

CENTRAL OTAGO DISTRICT COUNCIL

Addendum to NZS 4404:2004

The following amendments shall be applied to NZS 4404:2004 as Central Otago District Council's adopted standard for Land Development and Subdivision Engineering.

JULY 2008

FOREWORD

NZS 4404: 2004 New Zealand Engineering and Subdivision Standards Central Otago District Council - ADDENDUM 2008

This standard is a revision of NZS 4404:2004 Central Otago District Council Addendum adopted by Council in 2005. It has been implemented as an appropriate standard for land development and subdivision engineering.

Adoption of NZS 4404: 2004 and the Addendum offers a convenient way of providing good practice guidelines and is a means of compliance for various infrastructure components. It has been updated where improved specific detail can be applied and where new or additional quality measures should be implemented. This will also help secure the integrity of infrastructure to be vested in Council ownership, assist fulfillment of future land owners expectations and keep up to date with the latest technological advances. Acceptable alternative solutions will be considered for approval by Council where compliance can be achieved, and is supported by design or construction methodology acceptable to Council.

There are a number of referenced standards and documents in NZS 4404:2004 relating to construction standards, handbooks and legislation. In addition to the national standards there are also specific council regulations that have been adopted as either bylaws or policies. The addendum (2008) should also be read in conjunction with other council adopted and draft bylaws and policies including (but not limited to):

- CODC Policy - Development & Financial Contributions
- CODC Policy – Road Name Designation
- CODC Policy – Naming of a Public Road for the First Time
- CODC Policy – Vehicle Crossings
- CODC Bylaw – Wastewater Drainage (draft)
- CODC Bylaw – Water Supply
- CODC – Walking & Cycling Strategy

- As Built Plan Specification Requirements

- NZ Drinking Water Standards (most recent version)
- NZ Fire Service
- NZ Design for Access and Mobility NZS4121:2001
- AS/NZS Road Lighting 1158

- Crime Prevention through Environmental Design (CPTED)
- SNZ Handbook 44:2001 Subdivision for People and the Environment

- Transit New Zealand – NZ Supplement to AUSTRROADS Guide to Traffic Engineering Practice Part 14: Bicycles

These documents may be updated from time to time and the most recent version available shall be operational under this addendum.

PART 1: GENERAL REQUIREMENTS AND PROCEDURES

1.4. Requirements for Design and Construction.

Add to Clause:

Investigations shall be carried out, by the Developer or Agent, to ascertain the possibility that a School Bus Pull In area may be required as a result of the proposed development.

Where proposed roads and rights of way are to remain privately owned the Developer shall ensure that sufficient hardstand and pullover area will be provided on the publicly owned (or proposed publicly owned) road to allow:

- a) collection of refuse and;
- b) delivery of mail.

1.5.2.4(e) Content of Drawings.

Add to Clause:

All pipe diameters to be identified as either ID (Internal Diameter) or ED (External Diameter)

1.5.2.5 Recording of Work – as-built information.

Add to Clause:

As built information to be in Council's approved format current at the time of request for 224c sign off.

The Schedule of Costs shall include costs for individual water and wastewater connections

1.5.4.1 Approval of Design

Add to Clause:

It shall remain the responsibility of the Developer to ensure that Regional Council specific requirements are included/noted in the final engineering plans. Council can approve plans based on the standards current at the time; this approval does not absolve developers from consultation with the relevant Regional Councils.

Council may request confirmation from the Developer/Agent that the Regional Council approves the proposals without the necessity of Resource Consent.

1.5.4.2 Approval before commencing work.

Add to Clause:

An approved Road Opening Notice shall be obtained from Council prior to commencement of any works affecting Council roads. Council has a list of Contractors who have a record of consistently producing works up to Council Standards. For further information please contact the Roading Services Officer on 03 440 0056. The application for the Road Opening Notice shall be made in the format shown in Appendix 9 of the Addendum.

1.5.7.1 Connecting to Existing Services

Add to Clause:

An application to connect to existing Utilities must be made by the developer and approval issued by the Council prior to any connections being made.

Council has an Approved Contractors list which includes Contractors that are familiar with Council's requirements and standards.

A Utilities Service Connection form can be obtained from Council Service Centres.

Engineering Approval for subdivision works does not imply approval for connection to Council services.

1.5.9 Maintenance.

Delete Clause and Replace with:

The Developer is responsible for defects for a period of 1 year (12 months) from issue of 224c Certification and until Council accepts liability for the asset. Reserves assets have a defects liability period of 18 months.

Add to Clause:

Council will accept responsibility for all operation costs from issue of 224c Certification.

1.5.10 Contract Documentation

Add to Clause:

A Works Completion Notice shall be submitted to Council on completion of all works affecting Council roads. The Works Completion Notice shall be submitted in the format shown in Appendix 10 of the Addendum.

1.7 Works Maintenance Notice

Add to Clause:

A Works Maintenance Notice shall be submitted to Council on completion of the 52 weeks Defects Liability Period covering all works affecting Council roads. The Works Maintenance Notice shall be submitted in the format shown in Appendix 10 of the Addendum.

Any works noted as unsatisfactory shall be rectified by the Applicant prior to certification of the maintenance by Council.

PART 3 – ROADS

Table 3.1 – Delete table and replace with:

Table 3.1 Road Design Standards – Urban (speed limit ≤ 70 km/h)

Class	Type	Area Served	Traffic Volumes ADT (1)	Design Speed, (km/h)		Road Reserve width (m)	Minimum Sealed Carriageway Width (m)			Footpath (m)	Berm (m)	Max/min gradient	Normal camber	Max super-elevation	Notes
				Flat or rolling	Hilly		Parking (2)	Traffic	Cycles (3)						
	Right of way	1 lot	NA	NA	NA	4.0 (4)	1 x 3.0	-	3.0 (4)	-	2 x 0.5	20% max 0.4% min	4%	NA	Not public street (4)
	Right of way	2-4	NA	NA	NA	6.0 (4)	1 x 4.0	-	4.0 (4)	-	2 x 1.0	16% max 0.4% min	4%	NA	Not public street (4)
	Cul de Sac	Up to 20 du	NA	NA	NA	12.0	1 x 2.5	1 x 3.5	6.0	1 x 1.5	2.0 + 2.5	12.5% max 0.4% min	4%	6%	No stopping on one side (5)
Local Roads	Residential	21-150 du	Up to 750	30	30	20.0	1 x 2.5	2 x 3.0	8.5	2 x 1.5	2 x 4.25	12.5% max 0.4% min	4%	6%	No stopping on one side (6)
	Industrial	Up to 20 units	<300	30	30	20.0	1 x 2.5	2 x 3.5	9.5	1 x 1.5	2 x 4.5	10% max 0.4% min	4%	6%	No stopping on one side (6)
Collector Roads	Industrial/ Commercial lane	-	NA	NA	NA	8.0	-	2 x 3.5	7.0	-	2 x 0.5	10% max 0.4% min	4%	NA	(7)
	Commercial (Park precinct)	-	<2000	30	30	(7)	(7)	2 x 3.5	7.0	2 x 3.0	-	10% max 0.4% min	4%	NA	(7)
	Residential	150 – 450 du	750 - 3000	50	40	20.0	2 x 2.5	2 x 3.5	14.0	2 x 1.5	2 x 1.5	10% max 0.4% min	4%	8%	(7)
	Industrial/ Commercial	>20 units	>300	50	40	20.0	2 x 2.5	2 x 3.5	14.0	2 x 1.5	2 x 1.5	10% max 0.4% min	4%	6%	(7)

NOTE

- (1) du = dwelling units, ADT = average daily traffic
- (2) Parking lane width allows for limited cycle space
- (3) Where the TA gives approval to remove cycle lanes each traffic lane shall be increased to 4.0m
- (4) Where a private way adjoins a collector road, it shall have a 5m traffic width and 6m road reserve width for a minimum of 6m from road boundary
- (5) Parking bays set into berm footpath zones
- (6) No parking both sides
- (7) Width dictated by parking provisions. Parking shall be provided on both sides of street and maximized taking into account traffic considerations
- (8) No constructed carriageway is required for 'Leg-In'.

Table 3.2 (a) – Delete table and replace with:

Table 3.2(a) Road Standards – Rural

Type of Road	Topography	Traffic (ADT) or Number Lots	Number of Traffic Lanes	Carriageway Width (m)	Shoulder Width (m)	Design Speed (kph)	Maximum Longitudinal Grade	Minimum Road Reserve Width (m)	Type of Surface
Collector	Flat	> 500	2	7.0	0.25 metal	100	4%	20	Seal
	Rolling		2	7.0		100	6%	20	Seal
	Mountainous		2	7.0		70	10%	20	Seal
Local Sealed	Flat	300-500	2	6.5	0.25 metal	100	4%	20	Seal
	Rolling		2	6.5		90	6%	20	Seal
	Mountainous		2	6.5		60	10%	20	Seal
	Flat	150-300 > 15 lots	2	6.0	0.25 metal	100	4%	20	Seal
	Rolling		2	6.0		80	6%	20	Seal
	Mountainous		2	6.0		50	10%	20	Seal
Local Gravelled	Flat	<150 ≤ 15 lots	2	6.0	Nil	80	Flat	15	Gravel
	Rolling		2	6.0		70	6.5%	20	Gravel
	Mountainous		2	6.0		50	10%	20	Gravel
Local Access A	Flat	50-150	2	5.5	Nil	70	Flat	15	Gravel
	Rolling		2	5.5		50	10%	20	Gravel
	Mountainous		2	5.5		30	12.5%	20	Gravel
Local Access B	Flat	< 50	1	4.5	Nil	70	Flat	15	Gravel
	Rolling		1	4.5		50	10%	20	Gravel
	Mountainous		1+	4.5+		30	12.5%	20	Gravel
Right of Way	Flat	< 6 lots	1	4.5	Nil	20	8%	10	Gravel
	Rolling		1	4.5		20	12.5%	10	Gravel
	Mountainous		1+	4.5+		20	16.7%	10	Seal

NOTES

- (1) Roads with ADT exceeding 2,500 require specific design.
- (2) All roads that provide access to more than 6 potential lots shall vest in the Council as legal road.
- (3) Flat topography includes level or gently rolling country which offers few obstacles to the construction of a road. Rolling topography is rolling, hilly or foothill country where the slopes generally rise and fall moderately gently with occasional steep slopes. Mountainous topography includes rugged hilly and mountainous country and river gorges. Often involves long, steep grades and limited sight distances. Passing bays to be provided in mountainous terrain for Access B and ROW's.
- (4) Normal camber of 4% on sealed roads and 5-8% on gravel roads.
- (5) All unsealed local roads to be constructed in accordance with Council's Standards for Gravel Roads for inclusion in Central Otago District Council Roading Hierarchy – November 2000 or superseding documents.
- (6) Widening of carriageway shall be in accordance with Austroads Guide to Geometric Design of Rural Roads

PART 3: Roads

3.3.2.1 Design Parameters.

Add new Clause:

The assessment of traffic loading shall be on the basis of full development to the extent defined in the current district plan. Where a road services adjacent land then the full development to the extent defined in the district plan of all the land services by the road shall be included in the assessed traffic loading.

The assessment of residential traffic loading shall be on the basis of eight vehicle movements per Residential unit per day.

Where new roads being installed are required by Council to service adjacent future development as part of the future Council network then those roads will be designed and constructed on the basis of full development to the extent identified in the current district plan.

Either: The cost of increased road construction to service adjacent future development will be apportioned between the applicant and the Council and agreed with Council prior to construction.

Or: The cost of increased road construction to service adjacent future development will be apportioned between all the applicants and agreed with Council prior to construction.

3.3.3.1 CBR design method for rigid and flexible pavements. .

Add to Clause:

Soaked CBR (California Bearing Ratio) values of the pavement subgrade shall be used and the pavement designed for the estimated number of EDA (Equivalent Design Axle) loadings over a 25 year design life. Where applicable the assessment of EDA shall include a growth rate of 6% per annum for any existing traffic loading.

3.3.3.2 CBR Tests

Replace:

CBR Values shall generally be determined in the laboratory according to section1 of Part 6 NZS 4402

With:

CBR Values shall be determined by an IANZ (International Accreditation New Zealand) accredited laboratory. Details of CBR values determined, together with certification by the accredited laboratory shall be submitted for approval by Council prior to the issue of a certificate in accordance with 224(c) of the Resource Management Act.

3.3.4 Side Protection.

Delete and Replace with:

Where roads, private ways or other vehicular or pedestrian access, whether public or private, run parallel with land which drops away to a height of greater than 1.0m at an angle of greater than 45 degrees within 2.0m of the edge of the road or footpath, the side shall be provided with safety barriers and appropriate End Treatments to protect pedestrian and vehicular traffic. The design of these barriers meant for vehicular protection shall be in accordance with the requirements of Transit New Zealand TNZ M/17P and TNZ M23 as appropriate.

Safety barriers for pedestrian access shall comply with the design requirements of the Approval Document D1 of the NZBC (New Zealand Building Code)

A Producer Statement, from an appropriately qualified person, confirming the fitness and appropriateness of the designs shall be included as part of the 224c documentation from the developer.

3.3.12.1 Urban

Amend Dimension

Footpath width to roadMinimum of 1.5m wide...

3.3.13 Traffic services, signage and road furniture.

Add:

The Developer shall submit to Council 3 names for each proposed new road. This shall apply to all roads that are to be part of Council's hierarchy and all roads that are to remain privately owned.

Where no new roads are being created the developer shall complete an application for a rapid Number to be provided for Council's approval.

Figure 3.8 Footpath Construction – typical sections.

Amendments

Footpath width dimension to read 1500

Asphalt footpath - Timber edging to be 75 x 40 ground penetration treated timber

- Pavement to be 25mm M10 asphaltic concrete on 100mm compacted depth 40mm basecourse over minimum CBR 7 subgrade

3.3.15 Road Lighting

Add:

The lighting standard used for rural/residential ("P" Standard) cluster style developments reflects a lower standard of lighting that mitigates potential for glare to surrounding areas and unnecessary lighting of the night sky. This may not meet the New Zealand standards but gives pedestrians some guidance for walking at night and also gives some benefit to road users.

Road intersections off collector roads require mandatory flag lights to be installed.

The installation of on/off controls for street light circuits in "one off" or rural situations may be considered an acceptable solution, subject to application for approval at the time of Engineering Approval.

At the time of subdivision the land owner will be required to meet all power supply charges for lived street lights until final 224 certificate is issued.

3.3.16 Bridges and Culverts

Add to Clause:

(f) Culvert Dimensions

A minimum diameter of 375mm shall be used for culverts passing under legal roads.

3.3.17 Non Public Accesses (Urban and Rural)

Add to Clause:

All new and upgraded accesses are to be constructed in accordance the Council's Vehicle Crossings Policy current at the time of construction.

3.3.18 Multi-unit non public accesses (urban and rural).

(g) **Delete** second sentence in its entirety.

(i) **Add** to sub clause: Connection to the kerb and channel (only where prior agreement has been reached with Council) is to be by an approved 100mm x 50mm adaptor.

3.3.19.1 Crossings – Urban

Amend 3rd Paragraph.

Add new first paragraph:

Vehicle Crossings shall be installed in accordance with Councils Vehicle Crossings Policy document. Crossings with commercial and industrial uses shall be specifically designed and the depth increased/reinforcing provided to satisfy the design requirement.

Add:

Where existing roads are upgraded as a result of development, all existing legal accesses off the length of road to be upgraded, shall be brought up to the

new standard. This may include the inclusion of new culverts and sealing up to the property boundary.

3.3.19.2 Crossings – Rural

3rd paragraph - **Delete** '300mm diameter' and substitute 250mm diameter

3rd paragraph - **Add** Culvert end protection shall be provided by installing reinforced concrete headwalls as follows: Collector Roads require headwall end slope of 6:1 and all other roads require end slope of 3:1

Add to Clause: – Crossings shall be in accordance with Section 12.7 of the Central Otago District Plan - Operative 2008.

Add:

Where existing roads are upgraded as a result of development, all existing legal accesses off the length of road to be upgraded, shall be bought up to the new standard. This may include the inclusion of new culverts and or sealing up to the property boundary.

Figure 3.10 Standard Light duty Vehicle Crossing Detail.

Delete '110mm' and substitute 150mm concrete for pavement thickness

Delete 2800mm width and refer to Councils Vehicle Crossings Policy for cutdown width of crossings.

3.3.21.4 Kerbs and channels.

Add after 1st paragraph.

Mountable kerb shall only be used on streets where adjoining footpath is strengthened to accommodate vehicle loading. The minimum design for footpath in such cases shall be as for vehicle entrances under Councils Vehicle Crossings Policy document.

3.3.21.5 Sumps

Delete Clause and Replace with:

Sumps (mudtanks) used in all public places shall provide for capped Y junctions in accordance with Appendix 1 of the Addendum.

Yard sumps (Figure 3.13) may be used for small areas of accesway.

All sumps located in full profile kerbing shall be precast back entry type.

Double back entry sumps (Figure 3.19) shall be used at all road low points.

The invert level of all sumps shall be a minimum of 300mm below the outlet pipe invert level.

3.4.2.2 Materials for Flexible Pavements – Sub-base.

Delete Clause and Replace with:

Sub base course may be crushed or uncrushed but shall comply with the requirements of TNZ M/4 in all respects except for proportion of broken faces and grading. Sand equivalent shall be in excess of 40.

The grading shall be as follows:

Grading Limits	% Passing by Weight
65mm	100
37.5mm	60-85
19.0mm	45-65
9.5mm	30-50
4.75mm	20-40
2.36mm	10-25
1.19mm	8-20
0.75mm	0-5

3.4.2.3 Materials for Flexible Pavements – Basecourse

Delete Clause: and Replace with:

The thickness of the basecourse layer when used with other metal aggregate layers shall be not less than 100mm.

All basecourse shall be TNZ M/4 AP40 specification metal.

3.4.3 - Materials for Flexible Pavements – Road Surfacing

Add to Table 3.7:

Facility	Minimum Surfacing
Accessways steeper than 1 in 8	Segmental concrete pavers, concrete, 30mm asphaltic concrete
Industrial/Commercial street intersections	Segmental concrete pavers, concrete, 30mm asphaltic concrete

3.4.4.1 Road Surfacing Materials – First and Second Coat Chip Seals.

Delete Clause.

3.4.4.2 Road Surfacing Materials – Double Wet Lock Coat

Delete Clause: and Replace with:

First and second coat seals shall be constructed in one operation with asphaltic cutback to NZS M/1 and P/3 specifications.

The binder application rate for the seal shall be designed to suit the conditions and chip size.

The first coat shall be grade 3 and the second coat a grade 5 chip surfacing.

Sealing record sheets shall be supplied to Council demonstrating compliance with the specification requirements prior to the issuing of final compliance.

3.4.7 Road Surfacing Materials – Sub-base.

Amend 2nd Paragraph:

Sub-base material shall be placed in layers thin enough to ensure requisite compaction and CBR standards are achieved. Sub-base shall be compacted to not less than 95% Relative Compaction.

3.4.8 Road surfacing Materials – Basecourse.

Amend 1st Paragraph:

Basecourse shall be placed in layers not exceeding 150mm. It shall be placed and compacted in terms of TNZ Specification B/2 and shall be compacted to not less than 98% Relative Compaction.

3.4.17 Road surface Tolerances and Texture

Add 2nd Paragraph

The finished surface of all roads shall have a mean NAASRA roughness value not exceeding 60. No individual reading shall exceed 70 except at traffic calming devices, seal joints or cattle stops.

3.4.21 As-Built and Completion Documentation.

Add to Clause:

Subgrade CBR tests results, pavement metal compliance, Benkelman Beam and sealing records shall be provided by the Developer prior to Section 224 c approval.

3.4.21.1 RAMMS Information

Add New Clause:

The Developer shall provide RAMMS inventory data for all roading to be vested in Council. The data shall be prepared in electronic format on standard inventory sheets by an approved RAMMS Inventory provider.

PART 4: STORMWATER

4.2.4 General – Catchment Management Planning.

Add to Clause:

All stormwater mains shall be designed and constructed at the Developers expense to accommodate maximum density of development allowable under the District Plan zoning applicable to the site. The design shall be such that the whole catchment upstream of the subdivision can be accommodated and should also ensure that the downstream effects have also been considered.

The stormwater system must be designed to accommodate at least a 1 in 10 year storm.

The Developer will be required to demonstrate that stormwater cannot be disposed of on-site prior to any consideration being given for connection to Councils trunk system. Exceptions to this standard may apply to Groundwater Protection Zones identified in Alexandra and Cromwell (Appendix 11 & 12) and where roading reticulation or commercial building site coverages may be an issue.

The Developer will be required to demonstrate that Councils trunk system has the capacity to accommodate the demands of the development at the point of connection and with an agreed acceptable deliverance for level of service

The cost of any increased pipe size deemed necessary by Council to accommodate adjacent future development will be negotiated and cost shared between the Developer and Council. The Developer is to provide estimated costs to Council for acceptance prior to Engineering Approval being granted.

4.3.3.3 Building over pipelines.

Delete Clause: and Replace with:

No structure shall be constructed over any stormwater drain nor shall any structure foundation be located within a line extending at 45 degrees from the pipe invert to the ground surface without specific approval from Council.

Council will only consider approval to construct a structure over a stormwater drain if all of the following conditions are met:

- Alternative options are demonstrated not to be feasible
- A manhole is located at each end of the building
- The pipe is located on a straight horizontal and vertical alignment between manholes
- There are no junction points under the building
- There is provision for concrete surround for concrete pipes and conduit for flexible pipes

- The existing pipeline is checked by closed circuit television before work commences and the condition is approved by Council
- A memorandum of encumbrance is drawn up at the Applicants expense indemnifying Council against any claims for damage relating to the presence of the stormwater drain.

4.3.3.6 Minimum cover.

Add to Clause:

The minimum cover to pipes shall be:

- 1000mm under carriageway and entranceways
- 600mm all other areas

Sump connections with less than 500mm cover shall require protective concrete surrounds.

4.3.3.15 Pipe size.

Add new Clause:

Reduction in pipe size in the downstream direction will not be permitted unless cleaning chambers and overflow provisions to an overland flowpath are provided at the construction point or suitable inlet protection grating is provided to prevent the ingress of debris, to the approval of the Council's Engineer.

4.3.4.1 Manholes – Standard manholes.

Amendment:

Delete last paragraph and substitute Manholes shall comply with Appendix 3 of the Addendum.

4.3.4.2 Manhole Materials.

Add to Clause:

The letter 'S' shall be cast onto the manhole cover to denote the stormwater service.

4.3.4.3 Size of manholes.

Last paragraph to be deleted and substitute:

The base layout of MH's shall comply with 5.3.6.4 of this standard and Appendix 3 of the Addendum.

4.3.4.6 Access

Delete Clause and replace with:

Manhole steps shall be fixed in accordance with manufacturers requirements and comply with Appendix 3 of the Addendum.

4.3.7.1 Connection to the public system.

Add to Clause: (b):

Individual service laterals adjoining kerb and channel (where permitted after prior consultation with Council) shall be constructed between the street boundary and kerb using 100mm x 50mm galvanised steel RHS tubing.

4.3.7.1 (k). Individual lots and developments.

Add new Clause:

Connection to kerb adaptors in kerb and channel will not be permitted in new developments without prior approval from Council

4.3.8.2 Soak pits.

Add to Clause:

A standard 'Cauldwell' type soakpit in accordance with Appendix 2 of the Addendum shall be required for each separate sump. Specific approval from Council will be required for any variance from the standard design.

Silt traps shall be installed in the stormwater system prior to discharge to any soakpit.

4.3.9 Easements.

Add to Clause:

Easements with a minimum width of 3.0 metres shall be provided for services to be vested in Council and located through private property.

4.4.3 Trenching and 4.4.4 Reinstatement.

Add to Clauses:

All excavation, bedding and reinstatement shall be undertaken in accordance with Appendix 4 of the Addendum

4.4.4 Reinstatement.

Amendment:

Delete second sentence and replace with:

Parties affected by the works shall give written approval of their satisfaction with the reinstatement works.

Add new clause:

Groundwater protection zones have been identified in Alexandra and Cromwell townships. Discharge of stormwater to ground within these areas is restricted and subject to Council approval. (Refer appendices)

PART 5: WASTEWATER

5.3.1.2 Catchment design.

Add to Clause:

All wastewater mains shall be designed and constructed at the Developers expense to accommodate maximum density of development allowable under the District Plan zoning applicable to the site.

The Developer will be required to demonstrate that Councils trunk system has the capacity to accommodate the demands of the development at the point of connection.

The cost of any increased pipe size deemed necessary by Council to accommodate adjacent future development will be negotiated and cost shared between the Developer and Council. The Developer is to provide estimated costs to Council for acceptance prior to Engineering Approval being granted.

5.3.1.3. Extent of Works.

Add to Clause:

Wastewater mains greater than 150mm dia shall end with either a manhole, terminal maintenance shaft, or a maintenance shaft – MH, TMS, MS

5.3.2 Design of the Wastewater System.

5.3.2.1 Add new clause:

Wastewater plastic / polyethylene pipework to be coloured black.

5.3.2.2 Scheme layout.

Add to Clause:

The location of wastewater mains and reticulation within private property is not desirable. The scheme design shall provide for all mains, reticulation and ancillary structures to be located within public roads and reserves wherever practicable.

5.3.3.2 Clearance from structures.

Delete Clause: and Replace with:

No building shall be constructed over any wastewater drain nor shall any structure foundation be located within a line extending at 45 degrees from the pipe invert to the ground surface without specific approval from Council.

Council will only give approval to construct a structure over a wastewater drain if all of the following conditions are met:

- Alternative options are demonstrated not to be feasible
- A manhole is located at each end of the structure

- The pipe is located on a straight horizontal and vertical alignment between manholes
- There are no junction points under the structure.
- There is provision for concrete surround for concrete pipes and conduit for flexible pipes
- The existing pipeline is checked by closed circuit television before work commences and the condition is approved by Council
- A memorandum of encumbrance is drawn up at the Applicants expense indemnifying Council against any claims for damage relating to the presence of the wastewater drain.

5.3.5.7 Minimum cover.

Add to Clause:

The minimum cover to pipes shall be:

- 1000mm for carriageways and accessways
- 600mm for all other areas

Notwithstanding the above, the depth of pipes must be such that gravity connections can be achieved from all potential building locations within allotments.

5.3.6.4 Manholes.

Insert new Clause:

Manholes shall be provided in accordance with Appendix 3 of the Addendum. The letter 'F' shall be cast onto the manhole cover to denote the foul sewer service.

5.3.6.4.6 Access.

Add to Clause:

Manhole steps shall be fixed in accordance with manufacturers requirements and comply with Appendix 3 of the Addendum.

5.3.9 Connections.

Add to Clause:

All connections shall be provided with a cleaning eye at the property boundary in accordance with Appendix 5 of the Addendum.

5.3.9.3 Number of connections.

Add to Clause:

Where common drains are approved by Council, these drains shall be retained in private ownership and a formal notice stating the ongoing ownership and maintenance responsibilities shall be placed on each property file affected by the common drain. The formal agreement of existing property owners (for infill situations) shall also be required to be added to the affected property files.

5.3.10 Pumping Stations and pressure mains.

Delete Clause: and Replace with:

Pump stations to service a new subdivision will be permitted only where there is a prior agreement with Council for need and positioning.

Where pump stations and pressure mains are required to service a development they shall be designed and installed to the following standards:

- a) all materials shall be acceptable to Council and plant, electrics and alarms shall be compatible with Councils operating systems
- b) the pump chamber shall be underground and have lockable aluminium lids
- c) there shall be a minimum of two pumps in all pump stations
- d) pumps, along with a minimum of one standby pump, shall be of reputable make approved by Council and of a 3 phase submersible type designed to take the full flow and be capable of passing a 75mm diameter solid
- e) pumps shall be capable of operation by automatic and manual control with one pump on duty while the other is on standby
- f) pump chambers shall have a single inlet pipe unless approved otherwise by Council
- g) valve chambers shall be below ground immediately adjacent to the pump chamber. Provision shall be made to bypass the pumps in case of breakdown. Non return valves shall be full bore opening ball valves. Valve chambers shall have lockable aluminium lids requiring a single lock only.
- h) pump stations shall be designed to accommodate peak flows as detailed in Clause: 5.3.5.1
- i) the setting of start and stop levels in the pump chamber shall be such as to limit pump starts to no more than ten per hour
- j) emergency storage shall be provided with capacity to accommodate 24 hours of average dry weather flow. Storage must be located at such a level as to prevent overflow from any manhole, gully trap, pump station lid or any other outlet from the system.
- k) a 25mm diameter water supply fitted with appropriate, serviceable, backflow prevention device, enclosed in a secure wash down enclosure integral with the Control Panel shall be provided to the immediate proximity of the pump station. This shall include appropriate protection against freezing.
- l) an all weather vehicular access shall be provided to the pump station from the adjacent road. Surface stormwater runoff shall be directed away from the pump station.
- m) the pump station shall be fenced at the developers cost if required by Council
- n) the power supply to the pump station shall be underground
- o) the electrical control cabinet shall be above ground level, of appropriate durable, weatherproof design and coloured to Councils satisfaction. The cabinet shall be sized to accommodate a telemetry monitoring system (Kingfisher or similar approved system).
- p) **Remove and replace with:** Telemetry must be installed by Council's nominated contractor – Switchbuild, to ensure compliance with Council's

system (Kingfisher). Exact use of required Input/Output to be determined in consultation with Council.

- q) a probe type level control system shall be installed
- r) a supplementary water supply controlled by timer/solenoid to provide at least 24 hour cycling of pump chamber contents shall be installed
- s) a standard plug shall be provided for the connection of a mobile generator.
- t) Operations and Maintenance Manual to include 3 copies of data which must include (but not limited to) the following information:

- System Design Plans/Data etc.
- All Manufacturers Documentation.
- As-Built Plans.
- Maintenance Schedules – This should include a summary of the maintenance requirements of the equipment supplied rather than referring to other manuals. This shall be broken down into Weekly, Monthly and Annual maintenance tasks.
- Warranties.
- Design Specification:
 - Hours.
 - Flows.
 - Pressures.
- Electrical Control Plans.
- Control Philosophy – including an outline of the duty/standby operation and alarm functions. The level set points – stop/start/alarm for each pump.
- Communication Notes.
- Certificates:
 - Electricity Supply
 - Backflow Prevention Devices.
- Serial Numbers.
- Waterproof Plugs on power supplies to allow ease of disconnection/removal.
- Stainless Steel Lifting chains.
- Test flow results and commissioning notes
- Documentation about the backflow prevention, trace heating, siphon breaker and autodialer.
- An Index.

- u) The O & M Manual shall be reviewed and signed off by the Developers Infrastructure Design Engineer.

Council agrees to take over the operation (providing the Pumping Station complies with Standards and Addendum) of the Pumping Station at 224c Certification. A meeting shall be arranged to 'hand over' the keys at that time.

5.4 Construction.

Add to Clause:

All construction shall be undertaken under the direct control of a registered drainlayer.

All Wastewater mains, intended to be vested in Council, (at the discretion of Council) shall have a CCTV survey carried at the completion of construction in accordance with the 3rd Edition of NZ pipe inspection manual and all defects identified shall be rectified at the developer's expense.

A complete summary of CCTV results shall be forwarded with as-built documentation.

All excavation, bedding and reinstatement shall be undertaken in accordance with Appendix 4 of the Addendum

5.5 On Site Disposal

Add new Clause:

In areas where on site wastewater disposal is an acceptable option (e.g. Clyde and rural subdivisions), the following process shall be required:

- a) The Developer shall provide a detailed report from a suitably experienced professional to verify that wastewater disposal from all residential allotments within the subdivision can be achieved in compliance with AS/NZS 1547:2000 prior to engineering approval. A peer review of the report may be required at Councils discretion.
- b) At the time of construction of a building requiring wastewater disposal on each allotment, an on site wastewater disposal system that complies with the requirements of AS/NZS 1547:2000 shall be designed by a suitably qualified professional and submitted to Council with the Design Producer Statement.
- c) The designer shall supervise the construction of the system and shall provide a Construction Producer Statement to Council.
- d) An Operation and Maintenance Manual shall be provided to the owner of the system by the designer and a copy supplied to Council. The manual shall include a maintenance schedule and as built plan of the system dimensioned in relation to legal property boundaries. A Code of Compliance certificate shall not be issued until the Construction Producer Statement and Operation and Maintenance manual have been provided to Council.
- e) The owners Operation and Maintenance manual shall be transferred to each subsequent owner of the system.

The Developer shall provide Council with an appropriate notice detailing the requirements under b) – e) above which shall be recorded by Council on the relevant property files.

PART 6: WATER SUPPLY

6.2.1 Connections.

Add New Clause:

Every new water connection shall be made via an application form available from all Central Otago District Council offices.

No connection may be made until the applicant has received confirmation from Central Otago District council that work may begin.

Central Otago District Council has the discretion to approve or not to approve any application for a water supply connection.

Applicants are encouraged to use Contractors that are on Council's Approved Contractor List. Copies are available from all Central Otago District Council offices.

Any re-used laterals are required to be pressure and flow tested to achieve 350 kPa @ 25 l/min minimum. Confirmation of satisfactory test results to be included with 224c documentation.

6.3.4 Future system expansion.

Add to Clause:

All water mains shall be designed and constructed at the Developers expense to accommodate maximum density of development allowable under the District Plan zoning applicable to the site.

The Developer will be required to demonstrate that Councils trunk system has the capacity to accommodate the demands of the development at the point of connection.

The cost of any increased pipe size deemed necessary by Council to accommodate adjacent future development will be negotiated and cost shared between the Developer and Council. The Developer is to provide estimated costs to Council for acceptance prior to Engineering Approval being granted.

6.3.6 Design responsibilities.

Add new Clause:

The Developer will be required to demonstrate that Councils trunk system has the capacity to accommodate the demands of the development at the point of connection. This may be by means of an approved water model/network analysis.

Pipeline materials shall comply with Councils Schedule of Approved Fittings and Materials, Appendix 8 attached to the Addendum.

6.3.6.2 The designer.

Add new Clause:

For each individual customer there shall only be one Point of Supply, unless otherwise approved by refer to Council's Water Supply Bylaw where possible.

6.3.7.2.1 Sizing of Mains

Add to Clause:

Pipe diameters to be clearly shown as either OD or ID sizing.

6.3.9.6.1 Design pressure.

Add to Clause:

The maximum design pressure shall not exceed 800 kPa

6.3.9.8.2 Minimum allowable operating pressure.

Add to Clause:

The minimum operating pressure shall be not less than 300 kPa

6.3.10.1 Layout of water mains – general.

Add to Clause:

The location of water mains and reticulation within private property is not desirable. The scheme design shall provide for all mains, reticulation and ancillary structures to be located within public roads and reserves wherever practicable.

6.3.10.2 Mains layout.

Add to Clause:

Where practicable water mains shall be laid in the road berm outside of the carriageway and any associated drainage features.

6.3.10.3 Water mains in easements.

Add to Clause:

Watermains to be vested in Council and laid within private property shall have an easement created of minimum 3.0 metre width.

6.3.10.9. Contaminated Sites

Add to Clause:

A soil report confirming the absence of contaminants must be supplied by the developer, where the site has a history of intensive chemical application i.e. Orchards, Garages etc.

6.3.10.11 Location marking of valves and hydrants.

Delete Clause and Replace with:

The location marking of valves and fire hydrants shall be to NZS 4501 and retro reflective pavement markers placed in compliance with Appendix A Drawing WS-006.

Approved Hume's type concrete marker posts (or acceptable equivalent) shall be installed:

- Painted yellow for hydrants
- Painted white for valves

Toby valves shall be marked by a narrow white paint mark on the top of kerb immediately opposite the toby or where no kerb exists (including rural subdivisions) the placing of an appropriate durable marker on the street boundary immediately adjacent to the toby.

6.3.11.7.1 Pipe cover.

Add to Clause:

The minimum cover to pipes shall be:

- 1000mm for carriageways and accessways
- 600mm for all other (non traffic) areas

6.3.13.3 Clearances from structures

Add to Clause:

No structure shall be constructed over any water main, nor shall any structure foundation be located within a line extending at 45° from 150mm below the pipe invert to the ground surface, without the specific approval of the council.

The Council will only give approval to construct a structure over a water main if;

1. It is impractical to construct a new main clear of the zone of influence; and
2. A valve is installed with 10m of both sides of the structure; and
3. The pipe runs in a straight line both vertically and horizontally between valves; and
4. There are no connections under the structure; and
5. The condition of the pipe is checked by potholing prior to construction at the applicants expense and the pipe condition is approved as acceptable by Council; and
6. Structures straddling or founded within the above zone are designed by a Chartered professional Engineer such that there is no loading from the building applied to the water main; and
7. A memorandum of encumbrance is drawn up at the applicant's expense indemnifying the Central Otago District Council against any claims for damage caused by the presence, maintenance, replacement or upgrade of the water main.

6.3.14.2 Prevention of back siphoning.

Add to Clause:

Backflow prevention devices shall be installed on all service connections to the watermain. Medium and high risk connections shall be accompanied by relevant installation test certification.

6.3.15 Small Rural Water Supplies

Amend and Add new Clause:

Council operates a restricted rural water supply at Patearoa and the standard connection process is applicable for any new connections onto this scheme.

There are also a significant number of private rural water schemes servicing the district. All networked supplies (as defined in the Act) shall meet compliance with the Ministry of Health Acts and guidelines as outlined in the Health (Drinking Water) Amendment Act and Drinking Water Standards for New Zealand.

Evidence shall be provided that application has been lodged with Public Health South (PHS) prior to 224c certification. PHS documents are now available on the website <http://www.moh.govt.nz/moh.nsf/indexmh/guidelines-for-the-safe-carriage-and-delivery-of-drinking-water>

An appropriate legal entity shall be established to operate, maintain and monitor the networked potable water supply, and the relevant operations information shall be made available to each property owner and successor.

In the event that the new water supply is not a networked supply then compliance with the current New Zealand Drinking Water Standards shall be proven, including adequate ongoing treatment and compliance.

Reticulation shall be installed to the boundary of all allotments and fire fighting capability provided in accordance with SNZ PAS 4509 and any subsequent updates to this document.

Remove (and insert new clause 6.3.16):
An acceptable fire fighting capability may comprise:
<ul style="list-style-type: none">• A combined domestic water and fire fighting storage provided by a standard 23m³ tank on each allotment with a minimum of 14m³ to be maintained at all times for fire fighting reserve.
<ul style="list-style-type: none">• A fire fighting connection compatible with NZ Fire Service equipment to be located within 90 metres of any proposed building on the site.
<ul style="list-style-type: none">• The connection to be accessed via an all weather access track and hardstand area suitable for Appliance use. Clear access to be maintained at all times to the fire fighting connection point.

Add new clause

6.3.16 Fire fighting Water Supplies in Un-Reticulated Rural Area's.

Fire Fighting capability must be provided in accordance with SNZ PAS 4509 and any subsequent updates to this document. An acceptable fire fighting capability may compromise:

For dwellings erected in un-reticulated rural areas, domestic water and fire fighting storage to be provided by a standard 30,000 litre tank on each allotment. Of this total capacity a minimum of 20,000 litres shall be maintained at all times as a static fire fighting reserve.

Alternatively, an 11,000 litre fire fighting reserve is to be made available for each dwelling in association with a domestic sprinkler system installed in each dwelling to an approved standard.

A fire fighting connection is to be located within 90 metres of any proposed building on the site. In order to ensure that connections are compatible with New Zealand Fire Service equipment the fittings are to comply with the following standards:

- Either: For flooded sources – 70mm Instantaneous couplings (Female) NZS 4505, or for suction sources – 100mm Suction Couplings (Female) NZS 4505 (hose tail to be the same diameter as the threaded coupling e.g. 100mm coupling has 100mm hose tail) provided that the consent holder shall provide written confirmation from the NZ Fire Service to the Chief Executive to confirm that the couplings are appropriate for fire fighting purposes.
- Flooded and suction sources must be capable of providing a flow rate of 25 litres/sec at the connection point/coupling. The Fire Service connection point/coupling must be located so that it is not compromised in the event of a fire.
- The connection shall have a hardstand area adjacent to it to allow for a New Zealand Fire Service to park on it. The hardstand area shall be located in the centre of a clear working space with a minimum width of 4.5 metres. Access shall be maintained at all times to the hard stand area.

The fire fighting water supply tank and/or the sprinkler system shall be installed and operational prior to the occupation of the building.

Fire fighting water supply may be provided by means other than the above if the written approval of the New Zealand Fire Service is obtained for the proposed method.

For more information on how to provide for New Zealand Fire Service operational requirements refer to the New Zealand Fire Service fire Fighting Water Supplies Code of Practice SNZ PAS 4509:2003 <http://www.fire.org.nz//building/water.htm> . In particular, the following should be noted:

- For more information on suction sources see Appendix A, SNZ PAS 4509:2003, Section B3
- For more information on flooded sources see Appendix B, SNZ PAS 4509:2003, Section B3
- The reserve capacities and flow rates stipulated in the above conditions are relevant only for average, single-family dwellings. In the event that any proposed dwelling provides for more than single-family occupation then the consent holder should consult with the NZFS as larger capacities and flow rates may be required.

Underground tanks or tanks that are partially buried (provided the tank is no more than 1 metre above ground) may be accessed by an opening in the top of the tank, removing the need for couplings.

6.4.1. (b) Valves-General

Add to Clause:

Where practicable valves shall not be located within the road carriageway

6.4.2.3.1.1 General.

Add to Clause:

(d) Three valves shall be installed at each tee or cross on main lines (100mm or larger).

6.4.2.3.1.2 Branch Mains.

Add to Clause:

A single valve only is required on the branch for 50mm rider mains.

6.6.1 Connections.

Add to Clause:

Connection of new mains to existing mains shall be carried out under the direct control of Councils Utilities Maintenance Contractor. New lines shall be appropriately tested, sterilised and flushed prior to connection.

All service connections to existing live mains shall be live tapped only unless approved otherwise by Council's Utility Engineer.

6.6.2 Property service connections.

Delete and Replace with

A standard Toby assembly incorporating a backflow prevention device, a control valve and an approved water meter with an Acuflo Manifold Box shall be provided at the property boundary in accordance with Appendix 6 attached to the Addendum.

Each residential unit shall be provided with a 20mm dia connection.

Where there is a right of way serving no more than 2 properties individual connections shall be provided and the Acuflo connection point shall be at the

road frontage unless agreed with Council prior to connecting. These connections shall be held in private ownership from the street boundary. Where there is a right of way serving more than 2 properties, a 50mm dia (or greater if necessary) rider main shall be installed at the developers expense and an easement shall be created to enable Council to own, maintain, repair and renew the rider main.

6.10 Construction of pipelines.

Add to Clause:

All construction shall be carried out under the direct control of an appropriately trained person, with a National Certificate in Water Reticulation – Service Person qualification.

All excavation, bedding and reinstatement shall be undertaken in accordance with Appendix 4 of the Addendum.

6.11.4 Minimum Flows

Delete and replace:

- a) The minimum flow shall be 25 l/min for each Residential Unit.
- b) As specified in SNZ PAS 4509

6.11.5 Delete Clause: and Replace with:

The minimum peak domestic demand shall be based on:

- a) Daily consumption of 500 l/p/day
- b) Peak day factor of 3
- c) Peak hour factor of 5
- d) Number of people per Residential Unit of 3.0

6.11.6 Delete Clause: and Replace with:

The values contained in Tables 6.6 and 6.7 do not take into account the high water usage within the Central Otago District. The tables should be used with caution and shall be supported with specific hydraulic modelling to confirm pipe sizing.

PART 7: LANDSCAPE DESIGN AND PRACTICE

Figure 7.1 – Street Tree Planting Clearances, Driveways Diagram

Delete 1.5m (min) separation and replace with 4m (min).

Figure 7.1 – Street Tree Planting Clearances, Pedestrian Crossings Diagram

Delete 6m (min) separation and replace with 12m (min).

7.2.1 General Concept Stage.

Add New Clause:

All Plant Species should be:

- Suited to 'Hardness' Zone 8*
- Suitable to a semi arid dry land landscape.
- Suited to the actual site in height and spread of maturity.

* Using an index originally developed by the US Department of Agriculture, New Zealand has hardness zones ranging from 11 to 7. Central Otago is situated in Zone 8 where temperatures can get down to -12⁰ Celsius. Plants chosen must be tolerant of heavy frosts and occasional snow loadings.

The design principals relating to a xeriscape (dry land) landscape shall be considered as an alternative solution to ensure minimal water usage is required for the establishment and on-going growth of any vegetated areas.

7.3.1.4 Design – Location.

Add new Clause:

The tree planting design to be submitted by the Developer for Council approval shall be required to:

- Ensure no planting in berms less than 1.0 metre in width
- Be appropriately designed to minimise damage to adjacent surfacing and underground services (root containment may be required)
- Ensure illumination of road by street lighting is not adversely affected
- Ensure specified sight lines are maintained

7.3.3.1 Species Selection.

Delete Clause: and Replace with:

Species are to be selected with regard to industry accepted design requirements and low maintenance and longevity and comply with Council's planting policies. For further information about acceptable species please contact the Community Facility Manager.

7.3.6 Irrigation.

Add new Clause:

Irrigation water sourced from Council's reticulated potable water supplies shall only be installed at Council's discretion and is subject to the Developer proving an alternative water source is not available.

Private irrigation water sourced from Council's reticulated water supplies shall be via a standard metered Acuflo Toby box with an approved testable backflow prevention device. The Developer shall nominate a management company that will be responsible for paying any cost charges as well as maintenance and repair of the irrigation system.

7.4.2.2 Soil and Fertility.

Delete Clause: and Replace with:

Application rates and type of fertiliser shall be suitable for the plant species and in accordance with manufacturer's recommendations.

Add:

Soil should be within the loam texture class, friable and free of construction and other debris.

7.4.3.1 Weeds.

Delete Clause: and Replace with:

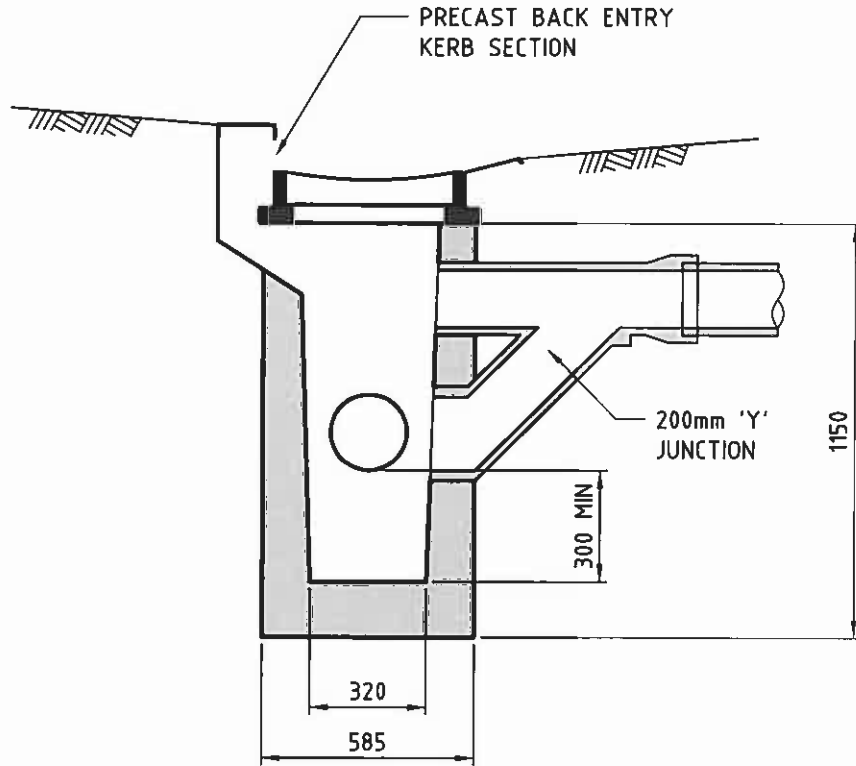
At the end of the maintenance period no weeds shall be present within planted areas. This includes the removal of all vegetative underground parts such as roots, rhizomes.

7.4.3.2 Weeds.

Delete First Sentence of Clause:

ORIGINAL SIZE A4 DO NOT SCALE - IF IN DOUBT, ASK

CAD REF : P:\001003339-00\CAD\st_details.dwg



TYPICAL SUMP DETAIL

SEE CLAUSE 4.3.3.6 OF NZS 4404 ADDENDUM FOR
PROTECTIVE CONCRETE REQUIREMENT TO SHALLOW PIPE



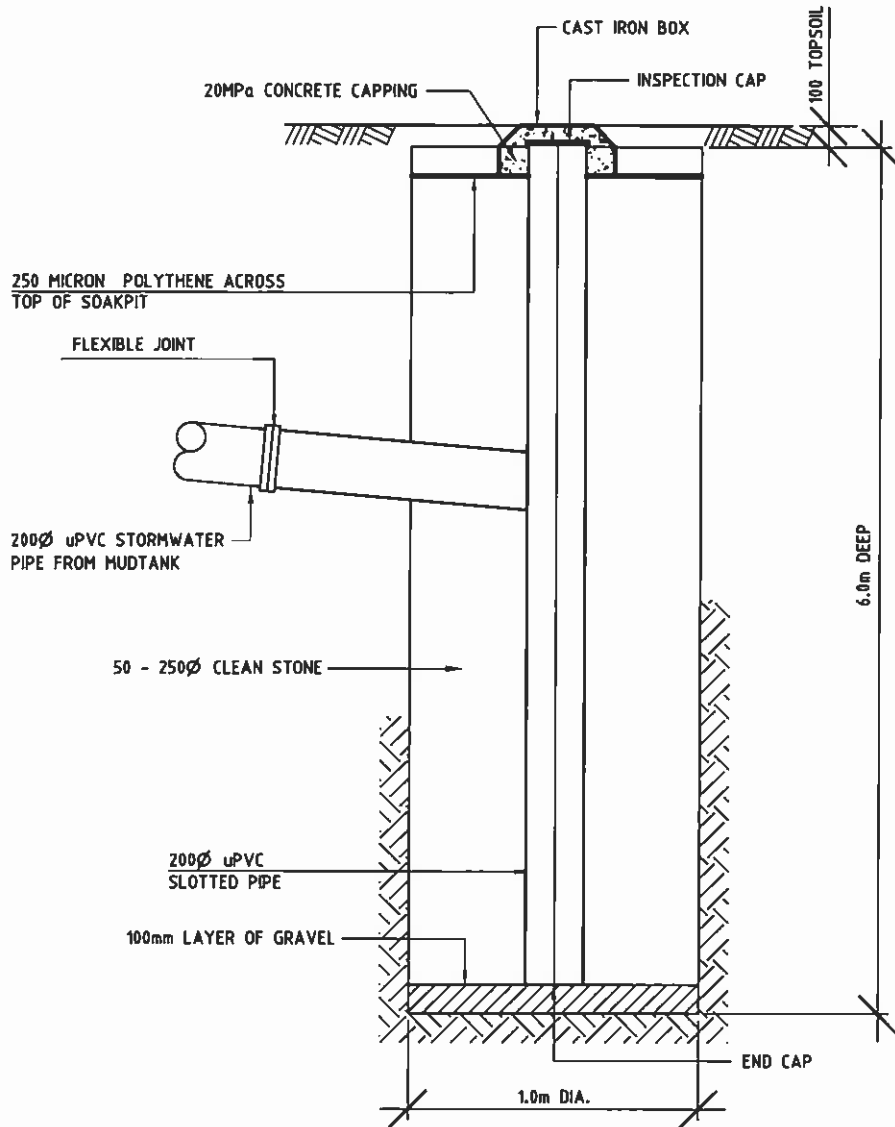
APPENDIX 1

SEPT 2004

TYPICAL SUMP
DETAILS

ORIGINAL SIZE A4 DO NOT SCALE - IF IN DOUBT, ASK

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CAULDWELL SOAKPIT DETAIL

1 : 25

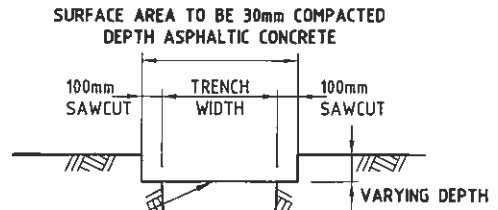


APPENDIX 2

SEPT 2004

TYPICAL SOAKPIT
DETAILS

NOTE:
RE-INSTATEMENT SHALL BE IN ACCORDANCE WITH THE
'1m RULE' AS DESCRIBED IN SNZ HB2002 : 2003 CLAUSE 4.5.2



TOP LAYER TO TRENCHES:

1. FINAL SURFACE TO BE 30mm ASPHALTIC CONCRETE FOR SEALED SURFACES AND TO ORIGINAL CONDITION FOR CONCRETE SURFACES
2. ROADS AND STREETS - 300mm CRUSHED M/4 BASECOURSE
HOUSE DRIVEWAYS - 150MM CRUSHED M/4 BASECOURSE
UNDER PATHWAYS - 100mm M/4 BASECOURSE
3. GRASSED AND GARDEN AREAS = 100mm MIN. OF PREVIOUSLY STRIPPED TOP LAYER OF TRENCH OR EQUIVALENT TOPSOIL
- GRASS SEED MIX = 2 PARTS CHEWINGS FESCUE TO 1 PART BROWN TOP
- APPLICATION RATE = 35Q/M² MIN

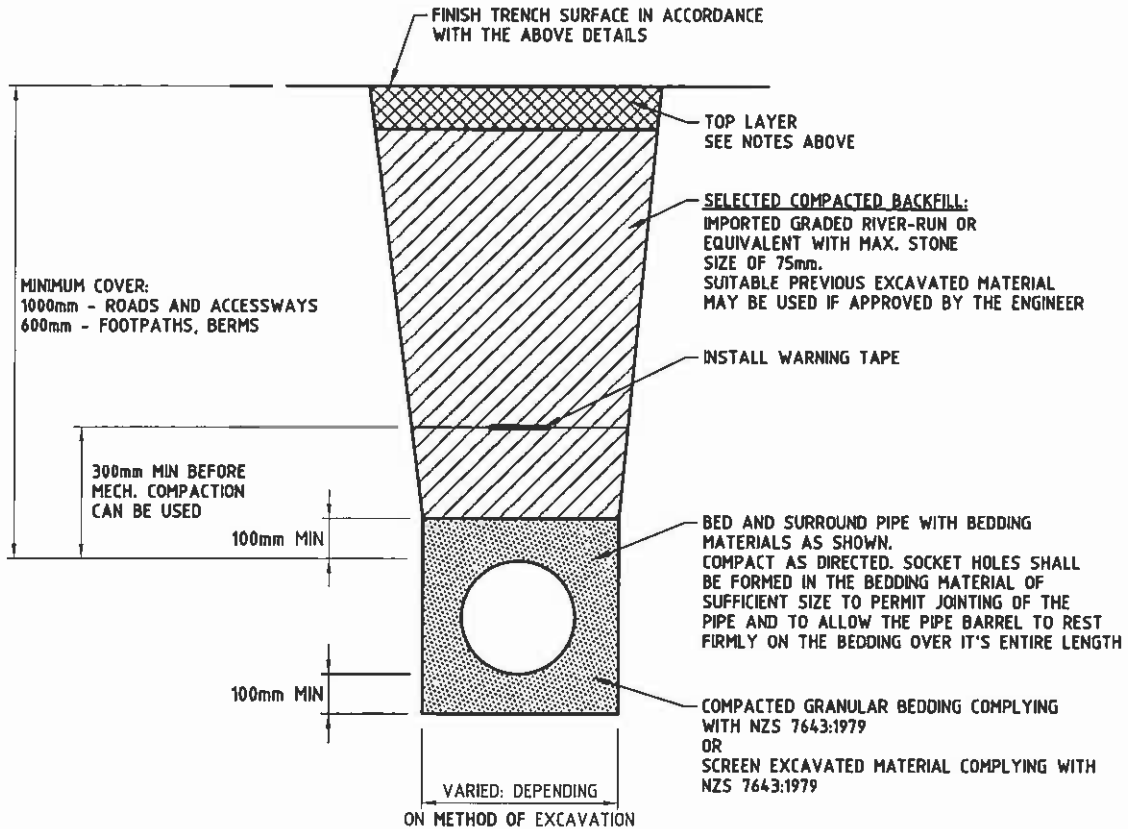
BACKFILL TO THIS LEVEL BEFORE SAWCUT (FOR SEAL SURFACE)

ASPHALTED, SEALED AND CONCRETED SURFACES TO BE SAWCUT 200mm WIDER THAN TRENCH AS FOLLOWS:

EDGES OF THE TRENCH SHALL BE PROVIDED WITH EMULSION SEALING

SEALED: AFTER EXCAVATION, AND BACKFILL TO LEVEL SHOWN
ASPHALT & CONCRETE: BEFORE EXCAVATION COMMENCES

SURFACE RESTORATION DETAILS



NOTES

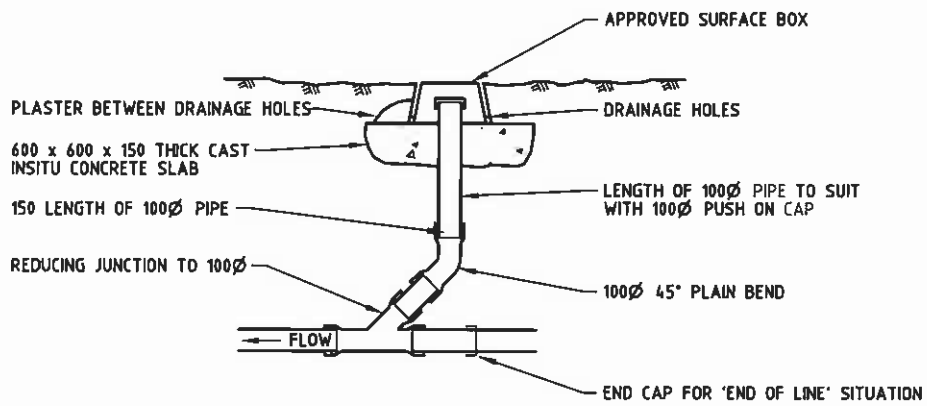
NOTE: TRENCH BASE SHALL BE CLEARED OF LOOSE MATERIAL, WALLS SHALL BE VERTICAL TO TOP OF BEDDING.

PIPE TRENCHING DETAILS

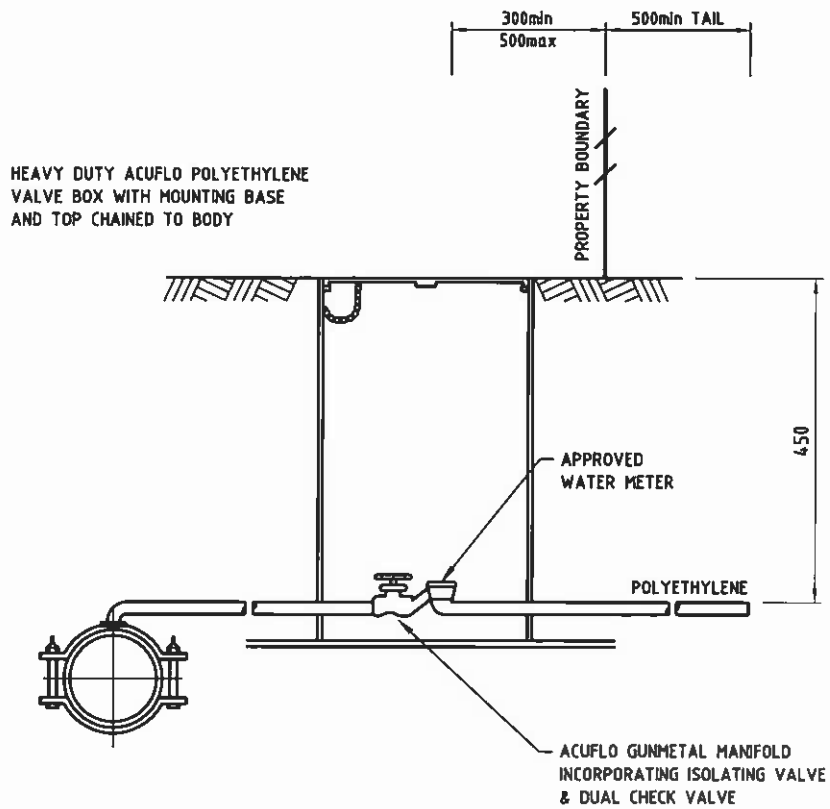
ORIGINAL SIZE A4 DO NOT SCALE - IF IN DOUBT, ASK

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CLEANING EYE



CONSUMER CONNECTION DETAIL

NOTES

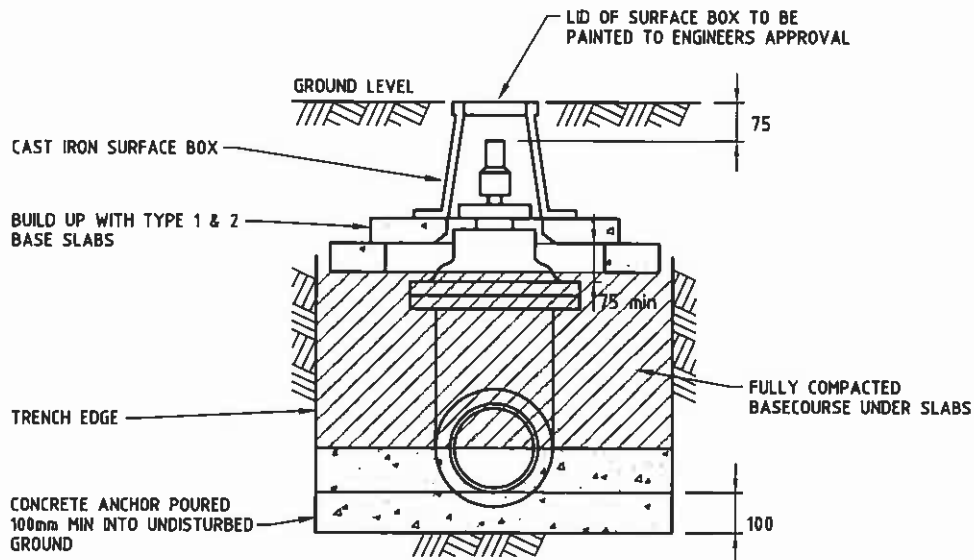
1. HOUSEHOLD CONNECTIONS TO BE 20 ϕ .
2. COMMERCIAL/INDUSTRIAL CONNECTION SIZES TO BE 20 ϕ OR AS ADVISED BY ENGINEER.
3. APPROVED FITTINGS & MATERIALS TO BE USED FOR CONNECTIONS.
4. THE 450mm TDBY DEPTH IS TO PROVIDE FOR FROST PROTECTION WHILE ENSURING EASY ACCESS TO USERS.



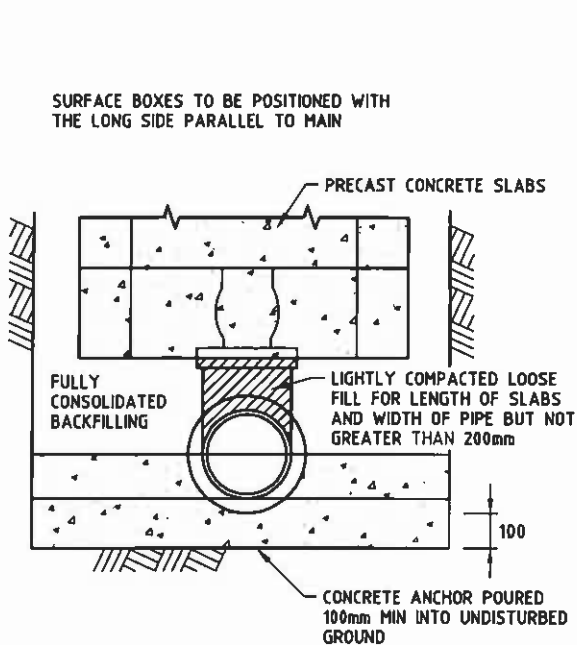
APPENDIX 6

SEPT 2004

STANDARD WATER
CONNECTION



SLUICE VALVES



CROSS SECTION

ELEVATION

FIRE HYDRANTS



APPENDIX 7

SEPT 2004

INSTALLATION OF
FIRE HYDRANTS, SLUICE VALVES

CENTRAL OTAGO DISTRICT COUNCIL

Schedule of Approved Fittings and Materials

1.0 Scope

This schedule covers the list of materials and fittings approved for use within the Central Otago Water Reticulation network, and covers materials or fittings in or on mains, ridermains and services (up to the boundary) which Central Otago District Council will assume responsibility for. This schedule is not intended to be exhaustive and, where materials or fittings are not specifically listed, good quality materials in general use with other local authorities in the Otago region shall be used.

2.0 Pipe Materials

2.1 New Service Connections

20 – 32mm OD MDPE PE80B, PN 12.5, SDR 11 (coloured blue or blue stripe)
manufactured to AS/NZS 4130: 1997 and amendments.

Manufacturer: Iplex – Tristripe Black 'n' Blue
Marley – Pushlock Pipe

2.2 Distribution Watermains 100mm, 150mm & 200mm Diameter

i) mPVC RRJ. Manufactured to PINZ 14 – 1: 1997. Minimum class PN 9 (or to suit application) manufactured to NZS 1477.

Manufacturer/Product ID: Iplex – White Rhino
Marley – Genex White

2.3 Distribution Ridermains/Service Lines 32mm, 40mm, 50mm, 65mm, 80mm.

All new ridermains shall be 50mm diameter mPVC or HDPE Class PN 12 (or to suit application) manufactured to NZS 1477.

Manufacturer/Product ID: Iplex
Marley

3.0 *Fittings*

- i) Cast iron pipe fittings to AS/NZS 1830 and AS/NZS 2544: 1995 with flanges to Table D and coated to AS/NZS 4158:1996 and amendments.

Manufacturers/Product ID: Gillies
Humes

- ii) Bolts, nuts and washers to be hot dipped galvanised with minimum of 15mm diameter in accordance with AS/NZS1111 & 1112 "ISO Metric Hexagon Commercial Bolts and Screws" and "ISO Metric Hexagon Nuts, including Thin Nuts, Slotted Nuts and Castle Nuts".

Manufacturers/Product ID: Ajax

- iii) Gibaults

- Cast iron coated in accordance with AS/NZS 4158:1996 & amendments and hot dipped galvanised bolts as per (iii)
- Gunmetal DR LG2 with ABS belly

Manufacturers/Product ID:
Viking Johnson Ltd – Maxifit
Gillies
Surecast
Milnes Pty Ltd

- iv) MDPE Fittings

Manufacturers/Product ID:
Iplex – Plasson
Marley - Pushlock

4.0 *Valves*

4.1 *Sluice Valves for Reticulation*

Resilient Sealed – manufactured to AS/NZS 2638, anti-clockwise closing with teflon gland packing or 2 or more "o" ring seals and dust cover. Stainless steel or brass shaft. External and internal protective coating to AS/NZS 4158:1996 & amendments.

Manufacturer/Product ID: AVK
Gillies SF Series
Tubeline Series 500 (as supplied by Steel
and Tube NZ Ltd)

4.2 Gate Valves

i) 25 - 80mm Gate valves

Dezincification resistant materials or LG2 gunmetal to BS 5154:1983 or AS 1628 with Malleable (cast) iron T bar handles. PN 16 or better.

Manufacturer/Product ID: Methven GV 100
GV 125

Johns 59M (with handle retaining nut changed to DR type)
Kitz Fig AS-H (with handle retaining nut changed to DR type)
Pegler Hattersley 1070 (with handle retaining nut changed to DR type)

5.0 Fire Hydrants

Tall screw down standard pattern (squat only with express approval of the Engineer), with approved polyurethane cup washer (see below) to BS 750:1984. Pure PTFE gland packing (see below) or "O" ring sealing system and coated to AS/NZS 4158:1996 & amendments. All bolts, nuts & studs to be hot dipped galvanised or stainless steel.

Manufacturer/Product ID: Gillies
AVK

6.0 Tapping Bands

6.1 40mm – 80mm

- a) LG2 gunmetal DR type – fully enclosed
- b) Polyethene type – fully enclosed with stainless steel bolts

Manufacturer/Product ID: Milnes Pty Ltd
RX Plastics Ltd

6.2 100mm – 250mm

LG2 gunmetal DR type. Fully enclosed for mPVC, uPVC, cast iron and spiral steel. Swivel bolt type with a flexible band for existing AC watermain .

Manufacturer/Product ID: Milnes Pty Ltd - Series 60B
Milnes Pty Ltd - Series 61 Maintenance

Milnes Pty Ltd - Insulated type for ductile,
cast or steel
Mains, Surecast - for existing AC
watermains only if Milnes unsuitable.

7.0 *Water Meters*

Manufacturer/Product ID:

Kent

-Helix 3000 50/150mm

-Helix 3000 40/150mm

-Helix Combination 3000 V 100 and 150mm

-Helix Combination 3000 VI 100 and 150mm

-Helix Combination 4000 range

Sensus

Acuflo (manifold type)

8.0 *Service Boxes*

8.1 *Toby Boxes*

Polyethelene: Acuflo heavy duty

8.2 *Valve (V) and Hydrant (FH) Boxes*

Manufacturer: Humes (with appropriate painted concrete marker)
Gillies (with appropriate painted concrete marker)

I (name) _____ as agent for _____ (the principal provider)
of _____ (address of principal provider)

hereby notify: **Central Otago District Council**
PO Box 122
Alexandra Fax: (03) 440 0647

of our intention to undertake the following work:

Type of work: Project Major Minor Emergency

Details of Proposed Work

Indicate all aspects: Open trenching Installing cabinet/s
 Trenchless construction Installing pedestal/s
 Installing chamber/s Installing other structure (specify below)
 Installing pole/s Removing/pole/cabinet/pedestal/structure/s

Description of work: _____

Address: _____

Location in road: _____

Estimated start date: _____

Duration: _____

Contractor Details

Role in work to be undertaken: Principal Consultant Contractor

Other
Company name: _____ Contact person: _____

Postal address: _____

Telephone (Work): _____ Telephone (Private): _____

Mobile: _____ Fax: _____

Email: _____

If you seek to impose any conditions on the proposed work, please notify me at the following address:

Plan Submitted TMP Submitted Stockpiling Arrangements

Acceptance by Principal Provider

We hereby agree for / or on behalf of the principal provider to comply in full with the requirements of the SNZ HB 2002 Code of Practice for Working in the Road, and any other reasonable conditions required by the Central Otago District Council and to keep this notice on site while work is in progress. This consent is valid for three months from the date of issue.

NOTE - All work must comply with the Health and Safety Act 1991 and any amendments thereto.

Signature: _____ Date: _____

FOR CODC APPROVAL USE ONLY

Consent Number: _____

Approved

Special Additional Conditions as attached: _____

Signed on behalf of CODC _____ DATE: _____



RON WORKS COMPLETION AND MAINTENANCE NOTICE

To: Central Otago District Council
PO Box 122
Alexandra Fax: (03) 440 0647

From: _____ (The principal provider or its consultant)

Date: _____

THIS IS TO ADVISE THAT WORK ON RON NUMBER: _____

ON _____ **(Street name)**

IS NOW COMPLETE AND FULLY COMPLIES WITH THE CONDITIONS IMPOSED ON THE RON.

Works meet required standards: Date: / /

Signed: _____ Print Name: _____

FOR CODC APPROVAL USE ONLY

Accepted by CODC Date: / / Print Name: _____

Works comply and 12 month maintenance commences: Date: / / Signature: _____

THIS IS TO ADVISE THAT THE 12 MONTH MAINTENANCE AUDIT HAS BEEN COMPLETED AND COMPLIES WITH THE CONDITIONS OF THE RON

This Audit was accomplished by:

- A site inspection
- Not inspected but was one of a batch covered by random inspections in accordance with the Quality Plan agreed with the Central Otago District Council

Signed: _____ Print Name: _____

WORK MEETS REQUIRED STANDARDS:

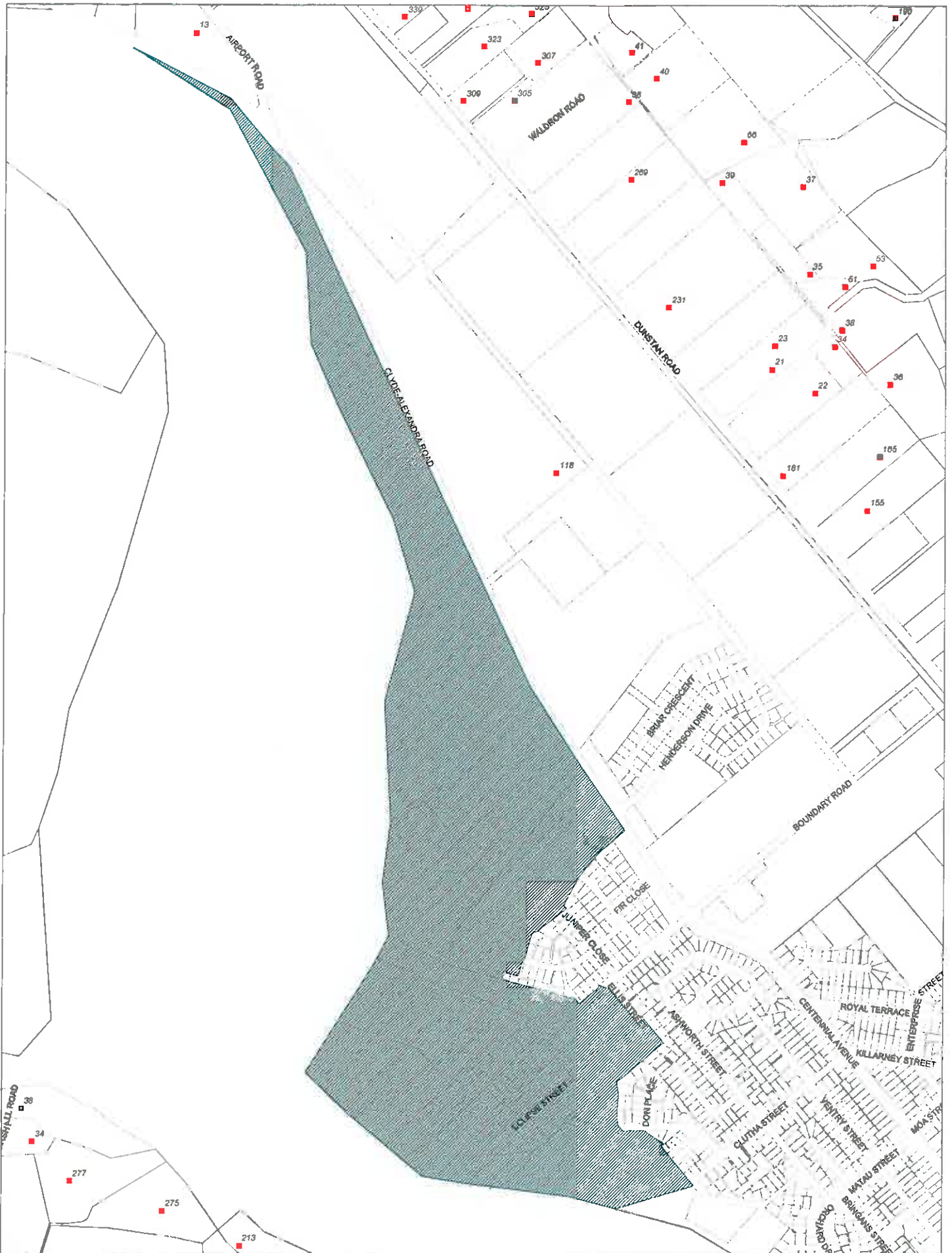
Signed by the principal provider:

_____ Date: / / Print Name: _____

Work meets required standards: Date audit undertaken by the RCA: _____

Accepted by CODC Date: / / Print Name: _____

Works comply and 12 month warranty period commences: Date: / / Signature: _____



Alexandra Groundwater Protection Zone





Cromwell Groundwater Protection Zone