

Pressure Sewer Policy

1 OVERVIEW

1.1 CONTEXT

Queenstown Lakes District Council (**the Council**) is committed to upholding public sanitation and environmental standards through the collection, treatment and disposal / discharge of wastewater that is affordable and scalable for growth.

Council recognises that alternative technologies, such as pressure sewers can offer benefits over traditional gravity sewers in particular circumstances.

1.2 SCOPE AND PURPOSE

This policy defines:

- the application of pressure sewer systems in the district.
- the ownership of various components of the system and the responsibilities.
- the requirements for subdivisions and developments which to use pressure sewer systems.
- the roles and responsibilities of all stakeholders (QLDC, developers, property owners, and householders)

2 DEFINITIONS

For the purposes of this policy, the term “**Discharge**” (unless specified otherwise);

- Is to be interpreted in the same context as it is used within WSA 07–2007-1.1 and
- Is defined as *allowing a liquid, gas, or other substance to flow out from where it has been confined* and
- Where that liquid and gas is in the context of this policy primarily wastewater/sewage and
- Is not used in the context of ‘release into the environment as is the’ as is the operative use in the Resource Management Act 1991.

A pressure sewer system in Queenstown Lakes District is defined as follows and are illustrated in Figures 1, 2 and 3:

A complete wastewater reticulation system including collection tanks (generally located on private property) and associated pumps and grinder pumps that conveys wastewater under pressure to a common discharge point (Public Pressure Sewer Network) generally located within the Council road reserve.

The term “**Pressure Sewer System(s)**” collectively refers to:

- the privately owned on-property equipment; and
- the conveyance pipework network owned by Council.

A **Pressure Sewer System** may include the following elements:

- Pumping unit and chamber, specifically designed for pressure sewer applications, installed on each property.
- Control/Alarm panel that controls the operation of the pump unit containing alarm components, electrical connection to the property and associated circuit breaker.
- Remote data connection, such as telemetry.
- Property discharge line that connects the pumping unit to the boundary kit.
- Boundary kits for each pumping unit, providing a means to isolate the pressure sewer network from a property discharge line and pumping unit.

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- A pressure sewer network specifically designed for this application consisting of pressure mains, isolation valves, flushing pits and air release valves where required.

“On-property Equipment” collectively refers to a privately owned components of the Pressure Sewer System, including the gully trap and piping, a grinder pump, collection tank, electrical and control system, and individual discharge pipe up to the private property boundary. The boundary kit and any part of the property discharge line located within the Council road reserve is owned by Council and does not form part of the **On-property Equipment**.

“Public Pressure Sewer Network” refers to the Council-owned conveyance pipework network which is usually located within the public road reserves (or within Council easements on private property) including all appurtenances, from (and including) the boundary kit to the common discharge point or **Public Pressure Sewer System**.

“Home Owners Manual” refers to the instructions provided with the **On-property equipment**, by the seller, that contains the detailed installation, maintenance and operation requirements.

Single-property pumped systems and **“pump ups”** are not pressure sewer systems for the purposes of this Policy and are therefore excluded from this Policy.

“Pump ups” are defined as properties that have (or are planned to have) gravity wastewater reticulation at or adjacent to the property boundary, but for what-ever reason cannot discharge to that gravity reticulation by means of a gravity lateral connection and requires a pump to discharge wastewater to the gravity reticulation.

The **Pressure Sewer System** does not comprise the household gravity connection from the gully trap to the pumping unit connection vent. This remains the private line belonging to the property owner.

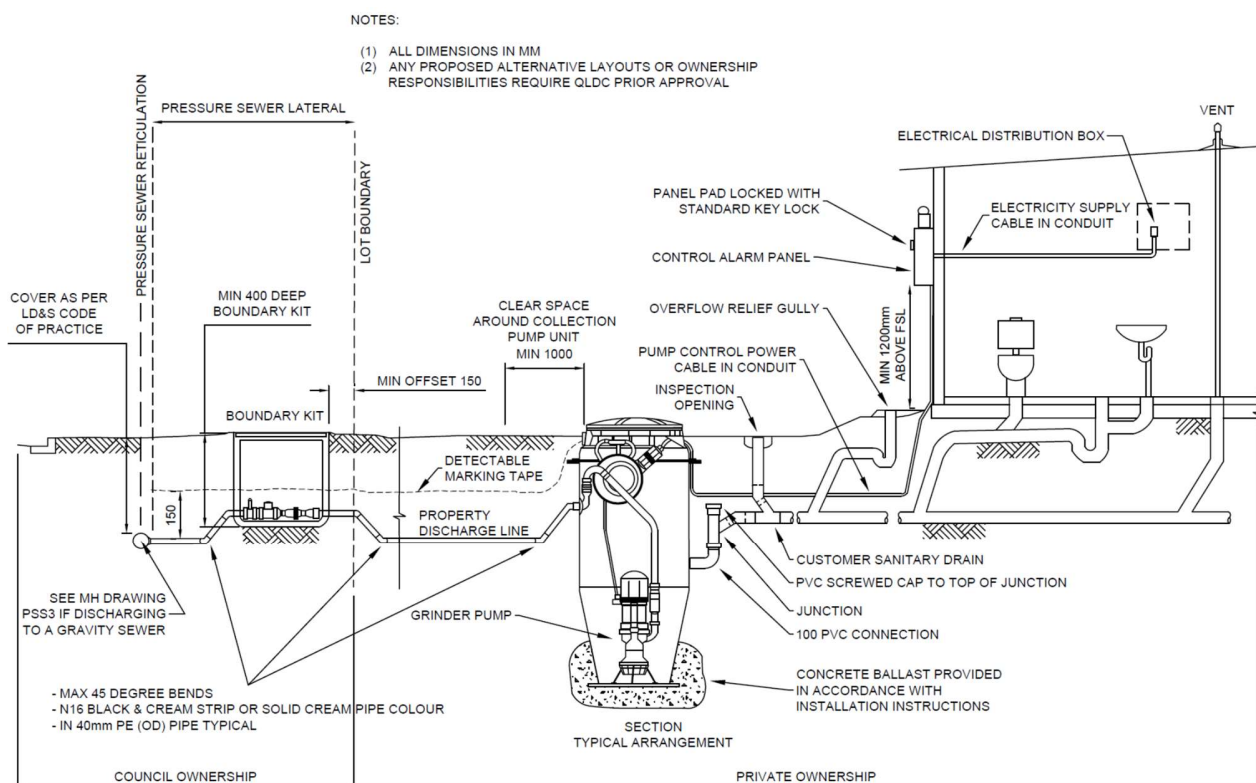


Figure 1: Typical On-property Pressure Sewer System

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Figure 2: A typical on-property septic tank pump system. In both instances, wastewater is pumped from the property to a treatment plant via a public reticulation system.

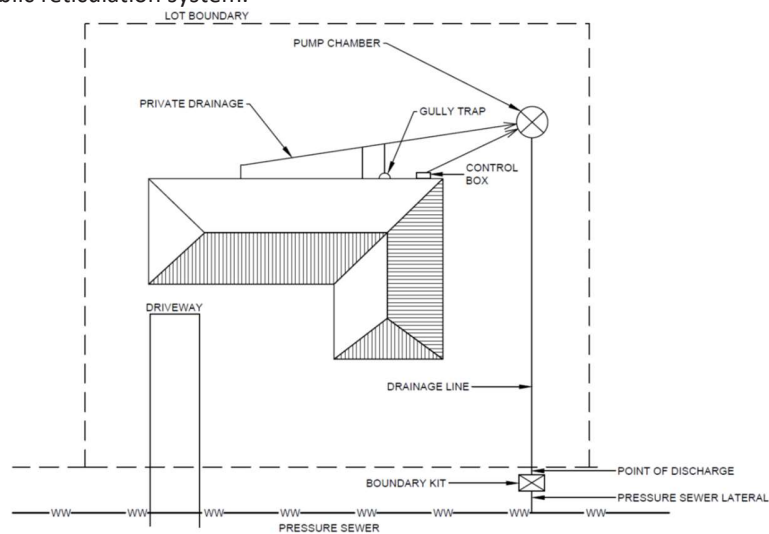


Figure 3: Typical On-property Layout

3 POLICY PARAMETERS

3.1 APPLICATION OF PRESSURE SEWER SYSTEMS

- Queenstown Lakes District Council will define communities or areas where pressure sewer systems offer demonstrable benefit to Council in lieu of gravity reticulation, including financial, technical (i.e., hydraulic),

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environmental and safety related attributes. Any assessment of the benefits of pressure sewer shall incorporate a whole of life assessment of costs and benefits. Within these areas reticulation will normally be by way of a pressure sewer system, unless specifically authorised otherwise by the Chief Engineer. Refer to section 8 for PSS selection tool.

- Where private property owners (or Developers) wish to have an area zoned for pressure sewer use, suitably detailed technical submissions shall be made in writing to the Chief Engineer.
- Pressure sewer systems outside of these defined areas will not normally be allowed, unless authorised by the Chief Engineer. Outside of defined areas, pressure sewer systems will normally remain in private ownership unless vesting to Council is authorised by the Chief Engineer (refer to Council's 3W vesting policy). Pressure sewer systems remaining in private ownership will need to discharge to a gravity system within the properties boundary, i.e., the pressurised system cannot extend into legal road reserve.
- Private pressure sewer systems serving multiple lots or residential units will only be acceptable where there is an appropriate management entity / body corporate managing the long-term maintenance plan for example, a Body Corporate.

3.2 OWNERSHIP

- All **On-Property Equipment** defined in Section 2 shall be owned by the property owner. It is a requirement that the property owner installs, operates and maintains this in good working order.
- All **Public Pressure Sewer Network** as defined in Section 2 shall generally be owned and operated by the Queenstown Lakes District Council as a Council asset and being a component of its wastewater infrastructure network.
- The power supply for each pump unit (including alarm panel) shall be connected to the dwelling's power supply and the costs of power shall be met by the householder. The power supply is for **On-Property Equipment** only.
- Ownership boundaries are illustrated in Figure 1 and Figure 3.

3.3 POINT OF DISCHARGE

- The point of discharge is the boundary kit between the public sewer and private drain.
- Where the boundary kit is located within Council road reserve, the point of discharge will generally be the location where the discharge line crosses the private property boundary (Figures 1 & 3).
- Where Council-owned pressure sewer system components are located on private land (e.g. within an easement), the point of discharge is defined as the upstream end of the pipe fitting which forms the junction with the boundary kit valve.

3.4 SHARING OF PUMP UNITS

- Council requires all dwellings to have their own pressure sewer pumping unit.
- Council will consider, at the discretion of the Chief Engineer, the sharing of pumping units in some circumstances such as industrial and other non-residential connections, unit developments or multiple dwellings located on the same property. In considering these cases, the Chief Engineer will take into account the potential occupancy of the dwelling/s, potential wastewater flows, storage capacity and electricity supply arrangements. Provision of all required materials shall be the responsibility of the applicant.
- Where such systems have been approved, Council will not accept ownership of pressure sewer pumping units. The applicant(s) will undertake responsibility to operate and maintain them to the required standard.

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3.5 EASEMENTS AND LEGAL AGREEMENTS

- Council reserves the right to require the creation of an easement on a particular property, to ensure the safe ongoing operation of the system, minimisation of any health concerns or the protection of council's property at the cost of the property owner.
- Any communal pressure sewer pipe will be required to be within an appropriate easement, or within legal road reserve.

4 CONNECTION OF PRESSURE SEWER SYSTEMS TO COUNCIL'S NETWORK

4.1 EXTENSION OF THE WASTEWATER NETWORK CATCHMENT

- Part 7 of the Local Government Act 2002 requires all territorial authorities carry out assessments of water and sanitary services "**WSSA**". The primary purpose of these assessments is to ensure that public health is adequately protected and that these services are delivered efficiently to rate payers. As a result of these assessments the Council may identify communities or areas where pressure sewer systems offer the best solution to provide sanitary services.
- Council does not intend to extend the existing wastewater network area beyond the boundaries of the urban area of benefit. However, the Council may consider proposals outside the area of benefit where a **WSSA** has identified an unacceptable public health and / or environmental risk.

4.2 SUBDIVISION AND DEVELOPMENT

- Even though a pressure sewer system may, in some locations, be a lower cost technology, this shall not necessarily mandate its use, as other factors may mitigate against its usage such as available capacity within the Council network. Accordingly, pressure sewer systems will be considered for new subdivisions or developments where benefit (as per 3.1) to the Council can be demonstrated by the developer to the satisfaction of the Chief Engineer.

4.3 PRIVATE PUMP STATIONS (PUMP UPS)

- Where property owners require a private pump station to connect to the public sewer, pressure sewer pump units may be considered as an appropriate solution. Unless the property is located within an identified Pressure Sewer Area (as per 3.1), and the pumping units meet the technical requirements of a pressure sewer system, the ownership of the unit and discharge pipe shall remain with the property owner and any such units will not be covered by the Pressure Sewer Policy. Private pressurised sewer systems must discharge into the gravity network within the property.

5 INSTALLATION, OPERATION AND MAINTENANCE RESPONSIBILITIES

- The installation of **On-property Equipment** shall be the responsibility of the private property owner, including where applicable, the property developer, builders or other entities deemed to be the private property owner's agent.
- Only pressure sewer **On-property Equipment** pre-approved by the Council shall be installed and discharge wastewater to Council-owned pressure sewer systems. Pressure sewer on-property installations shall comply with:

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- Queenstown Lakes District Council, Integrated Three Waters Bylaw
 - Including all appendices and the Integrated Three Waters Bylaw Administration Manual
- Queenstown Lakes District Council Land Development and Subdivision Code of Practice and Appendices
- The requirements of the NZ Building Code Clause B1
- Building Consent Conditions, as applicable.

5.1 COUNCIL SHALL

- Operation and maintenance of **Public Pressure Sewer Network** will be the responsibility of Council.
- Council may monitor tank volume, pumped volumes, pressure and/or pump run hours of **On-property Equipment** to determine appropriate use of the pressure sewer system or a particular pump unit.
- QLDC may require the installation of time-based pump controllers that optimize the network.
- Any damage to the pressure sewer system reticulation that compromises the safety of the property occupants, the dwelling and/or the operation of the sewerage system, will be rectified as soon as practicable once coming to the Council's attention.
- Council may utilise provisions within the Local Government Act and / or Integrated Three Waters Bylaw to rectify any issues associated with operation of the **Pressure sewer system**. Such provisions may include the recovery of costs due to negligent use or deliberate damage.
- Review pressure sewer designs to confirm standards are met.
- Inspect and audit at their discretion **On-property Equipment** installations.
- Maintain as-built and GIS records of **Pressure sewer systems**.
- Maintain a database of all pump serial numbers together with the delivery and installation dates.
- Provide general information on pressure sewer systems to members of the community needing assistance.

5.2 HOUSEHOLDER SHALL

(Note: The 'householder' may or may not be different to the property owner and is defined here as being "Those individuals usually resident at a property".)

- Read, understand the contents of the 'Home Owners Manual' and comply with the operational and maintenance requirements of the **On-property Equipment** and the actions required if the alarm activates.
- In the event an alarm occurs minimise the risk of a wastewater spill occurring. This may include reducing water usage.
- In the event an overflow occurs take all practicable steps to minimise the damage caused by the spill.
- Shall be responsible for responding to and reporting incidents resulting in spills or leaks whether from on property equipment or in the public pressure sewer network to the QLDC and Otago Regional Council and Property Owner.
- Not discharge into the system any of the substances, or items, indicated in the 'Home Owners Manual', 'Integrated Three-Waters Bylaw' and 'Integrated Three-Waters Bylaw administration manual' as being inappropriate.
- Limit the volume and flow of discharges to the pressure sewer system to within the pump unit's design capacity.
- Keep stormwater out of the system.

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- Be responsible for blockages within the private owned sewer.
- Meet the costs of power for the operation of the **On-property equipment**. If a power interruption occurs as a result of causes other than supply failure (e.g. intentionally switching the power off or failing to meet the costs of the supply) the householder shall minimise the risk of spillage and rectify the supply of power as soon as possible. The Council is not liable for any damages that may result from a power interruption.

5.3 PROPERTY OWNER SHALL

- Arrange for the approved **On-property Equipment** to be consented, installed by an approved supplier and to Council's Land Development and Subdivision Code of Practice .
- Shall be responsible for the operation and maintenance (or failure) of **On-property Equipment**.
- Shall be responsible for responding to and reporting incidents resulting in spills or leaks whether from on property equipment or in the public pressure sewer network to the QLDC and Otago Regional Council.
- Ensure the householder has a copy of the 'Home Owners Manual', 'Integrated Three-Waters Bylaw' and 'Integrated Three-Waters Bylaw administration manual' and an understanding of what to do if an alarm activates.
- Decommission the existing on-site wastewater treatment system when the pressure sewer system has been commissioned.
- Design and install the pressure sewer system in accordance with Council's Engineering Standards.
- At all times maintain the private drainage system to minimise the entry of storm water or groundwater via inflow or infiltration.
- At all times maintain any pre-treatment units that may be required for the satisfactory operation of a pressure sewer system.

5.4 LEVEL OF SERVICE

Domestic Premises (as defined by the Integrated Three Waters Bylaw)

- Wastewater flow, quantity, and quality shall comply with the Integrated Three Waters Bylaw.

Non Domestic Premises

- In general pressure sewer systems are not appropriate for non-domestic wastewater. The Chief Engineer may consider connection of non-residential properties to a pressure sewer system. Factors taken into consideration may include: flow buffering, pre-treatment, peaking factors, and pump configuration.

5.5 SPAS AND SWIMMING POOLS

Swimming pools, spas and other high water use appliances shall not discharge to the pressure sewer system unless appropriate flow restrictors are installed. Any such flow restrictors shall be subject to Council approval.

5.6 MODIFICATIONS TO PROPERTIES

Changes to wastewater flow from a property, for example due to change in land use or building extension, may require review and upgrade of the pressure pumping unit and associated equipment. This may require review of the wastewater development contribution.

Building over discharge lines located on private property shall comply with the Council's "Building over drains policy" and Building over Council Infrastructure Section (5.3.14) of the QLDC Land Development and Subdivision Code of Practice (QLDC LDSCOP).

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6 APPLYING TO BECOME A PRESSURE SEWER SYSTEM AREA

Application of a pressure sewer system will be within areas defined by Council as being reticulated by way of pressurised sewer. Application of a pressure sewer system outside of these defined areas shall not be permitted unless approved by the Chief Engineer.

Where developers believe a pressure sewer system will provide benefit to the Council, they may apply to Council to utilise a pressure sewer system following the process shown in Figure 4.

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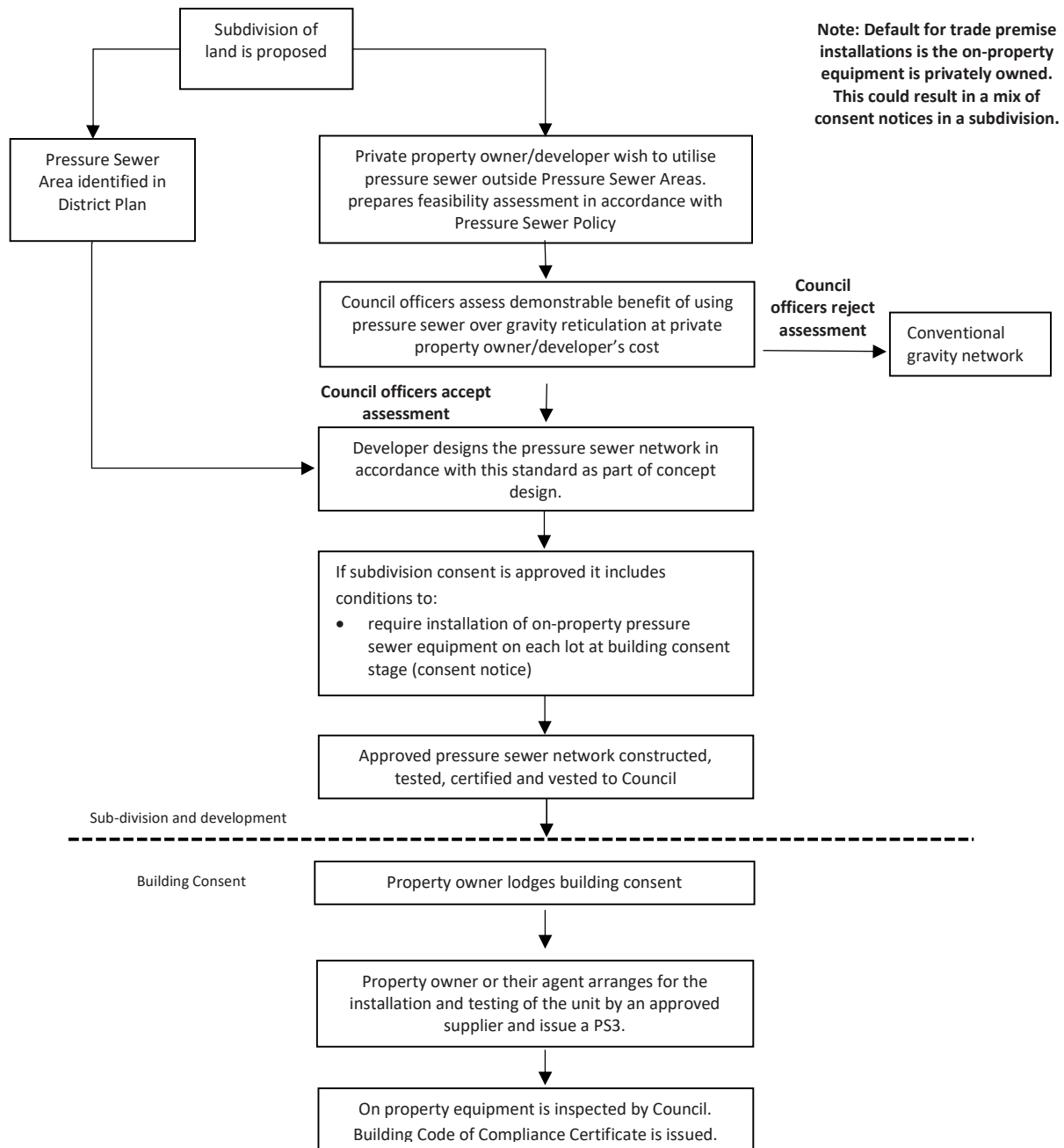


Figure 4: Process to utilise a Pressure Sewer System

Note: For vacant lots, the Consent Notice on the Certificate of Titles for the properties being sold will indicate that the property shall be serviced by a pressure sewer system including general information for potential buyers.

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7 SUPPORTING DOCUMENTATION – PRESSURE SEWER SYSTEMS

- i. Queenstown Lakes District Council Land Development and Subdivision Code of Practice
- ii. *Home Owner's Manual* - Pressure Sewer Systems
- iii. Water New Zealand Pressure Sewer National Guidelines 2020
- iv. New Zealand Building Act and Building Code
- v. Water Services Australia, 2007. Pressure Sewerage Code of Australia. WSA 07-2007
- vi. Queenstown Lakes District Council, Guidelines for Environmental Management Plans
- vii. Queenstown Lakes District Council, Integrated Three Waters Bylaw
- viii. Queenstown Lakes District Council Building Over Drains Policy and Application to build over or near a Council Pipe or Drain
- ix. Local Government Act 2002
- x. Public Works Act 1981
- xi. Queenstown Lakes District Council Development Contributions and Financial Contributions Policy
- xii. Queenstown Lakes District Council Proposed and Operative District Plan

8 PRESSURE SEWER SELECTION TOOL

Gravity sewer is Council's default option except where pressure sewer is shown to be advantageous. The following tool shall be used to assess its viability.

| | Answer Yes, where applicable | Pressure Sewer Preferred |
|----------|----------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 1 | General Conditions | |
| A | Very flat ground, requiring deep sewers and/or numerous network pump stations (i.e. more than 1 network pump station / 100 properties) | |
| B | Undulating, requiring deep sewers and/or numerous network pump stations (i.e. more than 1 network pump station / 100 properties) | |
| C | Very soft ground | |
| D | Rocky ground, making excavation expensive | |
| E | High Groundwater table (risk of infiltration) | |
| F | Environmentally sensitive areas | |
| G | Is it a retrofit project? | |
| | Count 1 (Yes) | |
| | Whole of Life Costs | |
| 2 | Is the 25-year NPV assessment for Pressure Sewer less than for the Gravity Option | |
| | Count 2 (Yes) | |

If Count 1 x Count 2 is > 0, then consider Pressure Sewer System.

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