

GOULBURN VALLEY WATER PRINCIPLES FOR PRESSURE SEWER APPLICATIONS

INTRODUCTION

When land is subdivided, the developer is responsible for providing water and sewerage services prior to Goulburn Valley Water (GVW) consenting to the release of the subdivision.

GVW has been considering accepting pressure sewer systems as an option to conventional gravity reticulation for some time, including for providing services in backlog areas, and has been assessing the merits of systems installed and operated by other agencies over recent years.

TYPICAL ARRANGEMENT

A typical pressure sewer system for a domestic property comprises a pump located in a storage well adjacent to the residence, with a discharge pipe connected to a rising main in the adjacent street. The well is sized to provide 24 hours storage for the property and the pump is connected to the power supply to the residence. A typical arrangement is presented in Figure 1

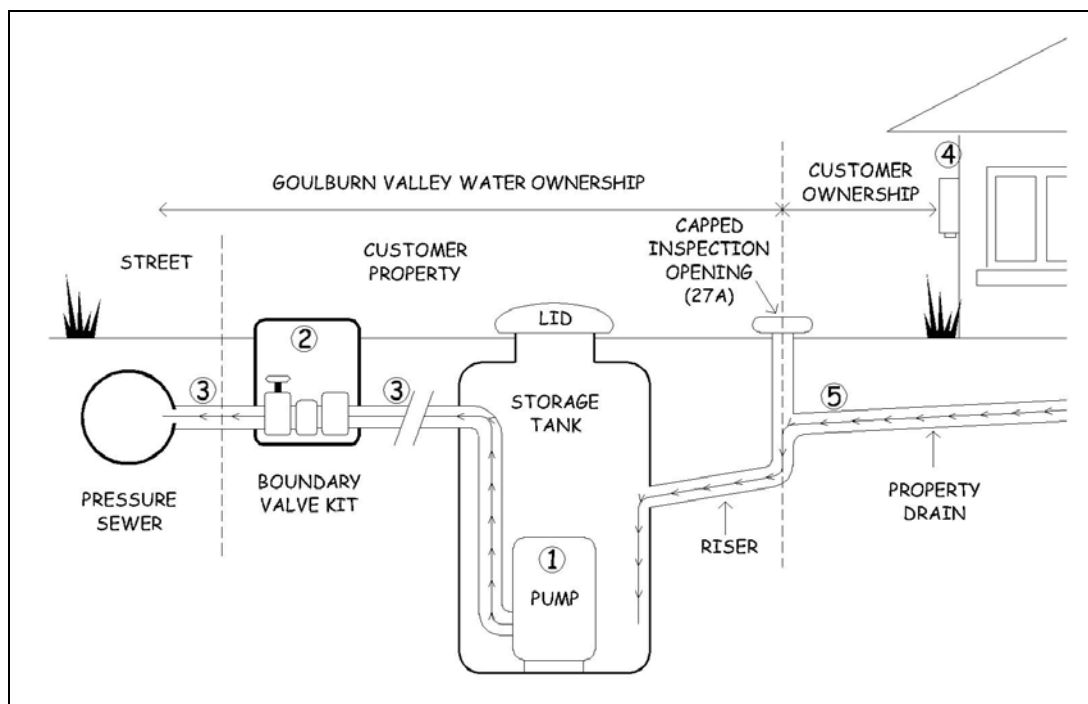


Figure 1 - Typical Pressure Sewer System – Domestic Application

LEGEND

1. Pumping Unit

This includes a small pump, storage tank and level monitors which are all installed underground so that only the top of the storage tank (or lid) is visible.

If required, a pressure sensor may also be fitted to the discharge pipeline and linked to the control panel to help control the operation of the pump.

2. Boundary Valve Kit

Ensures that wastewater which is already in the pressure sewer cannot re-enter the property and enables maintenance staff to isolate individual properties from the system in the event of an emergency.

3. Property Service Line

This is a small diameter pipe which connects the pumping unit on the property to the pressure sewer in the street.

4. Control Panel

This is a small box which is mounted to the wall of the house (property) containing all the electrical controls for the pumping unit including both the audible and visual alarm systems.

Capacity is to be provided for the installation (now or in future) of telemetry and pressure sensor. This may require the installation of a suitable antenna.

5. Property Drain

This is the drainage pipework connecting the discharge from the dwelling to the pump system. It is the responsibility of the property owner to install and maintain this pipework up to the capped Inspection Opening (I/O) in accordance with AS3500 and the Victorian Plumbing Regulations 1996.

PRINCIPLES OF GUIDELINES

Based on the experiences and policies of other water agencies, the key aspects of the Corporation's proposed guidelines for pressure sewer systems include:

- Any application to install pressure sewers requires approval from GVV;
- Conventional gravity sewers continue to be Goulburn Valley Water's preferred option to service properties and pressure sewers will only be used where benefits on a triple bottom line basis can be demonstrated;
- The developer installs the reticulation system outside of the property to Corporation standards at the developer's cost under a standard developer construct arrangement. The cost of supply and installing the pump and associated onsite infrastructure is also met by the developer;
- Goulburn Valley Water owns and maintains the pressure sewer system;
- The owner enters into an agreement with the Corporation which permits Goulburn Valley Water to enter the property to maintain the system as required;

- The owner accepts the installation of the assets on the property including the mounting of control panel and the connection of the pump system to property's power supply; and
- In accordance with the agreement, the owner is responsible for protecting the pump system and for any damage caused by the discharge of inappropriate wastes into the pump system.

Anyone investigating the option of installing a pressure sewer system should refer to the "Pressure Sewer Systems – Guidelines" for selection criteria, developer costs and applications required to gain GVW approval.

STANDARDISATION WITH YARRA VALLEY WATER

Goulburn Valley Water has elected to standardise with the policies and practices of Yarra Valley Water (YVW) for the preparation of the agreement and guidelines for pressure sewer systems.

Goulburn Valley Water share a common boundary with YVW in the southern section of the Corporation's region which includes areas of hilly, environmentally sensitive or difficult terrain. This area is regarded as the most likely within GVW's region where pressure sewer systems may be installed in the future to service whole small communities. YVW is currently installing pressure sewer system in backlog towns to the south of this border and standardisation will provide common systems in the broader local area.

The common items and practices from YVW that GVW has adopted and customised to suit GVW include the following:

- Pumping System – The Barnes OGP pump and associated fittings from Aquatec Fluid Systems (Aquatec) is to be the standard pump system used for all pressure sewer applications – domestic and commercial/industrial. YVW selected the Barnes system and supplier Aquatec from an open tender process involving laboratory testing of pumps, financial analysis, etc. The OGP is regarded as currently the best available Barnes pump for this application and supersedes the model selected by YVW.
- Owner Agreement– The YVW agreement is to be used as the basis of the GVW agreement and will be customised to suit.
- Owners Manual – The YVW Owners manual will be modified to reflect GVW requirements. The format, terminology, conditions, etc, included in this document will be reflected in similar documentation written for GVW.
- Developer Charges for Future Installation of Units –In order for GVW to be able to consent to the release the lots in a subdivision as "being sewerred" a charge must be collected from the developer which recovers the costs of installing the pressure sewer pumping units at some time in the future.

These contributions will be held by GVW until the customers are ready to connect – at which time a suitable contractor accredited with Aquatec to install the pumping unit would be engaged by the owner. GVW will refund costs to the owner once all requirements are satisfied. Please refer to the "Pressure Sewer Systems – Guidelines" for details on requirements for Installation of On-Property Assets.

GVW CONDITIONS

Further to the policies and practices of YVW the following conditions are included by GVW:

- Odour Control – All feasibility reports submitted are to address the issue of the generation of odour from the pressure sewer system and provide approved engineering solutions, at the developers expense, to mitigate any odours. This may also include a contribution to the ongoing maintenance of these systems.

To assist with odour control, the preferred discharge point for a pressure sewer main is to be directly into the wet well of an existing sewage pump station.

- Pressure sewer mains to be located in road reserves or public land only – the sewer reticulation main cannot be constructed through private land. The only pipe allowed through private land is the property service line within the property being “sewered”.
- Pressure Sensors – required to be installed on the pump unit when the pressure main discharges into a sewer rising main or large pressures are generated by some pump units in the system (eg. servicing elevated lots). This will enable the pump unit/s to be set to not run against the sewage pump station upstream or when there are excessive pressures in the pressure sewer pipelines.
- Flow meters – required to be installed on the discharge from all commercial and large residential developments. They are also to be installed on the discharge from a long rising main (greater than 1 km) into a sewage pump station to enable the flow meter to be monitored and alarmed. This would comprise a small diameter Magnetic flowmeter located in a standard pit.
- SCADA monitoring – A telemetry system is to be installed to provide a low cost communication link into the GVW SCADA system through an existing GVW SCADA unit. This can be achieved various ways, including at the discharge sewage pump station or other GVW asset. This will enable a fault message to be sent to the asset switchboard where an alarm can be activated via SCADA.

The telemetry link is to be installed at all units located in environmentally sensitive areas, such as within 50m of a river, wetland, etc, for all large commercial and industrial properties using a pressure sewer system and to monitor discharge flows into and from long pressure sewer mains (greater than 1km).

If no SCADA unit is available, then a SCADA station may be required to be installed on the main discharge pump unit from a development.

If an alarm is activated, it will alert GVW staff that there is a fault in a pump unit within a pressure sewer system. Staff can then program a future visit to locate the unit with the fault and identify repairs/maintenance required. It could also enable alarming of a possible leak in a long rising main as SCADA could be used to monitor if flow is detected at the discharge within a certain time of an upstream pump unit operating.

FURTHER INFORMATION

If you require any further information regarding the pressure sewer guidelines, please contact:

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