IWI Standard

Interim wastewater infrastructure

1. Purpose

The use of interim wastewater infrastructure (IWI) is an accepted practice of allowing wastewater servicing of Sydney Water (our/us/we) customers ahead of the delivery of our ultimate infrastructure.

You (the developer) may propose an Interim Wastewater Operating Plan IWI to deliver IWI in order to facilitate the wastewater servicing of your development, and this can be considered by Sydney Water. Once approved, the IWI and the operating plan enable you to meet the wastewater servicing requirements needed for Sydney Water to issue certification under *Section 73 of the Sydney Water Act 1994* (s73 certificate) for your development.

A proposal for IWI must demonstrate to us that the design, construction and operation of the IWI will meet our required standards, before we will approve its construction and operation.

2. Scope

This IWI Standard provides you and/or your Water Servicing Coordinator with the:

- minimum requirements for the design, construction and operation of IWI; and
- information that must be included in an IWI operating plan.

The IWI Standard generally applies to residential development. Where other or mixed land use type developments will be serviced, additional requirements may apply at the discretion of Sydney Water.

We will consider the application of this Standard for alternative types of IWI not specifically mentioned here, with the consent of Sydney Water on a case by case basis.

3. Minimum requirements

3.1 General

- The interim wastewater infrastructure (IWI) is to be owned and operated by the developer, then made redundant when the ultimate infrastructure is delivered, in accordance with the IWI plan.
- Any IWI that is connected to Sydney Water's network, or which Sydney Water confirms falls under Sydney Water's Operating Licence, must be endorsed by Sydney Water before it can be connected and commence operation. You must demonstrate to Sydney Water that the IWI operating plan for the proposed IWI meets the required standards, complies with the Operating Licence and can be operated with an acceptable level of risk.
- This IWI Standard will form part of the IWI Agreement, which will be a legally binding arrangement between you and Sydney Water, regarding the planning, design, construction, commissioning, operation and decommissioning of your IWI.
- The persons who design and verify the IWI on behalf of the developer must meet Sydney Water's Engineering Competency Standard for the work they each carry out.

Sydney Water will not approve IWI that does not conform to the minimum requirements detailed in this Standard.

3.2 Funding of interim and temporary infrastructure

You are responsible for funding all costs associated with the IWI where:

- you want to accelerate servicing of your development ahead of the delivery of Sydney Water's ultimate infrastructure, or
- we do not have a planned delivery timeframe to service your development. In these circumstances, you may also be responsible for the upfront funding and delivery of the ultimate infrastructure.

These costs may include establishment, operation, decommissioning and rehabilitation of the IWI.

At Sydney Water discretion, we may fund costs associated with an IWI, which may be subject to conditions determined by Sydney Water.

3.3 Bonding

You need to provide a bond and enter into a bonding agreement with us. The amount and conditions of the bond will be determined case by case in accordance with Sydney Water's Bonding *Policy*.

The bond will be held until the IWI is decommissioned as required by the IWI operating plan.

3.4 Regulatory Approvals

The IWI must be designed, constructed, operated and decommissioning in accordance with all applicable regulatory approvals.

- The IWI may be carried out under Sydney Water's Operating Licence. The IWI operating plan must demonstrate how the requirements of the Operating Licence will be met.
- The IWI will require a Planning Approval under the Environmental Planning and Assessment Act 1979. You are responsible for preparing the documentation for the Planning Approval.
- The IWI may be carried out under a Sydney Water Environment Protection Licence if connected to an existing licenced system as determined by Sydney Water. See section 6.2 for further details.

As a minimum, the IWI must be capable of complying with the Environmental requirements set out in section 6.7.

3.5 Extension of IWI Operational Period

An IWI operating plan is approved to operate for the Operational Period specified in the IWI Agreement. Where the IWI is required to operate beyond its agreed Operational Period, you must seek Sydney Water's consent by:

- notifying us in writing not less than three months prior to the end of the Operational Period; and
- confirm there is no change to the current conditions or the risk level of the IWI; and
- provide an updated risk assessment of the known risks that confirms and demonstrates that those risks are still manageable, and that the current risk mitigation measures remain adequate.

4. Proposal

Your IWI operating plan proposal must include details of:

- the need for the early provision of infrastructure.
- the nature of the development that will be serviced.
- the IWI that is proposed to be built to service the development; and
- the expected operational lifespan of the IWI.

Sydney Water does not recommend proposals for temporary infrastructure to have a lifespan of greater than as recommended in Appendix 1. A greater lifespan carries an increased risk and more stringent site controls required.

4.1 Alignment with Ultimate Servicing Strategy

Your proposal must demonstrate how the interim wastewater infrastructure (IWI) fits within Sydney Water's [ultimate servicing strategy] for the precinct or development area (if there is one), including:

- a catchment plan detailing the area(s) that will be serviced by the IWI and the ultimate catchment area
- identifying the extent of the infrastructure that will become redundant when the ultimate servicing strategy becomes operational
- identifying any IWI that is intended to transition to the ultimate servicing strategy, how that will be achieved and how the design considerations for ultimate servicing is accounted for (such as materials, component design life and standards)
- how the IWI provides operational flexibility and has accounted for any constraints and complexity in the construction and commissioning of the ultimate infrastructure e.g. the wastewater pump-out structure forming part of a future wastewater pumping station or an in-line storage on a future wastewater carrier;
- identifying any components of the IWI that will be re-used for servicing other similar developments once the IWI becomes redundant. The reuse of any components can be considered for other similar development as a temporary asset but cannot be used in the ultimate infrastructure.

4.2 Location

Your IWI operating plan proposal must provide:

- a map clearly showing:
  - the location of the development and servicing area of the IWI
  - the location of key infrastructure including proposed connection point(s), pump-out point(s), pipelines, sewage pumping stations, pressure mains and maintenance structures, overflow structures (ERS) as appropriate
  - the location(s) of the IWI in relation to existing or proposed buildings
- a plan detailing the proposed tanker routes from the pump-out location to the discharge point and return journey, and details indicating that the route is capable of carrying a fully-laden tanker and must make allowance for traffic and weather conditions. See **Section 5** for requirements on pump-out points and tanker routes
- development consent from the relevant consent authority including a Statement of Environmental Effects or Environmental Impact Statement.

4.3 Timeframe and operational lifespan

Your IWI must provide details of:

- how many lots will be serviced
- the staging of building construction identifying which construction stages will be connected to the IWI and which will be connected to the ultimate infrastructure.
- the proposed timeframe for the delivery of the IWI, including design and construction. The timeframe should demonstrate sufficient float in the design and construction program of the IWI, to ensure all dwellings proposed under the IWI able to connect prior to being occupied.
- the operational lifespan of the IWI.
- the timeframe for the provision of the ultimate servicing solution including design, construction and commissioning.

You must consider delays that may prevent the proposed infrastructure being delivered as planned and commissioned. You must provide regular updates on IWI performance and deliverable timeframe. Possible delay need to be forecast and communicated with your case manager.

5. Properties / area to be serviced

The information required under this section must be in the format shown in Appendix 2

5.1 Maximum properties or area to be serviced

You must identify the maximum number of properties and corresponding Equivalent Population (EP) that are proposed to be serviced by the IWI.

- **Up to 100 residential dwellings** - These Standard are generally appropriate for servicing up to an equivalent of one hundred (100) residential dwellings. This generally equates to a total daily flow requiring up to six (6) tanker cycles per day being the acceptable limit. You cannot extend the agreed servicing area or increase the number of dwellings without submitting a new IWI operating plan for our approval.

- **100 - 200 equivalent dwellings** – developments of this size must demonstrate the ability to manage additional demand, including storage sizing and tanker cycles, noise impacts and safety risks to residents, amongst other risks to Sydney Water's satisfaction. This will require additional risk assessment, consideration of tankering distances and cycle times, and may have additional requirements imposed at the discretion of Sydney Water.
- **More than 200 equivalent dwellings** - Sydney Water does not consider IWI proposals that service greater than 200 equivalent dwellings within a development area (see Appendix 1).

You cannot extend the agreed servicing area or increase the number of dwellings without submitting a new IWI operating plan for our approval.

5.2 Types of properties to be serviced

You must:

- provide details of the types of properties that are proposed to be serviced by the IWI, e.g., low, medium and/or high density; residential, commercial, industrial, mixed use etc.
- indicate the quality of sewage that will be generated. If any commercial or industrial flows (trade waste customers) are expected, you must comply with Sydney Water trade waste requirements and enter a trade waste agreement to discharge that type of waste into our system. We may apply additional requirements non-residential land uses.

5.3 Estimated development timing and take up rate

You must provide details of the expected timing and take-up rate of properties that are proposed to be connected to the IWI, based on the type of development.

This information should be provided in the format shown in Appendix 2, including the proposed monthly change in occupied lots / dwellings or area of development. This information should be based on, but not limited to, the anticipated timing of:

- DA approval
- Section 73 Certificates
- Lot registration
- Dwelling occupancy.

We will request monthly revised forecasts and actual occupation of dwellings until the IWI is no longer in use.

Expected timing and lot production of subsequent stages of the development that is not within the servicing area of the IWI should be identified in the IWI operating plan.

5.4 Wastewater flow schedule

You must:

- engage an appropriately qualified hydraulic expert to provide details of the likely volumes and types of wastewater that are proposed to be serviced by the IWI. This data should be tabulated as shown in Appendix 2 and include a proposed monthly change in load in Litres per second and total litres per day.
- include Daily Average Dry Weather Flow (ADWF), Peak Dry Weather Flow (PDWF) and Peak Wet Weather Flow (PWWF) in the table, which are to be derived from the Sydney Water Flow Schedule (or MOUSE modelling where undertaken for wastewater design purposes) and updated for monthly changes in volume.
- use additional tables to account for longer duration operational lifespans or developments with multiple stages.
- include a statement of the expected detention time of the IWI.
- assess and present any dry weather storage required. This will be used for the sizing of the tank and/or number of tankers required.
- include additional emergency storage that caters for four hours of peak dry weather flow as a minimum.

- include a method of flow monitoring to match actual flow rates against occupied properties. Developments with multiple stages are to be represented in separate tables for each stage.

5.5 Estimated scheme life and contingency

Your hydraulic expert must provide details of the estimated operational lifespan of the proposed IWI and demonstrate what contingency has been allowed for in the design and operations to manage an overrun of the agreed IWI operational period.

6. Risk Assessment

You must conduct an assessment of the risks that the IWI will present with respect to the criteria in the following sections. You must propose methods for mitigating the identified risks to an acceptable level using our Corporate risk matrix. The results of the risk assessment must be presented in an attachment to your IWI operating plan.

6.1 Safety

You must consider safety aspects that may affect both the people who will maintain and operate the IWI, and the safety of the public who may be in the vicinity of the IWI.

The risk assessment must include Safety in Design incorporating CHAIR (Construction Hazard Assessment Implication Review) and HAZOP (Hazard and Operability Study).

You are responsible for any safety issue that occurs during the construction or operation of the IWI.

6.2 Environment

Assessment of the environmental risks of the IWI must include normal operation and emergency conditions, both during dry and wet weather.

Your IWI operating plan must include an assessment of how it will comply with the following regulatory instruments:

- Sydney Water's Operating Licence
- any Sydney Water Environment Protection Licence that will apply to the IWI, in particular any dry weather and wet weather performance conditions of the IWI itself
- the planning approval (i.e. development consent and/or Review of Environmental Factors)

The design of the IWI must ensure that no dry weather overflow of wastewater occurs, and that there is no detrimental impact on the existing wet weather performance of the EPL system.

Your IWI operating plan must include a communication protocol to immediately inform us if an overflow occurs, so that notification can be made to the relevant authorities in accordance with the Protection of the Environment Operations Act 1979. The relevant authorities include the EPA, council, Fire & Rescue NSW, SafeWork NSW and Ministry of Health.

Your IWI operating plan must include an incident response plan that includes a procedure for responding to an overflow, including containment measures and clean-up processes, which may be done under our

direction. If you fail to follow Sydney Water's instructions and/or undertake the required actions, we will complete the require actions and recover our costs from you.

6.3 Community

You must identify the impact the IWI will have on the local community in terms of risk of odour, noise, traffic movements, after hours work etc or other potential loss of, or impact on, amenity.

6.4 Operational

The IWI operating plan must identify the proposed operating method and the associated operational risks of the IWI in both normal operation and emergency conditions, and in both dry and wet weather conditions. These risks may include: overflow, odour, monitoring, tanker spillage, pressure main break, inadequate emergency response, failure of scheduled pump-out, flows higher/lower than predicted, unsatisfactory clean-up process following the decommissioning.

If there is a breach, Sydney Water will immediately set up a debrief meeting to produce an action plan that will prevent a recurrence of the breach, at your cost. Until the issue is resolved Sydney Water may choose to implement appropriate contingency measures at your cost.

6.5 Maintenance

Your IWI operating plan must:

- provide details of the proposed maintenance regime and the maintenance requirements of the IWI
- document a process-level risk assessment (FMECA) and from this document a contingency plan for managing risks.
- document an equipment-level risk assessment (FMECA) and document a detailed maintenance regime.
- have a risk assessment which includes for both normal operation and emergency conditions during dry weather and wet weather in relation to regulatory requirements.
- document an equipment breakdown structure to the lowest level where maintenance will be applied, i.e. valve, monitoring system, fence.
- document the expected life and value of all equipment, supporting structure and fixtures documented in the breakdown structure.

6.6 Security

Your IWI operating plan must identify any security risks of the proposal. The site should be secured to our Sydney Water wastewater facility requirements.

6.7 Timing of development and ultimate servicing

You must:

- provide details of risks to the IWI if there are circumstances beyond your control that will impact on the feasibility of the infrastructure
- provide details of how you will manage the risk of the IWI being in service for a period longer than expected due to a development rate that is slower than that anticipated

- provide details of how you will manage the risks if the ultimate servicing arrangement is delayed
- identify control measures to be put in place to mitigate potential impacts of upstream developments on the proposed interim structure

6.8 Business continuity

You remain responsible for the IWI until it is decommissioned regardless of whether the properties/lots serviced by the IWI are sold and no longer owned by you.

Your IWI operating plan must provide details on how you will continue to manage the IWI throughout its operational lifespan if there is a change in ownership of the development or properties/lots serviced by the IWI, or any land on which the IWI is located.

You cannot transfer, assign or novate your responsibilities under the IWI agreement and operating plan without obtaining our prior written agreement. Approval of these changes is at our discretion.

7. Technical Specification

7.1 IWI Tankering facilities

7.1.1 Your design

The design of your IWI must be in accordance with the codes and specifications listed in this Standard and any referenced standards.

The design must be undertaken and verified by appropriately qualified personnel as part of our Engineering competency standard (sydneywater.com.au) , and submitted as part of the proposed *IWI agreement and operating plan.*

7.2 Planning and Design Considerations

The following factors should be considered in the planning and design of your IWI pump-out:

- A design flexible enough to incorporate likely changes in the upstream catchment over the operational lifespan of the IWI
- compliance with Environmental Pollution Licence conditions
- design life and serviceability requirements of components and materials within the short-term operating life, while still meeting safety considerations
- safety in construction, operations, maintenance and decommissioning
- a staged wastewater solution with components of the pump-out facility forming part of the ultimate infrastructure.

7.3 Scope of design and construction

The scope of works for the design and construction of any wastewater tankering/pump-out shall generally include, but not be limited to:

- all-weather access road and pavement area
- bunded spillage containment area at both the pump out point(s) and the discharge points(s)
- in-ground storage tanks

- above-ground extraction point and delivery point arrangement
- inlet sewer(s)
- connecting sewers between storage tanks where more than one provided
- ventilation
- overflow pipe, gas check, headwall and dissipater
- uninterrupted power supply
- monitoring and notification system
- wash-down provisions if applicable

7.4 Design Criteria

The specific design criteria that any wastewater pump-out must meet are:

- sufficient storage to contain 24 hours average dry weather flows
- additional dry weather emergency storage to be provided with minimum of 4 hours from level 3 (highest set) alarm level
- no dry weather surcharges allowed from the IWI catchment.
- the weather performance of the existing Sydney Water system into which the IWI discharges cannot deteriorated as a result of the addition of the IWI.
- an emergency relief structure provided for the IWI/catchment as required, to comply with dry and wet weather sewer standards (environmental assessment is required)
- level monitoring (minimum of 3 alarm levels) and communications as per clause 7.13.2 and 7.13.3
- Calculate detention time within the wastewater pump-out storage.
- a flow monitoring device must be installed on the reticulation immediately upstream of the IWI connection. This will provide quality control of the completed reticulation work and identify illegal connections/ unauthorised discharges in the IWI catchment.

The dry weather and wet weather performance of the wastewater pump-out is to meet the Environment Protection Licence requirement for the receiving system that the tanker will discharge to. It should be noted that this might not always be the receiving system that the wastewater pump-out is operating within.

7.5 Design and documentation

You must:

- Present all design documentation in accordance with our drafting standard requirements
- Provide structural certification for all non-proprietary structural components.
- Ensure design drawings contain drawing numbers that align with Sydney Water's Asset Data Information planning numbers and facility information, for input into our Geographic Information System (HYDRA) and MAXIMO, as detailed in **Appendix 5**.

Deemed–to–comply drawings are available on our website for wastewater pump-out facilities (DTC-6300 series). These are applicable for temporary wastewater pump-outs only and are subject to site-specific requirements and the required 'design life' (i.e. IWI duration and any intended future use as part of the ultimate infrastructure).

7.6 Storage sizing

7.6.1 Dry Weather

The IWI's storage system is to be based on Low Infiltration Sewer (LIS) design in conjunction with the development's wastewater design.

Sizing is to be determined by flow schedule-generated flows using our Hydraulic modelling (MOUSE) tool.

The storage must be sized to contain 24 hours average dry weather flows and shall include an additional allowance in the event of unforeseen issues such as tanker break downs (see section 7.6.2 below)

Your designer must undertake Hydraulic Grade Line (HGL) analysis to demonstrate that the proposed storage levels provide an adequate factor of safety below the lowest ground level in the area to be serviced to ensure no dry weather surcharge occurs.

7.6.2 Emergency Storage

Additional dry weather emergency storage is to be provided based on containing the volume equivalent to the maximum four (4) hours of peak dry weather flow. For a typical residential development this may be taken as 0.35 x the total daily volume of dry weather flow.

The typical diurnal flow pattern for dry weather flows are shown graphically in **Appendix 3**.

7.6.3 Wet Weather

You must:

- Ensure that your wastewater pump-out is designed to have no detrimental impact on the existing wet weather performance (i:e: deterioration of system wet weather performance) . The designer must confirm the system's wet weather system performance license requirement with us.
- Provide an emergency relief system.

Your designer must undertake Hydraulic Grade Line (HGL) analysis to determine a weir crest level that ensures the frequency of overflow is maintained within the system license requirement for the duration of the pump out period. The designer must nominate the design storm event that has been used as the basis of the system design.

Alternatively, the designer will need to determine the system's wet weather system performance against the license requirement and detail an appropriate weir crest level by modelling (using 10 year time series with modified Inflow and Infiltration (II%) and impervious area parameters)

You also need to ensure that all new developments connecting into the system are complying to the private plumbing codes where there is no additional infiltration and ingress during wet weather.

7.6.4 Storage sizing – tanker cycle balancing

The total storage volume required is to be balanced with a cost-effective number of tanker movements per day and maximising tank operations within normal, approved working days/hours.

The storage must be drained completely a minimum of once per day.

Details of your proposed tanker service provider and their capability to provide this service must be provided.

Pump-out volumes for tanker operation estimates must be based on 75% of tanker capacity for both 10,000L and 20,000L tankers.

Tank operation estimates are to allow for set up, extraction, clean-up, travel to discharge, set up, discharge, clean-up and a return cycle.

Allow 20% more ADWF for tanker cycle/trip estimation that can cover during dry weather flow.

Tanker fill rates are typically in the range of 5-10L/s.

Tanker discharge rates are typically in the range of 15-20L/s.

Typical tanker cycling is detailed in **Appendix 7**

7.7 Storage Configuration

The general configuration of a temporary wastewater pump-out would be single (or multiple) below-ground tanks with connecting pipework as required. Deemed-to-comply drawings are available on the Standards and specifications (sydneywater.com.au) for wastewater pump-out facilities (see section 5.5).

Alternatively, subject to our approval, part of the IWI could be utilised as “in-line storage” in conjunction with tank storage where the designer can demonstrate by HGL analysis that there will be no risk of surcharge on private property. This type of dry weather flow storage configuration is shown graphically in **Appendix 4.**

The overall depth of the tanks shall be restricted to a maximum of five (5) metres to allow extraction of sewage by the tanker without the requirement for additional submersible pumps.

The diameter of tanks should be consistent with currently available precast/prefabricated storage tank products.

Connecting pipework between the tanks is to be the minimum size required for the “ultimate” period of the pump-out period and to ensure there is no risk to choking from sewage matter.

Benching is to be provided in the bases to facilitate cleansing of the tanks.

Drop pipes are to be provided at the inlets to each tank to minimise turbulence and hydrogen sulphide gas generation.

A bunded area is required at the tanker extraction point to prevent spillage.

7.8 Design Life

The civil and structural components of the wastewater pump-out typically have a design life significantly in excess of the IWI servicing period.

Considerations on the design life of other components include:

- safety considerations
- planned duration of the temporary servicing period
- serviceability requirements of materials
- components of the pump-out facility forming part of the ultimate infrastructure.

One of the main issues that will need to be considered for wastewater pump-out systems will be corrosion, particularly for metal fixtures and fittings, even for short-duration servicing time frames.

All materials and equipment, and the arrangement of the IWI pump-out system, must be fit-for-purpose with the aim of minimising capital, operating and maintenance costs (whilst achieving the requirements of safe operation and protection of the environment).

Unless designed for long-term or permanent operation, the design life of the pump-out is to be a minimum of five (5) years

7.9 Location of wastewater pump-outs

Pump-outs must be located:

- Developer-owned land
- Public open space, or
- Private property.
- Pump-outs are to be located where it willBe as “close to the source” as possible while minimising the risk of noise, odour and visual impacts
- maximise the servicing area and reduce the number of pump-outs needed for the IWI, particularly for larger developments.
- Be close to a watercourse (where possible), to allow provision of the emergency relief system.
- ensure safe access to and from public roads
- maximise the use of components of the pump-out as part of ultimate infrastructure where possible.
- provide a buffer zone to the nearest development to alleviate potential problems with noise and odour. This shall be regardless of whether an odour control unit is installed. While a minimum 50m zone is preferred, the final buffer will be subject to the presence and type of development around the pump-out site and to minimize impacts on the local community. Where a buffer less than 50m is proposed, you must undertake both odour modelling and noise assessment to validate the zone.
- minimise noise impacts by specifying the maximum allowable noise limit at the boundary of the site. This limit will be based on the requirements of the Planning Approval.

7.10 Site requirements

7.10.1 Site stormwater and runoff

Consultation shall be undertaken with the relevant Council to agree upon any appropriate stormwater quantity and quality controls for the site.

7.10.2 Tanker Access

- Twenty-four (24) hour, all-weather safe access is to be provided for a fully-laden 20,000L capacity articulated tanker into, within and from the site, allowing for turning bays where required.
- All trafficable areas shall be constructed above the 1-in-5 year ARI flood level.
- Where an existing verge, shoulder or lay-by area off a public road is large enough to allow safe tanker operations and safe passing of traffic, then these areas could considered to reduce additional site requirements
- In all cases, any tanker access ways, roadways, standing bays or manoeuvring bays are to be of a standard that will allow multiple, concentrated vehicle movements without degradation of the pavement surface.
- Provision is to be made for the tanker to park safely (wholly off the public roadway) while allowing the tanker operator to open access gates to the pump-out facility

- A dedicated tanker access road may be required in certain situations based on risks associated with the IWI catchment.

7.10.3 Site security and signage

The IWI site security is to address all risks identified in the security risk assessment referred to in section 6.6.

The IWI site security must as a minimum meet Sydney Water's wastewater facility requirements as follows:

- **Fencing**: The monitoring and collection equipment must be enclosed by a 2.4 m high cyclone wire fence and locked, with double opening access gates. Alternative options to be considered include full height chain wire fences or half size, three-strand barbed wire. Gate locks shall allow daisy chaining with a Sydney Water lock.
- The requirement for the need for tanker operators to open locked gates should be reduced i.e. consideration be given to the location of the extraction pipework/kamlok fitting and bunded area outside the secured area.
- **Signage**: All fences are to be sign posted as follows:
  - trespassing is prohibited
  - the working plant is dangerous and confined spaces are on site.
  - Operator/tanker contractor's twenty-four (24) hour contact number.
  - Sydney Water's Emergency Call Centre number (13 20 90).
  - Sydney Water may require additional signage to be attached to the fence or facility at its discretion.
- You must arrange for random security inspection daily.
- If there is a security breach at the site, the following procedure is to be followed:
  1. Dial 000 in an emergency.
  2. As soon as practicable the tanker operator should notify SWC Customer hub response team on **1300 990 419.**
  3. If necessary, Sydney Water security should be contacted directly.

7.10.4 Lighting

As normal tankering operations should be confined to working (daylight) hours, no fixed on-site lighting is required unless risk assessment for a specific site deems otherwise.

Tankers will be required to provide adequate lighting for any night-time/ low-light conditions.

7.10.5 Odour Control

- No odours are permitted to escape from the tanks when they are closed/sealed.
- Induct vents are to be provided to each tank and each tank must be connected to a common educt vent shaft. The educt vent shaft must be a maximum height and located to allow retrofitting for the future infrastructure where required.
- Where any odour assessment identifies the need for additional odour control measures, you must provide a carbon scrubber or suitable alternative odour control unit (OCU) on site

- All tankers used for pump-out operations must be provided with their own OCUs. Each tanker must have an odour scrubber on the air outlet of the tanker which shall be checked for effective operation on a regular basis in line with the contractor's quality assurance and planned maintenance systems.

7.10.6 Emergency Relief System (Overflow)

- The IWI must include a designed overflow from the storage tank or within the IWI catchment, that discharges into a local watercourse or stormwater drainage system in accordance with WSAA Sewerage Code of Australia WSA 02 – Sydney Water Edition. The designed overflow system typically requires a gas check, headwall, grill, energy dissipation and creek bank stabilisation. The requirement for a gas check/ tideflex valve maintenance hole will be determined during the safety in design process.
- A simple, open channel, geofabric or rock-lined channels may be considered on shorter length overflows.
- The discharge point will need to be assessed and approved under the Planning Approval.
- The weir crest level should be determined in accordance with the requirements of Section 7.4.
- Backflow prevention from the waterway to the pump-out tank via the overflow structure shall be incorporated.
- A hydraulic grade analysis will need to be conducted to ensure the overflow weir crest of the overflow is set at an appropriate level to ensure there is sufficient freeboard to occupied properties.

7.10.7 Tanker connection points

- A Kamlock fitting (generally 100mm) is to be provided above-ground at each storage tank or at an accessible point closest to the entrance to the site (where an off-site tanker bay is used). The size of the Kamlock fittings shall be confirmed with the proposed tanker service provider.
- The Kamlock fittings and any above-ground pipework shall be located /protected from vehicular impact by bollards or similar devices.
- The pump-out area must be bunded to contain potential spills from the connection points/hose connection from the tanker. The total containment should be sized for the full volume of the largest proposed tanker. Alternatively, the bunded area could drain to the storage tanks vie a P-trap and a flap installed in the tank.

7.10.8 Discharge Point

Developer-Operated IWI:

- For Tankering IWI discharge point will be licensed trade waste facility.
- For pump to sewer IWI discharge point requires consultation and assessment with Sydney Water (Networks & SAP subject to risks) to confirm the suitability of the discharge point.

Sydney Water-operated IWI

- the preferred discharge location will be nominated by Sydney Water Networks and SAP team based on:
  - Capacity of receiving sewer network
  - Accessibility for safe operation of tankers

- Impact on nearby customers
- Travel distance to discharge point

There will be restrictions/ difficulties in accessing Sydney Water infrastructure so the use of these facilities may be considered for an emergency discharge point only. This will be subject to Sydney Water endorsement of the IWI and call-out costs for SWC personnel to be on site for access and discharge operations. The IWI will also be subject to security risk assessment and meeting operational and maintenance requirements.

Discharge points on any Sydney Water asset or within any Sydney Water facility shall be specifically designed to suit tanker and operational requirements. The discharge point shall be designed to meet safety requirements and consideration should be given to installing a Kamlok fitting. Continuous lifting of lids or covers at the discharge point is not acceptable.

Key points/requirements for consideration for the selection of discharge points are:

- where an SPS or trunk sewer is selected, it will be subject to capacity assessment, operation and maintenance assessment to be completed by the Proponent.
- the collected effluent shall be treated as per the trade waste agreement of the tanker operator or owner of the trade waste agreement at the discharge point.

Where a trunk sewer is considered, the discharge MH shall:

- be in a safe and readily accessible location for a tanker;
- minimise view/impact to public with respect to visual, odour noise; and
- be in low volume traffic roadway.

The MH should ideally be ventilated at the location or immediately upstream or downstream by existing vent shafts. Consideration should be given to installing new vent shaft where required.

The discharge point shall incorporate an above-ground discharge pipe and Kamlok connection, bund area and tanker hardstand stand area.

Security, bunding and vehicular protection shall be assessed and provided similar to the extraction point.

An SPS or MH along a trunk sewer within an industrial area should be considered.

7.11 Testing and commissioning of the wastewater pump-out

Testing and Commissioning of all tanks, pipework & fittings shall be consistent with SW Edition of WSA 02 (similar to the sewerage collection system).

If the collection system forming part of the wastewater pump-out does not meet testing requirements, the temporary pump-out will not be approved for implementation and connection of properties will not be permitted.

7.12 Maintenance and Access

- The size and configuration of maintenance access to each tank must be confirmed as part of the design review and safety in design processes.
- Maintenance of the wastewater pump-out will generally be limited to removal of silt/scum from the storage tanks, jetting and flushing and adjusting level monitoring equipment.

- Secure, load-rated access covers, including “fall” protection shall be provided.
- A water supply (or alternative means) shall be provided for washing down purposes.
- The need for person entry must be identified during the risk assessment and safety in design processes. Consideration of an isolation valve on the incoming pipework may be required.
- The removed debris from cleaning will need to be disposed appropriately and not discharging back into sewerage networks.

7.13 Operations and monitoring

7.13.1 General

The level of sewage in the storage tank(s) are to be continuously monitored twenty-four (24) hours per day.

A system of notification shall be set-up with nominated, responsible persons to respond to any alarms. The hierarchy and roles and responsibilities shall be dependent on the Proponent. A Sydney Water Wastewater Networks nominee shall be included.

The IWI must detail the operations and monitoring components of the IWI.

Tanker operations must follow Sydney Water’s instructions to minimise the risks of potential odour, noise and traffic impacts.

7.13.2 Monitoring

You are require to carry out a risk assessment to determine the monitoring requirements applicable for your IWI.

Your IWI proposal must set out the monitoring requirements and the document the risk assessment.

7.13.2.1 Developer requirements

Where the IWI is determined to be low risk, monitoring shall be via a simple float switch system. Refer to Sydney Water DTC drawings.

Where the IWI is determined to be a higher risk, more sophisticated monitoring requirements must be applied. The notification system for alarms shall be via a dial-up paging system or mobile telephone (SMS) to the Developer nominated personnel.

The preferred method of power supply for the monitoring and alarm system for;

- Low risk IWI could be solar power/ battery power(UPS) or supply authority/(UPS).
- High risk IWI is supply authority/ battery power (UPS).

All systems shall be “fail-safe” (backup) to ensure continuous monitoring in the event of a power failure.

Sydney Water additional Monitoring RTU will be required for all sites.

7.13.2.2 Sydney Water Requirements

The monitoring requirements will be determined by the site complexity and risks. Sydney Water consultation is required.

Risk assessment is required to identify RTU type;

- For low risk IWI battery RTU should be used

- For high risk IWI power RTUs must be used

Sydney Water will provide RTU template drawings for power RTU sites once IWI type has been determined. Also, Sydney Water will program, issue the RTU and also participate in the commissioning of the RTU and modem by setting up remote monitoring equipment and testing .

7.13.3 Levels and Alarms

Levels and alarms are to be based on a three-tiered system with Recipients dependent upon the Proponent as detailed below and as show diagrammatically in Appendix 6.

Irrespective of this system, the pump out must be fully emptied once per day to prevent sedimentation and septicity and limit odour.

Table 1 – Levels & alarms description/purpose

Alarm No.	Alarm Description / Purpose	Communication mode and recipient of alarm
1	Low level reached • pump-out required	• SMS message to tanker Operations Manager
2	High level reached • pump-out required urgently • tanker failed to respond	• SMS message to tanker Operations Manager • SMS message to Proponent's representative
3	Overflow imminent in minimum of 4 hours • immediate pump-out required • water level entering 4-hour DW emergency storage • pending overflow	• SMS message to tanker Operations Manager • SMS message to Proponent's representative • Separate IICATS alarm to Sydney Water SOC (via separate RTU provided by Sydney Water)
4	Overflow occurred	• SMS message to tanker Operations Manager • SMS message to Proponent's representative • Separate IICATS alarm to Sydney Water SOC (via separate RTU provided by Sydney Water)

Table 2- Details of actions required by the recipients of alarms 1, 2 and 3

Alarm	No. Recipient of	Action required by 1st recipient	Action required by 2nd recipient	Action required by 3rd recipient
Alarm 1 **Low level**	1. Tanker Operations Manager only	Arrange for tanker pump out		
Alarm 2 **High level reached**	1. Tanker Operations Manger 2. Developer of Maintenance representative	Arrange for tanker pump out and once confirmed notify recipient No. 2 immediately	Call recipient No. 1 and if no tanker has been arranged / or no response arrange for tanker pump out	

			through alternative back up tanker supplier	
Alarm 3 **High level triggered** **Overflow imminent in 4 hours**	1. Tanker Operations Manager 2. Developer Representative 3. Sydney Water Systems Operations Centre (SOC)	Arrange for tanker pump out and once confirmed notify recipient No. 2 and No. 3 immediately	Call recipient No. 1 and arrange for tanker pump out and once confirmed notify recipient No. 3 If contact cannot be made with recipient No. 1 arrange for tankers through alternative back up tanker supplier. Notify recipient No. 3 immediately	If no confirmation is received from recipient No. 2 create P6 job for schedulers to arrange for tankers as an emergency response and advise relevant Networks Representative.

If and when we are required to respond to a pump out during an emergency (receiving alarm 3) it will be at full charge to you. You will also need to facilitate a debrief involving the tanker operations manager and our relevant representatives to investigate the root cause of failure and agree on actions to avoid a recurrence.

The level monitoring and notification system shall be documented in the P&ID that forms part of the design of the wastewater pump-out included in the IWI.

The level monitoring and notification system shall be tested on a fortnightly basis. There will also be a battery low alarm that will go to the tanker contractor. The results shall be reported to the nominated Sydney Water representative.

7.13.4 Incident management

An incident management /emergency response plan shall form part of the IWI and should detail roles and responsibilities including a matrix of twenty-four (24) hour contact details.

The roles and responsibilities of each party are to be described in the IWI including:

- person responsible for customer complaints handling
- emergency contacts
- proponents nominated representative and alternative contact
- tanker company name, main contact and alternative contact
- Sydney Water representative responsible for ensuring this IWI is performed.
- Sydney Water's Network's representative responsible for the area

7.13.5 Customer Complaint management

The IWI will need to contain a documented process for handling customer complaints to meet Sydney Water's customer complaint process. This shall include as a minimum a 1800 number and documented process for recording the complaint details and the response.

7.13.6 Performance Reporting

During the operating life of the IWI, you must submit to Sydney Water via case manager with a monthly report that provides information on the following criteria:

- number of properties connected
- number of properties under construction
- number of lots produced
- tankers used per day
- volume pumped daily / monthly
- record of complaints and actions
- pollution incidents, overflows or spills
- alarm testing and maintenance procedures undertaken during the month
- progress on construction of interim or ultimate infrastructure and on targeted schedule

7.13.7 Decommissioning

You will be responsible for decommissioning the IWI and any remediation, including any contamination of the IWI site, when the ultimate infrastructure is in operation.

The IWI must detail the proposed method and timing of decommissioning from the site.

Final decommissioning and remediation will need to account for the ultimate infrastructure.

Reticulation and lead-in sewers shall be jetted, flushed and CCTV undertaken after being used as in-line storage

8. Definitions

Term	Definition	Source
alarm	A visual and/or audible signalling device used for indication of alarm conditions	
ARI	Average recurrence interval	
average dry weather flow	The combined average daily sanitary flow into a sewer from domestic, commercial and industrial sources	
boundary	Survey line separating adjoining properties for the purposes of defining ownership/title	
catchment area	That area (watershed) made up of properties that discharge or have potential to discharge to a sewerage system	
collection/pump unit	A package of sewer components installed on a property, including a *collection tank, grinder pump, level switches,* pipework, valves and other appurtenances within the unit	
collection tank	That part of a *collection/pump unit* which collects and stores flows from the *customer sanitary drain/*s	
collection sump	A space provided at the bottom of the *collection tank* to store *sewage* until the	

Term	Definition	Source
	volume is sufficient to activate the *grinder pump*	
commissioning	The running of the IWI to ensure flow through the collection and pumping system, carrying out any necessary testing and adjustments until it is ready and suitable for normal starting and running under service conditions	
connection point	Point of connection between the *collection tank* and the *customer sanitary drain.* Also called property connection point. See also *connection point inspection shaft*	
connection point inspection shaft	A shaft at the connection point to allow inspection and maintenance of the sanitary drain	
control/alarm panel	The power and control panel that controls operation of the *grinder pump* and which contains audible and visual alarm components. The panel also contains a dedicated circuit breaker for power disconnection.	
design flow	The estimated design flow into a sewer comprising the sum of peak dry weather flow (PDWF), ground water infiltration (GWI) and stormwater inflow and infiltration (IIF). See also *peak dry weather flow, groundwater, infiltration, inflow, stormwater*	
Designer	Person who prepares the design of the IWI. The developer is responsible for the designer's work.	
EPA	NSW Environment Protection Authority	
ERS	Emergency Relief Structure	
ESS	Emergency Storage System	
IWI	IWI is wastewater infrastructure constructed as part of the IWI .	
Planning Approval	A development consent under Part 4, or a Review of Environmental Factors under Part 5, of the *Environmental Planning and Assessment Act 1979*.	
Proponent	Refers to a person/firm will be responsible to operate and maintain the IWI	
RTU	Remote Telemetry Unit	
Ultimate infrastructure	Wastewater infrastructure for the ultimate servicing strategy	
Ultimate servicing strategy	Sydney Water's long-term wastewater servicing strategy for the development	

9. Context

9.1 Accountabilities

Position	Accountabilities
[Enter text]	• [Enter text]
[Enter text]	• [Enter text (and further rows as needed)]

9.2 Training and competencies

[Enter text]

Position	Training or competency
[Enter text]	[Enter text]
[Enter text]	[Enter text (and further rows as needed)]

9.3 References

[Enter text]

Document type	Title
Compliance obligations	WSA02 – Sewerage Code of Australia WSA, Sydney Water Edition SW Low Infiltration Sewer Specification Sydney Water Vent Shaft Guidelines and Technical Requirements WSA04 – Sewerage Pumping Station Code of Australia, Sydney Water Edition Sydney Water Technical Specification– Civil Sydney Water Technical Specification Mechanical Sydney Water Technical Specification Electrical WSA201 Selection and Application of Protective Coatings SW Supplement to WSA 201 (MEDA0001) HSP-014 HIDRA process SW Safety in Design Procedure Sydney Water Operating Licence STS Licences Sydney Water Security Specification Protection of the Environment Operations Act 1997
Policies and procedures	Funding Infrastructure to Service Growth Policy Growth Servicing Plan Interim Infrastructure Procedure Interim Operating Plan Standard
Other documents	[Enter text or hyperlink (if possible)]

10. Ownership

Role	Title
Group	Business Development

Role	Title
Owner	Planning and Technical Team Leader
Author	Technical Lead

10.1 Change history

Version	Issue Date	Approved by	Brief description of change and consultation
2	30/07/2025	Noor Alttahir	New document

Appendix 1 Type of Interim solutions for Wastewater residential development

This is a guide on the different types of IWI options that can be used to accelerate wastewater servicing.

	Tankering /Pump Out	Pump to Sewer	Temporary SPS
Description	Sewer reticulation network is connected to collecting tanks. Tanker trucks regularly pump out wastewater from the holding tanks and transport to a nominated discharge point.	Sewer reticulation network is connected to an oversized maintenance manhole. Wastewater is pumped through a temporary pressure main to an existing sewer in the network.	Sewer reticulation network is connected to the temporary Sewage Pumping Station (SPS). Wastewater is discharged via a temporary rising main to either an existing sewer main, SPS or treatment plan in the network.
Expected Operating life[1]	Up to 12 months.	No more than 6 months	12 – 24 months
Approximate Service Capability	Up to 200 lots Subject to safety of tankering routes, trucks turnaround time and discharge point. Number of tankers required	Up to 100 lots Capable of more if it can be operated with an acceptable level of risk.	Up to 1,000 lots Capable of more if it can be operated with an acceptable level of risk.
Standards & guidelines[2]	• WSAA Codes – primarily the Sewerage Code of Australia WSA 02 (SW Edition) – Version 4 and Version 3 • Sydney Water Deemed to Comply Drawings (6300 series) • Sydney Water Specifications (including WSAA Codes and Sydney Water Supplements)	• WSAA Codes – primarily the Sewerage Code of Australia WSA 02 (SW Edition) – Version 4 and Version 3 • Sydney Water Specifications (including WSAA Codes and Sydney Water Supplements)	• WSAA Codes – primarily the Sewage Pump Station Code of Australia WSA 04 (SW Edition) • Sydney Water Specifications (including WSAA Codes and Sydney Water Supplements)
Design Package	Design (Civil and Electrical) Interim Operating Procedure	Design (Civil, Mechanical and Electrical) Interim Operating Procedure	Needs Specification & Concept Design Detailed Design
Monitoring	Sydney Water to confirm requirements based on risk assessment. Developer Monitoring of sewage levels in the collecting tank is defined at discrete levels and usually involves a series of float switches. If Sydney Water requires additional monitoring a level instrumentation is required.	Sydney Water to confirm requirements based on risk assessment. Monitoring of sewage levels in the maintenance hole is defined at discrete levels and usually involves a series of float switches.	Power RTU Monitoring of sewage levels in the wet well is monitored with a level (radar or hydrostatic) sensor and also has a backup series of float switches.

<table>
<tr><td>Tankering Alarms[3]</td><td colspan="2">1. Low level. Tanker to attend and pump out.
2. High level. Tanker has not arrived and pump out is required urgently.
3. Overflow imminent (within 6 hours) Emergency response required.</td><td colspan="2">Pump and power failure alarms
Overflow alarms
Float switches at discrete levels.</td><td>Pump and power failure alarms
Overflow alarms
Pump performance alarms
Float switches at discrete levels.</td></tr>
<tr><td>IICATT Alarm</td><td colspan="2">1. Overflow imminent (within 6 hours) Emergency response required.
2. Overflow occurred</td><td colspan="2"></td><td></td></tr>
<tr><td rowspan="2">Commissioning</td><td>up to 6 months operation</td><td>More than 6 months operation</td><td>up to 6 months operation</td><td>More than 6 months operation</td><td rowspan="2">Required - Sydney Water need to set up remote monitoring equipment and test it.</td></tr>
<tr><td>Sydney Water need to set up remote monitoring equipment and test it</td><td>Sydney Water need to set up remote monitoring equipment and test it</td><td>Sydney Water need to set up remote monitoring equipment and test it</td><td>Sydney Water need to set up remote monitoring equipment and test it</td></tr>
</table>

[1] operated for longer if there is reasonable confidence on timing of ultimate infrastructure.

[2] This is not a comprehensive list of all standards. It is intended for guidance on the main standards for each option.

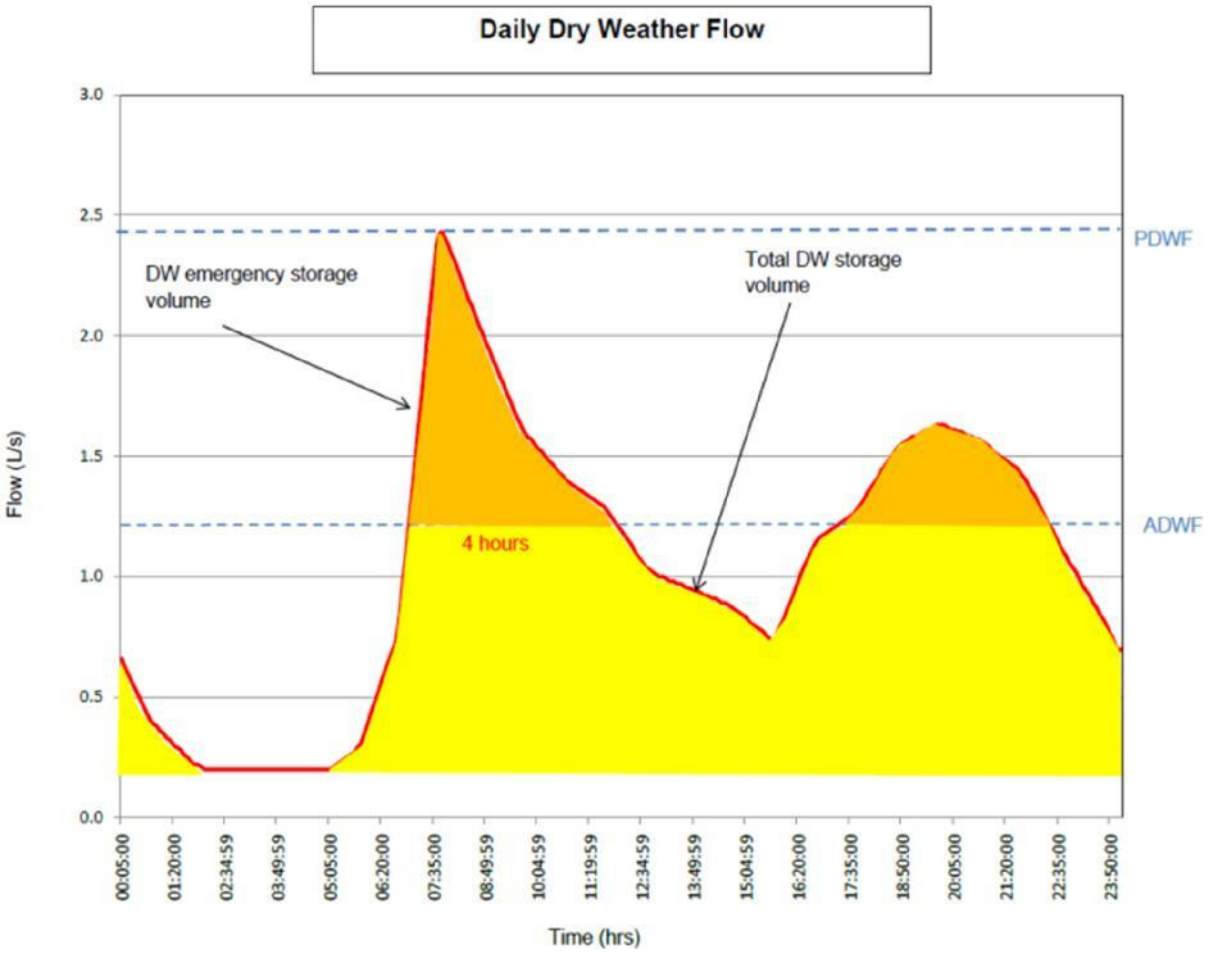
[3] Alarm monitoring and response must be 24 hours a day, 7 days a week.

Appendix 2 Example of development progression data

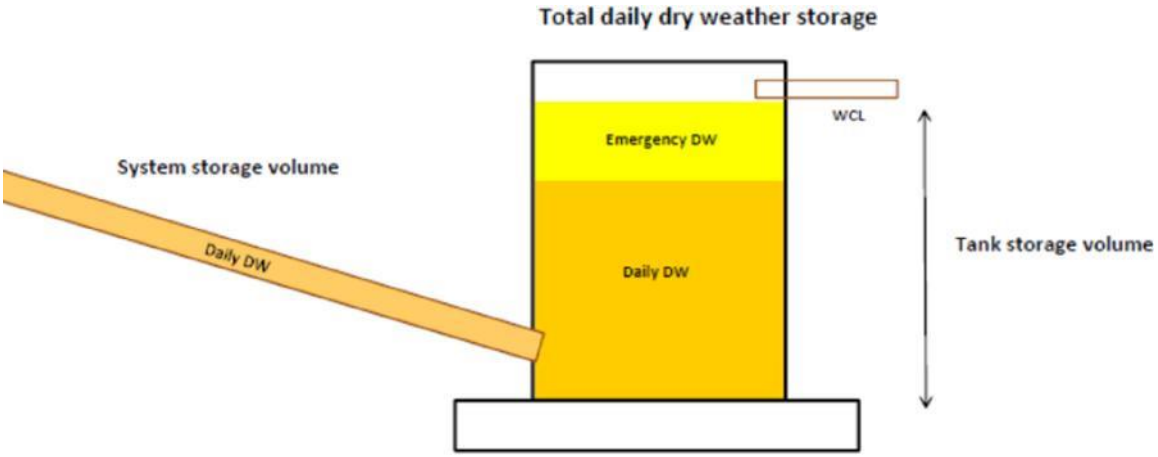
Only lots to be connected to the IWI.

Month-Year	Dec-13	Jan-14	Feb-14	Mar-14	Apr-14	May-14
Stage	1	1	1	1	1	1
Occupied dwellings / month	10	10	10	10	10	10
Occupied dwellings Cumulative	10	20	30	40	50	60
School EP	0	0	0	0	0	0
Cumulative EP	30	60	90	120	150	180
ADWF (L/s)	0.052	0.104	0.156	0.2-8	0.260	0.313
ADWF (L/d)	4,500	9,000	13,500	18,000	22,500	27,000
PDWF (L/s)	0.104	0.208	0.313	0.417	0.521	0.627
PWWF (L/s)	0.313	0.625	0.938	1.250	1.563	1.875
PWWF (L/d)	27,000	54,000	81,000	108,000	135,000	162,000
ADWF daily storage (m^3)	4.5	9.0	13.5	18.0	22.5	27.0
Min PDWF emergency storage (m^3)	1.5	3.0	4.5	6.0	7.5	9.0
Available system storage (m^3)	15.1	15.1	15.1	15.1	15.1	15.1
Total required storage (m^3)	6.0	12.0	18.0	24.0	30.0	36.0

Appendix 3 Typical Diurnal Pattern



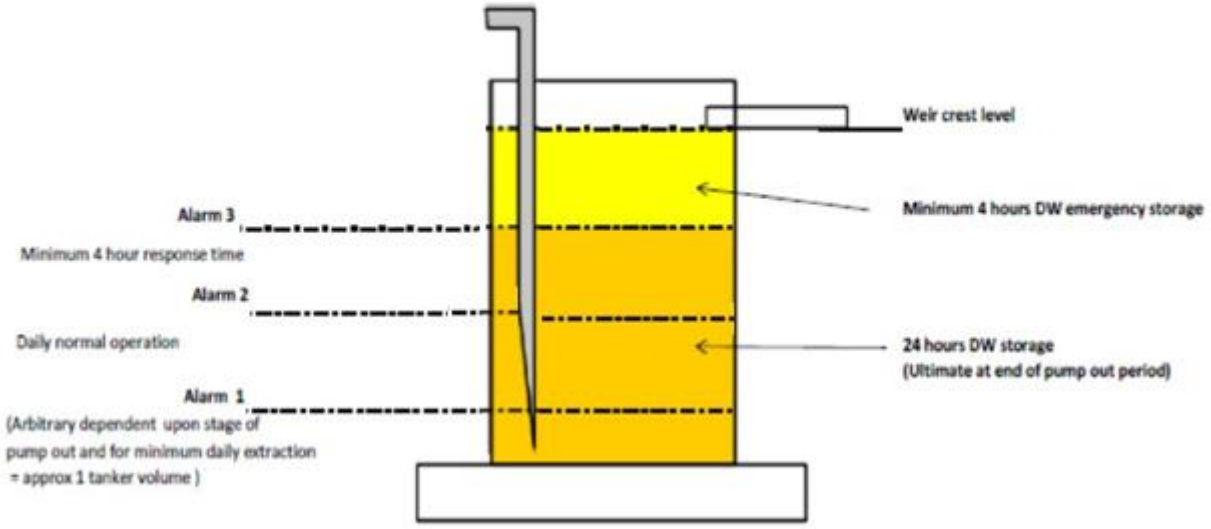
Appendix 4 Flow / storage components



Appendix 5 Data requirements

Location Details
Facility code: SS (SS and the next available number e.g. SS0001)
Facility Description: Sewage Storage – *[Suburb]* (e.g. Sewage Storage – The Ponds)
Product: Wastewater
Owner:
Project Number:
Failure Code: FWW SEWE
Parent Hierarchy: *(ADI to allocate based on system functionality)*
Address details of the facility
Street Number:
Street Name:
Suburb:
Postal Code:
Nearest Cross Street:
UBD Map Number:
UBD Grid Reference:
Easting:
Northing:
Classification
Classification Path: PROCESSQ/SS
Specification Attribute
Overflow detention time (hours):
Detention capacity (m): *[capacity between ATWL and overflow]*
Design PDEF (L/s):
Design wet weather flow (L/s):
Total storage capacity (ML):
Telemetry type:
Power supply authority:
Incoming supply voltage (kW):
Connection type of suction pipe:
Connection size of suction pipe:
Tanker size:
Tanker discharge location point: *[Address]*
Discharge location access:
Overflow weir crest level (m): (AHD)
Overflow location: (Description)
Overflow receiving water: (Name of waterway)
Overflow UBD map reference

Appendix 6 Levels and alarms



Appendix 7 Tanker cycling

Development name Interim pump-out arrangement prior to delivery of name of ultimate infrastructure Daily dry weather flow (assumed at date) Tanker movements					Assumptions	
Tanker Capacity 80%						
ADWF (Lis) Tanker 1 20,000 L 16,000 L						
ADWF (L/d) 98,500 Tanker 2 10,000 L 8,000 L						
PDWF (L/s)						
Fill rate (Sm depth) Discharge rate (gravity)						
500 L/min 1,000 L/min						
8 L/s 17 Lis						
Fill time Discharge time						
Tanker 1 32 min 16 min						
Tanker 2 16 min 8 min						
Tanker route						
Distance between 8 km Avgerage speed 40 km/hr						
Time taken 12 min						
Time to set/pack up 40 min						
	ADWF (L/d)	ills		Trips	Time taken	
Month 1	4,500	Tanker 1	0.28125	1	117.5 min	2.0 hr
		Tanker 2	0.5625	1	117.5 min	2.0 hr
Month 2	9,000	Tanker 1	0.5625	1	131 min	2.2 hr
		Tanker 2	1.125	2	235 min	3.9 hr
Month 3	13,500	Tanker 1	0.84375	1	144.5 min	2.4 hr
		Tanker 2	1.6875	2	248.5 min	4.1 hr
Month 4	18,000	Tanker 1	1.125	2	262 min	4.4 hr
		Tanker 2	2.25	3	366 min	6.1 hr
Month 5	22,500	Tanker 1	1.40625	2	275.5 min	4.6 hr
		Tanker 2	2.8125	3	379.5 min	6.3 hr
Month 6	27,000	Tanker 1	1.6875	2	289 min	4.8 hr
		Tanker 2	3.375	4	497 min	8.3 hr
Month 7	36,000	Tanker 1	2.25	3	420 min	7.0 hr
		Tanker 2	4.5	5	628 min	10.5 hr
Month 8	45,000	Tanker 1	2.8125	3	447 min	7.5 hr

		Tanker 2	5.6251	6	759 min	12.7 hr
Month 9	54,000	Tanker 1	3.375	4	578 min	9.6 hr
		Tanker 2	6.75	7	890 min	14.8 hr
Month 10	63,000	Tanker 1	3.9375	4	605 min	10.1 hr
		Tanker 2	7.875	8	1021 min	17.0 hr
Month 11	72,000	Tanker 1	4.5	5	736 min	12.3 hr
		Tanker 2	9	9	1152 min	19.2 hr
Month 12	85,500	Tanker 1	5.34375	6	880.5 min	14.7 hr
		Tanker 2	10.6875	11	1400.5 min	23.3 hr
Month 13	9,000	Tanker 1	5.6875	6	897 min	15.0 hr
		Tanker 2	11.375	12	1521 min	25.4 hr
Month 14	98,500	Tanker 1	6.15625	7	1023.5 min	17.1 hr
		Tanker 2	12.3125	13	1647.5 min	27.5 hr