

CORPORATE STANDARD

COMPLEX WORKS – DEVELOPERS AND ACCREDITED SUPPLIERS



VERSION: 1.1



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Amendments since previous version

Section	Changes made
5	Table 1 updated
5.3.2	Safety in design report added
5.3.4	Changed from design consultant to construction contractor
App A	Design submission checklist updated on website



1. Introduction

Hunter Water's vision is to be a valued partner in delivering the aspirations of our region. This includes playing a key role in supporting the NSW Government's *Hunter Regional Plan 2036*. To achieve this, Hunter Water encourages and supports the development and redevelopment of land throughout our area of operations.

Hunter Water has changed its delivery model for the creation of Developer-funded network infrastructure. This model is based on the recognition that simple, or Routine, Works present fewer risks than those of more technically challenging infrastructure projects, or Complex Works. Accordingly, Hunter Water wishes to focus more of its attention on projects which present higher risks, reducing its involvement in the delivery of Routine Works.

2. Purpose

This corporate standard's purpose is to ensure that quality water, recycled water, and sewerage assets are delivered to Hunter Water by Developers and their Accredited Suppliers in the creation of Complex Works. It describes the roles and expectations for Developers and their Accredited Suppliers while working on Complex Works projects. It also outlines the part Hunter Water plays in the asset-creation process.

Hunter Water is committed to maintaining a high level of reliability of its assets to continue to dependably and efficiently provide services to its customers and the community. As part of this commitment, Hunter Water is certified to, or is in the process of becoming certified to, the following International Standards:

- ISO 9001 Quality management system
- ISO 14001 Environmental management system
- ISO 55001 Asset management system

It is critical to meet these quality standards so all assets meet their design service life. This includes design and construction to required standards including, but not limited to, relevant international and Australian standards, Water Services Association of Australia (WSAA) codes, and Hunter Water's standard technical specifications. The Developer and Accredited Suppliers for design, certification and construction must each contribute to these outcomes and be accountable for their actions.

Hunter Water continues to play a role in the delivery of Complex Works by providing oversight through a number of mechanisms, including the accreditation process, consultation, collaboration, audit, and performance monitoring to defined requirements.

3. Scope

This Corporate Standard outlines what Developers and Accredited Suppliers must do to deliver Complex Works infrastructure of an acceptable standard for integration into Hunter Water's network.

3.1 Audience

This Corporate Standard is directed to the following groups to guide them through the processes involved in Hunter Water's delivery model for Complex Works:

- Developers
- Accredited Suppliers - Design Consultants and Construction Contractors
- Hunter Water
- Community/customers



4. Definitions

Term	Definition
Accreditation	<p>The declaration by Hunter Water that a supplier is capable of delivering a particular category of design, certification, engineering and/or audit services to required standards. Accreditation entitles:</p> <ul style="list-style-type: none"> • Accredited Suppliers to be listed on Hunter Water's Accredited Suppliers Registers, and • Accredited Suppliers to perform work within Hunter Water's area of operations.
Accreditation Administrator	A Hunter Water employee who manages the Supplier Management System and ensures supplier profiles are up to date with audit results and non-conformance resolution activities.
Accreditation category	The precise nature of Works for which applicants are applying and for which they must be deemed to be competent before achieving accreditation status.
Accreditation conditions	The ongoing requirements which Accredited Suppliers must meet to maintain their accreditation. It includes, without limitation, compliance with all applicable laws and contracts, and such other requirements determined by Hunter Water.
Accredited Construction Contractor	A contractor approved by Hunter Water's accreditation process to perform construction services for Developer Works in a nominated subcategory. The accreditation includes the contractor's key personnel.
Accredited Construction Contractors Register	The list of contractors acknowledged by Hunter Water as having the necessary skills, experience, qualifications, expertise, management systems, and capability to perform construction services in specified categories of Works within Hunter Water's area of operations.
Accredited Design Consultant	A design consultant approved in accordance with Hunter Water's accreditation process for Developer Works. Accredited Design Consultants are responsible for completing the design and contract documentation for Developer Works in accordance with the Notice of Requirements and relevant design standards.
Accredited Design Consultants Register	The list of design consultants acknowledged by Hunter Water as having the necessary skills, experience, qualifications, expertise, management systems, and capability to perform engineering, certification and/or audit services in the specified categories of Works within Hunter Water's area of operations.
Accredited Supplier	An Accredited Construction Contractor or an Accredited Design Consultant.
Accredited Supplier Application Form	A form submitted by an applicant to be considered for Accredited Supplier status, and to be included on Hunter Water's Accredited Suppliers Registers, in accordance with Hunter Water's accreditation process. The form includes any other information or documents necessary to enable a proper consideration of an applicant's capacity to perform Works to the necessary standard.
Applicable requirements	Any conditions such as shutdown stipulations, WSAA codes, specifications provided by this document, and all relevant Australian standards.
Applicant	A party who applies to be an Accredited Supplier of Developer Works within Hunter Water's area of operations.
Approved product	An item in Hunter Water's Approved Products and Manufacturers Register, as listed on Hunter Water's website.
Area of operations	The geographic region in which Hunter Water operates.
Audit	A method or system for assessing Accredited Suppliers for Developer Works and the services they provide.
Auditor	A Hunter Water employee or nominated agent who performs an audit.

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Term	Definition
Authority	A governmental, semi-governmental, local or other body that exercises regulatory or legal power over Hunter Water and/or Accredited Suppliers.
Completion Certificate	A certificate issued by Hunter Water to the Developer verifying the Works are complete, as specified by the Complex Works Deed.
Concept design completion	The stage when the Developer reasonably believes the design documentation includes sufficient detail for the Developer to prepare or procure the preparation of detailed documents that accord with the Deeds.
Inspection and Test Plan	A plan the Accredited Construction Contractor is required to prepare as outlined in the Project Plan.
Defects liability period	A period of time under a construction contract, commencing at issue of a Completion Certificate and ending at final completion, during which any defects identified by Hunter Water are rectified by the Developer at their own expense. Also known as the DLP.
Design Checklist	A checklist an Accredited Design Consultant submits to Hunter Water which verifies the design documentation is compliant to all relevant standards and codes.
Design Compliance Certificate	A document submitted by an Accredited Design Consultant to Hunter Water confirming the design complies with the applicable Developer Works Deed and the documents and standards referred to in it. The Design Compliance Certificate must be submitted with the final design drawings, all supporting design documentation and the applicable design checklist.
Design documentation	All the output documents from the design phase, including the final design drawings, final design reports, completed design checklists, CAD checklists, Inspection and Test Plans with supporting quality-related paperwork, completed Entry Permits, Road Opening Permit Applications, approvals from other agencies, Reviews of Environmental Factors, and sign-offs by Accredited Design Consultants in the form of Certificates of Compliance.
Design inception meeting	The initial meeting between the design review team and the Accredited Design Consultant to discuss the preliminary design of a project.
Design input	A requirement on which the design is based, including any statutory or regulatory conditions.
Design output	Design plans and associated documentation which enables an Accredited Construction Contractor to construct Works to the standards and satisfaction of the Developer and Hunter Water.
Design review	A review conducted by Hunter Water of the design submitted by the Accredited Design Consultant. The purpose of the review is to progress the design from inception to concept design and on to final detail design.
Design review team	A group of Hunter Water employees who perform the design reviews. The composition of the team varies from project to project.
Developer	The owner of land on which a proposed development will take place.
Developer Works	The necessary Developer assets to be provided to meet the conditions set out by Hunter Water in the Notice of Requirements, including water, sewer, recycled water, and stormwater assets.
Developer Works Deed	A formal agreement between Hunter Water and a Developer for the design and construction of related assets. There are three types of Developer Works Deed: Routine Minor Works, Routine Major Works and Complex Works.
Environment	Legislative and administrative measures to protect and preserve the environment, ecosystems and their constituent parts, including communities and physical resources.

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Term	Definition
Equivalent Tenement	An Equivalent Tenement is a measure of the load a property places on water and sewerage systems. One Equivalent Tenement is considered to be the water consumption or sewage discharge for an average residential dwelling or house.
GIS	Geographic Information System. A system used to capture, store, manipulate, analyse, manage, and display spatial or geographic data.
Hunter Water	A statutory State Owned Corporation providing water and wastewater services to over half a million people in the Lower Hunter region, and some trunk stormwater services in the Cessnock, Lake Macquarie and Newcastle local government areas.
Law	<ul style="list-style-type: none"> • Commonwealth, NSW or local government legislation, including regulations, by-laws, and subordinate legislation • Principles of law or equity established by decisions of courts, and • Approvals (meaning any licence, permit, consent, approval, determination, certificate, or permission from any authority or under any law which must be obtained or satisfied to perform the Works, but does not include the exercise by Hunter Water or a Hunter Water representative of their right under either of the Routine Works deeds).
Licensed plumber	A qualified licensed tradesperson authorised by NSW Fair Trading to carry out plumbing and sanitary drainage works.
Non-conformance Report	A report detailing a non-conformance or irregularity identified in an audit, review, inspection, or the like. The objective of the report is to make a clear, concise, unambiguous, and defensible definition of a problem so that corrective action can be initiated.
Notice of Requirements	An application made under Section 49 of the <i>Hunter Water Act 1991</i> , allowing Hunter Water to determine the project-specific requirements to extend and/or connect to its infrastructure. The Notice of Requirements is specific to the development consent issued by the determining authority, which in most cases is a local council.
Notification period	The time between when a customer is informed of a planned water or sewer outage, and the start of an outage.
Project Plan	<p>In accordance with the Developer Works Deed, the Accredited Construction Contractor is required to prepare a Project Plan. The purpose of the Project Plan is for the Accredited Construction Contractor to describe in detail how the Works will be carried out in accordance with submitted documentation. The Project Plan, as a minimum, must include:</p> <ul style="list-style-type: none"> • a Work Health and Safety Management Plans, or equivalent • a Construction Environmental Management Plan, or equivalent • a Quality Plan, or equivalent, and • Inspection and Test Plans. <p>The Project Plan may require further developing, amending and updating throughout the duration of the Works.</p>
Quality	Requirements such as reliability of the assets, budget and timeliness.
Section 50 Compliance Certificate	A certificate issued by Hunter Water when all conditions in the Notice of Requirements are met by the Developer.
Service Level Agreement	An agreement which establishes the terms for the interactions between internal stakeholders, for example, no introducing of new ideas and options after the inception meeting.
Servicing Strategy	A document that ensures the necessary information is presented in a clear and consistent format enabling an informed timely review of the options and recommendations presented. Current versions of templates and cost estimating tools are supplied to designers undertaking strategies at the strategy inception meeting.

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Term	Definition
Standards	Applicable Hunter Water, WSAA and/or Australian standards, codes and practices relevant to design and construction of network infrastructure.
Strategy inception meeting	The initial meeting of the Developer and a design consultant with Hunter Water to determine the optimal configuration of the water utility infrastructure proposed in the servicing strategy.
Supplier Management System	A tool for storing and managing information relating to Accredited Suppliers, such as licences, profiles, insurances, certifications, audit results, and the like.
Verification and Monitoring Plan	A plan used by an Accredited Design Consultant and an Accredited Construction Contractor which verifies and monitors key hold-points throughout the life of an asset delivery project ultimately ensuring that a quality asset is delivered at the end of a project.
Water Main Shutdown Request Form	A form which must be submitted by an Accredited Design Consultant to Hunter Water with respect to shutdowns or interruptions to any existing operations.
WHS	Work health and safety. Legislative and administrative measures to protect and improve the health, safety and welfare of people engaged in work or employment.
WSAA	The Water Services Association of Australia.

5. The delivery of Developer Works model

5.1 Distinctions between Routine Minor, Routine Major and Complex Works

Table 1 shows how Developer Works have been divided into two main categories, Routine and Complex. Routine Works have been further divided into two subcategories, Minor and Major. Minor Works are able to be constructed by either a licensed plumber or an Accredited Construction Contractor. Major Works can only be constructed by an Accredited Construction Contractor. All Works must be designed by an Accredited Design Consultant. The table also shows the division of responsibilities within each category.

Table 1: Distinctions between Routine Minor, Routine Major and Complex Works

Category	Description	Design	Construction	Finalisation documents	Inspection/Audit
Routine Minor	Gravity sewerage assets less than 25m long with a diameter of 150mm or less and the construction of water services.	Accredited Design Consultant	Licensed plumber or Accredited Construction Contractor, as nominated by Hunter Water in the Notice of Requirements	Accredited Design Consultant	Accredited Design Consultant certifies design and construction work. Hunter Water conducts random design and/or construction audit/s
Routine Major	Gravity sewerage reticulation and watermain assets of less than 300mm diameter	Accredited Design Consultant	Accredited Construction Contractor	Accredited Design Consultant	Accredited Design Consultant certifies design and construction work. Hunter Water conducts random design and/or construction audit/s



Category	Description	Design	Construction	Finalisation documents	Inspection/Audit
Complex	Trunk infrastructure of 300mm and greater diameter; telemetry; mechanical/electrical components; pressure sewer; wastewater pump stations; water booster stations	Accredited Design Consultant	Accredited Construction Contractor	Accredited Construction Contractor	Accredited Design Consultant certifies design. Developer's superintendent certifies construction work. Hunter Water conducts design review and construction audits for all projects.

5.2 Roles and responsibilities

Table 2 outlines the roles and responsibilities of Developers, Accredited Design Consultants, Accredited Construction Contractors, and Hunter Water in the delivery of Complex Works.

Table 2: Roles and responsibilities

Role	Summary
Developer	Fully responsible for the design and construction of Works, and the engagement of Accredited Suppliers who meet individual project needs. Required to guarantee all quality objectives are achieved, including safety and environmental performance compliance.
Accredited Design Consultant	Responsible for ensuring compliance with design standards.
Accredited Construction Contractor	Collaborates with the Accredited Design Consultant to ensure the Works are delivered as per the design. Required to certify the Works to Hunter Water.
Hunter Water	Receives and manages flow of documentation, accreditation, reimbursements, etc. Issues authority to proceed and controls how new assets physically connect to existing systems. Performs full design review, audits and inspects construction.

5.3 Phases of the Complex Works asset-creation process

This section outlines the phases of the asset-creation process. The process is further illustrated in [‘Appendix A: Complex Works Process Map’](#).

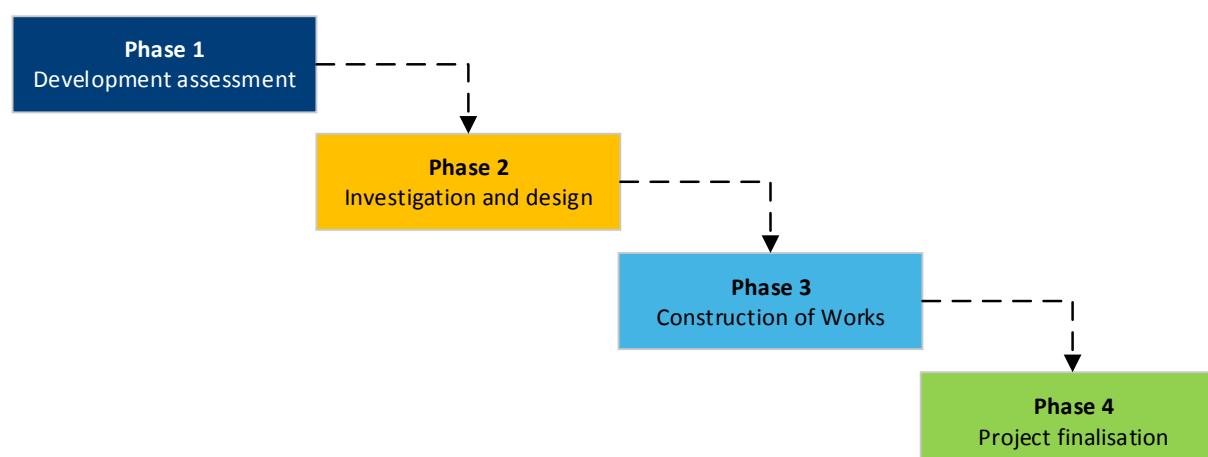


Figure 1: Phases of the asset-creation process



5.3.1 Phase 1: Development assessment

The process begins when a Developer approaches Hunter Water with a proposal to develop or redevelop land which requires water and sewer-related infrastructure categorised as Complex. If the Developer decides to proceed, they submit an 'Application for Developer Services' form to Hunter Water. Hunter Water assesses the application and issues a 'Notice of Requirements'. The 'Notice of Requirements' contains all the formal conditions the Developer must fulfil for their project to be connected to Hunter Water's networks.

5.3.2 Phase 2: Investigation and design

Investigation

Often as part of the 'Notice of Requirements', Hunter Water stipulates that the Developer is to undertake investigation activities before commencing design phase services. If the investigation of connection points and capacity appears relatively straightforward, Hunter Water directs the Developer to engage the services of an Accredited Design Consultant to prepare a brief servicing report outlining asset sizing, preferred configuration, and a draft reticulation layout for each water and sewer asset type. Where more complexity is involved, a full servicing strategy will be required to be completed. Both must be submitted for review and approval by Hunter Water before proceeding with design phase services.

Prior to initiating a Servicing Strategy, the Developer and Accredited Design Consultant are required to participate in an inception meeting with Hunter Water. The inception meeting is used as a means to form a common understanding of the servicing requirements, system parameters, possible capacity limitations, possible asset configuration options to be considered, and whether Hunter Water has any hydraulic models that may be useful to the Accredited Design Consultant to assist with the analysis.

If the Developer is contemplating the use of pressure sewer as one of the options in the Servicing Strategy, further interaction with Hunter Water is required to establish the appropriate hydraulic parameters to use. This is usually discussed following presentation of the gravity sewer servicing options analysis but can, however, be sequenced differently if agreed by Hunter Water.

Completion of a Servicing Strategy must include thorough investigation of servicing options to avoid protracted optioneering in the design phase. It is intended that the approved servicing option described and costed in the Servicing Strategy is to be taken into the design phase. The Developer has flexibility to engage a different Accredited Design Consultant to complete the reticulation designs to that engaged to complete the Servicing Strategy. The Developer and Hunter Water must both then execute a copy of 'Developer Works Deed – Complex Works' before design phase services commence.

A preliminary version of the design documentation is prepared by the Accredited Design Consultant, who submits it to Hunter Water. After the design documentation is approved by Hunter Water, the Developer submits it to an Accredited Construction Contractor to prepare construction documentation and build the Works.

Design

The Complex Works design review and approval process has a number of stages of activity, each of which must be fully completed to allow timely and efficient progression of the design. These stages are illustrated in [Appendix B: Complex Works Design Review and Approval – Process Map](#).



Stage 1 – Inception meeting

Hunter Water, the Developer and the Accredited Design Consultant arrange an inception meeting to review the outcomes of the Servicing Strategy. The inception meeting is also an opportunity to discuss any potential changes since the strategy was completed, for example, additional loads or new developments in the project's area. The Developer and Accredited Design Consultant can use the inception meeting to request any additional capacity information to support the concept design submission, and Hunter Water can use it to outline any information requirements for concept design submission. Any additional options investigation work must be completed before proceeding to concept design submission (15% design completion).

Stage 2 – 15% design completion

At this stage, the Accredited Design Consultant is required to submit a sketch design and checklist. This submission requires sufficient information to confirm the option is viable. The submission must include environmental, geotechnical, odour, water hammer, and electrical assessments, as necessary. Another meeting is required during this stage to review Hunter Water's comments and agree on the requirements for the detail design submission (85% design completion).

Stage 3 – 85% design completion

At this stage, the Accredited Design Consultant is required to submit a full detail design with accompanying checklist, which is to include a design report, Safety in design report, electrical design, technical specifications, and final design drawings. Hunter Water then performs quality checks on the design and provides comments. Another meeting is required during this stage to review any non-conformances with the design standards, and to agree on the requirements to process to construction submission.

Stage 4 – 100% design completion

At this stage, the Accredited Design Consultant is required to submit a finalised design, along with a comments file showing any changes, confirmation they have been addressed, and a Complex Design Submission Checklist ([Appendix D](#)). Hunter Water then confirms the design is fully compliant before issuing authorisation to proceed to construction.

5.3.3 Phase 3: Construction of Works

For more detail regarding the Accredited Construction Contractor's role and obligations, see 'The Accredited Construction Contractor's role'.

The Accredited Construction Contractor constructs the Works as per the design and in accordance with the Project Plan. The Accredited Construction Contractor captures Work As Constructed data throughout the construction, before issuing a request to connect to Hunter Water's networks. Once connection is permitted, the Accredited Construction Contractor connects to the networks then tests and confirms functionality.

The Accredited Construction Contractor then finalises the project. This includes submitting completed Work As Constructed data, a final inspection checklist and all other necessary documentation.

5.3.4 Phase 4: Project finalisation

Upon issue of the Completion Certificate and having received securities from the Developer, ownership of the Works transfers to Hunter Water, and the 24-month defects liability period commences. All required asset information is provided to Hunter Water as part of the transfer of ownership.



The Accredited Construction Contractor submits a request for Hunter Water to issue a Section 50 Compliance Certificate. Provided all conditions in the Notice of Requirements have been met, Hunter Water issues the Certificate, and the asset-creation process is complete.

6. The Developer's role

6.1 Lodge Development Application

After lodging a Development Application, the Developer completes an 'Application for Developer Services' form and submits it to Hunter Water, together with payment of the specified fee. This may follow or precede a strategy inception meeting with Hunter Water. The 'Application for Developer Services' form can be found on [Hunter Water's website](#). The application form should either be sent to Developer.applications@hunterwater.com.au or submitted in person.

Following receipt of the form and payment, and providing all conditions are met, Hunter Water issues a 'Notice of Requirements' to the Developer. The 'Notice of Requirements' stipulates all the conditions the Developer must fulfil for the development to be certified and water utility assets to be incorporated into Hunter Water's networks.

6.2 Execute Developer Works Deed

After receiving the Notice of Requirements, the Developer downloads a copy of 'Developer Works Deed – Complex Works' from [Hunter Water's website](#). The Developer must review all its requirements, before completing, signing and returning it to Hunter Water. The Deed is able to be filled out and signed electronically, which is Hunter Water's preferred method.

Hunter Water executes it by completing and signing its sections of the Deed. Hunter Water sends an executed copy of the Deed back to the Developer, which authorises the Developer to initiate the process of engaging Accredited Suppliers.

6.3 Engage Accredited Suppliers

In accordance with the obligations set out in the Deed, the Developer prepares the necessary briefs and specifications for the Accredited Design Consultant. The Developer must engage the services of an Accredited Design Consultant listed on Hunter Water's Accredited Design Consultants Register. Following engagement of the Accredited Design Consultant, the Developer can engage the services of an Accredited Construction Contractor listed on Hunter Water's Accredited Construction Contractors Register.

7. Hunter Water's role

This section briefly describes activities that are performed by Hunter Water in the various processes involved in the delivery of Complex Works. For more detailed information on Hunter Water's role refer to 'Manual – Delivery of Developer Works'.

7.1 Notify Developer of formal requirements

For Hunter Water, the process begins when a Developer submits an 'Application for Developer Services' form. When the applicable fee is received, the application is registered and scanned. The application is then processed with the relevant quality procedures and the Developer is sent a 'Notice of Requirements'.



7.2 Determine servicing strategy

Hunter Water then invites the Developer and a design consultant to a servicing strategy inception meeting. The purpose of the meeting is to determine the optimal configuration of the water utility infrastructure for the project.

7.3 Execute Developer Works Deed

The Developer then emails a completed and executed Deed to developer.deed@hunterwater.com.au. When Hunter Water receives an executed Deed from a Developer, it is receipted, a document workflow is launched and a copy of the Deed is saved.

The Deed is then reviewed by Hunter Water. After the review, the Deed is executed by completing all applicable sections, dating and signing. A copy of the executed Deed is saved and sent to the Developer.

7.4 Perform design review against checklist criteria

For more information on this, refer to 5.3.2 'Phase 2 Investigation and design'.

7.5 Review and verify pre-construction documents and approve final design

For more information on this, refer to 5.3.2 'Phase 2 Investigation and design'.

Hunter Water then checks the final design to ensure the construction contract drawings submitted by the Accredited Design Consultant comply with appropriate drafting standards. Once satisfied the drawings are compliant, they are entered into GIS, and the Developer is given permission to begin construction.

7.6 Perform construction audit

All Complex Works projects are subjected to construction audit. When problems identified by the audit have been rectified, the Accredited Design Consultant, Accredited Construction Contractor and relevant groups within Hunter Water are notified.

7.7 Allow connection – hold point

The Accredited Construction Contractor issues a request to Hunter Water for the development to connect to existing infrastructure. Being a hold point, the connection cannot proceed until Hunter Water is satisfied the Works are compliant with all requirements.

7.8 Log shutdown request and notify customers

Relevant groups within Hunter Water are informed the development is allowed to be connected to existing infrastructure. A shutdown request is then logged and all customers who are to be affected by a water outage receive advance notification.

7.9 Finalise and submit Completion Certificate – defects liability period (DLP) starts

After any non-conformance or the like identified by the construction audit has been resolved, Hunter Water finalises and submits to the Developer a Completion Certificate. This is known as the point of practical completion, at which the 24-month DLP starts.



7.10 Complete Project Finalisation Checklist

After the project has been finalised and the Accredited Construction Contractor has submitted the Project Finalisation Checklist ([Appendix E](#)) and required Work As Constructed drawings, Hunter Water then determines whether all requirements within the checklist have been met.

7.11 Issue Section 50 Compliance Certificate to Developer

Hunter Water then issues the Section 50 Compliance Certificate to the Developer. The council in whose local government area the Works were constructed is also sent a copy.

7.12 Integrate Work As Constructed drawings into GIS

Once a Section 50 Compliance Certificate has been issued to the Developer, the Work As Constructed drawings are integrated into GIS.

7.13 The defects liability period

If any aspect of the Works is found to be defective during the DLP, Hunter Water directs the Developer to have the defective component rectified.

8. The Accredited Design Consultant's role

8.1 Initiate design phase services

The process of certification of Complex Works begins when the Developer lodges a Development Application which involves the provision of trunk infrastructure of 300mm diameter and greater, telemetry, mechanical/electrical components, pressure sewer, wastewater pump stations, and/or water booster stations. The Developer then lodges an 'Application for Developer Services' form with Hunter Water, who sends the Developer a 'Notice of Requirements'. For more information, refer to 5.3.2 'Phase 2 Investigation and design'.

8.2 Submit concept drawings and design specification for review

For more information, refer to 5.3.2 'Phase 2 Investigation and design'.

8.3 Submit final detail design documentation

For more information, refer to 5.3.2 'Phase 2 Investigation and design'.

8.4 Review and verify pre-construction documents

In accordance with the Complex Works Deed, the Accredited Construction Contractor is required to prepare a Project Plan. The Accredited Design Consultant maintains a register of all pre-construction documents in the Project Plan received from the Accredited Construction Contractor, and reviews and amends these as needed.

9. The Accredited Construction Contractor's role

9.1 Begin construction phase

Following the successful completion of a design by the Accredited Design Consultant, the Developer is advised the construction phase can commence. The Developer must engage the services of an Accredited Construction Contractor to perform the construction phase.



9.2 Prepare pre-construction documents

As per the Complex Works Deed, the Accredited Construction Contractor is required to prepare a Project Plan. The purpose of the Project Plan is for the Accredited Construction Contractor to describe in detail how the Works will be carried out in accordance with submitted documentation. The Project Plan, as a minimum, must include:

1. a Work Health and Safety Management Plan
2. a Construction Environmental Management Plan
3. a Quality Plan
4. ITPs, and
5. Project Schedule (Gantt Chart)

9.3 Construct Works

The Accredited Construction Contractor is responsible for, but not limited to, performing the following:

1. constructing the specified Works, including temporary Works, in accordance with approved design drawings provided by the Accredited Design Consultant, WSAA codes and standards, and Hunter Water standard drawings and approved products
2. constructing the Works in accordance with the Work Health and Safety Management Plan, and reporting any WHS-related incidents immediately to Hunter Water
3. constructing the Works in accordance with the Construction Environmental Management Plan
4. preparing ITPs for all construction activities to confirm the completed Works comply with the design documentation, including any hold or witness points nominated by Hunter Water, the Accredited Design Consultant and/or the Accredited Construction Contractor
5. establishing and implementing an appropriate method for identification and control of all occasions where the product or service fails any inspection or test
6. documenting all construction issues in a Construction Issues Register and categorising them under the appropriate resolution process, for example, Non-conformance Reports, Requests for Information, and Design Changes
7. closing out all items listed in the Construction Issues Register, and
8. capturing and recording Work As Constructed documentation and updating design drawings as construction of the Works progresses, in accordance with STS 903

9.4 Issue request to connect

The Accredited Construction Contractor is responsible for, but not limited to, performing the following:

1. submitting completed ITPs, test certificates and a pre-connection checklist to Hunter Water
2. ensuring the required personnel, plant and equipment are available
3. confirming Hunter Water has notified customers who are going to be affected by a water shutdown
4. preparing methodology for pressure/vacuum testing, flushing and dechlorinating water prior to disposal, and submitting methodology documentation to Hunter Water, and
5. ensuring all works are completed in accordance with the design documentation and the Complex Works Deed.



9.5 Commission, connect, test, and confirm functionality

The Accredited Construction Contractor notifies Hunter Water prior to any pre-commissioning tests being performed. Hunter Water then forms a project-specific commissioning team, which is usually composed of members of the design review team. The commissioning team develops pre-commissioning checklists to help guide the tests.

The Accredited Construction Contractor then performs the pre-commissioning tests under the supervision of Hunter Water. Within two weeks of the tests, the Accredited Construction Contractor compiles comments and submits all relevant pre-commissioning and draft construction documentation to Hunter Water.

The Accredited Construction Contractor then performs the commissioning tests under the supervision of Hunter Water. Within four weeks of the tests, the Accredited Construction Contractor compiles comments and submits all relevant commissioning documents to the commissioning team. Hunter Water then ensures all deliverables are checked off against the Handover Plan Checklist.

The Accredited Construction Contractor completes the connection to the Hunter Water network, performs a pressure test to confirm functionality of the system, and submits final commissioning documents to Hunter Water. A Completion Certificate is then issued to the Developer and the asset is handed over to Hunter Water.

This process is illustrated in [Appendix C: Commissioning of Complex Works Process Map](#).

9.6 Finalise project including Work As Constructed drawings

The Accredited Construction Contractor is responsible for, but not limited to, completing and submitting to Hunter Water:

1. Work As Constructed drawings and documentation in accordance with STS 903
2. completed quality-related documents, including ITPs, a Construction Issues Register, Non-conformance Reports, Requests for Information, test certificates, and evidence restoration is complete, and
3. a completed Project Finalisation Checklist ([Appendix E](#)).

9.7 Defects liability period

In accordance with the Developer Works Deed, the Developer is responsible for rectifying any defects identified until the end of the 24-month DLP for Complex Works. Defects must be rectified at the Developer's expense. Where a defect is rectified, a separate DLP will apply in respect to it and for a further 24-month period.

10. Complex Works process feedback and review

Hunter Water encourages feedback from participants in the Complex Works process, both internal and external. Feedback is collated and periodically reviewed. The review of feedback helps to further refine the procedures and requirements of the Complex Works process. It is intended to help reduce delays in the various components of the system, be they the number of iterations of designs or lags in information delivery.

Hunter Water uses the Developer Works process feedback and review system to assess and rate the performance of the various groups involved in the process. The various groups also assess and rate each other's performance. Suggestions are particularly welcome from Developers and Accredited Suppliers as to ways of improving methods of delivering safe, environmentally-sound, high-quality infrastructure.



11. Incorporated documents

To access Hunter Water's documents for Developer Works, go to the 'Certification and Delivery of Developer Works' page on [Hunter Water's website](#).

Developer Works-related Registers:

- Accredited Design Consultants Register
- Accredited Construction Contractors Register
- Approved Products and Manufacturers Register

To access these Registers, go to the 'Developer Works Accredited Suppliers' page on [Hunter Water's website](#).

To access the Developer Works Deeds, go to the 'Certification and Delivery of Developer Works' page on [Hunter Water's website](#).

External documents and references:

- ISO 9001:2015 Quality management system – Requirements
- ISO 14001:2004 Environmental management system – Requirements
- ISO 55001:2015 – Asset management – Management systems - Requirements
- Water Services Association of Australia (WSAA) www.wsaa.asn.au

12. Document control

TRIM: HW2015/1469/29/2.001

Table 3: Document governance

Document owner	Mandatory reviewers	Initial Document approval
Group Manager Development Services	Group Manager Development Services	Executive Manager Customer Strategy and Retail

Table 4: Document version history

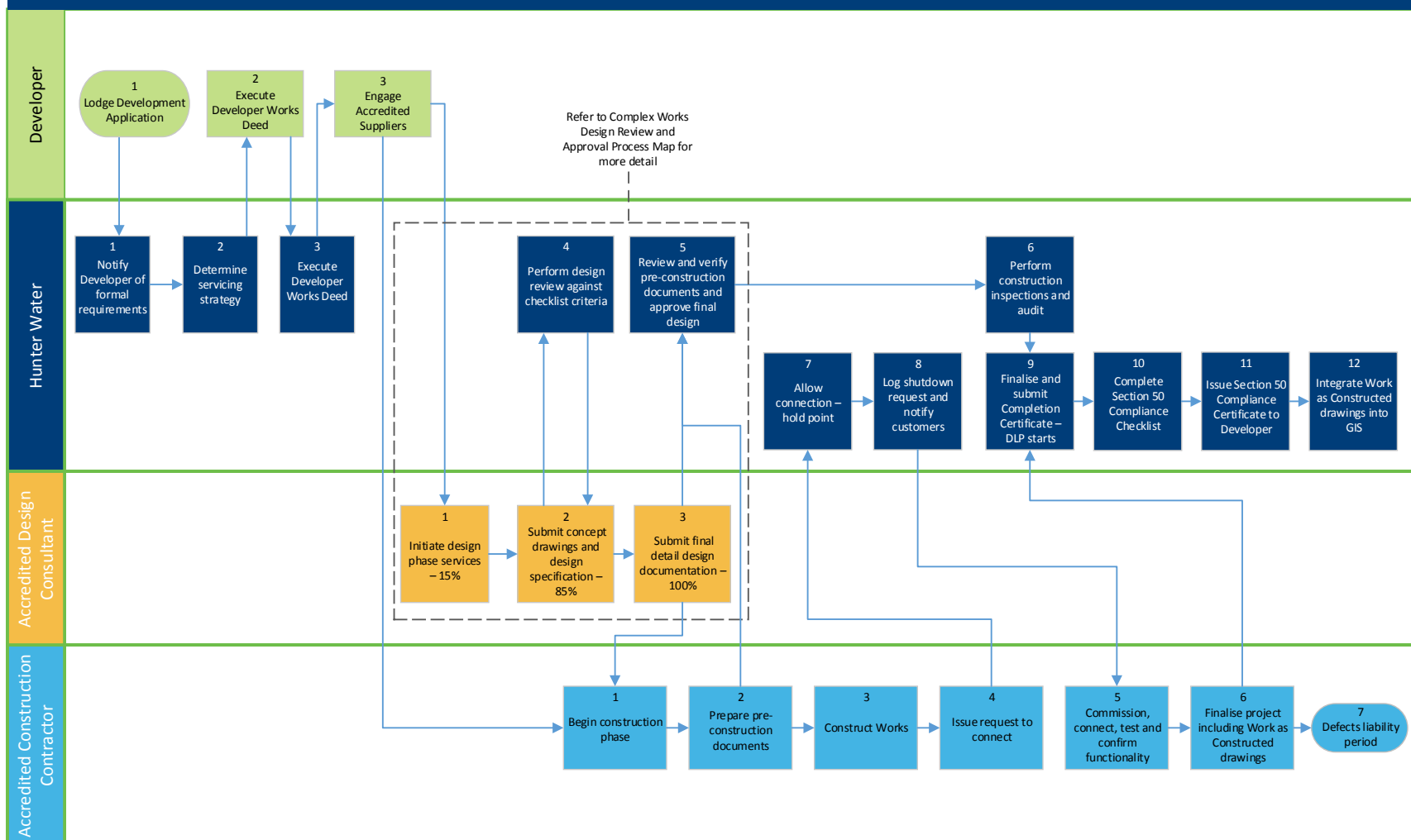
Version	Name of author	Summary of changes	Approval date	Approved by	Periodic review
1.0	Brett Lewis	Initial release	19 Jan 2018	Executive Manager Customer Strategy and Retail	1 year
1.1	Chris Barker	Revision 1	19 Jun 2019	Group Manager Development Services	1 year



Appendix A: Complex Works Process Map

Complex Works – Process Map

HW2015-1469/14/7.004

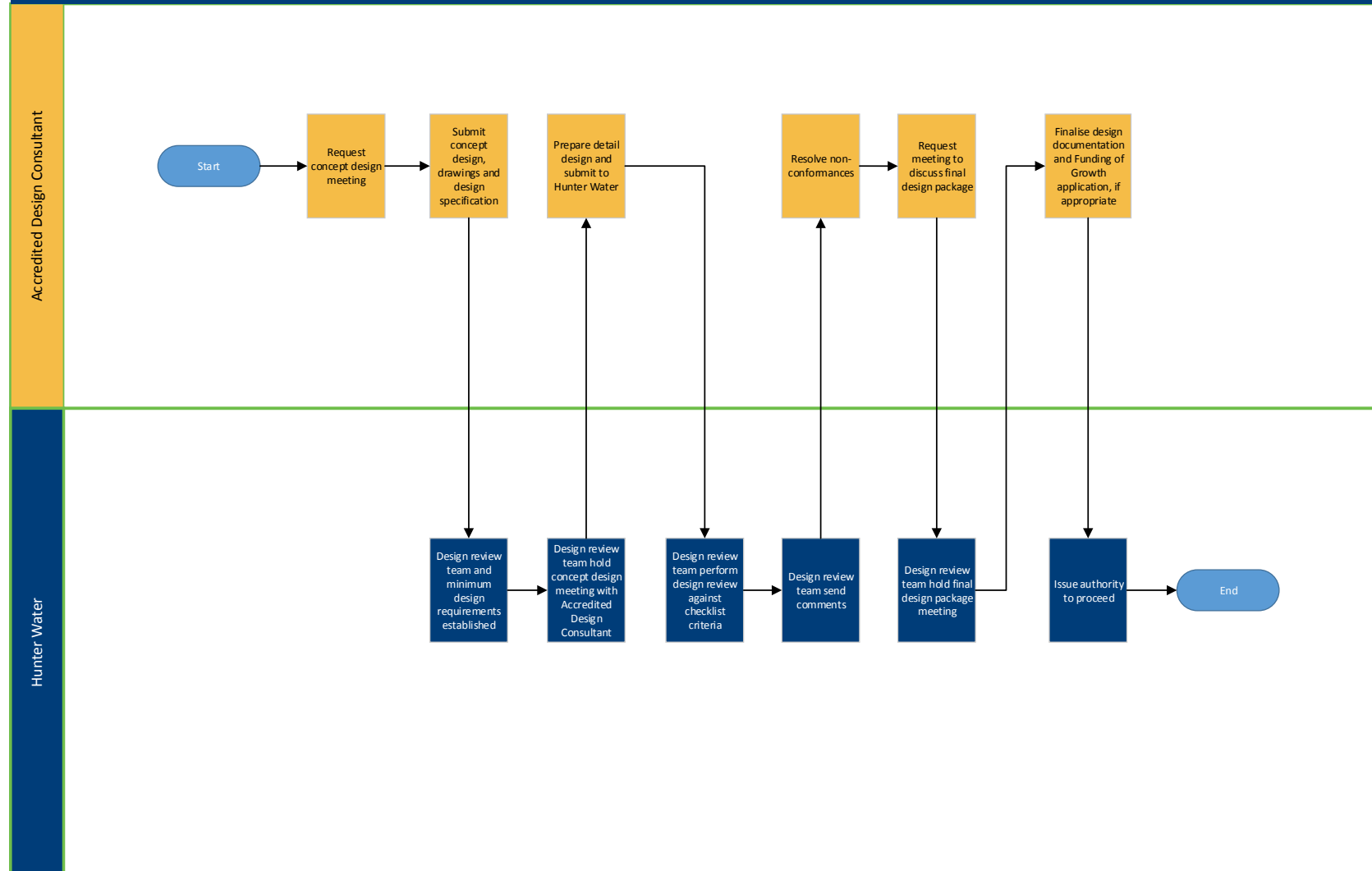


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Appendix B: Complex Works Design Review and Approval Process Map

Complex Works Design Review and Approval – Process Map

HW2015-1469/14/7.003

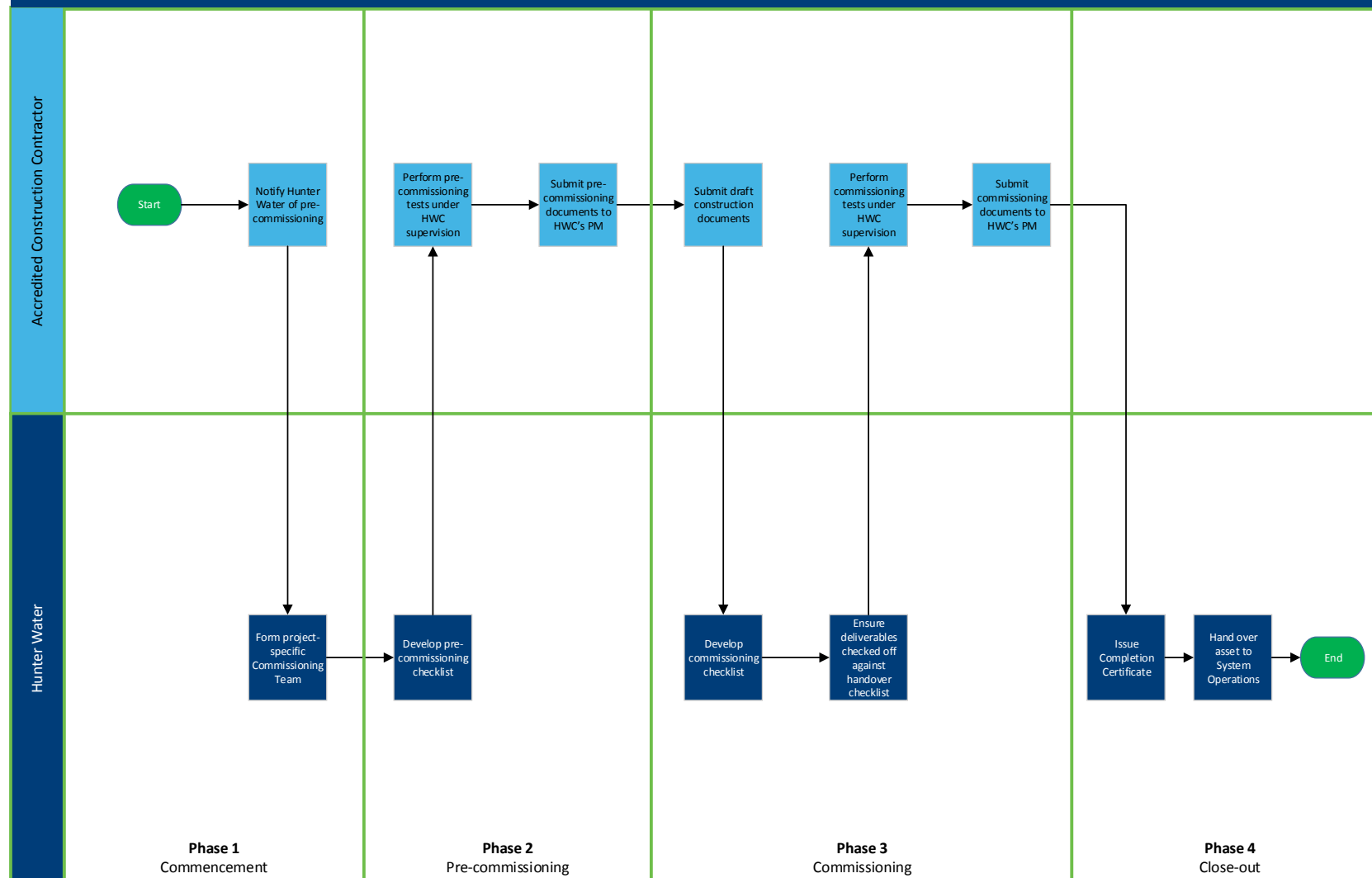


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Appendix C: Commissioning of Complex Works Process Map


Commissioning of Complex Works – Process Map

HW2015-1469/14/2.003



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Appendix D: Design Submission Checklist



Design Submission Checklist Complex Works


Date:				
Developer Works Deed Number:				
Accredited Design Consultant:				
	Designer			HW
Design checklist	Yes	No	N/A	Confirm
Executed Deed submitted	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Detail design submitted	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Technical specification submitted	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Review of Environmental Factors submitted	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Compliance with STS904 and STS911	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Entry permit(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Design review fee paid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Inspection fee paid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Work As Constructed fee paid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Evidence design complies with <i>Work Health and Safety Act 2011</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Accredited Design Consultant's comments (if required)				
Hunter Water design submission package results				Yes
Design submission complete				<input type="checkbox"/>
Email sent to Accredited Design Consultant advising correct				<input type="checkbox"/>
Email sent to Accredited Design Consultant for additional requirements				<input type="checkbox"/>
Hunter Water Asset and Review Team Officer's name				
Date review completed				
Hunter Water Asset and Review Team Officer's signature				
Hunter Water's comments (if required)				

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Appendix E: Project Finalisation Checklist



Project Finalisation Checklist

Routine Major or Complex Works

Date:			
Accredited Design Consultant:			
Developer Works Deed Number:			
Routine Major or Complex Works:			
	Designer		HW
Work As Constructed	Yes	N/A	Confirm
WAC Checklist (STS 903, Appendix 2)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Junction sheets (STS 903, Appendix 1)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Location co-ordinates provided by a registered surveyor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Required drawings sent by email or on CD/DVD/USB	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Drawings include location, type, size, co-ordinates, etc., of fittings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Drawings in accordance with STS 911	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Red mark-ups in accordance with STS 904	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Schedules of technical data (STS 903, Appendices 3 and 4, Schedules A and C)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Draft copy of O&M Manual for review prior to equipment pre-commissioning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Approved and updated copy of O&M Manual at and during commissioning (STS 906)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Acceptance testing – water (refer to WSA03-2011-3.1)	Yes	N/A	Confirm
Visual inspection (S. 19)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Compaction testing – open trench construction only (S. 19)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hydrostatic pressure testing (S. 19)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Water quality testing (S. 19)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Special testing – e.g. block testing dual water supply systems (S. 19)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Acceptance testing – sewer (refer to WSA02-2014-3.1)	Yes	N/A	Confirm
Visual inspection – above ground (S. 21)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Compaction testing (S. 21)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pressure testing – low pressure air, vacuum, hydrostatic (S. 21)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Infiltration testing (S. 21)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Deflection (ovality) testing of flexible sewers – e.g. physical, CCTV	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Measurement of sewer grade (S. 21)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other required documents	Yes	N/A	Confirm
Construction Register	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ITPs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Restorations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Certificate of Completion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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