

## PART 1: INTRODUCTION

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## 1.1 REFERENCED DOCUMENTS

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### Planning and Policy

- *Selwyn District Plan (District Plan)*  
[www.selwyn.govt.nz/services/planning](http://www.selwyn.govt.nz/services/planning)
- Resource Management Act (1991)
- Local Government Act (2002)
- New Zealand Building Code (1992)
- Selwyn District Council - *Long Term Plan – Selwyn Community Plan 2009-2019*  
[www.selwyn.govt.nz/council-info/selwyn-community-plan](http://www.selwyn.govt.nz/council-info/selwyn-community-plan)
- Greater Christchurch *Urban Development Strategy*  
[www.greaterchristchurch.org.nz/](http://www.greaterchristchurch.org.nz/)

### Design

- Christchurch City Council *Waterways, Wetlands and Drainage Guide, Ko Te Anga Whakaora mö Ngä Arawai Rēpo* (WWDG) (2003)
- Christchurch City Council *Design Guide Crime Prevention Through Environmental Design*  
[www.resources.ccc.govt.nz/files/CPTED-docs.pdf](http://www.resources.ccc.govt.nz/files/CPTED-docs.pdf)
- Christchurch City Council *Water Supply Wells, Pumping Station and Reservoir Design Specification*
- Transit New Zealand *Guidelines for Planting for Road Safety*
- TNZ M/19 *Specification for tubular steel lighting column*
- NZS 3910: 2003 *Conditions of contract for building and civil engineering construction*
- NZS 4404: 2004 *Land development and subdivision engineering*
- AS/NZS 1158 *Set Lighting for roads and public spaces*
- Selwyn District Design Guide for residential subdivision in the Urban Living zones  
[www.selwyn.govt.nz/services/planning/policy-strategy/design-guides/subdivision-design-guide](http://www.selwyn.govt.nz/services/planning/policy-strategy/design-guides/subdivision-design-guide)

### Construction

- Christchurch City Council *Civil Engineering Construction Standard Specifications Parts 1-7*  
<https://ccc.govt.nz/consents-and-licences/construction-requirements/construction-standard-specifications/>

Where a conflict exists between any Standard and the specific requirements outlined in the Engineering Code of Practice (COP), the COP takes preference (at the discretion of the Council).

## 1.2 INTRODUCTION

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Selwyn District Council's Engineering Code of Practice has been based on the *Christchurch City Council's Infrastructure Design Standard* by agreement with Christchurch City Council.

It is noted that there are many current territorial local authority standards, along with *NZS 4404*, *NZS Standards*, *AUSTROADS*, design guidelines etc. that provide much background information and are used by infrastructure designers. The decision to in the main adopt the CCC IDS was partly due to a desire to utilise an infrastructure standard that is currently being used and accepted by the engineering, survey and planning consultants within the local Christchurch and wider Canterbury area.

The *Christchurch City Council Infrastructure Design Standard* (IDS), which forms the basis of the Selwyn District Council Engineering Code of Practice, is a revision of the Christchurch Metropolitan Code of Urban Subdivision, which was written in 1987.

Since then the 1991 Resource Management Act has been introduced, which removed the control of subdivision from the Local Government Act. More importantly, the face of local government in Christchurch underwent major change in 1989 with local government amalgamation and the current code also no longer reflects Christchurch City Council's organisational structure.

Consultation by Christchurch City Council with the surveying profession in 2001 showed that the Metropolitan Code was still the principal document used in the design of subdivisional works. However, a large number of uncoordinated and informal amendments had started to erode the document's integrity. It did not relate to the many Council publications, both planning and engineering related, which were intended to directly impact on land and asset developments. Also the code was seen by many as failing to recognise technological advances in the construction industry.

A team, comprising designers from City Solutions and asset managers from the asset groups, at Christchurch City Council wrote each Part of the IDS. The teams perused current documentation, industry standards and codes from other local bodies. Each of the twelve parts can therefore be aligned with the relevant asset group but are particularly related to the type of infrastructure.

For the proposed Selwyn District Council Code of Practice in 2010 a team of asset managers and service delivery managers, team leaders and design engineers reviewed each part of the CCC IDS. New parts were added covering Water Races and Telemetry and a major rewrite of the Reserves, Streetscape and Open Spaces, Stormwater, Land Drainage and Lighting was completed. The remaining parts were amended with minor changes overall.

Consultation with practitioners was undertaken on the proposed COP with a review undertaken in June 2011.

## 1.3 DOCUMENT PURPOSE

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The purpose of this major revision of the Metropolitan Code by Christchurch City was to incorporate new structural changes in the way that the Council accepted assets and to update the technical engineering aspects of the Christchurch City Infrastructure Design Standard to current practice, including alignment with the Council's various planning and engineering related publications, such as the *Construction Standard Specifications*. The opportunity was

also taken to incorporate the application of quality assurance, to ensure that Council assets are well designed and constructed.

This Engineering Code of Practice (COP) is based on the *CCC Infrastructure Design Standard* (IDS), by agreement, and with the consent of Christchurch City Council.

Selwyn District Council has made amendments to the IDS to cover the different infrastructure within the district. Some of the changes reflect the smaller scale of urban settlement and the rural infrastructure in the district.

The parts of the COP are summarised below:

- Part 1: Introduction introduces the major changes and includes those definitions specific to the COP.
- Part 2: General Requirements covers a number of regulatory details and sets out the process from design to acceptance by the Council of land developments.
- Part 3: Quality Assurance is another new part, which sets out the requirements for the application of quality assurance to the construction of all assets. This has incorporated two major shifts: each project will require the implementation of a project quality system, with documentation and certification presented to the Council at both the design and construction stages; the traditional Council role of Clerk of Work-type inspections will be replaced with a structured audit-based system.
- Part 4: Geotechnical Requirements sets out the requirement for geotechnical input in land development and what must be considered by the geotechnical engineer. It emphasises the Council's desire to work with the landforms and preserve natural features. It also details issues to be considered under erosion, sediment and dust control.
- Part 5: Stormwater and Land Drainage builds on the *Waterways and Wetlands Drainage Guide*, which sits behind the COP as a supporting document. Part 5 provides more prescriptive design and compliance criteria than is found in the WWDG but reinforces the change of emphasis to include water quality and ecological protection.
- Part 6: Wastewater Drainage provides the design and compliance criteria for wastewater systems and has been modified to include modern materials. The requirements for private drains have been tied to the *New Zealand Building Code* and it references the two pumping station specifications.
- Part 7: Water Supply covers the design and compliance criteria of the water reticulation. It references the Water Supply Wells, Pumping Station and Reservoir Design Specification for larger infrastructure and has been updated for modern materials.
- Part 8: Roads and Transport sets out both the design and compliance criteria for the road layouts e.g. road classification and the roads themselves e.g. footpaths, construction depths. It incorporates the design and construction of roads using Austroads specifications.
- Part 9: Utilities covers the Council's compliance requirements for telephone, electricity and gas. It excludes the utility design itself, as this must be to the network operator's requirements.
- Part 10: Reserves, Streetscape and Open Spaces is a new section on landscaping and reserves, based on NZS 4404 and modified to suit the Selwyn District context. It sets criteria for reserves, including layout, facilities, structures and furniture. It also applies to landscaping in legal roads.

- Part 11: Lighting sets the Council's requirements in an environment in which private companies can carry out street lighting design and construction. It builds on AS/NZS 1158.
- Part 12: As-Builts sets the Council's requirements for as-built information on completion of the development.
- Part 13: Stock water races sets the Council's requirements for construction or alteration work on stock water races.
- Part 14: Telemetry sets the Council's requirements for installation and commissioning of telemetry control equipment.

## 1.4 DEFINITIONS

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The following definitions apply in the Engineering Code of Practice, unless inconsistent with the context. These definitions are additional to those definitions in the *District Plan*.

**Annulus** – gap between the original pipe and an inserted pipe.

**Arboriculture** – the management of individual trees or groups of trees primarily for their amenity value.

**Basic boundary fence** – treated timber post and three rail fence with vertical 1.8m timber palings.

**Canopy** - the branches and foliage of a tree out to the drip line.

**Check valve** – one way, no return valve.

**Corridor Access Request** – an application by an utility operator to carry out works in the transport Corridor.

**Designer** – the principal designer.

**Developer** – as defined in NZS 4404: 2004.

**Diameter** – all pipe diameters are nominal internal, unless specifically stated otherwise.

**Drainage** – as defined in NZS 4404: 2004.

**Drip line** – from one outer extremity of the canopy of a tree(s) to the other outer extremity of the canopy in a 360° aspect.

**Earthworks** – as defined in NZS 4404: 2004.

**Engineer** – equivalent to “Developer’s professional advisor” as defined in NZS 4404: 2004.

**Engineering Acceptance** - the written confirmation of the Council’s acceptance of the Design Report and design, including drawings, calculations, and specifications.

**Environment Canterbury** – Canterbury Regional Council

**Frangible (tree)** – as defined in *Transit Guidelines for Planting for Road Safety*, mature trees, not hardwoods, with a trunk diameter less than 100mm at 400mm above the ground.

**Frangible (street lighting column)** – as defined in TNZ M/19.

**Geotechnical Engineer** – as defined in NZS 4404: 2004.

**Hectare** - Ha

**Hydrogen sulphide** – H<sub>2</sub>S

**Living Zone**– as defined in *District Plan*

**Maximum operating pressure** – this is specified by the Engineer and is the maximum pressure the pipeline must sustain, including surge.

**Network Utility Operator** – as defined by s.166 of the *Resource Management Act 1991*.

**Owner** – as defined in *NZS 4404: 2004*.

**Private way** - as defined by s.315 of the *Local Government Act 1974*.

**Qualified arborist** –a person who is in possession of a recognised arboriculture degree, diploma or certificate, and on the job experience, is familiar with the equipment and hazards involved in arboriculture operations, has demonstrated proficiency in inspecting, analysing and treating hazardous trees and has demonstrated the ability to perform the tasks involved. A Certificate shall consist of a minimum of 240 credits of learning (i.e. Level 4).

**Qualified horticulturalist** –a person who is in possession of a recognised horticulture degree, diploma or certificate, and on the job experience, is familiar with the equipment, hazards and techniques involved in horticulture operations, and has demonstrated the ability to perform the tasks involved. A Certificate shall be a minimum of Level 3 i.e. the equivalent to one year full time study.

**Rated pressure** – this is specified by the manufacturer as the limit that the particular component can sustain in use.

**Residual pressure** – remaining pressure at a point under a particular demand.

**Reticulation** – a system of interlacing pipes, wires and other connections, constructed like a net, which feed out from a central supply to customers.

**Riparian** - of, inhabiting, or situated on the bank of a river.

**Street** - has the same meaning as “road” as defined by s. 315 of the *Local Government Act 1974*.

**Surface water** – as defined in *NZS 4404: 2004*.

**Test pressure** – this is the pressure the pipeline must sustain during the test.

**Utility** – as defined in the *District Plan* but excluding those utilities owned and operated by Selwyn District Council.

**Wastewater** – as defined in *NZS 4404: 2004*.

**Water hammer** – transient pressure surges, can be positive and negative pressure.

**Working pressure** – this is the typical pressure under which the pipeline will operate.

## 1.5 ABBREVIATIONS

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The following abbreviations apply in the Engineering Code of Practice. These abbreviations are additional to those abbreviations in *NZS 4404*.

**AADT** – Average annual daily traffic count

**AEP** - annual exceedence probability

**ASF** (l/s) – average wastewater flow is the daily average flow from domestic, industrial and commercial sources, excluding infiltration and surface entry, as determined in clause 6.4 – Sanitary Sewer Design Flows (Wastewater Drainage).

**CAR** – Corridor Access Request

**COP** – Engineering Code of Practice

**CPTED** - Christchurch City Council Design Guide *Crime Prevention Through Environmental Design*

**CSS** – Christchurch City Council *Construction Standard Specifications*

**GPS** – global positioning system

**IDS** – *Infrastructure Design Standards*

**ISO** – International Standards Organisation

**LTP** – Selwyn District Council *Long-Term Council Community Plan*

**MF** (l/s) – maximum flow is the instantaneous design total peak

**NUO** – Network Utility Operator

**NZTA** – **NZ Transport Agency (formerly Transit NZ, Land Transport Agency)**

**OD** – outside diameter

**P/A ratio** – peak to average ratio PSF/ASF

**PE 80B** – Polyethylene type 80B

**PE 100** – Polyethylene type 100

**PN** – Pressure nominal

**PSF** (l/s) - peak wastewater flow

**PVC-o** – Oriented Poly Vinyl Chloride

**RAMM** – *Road Asset and Maintenance Management* (database)

**RMA** – *Resource Management Act*

**RON** – road opening notification

**SCADA** – Supervisory, Control and Data Acquisition

**SN** – Stiffness number

**SPF** – Storm peak factor

**STMS** – Site Traffic Management Supervisor

**TNZ** – Transit New Zealand

**WWDG** – *Waterways, Wetlands and Drainage Guide*