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Welcome to Water Corporation’s Developers’ Manual. Water Corporation is the principal supplier of water, wastewater and drainage services to homes and businesses in Western Australia. Water Corporation works with the land development industry to ensure each new lot is provided with the appropriate water and wastewater services as efficiently as possible.

This manual is designed to guide developers and their appointed professionals through the process of delivering the reticulation assets required to serve subdivisions and existing properties that don’t have a water or wastewater service available.

This manual is supported by Water Corporation’s website and is continually reviewed and updated. It demonstrates Water Corporation’s commitment to providing a high quality service to those involved in the land development industry.

The information is designed to be easily read and understood. There are other technical documents that support this manual and are referenced where relevant.

For further information or feedback on this manual and any questions related to land development, please direct your enquiry to: land.servicing@watercorporation.com.au or phone 9420 2099.
Glossary of Terms

In this manual the following words and expressions have the following meanings.

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<th>Term</th>
<th>Definition</th>
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<tr>
<td>Agreement</td>
<td>A formal legal document between Water Corporation and the Developer (the Principal that contains the terms and conditions for providing assets)</td>
</tr>
<tr>
<td>As-constructed Plan</td>
<td>The document on which details of the constructed works are recorded and submitted to Water Corporation</td>
</tr>
<tr>
<td>Asset inspector</td>
<td>An officer of Water Corporation responsible for assessing and/or inspecting the works</td>
</tr>
<tr>
<td>Beneficiary lot</td>
<td>An existing un-serviced lot that is capable of receiving a service from the proposed works</td>
</tr>
<tr>
<td>Certificate of compliance</td>
<td>A document requiring the signature of a relevant party that certifies the aspect of works to which it relates</td>
</tr>
<tr>
<td>Clearance to Work Permit</td>
<td>A permitting procedure to authorise a Contractor to conduct work on, or near, an existing asset, other than where the personnel conducting the works are being directly supervised by a person who has operational control of the asset</td>
</tr>
<tr>
<td>Concept plan</td>
<td>The plan provided by the Design Engineer showing the key controls and parameters of the design, the planning considerations and the interaction with existing and future assets</td>
</tr>
<tr>
<td>Contract</td>
<td>The agreement between the Developer and the Contractor for the execution of the works</td>
</tr>
<tr>
<td>Contractor</td>
<td>The Organisation bound to execute the works under a contract</td>
</tr>
<tr>
<td>Contractors Representative</td>
<td>The person acting for and on behalf of the Contractor appointed by the Principal as Principal Contractor. A qualified, competent person who shall be in attendance on site during the progress of works</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
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<tr>
<td>Contract price</td>
<td>The total cost (excluding GST) of delivering the works</td>
</tr>
<tr>
<td>Customer Funded Works Agreement</td>
<td>Is an agreement between Water Corporation and the Developer on the delivery of works not relating to a sub-division (i.e. mains extension or diversion)</td>
</tr>
<tr>
<td>Design drawings</td>
<td>The drawings prepared by the Design Engineer, showing the proposed works</td>
</tr>
<tr>
<td>Design Engineer</td>
<td>The Engineer or engineering firm appointed by a Developer to prepare design drawings and documents for submission to Water Corporation</td>
</tr>
<tr>
<td>Design Standard</td>
<td>Water Corporation’s document that specifies the design requirements of any category of asset</td>
</tr>
<tr>
<td>Developer</td>
<td>The person or Organisation that has entered into an agreement with Water Corporation to provide water or wastewater infrastructure (The Principal)</td>
</tr>
<tr>
<td>Easement</td>
<td>A defined area of land Water Corporation has a right to enter for purposes defined by agreement or statute and subject to any conditions/restrictions implied therein. Such purposes can include for example, access, construction, maintenance and repair</td>
</tr>
<tr>
<td>Engineer</td>
<td>A person qualified to be a Chartered Professional Engineer, and who has appropriate engineering experience in the design and delivering of Water Corporation infrastructure</td>
</tr>
<tr>
<td>Final Takeover Inspection</td>
<td>The inspection by the Asset Inspector, with the Superintendents Representative and Contractors Representative in attendance, to assess acceptance of the works.</td>
</tr>
<tr>
<td>Headworks Infrastructure</td>
<td>Refers to distribution mains, trunk mains, water booster stations, water tanks, wastewater pump stations etc.</td>
</tr>
<tr>
<td>Inspection</td>
<td>Any activity undertaken to assess the condition of the works</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
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<tr>
<td>-------------------------------------------</td>
<td>---------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Land development agreement</td>
<td>The formal legal document between the Developer and Water Corporation with respect to fulfilling the Western Australian Planning Commission (WAPC) conditions for a designated area of subdivision</td>
</tr>
<tr>
<td>Land Servicing Advisor</td>
<td>Water Corporation’s representative</td>
</tr>
<tr>
<td>Multi-Staged Works Agreement (MSWA)</td>
<td>An agreement that is required to obtain clearances prior to providing lots with services for land developments that will create a minimum of 30 lots, which will be released over three or more stages.</td>
</tr>
<tr>
<td>Piece Up</td>
<td>Construction activities which achieve the connection of new works to existing Water Corporation infrastructure (also referred to as link-in).</td>
</tr>
<tr>
<td>Planning Information Pack</td>
<td>A set of documents and plans that illustrate the long term servicing arrangements of any given area</td>
</tr>
<tr>
<td>Pre-calculated cadastral plan</td>
<td>A Surveyor’s pre-calculated cadastral plan of the proposed subdivision</td>
</tr>
<tr>
<td>Prerequisites to Works</td>
<td>The procedure which is necessary to address Water Corporation’s statutory requirements under the Water Services Act 2012 for general and major works as set out in the External Approvals Manual</td>
</tr>
<tr>
<td>Pre-handover inspection</td>
<td>The inspection conducted by the Superintendents Representative and the Contractors Representative prior to final inspection</td>
</tr>
<tr>
<td>Region</td>
<td>An area of the state designated as a region of Water Corporation</td>
</tr>
<tr>
<td>Reticulation</td>
<td>The pipelines that connect private works to headworks infrastructure, and are constructed to provide a water supply or wastewater service</td>
</tr>
<tr>
<td>Shall</td>
<td>A mandatory requirement</td>
</tr>
<tr>
<td>Should</td>
<td>A requirement to be adopted unless circumstances justify a variation</td>
</tr>
<tr>
<td>Specification</td>
<td>The document containing the technical clauses to be read in conjunction with the design drawings for the works</td>
</tr>
<tr>
<td><strong>Standard drawings</strong></td>
<td>Registered Water Corporation drawings</td>
</tr>
<tr>
<td>-----------------------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td><strong>Start-up meeting</strong></td>
<td>The meeting between Water Corporation’s Asset Inspector, the Superintendents Representative and the Contractors Representative to discuss the timing and method of construction of the works</td>
</tr>
<tr>
<td><strong>Submission</strong></td>
<td>The compilation of drawings and documents presented to Water Corporation</td>
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</tbody>
</table>
| **Superintendent**   | The engineering firm appointed by the Developer to administer the Contract between the Principal and the Contractor for the construction of the works and to oversee the progress and standard of construction by the contractor. 
The Superintendent is responsible to the Developer for ensuring that the Contractor completes the works to the accepted design and to the approved specifications. 
This includes, but not limited to, gathering, auditing, validating and submitting all documents as required, undertaking and/or auditing inspections to confirm/demonstrate compliance during construction of the works and the provision of as-constructed plan(s) to Water Corporation |
| **Superintendents Representative** | The registered professional acting for and on behalf of the Engineering consultancy firm engaged by the principal as superintendent. Represents the Superintendent and the Developer in all communication with Water Corporation |
| **Technical Manual**  | Water Corporation’s Technical Manual relevant to the works being undertaken |
| **Water Corporation** | The statutory body corporate established under Section 4 of the Water Corporation Act 1995. |
1 Introduction

Land development can be complex and frustrating and mistakes that should be avoidable can be costly. If you are subdividing or wish to extend Water Corporation pipes to your property, you will need to engage the services of a qualified Design Engineer.

Each land development is unique and the methods of providing properties with water and wastewater services will vary. To be able to provide a service to your property, reticulation pipes may need to be extended across your property boundary.

This manual details the steps to be taken to deliver reticulation assets. It is structured into four main sections:

Planning – factors to consider before designing any works
Design – what Water Corporation requires to be shown on a design and how to submit it
Construction – the steps taken to start and complete construction
Takeover - the steps taken for Water Corporation to take over the works

1.1 Design standards and technical manuals

This manual should be read in conjunction with the appropriate Design Standard and/or Technical Manual for the type of asset being delivered. The Design Standards and Technical Manuals related to reticulation works include but are not limited to:

- Design Standard 63 – Water Reticulation
- Design Standard 53 – Vacuum Sewerage
- Design Standard 50 - Design and Construction Requirements for Gravity Sewers
- Water Services Association of Australia Sewerage Code – Wastewater reticulation
- External Approvals Manual – Prerequisites to Works
- Earth Potential Rise Manual – Protection of pipelines from AC interference

All relevant Design Standards, specifications and standard drawings are available on Water Corporation’s website under the suppliers and procurement area.

1.2 Roles and responsibilities

It is important that everybody involved in delivering reticulation assets are aware of their role and responsibilities in the process. Details of requirements for each party are outlined below:

Developer – the Developer is the Principal of the project/contracted works

The Developer is the person or organisation applying for a water and/or wastewater service. They are the party that enters into an agreement to deliver the works and will need to:

- appoint a Design Engineer, a Superintendent and a Contractor to carry out the works in accordance with this manual, design standards and any other technical manuals
- provide a safe site for the works to take place and be inspected
- pay all associated costs, fees and charges

**Design Engineer** – the Design Engineer is responsible for the planning and design of the works and gaining all necessary external approvals in accordance with the Design Standards, manuals and Australian Standards. They must be a practising Engineer with chartered status and a registered holder of our Design Standards. A thorough understanding of the process outlined in this document is necessary.

**Superintendent** - The Superintendent is responsible for administering the contract between the Principal and the Contractor for the construction of the works and to ensure that the Contractor completes the works to the accepted design in compliance with Design Standards and relevant Australian standards. This includes gathering, auditing, validating and submitting all documents and undertaking audits/inspections to confirm/demonstrate compliance during construction of the works and providing the as-constructed information.

The Superintendent must be a practising Engineering firm with chartered status and a registered holder of our design standards.

**Superintendents Representative** - The Superintendents Representative is the Superintendents designated representative and responsible for ensuring the completion of the works by the Contractor to the accepted design and approved specifications.

The Superintendents Representative represents the Superintendent and the Developer in all communications with Water Corporation and must be employed by the Superintendent.

**Contractor** - The Contractor is responsible for managing and arranging construction of the works under the contract administered by the Superintendent in accordance with relevant Design Standards, manuals and codes to ensure the works are acceptable.

**Contractors Representative** – The Contractors designated representative, who shall be a qualified, competent person and be in attendance on site during the progress of works.

**Land Servicing Advisor (Water Corporation)** - is responsible for ensuring that design submissions comply with current planning requirements and advising the Design Engineer of any specific design requirements.

**Asset Inspector (Water Corporation)** - is responsible for assessing the quality of the works being constructed and ensuring compliance with the relevant standards and manuals.
1.3 Fees associated with delivering reticulation works

The following fees are payable to Water Corporation and applicable when delivering reticulation works. The fee will depend on the location, type and size of the connection and there are other fees and charges that may apply to a development. Details can be found on our website in the builders and developers area. The fee amounts remain valid for the life of their related agreement.

1.3.1 Water reticulation planning fee

The water reticulation planning fee, which is 3.75% of our estimate of the construction costs, is payable for all water supply reticulation submissions that are accepted.

1.3.2 Perth Metropolitan region reticulation connection fees

1.3.2.1 Potable and non-potable water reticulation connections

Standard connection fees may be provided as part of a Land Development Agreement. Where the works contain non-standard or complex connections, the Land Servicing Advisor may direct the Design Engineer or Superintendent to obtain a quote from ‘Reimbursements’, prior to the start-up meeting. In the case of works that do not pertain to a subdivision proposal, connection fees must be paid prior to a start-up meeting occurring.

1.3.2.2 Wastewater reticulation connections

All connection fees shall be quoted and paid prior to the connection. The Design Engineer/Superintendent shall obtain a quote from ‘Reimbursements’. The isolation and connection requirements shall be discussed with the Asset Inspector at the Start-Up Meeting. Refer to appendix 4. In the case of works that do not pertain to a subdivision proposal, connection fees must be paid prior to a start-up meeting occurring.

1.3.3 Non-Metropolitan reticulation connection fees

All excavation, construction and piece up works are to be undertaken by the Developers’ Contractor at the Developers cost. To enable the connection of the new development to existing assets, the Asset Inspector shall arrange for Water Corporation to isolate their live infrastructure. Standard isolation fees will be collected via the Land Development Agreement. Where the isolation is deemed to be high risk, Water Corporation reserves the right to complete all, or a portion of, the piece up works at the Developers cost. Arrangements for quoting and payment for those works will be agreed at the Start-Up Meeting. In the case of works that do not pertain to a subdivision proposal, connection fees must be paid prior to a Start-Up Meeting occurring.

1.3.4 Headwork infrastructure connection fee

When connecting to existing headworks infrastructure there is potential for negative impact on other customers. Options such as tankering and limited shutdown periods must be considered as part of the design to minimise any disruption. The Design Engineer shall discuss these requirements with the Land Servicing Advisor in the early stages of the design to determine any specific requirements. Any reticulation connections to headworks assets will require a quote to be provided by the relevant region.
1.4 Water Corporation contacts

All related design enquiries should be submitted to land.servicing@watercorporation.com.au

State-wide - Subdivision Works
Manager Land Servicing Development Services Branch
Water Corporation
John Tonkin Water Centre
629 Newcastle Street, Leederville
PO Box 100 Leederville WA 6902

Phone: (08) 9420 2099

1.5 Inspections contacts

Metropolitan Perth region
Inspection Services
Perth Region
273 Bannister Road
Canning Vale
PO Box 1525
Canning Vale Delivery Centre 6970

PRAIS.bookings@watercorporation.com.au
Phone: (08) 9424 8462

Goldfields and Agricultural region
Regional Asset Inspector
Agricultural Region
263 Fitzgerald Street
PO Box 265
Northam, WA, 6401

GARIS.bookings@watercorporation.com.au

Great Southern region
Regional Asset Inspector
Great Southern Region
215 Lower Stirling Terrace
Albany, WA 6331

GSRIS.bookings@watercorporation.com.au
<table>
<thead>
<tr>
<th>Region</th>
<th>Contact Details</th>
<th>Email Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mid-West region</td>
<td>Regional Asset Inspector&lt;br&gt;Mid-West Region&lt;br&gt;SGIO Building Cathedral Avenue&lt;br&gt;PO Box 43&lt;br&gt;Geraldton, WA, 6531</td>
<td><a href="mailto:MWRIS.bookings@watercorporation.com.au">MWRIS.bookings@watercorporation.com.au</a></td>
</tr>
<tr>
<td>North-West region</td>
<td>Regional Asset Inspector&lt;br&gt;North-West Region&lt;br&gt;Welcome Road, Karratha&lt;br&gt;PO Box 84&lt;br&gt;Karratha, WA, 6714</td>
<td><a href="mailto:NWRIS.bookings@watercorporation.com.au">NWRIS.bookings@watercorporation.com.au</a></td>
</tr>
<tr>
<td>South-West region</td>
<td>Regional Asset Inspector&lt;br&gt;South-West Region&lt;br&gt;61 Victoria Street&lt;br&gt;PO Box 305&lt;br&gt;Bunbury, WA, 6231</td>
<td><a href="mailto:SWRIS.bookings@watercorporation.com.au">SWRIS.bookings@watercorporation.com.au</a></td>
</tr>
</tbody>
</table>

1.6 As-constructed contact

All water and wastewater as-constructed enquiries should be submitted to:<br>assetregistraion@watercorporation.com.au
1.7 Map of Water Corporation regions

Regional Map of Western Australia

- Kununurra
- Broome
- Karratha
- Port Hedland
- Newman
- Carnarvon
- Meekatharra
- Mid West
- Geraldton
- Perth
- Mandurah
- Bunbury
- Southwest
- Northam
- Merredin
- Kalgoorlie
- Goldfields & Agricultural
- Great Southern
- Esperance
- Albany

North
### 1.8 Reticulation Process

The process to deliver reticulation works is broadly separated into four phases. These are shown in the below diagram and their requirements are described in more detail later in this manual.

#### Process of delivering reticulation works

<table>
<thead>
<tr>
<th>Phase</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning Phase</td>
<td>Land Developer to construct reticulation works</td>
</tr>
<tr>
<td></td>
<td>Preliminary investigations – includes liaising with affected parties, walking the route, requesting any design variations, confirming scheme planning requirements</td>
</tr>
<tr>
<td>Design Phase</td>
<td>Prepare Initial Design</td>
</tr>
<tr>
<td></td>
<td>Submit Initial Design – includes Prerequisites to Works documents, if required</td>
</tr>
<tr>
<td></td>
<td>Complete the Prerequisites to Works, if required</td>
</tr>
<tr>
<td></td>
<td>Submit Final Design, Construction details and confirm Prerequisites to Works has been satisfactorily completed.</td>
</tr>
<tr>
<td>Construction Phase</td>
<td>Start-Up Meeting with the Asset Inspector</td>
</tr>
<tr>
<td></td>
<td>Construct the works</td>
</tr>
<tr>
<td></td>
<td>Submit all documentation to achieve Final Takeover</td>
</tr>
<tr>
<td>Takeover Phase</td>
<td>Successful FTI achieved</td>
</tr>
<tr>
<td></td>
<td>Water Corporation takeover the works and warranty period commences</td>
</tr>
<tr>
<td></td>
<td>Submit As-Constructed drawings</td>
</tr>
</tbody>
</table>
2 Planning Phase

The planning phase is where all of the preliminary investigations take place and its purpose is to ensure the design submission process runs smoothly without delay or difficulty.

During the planning phase, consideration should be given to issues such as, but not limited to:
- what the planning requirements for the scheme are?
- does the design propose an alternative solution to the design standards and manuals?
- are there any land issues such as easements, land acquisitions, public open space constraints, road widening etc?
- are the design options capable of being constructed?
- will the proposed works negatively impact any adjoining properties?
- will there be objections to the proposed design?
- are there any reticulation works dependent on unfinished headworks/infrastructure?

### Planning Phase Diagram

- **Planning requirements**
  - Apply for a planning pack for a MSWA or large subdivision
  - Are there any land matters such as road widening, POS & acquisitions?

- **External Approvals**
  - Liaise with affected parties before completing the design.
  - Think about possible objections and how people will be affected by the works.

- **Design considerations**
  - Walk the route.
  - Can the works be constructed?
  - Is there a dependency on unfinished assets?
  - Do you need an approval for a design standard variation.
2.1 External Approvals and Prerequisites to Works

Reticulation works may be classed as general or exempt under provisions in the Water Services Act 2012. Further information can be found on the WA Legislation webpage.

If your works are classed as general, you will need to undertake the Prerequisites to Works process to gain approval before you can start constructing the works. The planning phase is the best opportunity for you to give affected parties sufficient notice and time to negotiate and resolve any objections.

Water Corporation has provided guidance notes that give more detail about liaising with affected parties and the process steps required to have your design submission accepted. Refer to appendices 1 & 2.

2.2 Single staged developments

If you’re extending Water Corporation mains to serve an existing property or your development does not consist of multiple stages, there is no requirement for you to produce a concept plan. If you are unsure of the planning requirements for your development, contact: land.servicing@watercorporation.com.au

2.3 Staged developments – concept plans

Determining what infrastructure is required to serve a development is vital to enable construction of the works to begin. Any proposed works shall allow development of the wider surrounding area in accordance with Water Corporation’s long term scheme planning.

If you’re undertaking a staged development you are required to submit a concept plan. Water Corporation will provide the latest planning information to the Design Engineer to enable them to produce a concept plan. This will ensure that the concept of the proposed works meets Water Corporation’s long term planning requirements.

To initiate this process and be supplied with the appropriate planning information, please use this link to apply for a Planning Information Pack.

It is imperative that Water Corporation understands any constraints of providing assets to stages of your development. Constraints such as approvals from other agencies or other assets required to connect your development should be highlighted when you submit the initial concept plans for review.

You should provide information to demonstrate how the outfall is to be achieved but not include the full design detail in the concept plan.

2.4 Concept plan

Once the information provided in the Planning Information Pack has been incorporated into your concept plans, you may submit the concept plans for initial review via Water Corporation’s website.

Should your concept plans require minor amendments, Water Corporation will provide you with this advice. Should your concept plans not match Water Corporation’s planning or there are a number of design standard discrepancies, you will be requested to revise and resubmit the concept plans.

You may then submit a copy of the concept plan, via Water Corporation’s website.

Once Water Corporation receives your final concept plans they will be reviewed. The accepted concept plan/s then becomes the basis of an agreement between Water Corporation and the Developer.
Once a concept plan has been accepted, any variation to it shall be discussed with the Land Servicing Advisor. If the variation is acceptable: a revised concept plan/s shall be re-submitted via the website.

To progress your proposed development, the concept plan can be developed to a stage where it is satisfactory. However, it can only be accepted when a subdivision application has reached conditional approval, at which point reticulation design plans for stage 1 can be processed.

### 2.5 Concept plan – requirements

A concept plan for each service type (water and wastewater) is required and should include the works required to serve your development and also demonstrate that adjoining developments will be able to be served. The following information should be included:

- where easements or reserves are required and are outside the Developer’s land holding: written in-principle agreement of the arrangements necessary to acquire them shall be provided
- information to demonstrate how the outfall is to be achieved. DO NOT include the full design detail in the concept plan – ONLY sewer pipes within the boundary of the development should be shown in the concept plan

Water Corporation may require an accepted concept plan to be revised periodically. Typical reasons for revising the plan could include:

- the Developer acquiring additional land and extending the existing development area
- ensuring servicing arrangements comply with the latest planning
- changes to densities, land use, lot and road layout etc.

*Any revised concept plans should be submitted to the Land Servicing Advisor for review and acceptance*

#### 2.5.1 Water supply concept plan – requirements

The Concept plan should include:

- a locality plan at a reduced scale (e.g. 1:10000) which is relevant to the scheme catchment. The concept plan is to be at a scale of 1:2000
- the boundary of the development area (MSWA boundary)
- major identifying road names and basic cadastral information
• All land use types other than single residential (e.g. industrial/commercial, public open space etc.)
• the routes and locations of all existing and known future headworks infrastructure
• the points of interconnection with both the existing network and the future network of other developments for both reticulation and headworks infrastructure
• water supply zone boundaries and their supply limits
• spot levels for final development
• the routes of all reticulation mains
• the sizes of all reticulation mains greater than 100mm
• valve requirements for the above mains in accordance with DS63
• individual lots

2.5.2 Wastewater concept plan – requirements

The Concept plan should include:
• a locality plan at a reduced scale (e.g. 1:10000) which is relevant to the scheme catchment. The concept plan is to be at a scale of 1:2000
• the boundary of the development area (MSWA boundary)
• major identifying road names and basic cadastre information
• all land use types other than single residential (e.g. industrial/commercial, public open space etc.) and their indicative design flows
• the catchment control levels (e.g. cut and fill etc.)
• all control lines shall be identified by legend and show their invert levels, depths and grades
• all other control points or features which may influence the design.
• spot levels for final development
• sewer design flows to be shown where there is a change in pipe size or use of minimum grades
• the points of interconnection with both the existing network and the future network of other developments for both reticulation and headworks infrastructure. ONLY sewer pipes within the boundary of the development should be shown in the concept plan
• identification of any sewers deeper than 5m*

* Sewers deeper than 5m shall be reviewed for suitability. The Land Servicing Advisor will assess any such sewers and provide advice as to the best servicing arrangement.

2.6 Early clearances

Subdivisions that create 10 or more lots may be eligible for ‘early clearance’ of subdivision conditions prior to having provided the lots with the required water or wastewater infrastructure. This can be done by entering in to either a Multi-Staged Works Agreement or a Performance Agreement.

2.6.1 Multi-Staged Works Agreement

A Multi-Staged Works Agreement (MSWA) is required to obtain early clearances for land developments that will create a minimum of 30 lots, which will be released over three or more stages. It is a ‘one-off, upfront’ agreement designed to remain in place for the duration of the development. The MSWA will be created and returned to the Design Engineer with the initial concept plans.

In general, there is no need to supply a financial security while the Developer delivers satisfactory assets within specified timeframes. Administration fees are required where a financial security is to be lodged.

NOTE: The MSWA cannot be executed until a subdivision application within the MSWA boundary has received conditional approval from the Western Australia Planning Commission.
2.6.2 Performance Agreement

A Performance Agreement covers water and wastewater reticulation mains needed for subdivisions that create a minimum of 10 lots per stage and will have no more than 2 stages where construction of the works has begun.

They are agreements in which a Developer provides a financial guarantee as security against unfinished works needed to satisfy subdivision conditions. A financial security is required and administration fees apply.

2.7 Design standard variation requests

Water Corporation design standards are developed to ensure fit for purpose assets, that achieve their economic design life with minimal operating and maintenance costs, are delivered.

Occasionally a design may not meet the requirements of the design standard or Water Corporation planning and you may propose an alternative solution. Where this occurs, the Design Engineer shall request acceptance of the proposed alternative solution prior to submitting the initial design submission. You can submit your variation request via Water Corporation’s website. If a design standard variation arises during construction, the first point of contact is to be with the Asset Inspector.

When proposing a variation the Design Engineer shall include the following:
- details of the reasons/circumstances for the variation
- an assessment of the impacts and benefits for Water Corporation and the Developer
- details of options considered to negate the variation

The following reasons for a variation will not generally be accepted:
- inadequate site investigation that results in obstacles or constraints of a non-latent nature
- seasonal impacts that will resolve themselves over time
- where the Design Engineer’s assessment will cause significant impact to Water Corporation fundamental objectives
- where the request relates purely to the financial benefit of the Developer
- where the request is lacking sufficient information to be able to assess
- delays or issues with the procurement of materials, machinery or equipment
- where the Contractor has built something different to that of the accepted designs
- where variations have been proposed by the Contractor with no input from the Design Engineer/Superintendent

NOTE: It is important to provide any details of having your design standard variation accepted with your initial design submission documents.

2.8 Private Pumping Stations

Private pumping stations and pressure mains may be considered as a means of providing a wastewater service in certain circumstances. These are arrangements where the land owner is responsible for the pump station and pressure main to the point of discharge. The guidance note in Appendix 6 outlines the eligibility criteria, applicable standards and requirements for submission.
3 Design Phase

3.1 Design responsibilities

The Design Engineer is responsible for ensuring the design submission complies with Water Corporation Design Standards and manuals. Water Corporation’s acceptance of a submission shall not relieve the Design Engineer of this responsibility or for any discrepancies, errors or omissions in the submission or for the adequacy of the design.

3.2 Drafting standards

The drafting for all submissions shall be in accordance with Australian Standard 1100, Part 101. Drawings shall be suitable for uploading. A digital copy of the pre-calculated cadastral plan will expedite the incorporation of information into our spatial database. The digital file shall be in MGA94 coordinates and be a DXF or DWG file.

3.3 Standard drawings

To ensure that your design meets Water Corporation requirements, please refer to the example standard drawings available in the design standards.

4 Initial design submission

The purpose of the initial design submission is to:

- verify the design complies with the scheme planning or concept plan*, if applicable
- provide specific advice in relation to the submission, as required
- provide administrative details that are required to be shown on the final design submission
- encourage the Design Engineer to consider potential Isolation options as part of the design (wastewater only)

*An initial submission can only be submitted after the concept plan is capable of being accepted (staged developments only).
4.1 Submission requirements

The initial design shall be submitted by the Design Engineer via Water Corporation’s website and shall contain:

- a digital copy (PDF) of the design drawings
- the prerequisites to works documentation (refer appendix 1), if the works are classed as general
- where easements or reserves are required and are outside the Developer’s land holding: written in-principle agreement of the arrangements necessary to acquire the easements or reserves from the registered landowner is required
- a list of any beneficiary lots. The list shall show the relevant property addresses and a description of the structure details of those properties (e.g. dwelling, warehouse, vacant land). All beneficiary lots shall be clearly identified on the design plans
- all easements or reserves and land to be owned by Water Corporation as a result of the works shall be shown on the plan and the design drawings
- for submissions in a Multi Staged Works Agreement, Site/Design Data plan is not required for wastewater; however pipe lengths and number of access chambers/maintenance shafts to be shown on reticulation design drawing
- where multiple stages are proposed, the submission needs to reflect only the works intended for Final Takeover Inspection clearance and any additional stages will require a separate submission

4.2 Initial design submission review

The submission will be checked for conformity with Water Corporation planning requirements or concept plan, if applicable.

A Reticulation Design Appraisal form will be returned to the Design Engineer, which provides details of any design issues that need to be corrected and the administrative details such as plan numbers, access chamber numbers, file numbers etc.

If the works are classed as general, Water Corporation will authorise you to start the formal Prerequisites to Works notifications.

If the initial submission is not acceptable, Water Corporation will reject the submission and request that the design be reconsidered.

4.3 Vacuum sewerage systems

Following the review of the initial design submission, if the submission involves a vacuum sewerage system, Water Corporation may also request:

- a statement from a supplier of an approved vacuum valve, as listed in the DS 36 Product Atlas stating that the supplier has received the system design prepared by an approved designer. The statement must guarantee the hydraulics of the system and confirm that the guarantee is transferable to Water Corporation’s benefit. The review must be carried out by a suitably experienced engineer and the engineer must be explicitly identified in the statement referred to above

Current approved vacuum valves are:

- Air vac (contact Watercon)
- Flovac (contact Flovac Vacuum Sewerage Systems)

If requested, this statement is to be submitted with the final design submission.
4.4 Initial design submission review objections

Any objections to Water Corporation’s planning or design requirements shall be made in writing to the Land Servicing Advisor. The objection shall state the reasons and efforts made to resolve any issues. Any unresolved objections between the Design Engineer and the Land Servicing Advisor shall be referred to the Manager, Land Servicing.

5 Final design submission

The purpose of the final design submission is:
- to ensure design changes and comments from the initial appraisal have been included
- to confirm that the Prerequisite to Works process has been completed, if required
- for the Design Engineer to verify the constructability of the proposed asset
- to initiate construction (i.e. request a start-up meeting)

5.1 Final design submission requirements

The final design should be submitted by the Design Engineer via Water Corporation’s website and shall contain:
- an agreement in writing that formalises the arrangements for Water Corporation to acquire any easements or reserves required as a result of the works, if required
- confirmation that the Prerequisites to Works process has been completed and there are no outstanding objections
- a digital copy (PDF) of the design drawings
- pre-calculated Cadastral Plan (DXF or DWG format), if required

If the design submission is an extension, a diversion or non-MSWA works, it should be stamped with the below stamp:

This plan is accepted as complying with overall scheme planning. Compliance with the relevant design standards and manuals remains the responsibility of the Design Engineer.

No works are to commence on site until start-up meeting requirements have been made with the relevant Asset Inspector. Refer to the Developers’ Manual for contact details.

**NOTE:** Please leave 3 lines to allow Water Corporation to stamp the acceptance details.

If the design submission is for MSWA works, it should be stamped with the below stamp:

This plan is accepted as being in accordance with the endorsed Concept Plan:

e.g. CU01-100-001-01A

Compliance with the relevant design standards and manuals remains the responsibility of the Design Engineer.

No works are to commence on site until start-up meeting requirements have been made with the relevant Asset Inspector. Refer to the Developers’ Manual for contact details.

**NOTE:** Please leave 3 lines to allow Water Corporation to stamp the acceptance details.
In addition to the above stamps, if the design submission relates to a development in a non-metropolitan region, the design will also need to be stamped with the below stamp:

**Low risk Isolation - Excavation, construction and piece up works by the Developers’ Contractor. Isolation by Water Corporation at the Developers cost.**

**High risk isolation - Water Corporation reserves the right to complete all, or a portion of, the piece up works at the Developers cost. Arrangements for quoting and payment for those works to be agreed at the Start-Up Meeting**

### 5.1.1 Pre-calculated cadastral plan

A pre-calculated cadastral plan shall be included in the final design submission where the proposed works serve five or more lots. A digital copy of the pre-calculated cadastral plan will expedite the incorporation of information into Water Corporation’s spatial database. The digital file shall be in MGA94 coordinates and be a DXF or DWG file.

The plan shall be clear and legible and only include information that is relevant, such as:

- road casements
- parcel edges
- lot numbers
- street names
- easements (Water Corporation only)

Unnecessary information that should not be included is typically:

- road kerb lines
- trees
- power/light poles
- storm water pipes and gullies
- other utilities services e.g. electricity, gas, Telstra etc.

### 5.1.2 Construction details

Where details of the parties involved in the construction of the works are known:

- the name and contact details of the Superintendent and the Superintendents Representative
- the name and contact details of the Contractor and the Contractors Representative

Where the above details are not known at the time of submitting the final submission: these details are to be provided to the Land Servicing Advisor when available. You will not be able to arrange a start-up meeting without providing these details first.

**NOTE:** Final submissions that are related to a subdivision application cannot be accepted prior to the application reaching conditional approval.
5.2 Acceptance of final design submissions

If acceptable, Water Corporation will stamp the final design to indicate that the submission is acceptable and return to the Design Engineer.

If not acceptable, Water Corporation will reject the submission and request that the design be reconsidered

The final submission is valid for 12 months from the date of acceptance. If construction has not begun within this period, the submission will no longer be valid and a new submission may be required. Prior to submitting a revised plan, you should contact the Land Servicing Advisor to discuss if it is necessary.

NOTE: Acceptance of the design does not relieve the Design Engineer of any responsibilities for any discrepancies, errors, omissions or for the adequacy and conformance of the design with the relevant design standards and manuals.

5.2.1 Amended final designs

Generally, designs need to be resubmitted if there are changes to assets such as the inclusion of additional access chambers or extra pipes. Modifications such as small changes to gradients or relocating the service point will not typically require a revised submission.

As a guide, below is a list of when a revised submission is required:

- change of staging that results in more or less lots
- major cadastral changes, e.g. road changes and/or lot layout changes
- additional access chambers or maintenance shafts
- additional IO or IS lines or extension of sewers
- change in location of IO or IS lines (one side of lot to the other – brownfields ONLY)
- change in location of pipe to opposite side of road
- any significant changes to the valving arrangement
- any change in connection details to existing assets

NOTE: Prior to submitting a revised plan, you should contact the Land Servicing Advisor to discuss if it is necessary. If the Land Servicing Advisor agrees that a revised plan is required, the plan should be emailed directly to the Land Servicing Advisor and not re-submitted via the online portal.

5.2.2 Amendments before construction

Once a design has been accepted and before construction has started, any alterations to the design shall be discussed with the Land Servicing Advisor who will determine whether a revised submission is required.

5.2.3 Amendments during construction

If construction has started, any requests for minor realignments of pipes, alterations to connections and relocation of access chambers and valves shall be discussed with the Asset Inspector. The Asset Inspector will provide guidance on these matters or may refer complex matters to be dealt with by your Land Servicing Advisor.
6 Construction

6.1 Site safety

Asset Inspectors will comply with the Contractor’s site safety procedures while on site.

Asset Inspectors will not enter sites that they consider unsafe by WorkSafe WA Standards.

Where safety issues relating to the inspection cannot be resolved between the Superintendents Representative and the Asset Inspector, they shall be referred to WorkSafe WA for advice/resolution.

6.2 Pipeline protection and clearance to works

When working near Water Corporation’s pipelines, damage can be prevented by careful planning and properly conducting site works. All parties planning and/or conducting works near Water Corporation’s assets shall be familiar with the technical guideline ‘Working near Water Corporation Assets’ as published on the website.

If your works will impact Water Corporation assets you are required to submit an approved Clearance to Work Permit at least five days prior to commencement of work.

For all works in the Perth metropolitan area, Clearance to Works Permits shall be submitted to: PRA_CTW1@watercorporation.com.au

For all works outside of the Perth metropolitan area, Clearance to Works Permits shall be submitted via the relevant Operations Team, as advised in the Start-Up meeting.

NOTE: If any doubt exists then the proposal shall be referred to the Region for assessment
6.3 **Notice of proposed works**

Where property, other than that owned by the Developer, will be affected by the proposed works, the Superintendent or Contractor is to ensure written notice has been given to the occupiers of such property at least 10 days prior to the start of works.

6.4 **Construction requirements**

Construction can only start when:

- a design has been accepted and construction details provided
- a Clearance to Works permit has been obtained, where required
- the Contractor employs personnel that are capable and accredited to perform the works. Refer to the relevant design standard or manual for details of the appropriate accreditation required
- the requirements of the start-up meeting have been met and the Asset Inspector has authorised construction to start

Any modifications to the accepted design during construction shall be discussed with the Asset Inspector. This shall be done via the Superintendents Representatives.

- if a change of Contractor becomes necessary, the Superintendent notifies the Asset Inspector of the new Contractor's details and the Contractors Representatives details
- if a change of Superintendent becomes necessary, the Developer notifies the Asset Inspector of the new Superintendents details
- any discrepancies between the design and construction of the works shall be managed jointly by the Design Engineer, Superintendents Representative and the Contractors Representative
- the Asset Inspector will direct any issues related to the Contractor's work to the Superintendents Representative and NOT to the Contractor
- work shall be carried out in accordance with the requirements of the relevant design standard or manual, relevant acts and by-laws and this manual
- the Superintendent shall ensure that the Contractor is aware of, and agrees to comply with, the requirements of any authority in regard to the protection, diversion or relaying of any service affected by the works
- the Superintendent shall ensure that the Contractor is aware of any agreement with any authority such as the Department of Aboriginal Affairs or Department for Planning into which the Design Engineer, the Developer or Water Corporation may have entered for the works
- the Superintendent shall ensure that the Contractor verifies by survey the location and level of the point of connection of the works to the existing system prior to commencing any new works
- the Superintendent shall ensure that restoration has been performed to the satisfaction of any affected property owner and authorities, where relevant

6.5 **Construction of assets without approval**

Where construction has commenced and due process has not been followed:

- Water Corporation will instruct that works cease immediately. Should a cease work instruction not be complied with Water Corporation may decline to accept any further involvement in the works
- a third party certified assessment of the works already constructed will need to be provided, at the Developers’ cost, for Water Corporation’s review
- Water Corporation reserves the rights to refuse and accept the choice of the third party assessor
- where the third party assessment identifies non-compliance with the relevant standard or manuals, faults will need to be remedied where possible, or the works removed
only after the above four points have been resolved and the requirements of any manual have been met, will works be able to recommence

Water Corporation will not offer the availability of early clearance of subdivision conditions associated with these works

Water Corporation may decline to accept the involvement of the Design Engineer, Superintendent and/or the Contractor in future Water Corporation funded projects

the warranty (defects liability) period for the works will be increased to two years

6.6 Start-up meeting

Prior to the start of the works, the Superintendent's Representative shall arrange and participate in a start-up meeting with the Asset Inspector and the Contractors Representative

• once the Design Engineer receives Water Corporation's acceptance of a final design and construction details have been provided, the Superintendent's Representative can book a Start-Up Meeting by contacting the relevant inspections contact

• Water Corporation will allocate an Asset Inspector within five business days of the start-up meeting being requested

• the Superintendent's Representative is responsible for ensuring that minutes of the meeting are taken and that either the Contractors Representative attends (preferred) and/or that the Contractors Representative is provided with the minutes of the meeting prior to works commencing. This record shall detail any key information and agreements reached, with a copy provided to the Asset Inspector prior to works commencing.

• the Superintendent shall provide one A1 and one A3 hard copy of the accepted design at the start-up meeting

• the matters as shown on the start-up meeting checklist (refer to appendix 3) shall be addressed at the start-up meeting

• a copy of the meeting record shall be forwarded to the Asset Inspector within five days of the Start-Up Meeting occurring

• before construction begins the Superintendent shall ensure:
  - No works are to commence on site until start-up meeting requirements have been made with the relevant Asset Inspector and satisfactory start-up advice has been issued
  - the Contractor has obtained a Clearance to Works Permit (where necessary refer to section 6.2)

6.7 Pre-start advice for additional stages (staged developments only)

Pre-start advice (for stage 2 and onwards) may be conducted by verbal telephone conversation or email. The Asset Inspector, however, reserves the right to attend a formal Start-Up Meeting, as per stage 1, where the works or connections are of a complex nature or, if there has been a change in the Contractor/Subcontractor which requires certain details to be clarified. All relevant documentation, as per stage 1, is required to be obtained where necessary, prior to construction beginning on stage 2 or any subsequent stages thereafter. No works are to commence until satisfactory start-up advice has been issued.

The Superintendent shall ensure a record of the meeting is made. This record shall details any key information and agreements reached
6.8 Isolation of new works (wastewater only)

The purpose of isolating non-commissioned sewers from live sewers is to provide a safe working environment for construction, testing and inspection of the new works. Where the non-commissioned sewer system is not isolated from the live sewer, entry to and work within the new sewer system is subject to the provisions of Australian Standard AS.2865, 'Safe working in a confined space'.

Water Corporation’s preferred method is physical break which should be used where ever practical.

Where a physical break is not practical, the Superintendent shall coordinate the development of a suitable isolation plan as outlined in the Isolation Guidance Notes (Appendix 4)

The Superintendent shall ensure the Contractor:

- obtains a Clearance to Works Permit prior to the commencement of construction
- has arranged for all required isolations to be installed and maintained until the final inspection clearance has been issued and the connection has occurred
- has made arrangements for the plug to be tested to 50 kPa for one minute with no drop in pressure. The test shall be conducted on the ‘upstream’ side of the plug prior to any entry by Water Corporation. The test shall be logged in the log of inspections and tests
- develops and administers a test plan over the period of isolation, to ensure the integrity of the isolation

The relevant region will install any plastic membrane and brickwork as part of the isolation of sewers 300mm and above, however in instances where the work is to be completed by the Contractor, the Superintendent is to liaise with the relevant region prior to any work commencing relating to the isolation, to ensure the proposed methods and materials are acceptable to Water Corporation

The new works are to be isolated from the live sewer prior to the start of construction, ensuring that the isolation is maintained until connection has occurred.

Water Corporation will notify the applicant of the isolation request in writing when the line has been isolated (seal installed and ready for testing) and again when the isolation has been removed

**NOTE:** A guideline on how to isolate works, appendix 4, details the considerations and process to arrange isolation of works

6.9 Inspection of works during construction

Water Corporation will inspect all hold points (ITP’s) agreed at the Start-Up Meeting. Please allow a minimum of 48 hours’ notice for the Asset Inspector to attend site and conduct the inspection.

Water Corporation reserves the right to request an inspection at any time for the purposes of auditing compliance. To enable any inspections to take place the following items need to be addressed:

- Water Corporation shall have access to the site at any time to inspect the works (after completing the relevant site safety inductions), provided the Superintendent’s Representative or Contractors Representative is on site
- provision of all necessary personal, safety and testing equipment (excluding mandatory PPE)
• Water Corporation inspections do not in any way relieve the Superintendent or the Contractor of the responsibility for ensuring that construction of the works is in accordance with the design and that it complies with the requirements of the design standards and manuals
• the Superintendents Representative and the Contractors Representative shall ensure suitably qualified personnel perform all inspections and tests using appropriate equipment

6.10 Inspection logs and test certificates

The Contractors Representative shall arrange and undertake inspection and testing of the works to ensure compliance with the requirements of the design standards and manuals. The Contractors Representative shall maintain a log of all inspections and tests undertaken, which shall be presented to Water Corporation, if requested. All inspection logs and test certificates shall be available in hard copy on site at all times. The log shall record, at a minimum, the following information:
• All inspections and/or tests witnessed by the Contractors Representative and verified by the Superintendents Representative of the works, which were considered satisfactory. The Contractors Representative shall sign the following statement on the logs: “I am satisfied that the above inspection and tests have been successfully completed”
• A copy of the Superintendents Inspection Test Plan (ITP)
• Inspections and/or tests of the works, which were considered unsatisfactory
• any remedial action undertaken to the works as a result of an unsatisfactory inspection prior to re-inspection
• Any additional quality assurance (QA) documentation

The Superintendent shall audit the Contractors work on a regular basis and in particular at the milestone stages as set out in the construction schedules and/or as agreed to with the Asset Inspector. Auditing may include regular site inspections.

Inspections by the Corporation shall not in any way diminish the responsibility of the Superintendent to adequately audit the works.

The Superintendents Representative and the Contractors Representative shall be available for the purpose of joint interim inspections as set out in the construction schedules and/or as agreed to with the Asset Inspector.

6.11 Pre-handover inspection

Once the construction of the works is complete, the Superintendents Representative and the Contractors Representative shall perform a pre-handover inspection of the works to make sure that they are capable of being accepted.

The items that need to be addressed in the Pre-handover Checklist are:
• Test and Inspection Logs/Certificate (where appropriate)
  - pressure testing
  - ovality testing
  - lines sighted
  - spark testing
  - product specification (date of manufacture, supplier/brand)
  - bedding, jointing and installation of pipe work checked
  - anchor blocks in place and to specification
  - valve and hydrant supports are in place and to specification
  - denso tape and paste has been applied where required
- compaction certificates
- records and calibration details of all equipment used for testing

- **Water Supply Physical Inspection Items**
  - all water services are in place, correctly positioned, protected and to specification
  - denso tape and paste has been applied where required
  - all valves and hydrants are in place and to specification
  - all markings are in position and to specification

- **Wastewater Physical Inspection Items**
  - isolation is in place
  - access chambers and maintenance shafts (complete, clear, correct covers)
  - property connection markers are in place

The Contractor shall confirm in writing that all relevant works have been constructed in accordance with the accepted design and specifications. The Superintendent shall supply copies of all certifications to the Corporation.

The logs shall include but are not be limited to the date, time, item tested, type of test, result of test and the name of the witness.

**Include either in logs or in statement of pre-handover inspection**

**Contractor’s Statement**

We the Contractor confirm that the assets constructed comply with Water Corporation’s applicable design and construction manuals, standards and specifications for these works

Name of Contractor, Name of Contractors Representative (signature or digital submission)

**Superintendents Statement**

Based on the visual inspection of works completed, viewing and auditing of all Contractors test results, we the Superintendent are satisfied that the works are practically complete and ready for handover to Water Corporation in accordance with all requirements of the Developers Manual.

Name of Superintendent, Name of Superintendents Representative (signature or digital submission)

This advice shall not be considered as relieving any party of their responsibilities, liabilities, or contractual obligations.

Once satisfied, the Superintendents Representative should apply to arrange a final takeover inspection with the Asset Inspector. This can be done by submitting the pre-handover inspection documentation on Water Corporation’s website. Please allow five business days to schedule the meeting.

**NOTE:** You are required to provide the contract price of the works when submitting the pre-handover checklist. The total contract price should include any variations that occurred during construction. The requirement for a final takeover inspection is at the discretion of Water Corporation.
6.12 Final takeover inspection

For the final takeover inspection, the Superintendent shall arrange for the provision of all necessary personal, safety and testing equipment for any scheduled inspection and testing.

The Asset Inspector will inspect the works. The inspection will require the attendance of the Superintendents Representative and the Contractors Representative. Where the number and/or seriousness of non-conformances indicate that the pre-handover inspection has been inadequate: the Asset Inspector will advise the Superintendent to arrange for further inspections of the works to be carried out before booking another final takeover inspection and submitting the revised pre-handover inspection documentation.

**NOTE:** A copy of all test and log certificates shall be complete and available on site. A quoted charge may apply to the Developer for further inspections if a final takeover inspection cannot be completed due to unacceptable assets and/or incomplete documentation.

Where the works are deemed to be acceptable the Asset Inspector shall arrange for a final takeover clearance to be issued to the Superintendent.

6.13 Connecting to existing assets

Arrangements shall be made with Water Corporation prior to any connections or alterations to existing infrastructure. All such work shall be at the Developer’s expense.

For the Perth Metropolitan region, when the works are accepted, the Asset Inspector shall initiate the connection of the works following a satisfactory Final Takeover Inspection.

For all Non-Metropolitan regions, when the works are accepted, the Asset Inspector shall initiate the isolation of the works following a satisfactory Final Takeover Inspection.
7 Takeover Phase

7.1 As-constructed drawings

The as-constructed drawings shall be certified "as-constructed", signed and dated by the Design Engineer, the Superintendent and the Surveyor (who is eligible for membership of I.E.M.S.A. or I.S.A.) responsible for the survey. The as-constructed drawings shall be in accordance with the relevant design standard, technical manual, or this manual.

All as-constructed plans shall clearly display the plan set number (e.g. DL17) and the appropriate bundle number to indicate it is an as constructed plan.

The completed and signed as-constructed plan shall be submitted via Water Corporation’s website within eight weeks of a successful final takeover inspection.

Further to the above items, the following requirements apply for each asset type.

7.1.1 Water as-constructed information requirements

• The as-constructed plan shall be in accordance with the typical information provided in Water Corporation’s Design Standard 63 and this manual. It should show the number of valves, hydrants and lots served separately and be bundle number 107

7.1.2 Wastewater as-constructed information requirements

• The as-constructed plan shall be in accordance with the typical information provided in Section 6 of Water Corporation’s Design Standard 50 and this manual. It should show the number of maintenance shafts, access chambers and lots served separately and be bundle number 207
• A contour plan if earthworks have been carried out that has changed a contour by 0.5 metre or more

7.2 Takeover of works

Subject to connection to the existing system being available, the date Water Corporation take over the works will be the date of the final takeover inspection which is outlined in the final takeover letter.

NOTE: The Developer and their appointed representatives are responsible for rectifying any discrepancies between the accepted final design and what is built. Upon reviewing the as-constructed drawings, if it is found that the assets do not comply with design standards and/or planning, and/or have varied from the accepted final design, Water Corporation reserves the right to request that the Developer rectify the assets.

7.3 Warranty period

A warranty period of 12 months shall commence on the date that Water Corporation takes over the works. During the warranty period, Water Corporation will be responsible for the operation and maintenance of the works.

The requirement for an inspection at the end of the warranty period will be at the discretion of the Asset Inspector at the final takeover inspection

If a warranty inspection is deemed necessary, the inspection will be carried out 11 months after the final takeover inspection.
7.3.1 Repairs during warranty

During the warranty period the Developer shall be responsible for ensuring that satisfactory remedial repairs arising from faulty design, workmanship or materials are carried out. The cost of any consequential damage and claims resulting from such defects shall be charged to the Developer.

During the warranty period, Water Corporation may carry out remedial repairs where the fault affects the service to customers and/or public safety. The Developer will be notified of the work carried out as soon as practicable where the remedial repairs are attributable to the construction of the works. The cost of the remedial repairs will be charged to the Developer.

7.3.2 Remedial repairs post warranty

Where Water Corporation’s remedial works are determined to be attributable to a design or construction error or omission, the cost of the remedial works shall be charged to the Developer.

During the remedial repairs post warranty period, the Developers shall be responsible for the costs associated with any non-conforming assets.

Remedial works shall include, but not be limited to,

- the absence of infrastructure components (i.e. missing sewer junctions)
- incorrect installation (i.e. inadequate bedding or compaction)
- inadequate separation of any component of the works from other infrastructure and non-compliance with a design standard.
8 Appendices

8.1 Prerequisites to Works – A guide to delivering reticulation works
8.2 A guide to delivering reticulation works in road reserves
8.3 Start-up meeting checklist
8.4 Guidance Note – Isolation of Works
8.5 Guidance Note – Sewer Connecting Links
8.6 Guidance Note – Private Pump Stations
8.7 Example Water Concept Plan
8.8 Example Wastewater Concept Plan
8.9 Example As-Constructed Plan
Appendix 1- Prerequisites to Works

General Works - A guide to delivering reticulation works

Purpose

Reticulation works classed as ‘general’ are required to complete a formal notification of works and obtain approvals from affected parties. The classifications are contained in the Water Services Act 2012. Further information can be found on the WA Legislation webpage.

The purpose of this guideline is to support Design Engineers and Developers to effectively liaise with authorities, property owners and their occupiers or tenants who may be impacted by proposed water and wastewater work. The background section details the principles of liaising with affected parties and the process section provides the administrative steps required to have your design approved.

Roles and responsibilities

Developer:

A Developer is anyone subdividing land or extending any Water Corporation infrastructure. It is the Developer’s responsibility to:

- appoint a Design Engineer, a Superintendent and a Contractor to carry out the work in accordance with Water Corporation’s design standards, technical manuals and the Developers Manual
- consult with affected owners or occupiers of land of the proposed construction; usually via the Design Engineer
- resolve any issues or objections from the owners or occupiers of affected land. This can be done by minimising the impacts of the work by modifying the design or construction method or providing suitable compensation for any damage or inconvenience caused by the work

Water Corporation:

It is Water Corporation’s responsibility to ensure work handed over meets requirements and the Developer follows the necessary approvals processes.

To meet these requirements, guidance and specifications are provided through:

- the Developers’ Manual
- the External Approvals Manual
- Design Standards and Technical Manuals

Minister for Water:

If a Developer is unable to resolve an objection, Water Corporation may refer the matter to the Minister for Water. Prior to any referral being made you will need to demonstrate that every possible attempt to overcome objections have been made in a fair and equitable manner. As a minimum it is expected that you will have followed all of the steps outlined in this Guidance Note.

The Minister for Water may overrule an objection and authorise the work, OR uphold an objection.
Appendix 1- Prerequisites to Works

General Works - A guide to delivering reticulation works

**Background**

With an increase in urban infill development, a growing number of properties will be impacted by water and wastewater work needed to service new developments. If your development needs to extend any of Water Corporation’s water or wastewater pipes and will impact any private land outside your development you will need to issue a formal Notice of Proposal detailing the proposed work.

When this Notice is distributed, the affected land owners and/or tenants have the right to object to the works. Any objection can affect the speed, cost and complexity of your development. The best way to avoid receiving formal objections is to liaise with the land owners and/or tenants during the planning phase of your development so that everyone can agree on a suitable solution.

**The process**

Gaining consent from affected property owners and/or tenants is a commercial cost of development and the responsibility of the Developer.

To reach the stage where construction can begin there are three fundamental steps, these are:

| Informal | **Liaise with affected property owners and/or tenants about the scope of work before completing the design.**  
**This is the best opportunity to resolve any issues and avoid objections during the formal Prerequisites to Works process.** |
|----------|-------------------------------------------------------------------------------------------------------------------------------|
| Formal   | **Submit the design to WaterCorporation and complete the Prerequisites to Works process - this is when the formal notice of work is distributed.**  
**At this point affected property owners and/or tenants can officially object to your proposal.** |
| Consent  | **Water Corporation approves the design and construction starts.** |

**Informal:**

The planning phase of your works is the best opportunity for you to ensure that your proposed works cause minimal impact to the public and won’t receive objections. This is best done by the following two steps:

1. **Design options**

When preparing your design you should consider:

- the impact on adjoining properties when evaluating design options. Consider where infrastructure will be located and which construction methods will be used
- if the design meets Water Corporation technical and planning requirements, such as providing safe access to any pipes and access chambers etc.
Appendix 1- Prerequisites to Works

General Works - A guide to delivering reticulation works

Water Corporation can provide advice if you are unsure about your design options. Please contact land.servicing@watercorporation.com.au or call (08) 9420 2099.

2. Liaison prior to formal Prerequisites to Works process

The way you engage property owners and/or tenants prior to completing your design can have a big impact on your project. The following points should be considered when conducting your engagement:

- please ensure that you deal with the property owner not just the occupier. Property owner details can be obtained from Landgate
- consider delivering a letter to the property owner introducing your development and invite them to meet and discuss the project. Where possible, show all viable options so they have the opportunity to input into the decision making
- follow up the introductory letter with a phone call or a visit to see if you can establish a meeting if you have not heard from them
- keep accurate records of conversations and follow-up in writing with summaries/meeting notes to all parties involved
- make sure the scope of work and the possible impacts to the property are clearly communicated. Use simple language that is easy to understand and avoid using technical terms - remember that many people are not familiar with industry terminology
- consider the impact of your construction activities on the property; pre-empt what their concerns might be and have options ready to discuss
- explain how and when any property or land will be restored
- be genuine in your engagement. Listen to concerns and see if they can be resolved through design alterations. Compensation is also an option that may need to be considered

If there are any unresolved issues with affected land owners please discuss these with Water Corporation prior to submitting your design. Please note that if a property owner and/or tenant objects to your proposal at this stage, it is incorrect to imply that the Minister for Water will rule on the matter.

Formal process and consent:

To accept a Design Submission where works are classed as general, we require confirmation that the Prerequisites to Works process have been satisfactorily completed and the following documents will need to be provided:

1. A Notice of Proposal plan – this plan is to be on the Design Engineer’s title block. The plan must include the following information:
   - drawing of the total area and all works
   - description of the works
   - area where the works are to be located
   - purposes for which the works are required
   - when and where the plans and details may be inspected

Please refer to the example plan.
Appendix 1- Prerequisites to Works

General Works - A guide to delivering reticulation works

2. A draft Notice of Works cover letter - the letter must include the following information:
   - the works details included in the Notice of Proposal plan.
   - information as to how, where and by when an objection or submission in relation to the proposal may be lodged.
   - the date by which any objections or submissions must be received by the Project Manager, which must be at least 21 days after the day the notice is given, unless all persons given a notice agree otherwise.

   *Please refer to the example Notice Letter.*

3. A list of contact details including the Local Government Authority, all owners and occupiers of affected land and anyone who may be adversely affected by the works. This may include individuals or organisations, for example utilities with services in the land may be considered occupiers.

   The above information shall be submitted with the initial submission (refer to the flow chart for information about the submission process). Once satisfied with the content of the notice plan, letters and contacts list, Water Corporation will return the initial submission and include a letter authorising you to perform the works on our behalf. This will then allow you to undertake the Prerequisites to Works process.

   Our Prerequisites to Works Manual, Appendix 1 of the External Approvals Manual, details the procedure of gaining approvals for works. This manual can be accessed via eProcurement.

   *Please note Water Corporation will only accept a reticulation design and allow construction once the Prerequisites to Works requirements have been met and any objections to the works have been resolved.*

Resolving objections

You should make every reasonably effort to resolve any objections. Should you be unable to resolve any objections, Water Corporation may refer them to the Minister for a determination. *Referral to the Minister is a last resort.*

If you reach this point, you are required to lodge a written submission to Water Corporation requesting that the matter be referred to the Minister. The request shall include a report noting:

   - details of all alternative routes considered and full reasoning as to why they have been rejected.
   - details of land use along the proposed route and information on the construction techniques proposed to overcome any land uses.
   - a full chronological history of negotiations that have occurred as they relate to the proposed works.
   - details of the Local Authority's structure planning for the area.
   - any other facts and information that you believe would be relevant to the Minister in making a decision.

   *Please be aware that the time involved in going through the authorisation process can be lengthy. Although we undertake to address the matter with priority following the provision of the above information, we cannot commit the Minister to any timeframe.*
Notice of Entry to perform works – a guide for Reticulation Works

A Notice of Entry is required to be issued at least 48 hours before works start once the Prerequisites to Works process has been completed, including resolving all objections. The Notice should be issued to:

- the owner and occupier of private land who may be disrupted and/or adversely affected by the Works
- the authority that has control or management of any road where Works will take place

The Notice must be in writing and contain the purpose of entry onto the land and a detail of the Works to be carried out.

Should you have any questions on this matter, please contact land.servicing@watercorporation.com.au or call (08) 9420 2099.

Things to remember

- Water Corporation will only authorise the Prerequisites to Works process when the initial design submission is satisfactory.
- the preparation of a Notice of Proposal is to be developed by the Design Engineer and requires Water Corporation approval before being sent out
- distribute the Notice of Proposal and cover letter to affected property owners and/or tenants, the relevant local government authority and, where necessary, the Western Australian Planning Commission
- ensure you follow the correct format for the cover letter and Notice of Proposal (refer to the External Approvals Manual)
- all parties must be given a minimum of 21 days from receiving the Notice of Proposal to submit an objection
- if any objections are received, contact Water Corporation to assist and ensure the response is provided in writing

Should you have any questions on this matter, please contact land.servicing@watercorporation.com.au or call (08) 9420 2099.
Appendix 1 - Prerequisites to works

General Works - A guide to delivering reticulation works

Engagement and submission process flowchart

<table>
<thead>
<tr>
<th>Engagement steps for parties to reach consent on proposed works</th>
<th>The Prerequisites to Works process is a legislative requirement where objections can officially be lodged.</th>
<th>Steps to be taken when submitting designs that are General Works</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do the works impact the owner or occupier of any land?</td>
<td>Land owner/tenant consent not required.</td>
<td>Preliminary investigations – including engaging with affected parties/land owners</td>
</tr>
<tr>
<td>NO</td>
<td>CONSENT GIVEN</td>
<td>Design the works</td>
</tr>
<tr>
<td>YES</td>
<td>ALTERNATIVE POSSIBLE</td>
<td>Consent NOT GIVEN</td>
</tr>
<tr>
<td>ALTERNATIVE NOT POSSIBLE</td>
<td>CONSENT GIVEN</td>
<td>Water Corporation engages directly with the non-consenting parties to overcome any issues</td>
</tr>
<tr>
<td>Water Corporation authorises Prerequisites to Works Process</td>
<td>Objection received</td>
<td>Minister authorises OR declines to authorise the works</td>
</tr>
<tr>
<td>CONSENT NOT GIVEN</td>
<td>CAN PROCEED</td>
<td>Construction can commence</td>
</tr>
<tr>
<td>Construction can begin</td>
<td>CAN NOT PROCEED</td>
<td>Construction can NOT commence. Development cannot proceed OR New solutions to objections required</td>
</tr>
<tr>
<td>Submit Final Design</td>
<td>Final Design is accepted &amp; returned</td>
<td></td>
</tr>
<tr>
<td>Complete Notice of Entry requirements</td>
<td>Commence construction of works</td>
<td></td>
</tr>
</tbody>
</table>
Appendix 1 - Prerequisites to works

General Works - A guide to delivering reticulation works

Example Notice of Proposal Plan

Metropolitan Water Supply: City of Wanneroo - Yanchep & Eglinton

NOTICE OF PROPOSAL TO CONSTRUCT A WATER PIPELINE - MARMION AV

To improve the reliability of the water supply to Yanchep, the Water Corporation proposes to construct the following works:

- Approximately 3000m of 300mm nominal diameter below ground water pipeline including a crossing at Mormon Avenue.
- Complete with all valves and connections.

The location of the proposed works is along Mormon Avenue as shown on the plan.

The proposed works are scheduled to be undertaken between April 2023 and June 2023.

Construction of the proposed water pipeline will be by open trench excavation which will be backfilled and restored. Mormon Avenue crossing will be by underground drilling.

Objections to the proposed works will be considered if lodged in writing, addressed to the Project Manager within 21 days of the date issue of the accompanying letter.

Further information is available by contacting the Project Manager, telephone (08) 9255 7500.

watercorporation.com.au
Appendix 1 - Prerequisites to works

General Works - A guide to delivering reticulation works

Example Notice Letter

<Insert Date Here>
Name of Land Owner/Occupier/Party/Organisation adversely affected by the Project
<Start Name Here>
<Start Address Here>
<PO Box No>
<SUBURB WA P/C>

Dear Sir/Madam/<Name>

SUBJECT: PROPOSED WORKS TO (DESCRIPTION OF LAND TO BE SERVED)

On behalf of Water Corporation, (INSERT YOUR COMPANY NAME) proposes to (Draft an opening paragraph that should contain brief and simple explanation of the proposed works, the reasons they are being built, the approximate month/year the works are scheduled to proceed and duration of works - same details as included in Notice of Proposal. Provide information on how the owner/occupier/parties may be affected and detail any restoration works that may be performed). The attached Notice of Proposal plan provides further detail of the land where the works will be constructed and installed.

If you have any queries regarding the proposed works, please contact the Project Manager <name> on <email> or phone <123456>.

Any objections or comments on the proposed work can be made in writing to the Project Manager at <Insert business address> by <Insert the closing date for objections> fully stating your reasons for the objections.

Yours sincerely OR SINCERELY IF NAME OF ADDRESSEE IS KNOWN

<Name>

PROJECT MANAGER
Appendix 2- A guide to delivering reticulation works in road reserves

Purpose

Reticulation works classed as ‘exempt’ do not need to follow the prerequisites to works process, however, to ensure that works cause minimal disruption to the public, Water Corporation requires confirmation that all parties have been informed and any issues with the proposal have been resolved.

Roles and responsibilities

Developer:

A Developer is anyone subdividing land or extending any of Water Corporation’s infrastructure. It is the Developer’s responsibility to:

• appoint a Design Engineer, a Superintendent and a Contractor to carry out the work in accordance with Water Corporation design standards, technical manuals and the Developers Manual
• consult with affected owners or occupiers of land of the proposed construction; this is usually done via the Design Engineer
• resolve any issues or objections from the owners or occupiers of affected land. This can be done by minimising the impacts of the work by modifying the design or construction method or providing suitable compensation for any damage or inconvenience caused by the work

Affected occupier:

An affected occupier is an occupier of a property affected by the proposed works. This could include restricted access to their property and/or having their verge or cross over disturbed, including the use of their verge for storage of equipment or excavation.

Water Corporation:

It is Water Corporation’s responsibility to ensure that the work handed over meets its requirements and that the Developer follows the necessary approvals process.

To meet these requirements, guidance and specifications are provided through:

• The Developers’ Manual
• The External Approvals Manual and
• Design and Technical Standards

For further information about the above process, please contact land.servicing@watercorporation.com.au or call (08) 9420 2099.

Relevant documents

• Water Services Act 2012
• Water Services Regulation 2013
• Utilities Providers Code of Practice (UPCoP)
• Water Corporations External Approvals Manual
Appendix 2- A guide to delivering reticulation works in road reserves

The process

When delivering works, Design Engineers are representing Water Corporation.

During the Planning, Design and Construction of Exempt Works in road reserves, the Design Engineer shall undertake the following:

- carry out ‘Dial Before You Dig’ to assist in your design
- in accordance with the requirements of the Utility Providers Code of Practice, notify affected utilities of the works by way of a design plan, describing the methodology and planned timeframe of the works
- notify affected occupiers of the works with a brief description of the time frame and methodology and a basic design plan (whether a design plan or a Notice of Proposal is used is at the engineers discretion. Where there are many affected occupants, a notice of proposal plan may provide more value)
- notify the relevant road authority (LGA or Main Roads WA) by way of design plan and describing the construction methodology and planned time frame of the works. Prior to commencing construction the road authorities requirements must be sought and complied with
- your design shall seek to minimise the impact of the construction on the public without compromising compliance with standards

An overview of the steps and milestones is shown below:

Planning

- Advise Local Government Authority, Utilities and occupants of the proposed works, including the methodology, timing and impact of the works.

Final Submission

- Confirm that all parties have been informed and that any issues have been resolved.
- Provide written confirmation of acceptance where required.

Construction

- Advise occupants 10 days prior to commencement of works.

Water Corporation reserves the right to view these documents and may carry out routine auditing to ensure compliance with these requirements.
Example preliminary letter

<Insert Date Here>
Name of Land Owner/Occupier/Party/Organisation adversely affected by the Project
<Start Name Here>
<Start Address Here>
<PO Box No>
<SUBURB WA P/C>

Dear Sir/Madam/<Name>

Typical letter to accompanying Notice of Proposal sent to Owner of Land within which proposed work will be constructed and where land matters are involved.

Where applicable, a draft of the letter should be forwarded and discussed with Water Corporation’s Land Servicing Advisor before it is dispatched to the affected owner. (Negotiations for land should have commenced prior to this).

SUBJECT: PROPOSED WORKS TO (DESCRIPTION OF LAND TO BE SERVED)

On behalf of Water Corporation, (INSERT YOUR COMPANY NAME) proposes to (Provide a brief and simple explanation of the proposed work, the reasons they are being built, the approximate month/year the work may proceed and duration of work, the construction techniques etc. Provide information on how the owner/occupier/parties may be affected and explain how restoration of the work will be performed).

The attached plan provides further detail of the proposed work. (Provide options and a plan of the proposed work. Please ensure it is easy to understand and not crowded with detail that will confuse the land owner/tenant).

If you have any issues or concerns or would like to discuss this project further, please contact please contact me on <email> or phone <123456>.

Yours sincerely

OR SINCERELY IF NAME OF ADDRESSEE IS KNOWN

<Name>

PROJECT MANAGER
Appendix 3

Start-up Meeting Checklist

This checklist provides a guide for Superintendents when conducting Start-Up Meetings. The items listed are the more common/important issues that require discussion and agreement to ensure the efficient construction and handover of the works.

The outcomes and agreements of the start-up meeting must be noted in the minutes of the meeting.

<table>
<thead>
<tr>
<th>Final Design:</th>
<th>Works Programme:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• A1 &amp; A3 hard copy provided</td>
<td>• Commencement Date</td>
</tr>
<tr>
<td></td>
<td>• Completion Date</td>
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</table>

<table>
<thead>
<tr>
<th>Site Contact/Reporting:</th>
<th>Qualifications/Accreditation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Site Contact</td>
<td>• Superintendent’s Representative</td>
</tr>
<tr>
<td>• Superintendent’s Representative</td>
<td>• Pipe Layer(s)</td>
</tr>
<tr>
<td>• Who signs/receives report</td>
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</table>

<table>
<thead>
<tr>
<th>Protection for Existing Assets:</th>
<th>Isolation Requirements:</th>
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</thead>
<tbody>
<tr>
<td>• Asset Protection Risk Assessment (APRA)</td>
<td>• Isolation Plan</td>
</tr>
<tr>
<td>• Clearance to Work (If applicable)</td>
<td>• Clearance to Work</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Entry to Non Commissioned Works:</th>
<th>Site Safety (Water Corporation Staff):</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Confined Space requirements</td>
<td>• Safety Procedures/Requirements</td>
</tr>
<tr>
<td>• Fall entry prevention system</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Inspection Testing (Superintendent):</th>
<th>Inspection Plan (Water Corporation Staff):</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Inspection Log location</td>
<td>• Required Inspections</td>
</tr>
<tr>
<td>• Standards (e.g. Australian Standards)</td>
<td>• Ad hoc Inspections</td>
</tr>
<tr>
<td>• Certification</td>
<td>• Testing</td>
</tr>
<tr>
<td>• Quality Assurance, Inspection/Testing</td>
<td>• Other Technical Staff</td>
</tr>
<tr>
<td></td>
<td>• Equipment required</td>
</tr>
<tr>
<td></td>
<td>• Notification of Inspector</td>
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</table>

<table>
<thead>
<tr>
<th>Connection Arrangements:</th>
<th>Final Takeover Inspection:</th>
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</thead>
<tbody>
<tr>
<td>• Quotes</td>
<td>• Notification</td>
</tr>
<tr>
<td></td>
<td>• Inspection equipment required</td>
</tr>
<tr>
<td></td>
<td>• Audit testing/inspection testing</td>
</tr>
<tr>
<td></td>
<td>• Evidence of quality assurance testing, inspection/testing</td>
</tr>
</tbody>
</table>
Appendix 4 – Guidance Note

Isolation of Works

Purpose

The purpose of this note is to provide guidance to Design Engineers on how to plan and arrange for isolation of wastewater works.

Requirements

It is essential to isolate non-commissioned sewers from live sewers to provide a safe working environment for the construction, testing and inspection of new works.

Prior to the Start-Up meeting, the Design Engineer shall consider possible options to ensure that safe isolation can be achieved. The chosen isolation method undertaken will be discussed and agreed at the Start-Up meeting with the Superintendent’s Representative, Contractors’ Representative and the Asset Inspector.

Before construction commences, the Superintendent shall ensure that the Contractor has arranged for the new works to be isolated from the live sewer and take the necessary steps to ensure the isolation is maintained until the connections occur.

Assessing the risks

There are numerous variables that will determine which method of isolation should be used, such as how the scheme is operating for example: peak flows, storage volumes, the age and condition of any pipes. The information provided below is designed to provide some guidance in determining which isolation method is most suitable but may not be applicable in all cases.

A physical break is the preferred method and shall be used wherever practical. The non-commissioned sewers shall be either not connected (physical break) or shall be physically isolated from the live sewer. If a physical break is deemed impractical or excessive; the isolation plan should consider the following:

- duration of isolation (hours)
- volume of wastewater impacted by the isolation (litres)
- maximum head exerted by wastewater impacted by the isolation (m)
- system storage available upstream of the isolation (litres)
- overflow point/manhole
- any tankering/bypass pumping requirements (litres per hour)
- any confined space entry requirements
- details of plug locations
Appendix 4 – Guidance Note

Isolation of Works

Process

The diagram below shows the steps to be followed. The Clearance to Works request and Isolation Plan can be submitted prior the Start-Up Meeting, depending on how soon construction is scheduled to commence.

- **Design**
  - Consider an isolation and connection strategy as part of the design. Staged developments should consider how the next stage can be isolated. Please refer to the Risk Matrix below for further guidance.
  - During the detailed design of the works prepare an Isolation Plan to be submitted as part of the Clearance to Works Permit.

- **Construction Planning**
  - Obtain a Clearance to Works Permit via Water Corporation contacts outlined in section 6.3. Water Corporation will assess the Isolation Plan and liaise with the applicant if amendments need to be made.

- **Construction Planning**
  - Request and pay any applicable fees for the isolation installations, this includes the removal of the isolation on completion of the works.

- **Start Up**
  - Ensure a Clearance to Works Permit (where required) is obtained prior to construction commencing, as outlined in section 6.5.

- **Construction**
  - Water Corporation installs the isolations and advises the applicant in writing (via Isolation installation Notification Form).
  - Isolations must remain in place and fully functional during works.

- **Takeover**
  - Works completed and the Final Takeover Inspection passed.
  - Water Corporation completes the applicable connections and the isolations are removed.
Isolation of Works

### HIGH RISK

**ISOLATION TYPE**
Double isolation by Water Corporation. Includes one physical break* and a secondary isolation method.

*Unless risks can be mitigated

**SCHEME SCENARIO**
- Connection to the network undergoing tankering
- Connection in close proximity to a Main Sewer
- Connection in close proximity to a Pump Station and/or discharge point
- Connection deeper than 4m

### MEDIUM RISK

**ISOLATION TYPE**
Double Isolation by Water Corporation or Primary by Water Corp and secondary isolation maintained by Contractor under isolation plan

**SCHEME SCENARIO**
- Connection in the middle of a sewer catchment
- Connection of depths up to 4m
- Connections at the edge of a catchment for staged developments

### LOW RISK

**ISOLATION TYPE**
Primary Isolation by Contractor with secondary isolation maintained by Contractor during construction.

**SCHEME SCENARIO**
- Typical works that are similar to plumbing standards.
- IS, IO extensions from retic lines
- No Access Chambers or Confined Space Entry
- Connections of depths up to 4m.
- Connections at the edge of a catchment

For further information about the above process, please contact us on land.servicing@watercorporation.com.au or call (08) 9420 2099.
The diagrams below compliment the above table and provide typical scenarios of how risks are considered.

**Typical High Risk Scenarios**
Typical Medium Risk Scenarios

Proposed Connection Works Area
Appendix 4 – Guidance Note

Isolation of Works

Typical Low Risk Scenario – Clearance to Works Permit still required

- Contractor Isolation Point (Plugged)
- Reticulation Sewer
- Private Sewer Connection By Plumber
- Sewer Extension by Contractor
- Sewer Junction
- Sewer Access Chamber
Appendix 4 – Guidance Note

Isolation of Works

Example Isolation Plan

Project Name: [Name]
Project Location: [Location]
Planset Number: [Number]
Superintendent Name: [Name]
Superintendent Phone: [Phone]
Contractor Representative Name: [Name]
Contractor Representative Phone: [Phone]
Tentative Date Isolation Required: [Date]

Isolation Risk: [High / Medium / Low]
Type of Isolation: Membrane / Plug / Other
Maximum Potential Head on Isolation: [Value]
Overflow Point Upstream of Isolation: [Location]
Tankering within Catchment: Yes / No
Checked by Superintendent: Yes / No
Other Details: [Details]

LOCATION DIAGRAM

Indicate the location of the isolation

AC No. FLOW AC No.
Appendix 5 – Guidance Note

Sewer Connecting Links
(Subdivision clearances dependant on external works)

Purpose

The purpose of this note is to provide Engineers and Developers guidance in order to be able to explain Sewer Connecting links and what is required to achieve Water Corporation clearance of subdivision conditions.

Introduction

Sewer Connecting links are defined as reticulation or headworks sewers or pumping stations that are located outside of a MSWA (Multi-Staged Works Agreement) Concept Plan area.

Typically a Sewer Connecting link will traverse through another landowners land or be located in an existing road reserve.

For the purpose of this note Developer “A” refers to the proponent while Developer “B” refers to others who are dependent on the construction of the Sewer Connecting link by Developer “A”.

Please note: For clearance milestones and typical securities required, the following information also applies to wastewater pump stations and main sewers.

Prior to Seeking Clearance of Subdivision Conditions

It is preferable that all necessary works be completed and taken over by Water Corporation and that the Developer makes every endeavour to connect their development to the existing wastewater scheme, particularly when the development is dependent on reticulation assets.

Early Clearance of Subdivision Conditions

Water Corporation may agree to allow the Developer to enter into a Land Servicing Performance Agreement for a Sewer Connecting Link in order to gain their clearance of subdivision conditions. Approval of applications is at the discretion of Water Corporation, including altering the time allocated to complete the works.

Length of time to construct sewer connecting links if a land servicing performance agreement is in place

Once clearance of subdivision conditions has been issued you typically have 22 weeks to complete the works. If there are valid reasons the Servicing Obligation Date may be extended at the discretion of the Water Corporation. The Water Corporation will consider extending the Servicing Obligation Date for the sewer connecting link to coincide with the Project Practical Completion date for the proposed wastewater pumping station.

Typical security required for sewer connecting links

Sewer Headworks and Reticulation Works

- Funded and delivered by the Developer with no recoup from Water Corporation – 150% of the cost estimate of constructing the Works
Appendix 5 – Guidance Note

Sewer Connecting Links
(Subdivision clearances dependant on external works)

Developer “A” Clearance Milestones

Sewer Headworks Assets
- For all Water Corporation funded and Developer “A” delivered projects, the Developer Constructed Works Agreement must have been accepted.
- For all Developer “A” funded and delivered projects the Start Up meeting must have been completed.

Sewer Reticulation Works
- Start Up meeting must have been completed.

Developer “B” Clearance Milestones

Sewer Headworks Assets
- For Water Corporation funded and Developer “A” delivered projects, the Engineering Summary Report and Detailed Design must have been accepted.

Sewer Reticulation Works and Headworks
- Dependent works must have been taken over by the Water Corporation

Clearance Milestones Tables

<table>
<thead>
<tr>
<th>Headworks</th>
<th>Clearance milestone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Corporation funded and Developer A</td>
<td>Developer A</td>
</tr>
<tr>
<td>delivered</td>
<td>Developer Constructed Works Agreement</td>
</tr>
<tr>
<td>Developer A funded and delivered</td>
<td>Start-up meeting</td>
</tr>
<tr>
<td>Developer B funded and delivered</td>
<td>Takeover</td>
</tr>
</tbody>
</table>

| Reticulation                                  |                      |
| Developer A funded and delivered              | Start-up meeting      |
|                                               | Takeover              |

Developer “A” and Developer “B” Joint Venture

Where there is a joint venture in place between Developer “A” and Developer “B”, Water Corporation is prepared to offer Developer “A” entitlements to both Developers provided that confirmation in writing of the joint venture is submitted to Water Corporation prior to requesting clearance of subdivision conditions.

Works Outside Scope

For sewer connecting links that are deemed to be outside the scope detailed in this document, a description of the works and clearance requirements shall be submitted in writing to The Manager, Land Servicing for further consideration.

For further information, please contact land.servicing@watercorporation.com.au or call (08) 9420 2099
Appendix 6 – Guidance Note

Private Pumping Stations

Introduction

This Guidance Note provides information for Design Engineers on the eligibility, design guidelines & requirements for Private Pumping Stations connecting to Water Corporation’s infrastructure.

Compliance with all standards mentioned within this guideline will not be checked by us and remain the responsibility of the Design Engineer.

Preliminary Requirements

Before Water Corporation can accept a Private Pumping Station, the proposal will be assessed to make sure it meets planning and operational needs. You can lodge your proposal online at ‘Request Land Planning Advice’

Each proposal is assessed individually and its eligibility is determined by the following criteria:

Is the service required to satisfy a subdivisions servicing condition imposed by the WAPC?

As Private Pumping Stations are non-standard servicing arrangements, they do not satisfy a subdivision servicing condition imposed by the WAPC.

Is there a gravity solution?

If there is an option to extend the gravity reticulation network, then a proposal for a Private Pumping Station will not be considered.

Is the proposal dependent on Water Corporation delivering Headworks assets?

Servicing of the lot must be dependent on future headworks assets (e.g. pump stations, main sewers sized DN375 and above) being delivered.

Is there adequate capability or capacity in the network?

Water Corporation will carry out a capability assessment to determine if there is capacity in the network, which takes into account current and future flows and the impact on assets.

Internal plumbing should be designed such that when a gravity sewer becomes available, internal plumbing can connect to it.

For all Industrial and Commercial Private Pumping Station proposals, an Industrial Waste Permit should be investigated. Please visit the Trade Waste section of Water Corporation’s website for further information.

Private Pumping Stations are considered a last resort servicing option as they frustrate orderly extension of services for future development.
Appendix 6 – Guidance Note

Private Pumping Stations

Design Guidelines

General

All Gravity works must be designed to Water Corporation’s requirements, as outlined in Design Standards 50 (DS50).

All private works should be designed and built in accordance with the current version of AS/NZ3500.

The maximum discharge will be determined by Water Corporation. On-site retention should be designed to minimise the chance of the sewage going septic, and as such should turn over at least once per day. Emergency storage shall be provided for equal to 3 hrs at the Gravity Sewer Design Flow.

In order to conduct scheme maintenance there may be times that the Private Pumping Station will need to be isolated from the scheme. All Pump Stations shall be designed to facilitate a complete shutdown, isolating both flow into Water Corporation’s scheme and power to the Private Pump Station.

Pressure Main

It is recommended that a minimum size 50mm ID pipe (i.e. 63MDPE) be used for pressure mains in public land. If Water Corporation is required to attend an emergency situation, this is the minimum size available for fittings on service vehicles. Smaller pipes may be considered on a case to case basis.

The last 10 metres of the pressure main discharging into an Access Chamber shall be in a straight line with the outgoing gravity sewer and a minimum rise of 300mm to discharge into the Access Chamber (see Figure 2). Maintenance Shafts shall be invert to invert, but also in a straight line.

The Pressure Main shall be Self Cleansing with a minimum flow of 0.75m/s for DN80 or greater and 1.0m/s for pipes smaller than DN80.

Minimum Cover for Pressure Mains should be 1.0m within Public Land and 1.2m under roads.
Appendix 6 – Guidance Note

Private Pumping Stations

Pump Selection

Pumps shall be selected to meet the minimum cleansing velocities outlined above and the maximum allowable discharge into our scheme. Pumps shall be selected based on industry accepted practice using system/duty curves developed for the proposed arrangement. Maximum and minimum head curves for the pressure main shall be developed in accordance with our Design Standard DS51, refer to example in Figure 1.

Figure 1 – Example of System Duty Curve

Discharge Arrangements

All gravity sewer components of the discharge arrangement will be taken over by Water Corporation and designed in accordance with Design Standards DS50 and 51.

Boundary Traps shall be provided for all junctions within a 150m radius of the discharge chamber. Alternatively a Running Trap can be designed, as per requirements in DS50.

Lodging the Submission

No formal submission shall be made without first confirming:

- Eligibility,
- Suitable pump rate for the scheme, and
- Discharge location
Appendix 6 – Guidance Note

Private Pumping Stations

The Submission shall be made to Water Corporation by following the processes outlined in the Developers Manual, irrespective of whether there is any gravity component or not.

At a minimum the Design Submission shall contain:

- Correspondence confirming eligibility, pump rate and discharge location
- A set of design drawings which shall comprise:
  - System Duty Curves (see Figure 1),
  - a long section of the pressure main, including gravity (if required),
  - general arrangement/ site plan of the pumping station
  - Details of the discharge arrangement.

At a minimum, the following information is to be provided to us before the accepted drawings are released to allow for construction to commence:

- All relevant Agreements to be signed and completed,
- All relevant payments made, as per the Schedule 2,
- Any Section 70A documentation completed and lodged with Landgate (Lodgement receipt will be required) and
- Contractor Details provided.

Construction & Inspection

Upon receipt of the accepted Final Submission, you will be instructed to contact the relevant Asset Inspection team. This is required also for submissions without any gravity component as Water Corporation may need to inspect the Pressure Main connecting to our system.

As part of the Final Inspection, a pressure test is required providing at least twice the working head of the accepted design.

As-Constructed drawings must be supplied and submitted to Water Corporation and meet the standards required in the Developers Manual. Even if there isn’t any gravity component to the design, mapping the pressure main and location of the Private Pump Station is important for emergency maintenance and failures. This information is also used by Dial Before You Dig.
Figure 2 – Example of typical Discharge Access Chamber

Resources

Design Standard 50 - Design and Construction Requirements for Gravity Sewers DN 150 to DN 600

Design Standard 51 – Design and Construction of Wastewater Pumping Stations and Pressure Mains 4 to 90 litres per second capacity
Appendix 7 – Example Water Concept Plan

Note: Should the MSWA spread across 2 or more water zones, show zone boundary and zoning valves.

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