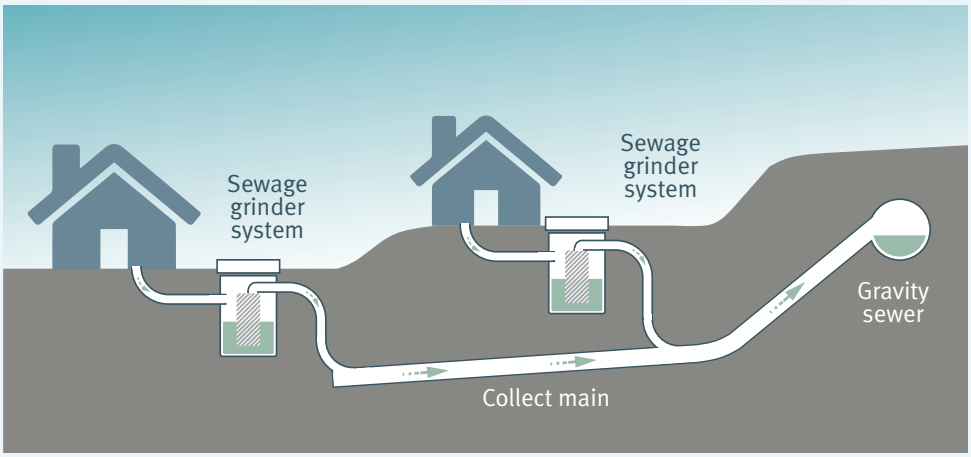
Subdivision guidance note

Pressure wastewater collection (PWC) systems

Fact sheet
April 2021



These systems are suited for up to 50 dwellings where a gravity system with a public pump station is not cost effective

PWC systems have minimal scope for future expansion

The onsite grinder pumps are owned and maintained by the property owner. Watercare ownership starts at the property boundary between the pump and the collection main

The purpose of a PWC system

Pressure wastewater collection systems – or low-pressure systems – are sometimes needed to pump wastewater from low-lying areas up to a gravity discharge system.

Typical features of a PWC system

- Wastewater discharges from the house through normal gravity pipework into the pump storage tank
- The storage tank provides a minimum of 24 hours' storage volume in the event of a power failure or need for maintenance
- The grinder pump is a small unit operated through an onsite control system to manage pumping levels and timing of discharge into a pressurised wastewater collection main
- The pressurised collection main is a low-pressure system of typically up to 40-metre head operating pressure
- The collection main discharges to a gravity system
- A boundary kit is installed at all property boundaries this allows the pumps to be isolated from the collection main when we need to do maintenance and prevents neighbouring pump stations from flooding.

Our ownership policy

The pump system are owned by the property owner. This is because:

- Owners need to be responsible for what is flushed. These systems can be damaged by non-flushable items
- Accessing pump stations on private property is problematic

Considerations when planning a PWC system

! Private pumps are expensive to maintain and replace. These costs are the responsibility of the house owner.

! If there is a long power outage, the wastewater must be tankered off site.

! PWC systems may cause odour problems and must be designed to eliminate this risk

! Approval for PWC systems is limited to small areas that are isolated from conventional gravity systems. This system may not be approved if other options are available.

Key standards

Design

- CoP-02 Wastewater chapter of the land development code of practice
- DP-09 Electrical design
- MS Material supply
- 7363 CAD manual

Construction

- CG Civil construction
- ME Mechanical construction
- EC Electrical construction
- MS Material supply

Commissioning and handover

- CoP-03 Commissioning code of practice
- 7363 CAD manual
- AI series for asset information

Quality assurance

- Compliance policy
- Construction QA templates

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Subdivision guidance note *continued*
Wastewater pump stations

- Show the total catchment it will service
- Show the proposed discharge location of the collection main and its suitability
- Demonstrate appropriate nuisance management
- Show that the collection mains are located in public land or the road corridor
- Demonstrate the layout of the system flows in a single direction without any looped mains
- Demonstrate how the development will be phased to connect to the system, starting near the discharge point and moving outwards
- Provide a flushing plan that will be maintained by the applicant until the system reaches hydraulic self-cleansing

Engineering plan approval requirements

- Geotechnical report
- Basis of design report
- Developed hydraulic model of the PWC system
- A comprehensive design report that includes:
  - ✓ Site engineering and detailed calculations
  - ✓ Value engineering and selections
  - ✓ Assumptions and alternatives
  - ✓ Functional description
  - ✓ Design drawings
  - ✓ Site-specific construction specification
  - ✓ Nominated construction monitoring levels
- Project execution plan
- Risk analysis
- Operations and maintenance manual

Construction deliverables

- Construction and environmental management plan
- Quality control and test records
- Material records
- Construction monitoring records
- Updated operations and maintenance manuals
- Standard operating procedures
- As-built information and drawings
- Compliance statements

Commissioning and handover

All systems must be checked and configured in accordance with our commissioning code of practice. In some instances, we may require the PWC system to operate for a period of time to prove system's hydraulic and equipment performance.

We will require the following documentation:

- Updated operations manuals, functional descriptions, drawings and electrical certification
- Factory acceptance testing
- Commissioning plan
- Commissioning records
- Commissioning report
- The system hydraulic model

Standard solutions

Using standard solutions makes the approval process easier. Our standard shows typical layout details that can be used for your site. We provide a list of approved pump station systems and boundary kits that meet our requirements to connect to the public wastewater system.

Application requirements
Considerations for resource consent

You will need to:

- Justify the need for a PWC system and how it fits with the overall wastewater servicing strategy

Useful links:

www.watercare.co.nz/Water-and-wastewater/Building-and-developing/Engineering-standards-framework

www.aucklanddesignmanual.co.nz/regulations/codes-of-practice

http://www.legislation.govt.nz/act/public/2002/0084/latest/DLM170873.html

Legalities

Our obligations under the Local Government Act 2009

- Manage operations efficiently, keeping overall cost at minimum with undertakings maintaining long-term asset integrity
- Not pay dividends or distribute surplus
- Regard for public safety in relation to our structures

Water and wastewater bylaw

- Any new assets vested or to be connected must comply with Watercare's relevant codes of practice and standards
- Watercare is not required to accept any vesting or connections that does not comply
- Protection of the water supply and wastewater networks as necessary to achieve obligations

Nuisances

- Our operations and infrastructure may not cause certain nuisances under the Health Act such as odour and noise.

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