

GORE DISTRICT COUNCIL
SUBDIVISION AND LAND DEVELOPMENT BYLAW

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SECTION 8

WASTEWATER

8.1 SCOPE

This section covers the design and construction of wastewater systems to on-site disposal or to existing piped networks. It does not cover the more specialised area of centralised treatment facilities. Details of Council's requirements for these may be obtained on request.

The scope does not include any building work as defined under the Building Act 2004. In any areas of overlap the Building Act and the New Zealand Building Code take precedence.

This section of the bylaw shall be read with Sections 10 and 11, which set out general requirements for trenching and backfill of underground pipes.

Reference should also be made to relevant Regional Plans.

8.2 OBJECTIVE

The practices specified or advised in this section are intended:

- (a) Within reticulated areas to provide wastewater systems that meet the needs of people and communities, including:
 - Separating the wastewater system from the stormwater system; and
 - Ensure plumbing and connections used do not cause damage or wear to the system and are designed for a reasonable service life
- (b) The building of wastewater systems is "sustainable" as possible so as to limit any long term adverse effects and help "Future Proof" the subdivision or land development

8.3 PERFORMANCE STANDARDS

Wastewater pipe network and disposal facilities shall be designed and constructed in conformity with this Bylaw and associated Standard Drawings, so that:

- (a) The general performance standards of Section 1.4 are met.
- (b) The facilities are adequate for the maintenance of public health and have no harmful effects on the environment.
- (c) Stormwater and groundwater are prevented from ingress to the reticulation parts of the system.
- (d) Domestic systems on reticulated water supply systems are designed for flows of 220 litres per head per day. For flow estimate purposes 3.1 persons per household and 15 households per hectare should be used. This flow is subject to peak loading factor of four times the average flow being applied.
- (e) Commercial and industrial systems are designed for parameters approved at the time of development but with a minimum of 40 litres per second per 100 ha. This flow shall be subject to a peak loading factor of four times the average flow

and applicable to a development of 100 hectares.

- (f) Self cleansing velocities (with a minimum of 0.65 m/sec) are maintained within gravity systems.
- (g) The systems are capable of passing 75 mm solids.

Dispensation may only be permitted subject to approval of Council (see Section 15).

8.4 METHOD OF DISPOSAL

Onsite disposal of wastewater may be permitted where:

- (a) No piped system is immediately available.
- (b) No piped system is available immediately adjacent or within a reasonable distance of the site. The definition of what constitutes a reasonable distance is set out in Clause 2.4 of this bylaw.
- (c) The site is capable of disposing of treated effluent without harmful effects on the environment.

In all other cases wastewater is to be collected and disposed of to an existing Council system, via a localised pump station if necessary. Financial contributions are payable, as set out in Section 10 of the District Plan.

8.5 PRIVATE ON-SITE DISPOSAL SYSTEMS

Septic tanks for on-site domestic wastewater treatment must be designed in accordance with AS/NZS 1546.1 On-Site Domestic Wastewater Treatment Units, Part 1, Septic Tanks.

On-site disposal systems shall be designed and constructed in accordance with AS/NZS 1547 On-Site Domestic Wastewater Management.

Where on-site disposal is proposed the developer will be required to demonstrate the ability of the ground to accept and dispose of the treated effluent in accordance with the above standard.

The disposal area shall be wholly contained within the allotment serviced.

If ground conditions are considered to be marginal in any way Council will require a specific design, based on on-site investigations, to be submitted either at the time of subdivision application, section 223 certification, or when seeking a building consent for the site.

On-site disposal systems shall be managed and maintained by the owner so as to ensure continued operation and efficiency.

Where sludge or other material is being disposed of to land from any on-site treatment or disposal system it is required to comply with the requirements of any relevant regional plan or resource consent issued by Environment Southland.

Where disposal is to Council's reticulated system the documentation required by the New Zealand Waste Tracking System shall be submitted to Council and appropriate fees paid.

8.6 RETICULATION DESIGN

Piped sewer systems shall be designed to meet the performance standards and in addition all sanitary drainage systems shall be capable of serving the entire catchment upstream of the actual system. The flow from the upper section of catchment shall generally be calculated assuming complete urbanisation of the area or other such specific uses as Council may require.

Provision may be required to be allowed for the flow from a pumping station outside the natural catchment, the details being supplied by Council.

In no case shall a sanitary sewer main be less than 150 mm internal diameter.

The minimum coefficient of roughness used in flow calculations shall be $K = 1.5$ mm.

Minimum pipe gradients shall be as set out in Section 11.5.

8.7 VALVES AND FITTINGS

All fittings shall be of the type specifically designed for use with the pipe in which they are inserted. No fabricated fittings, adaptors, end seals, etc shall be used without permission from Council.

Valves and fittings shall be installed and fixed in accordance with accepted practice and the manufacturer's recommendations. The position of all valves, fittings and bends shall be marked by the developer by an approved method adjacent to the fitting at the time of backfilling. No fittings are to be backfilled until approved by Council.

All connections to PVC pipes shall be by purpose made tees or saddles. Unbalanced thrust in the vertical plane resulting from sharp changes of grade, sufficient to warrant special bends, shall also be provided against.

Upward thrust shall be countered by special anchors to Council's approval. Downward thrust shall be countered by thrust blocks at least 200 mm thick on the firm bottom of the trench with a minimum ground bearing area of 400 x 400 mm.

The faces of flanges shall be perfectly clean before jointing and the joints shall be made with approved rings of insertion rubber not less than 1.5 mm thick. The nuts shall be carefully tightened in opposite pairs until the joint ring is only just sufficiently compressed between the flanges to ensure water tightness at test pressure.

8.8 PIPE LAYING

Pipe laying shall be in accordance with Section 10 of this bylaw.

Where pipes are bedded, capped or surrounded in concrete, provision shall be made for breaking the concrete at each pipe joint to preserve the flexibility. This can be done by inserting a piece of "soft board" into the wet concrete at the time of pouring.

Where thrust blocks are required they shall be as set out in Section 7, Water Supply.

8.9 COVER

Cover to pipes shall preferably be not less than 900 mm in roads or 750 mm in driveways, berms, footpaths or gardens. Exceptions will be permitted only where absolutely necessary and where concrete encasement is provided.

8.10 PUMP STATIONS

Pump stations to service new subdivision areas or other land development will be permitted only where there is prior agreement with Council on need and positioning.

Pump stations shall meet the following performance standards:

- The pump well shall be underground and have lockable aluminium or stainless steel lids complete with the installation of a standard Gore District Council padlock for all opening lids.
- Valve chambers shall be below ground level, attached but separate to the pump well. Provision shall be made to bypass the pumps in case of breakdown. Non-return valves shall be ball-valves full-bore opening. Valve chambers shall have lockable aluminium or stainless steel lids complete with the installation of a standard Gore District Council padlock for all opening lids.
- Residential pump stations shall be designed for a peak flow rate of 1 cubic metre per person per day of the fully developed catchment. Pump stations with non-residential catchments will be subject to specific design and must be approved by Council.
- The capacity of the wet-well shall be of sufficient volume and shape so as to limit the frequency of pump starts, allow cooling of pumps, minimise build up of sludge and to minimise potential odours. The dimensions of the wet-well shall be such that under maximum flow conditions the number of starts for the pumps shall not exceed the pump manufacturer's recommendations.
- Pump stations shall have emergency storage in case of mechanical or electrical failure or blockage of the pumps or rising main. The storage must be located at such a level as to prevent overflow from any manholes, gully traps, pump station lids or any other outlet from the system. Emergency storage capacity equal of eight hours at the design average daily 220 litres per person per day flow is to be provided.
- All pump stations shall have an approved and controlled overflow system which discharges in such a manner to ensure maximum storage is used prior to discharge.
- A rigid ventilation pipe shall be provided with breather cap at least 3 metres above ground level.
- A 25 mm diameter water supply shall be provided to the immediate vicinity of the station. The supply shall be fitted with an above-ground backflow preventer in accordance with the requirements of the Water Supply Protection Regulations and Council.
- If required a Mag Flow meter complete with all electrical and data cables shall be fitted to the main outlet of the pump station.
- The actual site of the pumping station shall be on a separate lot with an accessway (if required) to a formed road. Resource consent may be required for the installation, and where necessary must be obtained by the Developer prior to the commencement of engineering works. The site shall be developed to prevent entry of surface runoff into the station.
- Permanently surfaced vehicle access and manoeuvring areas shall be provided to the station. Surfaced vehicle access shall be provided to the wet well to allow access for vehicles for lifting of pumps and maintenance of the well.
- The area around the pumping station shall be fenced if required to Council's satisfaction, and such that Council shall not become a party to fencing costs.
- The power supply to the station shall be underground.

- The main switchboard shall be mounted on a concrete plinth which extends at least 1,200 mm from the front of the switchboard and 300 mm on the other three sides.

Pumps shall be as follows:

- There shall be a minimum of two pumps in all pump stations.
- Pumps shall be of a make approved by Council, three phase submersible type designed for each to take the full flow and be capable of passing a 75 mm diameter solid.
- Pumps shall be controlled so that while one pump is acting as duty pump, the other is on automatic stand-by.
- Each pump shall have power factor correction to 0.95 or better.
- If available each pump shall also have oil seal monitoring and thermistor or micro-therm protection (oil seal monitors supplied by pump supplier).

Pump control shall include:

- Multi-trode level stick with 3 x floatless relay switches (Omron or similar approved). Alternatively an ultrasonic level transducer with pump controller unit or a pressure transducer with pump controller unit can be used (prior approval from Council is required). Multi-trode to have "Start", "Stand-by", and "High" switches. That is duty pump starts at "Start" and stand-by pump starts at "Stand-by". Both run together until stop level. "High" switch triggers alarm.
- 2 x back-up float switches for "High-high" (overflow) (to be back-up supplied from back-up 12V DC battery) and "Low" levels. Floats to be hard wired to start both pumps if "High-high" tripped and both stop at stop level or when "Low" float tripped.

The electrical control cabinet shall be above ground level, constructed from a powder-coated stainless steel, weather proof, lockable enclosure (to IP 56 rating). The internal main switchboard metalwork arranged into cubicles (layout to be approved by Council). The enclosure shall be large enough to house the following items:

- The internal main switchboard metalwork, including supply authority metering.
- 1 x selector switch for Mains/Off/Generator.
- 1x load break main switch isolator appropriately sized, minimum 63A and HRC or circuit breaker type distribution board.
- 1 No. direct on line motor starter per pump (may need to be reduced voltage starter based on the supply authorities requirements) complete with overload protection, ammeter, hours run, run and fault light indication and auto/off/manual selector switches.
- Phase failure protection for each pump motor.
- High and low well level indication lights.
- 1 x 10A single phase RCD protected switch socket.
- 1 x 72 mm voltmeter c/w phase selector switch.
- 1 x portable generator appliance 3 phase plus neutral inlet and plug.
- 1 x light complete with switch.
- 1 x anti condensation heater and thermostat.
- Wet well cable duct shall be sealed to ensure wet well gas cannot enter cabinetry.

The control system shall be as follows:

- 1 x 25 watt Motorola or Tait radio and antenna system compliant with the Gore District Council Scada system.
- The radio shall have a 7 A power supply and a 17 Ah battery backup.
- The telemetry monitoring system shall be DATRAN.
- A standard Gore District Council padlock for all opening lids.

8.11 TREATMENT SYSTEMS

If a new treatment system is required to service a subdivision or other land development it shall be designed in accordance with best practice parameters advised by Council and in compliance with the conditions of resource consent. Approval of any system shall be at Council's discretion.

8.12 COMMUNAL SEWERAGE SYSTEMS

Privately operated communal sewerage systems are not encouraged but may be accepted by Council as a solution provided that the Developer can demonstrate that the following issues are addressed:

- Where required by Regional Plans, a discharge consent is obtained from Environment Southland, covering both water and air quality (odour) discharges.
- An adequate buffer distance is established between the sewerage treatment facilities and any building or potential building.
- Adequate buffers are maintained around discharge areas to separate these from open water sources and occupied land in accordance with the requirements of any Regional Plan.
- Constructed at adequate ground level to avoid inundation during flood events.
- For discharge to land, a stand-by area is set aside as a backup. Unless there are other mitigating features, the stand-by area shall be at least the same size as the calculated field area.
- Package systems are compatible with New Zealand systems and conditions and with Council's electrical requirements.
- The performance standards of Section 1.4 are met.
- Systems incorporate robust security measures to prevent or address the effects of vandalism and deliberate interference.
- A full asset management plan for the system is submitted to and approved by Council. This plan must address all life cycle issues including maintenance, depreciation and renewal costs.
- Acceptable levels of service are agreed with Council and are maintained.
- Electronic monitoring and reporting of the system operation is provided.
- Clear responsibilities for ownership, operation, maintenance and renewal of the system and for updating of the asset management plan are established with one person or organisation designated as the primary contact for all response requirements.
- Those responsible for the maintenance of the system have the appropriate competencies and all health and safety issues are addressed.