the-council/plans-strategies-policies-and-bylaws/strategies/safer-christchurch-strategy-2016/
- > Christchurch City Council *The Styx Vision 2000 – 2040*
www.ccc.govt.nz/environment/water/policy-and-strategy/the-styx-vision-2000-2040
- > Christchurch City Council *Biodiversity Strategy* (2008) www.ccc.govt.nz/the-council/plans-strategies-policies-and-bylaws/strategies/biodiversity-strategy-2008
- > Christchurch City Council *Parks or Reserves Management Plans* www.ccc.govt.nz/the-council/plans-strategies-policies-and-bylaws/plans/park-management-plan
- > Christchurch City Council *Parks & Open Spaces Services Plans*
www.ccc.govt.nz/the-council/plans-strategies-policies-and-bylaws/plans/long-term-plan-and-annual-plans/ltplong-term-plan-documents/
- > Canterbury Regional Council *Canterbury Regional Pest Management Plan 2018-2038* www.ecan.govt.nz/your-region/plans-strategies-and-bylaws/canterbury-regional-pest-management-plan/

Design

- > Christchurch City Council *Waterways, Wetlands and Drainage Guide, Ko Te Anga Whakaora mō Ngā Arawai Rēpo (WWDG)* (2003) www.ccc.govt.nz/environment/water/policy-and-strategy/waterways-wetlands-and-drainage-guide
- > Christchurch City Council Christchurch Otautahi Agenda 21 Committee *Indigenous Ecosystems of Otautahi Christchurch Sets 1-4*
- > Christchurch City Council *Streamside Planting Guide*
www.ccc.govt.nz/environment/water/waterways/waterway-restoration
- > Christchurch City Council *Central City Lanes Report – Lanes Design Guide*
www.ccc.govt.nz/the-council/plans-strategies-policies-and-bylaws/urbandesign/urbandesignguides
- > Christchurch City Council *Tree Planting Guide* www.ccc.govt.nz/tree-planting-guide
- > Christchurch City Council *Central City Street Trees and Gardens Master Plan (Draft)* (TRIM 10/384477)
- > Christchurch City Council *Parks Sign Manuals* (TRIM 10/129592, 16/98409)
- > National Guidelines for *Crime Prevention Through Environmental Design in New Zealand*
www.mfe.govt.nz/publications/towns-and-cities/national-guidelines-crime-prevention-through-environmental-design-new
- > Christchurch Central *Streets and Spaces Design Guide* www.otakaroltd.co.nz/assets/BalanceOfLand/streets-and-spaces-technical-guide-dec-2015-full-document.pdf
- > NZS 4121: 2001 *Design for Access and Mobility: Buildings and Associated Facilities*
- > NZS 4241: 1999 *Public Toilets*
- > NZS 4404:2010 *Land development and subdivision infrastructure*
- > NZS 5828:2015 *Playground equipment and surfacing*
- > NZS/AS 1657:1992 *Fixed platforms, walkways, stairways and ladders. Design, construction and installation*
- > SNZ HB 8630:2004 *Tracks and outdoor visitor structures*
- > International Mountain Bike Association *Trail Solutions* www.imba.com/explore-imba/trail-creation-and-enhancement/trail-solutions
- > *Barrier Free NZ* www.barrierfree.org.nz
- > Sport and Recreation Victoria *The Good Play Space Guide: “I can play too”*
<https://sport.vic.gov.au/resources/documents/good-play-space-guide-i-can-play-too>
- > Transit New Zealand *Guidelines for Planting for Road Safety*
- > Ministry for Primary Industries *National Pest Plant Accord* www.biosecurity.govt.nz/NPPA
- > Tree Health and Maintenance (MIS313) *Minimum Industry Standard* (Arboriculture Australia 2020)

Construction

- > Christchurch City Council *Civil Engineering Construction Standard Specifications Parts 1-7 (CSS)*
www.ccc.govt.nz/consents-and-licences/construction-requirements/construction-standard-specifications/download-the-css

Where a conflict exists between any Standard and the specific requirements outlined in the Infrastructure Design Standard (IDS), the IDS takes preference (at the discretion of the Council).

10.1.1 Source documents

This Part of the IDS is based on Part 7 of NZS 4404:2010, by agreement, and with the consent of Standards New Zealand.

10.2 Introduction

Landscape design for reserves, streetscape and open 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. Integrate it with the engineering design to:

- > enhance the character, quality of life and environmental appeal of each development;
- > complement and improve the environmental quality of the surrounding neighbourhood;
- > provide trees as critical infrastructure
- > provide recreation opportunities;
- > increase the region's biodiversity;
- > enhance the Garden City image of Christchurch;
- > provide areas for social interaction;
- > contribute to the character, shape and form of the city and surrounding environments.

Consider the application of urban design principles in all development projects with a landscape component. Council has highlighted particular areas as having special character and seeks to strengthen this through applying particular actions. Be familiar with these documents where applicable:

- > *District Plan*
- > *Tree Policy*
- > *Central City Report – Lanes Design Guide*
- > *Christchurch Central Streets and Spaces Design Guide*
- > *Central City Street Trees and Gardens Master Plan (Draft)*
- > Local Area Plans

All landscape developments must 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.

Establish the overall objectives for the landscape design, such as wildlife corridors, canopy cover, 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.

10.3 Quality Assurance Requirements and Records

Provide the information detailed in Part 3: Quality Assurance and the *Construction Standard Specifications (CSS)*, during design and throughout construction.

10.3.1 The designer

The designer must possess both experience and qualifications that are relevant to the scope of the project.

10.3.2 Design report

The Design Report must include a design statement that:

- > 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;
- > outlines the design philosophy and intent;
- > confirms compliance with the IDS;
- > confirms compliance with the guidelines for safe environmental design outlined in *CPTED* and Chapter 15 of the *WWDG Part B*;
- > confirms compliance with the principles of providing a barrier free environment outlined in the *Parks and Waterways Access Policy*.

The Design Report must include:

- > the safety audit;
- > details of the subsoil, water table, any earthworks and potential effects on compatibility with the planting design and establishment, including remedial measures where applicable.

10.3.3 Design records

Provide detail of the unmodified site gained from a site visit and records which clearly demonstrate it e.g. coloured aerial photographs.

All drawings and documentation must be of sufficient detail and accuracy to ensure understanding of all aspects of the development proposal and assessment of the maintenance implications of the works. To aid in this assessment, amend Appendix II - Generic Guides for Riparian Maintenance to show the required maintenance regime for the riparian planting, which will ensure the planting is maintained in accordance with the design.

Ensure specifications for all proposed works or items that are not covered in the CSS provide sufficient detail that construction standards are not compromised and the Council does not inherit faulty items, features or plantings that require removal, replacement, repair or high levels of maintenance.

Wherever the developer is using a cash-in-lieu contribution to carry out works on behalf of the Council, present a schedule of prices and rates with the Design report.

10.3.4 Engineer's Report

The developer must provide, upon completion of physical works, certification that all assets to be vested have been inspected, audited and tested, and comply with the design and quality requirements. Any trees to be vested must have documentation to support this which has been prepared by a qualified arborist.

Where playground equipment has been installed, ensure maintenance manuals and as-built drawings are presented with the Engineer's Report, as detailed in Part 12: As-Built Records.

10.3.5 Drawings

Refer to Part 2: General Requirements Appendix I - Standard Draughting Layout and Format Requirements for landscape and planting plan content and format requirements.

Landscape plans must show all streetscape and reserve planting and all facilities, structures and furniture that are proposed to be installed, including existing features to be retained. Make reference to all other related drawings, including irrigation, lighting, utilities, engineering and earthworks, and any applicable resource consent conditions. Include the location of existing and proposed underground services, irrigation systems and streetlights.

Planting drawings must have a plant list/schedule. A typical planting list is included in Appendix I - Standard Draughting Layout and Format Requirements (General Requirements). Use a clear reference system to identify the location and set-out of species. Note the supplier and source of the plants.

Refer to CSS: Part 7 clause 4.0 – Supply of Tree and Plant Materials for tree and plant specifications.

10.4 Existing Features

Discuss the layout of potential developments and the interaction with existing features with Council at the earliest opportunity.

10.4.1 Existing waterways and wetlands

The retention and enhancement of natural waterways and wetlands is an integral part of any development. Maximise opportunities for viewing them by establishing reserves to contain them, providing walkways and cycleways along their banks, specifying planting, designing streetscapes that feature them, and ensuring that all boundary fencing is designed to enable clear visibility from neighbouring properties.

Refer to the *WWDG* for further information and for definitions.

10.4.2 Existing vegetation

The Council may undertake an inspection of existing vegetation on land to be subdivided at the time of the application for subdivision consent, and may 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.

Retain and protect all trees/vegetation protected under the District Plan rules or by other legal means.

Mark existing trees/vegetation on the engineering drawings and plot the extent of all tree canopies, out to their drip lines as per SD110 (CSS PART 1: Standard drawings).

Provide an arboricultural assessment that is produced by a qualified arborist where trees are to be retained within a subdivision development.

The CSS: Part 1, 22.0 – Protection of Natural Assets and Habitats details particular measures to be taken during construction in order to protect trees/vegetation.

All trees and vegetation must be in a safe, healthy and undamaged condition when accepted by the Council.

A qualified Arborist must undertake any arboricultural maintenance. Any trenching, excavation and filling within the drip line of the trees must be undertaken in accordance with CSS Part 1: 22.0 Protection of Natural Assets and Habitats and the Tree Policy.

10.4.3 Historic & cultural features

Protect and retain culturally significant areas, historic areas (including Significant Ecological Sites), objects and buildings protected under the *District Plan* or by other formal/legal means, those features of importance to the community, monuments and memorials. The treatment of archaeological remains must be in accordance with the requirements of the *Historic Places Act* and any accidental discovery protocol.

10.4.4 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. Refer to clause 2.5.4 – Balancing landform choices (General Requirements) for further information.

10.4.5 Existing soils

Protect the structural and functional integrity of the soil system. Soils contain most of the life-sustaining features of the terrestrial ecosystem. These include the soil structural features such as organic and inorganic particles, nutrients, and living components such as invertebrates and bacteria. These support and sustain the roots of plants that are dependent upon these components. If soils are degraded, their ability to support the range of living organisms declines and their contribution to their own and associated ecosystems will be compromised.

Preserve topsoil in its existing state in reserve areas unless its removal is specifically necessary to allow the construction of infrastructure. Refer to clause 4.6.1 – Suitability of Landform (Geotechnical Requirements) for further information.

10.5 Design and Development of Reserves

10.5.1 General considerations

The Council gives priority to the integration of reserves, open space and recreation opportunities into developments and their equitable distribution throughout the city and within each area of urban expansion.

Consider the community's needs and aspirations, environmental criteria, existing features, and the direct and indirect economic implications of the reserve when locating, planning and designing each reserve.

Consult the Council through a pre-application meeting before applying for a resource consent, to ensure that the provision of reserves will satisfy all of these requirements.

A developer who wishes to contribute to the early development of recreation facilities and/or landscape features on a proposed reserve should enter into negotiations with the Council to reach agreement on:

- > a landscape plan for the reserve;
- > what elements of the landscape plan the developer will implement;
- > the standard of finish to which completed works are carried out;
- > the level of development to which completed works are carried out;
- > the balance of reserve contribution owing to the Council in cash (if applicable).

In terms of a subdivision development, once the reserve is developed to the specified level and the 224(c) certificate is issued, it will be vested in the Council. The reserve will then continue to be maintained by the developer until handed over to Council to maintain following the specified establishment period. The Council will if necessary carry out further landscape development as and when capital funding becomes available.

10.5.2 Design factors

Consider the following factors when designing reserves:

- > the suitability of the site for its intended purpose;
- > the extent and nature of the topsoil and subsoil, including their fertility, structure, moisture-holding capacity and drainage;
- > compatibility between ground conditions/earthworks design, engineering design and planting design;

- > existing and proposed levels and their relationship to the levels of the surrounding land and to the provision of underground services;
- > the presence of contaminants and/or imported materials and how any adverse effects can be accommodated and/or mitigated. Existing *Park or Reserve Management Plans* may provide further information;
- > the stability of the site and how any instability can be accommodated and/or mitigated;
- > 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;
- > the movement desire lines for pedestrians and cyclists through the area;
- > current and future tree planting sites.

10.5.3 Utilities

Show any proposed primary utility lines and structures located on reserves on the landscape drawings.

Do not locate above-ground structures, such as power kiosks and pump stations, on recreation and esplanade reserves. Locate above-ground structures 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. The Council must approve the location of any above-ground structure and underground utilities in any reserve. Clause 9.5.5 – Above-ground utilities (Utilities) sets out criteria to consider when planning above-ground structures.

Locate utility cables and structures with sufficient clearance from current and future tree planting sites.

10.5.4 Local purpose (utility) reserves

Where the terrain is suitable and space is available, the Council prefers the use of swales, soakage basins and wetlands within new developments to store, filter and move stormwater through reserves. In most situations, the Council will agree to the vesting of these areas as local purpose (utility) reserves.

Provide sufficient open space for general recreational purposes (if this is part of the reserve's primary purpose), so that land set aside for utility purposes does not limit the provision and use of open space for the community to enjoy. Refer to Part 5: Stormwater and Land Drainage and *WWDG* for further information.

10.5.5 Design criteria

The assessment criteria used when evaluating development layouts and reserve designs are:

Community - The provision of recreational assets that cater for the needs of the surrounding community, as identified by the Council in *Activity Management Plans* and through analysis of local demographics, residential densities, and activity and leisure trends.

Accessibility - The provision of logical, safe and attractive access from the surrounding community and good linkages within and between reserves and community facilities. Refer to *CPTED* and *PWAP*.

Existing features – protection of existing features as set out in clause 10.4 – Existing Features.

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.

Maintenance - The provision of durable assets whose on-going maintenance and eventual replacement will not place a disproportionate burden on Council resources.

10.5.6 Reducing waste

When designing the development, consider ways in which waste can be reduced:

- > Plan to reduce waste during demolition e.g. minimise earthworks, reuse excavated material elsewhere.
- > Design to reduce waste during construction e.g. prescribe waste reduction as a condition of contract.
- > Select materials and products that reduce waste by selecting materials with minimal installation wastage.
- > Use materials with a high recycled content e.g. recycled concrete subbase.

The Resource Efficiency in the Building and Related Industries (REBRI) website has guidelines on incorporating waste reduction in your project www.rebri.org.nz.

10.5.7 Planting on slopes

Safe and efficient maintenance operations on sloping ground must be allowed for.

Planted slopes that are to be maintained by Council contractors must be no steeper than a 1 in 3 gradient where fall height safety risks exist. In some situations planted slopes that are steeper than a 1 in 3 gradient are allowed where they are to be classed as natural areas that will not be maintained by Council contractors. Refer to clause 10.9.8 Revegetation, restoration and connection of habitats for further information.

All grass slopes must be no steeper than a 1 in 4 gradient. Transitions between gradients must be seamless to allow for effective mowing operations. Refer to clause 10.9.17 for further information.

10.6 Reserve and Streetscape Facilities, Structures And Furniture

All built assets (e.g. signs, fences, artworks, lighting, structures and furniture) must be robust, low-maintenance, and safe for use by the public. Consider the life-cycle of built assets, to reduce the frequency of renewing or replacing such assets in the future.

Consider colours and construction materials in aesthetic terms, for built assets that form part of a reserve.

Note that the developer is responsible for gaining all necessary building consents required under the Building Act.

10.6.1 Sports fields

Good drainage and a firm turf surface are the prime requirements for providing good sports fields. Areas prone to ponding, high water tables and slow drainage are generally not suitable for use as sports fields. The slope of the turf surface must not be greater than 1 in 100.

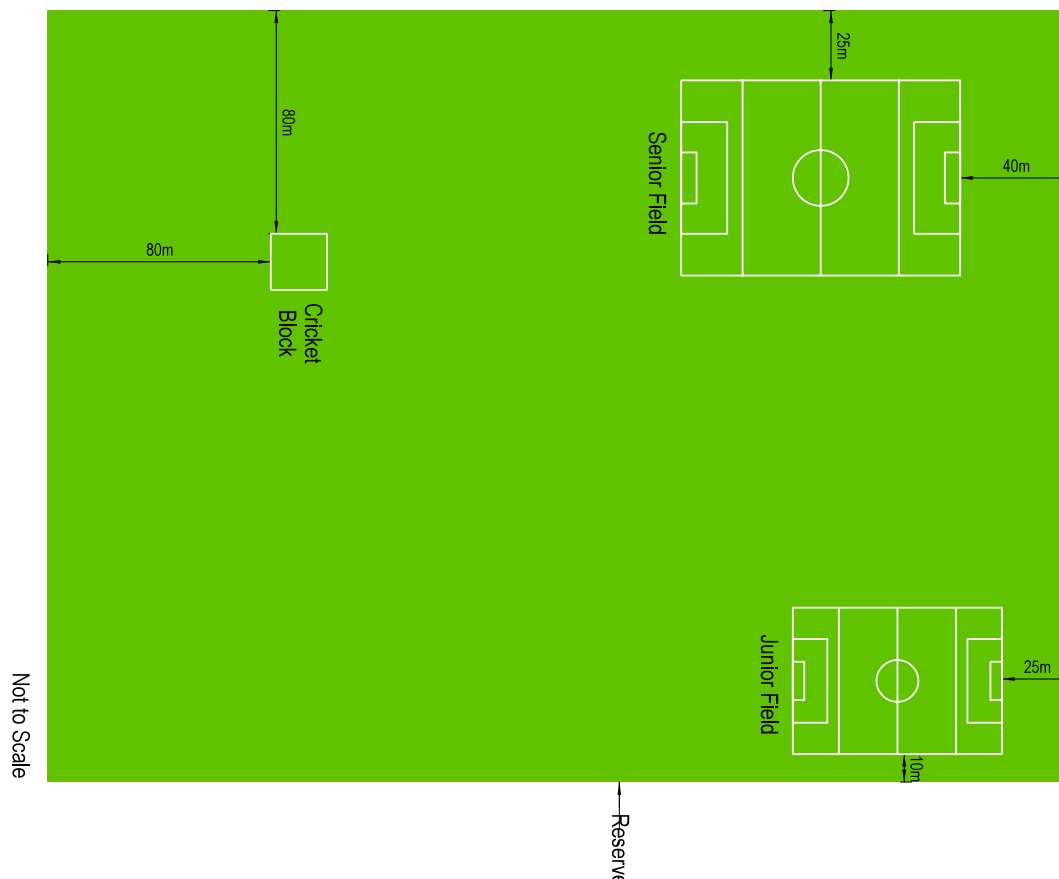


Figure 1 Offsets from sports fields

Winter sports fields must have a minimum of 25m between the sidelines and any reserve boundary, and a minimum of 40m between the goal lines and any reserve boundary. Junior winter sports fields must have a minimum of 10m between the sidelines and any reserve

boundary, and a minimum of 25m between the goal lines and any reserve boundary. Cricket blocks must have a minimum of 80m between any point on the block and any reserve boundary. Figure 1 illustrates this.

Wherever sports fields will be provided, supply a sewer connection and a water connection as specified in the consent conditions and show these on the reserve development plan. Install these over the legal boundary into the reserve and to the specified location.

10.6.2 Playgrounds and play structures

Council's objective is to provide and develop interesting and exciting play spaces that meet the needs of the local community and, in the case of destination facilities, the needs and aspirations of the greater community. As a guide, parks with playgrounds will be provided within a 500m walking distance (approximate 10 minute walk) to urban residential dwellings. Council's aim is to achieve this for 80% of urban residential dwellings.

Obtain approval 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.

Provide fully inclusive playgrounds with surfacing that allows easy access where specified.

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 and open space to promote opportunity for informal play in conjunction with formal play structures is desirable. Provide structures which cater for a wide range of ages and abilities.

Locate seating where there is a clear view of the entire playground. In larger parks locate toilets, rubbish bins and drinking fountains within the vicinity of the playground.

Specific design plans of proposed play spaces shall demonstrate compliance with:

- > NZS 5828 *Play equipment and surfacing*.
- > *Christchurch City Council Parks and Waterways Access Policy*.

Design plans must also clearly identify the following;

- > All equipment types and manufacturers.
- > Free space/fall zone requirements.
- > Safety surface material.
- > Edge Treatment to contain safety surfacing.
- > Drainage Treatment.
- > Any associated amenities (e.g. drinking fountains, seating).

Playgrounds and play equipment must be certified as compliant prior to public access and acceptance by Council.

10.6.3 Recreational hard surfaces, ball courts and skateboarding facilities

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

Obtain approval 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 nearby.

New basketball courts are to be located a suitable distance of at least 30m from residential dwellings. Skate and scooter facilities are to be located a suitable distance of at least 40m from residential dwellings.

10.6.4 Structures

Structures are installed at the discretion of the Council. These include: pergolas, bridges, jetties, boardwalks, barbeques and internal walls, fences and screens.

The design of structures must fulfil both functional and aesthetic requirements. They must be durable and not require a high level of maintenance.

Ensure accessible piers and jetties are at least 1800mm wide to allow wheelchair turning. In most cases observation towers and bird hides will be inaccessible, but where possible they should be designed in accordance with clause 10.8.3 – Boardwalks and ramps, including landings and 150mm upstands.

Install handrails complying with clause 10.8.4 – Steps and handrails and which preserve the view. Where windows are offered, ensure they cater for a range of eye-level heights.

Consider the impact of structures on traffic safety. Guidelines for the placement of structures in urban environments are available in clauses 8.15.7 – Street furniture and 8.15.10 – Clear zones (Roading).

10.6.5 Artworks and sculptures

The Council will consider any requests to install sculptural or other artworks on their merits. The Council will only accept artworks that are durable and do not require a high degree of maintenance and will also assess their artistic integrity.

Any artwork must be appropriate to the character of its setting. Integrated or functional artworks are preferred, such as bridges, light standards and seats.

Refer to the *Art in Public Places Policy* which sets out the process and purpose of public artworks.

10.6.6 Signs

Signs and information boards orientate visitors, describe places of interest, warn of hazards and direct traffic flow. Use and locate signs consistently in context with the local environment

whilst minimising usage to avoid clutter. Consult the *Greenspace and Waterways Sign Manual* and Council for guidance on sign type. If signs would be inappropriate or obtrusive to the natural landscape, use other methods of communication.

Use the international symbol for access only where an area, facility or building is fully accessible in accordance with the *Building Code* or *Design for Access and Mobility*.

Locate signs alongside an accessible route, ensuring they can be viewed close up by people with impaired vision. Consider detailing tactile or colour cues to help people with impaired vision locate signs. Locate signs that are near or on buildings outside of the swing circle of doors.

Provide signs and information boards at a uniform level in each park for consistency, with mounting heights between 700mm to 1700mm from ground level. Signs and information boards should be easy to look at for adults that are standing, sitting or for children. Slope smaller signs mounted at lower levels to improve visibility.

10.6.7 Seats and picnic tables

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

The proposed seating and tables must be robust, low-maintenance and safe for use by the public. They can be constructed from materials such as timber, concrete, steel or stone, but the material is not restricted to these examples.

As people with disabilities and the elderly tend to tire more easily than able-bodied people, the provision of more seating may encourage increased usage of tracks and paths. Place seating every 100 - 200m on shorter paths and tracks (less than one kilometre) and every 200 - 250m on longer paths and tracks. Place seats strategically to allow a balance of shaded and sunny sites.

Provide at least one accessible table in each picnic area (a small park can be considered as one picnic area). Locate seats in various parts of the park, e.g. playgrounds, tracks and picnic areas. Additional rest areas should be provided at main park entrances for the use of people waiting for transport.

Specify the standard park bench in CSS: Part 7 SD 712 or detail seats that comply with *Design for Access and Mobility* for metropolitan and major parks. Seats should be 300mm-520mm high, but a height of 450mm is preferable. Slope seats slightly (105° max) to allow water runoff. Where possible, provide a range of seat heights, preferably with a chair back and armrests as they provide additional support, comfort and assistance to people with disabilities and the elderly.

Detail tables 755-775mm above ground level, with seats between 280mm and 320mm below the tabletop. Provide a clear space to the underside of the table 675mm from the ground and at least 800mm wide. Table types include an 'A frame' table with an extended end, or a hexagon style table, with one or two spaces for wheelchairs and prams.

Ensure accessible tables and seats are serviced by an accessible path, without obstructing its design width. Locate tables and seats on firm, level surfaces and provide 1500mm wide surfaced

manoeuvring areas at the end of tables and a 900mm wide surfaced accessible space beside each seat to accommodate wheelchairs, prams, or mobility aids. Set the front of seats back at least 540mm from the edge of access routes to preserve the pathway width.

10.6.8 Drinking fountains

Provide a minimum of one drinking fountain, complying with *CSS: Part 7 SD 719* per metropolitan or major park. Incorporate the dog bowl only where dogs will be permitted to use the park.

These items must be durable, vandal-resistant and consistent with other proposed site furniture and the overall character of the reserve. Obtain approval of the Council for installation of these items.

Ensure drinking fountains are serviced by an accessible path, without obstructing its design width. Place drinking fountains on firm, level surfaces which extend 1500mm wider on one side to provide access from a wheelchair.

10.6.9 Boundary fencing

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

Funding of boundary fencing must comply with the Fencing Act, whereby if one of the occupiers of adjoining lands not divided by an adequate fence wants a fence, both parties are liable to contribute in equal proportions to the cost of a basic boundary fence. The Act does not apply to fences alongside legal roads or esplanade reserves.

Where permanent fencing of common boundaries of reserves, including esplanade reserves, is required by a resource consent condition, by the Council, or by the adjoining landowner, the Council will contribute half of the cost of a basic boundary fence. Where the proposed fence complies with the open frontage concept, the Council may contribute towards the additional cost.

Council wishes that boundary fences over 1.2m high be at least 80% open, in order to enable clear visibility from neighbouring properties and that fence designs around any reserve or waterway be determined before the subdivision is completed and sections are sold, in order to establish a consistent character.



Fences that promote overlooking of the reserve (Hansens Park)

Refer to *CPTED* and chapter 13.9 of *WWDG Part B* for more information about open frontage fencing.



Fences that promote overlooking of the reserve (Aidanfield)

10.6.10 Lighting

The Council prefers to light only those paths and cycleways that are designated safe routes, as identified through *CPTED*. Although lighting can be beneficial, areas that are lit are not necessarily safer and can give an undesirable message that it is safe to use an area after dark. *CPTED* explains how to use lighting appropriately. Refer to clause 8.5 – Off Road Linkages (Roading) and clauses 11.4.2 – Category P (cycleways and paths in reserves) lighting and 11.4.8 – Pole locations (Lighting) for more detail.

10.6.11 Public toilets

The provision of toilet facilities is essential to allow people with disabilities to use parks. Consider the needs of that locality and the numbers of expected visitors at any one time when determining the toilet facilities. One unisex toilet for up to 300 people is recommended. Locate toilets to be easily accessible from and within 50m of parking areas.

Design the toilet and its access to conform to NZBC / G1, *Public Toilets* and *Design for Access and Mobility* except as amended in this clause. The minimum requirement for a facility is a pan and a washbasin.

Specify fittings, where possible, that comply with *Design for Access and Mobility*, including tap and flush fittings that can be used with minimum strength. Do not use small or narrow half seats.

Provide two grab rails beside the toilet, one on the wall and one on the opposite side. Ensure the grab rails don't obstruct the flushing control or the movement of an individual onto the toilet.

Provide a lockable door for privacy which allows a means of rescue for trapped individuals. Do not specify time release devices as they don't allow people with mobility restrictions privacy. When specifying swinging doors, ensure they swing out, so that wheelchairs do not have to negotiate the door when exiting.

10.7 Park and Reserve Access

The design and construction of roadways, parking areas, vehicle crossings and cut downs must comply with Part 8: Roading and *CSS: Part 6*.

10.7.1 Vehicle access

Access points are required for vehicles to undertake mowing, waterway management, rubbish collection, general maintenance, and for emergency vehicles (such as ambulances) at sports parks. Consider the location of the vehicle access points as part of the overall design. Also consider the usage and any requirement for ground treatment to prevent deterioration.

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.

Locate and design removable barriers to prevent unauthorised vehicles from damaging the reserve. The design of barriers must be consistent with other design elements in the reserve.

10.7.2 Parking

Access roadways and off-street parking may be required for reserves such as garden and heritage parks, regional parks and the starting points of tracks.

Design parking areas, including accessible parking spaces, to comply with the minimum standards, including number, size, signage, set out in the *District Plan, Building Code* and *Design for Access and Mobility*. Provide pedestrian cut-downs from the parking area at regular intervals, so that there is no need to move into or near traffic to gain access to footpaths. Textile or colour cues should be used to indicate cut-downs.

Specify wheel stops complying with *CSS: Part 6, SD 626* and fences complying with *CSS: Part 7* to the parking area. Provide gaps in any fencing or barrier around a parking area to allow pedestrians, prams and wheelchairs to pass through without the need to step over the barrier.

Areas to lock up bicycles should be provided close to entrances or facilities.

10.7.3 Entrances and fences

Ensure entrances will be clearly visible from set-down points. Detail the main entrance, complying with *SD 716*, as part of the accessible route. Fence the road boundary of all reserves, detailing fences complying with *CSS: Part 7*. Specify 1200mm wide access points every 50m, utilising 1.1m high entrance bollards. A formed path is not necessary at every access point. Textural cues should be laid to indicate pedestrian entranceways.

10.7.4 Gates

Specify gates with a minimum clear width of 1200mm and simple, easy to open mechanisms, requiring minimum strength to open latches. A grab bar is desirable for easy closing. Detail the grab bar and latch at between 900-1200mm high.

10.8 Pedestrian and Cycle Paths or Tracks

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 convenient and safe, in accordance with *CPTED*. 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 new tracks can be linked to them.

A path is primarily a means of travel between activity areas, is accessible in accordance with *Design for Access and Mobility* and is typically sealed, whereas tracks, typically finished with a metalcourse surface, can also be used as a recreation facility and may be accessible. Boardwalks may be used over wet terrain, sand or very uneven areas.

Tracks can be designed to meet a variety of needs and interests and should reflect the range of people's preferences and abilities, so that the parks do not replicate each other, losing their individual characteristics.

Where paths and tracks are more than 25mm above or below the surrounding ground surface provide edging complying with the *Guide to Road Design, Part 6A: Pedestrian and Cyclist Paths*.

Clause 8.5 – Off Road Linkages (Roding) has further information on designing off-road linkages and Part 11: Lighting has information on providing lighting. The design and construction of pedestrian and cycle paths must comply with Part 8: Roding and *CSS: Part 6*.

10.8.1 Pedestrian paths and tracks

Start accessible paths at the set-down point or car park. Detail the installation of international access symbol signage for fully accessible paths. Design and construct walkways or other tracks to comply with *Fixed platforms, walkways, stairways and ladders. Design, construction and installation* and *Tracks and outdoor visitor structures*. Paths must comply with the *Parks and Waterways Access Policy* and the *Equity and Access for People with Disabilities Policy*.

Formed pedestrian-only paths should be between 1.5m and 2.0m wide. Accesses to playgrounds should be 1800mm wide. Design accessible tracks to be at least 1500mm wide, with a minimum width of 1200mm and with no abrupt changes in level greater than 20mm. Accessible paths and tracks shouldn't include steps.

Provide passing widths of 1800mm, at an average of 5 every 100m. This can be reduced where there is a 50m or greater clear line of sight, to an average of one bay every 40m.

Design crossfalls to comply with clause 8.15.2 – Crossfalls and gradients. Ensure changes in camber are gradual. Specify surfacing to provide a colour contrast with the vegetation verges, to aid the visually impaired.

10.8.2 Cycle and shared paths and tracks

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. Indicate shared paths by painting cycle and pedestrian symbols at the start of paths.

Design mountain bike tracks in accordance with *Trail Solutions*.

10.8.3 Boardwalks and ramps

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. Design and construct walkways to comply with *Fixed platforms, walkways, stairways and ladders. Design, construction and installation*.

Design ramps on all accessible paths and tracks with a gradient steeper than 1:12. Minimise the longitudinal gradient as much as possible. Design longitudinal ramp gradients, lengths and spacings to comply with *Design for Access and Mobility*.

Detail boardwalks with the boards at a 90° angle to the direction of travel, with gaps between the boards of 6 - 10mm. Specify a coating to increase slip resistance for boardwalks that are on a slope greater than 1:33.

10.8.4 Steps and handrails

Design each step with a maximum rise of 180mm and with a minimum tread of 310mm. Round the nosings of the steps and detail them to project a maximum of 25mm. Steps should have a very slight slope downwards (1%) to allow water to drain.

Consider providing textural cues at the approach to the steps, and colour cues on the edge of each step (nosing). Avoid a single step as in many cases they are seldom seen and can be a hazard.

Where stairs or steps are designed to be fully accessible, detail handrails on both sides. Also specify a handrail for accessible paths with gradients over 1:20 except for sections of path that follow the natural contours of the land.

Specify non-splintering handrail materials that do not get too hot detailed to comply with Appendix F3 of *Design for Access and Mobility*. Turn the end of the handrail down to remove hooking hazards - a domed button is not required.

10.9 Landscape Planting

10.9.1 Benefits of landscape planting

Landscape planting may not be compulsory for some developments. All planting must be appropriate to the scale and character of the development and the local conditions. Design

planting to make a positive contribution to the subdivision and the surrounding local district in one or more of the following ways:

Functionally

- > Provide shade, shelter and privacy.
- > Reduce noise and air pollution.
- > Calm traffic.
- > Assist drivers to recognise road bends, intersections and the type of road.
- > Reduce glare and reflection.
- > Control erosion.
- > Create physical barriers.
- > Provide recreation and amenity value.
- > Protect and restore cultural and historical resources and values.
- > Protect and enhance indigenous biodiversity.
- > Protect and improve water quality.
- > Reduce urban heat island.
- > Increase wildlife habitat.

Aesthetically

- > Frame views.
- > Emphasise landforms, soil types and landscape features.
- > Structure spaces.
- > Reduce the visual impact of roads and hard surfaces.
- > Screen unsightly outlooks.
- > Provide colour, form and texture.
- > Extend and enhance the city's tree heritage and Garden City image.
- > Provide a legible and imaginative planting framework for the city.

10.9.2 Planting design

Locate and design plant beds and specimen trees to be appropriate for the particular requirements of a street or reserve. Public safety, potential effects on neighbouring properties and infrastructure, access and maintenance costs are important determinants of the planting design.

Consider the proximity of houses, buildings, services, footpaths, cycleways and accessways when selecting plant and tree species and deciding on their locations.

All tree planting must comply with the Tree Policy (Part 1 of the Tree Policy relates to tree planting). For example, Tree Policy 1.2 specifies: All projects on Council land will actively incorporate new planting locations and prioritise the retention of existing suitable planting locations. This may include but is not limited to installing new underground services outside of grass berms to allow sufficient rooting environment for new trees.

Design and implement all planting around waterways and detention ponds in accordance with the *WWDG*.

All planting must comply with the guidelines for safe environmental design outlined in *CPTED*, plus the additional guidelines in Chapter 15 of the *WWDG* (Part B) where applicable.

10.9.3 Amenity floral beds

Amenity floral beds are beds that contain plants which require significant horticultural management. Their unsustainability and the cost of establishment and maintenance may make them unsuitable for most streets and reserves.

Approval for any amenity floral bed proposal will be given to developers only under extenuating circumstances.

10.9.4 Compatibility with engineering design

Associate planting drawings with engineering and earthworks drawings, to ensure that the engineering works, earthworks and planting works are all compatible. Engineering and earthworks designs must facilitate healthy tree and plant growth and ensure that the potential for future conflicts and damage to infrastructure are avoided.

Planting locations must comply with the legal overhead and underground clearance requirements of the network operators, with allowance made for the natural growth of the trees and plants to maturity.

10.9.5 Species selection

The selection of trees, shrubs, groundcover plants and turf species must be appropriate for the conditions at the planting site, such as soil type, drainage and local climate, to ensure healthy, attractive, well-formed, mature plants. Refer to *CSS: Part 7* clause 4.0 - Supply of Tree and Plant Materials. Additional selection criteria include low maintenance and longevity. The Tree Planting Guide: www.ccc.govt.nz/tree-planting-guide provides a comprehensive list of tree species for planting selection, including their size class and suitability. Another table specifies the projected tree canopy cover for each tree size class and the minimum soil area/volume requirements for planting.

Design the location of specimen trees and plant beds to ensure they do not compromise the efficient operation of infrastructural services. Ensure planting in swales does not obscure or obstruct the access to structures and that it does not compromise the hydraulic functionality of the system over time. Trees and plants used in swales must be able to tolerate both waterlogged soils and dry conditions.

Various plant species must not be planted in Christchurch streets or reserves due to undesirable characteristics, such as:

- > known potential to become weeds
- > invasive root systems
- > weak branch structure
- > high maintenance
- > heavy production allergenic pollen
- > susceptibility to disease and pests

Unsuitable tree and plant species, and situations where those trees and plants are inappropriate are included in a list on the CCC website below:

<https://ccc.govt.nz/environment/trees-and-vegetation/tree-and-urban-forest-plan/tree-planting-guide>

10.9.6 Tree selection and placement

Select and locate trees to minimise ongoing pruning requirements and infrastructure damage. For urban collector and arterial roads, specify one tree species to be planted on both sides of each road section i.e. between intersecting collector and/or arterial roads. For urban local roads, each side of the road may have one species for that road's length i.e. one species planted on each side of the road.

Restrict representation of any one species of tree to 10% of the total tree asset (city wide) and for any one family to 30% and genus to 20% of the total tree asset. This will prevent an overdependence on a limited range of species. Council's arborists maintain an asset database to determine which species should be restricted in numbers.

Select trees with consideration of their adult dimensions, and proximity to neighbouring properties, buildings, electrical conductors, right-of-ways and other assets.

When selecting and locating trees, make allowance for each tree to grow healthily for an expected life of at least 50 years without unduly compromising services, safety or amenities, or causing excessive boundary encroachments or shading. Also, space trees sufficiently far apart to allow healthy development of mature canopies.

Specify reserve trees and street trees with a minimum grade of 25 Litres.

Bare root stock will be accepted only in exceptional circumstances, at the discretion of the Council. Whips and trees planted with canes will not be accepted.

Refer to the CSS: *Part 7: Landscapes* for more information.

10.9.7 Shrub and groundcover selection and placement

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 10 to 15 years without unduly compromising services, safety or amenities, or causing unacceptable shading. Planting must not result in congestion that requires removal, pruning or thinning in the medium term.

Specify shrubs or groundcovers with minimum grades of Rx90 for revegetation plantings, PB5 for shrubs and amenity plantings and one litre for groundcover. Root trainers may be used where more appropriate (e.g. to establish quicker more consistent and less ‘clumpy’ coverage in a dry pond).

Plant low maintenance shrubs and/or groundcovers in medians, traffic islands and other places where grass mowing would be difficult.

Position plants with drooping stems or leaves that might trip pedestrians a minimum of 500mm from the edge of the plant bed, so that the leaves of the mature plants will not hang over any footpath, kerb or lawn.

10.9.8 Revegetation, restoration and connection of habitats

Revegetation means planting native trees, shrubs and groundcover plants, based on ecological principles. It may involve infill planting in existing remnant plant associations or the re-establishment of lost associations.

Identify such opportunities at the earliest stage in planning. Seek opportunities to use waterway corridors, recreation reserves and street trees to form “green corridors” linking existing and proposed habitats.

Revegetation and restoration planting may also be required along stream and riverbanks and into and around swales, soakage basins and wetlands. Include the use of species that will tolerate inundation and variations in the groundwater and surface water levels. Take into account existing and future variations in micro-topography and microclimate.

Plants are to be eco-sourced and selected from the plant lists contained within the Ōtautahi/Christchurch Ecosystems Map located on the CCC website www.ccc.govt.nz/environment/land/ecosystem-map. Eco-sourcing means that the plants are grown from seeds which have been collected from old naturally established plants (e.g. forest remnants) that are as close as possible to the revegetation site.

Group the plants informally or space them individually to produce a natural appearance. Plant spacings must be between between 1.5m and 0.5m centres, dependent on the species and site requirements. For example, in some circumstances (e.g. steep slopes or unstable ground) reduce spacings to less than 0.5m centres to ensure quick coverage, promote bank stability and lessen maintenance costs. The selection and placement of plants must reflect the natural succession process.

Revegetation and restoration sites are not usually mulched. However, if weed suppression or moisture retention are major issues, mulch or individual weed mats may be applied. Mulch must not be placed where it is likely to be washed into the stormwater system during heavy rain.

Establishment will focus on eradicating plant pests and controlling exotic weed species. Utilise stem protectors and identification stakes, installed to *CSS: Part 7* clause 9.0 – Staking Trees

and Shrubs, to aid in plant establishment.

Further information and guidance is provided in the *Streamside Planting Guide* and the *WWDG*.

10.9.9 Plant beds

Group all shrubs and/or groundcovers together in mulched plant beds that are designed to minimise maintenance requirements. The edge definition may be a boundary fence, footpath, kerb, timber batten or informal trench margin. Informal trench margins are not appropriate in sandy soils.

Any one bed must have a minimum area of 8.0m² and a minimum width of 1.5m, with the exception of roundabouts. This means that tapered ends of traffic islands less than 700mm width will be hard surfaced.

Do not plant service strips between the footpath and the private property boundary that are less than 300mm width.

Passengers must be able to exit parked vehicles without traversing a planted area. The noses or tails of vehicles must be able to extend over kerbs without damaging planting.

Where adjoining pavement or grass surfaces meet, forming a point in the plant bed with an angle of less than 70 degrees, square or round off the point of the plant bed to be no narrower than 1.5m.

When the area between is grassed, plant beds must be more than 3m apart.

Refer to *CSS: Part 7* for planting and mulching specifications.

10.9.10 Location of trees in reserves

Locate specimen trees and large shrubs sufficiently far apart to allow healthy development of mature canopies with consideration of their adult dimensions. Provide adequate offsets from boundaries with neighbouring properties, buildings and other assets to prevent future conflicts and excessive maintenance requirements.

Streetlights and reserve lighting may be constrained in their location due to design spacing requirements. Where the lighting and tree locations conflict, change the tree locations, as they are not constrained by the required lighting standard.

10.9.11 Location of trees in streets

All street tree planting must comply with the minimum separation and sight distances shown in Figure 2 and Figure 3. These distances may need to be increased to protect sightlines, depending on the road geometry and speed environment.

Plant street trees at a distance from the edge of the traffic lane that provides a clear zone as specified in clause 8.15.10 – Clear zones (Roading). Locate street trees to ensure that they will not affect street lighting, create dark spots or create shaded areas that could lead to icing of carriageway areas in winter.

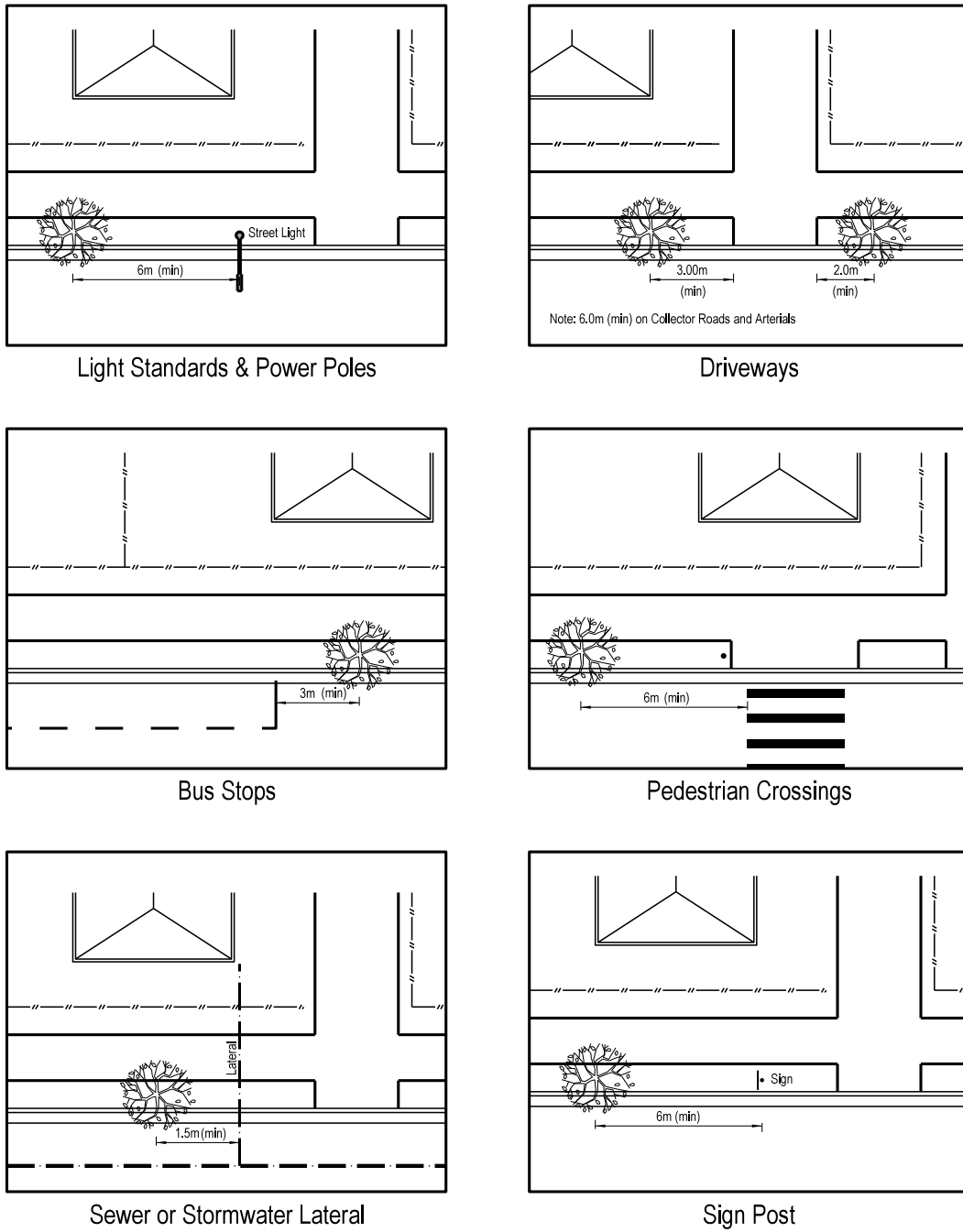


Figure 2 Street tree planting separation¹

When selecting street trees consider the adult dimensions, and proximity to boundaries with neighbouring properties, buildings, infrastructure and other assets to prevent future conflicts and excessive maintenance requirements. Make allowance for each tree to grow healthily for an expected life of at least 50 years without unduly compromising services, safety or amenities, or causing excessive boundary encroachments or shading.

Plant street trees in berms that are at least 1.5m wide (measured from the back of the kerb). Minimum clearances required are shown Figure 3. Carefully consider the relationship between

¹ Based on fig 7.1 NZS 4404

the final tree trunk/base diameter size and the potential for infrastructure damage. For example very large growing species require berm widths greater than 2.5m to avoid future infrastructure damage, and even some smaller growing species may require greater than 1.5m berm widths for root system development.

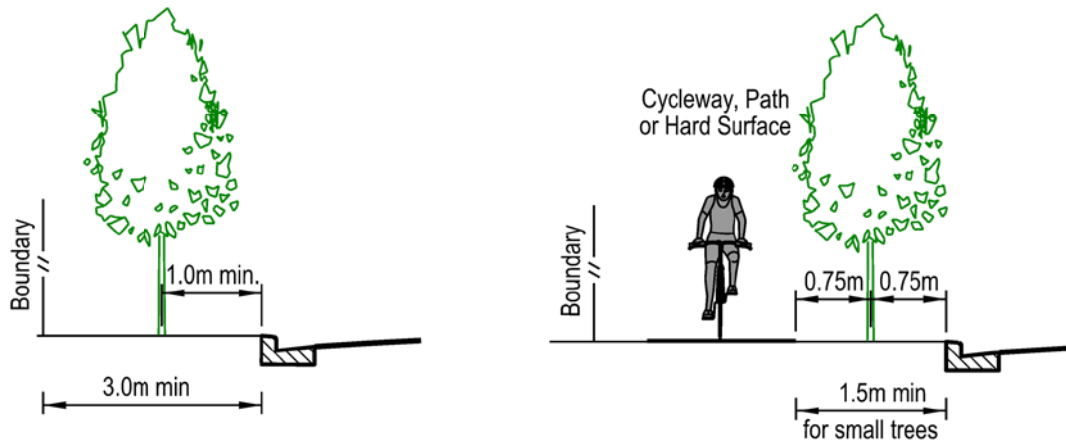


Figure 3 Tree offsets in streets

Install root barrier where trees are planted in close proximity to underground power cables at the setback distances specified in Table 1 and in accordance with *CSS: Part 7 SD 704*. Where root barrier is installed to minimise potential damage to other infrastructure, the root barrier must be installed as close as possible to the infrastructure to avoid roots growing past the root barrier. Do not install root barrier within the tree pit.

Table 1 Root barrier clearances

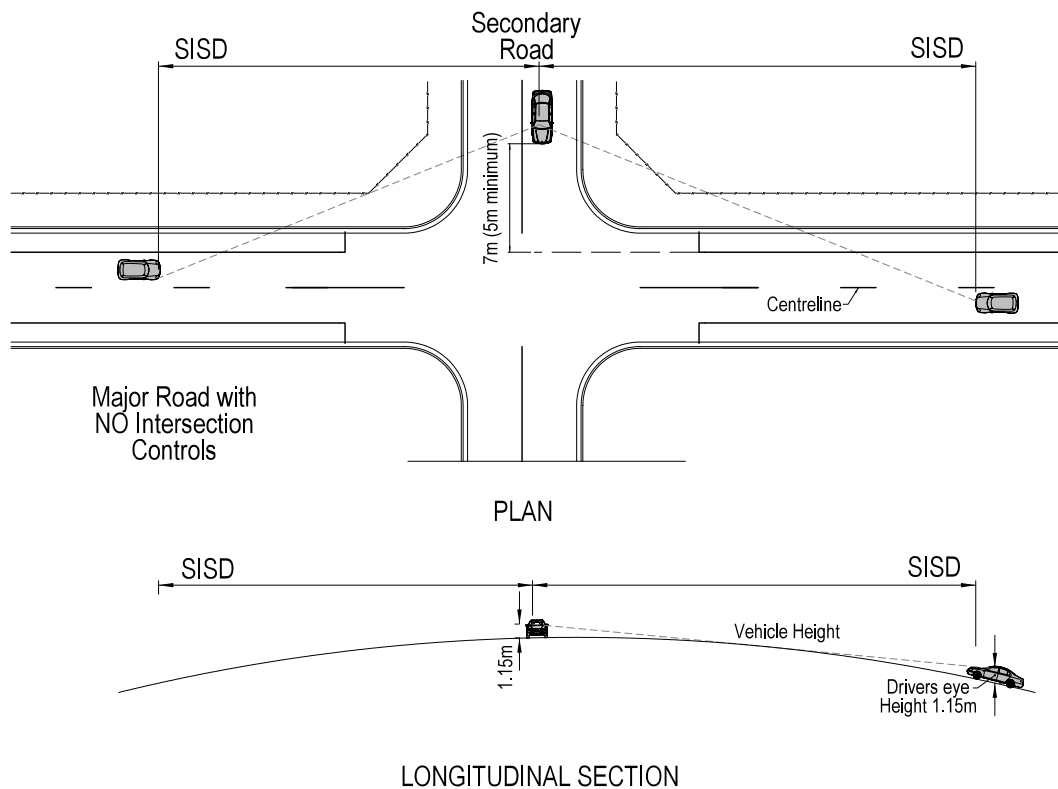
Clearances from cable (to barrier) to tree				
Cable voltage (kV)	66	33	11	0.4
Minimum tree clearance without barrier (m)	5.0	5.0	3.0	2.0
Minimum tree clearance with barrier (m)	2.5	2.5	1.0	1.0
Minimum cable to barrier clearance (m)	2.0	2.0	0.3	0.3

10.9.12 Protection of sightlines

Select all roadside vegetation on roundabouts, on traffic islands and within traffic sightlines shown in Figure 4 to have either a maximum height of 0.6m or to be limbed to provide a clear trunk to a height of 2.5m as trees develop. This will preserve sightlines to and from vehicles. The planting must be easily maintained within this height.



Sightlines preserved through pruning and plant choices (Mairehau/Burwood intersection)



Speed Value (km/hr)	Safe Intersection Sight Distance (SISD)	
	Rural	Urban
40	70	60
50	90	80
60	115	105
70	140	130
80	175	165
90	210	-
100	250	-
110	290	-
120	330	-

Notes:
 1. It is desirable that plants are placed far enough back from the intersection so that even when mature the SISD is maintained.
 2. See Transit New Zealand's Guidelines for Planting for Road Safety for more details

Figure 4 Intersection sight distances for clear sightlines ¹

¹ Fig 7.2 NZS 4404

10.9.13 Maintenance of street planting

All street planting requires maintenance. Reduce the potential negative impact on traffic of planting in medians, roundabouts and traffic islands by:

- > selecting and locating plants so that they will not encroach onto the kerb or adjacent hard surfaces during their design life;
- > ensuring maintenance can be entirely conducted from within the planted area;
- > detailing mulch levels flush with the kerb to prevent material migrating onto the adjacent hard surfaces.

10.9.14 Innovative street planting layouts

Opportunities for street planting range from the planting of specimen trees within the standard road berm to planting associated with traffic calming devices and specific landscape features within the subdivision.

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; rain gardens and stormwater tree pits designed to provide stormwater treatment. Refer to clause 5.12.9 - Stormwater quality for further information. Provide protection for trees planted within the carriageway from vehicles being parked.

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, and this type of planting may also be required where ground conditions are not suitable for street tree establishment within parts of a subdivision development.

10.9.15 Irrigation

The Council’s long-term goal is efficient and sustainable use of the city’s water supply. Minimise the need for irrigation by matching plant species to the local site conditions. Consider detailing stormwater tree pits to provide passive irrigation within carriageways. Refer to clause 5.12.9 - Stormwater quality for further information.

Permanent irrigation in streets or reserves will be approved only when it is necessary to overcome significant difficulties with local site conditions that could prevent the reasonable growth, health and survival of lawns and amenity plantings. Contact the Council to discuss the type and control of the irrigation system.

Providing temporary irrigation of plant beds during the establishment period may be acceptable, in which case the water supply must be disconnected and the irrigation pipes removed at the end of the establishment period. Revegetated and restored sites will not be watered unless extreme drought conditions prevail during establishment.

Generally, all materials must comply with those listed on the Council’s web page for approved materials at www.ccc.govt.nz/consents-and-licences/construction-requirements/approved-materials-list. Install irrigation systems in accordance with *CSS: Part 2* clause 7.0 – Irrigation. Specify the backfill material to the irrigation trench.

10.9.16 Lawns and berms

All lawn areas 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.

All lawns in reserves must have a minimum width of 2.0m. Refer to clause 8.15.3 - Grassed berms (Roading) for details regarding berms on legal road.

10.9.17 Reducing grass maintenance

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.

All grass slopes must be no steeper than a 1 in 4 gradient. On mounds, or where there is a significant change in gradient, design and construct lawns to avoid mowers scalping the ground surface. Refer to clause 8.15.4 – Batters (Roading) for further information.

Use grass mixes appropriate to the lawn use e.g. playing field mix in playing field areas.

10.10 Construction

Any variation to the design plans requires Council’s acceptance in accordance with the non-conformance process set out in clause 3.7.1 – Control of non-conforming work (Quality Assurance).

Provide a Tree Protection Management Plan, within the Environmental Management Plan if appropriate, as required by the Tree Policy (draft).

10.10.1 Earthworks

Aim to protect original soils and drainage patterns and to minimise disturbance, compaction, earthworks and importation of topsoil in all areas identified for revegetation and restoration.

10.10.2 Plant supply

Sourcing plants locally maximises the plant’s chance of thriving in the local environment and makes obtaining further supplies, for later replacement or extension of the planting, easier.

10.11 Establishment

10.11.1 Establishment

The developer is responsible (and may be bonded) for the establishment and routine maintenance and any replacement of the planting, lawns and associated works during the establishment period. This includes all those works set out in clause 14.0 – Establishment of *CSS: Part 7*. Maintain riparian planting as detailed in the amended Appendix II - Generic Guides for Riparian Maintenance for the project.

Replace, at the developer's cost, all missing, dead, dying, diseased or damaged trees and plants (damage includes inappropriate pruning, vandalism, theft, animal damage and acts of God) or those trees and plants that do not conform to the standards set out in *CSS: Part 7*.

CSS: Part 7 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).

Clause 2.13 – Bonds (General Requirements) elaborates on bonding requirements.

10.11.2 Pruning

Keep paths, roads and all other accessways clear of excess growth. This includes sightlines as set out in Figure 5 and clear heights over paths and cycleways of 2.0m minimum.

A qualified arborist must undertake pruning of trees, once planted. All pruning must comply with recognised international arboricultural practice. A qualified horticulturalist must undertake pruning of all plants (e.g. shrubs and groundcovers) once planted. All pruning must comply with recognised horticultural practice.

10.11.3 Presentation of reserves and streetscape

At the time of practical completion, all reserves and streetscapes must be presented in a tidy condition to the satisfaction of Council (see clause 10.5.1 – General considerations). Undeveloped reserves must be mowable with all debris removed.

The Council will inspect all trees, plants and landscaping including grassed areas prior to the release of the section 224 certificate (and at the end of the establishment period) to ensure that the minimum standards and specifications set out in *CSS: Part 7* are met before the Council will accept ownership.

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

- > be completed by the developer in accordance with the accepted plans and required quality standards, within agreed timeframes and to the satisfaction of Council;

- > be free of weeds, tree stumps (above and below ground) and other specified vegetation;
- > be free of surplus, unwanted construction materials, debris, waste (liquid or solid) and rubbish;
- > pre-existing trees and vegetation must be in a safe, healthy and undamaged condition.

10.12 As-Built Information and Asset Data

Present as-built records and associated reserve asset data, which complies with Part 12: As-Built Records and this Part. Where reserves may be geologically unstable, present a geotechnical completion report, as detailed in Part 4: Geotechnical Requirements, with the as-built records.

APPENDIX I

Generic Guides For Riparian Maintenance

Site Visits, Inspection & Reporting

- Identify & complete all maintenance tasks in a timely manner
- To meet the prescribed site objectives & maintenance standard, assess, report & seek instruction to correct unexpected problems due to unseasonal weather or other causes including inappropriate activity or development within the waterway setback.

Natural Habitat

- Aquatic/in stream habitat
- Riparian/wetland habitat
- Seek confirmation of desired organisms to be restored and specific habitat requirements.

Plant Replacement

- Route Small numbers without request or delay generally autumn - spring.
- Theft Seek confirmation of instructions.
- Vandalism Seek confirmation of instructions.

Successional Planting

- Natural Regeneration Protect & nurture native seedlings to meet site objectives & maintenance standard. Remove identified, inappropriate native seedlings.

Grass Cutting

As per Waterways Contract.

- Weed eating
- Other (specify)

Annual mowing regime

- once a year
- twice a year
- three times a year
- four times a year

Litter & Site Cleanup

- Generally all litter, floism, weeds, debris, rumped branches & plant material shall be removed from site. At completion, rake prunings from grass areas & sweep paths

Site objectives & prescribed maintenance standards vary between sites. It may be acceptable to dispose of some or all organic material (weed seeds) free only on site as much, providing it is appropriate & accepted for use as mulch beneath vegetation, concealed from view above flood level.

Stream Access

- Top up gravel beaches & secure rocks to maintain safe access
- Repair damaged boardwalk decks to eliminate hazards
- Other (specify)

Resource Consent Requirements

- Ensure specified resource consent requirements are met at all times. Refer attached copy of Resource Consent for specific requirements.

Bank Erosion Control

- Report immediately any onsite erosion
- Other (specify)

Watering

- Water as necessary to ensure plant survival during establishment phase of (specify time frame)
- Other (specify)

Paths, Paving, Structures, Signs, Weirs, Memorials, Interpretation & Artworks

- Repair or report wear & damaged surfaces, appearances & eliminate any hazardous elements
- Top up & level girded footpath surfaces
- Secure damaged paving & structures
- Monitor condition of all elements
- Other (specify)

Mulch

Organic Material

- Maintain 75 - 100mm depth
- Maintain 75mm compacted depth
- Migration Clean up mulch which has moved & re-place on the plant bed clear of the footpath.

Other Materials

- Secure discs
- Replace discs & or pins
- Other (specify)

Stakes & Markers

- Routine Secure young plants requiring support, as necessary without request or delay.
- Check plant ties & stakes regularly as necessary to prevent plant damage
- Install markers to protect seedling regeneration
- Install markers to identify plant location
- Required for plants within 1.0 metre of 'light' or 'shelter' or other staking specified, per manufacturers instructions.
- All to meet the prescribed site objectives & maintenance standard.

Fertiliser

- Nitrophoska Blue Tablet
- Slow Release Tablet
- Site Specific (specify)

Weed Control

Herbicide

- Glyphosate or dicant as appropriate. Spray to 1.0 metre from plant base.
- Broadcast spray Spot application Spray, wash or water.

Physical Removal

- Dig out
- Gnb out
- Hand pull
- Trim
- Other (specify)

WATERWAY ELEVATION

NOTE: Typical cross section - not to scale.

- Use typical cross section above
- Hand drawn cross section to be provided

MAINTENANCE STANDARD:

Heritage	High
Culture	Medium
Drainage	Low

Key to Values Priority: ● High ○ Medium ○ Low

NOTE:

- Value & Maintenance Standards indicated on this template are specific to this site only.
- This template is to be used in conjunction with the accompanying Project Brief, Planning Plans & Construction Details for this site.
- C.C.C. strategies, policies, guidelines and other relevant documents are implicit in the development of this project.

VALUES:

Ecology	High
Landscapes	Medium
Recreation	Low

AREA:

Aquatic Area [m²]

(Length of water) x (Average width)

Terrestrial Area [m²]

(Length of bank) x (Average width of both banks)

PLANTING:

TYPE	DATE
(Planting)	(Month/Year)
(Planting)	(Month/Year)

HAND-OVER:

CONTRACTOR	DATE
(Name)	(Month/Year)

REVIEW:

BY	DATE
(Name)	(Month/Year)

PROJECT TITLE:

[NAME OF WATERWAY]

LOCATION:

[TEXT OF WATERWAY & / OR ADDRESS]

PLANTING PLAN REFERENCES: (hand)
 ORIGINAL INITIAL: (hand)
 GREENSPACE MAINTENANCE MANAGER: (hand)
 LANDSCAPE ARCHITECT/DESIGNER: (hand)
 HORTICULTURAL CONTRACTOR: (hand)

GENERIC GUIDE FOR RIPARIAN MAINTENANCE

PROJECT MANAGER & DESIGNER'S COPY

Adapted from a plan prepared by Jeff Weston, for the Greenspace Unit, Christchurch City Council, by City Solutions.

CHRISTCHURCH
 CITY COUNCIL

CROSS SECTION/ELEVATION

NOTE: Typical cross section - not to scale.

- Use typical cross section above
- Hand drawn cross section to be provided

MAINTENANCE STANDARD:

Heritage	High
Culture	Medium
Drainage	Low

Key to Values Priority: ● High ○ Medium ○ Low

NOTE:

- Value & Maintenance Standards indicated on this template are specific to this site only.
- This template is to be used in conjunction with the accompanying Project Brief, Planning Plans & Construction Details for this site.
- C.C.C. strategies, policies, guidelines and other relevant documents are implicit in the development of this project.

VALUES:

Ecology	High
Landscapes	Medium
Recreation	Low

AREA:

Aquatic Area [m²]

(Length of water) x (Average width)

Terrestrial Area [m²]

(Length of bank) x (Average width of both banks)

PLANTING:

TYPE	DATE
(Planting)	(Month/Year)
(Planting)	(Month/Year)

HAND-OVER:

CONTRACTOR	DATE
(Name)	(Month/Year)

REVIEW:

BY	DATE
(Name)	(Month/Year)

PROJECT TITLE:

[NAME OF WATERWAY]

LOCATION:

[TEXT OF WATERWAY & / OR ADDRESS]

PLANTING PLAN REFERENCES: (hand)
 ORIGINAL INITIAL: (hand)
 GREENSPACE MAINTENANCE MANAGER: (hand)
 LANDSCAPE ARCHITECT/DESIGNER: (hand)
 HORTICULTURAL CONTRACTOR: (hand)

Figure 5 Generic Guide for Riparian Maintenance

Weed Control	Herbicide Glyphosate or dicamba as appropriate. Spray to 1.0 metre from stems, not to soil. <input type="checkbox"/> Broadcast spray <input type="checkbox"/> Spot application Spray, wash or wipe. Physical Removal <input type="checkbox"/> Dig out <input type="checkbox"/> Grub out <input type="checkbox"/> Hand pull <input type="checkbox"/> Trim <input type="checkbox"/> Other (specify)
Stakes & Markers	<input type="checkbox"/> Routine Secure young plants requiring support, as necessary without request or delay. <input type="checkbox"/> Check plant ties & stakes regularly as necessary to prevent plant damage <input type="checkbox"/> Remove stakes & ties after (specify time frame) <input type="checkbox"/> Install markers to protect seedling regeneration <input type="checkbox"/> Install markers to identify plant location Required for plants within 1.0 metre of waterway, where staking specified. <input type="checkbox"/> Other (specify)
Mulch	Organic Material <input type="checkbox"/> Maintain 75-100mm depth <input type="checkbox"/> Maintain 75mm compacted depth <input type="checkbox"/> Migration Clean up mulch which has moved & re-place on the plant bed clear of the floodplain. Other Materials <input type="checkbox"/> Secure discs <input type="checkbox"/> Replace discs & / or pins <input type="checkbox"/> Other (specify)
Shrub Removal	<input type="checkbox"/> Maintain or create sight line views, access, species mix balance, healthy appearance & channel width & stream flow <input type="checkbox"/> Nurse crop removal <input type="checkbox"/> Remove margin plants from shrub bed Remove entire plants to meet the prescribed site objectives & maintenance standard. Shrub Pruning <input type="checkbox"/> Maintain adequate channel width & stream flow Prune to remove entire branches or fibres (flax) which encroach within the floodplain. <input type="checkbox"/> Maintain healthy appearance & plant form Prune to remove entire branches & stems above desirable foliage, spent flowers, stakes (where visible) to maintain acceptable plant form.
Litter & Site Cleanup	<input type="checkbox"/> Generally all litter, flotsam, weeds, debris, pruned branches & plant material shall be removed from site. At completion, rake prunings from grass areas & sweep paths <input type="checkbox"/> Other (specify)
Paths, Paving, Structures, Weirs, Memorials, Interpretation & Artworks	Repair or report wear & damaged surfaces, elements or structures to maintain function, appearance & eliminate safety hazards. <input type="checkbox"/> Top up & level gutted footpath surfaces <input type="checkbox"/> Repair damaged paving & structures <input type="checkbox"/> Monitor condition of all elements <input type="checkbox"/> Other (specify)
Margin Plant Removal	<input type="checkbox"/> Maintain views, access, species mix balance, healthy appearance, channel width & stream flow Remove entire plants to meet the prescribed site objectives & maintenance standard. Margin Plant Pruning Careen/lassock-like species & unscrubbed-like species. <input type="checkbox"/> Maintain adequate channel width & stream flow Discreetly prune to remove damaged, dead, collapsed lower foliage back to base of plant. <input type="checkbox"/> Maintain a high standard of (natural) visual appearance To meet the prescribed site objectives & maintenance standard.
Pest Control & Protection	Animal Pests & Wind Exposure <input type="checkbox"/> Secure plant protection Tree shelters, fencing, wind break cloth. <input type="checkbox"/> Replace plant protection Tree shelters, fencing, wind break cloth. <input type="checkbox"/> Other (specify)
Resource Consent Requirements	<input type="checkbox"/> Ensure specified resource consent requirements are met at all times. Refer attached copy of Resource Consent for specific requirements.
Grass Cutting	As per Waterways Contract. <input type="checkbox"/> Weedeating <input type="checkbox"/> Other (specify)
Annual mowing regime	<input type="checkbox"/> once a year <input type="checkbox"/> twice a year <input type="checkbox"/> three times a year <input type="checkbox"/> four times a year
Tree Removal	<input type="checkbox"/> Maintain or create sight line views, access, species mix balance, healthy appearance <input type="checkbox"/> Nurse crop removal Remove entire trees to meet the prescribed site objectives & maintenance standard. <input type="checkbox"/> Natural Regeneration Prune to create sight lines to meet site objectives & maintenance standard. Remove identified, inappropriate, exotic & native seedlings. <input type="checkbox"/> Infill planting Seek confirmation of instructions. <input type="checkbox"/> Other (specify)
Successional Planting	<input type="checkbox"/> Natural <input type="checkbox"/> Regeneration Prune to create sight lines to meet site objectives & maintenance standard. Remove identified, inappropriate, exotic & native seedlings. <input type="checkbox"/> Infill planting Seek confirmation of instructions. <input type="checkbox"/> Other (specify)
Natural Habitat	<input type="checkbox"/> Aquatic stream habitat <input type="checkbox"/> Riparian/wetland habitat <input type="checkbox"/> Terrestrial habitat Seek confirmation of desired organisms to be listed and specific habitat requirements.
Plant Replacement	<input type="checkbox"/> Routine Small numbers without request or delay generally autumn - spring. <input type="checkbox"/> Theft Seek confirmation of instructions. <input type="checkbox"/> Vandalism Seek confirmation of instructions.
Site Visits, Inspection & Reporting	<input type="checkbox"/> Identify & complete all maintenance tasks in a timely manner To meet the prescribed site objectives & maintenance standard. <input type="checkbox"/> Assess, report & seek instruction to correct unexpected problems due to weather or other unseasonal causes including inappropriate development within the waterway setback.

Note to Landscape Architect/Designer

- Tick boxes to indicate tasks required, adding any notes if necessary.
- All information boxes will remain on the final sheet, with those not required to be greyed and crossed out.

CROSS SECTION/ELEVATION
 NOTE: Typical cross section - not to scale.

Use typical cross section above
 Hand drawn cross section to be provided

PROJECT TITLE:
[NAME OF WATERWAY]

LOCATION:
[EXTENT OF WATERWAY & / OR ADDRESS]

PLANTING PLAN REFERENCES - (Name)
 ORIGINAL INITIALS (Name)
 STAGE IS: (Name)
 TITLE, ROLE (Name)

GREENSPACE PROJECT MANAGER (Name)
 GREENSPACE MAINTENANCE MANAGER (Name)
 LANDSCAPE ARCHITECT/DESIGNER (Name)
 PARTICIPATIONAL CONTRACTOR (Name)

VALUES:

Ecology	<input type="radio"/>	Heritage	<input type="radio"/>
Landscape	<input type="radio"/>	Culture	<input type="radio"/>
Recreation	<input type="radio"/>	Drainage	<input type="radio"/>

Key to Values Priority: ● High ○ Medium ○ Low

NOTE: • Values & Maintenance Standards indicated on this template are specific to this site only.
 • This template is to be used in conjunction with the accompanying Project Brief, Planting Plans & Construction Details for this site.
 • C.C.C. strategies, policies, guidelines and other relevant documents are implicit in the development of this project.

MAINTENANCE STANDARD:

High	<input type="radio"/>
Medium	<input type="radio"/>
Low	<input type="radio"/>

AREA:

Aquatic Area	[m ²]
Terrestrial Area	[m ²]

PLANTING:

TYPE	DATE
(Name/Original)	(Month/Year)
(Job/Jobing)	
CONTRACTOR	
(Name)	
(Phone/Email)	
BY	
(Name)	
(Phone/Email)	
DATE	
(Month/Year)	

HAND-OVER:

CONTRACTOR	DATE
(Name)	(Month/Year)
BY	
(Name)	
(Phone/Email)	

REVIEW:

DATE	
(Month/Year)	
BY	
(Name)	
(Phone/Email)	

ONGOING

RIPARIAN MAINTENANCE

TEMPLATE

CONTRACTOR'S COPY

Adapted from a plan prepared by Jeff Weston, for the
 Greenways Unit, Christchurch City Council, by City Stations.



Figure 6 Ongoing Riparian Maintenance Template

Weed Control	<ul style="list-style-type: none"> Herbicide: Glyphosate or desiccant as appropriate. Spray to 10 metres from target area. Broadcast spray: Spray, wash or wipe. Physical Removal: Dig out, grub out, hand pull, trim. Other: (specify)
Mulch	<ul style="list-style-type: none"> Organic Material: Maintain 50-100mm depth, maintain 75mm compacted depth. Migration: Clean up mulch which has moved & re-place on the plant bed clear of the floodplain. Bank Erosion Control: Report immediately any onsite erosion. Other: (specify)
Litter & Site Cleanup	<ul style="list-style-type: none"> Generally all litter, floes, weeds, debris, pruned branches & plant material shall be completely removed from site. At completion, rake prunings from grass areas & sweep paths. Other: (specify)
Paths, Paving, Structures, Signs, Weirs, Memorials, Interpretation & Artworks	<ul style="list-style-type: none"> Repair or report wear & damaged surfaces, elements or structures to maintain function. Top up & level grouted footpath surfaces. Repair damaged paving & structures. Monitor condition of all elements. Other: (specify)
Margin Plant Removal	<ul style="list-style-type: none"> Maintain views, access, species mix balance, healthy appearance, channel width & stream flow. Remove entire plants to meet the prescribed site objectives & maintenance standard. Margin Plant Pruning: Carex/Juncus-like species & Junus/Tree-like species. Maintain adequate channel width & stream flow. Discreetly prune to remove damaged, dead, collapsed lower foliage back to base of plant. Maintain a high standard of (natural) visual appearance. To meet the prescribed site objectives & maintenance standard.
Natural Habitat	<ul style="list-style-type: none"> Aquatic stream habitat. Riparian/wetland habitat. Terrestrial habitat. Seek confirmation of desired organism's to be listed and specific habitat requirements. Stream Access: Top up gravel beaches & replace or secure roots to maintain safe access. Repair damaged boardwalk, decks to eliminate hazards. Other: (specify)
Pest Control & Plant Protection	<ul style="list-style-type: none"> Animal Pests & Wind Exposure: Secure plant protection. Tree shelters, fencing, wind break cloth. Replace plant protection. Tree shelters, fencing, wind break cloth. Other: (specify) Insecticide: Serious plant damage only. Fungicide: Serious plant damage only. Seek confirmation of instructions.
Resource Consent Requirements	<ul style="list-style-type: none"> Ensure specified resource consent requirements are met at all times. Refer attached copy of Resource Consent for specific requirements. Tree Pruning: Only on approval from Contracts Manager. Lift lower branches progressively to maintain sight lines, views, access & to release under-storey plants. Prune to remove entire branches to meet the prescribed site objectives & maintenance standard. Maintain healthy appearance & plant form. Remove dead or dead branches to meet the prescribed site objectives & maintenance standard. Emergent form: Encourage strong single leader on identified trees.
Grass Cutting	<ul style="list-style-type: none"> As per Waterways Contract. Weedaling. Other: (specify) Annual mowing regime: once a year, twice a year, three times a year, four times a year. Tree Removal: Only on approval from Contracts Manager. Maintain or create sight line views, access, species mix balance, healthy appearance. Nurse crop removal: Remove entire trees to meet the prescribed site objectives & maintenance standard.
Plant Replacement	<ul style="list-style-type: none"> Route: Small numbers without request or delay generally autumn - spring. Theft: Seek confirmation of instructions. Vandalism: Seek confirmation of instructions. Successional: Only on approval from Contracts Manager. Natural Regeneration: Protect & nurture native seedlings to meet site objectives & maintenance standard. Remove standing, remove seedlings, remove & native seedlings. Planting of niche plants: Underplant with specified species to mediate objectives & maintain form & appearance of plant species to be used.
Site Visits, Inspection & Reporting	<ul style="list-style-type: none"> Identify & complete all routine maintenance tasks in a timely manner. Report on opportunities for niche planting to meet the prescribed site objectives & maintenance standard. Assess, report & seek instruction to correct unexpected problems due to unseasonal weather or other causes including inappropriate activity or development within the waterway setback.

Planting:

TYPE	DATE
(Plant Original)	(Month/Year)
(Planting)	(Month/Year)

Hand-over:

CONTRACTOR	DATE
(Name)	(Month/Year)

Review:

BY	DATE
(Name)	(Month/Year)

PROJECT TITLE: [NAME OF WATERWAY]

LOCATION: [EXTENT OF WATERWAY & / OR ADDRESS]

VALUES:

Ecology	Heritage
Landscape	Culture
Recreation	Drainage

Key to Values Priority: ● High ● Medium ○ Low

MAINTENANCE STANDARD:

High	Medium	Low
------	--------	-----

AREA:

Aquatic Area [m ²]	Terrestrial Area [m ²]
(Length of water) x (Average width)	(Length of bank) x (Average width of both banks)

PLANTING:

TYPE	DATE
(Plant Original)	(Month/Year)
(Planting)	(Month/Year)

HAND-OVER:

CONTRACTOR	DATE
(Name)	(Month/Year)

REVIEW:

BY	DATE
(Name)	(Month/Year)

CROSS SECTION/ELEVATION

NOTE: Typical cross section - not to scale.

Use typical cross section above

Hand drawn cross section to be provided

MATURITY

RIPARIAN MAINTENANCE TEMPLATE

CONTRACTOR'S COPY

Adapted from a plan prepared by Jeff Weston, for the Greenways Unit, Christchurch City Council, by City Stations.

Figure 7 Maturity Riparian Maintenance Template

Resource Consent Requirements

Ensure specified resource consent requirements are met at all times. Refer attached copy of Resource Consent for specific requirements.

Weed Control - Channel Berms & Margin

Herbicide

Glyphosate or equivalent as appropriate.

Spot application. Spray, brush or wipe.

Physical

Dig out

Grub out

Hand pull

Trim

Other (specify)

Includes stumps. Apply 'vigilant' or similar approved to cut stems, as per manufacturers instructions. All to meet the prescribed site objectives & maintenance standard.

Tree & Shrub Pruning & Removal

Maintain adequate channel width & stream flow

Prune to remove entire branches or leaves (if) or remove entire trees or shrubs while ensuring safety to stream flow

Refer to attached copy of prescribed site objectives & maintenance standard.

Tree Root Removal

Cut tree roots as flush as practicable with the edge of the bank to maintain the existing channel alignment.

Frequency annual unless otherwise specified.

Margin Plant Pruning

Conifer, sedge-like species & juniper-like species.

Maintain adequate channel width & stream flow

Discreetly prune to remove damaged, dead, collapsed lower foliage back to base of plant.

Maintain a high standard of natural visual appearance

To meet the prescribed site objectives & maintenance standard.

Weirs, Riffles & Structures

Top up or replace dislodged rock

Monitor & report deteriorating condition of other in-stream structures

Other (specify)

Seek confirmation of instructions.

Sedimentation

Monitor & report excessive sedimentation

Excessive sediment to be removed at time of visit

Assess & report back if sediment trap is full

Remove any litter & debris from sediment trap immediately.

Aquatic Weed Control - Channel Invert

Physical Removal

Dig / fork out

Hand pull

Trim / hoe

Other (specify)

To maintain specified channel width, stream flow & water level. Tying, method & level of disturbance to meet prescribed site objectives & maintenance standard.

Margin Plant Removal

Maintain views, access, species mix balance, healthy appearance, channel width & stream flow

Remove entire plants to meet the prescribed site objectives & maintenance standard.

Water Quantity & Quality

Visually monitor at each visit

Report abnormal conditions

Natural Habitat

Aquatic in stream habitat

Riparian/wetland habitat

Seek confirmation of habitat requirements.

Litter & Site Cleanup

Generally all litter, foilsam, weeds, debris, pruned branches & plant material shall be completely removed from site. At completion, rake prunings from grass areas & sweep paths

Wash off mud deposits

Other (specify)

Site objectives & prescribed maintenance standards vary between sites. It may be acceptable to dispose of some or all organic material (weed seed-free only) on site as mulch, providing it is clipped or processed as appropriate & is not likely to encourage 'weed' beneath vegetation above flood level.

Site Visits, Inspection & Reporting

Identify & complete all routine maintenance tasks in a timely manner

To meet the prescribed site objectives & maintenance standard.

Assess, report & seek instruction to correct unexpected problems due to weather or other causes including inappropriate activity or development within the waterway setback.

CROSS SECTION/ELEVATION

NOTE: Typical cross section - not to scale.

Use typical cross section above

Hand drawn cross section to be provided

Note to Landscape Architect/Designer

- Tick boxes to indicate tasks required, adding any notes if necessary. All information boxes will remain on the final sheet, with those not required to be greyed and crossed out.

PROJECT TITLE: [NAME OF WATERWAY]

LOCATION: [EXTENT OF WATERWAY & / OR ADDRESS]

PLANTING PLAN REFERENCES: (Inset)

GREENSPACE PROJECT MANAGER: (Inset)

GREENSPACE MAINTENANCE MANAGER: (Inset)

LANDSCAPE ARCHITECT/DESIGNER: (Inset)

PLANTING CONTRACTOR: (Inset)

VALUES:		MAINTENANCE STANDARD:	
<input type="radio"/> Ecology	<input type="radio"/> Heritage	<input type="radio"/> High	<input type="radio"/> Low
<input type="radio"/> Landscape	<input type="radio"/> Culture	<input type="radio"/> Medium	<input type="radio"/> Low
<input type="radio"/> Recreation	<input type="radio"/> Drainage	<input type="radio"/> Medium	<input type="radio"/> Low

Key to Values Priority: High Medium Low

NOTE: Values & Maintenance Standards indicated on this template are specific to this site only. Plans & Construction Details for this site. C.C.C. strategies, policies, guidelines and other relevant documents are implicit in the development of the project.

AREA:		PLANTING:	
Aquatic Area [m ²]	(Inset) X (Inset)	TYPE: (Inset)	DATE: (Inset)
(Length of water) X (Average width)		CONTRACTOR: (Inset)	DATE: (Inset)
Terrestrial Area [m ²]	(Inset) X (Inset)	HAND-OVER:	
(Length of bank) X (Average width of both banks)		DATE: (Inset)	
		BY: (Inset)	

IN-STREAM RIPARIAN MAINTENANCE TEMPLATE

CONTRACTOR'S COPY

Adapted from a plan prepared by Jeff Weston, for the Greenways Unit, Christchurch City Council, by City Stations.

Figure 8 In-stream Riparian Maintenance Template