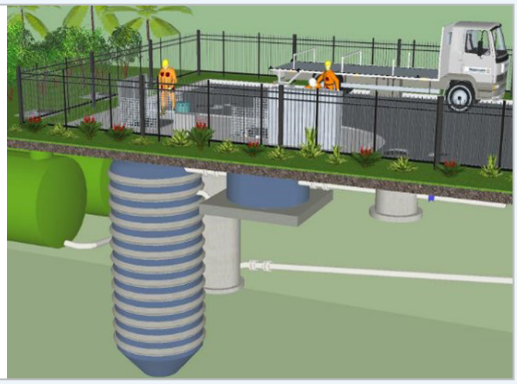
Guidance notes
Wastewater pump station

Fact sheet
April 2021

Options to gravitate flow to a larger system or use of a small footprint solution e.g: a vacuum system or low pressure collection system must be exhausted

Collect wastewater from more than 50 dwelling units.



The purpose of a network wastewater pump station

Wastewater pump stations collect larger areas of gravity wastewater systems and pump the waste over geographical constraints to the larger collection system.

Pump stations range in complexity from simple wetwell pump stations to more complex wetwell/drywell arrangements and chemical dosing. The purpose and location helps to determine the best approach.

Typical features

- Situated in low-lying areas to collect wastewater
- Safe in all conditions with hardstand areas for service vehicles
- Has an underground wet-well, typically with two pumps and a valve chamber that is either free-standing or connected to the wet-well
- May have additional underground storage
- Has an automated wash-down feature for the well and storage to reduce odour and corrosion issues
- Has a control cabinet (we use standardised cabinets for re-usability and resilience)
- Has a lifting device such as a davit to allow for lifting equipment into the well and onto service vehicles
- May have a fence around the site (not required in all situations) residents and their health and safety environment.

What to watch out for when planning a pump station

! The servicing strategy – we need to look after our pump stations once they become operational. When there are a number of pocketed pump stations they become time consuming and operationally intensive to operate. We always prefer a collaborative approach to servicing new areas.

! Hydraulic design is critical to evaluate pump and pipe sizing. Flow velocity and pipe length is critical to prevent septicity (odour and seepage) in wastewater systems.

! Some areas cannot be serviced by telemetry without huge investment. It may put the proposed pump station elsewhere.

! The rising main must discharge at a high point to ensure the main is always filled with water to prevent hydraulic hammer when pumps re-start.

! High points require air discharge and additional air treatment. Low points require a discharge washout.

! Low laying areas are prone to flooding so pump stations and equipment must be protected and suitably located.

Key standards

Design

- CoP-02 wastewater chapter of the land development code of practice
- DP-06 Network wastewater pumping stations
- DP-09 Electrical design
- MS Material supply
- DP-12 Architectural design
- 7363 CAD manual
- AI asset information

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 for asset information

Quality assurance

- Compliance policy
- Construction QA templates

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Guidance notes *continued*
Wastewater pump station

What we require to process your application

Considerations for resource consent

- Justify the need for a pump station and how it fits within our wastewater servicing strategy
- Identify the location of the pump station and the catchment that it will service
- Show how the site will be serviced with applicable telemetry
- Demonstrate how the pump station site will be serviced when it comes to maintenance and future replacement
- Show the proposed discharge location and demonstrate its suitability
- Propose an appropriate emergency overflow location and demonstrate that the frequency of the overflows will comply with our network discharge consent
- Demonstrate suitable nuisance clearances from neighbouring properties
- The pump stations and rising mains must be located on public land and in the road corridor.

Engineering plan approval (EPA) requirements

- Geotechnical report
- Basis of design report
- 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
- New assets register.

Construction deliverables

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

Commissioning and handover

Before we can take over the operation of a new pump station, it must be operating in the correct manner. Commissioning involves the running of the pump station under the expected operating conditions. All systems must be checked and configured in accordance with our commissioning code of practice. We will require the following documentation:

- Updated operations manuals, updated functional descriptions, updated drawings and electrical certification
- Construction quality control has been completed
- Factory acceptance testing
- Commissioning plan
- Commissioning records
- Commissioning report.

How to streamline the process

- Use our standard solution and standard details
- Documentation should be accurate and complete
- Use our templates for electrical drawings, operational documents, construction quality assurance and commissioning records.

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/2009/0032/latest/DLM2044909.html

www.watercare.co.nz

Legalities

Our obligations under the Local Government Act 2009

- Manage operations efficiently, keeping overall cost at a 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 our relevant codes of practice and standards
- We are not required to accept any vesting or connections that do 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

Network discharge consent

- Authorises the discharge of wastewater from our wastewater networks to land, freshwater and coastal receiving environments under a set of rules.

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