# Pressure Sewer National Guidelines
# WaterNZ
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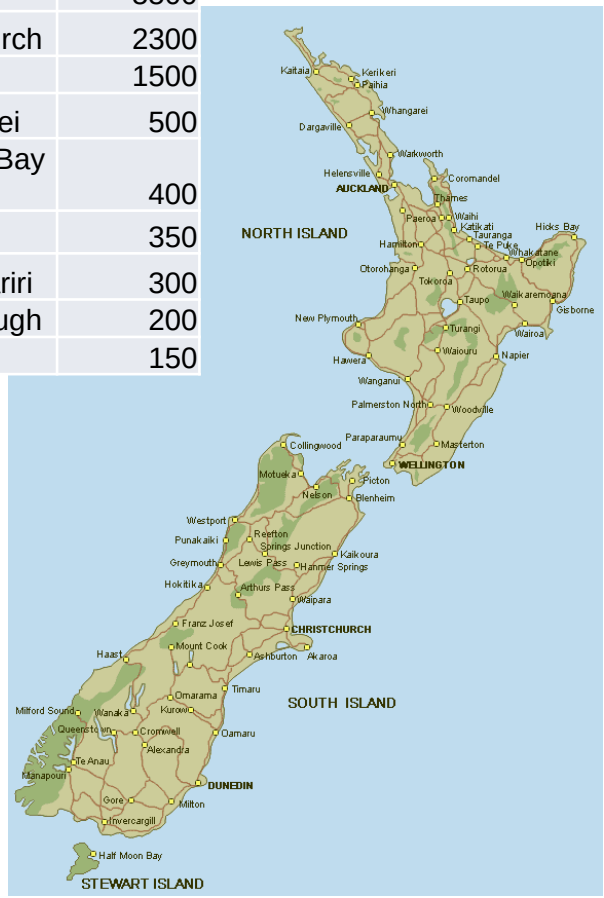
# Pressure Sewer National Guidelines

## For or against?

Some for and some against, but already more than 12,000 household units installed and operating in NZ and more anticipated -

So Need A Plan

| Area | Number of Units |
|---|---|
| Auckland | 5500 |
| Christchurch | 2300 |
| Rotorua | 1500 |
| Whangarei | 500 |
| Western Bay of Plenty | 400 |
| Far North | 350 |
| Waimakariri | 300 |
| Marlborough | 200 |
| Waikato | 150 |



# Pressure Sewer National Guidelines

a) Ownership Model and Policy
   a) Private Ownership
   b) Public Ownership
b) Design Approach

c) Technical Issues

d) Operation & Maintenance

# Project Advisory Group

1. Jean de Villiers – Watercare Services Ltd
2. Mark Marr – Hamilton City Council
3. Mike Bourke – Christchurch City Council
4. Jon McGettigan - Ecoflow
5. Leon Hansen – Aquatec Enviro
6. Noel Roberts - WaterNZ

With input from Richard Pacholek (Nov Mono), Steve Wallace (Pressure System Solutions PL) and Peter Carroll (Aquate).

# Pressure Sewer National Guidelines

## Key Issue #1 – Dynamic Hydraulic Modelling

*Full understanding of what is happening and to correctly design the network regarding:*

- Minimum Velocities (to achieve self-cleansing)
- Maximum Pump Pressures (for optimal operation)
- Retention times (wastewater age < 4 hours)
- Air movement (air-valve requirement, location and size assessment)
- Tool for assessing Operational and Maintenance Requirements

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## Key Issue #1 – Dynamic Hydraulic Modelling

*Assessing the designed network's response under a range of conditions for:*

- Normal Dry and Wet Weather Flow
- Higher than Expected Inflows (Increase by 30%)
- Lower than Expected Inflows (Decreased by 30%)

  *E.g. due to holiday periods, changes in water usage*
- Restart after Power Outage or Maintenance Shutdown
- Effects on Existing Downstream Infrastructure

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## Key Issue #2 – Pressure Sewers Pump Uphill

*All pipes within the system remain full when no pump is pumping*

- Reduces issues with odour & maintenance requirements.
- Minimizes hydraulic issues with introduction of air into the network.
- Better system reliability and pump operation.
- Less design and operational complexity.

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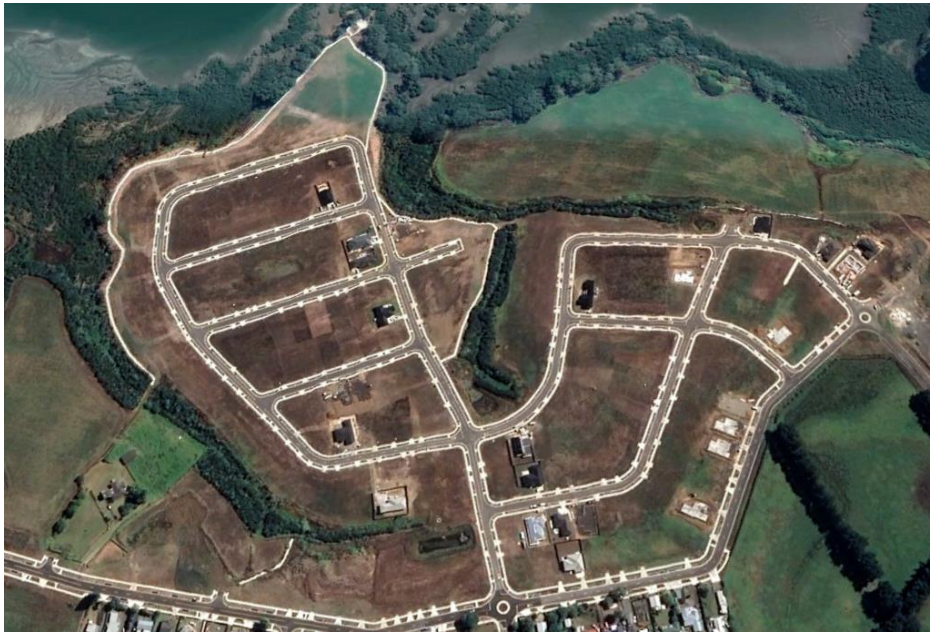
## Key Issue #3 –Consider interim buildout

*Due to long build-out times, need to consider how the system works before ultimate build-out achieved.*

Low buildout affects:

- Self-cleansing velocities
- Retention times

(odour and corrosion)



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## Key Issue #4 –Data Collection

*Minimum requirement for pressure sewer networks.*

- Flow meter required at the network outlet
- Pressure sensor at low point within the system

Allows the network owner/operator to:

- Assess the influence of I/I (if any), compare actual flows vs design flows - lower flows may identify potential areas in the network with higher septicity risk
- Sedimentation/bio-film formation can be assessed by comparing pressure data to the design model

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## Key Issue #4 –Data Evaluation

*Control Panel to allow upgrade (real time clock, programmable, data storage, IoT connection etc.)*

The Control Panel  also allows for:

- Programming

  (Flush flows to achieve self-cleansing and reduce septicity risk)

- Identification of issues

  (Abnormal pump operation, pump unit excessive use of emergency storage volume)

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## Any Questions?


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