

Private Sewer Pump Station Procedure

1 Purpose

The City has developed this procedure and Private Sewer Pump Station Policy to detail the responsibilities of the developer and individual property owners with respect to construction, maintenance and operation of associated infrastructure and provides a basic guide to the City's expectations from such systems.

The City will **only** permit the installation of private sewer pump stations where all other opportunities to connect to the City's sewer by gravity have been exhausted, and a qualified designer can demonstrate that a gravity connection is not possible, or where the pump station will have environmental and/or social benefits.

All private pump stations can only service a single title property.

This document provides a procedure for the provision of private sewer pump stations within the City of Coffs Harbour (City) area.

2 Introduction

2.1 What are private sewer pump stations?

A private sewer pump station is a sewerage pump system located on private land where raw sewage is piped under pressure generated by pumping units contained on the private property. Private pump stations discharge to a nominated discharge point in the public sewer main.

The sanitary drains on the private property flow by gravity into the pumping station. From the pumping station, sewage flows to the designated system discharge point via the collective pressure generated by the pump located in the station.

The pump station must be appropriately designed according to the individual capacity of the property fixtures on each private allotment. The pump type should be specified by a suitably qualified designer and also contain a grinder to minimise blockages in the pipe systems. An alarm system must also be installed to warn the resident that the unit is not operating within present parameters.

2.2 What type of pump station?

The City has different requirements for private pump stations depending on their application. The requirements are as follows:

2.2.1 Single domestic dwelling

As stated by NSW Department of Health, under the provisions of Clauses 40 and 41 of the Local Government (General) Regulation 2021, the City must not approve the installation of sewer pump stations unless they have been accredited by the NSW Department of Health. The list of Accredited Sewage Ejection Pump Stations can be found on the NSW Department of Health web site:

<http://www.health.nsw.gov.au/environment/domesticwastewater/Pages/seps.aspx>

The chosen accredited system must be appropriately sized for its application.

Note: The list of accredited pump stations only includes systems that involve sewage of a domestic nature from a single premises, occupied by a maximum of 10 persons, or where the average daily flow of sewage is less than 2000 litres.

2.2.2 Commercial or multiple strata/community title domestic dwellings

These developments fall outside the guidelines set out for a single domestic dwelling and will be subject to subsequent investigation that confirms that this connection is possible and viable to the existing infrastructure. The City will require a full design by a consultant with appropriate skills and experience in sewage system design. Requirements are outlined below in the Design and construction of private sewer pump stations.

3 City's design and construction requirements

3.1 Design Approval

The City will only approve designs submitted by consultants with appropriate skills and experience in pressure sewerage system design.

Whilst the developer will be responsible for the design of the proposed private sewer pump station, the design will be subject to formal approval by the City.

The City may require that the developer also undertake analysis of the receiving sewers to ensure that the additional loading will not subsequently require an augmentation of existing receiving sewers, including downstream pump stations.

The City may alternatively advise the developer of an appropriate connection point based upon its own analysis of the public sewer system capability. The need for appropriate design is critical to the success of the individual units and its functioning as part of the City's collection system.

Installation and testing of private pump stations shall be completed prior to issue of an occupation certificate for building works. Principal certifying authorities should note that sewerage works may not be commissioned or used until they have been inspected and certified by the City, or a person authorised by the City to undertake such inspection and certification, in accordance with Section 21(a)(i) of the Local Government (General) Regulation, 2021.

Where private sewer pump stations are approved for new developments, detailed designs shall be undertaken in accordance with the latest edition of the Sewage Pumping Station Code of Practice (Water Services Association of Australia (WSAA 04)).

The switchboard associated with the operation of the pump station must have an 'hour run' meter and at application stage, details of the pump flow rates must be provided.

Owners of private pumping stations are responsible for all costs and charges associated with the installation, operation and maintenance. As constructed details, specifying to survey accurate standards, the location of the pressure main shall be submitted to the City.

The final connection to the sewer main will only be made after the pumping unit has been tested as per the latest edition of the WSAA Sewer Code of Australia (WSAA 04) or manufacturers requirements and found to be suitable for formal commissioning.

3.2 Connection of property sanitary drains to private sewer pump station

The property sanitary drains upstream of the private sewer pump station must incorporate an overflow relief gully and vent with all such plumbing to be in accordance with Australian Standard AS3500 National Plumbing and Drainage Code and the Building Code of Australia (BCA).

In particular, the overflow relief gully must not permit ingress of stormwater to the private sewer pump station. Properties in flood prone areas must install an anti-stormwater ingress device.

Connection of property sanitary drains from the private sewer pump station may only be undertaken by licensed plumbers.

3.3 Pump well capacity and operation

The pump well is to have a minimum capacity of greater than 900 litres per dwelling. All private pump stations are to include duty and standby pumps. The standby pumps are to be of equivalent capacity to the duty pump.

Pumping stations shall be designed with sufficient in-system storage so that in the event of pump or power failure, no overflows occur for a minimum period of 4 hours with inflow at average dry weather flow and 8 hours in the Solitary Island Marine Park catchment area. In-system storage shall be measured from duty start level to the level of the lowest relief point.

The City may require the developer/landowner to provide details on detention times and proposed strategies to minimise the detention times. Detention times should not exceed 2-4 hours where possible.

The pumps are to be installed to operate automatically as Duty/Standby and preferably be of the submersible electric type. Replacement pumps are to have the same specifications as approved by the City.

An alarm shall be provided in the form of a prominently positioned audible and visible alarm system, or a dedicated back to base monitoring service set to activate at the invert level of the incoming house drain. The contact details of the service agent are to be displayed on the control box onsite and details also provided to the City.

3.4 Cost

All costs associated with the connection of a private sewer pump station to the City's sewerage system shall be met by the landowner/developer.

3.5 Water supply

A hose tap must be located within 5 meters of the pump station, fitted with a high hazard backflow prevention device for maintenance purposes. Equal backflow prevention must be fitted on the property water meter for protection of the City's water supply. Backflow devices must be registered with the City and appropriate fees paid. The backflow devices are required to be tested annually and results forwarded to the City.

3.6 Private rising mains

Private rising mains are the responsibility of the property owner. The City's preference for connection of a private rising main is to connect to gravity sewer within the property it serves. Where connection within the property is not possible, the property owner may seek to install their private rising main:

- a) **through land owned by others** - It is the property owner's responsibility to negotiate with the owner(s) of the parcel of land required for private rising main installation to seek to obtain easement rights on this land. The rising main should be contained wholly within the legal easement. The property owner shall pay all costs associated with land or easement transfers.
- b) **within the road reserve** - Under Section 138 of the Roads Act 1993, prior approval from the City is required for any private rising main installation in a road reserve. The City of Coffs Harbour is responsible for managing the occupation of the road reserve (road-way and road-side) by others who undertake works within the Coffs Harbour Local Government Area.

The property owner must submit an Application to Undertake Works on a Public Road Reserve. Failure to obtain a permit or non-compliance with the permit conditions is a breach of the Local Government Act 1993 and/or the Roads Act 1993.

Under Section 142 of the Roads Act 1993, the property owner is responsible for maintenance of the private rising main within the road reserve. Any maintenance works in the road reserve requires prior approval from the City.

The property owner must also have a current Agreement with the City of Coffs Harbour to have any private rising main pipework in the road reserve.

3.7 Positive covenants

Where a private pump station is approved, it will be conditional that a positive covenant is placed on the property title specific to the private pump station.

3.8 Identifying properties with a private pump station

The property's drainage diagram and the Conveyancing Act, Section 88B instrument will be marked to indicate that the property is served by a private sewer pump station. This is specifically to allow the prospective land purchaser to discover, prior to their purchase, that the property is serviced by a private sewer pump station.

The property will be identified on the City's geographical information system to indicate that the property is served by a private sewer pump station. This information may be accessed by a request for information under sections 7, 8 and 18 of the Government Information (Public Access) (GIPA) Act 2009 and Schedule 1 of the GIPA Regulation 2009.

3.9 Existing private pump stations

All existing pump stations either registered with the City or not, are required to comply with requirements outlined in the *Private Pump Station Policy* and this procedure. Existing properties with a private pump station that do not have a current approval to operate must seek approval by completing and returning the application on the City's website.

3.10 Liquid trade waste (commercial properties)

All commercial pumping units connected up stream of a trade waste pre-treatment device e.g. grease trap, oil separator etc. are not registered under this procedure. Where liquid trade waste is generated a separate Liquid Trade Waste Application/ Approval is required. Contact the City's trade waste officers for further information.

Where the pump station well does not have uninterrupted venting e.g. Approved grease trap, the wet well will require a vent to atmosphere.

4 Operation and maintenance of private sewer pump stations

The owner is solely responsible for the operation, maintenance and repair of a private sewer pump station and rising main.

4.1 Normal operation of the collection/pumping unit

The collection/pumping units operate automatically and do not require any specific input from the resident. The collection tank is to be sized to provide sufficient storage to cater for power outages that might be experienced as part of normal operation. At the time of installation, the pump station manufacturer will provide the property owner with a Home Owner's Manual which sets out how the units operate and what the owner/occupier should do if an alarm occurs. The Home Owner's Manual will detail servicing standards, as well as what the home owner should do in response to any emergency (or alarm) situation.

4.2 Power operation

Owners/occupiers are not permitted to interfere with the electrical operation of the pump station. The City requires the pump station to be wired into the common switchboard in such a manner so as not to interfere with the normal electrical operation of the property, nor be accessible by the residents.

4.3 Maintenance of the pumping unit

The owner is to enter into a contract for the maintenance of the private sewer pump station with a suitably qualified person in accordance with the manufacture’s specification. Pump stations must be checked by the property owner’s contracted service provider as follows –

- a. Low Risk Property – Annually
- b. High Risk Property – Bi-annually

These maintenance inspections by the contracted service provider shall include checking of pumps, electrical components, float switches and high level alarms are correctly set and operating. The property owner is also encouraged to regularly check the pump station to ensure that there is no significant sludge build-up or other problems.

Maintenance reports from the contracted service provider must be forwarded to the City within 28 days for our records.

4.4 Risk categories and city inspection frequency

The City will periodically inspect all private pump stations as part of the renewal process for Approvals to Operate, with additional inspections following property transfer, and where the City has been notified of an environmental or public health risk associated with the operation of the private pump station.

To carry out effective and ongoing inspections and approvals, the City will classify all systems into risk categories. The City will then carry out inspections at intervals appropriate to the nominated risk category for each individual private pump station. A risk classification of low or high will be allocated to a premises or installation upon assessment by the City, based on the combined effects of issues relating to the installation.

Table 1 presents the inspection and approval frequency based on risk categories as determined by the City.

Table 1. Frequency of inspections and approvals by the City

Risk category	Inspections and approval frequency
High Risk	Yearly
Low Risk	Every four(4) years

In order to encourage appropriate management and maintenance of private pump stations, the City will provide opportunity for reassessment of individual systems. To request a re-inspection please contact the City. Such a review may or may not involve a reinspection of the system and may be subject to payment of a fee to the City as determined by the City’s adopted Fees and Charges.

The City may increase the risk category of a system if an inspection reveals it is not performing in a manner that complies with the City’s performance criteria or any conditions of the Department of Health.

Table 2 details the process for determination of risk category for new and or existing installations.

Table 2 Determination of Risk Category

Features	Response		Points
Buffer distance to permanent water (river/creek etc.)	<50m <i>2 points</i>	>50m <i>1 point</i>	
Occupancy/Flow Volume – 10 Persons / 2000 Litres/Day	>10 Persons / 2000 Litres/Day <i>10 points</i>	<10 Persons / 2000 Litres/Day <i>5 points</i>	
Number of pumps	Single pump <i>2 points</i>	Dual pump <i>1 point</i>	
Control panel and high level alarm	not complete or working <i>5 points</i>	Complete and working <i>1 point</i>	
Low	<11		
High	>11		

4.5 Home owner’s manual

The developer/landowner will supply a home owner’s manual to all owners of properties where private sewer pump stations are installed. The manual will outline operation and maintenance requirements of the pumping units. The manual will include details on the operation of private sewer pump stations including:

- a) Appropriate contact phone numbers
- b) Web site details for further enquires
- c) Emergency contact phone number of service agent
- d) What to do if the alarm sounds or flashes
- e) What to do in the case of a power failure
- f) What to do when going on holidays
- g) How to minimise waste water production in the case of an emergency

4.6 Maintaining the overflow relief gully

The property sanitary drain shall be connected to a controlled overflow mechanism such as an overflow relief gully trap. These will be identified as overflow relief gully traps on the property plan.

Properties are not permitted, under any circumstances, to block any overflow relief gullies such that they are unable to perform their normal operation.

In flood prone areas, special arrangements may be required in relation to overflow relief gully traps in order to prevent the intrusion of floodwater and damage to the system. Contact the City for further information.

4.7 Special requirements for spas and swimming pools

While private sewer pump stations do not prohibit high discharge applications such as spas and swimming pools, appropriate provisions need to be made to accommodate these discharges. The City’s preferred option is a separate connection to sewer at boundary. See Appendix A.

4.7.1 Spas

Sudden discharges from spas could either trigger the pumping unit high level alarm or, in a worst case scenario, result in an overflow at the residential overflow relief gully. The City may therefore recommend special requirements on properties which are proposing the installation of spas, which may include time delays on alarms, provision of a non-standard collection/pumping unit with additional storage in the collection tank or a buffering tank.

Special requirements for spas will be determined on a case by case basis. Formal approval under Section 68 of the Local Government Act will also need to be given to any agreed format of discharge and further approval will be required to vary this at any future stage.

4.7.2 Swimming Pools

The City requires that any property owner with a private sewer pump station currently owning a swimming pool (or installing a swimming pool in the future) regulate their pool backwash volumes and rates so as not to exceed the capacity of the pumping unit and to avoid alarms being needlessly generated.

There are a number of ways to drain or backwash pools without causing an alarm, and in general these will be dealt with on a case by case basis. For any proposed pools, the agreed format of discharge will be covered by a condition of consent for the dwelling or pool as part of the Section 68 approval.

4.8 Connection to Existing Gravity Main

The approved connection point for a private rising main shall be a nominated boundary shaft or the City manhole. Refer to Appendix A for connection detail.

4.9 Why Carry Out Regular Maintenance?

4.9.1 What is sewage?

Sewage is typically the combined liquid and solid waste from kitchens and bathrooms from either domestic or commercial properties. No other waste may be discharged into the sewerage system.

Some commercial premises may require additional treatment prior to discharge including grease and oil interceptors. For further information on waste from any commercial property please contact the City's Trade Waste Officers.

4.9.2 What is septicity?

A common problem with pumping stations caused by a combination of low flows and long periods between pumping out is septicity. Septicity can occur in wet wells or rising mains and is a result of bacteria multiplying in the anaerobic conditions. Septicity bacteria release hydrogen sulphide gas (H₂S) which in turn creates sulphuric acid on contact with moisture causing:

- a) Severe corrosion within the pump station, causing expensive pump and pipework damage
- b) Severe corrosion of surrounding equipment
- c) Foul odours being concentrated and released from the pump station and connecting pipework, causing complaints
- d) Corrosion of the City's sewer network requiring costly repairs
- e) Lethal gas hazard for persons entering the chambers

Another common problem with pump stations is breakdown of the pumps causing back-up of sewage on the property and/or overflow to the environment. Generally, this will occur during high flow periods such as wet weather and can take some time to have fixed. Pump

station failure will prevent use of toilets, kitchens and bathrooms due to the liquid waste not being able to drain to the pump station.

Problems with private pump stations will generally affect the property owner first, but can also have a severe effect on the City's assets. It is important for all pump stations to be properly maintained to prevent problems occurring.

Persons occupying the property where the pump station is located are also responsible for reporting any spill from their pumping station or rising main to the City under the Local Government Act. All spills should be reported immediately to the City on **02 6648 4000** (24/7).

The City will help with managing any pollution incidents and could possibly refer to the Environment Protection Authority (EPA) if necessary.

City of Coffs Harbour 24-hour emergency contact number	6648 4000
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The City reserves the right to impose additional requirements in the future, should the private pumping station create odour, corrosion or other problems in the City's sewerage system.

5 Application process

1. The landowners/developers submit an application to the City under Section 68 of the Local Government Act to install a private sewer pump station, pay application and site inspection fees.
2. The landowners/developers provide the City with a design plan for the private pump station in line with this procedure.
3. The City will review the application and issue the property owner with an approval to carry out private pump station work.
4. The landowners/developers are to submit an Application to Undertake Works on Public Road, if private rising main is to be located in the road reserve.
5. The licensed plumber or qualified installer must book inspections with the City at Installation and Commission stages.
6. The licensed plumber or qualified installer must submit the following documentation prior to an Occupation Certificate being issued:
 - a) Notice of Works
 - b) Work as Executed Drawings in acceptable format to the City
 - c) Commissioning documentation
 - d) Copy of the owner's manual
7. The City provides Approval to Operate documentation to the property owner.

5.1 Approvals

If the City supports the application, the City will prepare and issue an approval with the conditions set out. No discharge will be made to the City's sewers until an approval has been issued. An applicant may make minor amendments or withdraw an application before it is approved by the City.

The City must be notified of change of ownership and/or occupier in all cases, whether a new City approval is required or not, to allow updating of records.

5.2 Application fee

The application fee recovers the cost of administration, technical services and site inspection provided by the City in processing applications for approval to install a private sewer pump station. Application fees will be set annually by the City.

An annual administration fee will be applicable to properties with private pump stations.

Current fees can be found in the City's Adopted Fees and Charges.

6 Definitions and glossary

Actual Pump Head – this is the actual static head plus the frictional losses that the pump has to meet in discharging the collection tank's contents. The final or actual pump head is determined from field measurement, to confirm previous design calculations of the pump head.

Alarm Volume – the volume of sewage that is stored in the on-property collection tank, before the collection tank alarm activates.

As constructed drawings – see work as executed drawings.

Collection Tank – that part of a collection/pump unit which collects and stores flows from sanitary drains.

City – City of Coffs Harbour

Designer – a suitably qualified individual responsible for the design of the private pump station.

Emergency Volume - the volume of sewage which is stored in the private pump station from above the alarm activation level to immediately before the overflow relief gully begins to discharge.

Grinder Pump - a mechanical device designed to pump liquid and in the process, reduce the size of solids contained in the sewage.

High Level Alarm – is an audio and/or visual alarm system activated when the level of the sewage in the private sewer pump station reaches the alarm volume level.

Home Owner's Manual – a manual informing resident what they can and cannot do in relation to the private pump station on their property, as well as what to do if their system should fail.

Overflow Relief Gully – This is a control device to prevent overflows occurring inside the dwellings on the property, by ensuring that such overflows occur outside of the dwelling. Its arrangements and dimensions are contained in the NSW Plumbing Code.

Pumping Unit (or Station) – includes pumps, collection tank (wet well), alarm system, pump pressure switches etc. and is installed on the property.

Sanitary Drains – pipelines installed by licenced plumbers which convey sewage from buildings to a connection point (also called house drains, house sewer or house service line).

Work as Executed (WAE) Drawings – These are the Work as Executed or as constructed Drawings.

7 References (laws, standards and other Council documents)

N/A

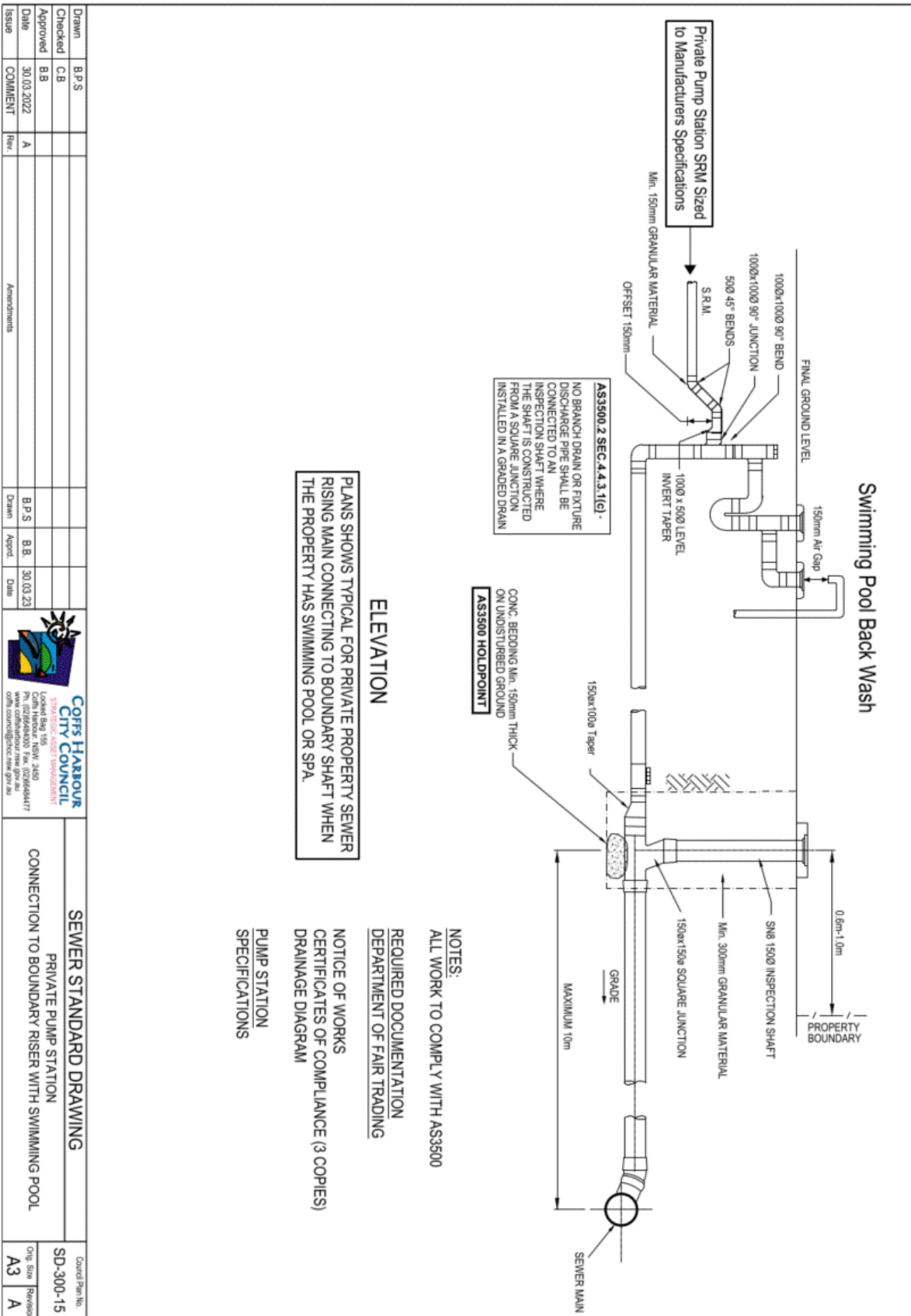
8 Details of Approval and revision

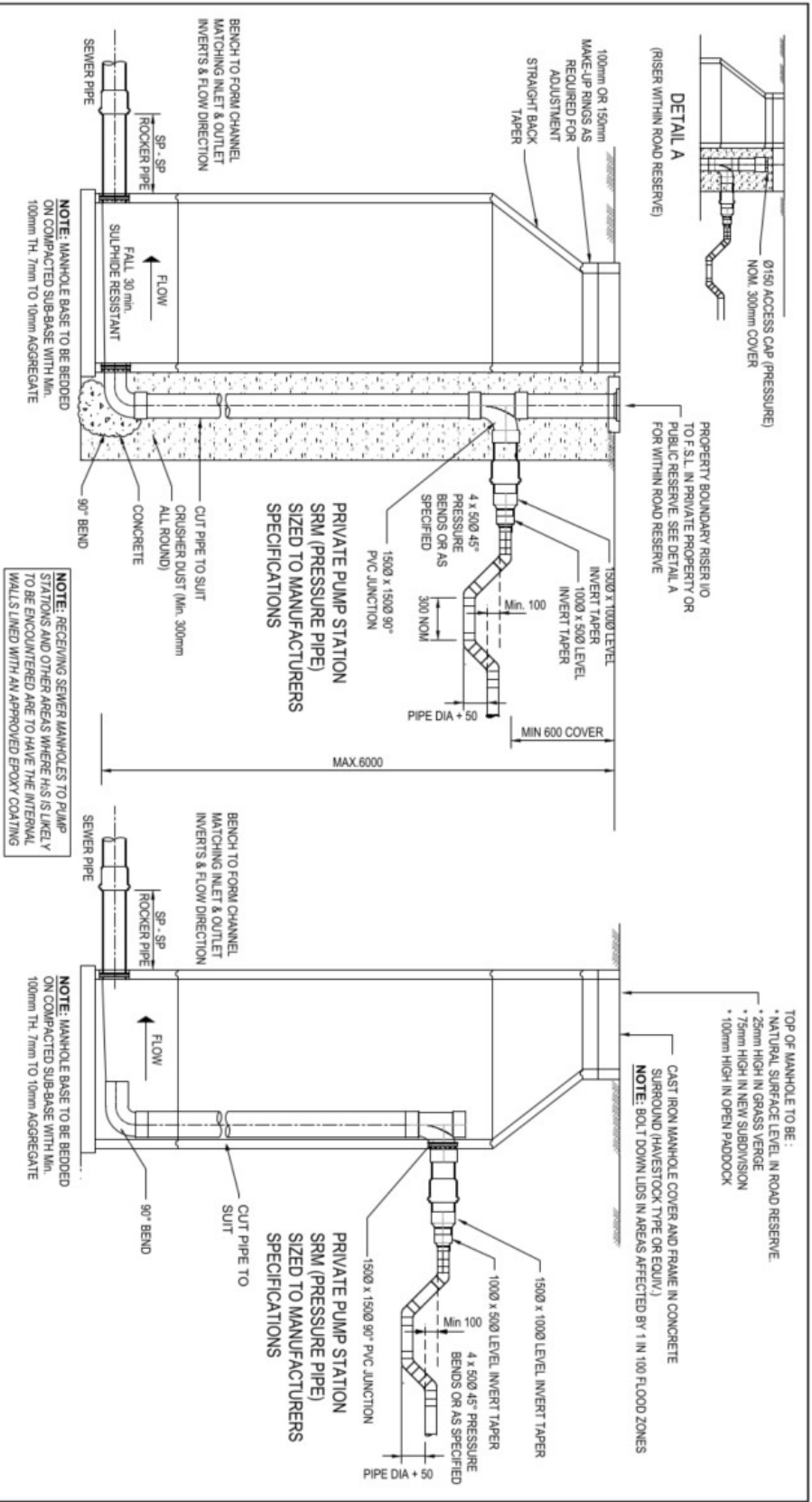
- **Approval date:** 26/04/2023
- **Responsible Group:** Water and Waste Services
- **Responsible Section:** Water and Sewer
- **Superseded policies/procedures:**
- **Next review date:** 26/04/2027

Table of amendments

Amendment	Authoriser	Approval ref	Date
5.4 Added Risk Matrix 4.6 Added Rising mains Reference to standard maintenance schedule Appendix A removed	GLT	9.3	26/04/23

9 Appendix A – Typical rising main connection details





PRIVATE PUMP STATION CONNECTION TO SMH WITHIN PRIVATE PROPERTY

PRIVATE PUMP STATION INTERNAL DROP CONNECTION TO SMH REQUIRED APPROVAL BY WATER AUTHORITY

Drawn	B.P.S	Checked	C.B	Approved	B.B	Date	30/03/2022	Issue	COMMENT	Rev.	A
Amendments											
Drawn	B.P.S	Checked	B.B	Approved	B.B	Date	30/03/23	Issue		Rev.	

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SEWER STANDARD DRAWING
 PRIVATE PUMP STATION CONNECTION TO MAINTENANCE HOLE
 Drawn: B.P.S
 Checked: SD-300-14
 Date: 30/03/23
 Issue: A3
 Revision: A