IPART
New South Wales

Independent Pricing and Regulatory Tribunal

Network Operator and Retail Supplier Licence Application Form

Water Industry Competition Act 2006 (NSW)

PUBLIC

Application Form
June 2013

Inquiries regarding this document should be directed to a staff member:

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Contents

1 Instructions

The *Water Industry Competition Act 2006* (NSW) (the WIC Act or Act) came into operation on 8 August 2008 and, among other things, provides for the licensing of private sector water utilities.

Under the WIC Act, the Minister for Finance and Services (the Minister) is responsible for granting the following licences:

- **Network Operator's Licence** for constructing, maintaining and operating water industry infrastructure.
- **Retail Supplier's Licence** to supply water or provide sewerage services, by means of water industry infrastructure.

The Independent Pricing and Regulatory Tribunal of NSW (IPART) is responsible for receiving and assessing licence applications and for the ongoing administration and enforcement of licences.

1.1 Who should complete this form?

This form is for corporations that wish to become licensees under the WIC Act. Under section 8(1) of the WIC Act, an application for a licence can only be made by or on behalf of a corporation.

A copy of the WIC Act is available on the NSW Government's legislation website at www.legislation.nsw.gov.au.

1.2 Information on filling out and submitting this form

1.2.1 General instructions to applicants

The questions asked in the application form are designed to allow you to establish your capacity and expertise to carry out the proposed activities in compliance with your licence (if granted), the WIC Act and the *Water Industry Competition (General) Regulation 2008* (NSW) (the General Regulation).

Your response should include sufficient information to demonstrate an extensive understanding of the activities you are proposing to undertake, the issues or impacts associated with these activities, and the processes required to address or manage these issues or impacts. The information provided in your application should reflect the type, size, complexity and level of risk associated with the activities to be licensed.[1]

[1] For example, a recycled water scheme involving a single source, basic treatment, and single pipeline to one commercial customer will be less complex and therefore require less supporting information than a multi-source scheme, with complex treatment and a pipe network ultimately supplying a mix of commercial and residential customers.

Following each question in the application form is an explanation (in italics) as to why we have requested the information and how it will be assessed in relation to the requirements of the WIC Act and the General Regulation. These explanations are provided as a general guide to help applicants understand the main ways in which the information sought is likely to be relevant for the assessment of their application. However, we may use the information provided for any other relevant purpose when we assess your application.

We will also have regard to the following licensing principles, in accordance with section 7 of the WIC Act:

- the protection of public health, the environment, public safety and consumers generally
- the encouragement of competition in the supply of water and the provision of sewerage services
- the ensuring of sustainability of water resources
- the promotion of production and use of recycled water
- the promotion of policies set out in any prescribed water policy document
- the potential for adverse financial implications for small retail customers generally arising from the activities proposed to be covered by the licence, and
- the promotion of the equitable sharing among participants in the drinking water market of the costs of water industry infrastructure that significantly contributes to water security.

Where more extensive information is required in response to a question (ie, example plans), the information is requested to be included as an appendix to the question. Unless indicated otherwise the appendices must be attached to the application to ensure there is sufficient information for IPART to make an assessment in accordance with the relevant legislation. An application that does not attach the necessary appendices may be considered to be an incomplete application resulting in a delay in processing. All appendices should be labelled as per the instructions.

1.2.2 Confidential information

IPART uses open public processes to consider applications and must invite submissions on applications from the public. Unless they are confidential, we treat your applications and appendices as public documents. We publish these documents on our website and distribute them to interested parties as appropriate.

Subject to our disclosure obligations (referred to below), we will treat as confidential the financial information that we request for the purposes of your application. We may share that information with our consultants, but will do so on a confidential basis.

You should let us know if you consider other aspects of your application to be confidential so that we can discuss your confidentiality concerns with you.

You should provide separate confidential and public copies of your application. In particular, you should provide:

- **a confidential application**, which is clearly marked "confidential" and clearly identifies the confidential information that should not be publicly released, and
- **a public application,** which does not contain the confidential information, for publication and distribution by IPART.

If we agree with all your confidentiality concerns, we will only publish the public application on our website. However we will furnish a copy of the confidential application to the Ministers specified by the WIC Act and General Regulation, as we are required to do under section 9(1)(b) of the WIC Act.

Please note that third parties may apply under the *Government Information (Public Access) Act 2009* for access to applications, including applications that contain confidential information. If we receive such an application, we will determine disclosure in accordance with that Act.

Where an application includes personal information, IPART will deal with that information in accordance with the information protection principles set out in the *Privacy and Personal Information Protection Act 1998*.

1.2.3 Is there an application fee?

The application fee for a network operator's licence is $2,500. The application fee for a retail supplier's licence is $2,500. If you are applying for both a network operator's licence and retail supplier's licence, the fee is $5,000.

The appropriate licence application fee should be paid either by cheque made payable to the Independent Pricing and Regulatory Tribunal of NSW or by electronic transfer to:

Westpac Banking Corporation
BSB: 032-001
Account No: 205717
Reference: WICA app

If payment is made electronically, please provide a copy of the electronic transfer receipt with your licence application.

Please note that once an application has been submitted, the application fee(s) will not be refunded if the application is rejected or withdrawn.

1.2.4 How do you submit the application?

You must submit one hard copy and one electronic copy of each of the versions (public and confidential) of the completed application form and appendices. You may wish to password protect your electronic confidential version. If so, we will contact you to request the password following submission of your application.

The electronic copy should consist of separate files for the application and the appendices for each of the sections. Where there is more than one appendix in a section, they should be combined into a single electronic file. For example, section 3 will have appendices 3.2.1 and 3.6.1 – these appendices should be combined into one electronic file. A summary of the appendices is included in attachment A to this form.

When you have completed your application, you should mark it to the attention of the Water Licensing team, and submit it to IPART in person, via email or via post:

In person	Via email	Via post
Attention: Water Licensing	Attention: Water Licensing	Attention: Water Licensing
Independent Pricing and Regulatory Tribunal	Independent Pricing and Regulatory Tribunal	Independent Pricing and Regulatory Tribunal
Level 15		PO Box K35
2-24 Rawson Place	*compliance@ipart.nsw.gov.au*	Haymarket Post Shop
Sydney NSW 2000		NSW 1230

1.3 If you require further information

If you have further questions about your application, you can contact the Water Licensing team in IPART by:

- emailing: compliance@ipart.nsw.gov.au, or
- telephoning: (02) 9290-8400 (general number).

We encourage you to discuss your licence application form and obtain assistance from the Water Licensing team *prior* to formally submitting your application. Once we receive your application, we will assign you a contact officer, who will manage your application and remain in contact with you throughout the process.

1.4 Where to from here?

1.4.1 What will happen next?

IPART will check that your application form is complete and that you have supplied all the necessary information and supporting documentation.

If your application is complete, we will undertake consultation and a detailed assessment before preparing a recommendation to the Minister to either grant or refuse the licence(s).

If the application is incomplete, it will not be processed and you will be asked in writing to supply the outstanding information. This is likely to delay the detailed assessment of your application. We may also request additional information in response to submission or our detailed assessment of your application.

If you wish you can withdraw your application at any stage during the process.

IPART uses our best endeavors to process applications quickly. Complete applications are generally processed between 6 to 8 months depending on the complexity of the project.

1.4.2 Audits and ongoing compliance obligations

Licensing obligations are set out in the *Water Industry Competition Act 2006* (NSW) and *Water Industry Competition (General) Regulation 2008* (NSW), which also sets out standard licence conditions.

IPART has also prepared a series of fact sheets explaining the audit and compliance obligations following the grant of a WIC Act licence.

It is particularly important to note that the granting of a network licence does not allow the licensee to bring any *new* water or sewerage infrastructure into immediate commercial operation. **A licensee must also obtain approval from the Minister before commencing commercial operation of new water or sewerage infrastructure.**

For further information, please refer to the following fact sheets or contact the Water Licensing team at IPART on the details provided above.

Fact sheets:

- *Summary of Audit Framework*
- *Commercial operation of new infrastructure*
- *Register of licences and other publicly available information*
- *Potable water services - public health requirements*
- *Water recycling - public health requirement.*

These documents can be downloaded from the IPART website, at http://www.ipart.nsw.gov.au/water/private-sector-licensing/private-sector-licensing.asp.

2 Contact Information

To be completed by all applicants

2.1 Contact Details

You need to nominate a primary contact person for all communication and correspondence between the corporation applying for a licence and IPART. This person must be a senior officer of the applicant corporation and not an external consultant. Ideally, this person's role within the corporation will be related to the project/activity to be licensed, and they must have the authority to speak on behalf of the applicant.	
PRIMARY CONTACT	
Full name	
WAYNE WILLIAMSON	
Position title	Email address
CEO	
Business telephone number	Mobile telephone number
Postal address for correspondence	
ADDRESS	
PO Box 977	
Noosa Heads	
STATE	POST CODE
QLD	4567
SECONDARY CONTACT	
☒ Please check if the secondary contact should be copied into all correspondence.	
Full name	
Kim Williamson	
Position title	Email address
Office Administration	
Business telephone number	Mobile telephone number
Postal address for correspondence	
ADDRESS	
PO Box 977	
Noosa Heads	
STATE	POST CODE
QLD	4567

3 General Information

To be completed by all applicants

3.1 Applicant Details

3.1.1	Please provide the following information for the corporation applying for the licence. Please note an application may only be made by or on behalf of a corporation (s8(1)).

Your response to this question is used in ASIC, ITSA and CATSI searches conducted as part of our assessment of your application. The information will also be used to specify the corporation that holds the licence (Act s.6(1)(a)), if a licence is granted.* ** These are searches of databases kept by the Australian Securities and Investments Commission (**ASIC**), Insolvency and Trustee Service Australia (**ITSA**), and Office of the Registrar of Indigenous Corporations (for corporations registered under the Corporations (Aboriginal and Torres Strait Islander) Act 2006 (**CATSI**)*	
Corporation name	
Northern Water Solutions Pty Ltd	
ABN/ARBN	ACN
76 611 142 655	611 142 655
Corporation's registered office	
ADDRESS	
Level 1, 46 Cavill Avenue	
Surfers Paradise	
STATE	POST CODE
QLD	4217
Corporation's principal place of business	
ADDRESS	
Level 1, 46 Cavill Avenue	
Surfers Paradise	
STATE	POST CODE
QLD	4217

3.1.2	Please provide the following information for the Chief Executive Officer and ALL Directors of the applicant corporation

Your response to this question is used in ASIC, ITSA and CATSI searches to determine that the named individual(s) are not disqualified individual(s) and that the applicant corporation is not a disqualified corporation (Act, s10(3)). The information will also be used to assess, among other things, the applicant corporation's organisational capacity to undertake the activities for which you are seeking a licence (Act s.10(4)(a)).	
PERSON ONE	
Full name	Wayne Williamson
Position title	CEO
Date of birth	

Residential address	
ADDRESS	
STATE	POST CODE
PERSON TWO	
Full name	William Robert Ell
Position title	Director
Date of birth	
Residential address	
ADDRESS	
STATE	POST CODE

Person Three

Full Name	Robert Ell
Position Title	Director
Date of Birth	
Residential Address	
State	
Postcode	

3.2 Activities for which a licence is sought

Please check ALL the applicable boxes for which you are seeking a licence

Your response to this question will be used to specify the activities that the applicant corporation will be authorised to undertake (Act s.6(1) and s.11(1)), if a licence is granted. The response to this question is a requirement for any network operator's licence application (Reg cl.6(1)(a) and 6(2)(a)) and for any retail supplier's licence application (Reg cl.10(1)(a) and 10(2)(a)).

3.2.1	**NETWORK OPERATOR** (to construct, maintain and operate water industry infrastructure)
	☒ Water infrastructure - drinking water
	☒ Water infrastructure – non potable water (including recycled water)
	☒ Sewerage infrastructure
3.2.2	**RETAIL SUPPLIERS** (to supply water or provide sewerage services)
	☒ Supply of drinking water
	☒ Supply of non-potable water
	☒ Provision of sewerage services

3.2.3	Have you commenced any of the activities for which you are seeking a licence?	
For example, you may have commenced construction, commercial operation and/or supply of services to customers.		
	☐ Yes please go to 3.2.4	☒ No please go to 3.2.5

3.2.4	Please briefly describe the activities that you have commenced including the date(s) on which they commenced.

Your response to the following question will be used to determine whether transitional arrangements apply to the project.

N/A

3.2.5	Please outline the approximate date you anticipate commencing the activities for which you are seeking a licence, if they have not yet commenced. For example, construction of the network infrastructure July 2014, construction of the water treatment plant December 2014, operation of the water treatment plant June 2015, supply to small retail customers August 2015.

Your response to the following question will be used as background information for the project.

Project 28 Pty Ltd ("Developer") is a subsidiary of Leda Holdings Pty Ltd. P28 is developing a new residential development made up of 14 precincts including residential, commercial, community/neighborhood, open space areas and sports fields to be known as the Kings Forest Estate.

The Kings Forest estate is located adjacent the existing Salt Residential development on the Tweed Coast road South of Kings Cliff in the local Government area of the Tweed Shire Council (TSC).

The development will comprise of approximately 4,509 Residential Lots, employment/commercial areas and community/neighborhood areas. Refer to Proposed Developable Area Summary Table -1 and Table -2 Proposed Equivalent Tenement Yield below,

Table 1 – Proposed Developable Area Summary

Land Use	Area
Total Developable Area	**447.1 Ha**
Residential Development	325.9 Ha
Commercial Precincts	12.3 Ha
Community Precincts	14.0 Ha
Public Open Space	94.9 Ha

Table 2 – Proposed Equivalent Tenement Yield - Residential

Precinct	Area (Ha)		No. of ET
Residential			
P1	0	1 ET/DU	0
P2	0	1 ET/DU	0
P3	0	1 ET/DU	0
P4	10.6	1 ET/DU	318
P5	32.8	1 ET/DU	431
P6	14.0	1 ET/DU	276
P7	43.0	1 ET/DU	590
P8	45.9	1 ET/DU	623
P9	39.5	1 ET/DU	488
P10	28.9	1 ET/DU	422
P11	66.9	1 ET/DU	771
P12	33.4	1 ET/DU	417
P13	13.9	1 ET/DU	173
P14	0	1 ET/DU	0
Subtotal	**328.9**		**4,509**
Non-Residential Development			
Commercial (P1, 2 & 4)	12.3	30ET/ha	369
Community/Neighbourhood (P3, 6 ,9 & 12)	14.0	820 Students x 0.03ET/Student	25
Open Space (P9, 10 & 14)	94.9	Irrigation as per Sporting Field Requirements	0
Subtotal	**56.5**		**394**
Total	**447.1**		**4,903**

Northern Water Solutions Pty Ltd (NWS) has been engaged by the developer (P28) to establish a Private Water Utility under the WIC Act (2006) NSW.

NWS is currently making this application to IPART NSW for a Network Operators and Retail Supplier License for the Kings Forest Estate development to design, construct, own, operate and retail the drinking water, recycled water and sewerage infrastructure to deliver these services to the end customers. ("The Kings Forest Scheme")

The Private Water Utility will be owned and operated by Northern Water Solutions Pty Ltd which is wholly owned by Leda Holdings Pty Ltd.

The proposed staging of the Waste Water Treatment Plant (WWTP) and associated ancillary systems and reticulation infrastructure for drinking water, recycled water and the pressure sewer networks will be as follows,

STAGE - A 0 Lots to 1,600 Lots

- Install network infrastructure	November 2017 to November 2022
- Construct WWTP	March 2018
- Operation of WWTP	August 2019
- Supply up to first 500 retail customers (TSC)	April 2018
- Supply retail customers NWS	September 2019

STAGE - B After the first 400 lots Construct the Advanced Waste Treatment Plant (AWTP)

- Construct AWTP	April 2019
- Operation of AWTP	April 2020
- Supply Recycled Water to retail customers	May 2020

STAGE - C 1,601 Lots to 3,200 Lots

- Install network infrastructure	December 2022 to December 2028
- Construct WWTP	March 2021
- Operation of WWTP	November 2022
- Supply retail customers	December 2022

STAGE - D 3,201 Lots to 4,903 Lots

- Install network infrastructure	January 2029
- Construct WWTP	March 2027
- Operation of WWTP	December 2028
- Supply retail customers	January 2029

For more detailed information Refer to WWTP Layout Staging Plans in Appendix 4.2.1(d).

Note: The drinking water supply will be provided by the TSC under a bulk supply agreement to the Kings Forest development from the metered connection point located at the Tweed Coast road roundabout via a rising main to the WWTP site located in Precinct 3. The drinking water will be stored in the 3 x 2ML storage tanks located at the WWTP site and distributed throughout the development by variable speed pump stations with additional chlorine dosing to maintain the required chlorine residual throughout the drinking water networks.

The variable speed pump stations will maintain the flow and pressure required throughout the networks for the fire hydrants installed on the drinking water reticulation for firefighting purposes and maintain a 50KPA differential between the recycled water networks for cross contamination purposes throughout the development.

The construction of the proposed 4 stages of the WWTP A, B, C and D will depend on the future rate of sales.

The proposed dates for the commencement of providing commercial services to precinct 5 or up to the first 500 lots will be provided under the following scenario,

- The Drinking Water for up to the first 500 lots in Stage A from April 2018 will be under agreement with the TSC from the existing TSC network and will substitute the recycled water network until the AWTP is completed in Stage B.

- After the WWTP site has been established and completed in Stage A in August 2019 the drinking water and recycled water will be provided by NWS from storages located at the WWTP site in Precinct 3.
- The Recycled Water for up to the first 500 lots will be substituted with drinking water until Stage B the AWTP has been constructed and operational by April 2020.

- The pressure collection network up to the first 500 lots will temporarily discharge all waste water to the new SPS located adjacent at the Tweed Coast Road roundabout to be processed by the existing TSC system from April 2018 until Stage A of the WWTP has been constructed, commissioned, validation and received approval from the Minister to commence commercial operation in September 2019.

For more information refer to,

- Appendix 3.2.5(a) Development Location Plan
- Appendix 3.2.5(b) Development Precinct Plan
- Appendix 3.3.5(c) Development Staging, ET Table and Master Plan
- Appendix 4.2.1(d) WWTP Layout Drawings

3.3 Insurance Details

3.3.1	What types of insurance do you have or intend to obtain particularly in relation to the activities for which you are seeking a licence? Provide details of the level (i.e. amount) of insurance you are covered or intend to be covered by for each type. Include a summary of itemised inclusions and exclusions for each type of insurance you hold. **Attach copies of all relevant insurance certificates in Appendix 3.3.1.**

Types of insurance may include but are not limited to professional indemnity insurance, public liability insurance, workers' compensation and product liability insurance.

Your response to this question will be used to ascertain whether the applicant corporation has made appropriate arrangements with respect to insurance (Act s10(4)(c)).

NWS Insurance Cover and Amounts are tabled below,

Type of Insurance	Cover Amount
- Industrial Special Risks	To cover all declared physical assets Including loss of revenue for up to 24 Months.
- Workers Compensation	Full amount of employers liability under The Workers Compensation Act.
- Public and Products Liability	$200,000,000
- Professional Indemnity	$10,000,000
- Steadfast Contract Works And legal Liability	$20,000,000
- Plant & Equipment	$7,500,000

For more information refer to,

- Appendix 3.3.1(a) Covering letters from the insurance broker,
- Appendix 3.3.1(b) Insurance Policies inclusions & exclusions,

3.3.2	Explain why the level of cover provided or proposed by your insurer is sufficient for the size and nature of your proposed activities

For existing (brownfield) schemes, you must provide us with a report from an independent insurance broker which holds an Australian financial services licence under Part 7.6 of the *Corporations Act 2001 (Cth)* for the provision of insurance broking services

("Insurance Expert"), that:

(a) identifies the key risks of undertaking the activities to be authorised under the licence (if granted)

(b) sets out the types and levels of insurance obtained by you in relation to the activities being undertaken

(c) certifies whether, in the Insurance Expert's opinion, the type and level of insurance obtained by you is appropriate for the size and nature of the activities to be authorised under the licence

(d) provides reasons as to why the types and levels of insurance are appropriate for the size and nature of the activities being undertaken, and (e) if any risks arising from undertaking the activities remain uninsured, provides reasons as to why.
Your response to this question will be used to ascertain whether the applicant corporation has made appropriate arrangements with respect to insurance (Act s.10(4)(c)).
NWS in relation to its business operation has arranged the above insurance cover. NWS reviews its insurance requirements annually with our broker to make sure our insurance requirements are kept up to date. A specific insurance risk assessment for the Kings Forest Scheme will be conducted as required by IPART's standard licensing condition prior to the Ministers approval for commercial operations. For more information refer to, - Appendix 3.3.1(a) Covering Letters from Insurance Broker - Appendix 3.3.1(b) Insurance Policies Inclusions & Exclusions

3.4 Third parties undertaking activities

3.4.1	If you intend on using third parties to undertake any **significant** activities for which you are seeking a licence (eg, construction of the reticulation network, management of the billing system) please provide their details below. If there are multiple third parties please provide the details for each party as well as an explanation of the activities it will be undertaking.

Third parties undertaking minor sub-contracting works on behalf of the applicant corporation such as electrical or plumbing contractors do not need to be named in the application. If you are unsure of whether the works are significant or otherwise please include the details or contact IPART.	
Your response to this question will be used to determine whether any other persons should be specified on the licence (Act s.6(1)(a)), if a licence is granted. Where applicable, information from those third parties named may also be used to assess the applicant corporation's technical, organisational and financial capacity to undertake the activities for which it is seeking a licence.	
Corporation name No-1	
Tweed Shire Council (Drinking Water Supply Under Agreement and Trade Waste Agreement with NWS)	
ABN/ARBN	ACN
90 178 732 496	178 732 496
Corporation's registered office	
ADDRESS	
Po Box 816 Murwillunbah	
STATE	POST CODE
NSW	2484

Corporation No-2 Providing Reticulation Infrastructure Project 28 Pty Ltd (Developer) ACN 003 919 613 Corporations Registered Office Suite 14, Level 1 46 Cavill Ave, Surfers Paradise, QLD 4217.	

3.4.2	Please provide a detailed description of the activities that the third party, named above, will undertake on the applicant corporation's behalf.

Corporation No-1 Providing Drinking Water and Sewerage Services Under Bulk Supply Agreements to NWS.

Drinking Water Supply.

The TSC is the local government authority for the area and will provide under a 305 - 307 of the Water Management Act 2000 NSW the requested volume of drinking water (1,385KLD) to a metered connection point to be located at the Tweed coast road roundabout for the Kings Forest development.

The TSC will provide the lead in infrastructure to the Kings Forest boundary as detailed in the Drinking Water Boundary Conditions report (DWBCR). The lead in infrastructure works will be designed and constructed to TSC standards by Project 28 and once signed off by the TSC it will be gifted to the TSC to own and operate by Project 28.

For more information refer to,

- Appendix 4.1.1(b) TSC letter of feasibility
- Appendix 4.1.1(d) Drinking Water Boundary Conditions Report (T o C)

Sewerage Service.

The TSC is the local government authority for the area and will provide the infrastructure for the requested volume of 474.3KLD for emergency treated effluent discharge under a trade waste agreement with NWS.

The lead in infrastructure works including the rising mains and new sewer pump station with a metered connection point to be located at the Tweed Coast road roundabout for the Kings Forest development.

The TSC will provide the lead in infrastructure to the Kings Forest development boundary as detailed in the Waste Water boundary conditions report (WWBCR). The lead in infrastructure works will be designed and constructed to the TSC standards by Project 28 and once signed off by the TSC it will be gifted to the TSC to own and operate by Project 28.

For more information refer to,

- Appendix 4.3.1(e) Waste Water BCR Report, Table of Contents (T of C)
- Appendix 4.1.1(b) TSC letter of feasibility,

Corporation No-2 Project 28 (Developer) Infrastructure Works

NWS has entered into a Preliminary Service Agreement with Project 28 Pty Ltd to design and construct and provide the Private Water Utility (NWS) with the drinking water, recycled water and pressure sewer services infrastructure. Once the infrastructure has been signed off by NWS or its representatives the infrastructure will be gifted to NWS by Project 28 to own and operate under the WIC Act (2006) NSW.

For more information refer to,

- Appendix 3.4.3(a) Kings Forest Preliminary Service Agreement, (C in C)

3.4.3	Please provide details of the contractual arrangements the applicant corporation has in place with the third party, named above, to ensure the third party undertakes the activities in accordance with the licence (if granted).

The contractual agreements that will be entered into by the parties once the Network Operators license has been issue by IPART to NWS will be,

(a) Bulk Drinking Water Agreement under section 305 - 307 of the Water Management Act 2000 NSW between the TSC and NWS,

(b) Discharge of excess waste water to the TSC existing sewerage network will be under a trade waste agreement between TSC and NWS,

(c) The Kings Forest Preliminary Services agreement between Project 28 Pty Ltd and NWS to design, construct the required drinking water, recycled water, pressure sewer infrastructure and WWTP necessary to facilitate the development. Once the infrastructure has been completed and sign off by NWS and or its representatives the infrastructure will be gifted to NWS to own and operate.

For more information refer to,

- Appendix 3.4.3(a) Kings Forest Preliminary Service Agreement, (C in C)
- Appendix 4.1.1(b) TSC letter of feasibility,
- Appendix 4.1.1(d) Drinking Water Boundary Conditions Report, (T of C)
- Appendix 4.3.1(e) Waste Water Boundary Conditions Report, (T of C)

3.5 Other regulatory approvals

3.5.1	Please list any other regulatory approvals that have been obtained (or are being sought) for any of the activities for which the applicant corporation is seeking a licence. Include any regulatory approvals also related to the activities or the project. Such approvals may include development consents for a housing development under the *Environmental Planning and Assessment Act 1979*, section 68 approval under the *Local Government Act 1993*, an Environment Protection Licence under the *Protection of the Environment Operations Act 1997*. **Provide a copy of any other regulatory approvals and/or licences in Appendix 3.5.1.**

Your response to this question will be used to determine whether IPART needs to co-ordinate this approvals process with other regulatory authorities. Information required in other approval processes may also be requested and used by us in determining this licence application.

The developer Project 28 Pty Ltd Planning Proposal.

The Kings Forest development has been subject to a number of related approvals assessed and granted by both the NSW Department of Planning and Environment (DOPE) and also the Tweed Shire Council (TSC) as per the standard conventional requirements.

The revised water and waste water servicing strategy now involves the use of a private water utility to be licensed under the WIC Act (2006) NSW to provide drinking water, recycled water and waste water services to the future Kings Forest customers based on a Decentralized Onsite Waste Water Treatment and Water Recycling Model. A Part 5 approval for the Kings Forest Scheme is now being sought by NWS under the WIC Act (2006) NSW from the Minister and IPART.

To facilitate the Part 5 approval of the Kings Forest scheme by IPART the original PART 3A Concept Planning Approval and associated project and Council approvals are being amended by the developer to facilitate the use of a waste water solution under the WIC Act (2006) NSW.

The NWS Integrated Water Management Plan (IWMP) is being supplied to IPART along with preparing a Review of Environmental Factors (REF) for the Part 5 approval of the Kings Forest scheme. Once the Network Operators license is received from IPART (Assuming all assessments indicate suitability) IPART can also grant approval to the activity under Part 5 of the Environmental Planning & Assessment Act, 1979.

The IWMP details the works to be undertaken for the scheme and is being submitted for the Part 5 approval under the Environmental Planning & Assessment (EP&A) Act (NSW Government 1979) to IPART for approval for an Environmental Protection License (EPL) from the NSW Environmental Protection Agency (EPA).

The proposed Waste Water Treatment Plant (WWTP) site located at Precinct 3 is subject to a W75 Modification which has been lodged with DOPE to be rezoned to SP2. As such, Clause 106 of the State Environmental Planning Policy (Infrastructure) is applicable and states that development for the purpose of a Sewerage Treatment Plant and or Sewerage Reticulation Systems do not require consent, if carried out by an entity licensed under the Water Industry Competition (2006) Act NSW and on land within a prescribed zone.

Furthermore, the NSW Independent Pricing & Regulatory Tribunal (IPART) have advised that they will assess an application under Part 5 of the Environmental Planning & Assessment Act, 1979 concurrent with the application for a license under the Water Industry Competition (2006) Act NSW.

This will be an activity under Part 5 of the EP&A Act and will show compliance with the Environmental WIC Act. NWS has prepared a Review of Environmental Factors (REF) for the pressure sewer and recycled water networks for the Kings Forest development.

The developer's application for each subdivision stage will coordinate the detailed drinking water, recycled water and pressure sewer reticulation networks and will supersede the NWS REF if there are any inconsistencies.

The Concept Plan Approval for the Kings Forest Development by the Department of Planning can be accessed on the NSW Department of Planning Web Site.

The concept approval was granted for the Kings Forest development as described below:

Residential development of approximately 4,500 dwellings,
Town Centre and Neighborhood Centre for future retail and commercial uses,
Open Space,
Wild Life Corridors,
Landscaping and vegetation management,
Environmental protection areas and rehabilitation of environmentally sensitive land,
Water management areas,
Roads, bicycle and pedestrian network,
Utility services infrastructure,

The Department of Planning Major Project Web Site has copies of all issued approvals and related documents.

Refer to the REF for a detailed list of all Planning Modifications for Private Water and Sewer.

For more information refer to,

- Appendix 3.5.1(b) Kings Forest Integrated Water Management Plan (T o C)
- Appendix 3.5.1(a) Kings Forest Review of Environmental Factors (REF)
- Appendix 3.5.1(c) List of all Approvals and Consents
- Note:

The REF due to size has been included as a separate Appendix on the IPART Web site and includes the Kings Forest IWMP.

3.6 Monopoly supply

3.6.1	In your opinion, will the supply of water and/ or sewage services to customers be a monopoly service? If yes, please specify whether the monopoly service is in relation to: ▾ a specified water supply or sewerage service ▾ a specified area, and ▾ a specified class of customers.

Your response to this question will be used to determine whether the Minister should consider declaring the licensee a monopoly supplier in accordance with section 51 of the WIC Act.

	The supply of drinking water, recycled water and pressure sewer services within the Kings Forest development boundary is a monopoly serviced area even though it is within the Tweed Shire Council area of operation. All customer classes will have access to these services and will be charged at the same rates for drinking water, recycled water and sewerage services as the local water and sewerage provider (TSC) for the local government area.

3.7 Licensing principles

3.7.1	How does your proposed activity address the following principles (if applicable): ▾ The protection of public health, the environment, public safety and consumers generally ▾ The encouragement of competition in the supply of water and the provision of sewerage services ▾ The ensuring of sustainability of water resources ▾ The promotion of production and use of recycled water ▾ The promotion of policies set out in any prescribed water policy document ▾ The potential for adverse financial implications for small retail customers generally arising from the activities proposed to be covered by the licence, and ▾ The promotion of the equitable sharing among participants in the drinking water market of the costs of water industry infrastructure that significantly contributes to water security?

Your response to this question will be used in consideration of the licensing principles, in accordance with section 7 of the WIC Act

The Protection of Public health, the Environment, Public Safety and Consumers generally will be protected by implementing the following steps,

* NWS operations and maintenance schemes will be implemented so the public health, the environment, public safety and all customers will be protected by introducing incident & emergency response plans, disaster recovery plans and continuous supply of services will be in full compliance with the relevant laws and regulations and meet IPART requirements when audited.

* NWS will be submitting to the EPA NSW an EPL application including a REF and IWMP. These assessments will show that no harm will be done to the environment.

* All infrastructure will be designed, installed, tested, quality assurance sign off and ITP's to the relevant codes WASA, AS3500, Plumbing Code of NSW and the Water Supply Codes of Australia.

* The recycled water will be processed to produce Class A+ recycled Water suitable for domestic reuse and uncontrolled irrigation to the end customers as to the Australian Recycled Water Guidelines (ARWG). The correct signage and color coding will be placed in the areas and on recycled water services advising the public in open space areas, sports fields and industry where in use.

* Education to the end users will be provided by NWS by way of issuing home owner manuals and posting relevant information on the NWS Web Site in regard to the responsible use of recycled water to all NWS customers and end users.

For more information refer to,
- Appendix 3.7.1(a) Kings Forest Home Owner's Manual

The Encouragement of Competition.

* NWS takes very seriously in providing affordable solutions to developers and end users in the water industry market under the WIC Act. By reducing s64 developer charges, treating all waste water onsite, providing Class A+ recycled water for domestic reuse, providing safe recycled water for uncontrolled open space irrigation, sports fields and industry and providing no offsite discharge of waste water and by products to water ways, protected SEPP 14 wet lands, aquafers which is helping protect the community health and the environment.

By providing onsite WWTP using a small foot print reduces the impact on the current public owned water utilities water and sewerage services which assists in driving their services further, reduces the cost of lead in infrastructure which all in all is making a contribution to providing affordable developed land to the market. Providing these services to the market at competitive rates under the WIC Act encourages development, provides value to the end customers and healthy competition in the NSW water industry.

The Sustainability of Water Resources.

* By encouraging the use of recycled water for domestic reuse including toilet flushing, cold water for washing machines, garden and lawn watering, wash down of paths and driveways, bin washing, uncontrolled open space irrigation areas, sports fields, golf courses, nurseries, pasture production, food production, industrial and commercial uses reduces the demand on drinking water by up to 53%, this in turn drives the existing water infrastructure further and reduces the burden on feed water resources from rivers, creeks, aquafers, oceans for the large public utilities. This in turn reduces the discharge of treated

effluent to land and waterways which is a major to contribution to protecting the environment both short term and long time.

* In most cases retrofitting existing built up areas is not really a viable option due to the implementation costs and upgrading of existing plants. By introducing the availability of private water utilities operating under the WIC Act to new green field developments to become more self-sustainable by treating all the waste water generated by the development onsite , providing recycled water for domestic reuse and other purposes, no offsite discharges to waterways and land and providing fully sealed pressure sewer networks with computer controls and reducing ground water infiltration to just 10% can only be a bonus to the governments, industry and the community at large.

The Promotion of the Production and Use of Recycled Water.

* Under the WIC Act the private water utilities like NWS have the chance to promote the use of recycled water, the benefits it provides the community and reducing the impact on the environment.
By educating the community via home owner manuals and web sites in providing information on the technologies being implemented, information on rate bills, fees and charges, community related information to the end user helps create community health, reduces the impact on the environment in their community space and reducing cost to the end user by providing recycled water at a cheaper rate than drinking water.

The Promotion of Policies Set Out in any Prescribed Water Policy Documents.

* NWS promotes sustainable water solutions where ever possible by progressive marketing, education to the public, developers and the industry as a whole. NWS provides its skill and expertise in providing new and improved technologies to further develop options that can improve future development to be of a sustainable water type that can help shape future water policies both in the short term and long term for government and communities in developing the private water sector.

The Potential for Adverse Financial Implications for Small retail Customers Generally Arising from Activities Proposed to be Covered by the License.

* NWS water charging policy is to be in line with the local water and sewerage authority in the area. Our customers are not to be financially disadvantaged but to the contrary by providing recycled water at a cheaper rate and providing access to keeping a greener environment does not create adverse financial implications.

* NWS provides concessions and medical dependent rebates the same as Government Incorporated Water Utilities and Councils.

* NWS charge the same administration fees and one off connection fees as the local water authority so our customers are not disadvantaged.

The promotion of the equitable sharing among participants in the water market of the costs of providing water industry infrastructure will significantly contribute to the water industry as a whole.

* NWS provides drinking water to all end users inside the development at the same rates as local water utility. With recycled water being made available to all customers provides a 53% reduction in drinking water charges at the higher rate. Recycled water is to be provided for all open space areas, sports fields (Council, Clubs & Schools), parks, municipal gardens and water features under agreement at no charge by NWS. This helps

provide savings and water security not only within the Kings Forest estate boundary but around the region as it assists the TSC in driving the existing infrastructure further as the TSC has issues with providing a sustainable future water supply to the region due to the water storage limitations on the existing water storage dams in the region.

* NWS is making a significant contribution in this area not only to the Kings Forest customers but the wider community as a whole.

4 Network Operator

You need to complete the following section of this form if the applicant corporation is seeking a network operator's licence**.** Please note the sections are divided into the types of infrastructure as follows:

- 4.1 Water infrastructure - drinking water
- 4.2 Water infrastructure – non potable water (including recycled water and stormwater reuse)
- 4.3 Sewerage infrastructure.

Please complete only those sections that relate to your response in question 3.2.1 above.

4.1 Water infrastructure – drinking water

Only provide a response to the questions in the following section if the applicant corporation is seeking a licence for the construction, maintenance and operation of water infrastructure for the supply of drinking water.

4.1.1	Describe the proposed drinking water infrastructure from the source of the drinking water through to the end use (i.e. catchment to tap). Please include in your description all of the infrastructure for which the applicant corporation is seeking a licence. This will include any infrastructure that is to be used for the production, treatment, filtration, storage, conveyance or reticulation of the drinking water. Please list all sources and end uses in the description. Identify the infrastructure for which the applicant corporation is seeking a licence. **Provide a detailed process flow diagram of the proposed infrastructure from source to end use in Appendix 4.1.1.**

You must attach a process flow diagram in response to this question. The process flow diagram should only include the drinking water infrastructure where the scheme includes more than one type of infrastructure and must cover the process from source to end use. You may also include a piping and instrumentation diagram for additional information.

The response to this question will be used to draft a proposed licence. The licence will specify the type of water industry infrastructure, if a licence is granted (Act s.6(1)(a)). The response will also be used to ensure you have applied for the correct licence(s) and as a context for our assessment of the applicant corporation's technical, organisational and financial capacity to undertake the activities for which you are seeking a licence (Act s.10(4)(a)).

Source of the Drinking Water Supply:

The drinking water supply will be sourced from TSC under 305-307 of the Water Management Act 2000.

The TSC have advised NWS that the requested volume of drinking water requested by NWS for the Kings Forest development is technically feasible and has been endorsed by Council. Refer to Councils letter of feasibility in Appendix 4.1.1(b) and Appendix 4.1.1(d) Kings Forest Boundary Conditions Report.

For more information refer to,

- Appendix 4.1.1(a) Description of the Drinking Water Infrastructure, (T of C)
- Appendix 4.1.1(b) TSC letter of feasibility of supply,
- Appendix 4.1.1(c) Drinking Water Process Flow Diagram,
- Appendix 4.1.1(d) Kings Forest Boundary Conditions Report, (T of C)
- Appendix 4.1.1(e) Drinking Water Master Plans
- Appendix 4.1.6(a) Kings Forest Water Balance Report, (T of C)
  Full report refer to Appendix C in the REF

4.1.2	Describe whether the infrastructure is existing infrastructure or is to be constructed. If the infrastructure is existing, please describe its current condition and operability. If the infrastructure is a mixture of existing and to be constructed **identify the infrastructure as existing or to be constructed on the process flow diagram in Appendix 4.1.1**.

The response to this question will be used as a context for the assessment of environmental risks from the proposed scheme (Act s.10(4)(e), Reg cl.7).

All the drinking water infrastructure inside the Kings Forest development boundary as detailed in this License application will be new infrastructure.

For more information refer to,

- Appendix 4.1.1(a) Drinking Water Infrastructure Description, (T of C)
- Appendix 4.1.1(c) Kings Forest Drinking Water PFD's,
- Appendix 4.1.1(e) Kings Forest Drinking Water Master Plans,

4.1.3	Describe the location of the proposed infrastructure. For example, include: ▾ the identification of specific lot descriptors (e.g. lot and DP numbers) for the production, treatment, filtration and/or storage infrastructure. ▾ the location of infrastructure for the conveyance and/or reticulation of drinking water by street name, local government area or other description as appropriate to the size of the scheme. **Provide a map showing the location of the proposed infrastructure from source to end use in Appendix 4.1.3.**

The map may include all water industry infrastructure (ie, drinking water, non-potable water and/or sewerage) where the scheme includes more than one type of infrastructure.

The response to this question is a requirement for any network operator's licence (Reg cl.6(1)(a)). The response to this question will be used to specify the authorised area of operations (Act s.11(1)), if a licence is granted. The response will also be used as a context for the assessment of environmental risks from the proposed scheme (Act s.10(4)(e), Reg cl.7).

The drinking water infrastructure described above and in Appendix 4.1.1(a) is contained within the Kings Forest development boundary and as shown in the Drinking Water Master Plans.

The drinking water storages, variable speed drive pump stations and the residual chlorine chemical dosing equipment are located at the WWTP site in Precinct 3 in the development.

Refer to the table below for a summary of the lots and DP numbers that make up the Kings Forest Estate

Lot 76, DP 755701
Lot 272 DP 755701
Lot 323 DP 755701
Lot 326 in DP 755701
Lot 6 DP 875446,
Lot 2 DP 819015
Lot 1 DP 706497
Lot 40 DP 7482
Lot 374 DP 13727
Lot 384 DP 13727
Lot 388 DP 13727
Lot I DP 129737
Lot 1 DP 781633
Lot 7 DP 875447
Lot 2 DP 1159231 (closed road)
Lot I DP 1178256 (closed road)
Lots 1,2&3 DP 1157616 (closed road)

For more information refer to,

- Appendix 4.1.1(e) Kings Forest Drinking Water Master Plan,
- Appendix 4.1.3(a) Drinking Water Plan to Source,
- Appendix 4.2.1(d) Kings Forest WWTP Site Layout Drawings,

4.1.4	Describe any interconnections between the proposed drinking water infrastructure and other infrastructure not part of this scheme (eg, interconnections with other licensed network operators or public utilities). Identify in your description who is responsible for the construction, operation and maintenance of which infrastructure. **Identify all interconnections with other infrastructure on the process flow diagram in Appendix 4.1.1 and the map in Appendix 4.1.3.**

The response to this question will be used to ensure the correct area of operation is specified in the licence, if a licence is granted (Act s.11(1)). The response will also be used as a context for the assessment of risks from the proposed scheme and to identify possible additional licence conditions relating to the inter-connected systems and responsibilities for risks.

The drinking water will be sourced from the TSC existing drinking water network located in the Tweed Coast road near the Cudgen Creek Bridge under a drinking water bulk supply agreement with the TSC once NWS has been issued the Network Operators license from IPART NSW.

A metered connection point will be located at the Tweed Coast road roundabout at the entrance to the development supplied by the TSC. From the connection point at the outlet of the meter assembly a new drinking water supply main will be installed in the road reserve in Kings Forest Way and follow the road alignment up to Precinct 3 to the new WWTP site boundary located in precinct 3 where the drinking water storages and pump stations will be located.

The TSC drinking water supply will provide directly to the drinking water network for up to the first 500 lots in Precinct 5 and will substitute drinking water to the recycled water network until Stage A of the WWTP has been completed and approved to be able to commence commercial operation.

When the AWTP is completed, commissioned and validated to commence commercial operation in Stage B (After Stage A has been completed) on or before the first 500 Lots. From this point on the Kings Forest development will be provided Class A+ recycled water for domestic reuse and uncontrolled open space irrigation from the already installed Lilac colored recycled water network installed throughout the development that was originally substituted with drinking water.

The drinking water infrastructure from the connection point at the WWTP site boundary and throughout the Kings Forest development will provide a drinking water service to each lot with an approved type stop tap, dual check valve located at 400mm inside the boundary of each lot by the developers civil works contractor. An approved type water meter will be provided by NWS upon receiving a correctly filled out connection notice, a copy of a cross flow connection certificate and the fee from the customer.

For more information refer to,

- Appendix 4.1.1(c) Drinking Water PFD diagrams,
- Appendix 4.1.1(e) Kings Forest Drinking Water Master Plans,
- Appendix 4.1.5(a) Standard Meter Drinking Water Drawings 1 & 2,

4.1.5	Where applicable, describe the connection point to customers or end users (e.g. the customer connection point may be a water meter). Identify in your description who is responsible for the construction, operation and maintenance of which infrastructure. **Identify all customer and/or end user connections on the process flow diagram in Appendix 4.1.1 and the map in Appendix 4.1.3.**

The response to this question will be used to ensure the correct area of operation is specified in the licence, if a licence is granted (Act s.11(1)). The response will also be used as a context for the assessment of risks from the proposed scheme.

NWS will provide the drinking network infrastructure as to the WASA code, AS3500 and the Plumbing Code of NSW design standards and as to the detailed master plans for the drinking water reticulation up to each lot boundary throughout the development. The drinking water infrastructure throughout the development will be provided by the developers Civil Works contractor. The drinking water infrastructure after quality assurance checks and sign off of all ITP's by NWS or its representative will then be gifted by the developer to NWS to own, operate and maintain for perpetuity.

NWS is responsible for the operation and maintenance of the drinking water infrastructure and up to the outlet of the water meter provided by NWS to each customer. After NWS has received the connection notice, the crossflow test certificate and the fees have been paid by the customer the water meter will be installed by NWS so that the customers licensed plumber can connect to the drinking water to the meter.

Each customer is responsible for the drinking water service downstream of the drinking water meter. The NSW Department of Fair Trading or delegate (Council or PCA) is responsible for the inspection of the customer's drinking water infrastructure downstream of the meter. NWS will liaise will the DOFT or its delegate to ensure compliance has been met (Providing a Cross Flow Certificate will be Mandatory) before drinking water meters can be installed by NWS.

For more information refer to,

- 4.1.1(c) Drinking Water PFD diagrams,
- 4.1.5(a) Standard Drinking Water Meter Connection Drawings 1 & 2,
- 4.1.1(e) Kings Forest Drinking Water Master Plans,

4.1.6	What volume of water is available from the proposed source? Where applicable, please provide the capacity of the source and the (allowable) average daily extraction rate from the source. If there is more than one source, please provide the requested information for each of the sources. **Where relevant, provide a copy of any agreements and/or licences to access the source water in Appendix 4.1.6.**

The response will also be used as a context for the assessment of the technical, organisational and financial capacity of the applicant corporation (Act s.10(4)(a)).

The drinking water will be sourced from the TSC existing drinking water supply network located in Tweed Coast road.

The new drinking water rising main will be connected to the TSC existing network in Tweed Coast road and the TSC will provide a new metered connection point at the new Tweed coast road roundabout at the entrance boundary to the development. The drinking water will be supplied under a 305 - 307 of the Water Management Act NSW bulk supply agreement by the TSC to NWS once NWS has been granted a Network Operators License under the WIC act (2006) NSW by IPART.

To service the Kings Forest development at the maximum yield (4,903 Lots) for drinking water only NWS will require an average daily flow of 1,385KLD at a minimum flow rate of 16L/s over a 24 hour period at the connection point by the TSC. The annual drinking water supply will be capped at 505.5MLPA.

Note: The annual and daily drinking water supply has been reduced by 53% due to NWS providing Class A + recycled water for domestic use throughout the development.

For more information refer to,

- Appendix 4.1.6(a) Kings Forest Drinking Water Balance Report, (T of C)
- Appendix 4.1.6(b) Kings Forest TSC Letter of Feasibility of Supply,

4.1.7	What volume of water will be treated by the scheme? Please provide the average and peak daily flow rates treated by the scheme.

This information will be used to determine the fee category for the scheme, if a licence is granted. The response to this question may be used to draft a proposed licence, if a licence is granted.

The treated drinking water being supplied id to the ADWG from the TSC as outlined in section 4.1.6 above.

The only requirement for any additional treatment will be the monitoring the residual chlorine level 24/7 by the NWS SCADA control system the residual chlorine levels in the 2ML storage tanks and downstream of variable speed pump stations. Manual checks will be taken at the reticulation system furthest extremities to check the residual chlorine by NWS operators on a regular basis. A sodium hypochlorite dosing system will be installed to maintain the residual chlorine levels when required.

For more information refer to,

- Appendix 4.1.9(a) Preliminary Drinking Water Risk Assessment Spread Sheet,

4.1.8	What volume of drinking water will be produced by the scheme? Please provide the average and peak daily volume supplied to end users or retail suppliers.

This information will be used to assess the retail supplier's obligation not to over commit, if a licence is granted. The response to this question may be used to draft a proposed licence, if a licence is granted.

NWS will source the drinking water required for the development from the Tweed Shire Council under a 305-307 Water Management Act 2000 NSW bulk water supply agreement between TSC and NWS.

The NWS water strategy for the Kings Forest estate has been separately developed for the site. A water balance report has been produced which takes into account the BASIX requirements and other factors in a high level conservative approach. The current water balance modelling shows that no top up for the recycled water network will be required to meet the required demand during the rollout of the development after Stage B. During Stage A up to the first 500 lots on the recycled water network will be subsidized with drinking water.

To meet the drinking water demands NWS has taken a staged approach in providing 6ML of drinking water storage, variable speed pump stations to maintain the flow, pressure and chlorine dosing to provide the required residual levels at the furthest points in the drinking water networks.

The following water demands have been used for design purposes,

(a) Average Day Demand 16L/s 1,385KLD
(b) Peak Day Demand 31L/s 2,624KLD
(c) Peak Hour Demand 33.2L/s 119.5KLH

For more information refer to,

- Appendix 4.1.1(c) Drinking Water PFD's,
- Appendix 4.1.6(a) Kings Forest Water Balance Report, (T of C)

4.1.9	**Provide your preliminary risk assessment for the scheme from source to end use in Appendix 4.1.9**. It is important that your preliminary risk assessment accurately identifies any hazards present in the source water or likely to result from the proposed treatment process. The risk assessment will also address the intended, inadvertent and unauthorised end uses (and therefore routes of exposure) to the water. The preliminary risk assessment will identify any reasonably foreseeable risk event with the potential to expose people or the environment to hazards. The preliminary risk assessment will outline the broad mitigation measures where the risk of exposure to a hazard is unacceptable to human health or the environment in order to reduce the risk of exposure. The risk assessment must also identify the events and circumstances that could adversely affect the applicant corporation's ability to carry out the activities for which the licence is sought (including any activities undertaken by a nominated third party), the probability of the occurrence of any such event or circumstance and the measures to be taken by the applicant corporation to prevent or minimise the likelihood of any such event or circumstance.

The preliminary risk assessment should demonstrate the application of a consistent methodology for identifying hazards and assessing potential impacts and risks to health and the environment. We strongly recommend that the applicant corporation utilises an established risk management system, such as outlined in AS/NZS ISO 31000:2009 (Risk management – Principles and guidelines), which is consistent with the approach outlined in the Australian Drinking Water Guidelines (element 2).

The response to this question is a requirement for any network operator's licence for water infrastructure (Reg cl.6(1)(b) and cl.6(1)(c)(ii)). The response to this question will be used to determine whether there are any issues of public interest arising from the proposed scheme (Act s.10(4)(f)). The response to this question will also be used to draft a proposed licence. The licence will specify the purpose for which the infrastructure can be used, if a licence is granted (Act s.6(1)(a)). The response will also be used to assess the applicant corporation's technical capacity to undertake the activities for which you are seeking a licence (Act s.10(4)(a)).

NWS has prepared a preliminary drinking water risk assessment in accordance with the Australian Drinking Water Guidelines.

Section 2.2.4 Hazard identification and risk assessment &

Section 2.3.2 Critical Control Points

For more information refer to,

- Appendix 4.1.9(a) Preliminary Drinking Water Risk Assessment Summary,
- Appendix 3.5.1(b) Kings Forest Integrated Water Management Plan, (T of C)

4.1.10	Describe how the 12 elements of the framework for the management of drinking water quality, as detailed in the Australian Drinking Water Guidelines (ADWG), have been addressed and will be implemented and maintained. **Provide evidence of the applicant corporation's capacity to implement the12 elements of the framework in the ADWG in Appendix 4.1.10.**

The evidence should be in the form of management plans for either the proposed scheme or other similar schemes undertaken by the applicant corporation, or in a comprehensive statement detailing the process by which the management plan will be developed. For existing (brownfield) schemes you should provide the actual water quality plan for the site.

The response to this question is a requirement for any network operator licence for water infrastructure (Reg cl.6(1)(d)(i)). The response will also be used to assess the applicant corporation's technical capacity to undertake the activities for which you are seeking a licence (Act s.10(4)(a)).

NWS has prepared a drinking water quality plan based on the 12 elements of the frame work in the ADWG.

Note: Some of the elements or components that make up the 12 element framework for the management of the drinking water quality are covered by the TSC as the producer and provider of the drinking water for the Kings Forest development.

For more information refer to,

- Appendix 4.1.10(a) Kings Forest Preliminary Drinking Water Quality Plan, (T of C)
- Appendix 3.5.1(b) Kings Forest Integrated Water Management Plan, (T of C)

4.1.11	How will the continuity of supply of the drinking water be ensured? What contingency plans are in place in the case of failure of the infrastructure? What alternative supplies of drinking water will be used when the infrastructure is inoperable?

The response to this question is a requirement for any network operator's licence for water infrastructure (Reg cl.6(1)(c)). The response to this question will be used to determine whether there are any issues of public interest arising from the proposed scheme (Act s.10(4)(f)). The response will also be used to assess the applicant corporation's technical capacity to undertake the activities for which you are seeking a licence (Act s.10(4)(a)).

NWS has insured the continuity of the drinking water supply by providing the following measures,

- NWS will have a commercial agreement in place with the TSC to supply drinking water to ADWG to the boundary gate at the required flow and pressure to supply the drinking water at an average daily demand over a 24 hour period for the Kings Forest development at 16L/s providing 1,385KLD. The supply agreement will be under section 305 - 307 of the Water Management Act NSW 2000.

- As part of the TSC drinking water supply agreement, the TSC have guaranteed the drinking water supply will not be interrupted for more than 24 hour period.

Note: For more information on the bulk drinking water supply agreement between TSC and NWS refer to the TSC letter of feasibility in Appendix 3.4.3(a).

- The required amount of redundancy has been built into the Kings Forest drinking water scheme. NWS has calculate 6ML of storage will be required. The staged storage facility will be built on the WWTP site located in Precinct 3.

- The variable speed pump stations will be provided with adequate duty standby pumping arrangements to provide continuous supply at the pressure and flow to meet the peak daily, peak hourly instantaneous and firefighting demand required throughout the networks.

- An emergency power supply has been designed into the drinking water scheme. In the event of a power failure or a notified shut down by the energy provider an emergency generator with an auto change-over switch will be activate automatically with the loss of power. This system is monitored and maintained by the NWS WWTP SCADA control system.

- NWS has developed the following contingency plans as a last resort backup in the event of an infrastructure failure which includes,

(a) Minimize the use of drinking water through customer notification by a letter drop, Web site posting and verbal contact,

(b) Rapid response to infrastructure failure by putting in place rapid response emergency plans and response times with NWS staff, site operators and contractors,

(c) If the interruption will be longer than 48 hours or the storage level is reduced to the emergency level (30%), NWS in conjunction with the TSC will organize trucking in of the drinking water by a fully qualified tanker operators from the nearest TSC fill point.

4.1.12	Describe the systems and processes that the applicant corporation will have in place to manage the water infrastructure. **Provide evidence of the applicant corporation's capacity to develop and implement an infrastructure operating plan in Appendix 4.1.12.**

The evidence may include examples of processes and procedures for either the proposed scheme or other similar schemes undertaken by the applicant corporation. The processes and/or procedures should demonstrate good operational practice including life cycle planning, system redundancy, contingency planning, condition monitoring, management maintenance processes and processes of supporting skills needs. The examples should demonstrate links to a risk management process. For existing (brownfield) schemes you should provide the actual water quality plan for the site.

The response to this question is a requirement for any network operator's licence for water infrastructure (Reg cl.6(1)(c)). The response will be used to assess the applicant corporation's technical capacity to undertake the activities for which you are seeking a licence (Act s.10(4)(a)).

NWS has adopted an Infrastructure Operating Plan (IOP) for all services which follows a common risk based approach to the operating and maintaining all the infrastructure in the Kings forest development owned by NWS. The IOP includes for Maintaining Built In Redundancy, Routine & Preventative Maintenance of all the infrastructure and equipment, asset Management and replacement when required, Contingency Planning and Operational Plans.

The final IOP will be reviewed through the IPART audit process. The IOP will comply with the requirements of the WIC Act and Table A5.1 from the Audit Guide Lines and will include the following,

- Asset Register (SMS) that details the use, age, design life, model number, capacity performance requirements of all assets in a functional software system;
- Geographical Information System (GIS) showing the location of all assets;
- Standard operating procedures;
- Emergency response plans;
- Maintenance schedules and procedures;
- Asset monitoring processors;
- Asset renewal processors;
- Process control of sinking funds;
- Processes and procedures for monitoring compliances;
- Details of roles and responsibilities;
- Training and competency requirements of staff;

For more information refer to,

- Appendix 4.1.12(a) NWS Draft Infrastructure Operating Plan, (T of C)
- Appendix 4.1.10(a) NWS Drinking Water Quality Plan, (T of C)
- Appendix 3.5.1(b) NWS Kings Forest IWMP, (T of C)

4.1.13	Describe the studies that have been completed to investigate any environmental impacts (including but not limited to water quality, quantity, air, odour, noise, sea level rise, biodiversity and Aboriginal cultural heritage) from the construction and operation of the infrastructure? Have the studies identified any significant environmental impacts from the scheme? If so, how are the environmental impacts proposed to be managed? **Provide a copy of any environmental study and/or risk assessment in Appendix 4.1.13.**

As a minimum, an application must be accompanied by a statement of environmental effects (SEE) (unless the development is designated development, Part 5 development or a major project, in which case either an environmental impact statement (EIS) or comprehensive environmental assessment is required). The SEE may be prepared by the applicant corporation or by a consultant acting on behalf of the applicant. The SEE must identify the environmental impacts of the proposed scheme, and the steps which will be taken to protect the environment or reduce the harm. Where the study is in the form of a comprehensive environmental assessment or EIS, please include only the executive summary.

The response to this question will be used to determine whether the activities authorised by a licence (if granted) present a significant risk of harm to the environment (Reg cl.7). The response to this question may be used to draft a proposed licence, if a licence is granted.

The Kings Forest Estate has planning approval under Part 3A Concept Planning Approval and Associated Council approvals.

The Environment Assessments.

The Kings Forest development has been subject to a number of related approvals assessed and granted by both the NSW Department of Planning and Environment (DOPE) and also the Tweed Shire Council (TSC) as per the standard conventional requirements.

The revised water and waste water servicing strategy now involves the use of a private water utility licensed under the WIC Act (2006) NSW to provide drinking water, recycled water and waste water services to the customers based on a Decentralized Onsite Waste Water Treatment and Water recycling model. A Part 5 approval for the Kings Forest Scheme is now being sought by NWS under the WIC Act 92006) NSW from the Minister and IPART.

To facilitate the Part 5 approval of the scheme by IPART the original Part 3A concept Planning Approval and associated project Council approvals are being amended by the developer to facilitate the use of a waste water solution under the WIC Act (2006) NSW.

The NWS IWMP is being supplied to IPART along with preparing a Review of Environmental Factors (REF) for the Par 5 approval of the Kings Forest Scheme. Once the Network Operators License is received from IPART (assuming all assessments indicate suitability) IPART can also grant approval to the activity under Part 5 of the Environmental Planning and Assessment Act, 1979.

Reticulation Networks.

NWS as the licensed Network Operator will have the ability to design and develop pressure sewer, recycled water and drinking water reticulation networks on any land within the development (Licensed area) without consent being required under Part 4 of the EP&A act. As these activities will be under the Part 5 of the EP&A Act they must show compliance with the WIC Act. NWS is preparing a review of environmental factors (REF) for the above services for the entire development.

This will be an activity under Part 5 of the EP&A Act and will show compliance with the Environmental WIC Act, NWS has prepared an REF for the pressure sewer, drinking water and recycled water networks for the Kings Forest development.

The developer's application for each subdivision stage will coordinate the detailed drinking water recycled water and pressure sewer networks and will supersede the NWS REF if there are any inconsistencies.

The Waste Water Treatment Plant Site (WWTP).

The proposed WWTP site located in Precinct 3 is to be rezoned SP2. The planning modification has been lodged with the DOPE for the development for the purpose of a Waste Water Treatment Plant and or sewerage reticulation system do not require consent if carried out by an entity licensed under the Water Industry Competition Act (2006) NSW and on land within a prescribed zone.

Furthermore, the NSW Independent Pricing & Regulatory Tribunal (IPART) have advised that they will assess an application under the Part 5 of the Environmental Planning & Assessment Act, 1979 concurrent with the application for a license under the Water Industry Competition Act (2006) NSW.

For more information refer to the following,

- Appendix 3.5.1(a) REF, (Which includes list of existing Consents & proposed Modifications In Appendix Z)
- Appendix 3.5.1(b) Kings Forest IWMP, (T of C)
- Appendix 3.5.1(c) List of environmental assessments and modifications,

4.1.14	If a treatment process forms part of the infrastructure for which the applicant corporation is seeking a licence, what waste streams will be generated by the proposed treatment plant and how will the waste be disposed of or handled?

The response to this question will be used to determine whether the activities authorised by a licence (if granted) present a significant risk of harm to the environment (Reg cl.7). The response will also be used as a context for our assessment of the applicant corporation's technical capacity to undertake the activities for which you are seeking a licence (Act s.10(4)(a)).

NWS will not be providing feed water for further onsite treatment to provide drinking water for the Kings Forest development. The drinking water will be supplied under agreement with the TSC therefor no waste steams will be generated by NWS.

4.2 Water infrastructure – non-potable water

Only provide a response to the questions in the following section if the applicant corporation is seeking a licence for the construction, maintenance and operation of water infrastructure for the supply of non-potable water.

4.2.1	Describe the proposed non-potable water infrastructure from the source of the water through to the end use (ie, catchment to tap). Please include in your description all of the infrastructure for which the applicant corporation is seeking a licence. This will include any infrastructure that is to be used for the production, treatment, filtration, storage, conveyance or reticulation of the non-potable water. Please list all sources and end uses in the description. Identify the infrastructure for which the applicant corporation is seeking a licence. **Provide a detailed process flow diagram of the proposed infrastructure from source to end use in Appendix 4.2.1.**

You must attach a process flow diagram in response to this question. The process flow diagram should only include the non-potable water infrastructure where the scheme includes more than one type of infrastructure and must cover the process from source to end use. You may also include a piping and instrumentation diagram for additional information.

The response to this question will be used to draft a proposed licence. The licence will specify the type of water industry infrastructure, if a licence is granted (Act s.6(1)(a)). The response will also be used to ensure you have applied for the correct licence(s) and as a context for our assessment of the applicant corporation's technical, organisational and financial capacity to undertake the activities for which you are seeking a licence (Act s.10(4)(a)).

The infrastructure that is involved in the production of the recycled water, storage and distribution is listed below.

Note: All waste water generated on the Kings Forest Estate is treated on site via the NWS Membrane Bioreactor (MBR) WWTP which will have a peak capacity after Stage D of 1,980KLD. The total average daily flow is 1,827KLD including and allowance of 10% for i&i.

All in coming waste water from the pressure sewer network is stored in two x 330KL redundancy tanks which provide extra redundancy to the system to accommodate the morning and evening peak flows and provide extra redundancy in the case of an emergency. When each MBR inlet tank signals that it needs more waste water, the inlet valve mounted on the inlet side of the screening unit inlet tank will open. The waste water then goes primary treatment in the screening unit with a 1mm perforated plate inlet screen to ensure the removal of gross solids, hair, grit and other pollutants to protect the downstream processes and the submerged membranes.

The screening unit automatically dewaters and stores the solids collected from the screen in a bagging unit. When each bag is full it will be removed from the site by a licensed solid waste removal contractor and taken to the nearest accepting landfill facility.

The MBR WWTP General Operation Description.

The primary treated wastewater from the inlet screen is discharged into the inlet tank. The inlet tank provides buffer storage capacity to ensure the flow of waste water into the downstream treatment process is controlled.

If the inlet tank is full during peak periods the flow of the waste water from the pressure sewer network will be stored in the redundancy tanks and the redundancy built into the pressure sewer network until one of the screening units inlet tanks are ready to receive more waste water.

The primary treated waste water from the inlet tank is pumped into the anaerobic tank is used to pre-condition the waste water microorganisms for the downstream biological processes.

The wastewater from the anaerobic tank is then pumped to the anoxic tank where it is mixed with nitrified water from the aeration tank to create conditions suitable for denitrification to occur. Excess liquid from the anoxic tank flows back to the anaerobic tank via the overflow weir. Acetic acid will be supplied to the anoxic as an additional carbon source for denitrification.

Waste water from the anoxic tank is pumped into the aeration tank where microorganisms break down the BOD and nitrify ammonia. Excess liquid from the aeration tank flows back to the anoxic tank via the overflow weir.

Dissolved oxygen (DO) in the aeration tank is maintained to an adjustable set point of 2 mg/L via continuous online monitoring of DO and a variable speed drive blower unit that supplies the submerged fine bubble diffusers grid located in the base of the aeration tank.

The system operates with a high biomass concentration of around 8000-13000mg/L MLSS. The MLSS concentration in the aeration tank can be maintained during low demand periods with supplementary carbon dosing into the anoxic tank if required.

The waste activated sludge (WAS) is pumped from the MBR tank when the MLSS increases above 13,000 mg/L and will be stored in the two 30KL Sludge holding tanks until it is removed from the site by a licensed liquid waste transport contractor to the nearest accepting licensed facility.

Waste water from the aeration tank is pumped into the submerged membrane tank. Excess waste water from the membrane tank flows back to the aeration tank via an overflow weir.

The MBR tank includes 3 double tiered modules of submerged membranes which provide a peak day flow of 330KLD. The MBR permeate is drawn through the submerged membranes under an outside inside arrangement from a dry mounted vacuum suction pump located adjacent the MBR tank. The membranes are cleaned by air scour headers by coarse bubble diffusers located at the base of the membrane module.

The permeate generated by the MBR system is continuously being monitored for turbidity, pH, TDS, Nitrogen and Phosphorous levels. The trans-membrane pressure (TMP) and flow to ensure the system is operating effectively. Membrane cleaning regimes are implemented on a routine basis as per the manufacture recommendations and/or when the TMP reaches a set point.

The MBR permeate passes through a pre-validated inline ultra-violet disinfection unit to provide an additional disinfection barrier in the treatment train. The UV unit will achieve a 3 log removal reduction in bacteria and protozoa. The UV system is continuously monitored for UV intensity, UV transmission, Flow and Lamp run hours to ensure the system is operating correctly and effectively.

Typical Effluent Quality from the MBR is outlined below,

BOD/SS	<10mg/L
pH	6-8.5
Turbidity	<1 NTU
TN	<10mg/L
TP	<0.3mg/L
TDS	700-850mg

Stage B - The Advanced Water Treatment Plant (AWTP).

Two .8MLD Ultra Filtration (UF) skids that make up the AWTP will further process the MBR Class A permeate to produce Class A+ recycled water suitable for domestic reuse as to the Australian Recycled Water Guide Lines will be installed inside the WWTP building during Stage B of the WWTP staged construction. It will be commissioned and operational by the time the first 400 to 500 lots have been connected to the scheme.

Note: Prior to the first 400 to 500 lots being connected to the scheme the recycled water network will be substituted with drinking water.

The feed water for the AWTP will be transferred from the 2ML permeate storage tank located adjacent the WWTP building on the WWTP site in precinct 3. The surplus permeate will accumulate in the 2ML permeate storage tank and will be managed by land irrigation in Stage A or offsite discharge to the TSC existing sewerage network. Once the AWTP becomes operational in Stage B the volume of surplus permeate will reduce due to it being used as the feed water to the AWTP to produce the supply of Class A+ recycled water to the households and other end users.

The preliminary information on recycled water use, log reduction targets for the proposed treatment train are outlined below.

The Class A+ Recycled Water Quality, Uses and log Reduction Targets,

BOD/SS	<5mg/L
pH	6.5 - 8.5
Turbidity	<1 NTU
TN	<7mg/L
TP	<25mg/L
TDS	500mg/L
Virus	6 Log Removal
Protozoa	7 Log Removal

The Class A+ Recycled Water Supplied to the Individual Customers will be used for the following uses,

Toilet Flushing;
Laundry washing machine cold water service (Hard Plumbed);
Outdoor cleaning including bin washing, car washing general hosing down of foot paths and driveways; and
Irrigation of private lot gardens and lawns;
Water features throughout the development;
Uncontrolled irrigation of Open space areas, sports fields, parks and road verges;
Industrial uses such as Cooling Towers, Urinals, Concrete products;
Nurseries, Golf Courses and food crops;
Pasture production;

The AWTP is designed to produce a high quality Class A+ recycled water that complies with the highest bacteria, virus and protozoa log reduction targets for dual reticulation from the Australian Guidelines for Water Recycling: Managing Health and Environmental Risks (Phase 1) (NRMMC; EPHC: AHMC 2006).

An overview of the log reduction targets and log reduction credits being claimed for processes in the AWTP process are outlined below.

NWS Pathogen Log Reduction Targets and credits being Claimed for the AWTP at Kings Forest.

Pathogen Log Reduction Target and Credits Being Claimed for the AWTP

Target Pathogen	Log Reduction Target1	Log Reduction Credits Claimed for AWTP				
		MBR + UV	Ultrafiltration Membrane	Ultraviolet Disinfection	Chlorine Contact	Total Log Reduction
Bacteria	5.3	0	4	3	4	11
Virus	6.5	0	4	0	4	8
Protozoa	5.1	0	4	3	0	7

1 From Table 3.7 in Australian Guidelines for Water Recycling: Managing Health and Environmental Risks (Phase 1) with recycled water used for dual reticulation.

4.2.1 AWTP Processes Description

Pre-validated/accredited Ultrafiltration membrane skids;
Ultraviolet disinfection unit; and
Chlorine contact tank.

An overview of the AWTP process is provided in the PFD in Appendix 4.2.1(a). All equipment selected for the AWTP must have USEPA pre-validation for the UF skids and UV units.

The salinity control in the recycled water system will be provided by using a side stream of drinking water which will be used to maintain recycled water TDS less than 600 mg/L.

A description of each of the AWTP unit processes and preliminary Critical Control Points are outlined below.

Process	AWTP Process Description and Preliminary Critical Control Points
Ultrafiltration Membranes	The Ultrafiltration Membrane units (2 x 1.2MLD) will be installed into the WWTP building and will draw water from the 2ML Permeate Storage Tank when the water level in the recycled water storage tank drops below the set point (70%). The proposed UF units are of a skid mounted type to be supplied and commissioned by the selected equipment supplier and will be supplied with INGE brand membranes or equal. The skids are a complete factory tested package type units and contain the membrane modules, pumps, controls and mechanical equipment to operate the units. The installation of the units in the WWTP building will be by NWS. The membranes have been pre-validated based on USEPA guidelines (USEPA, 2005) to achieve >5 Log virus removal, however 4 log is being claimed for the process. The preliminary Critical Control Points (CCP) and Critical Limits (CL) for the UF system from the manufacturers pre-validation information are: Max permeate flow per skid 15.8 L/s (for downstream UV and CCT processes); Transmembrane Pressure < 201.5 KPA; Average normalised flux of <100 L/m2/hr; Direct Integrity Test pressure decay <1 KPA/minute at 1 bar hold pressure; Permeate turbidity <0.15 NTU (95%ile) and < 0.5 NTU shut down. All CCPs will be continuously monitored with alarms and automatic shutdown if the critical limits are reached and be mirrored to WWTP SCADA System CCPs and CLs are subject to refinement during detailed design and commissioning stage.
Ultraviolet Disinfection	Recycled Water from the UF is directed straight into an inline UV disinfection unit. The UV unit will be USEPA accredited (USEPA, 2006) unit with a pre-validated dose to achieve 3 log reduction in bacteria and protozoa at 60% UVT. The preliminary Critical Control Point and Critical Limits for the UV from the manufacturers pre-validation information are: Max flow of <15 L/s per unit as measured on the UF permeate line; Max pressure < TBC with manufacturer; UVT of incoming water >60%; UV Intensity inside the UV reactor > TBC with manufacturer; Lamp run life; Lamp faults. The CCPs will be continuously monitored with alarms and automatic shutdown if the critical limits are reached. CCPs and CLs are subject to refinement during the detailed design and commissioning phase.

Chlorine Contact Tank	Water from the inline UV disinfection units is discharged into the chlorine contact tank (CCT). The CCT has been designed to achieve the CT values to achieve a 4-log reduction in viruses as outlined in using the design process documented in the USEPA Disinfection Profiling and Benchmarking Technical Guidance Manual (USEPA, 2003). The CCT will include: 60 minutes total hydraulic detention time with liquid volume of >52 kL in each tank; A Baffled reactor to maximise mixing and plug flow. Target CT value of 16, based on a pH of 8 and a temperature of 100C. Sodium hypochlorite dosing using variable speed dosing pumps; Continuous online monitoring of pH and free chlorine with dosing facilities. The preliminary Critical Control Points and Critical Limits for the CCT are: pH 6.5 to 8; Free chlorine at the CCT outlet >0.6 mg/L; Maximum flow of 15 L/s as measured on the UF Recycled Water Flow line; Water level monitoring to ensure detention time control; The CCPs will be continuously monitored with alarms and automatic shutdown if the critical limits are reached. CCPs and CLs are subject to refinement during detailed design and commissioning phase.
Residual Chlorination	The treated recycled water from the CCT with a minimum free chlorine residual of 0.6 mg/L is pumped into the 2 x 2 ML recycled water storage tanks. Chlorine residual in the recycled water storage tanks will be maintained using a recirculation system with continuous chlorine monitoring and dosing at the discharge of the Recycled Water Variable Speed Pump sets. Sufficient free chlorine residual will be maintained in the recycled water to ensure the minimum free residual chlorine is achieved at the furthest points in the reticulation networks. Seasonal chlorine dosing rates will be determined during operation to achieve the minimum residuals required throughout the network. The recycled water storage tank is a sealed tank to prevent vermin and mosquito access. All required tank openings, like overflows, will be screened with mosquito proof mesh. The preliminary Critical Control Points and Critical Limits for the recycled water storage is: Free chlorine on supply >0.6 mg/L (or higher set point to maintain residuals throughout the network); Weekly visual inspection for evidence of tank damage or vermin access. The free chlorine CCP will be continuously monitored with alarms and automatic shutdown if the critical limits are reached. CCPs and CLs are subject to refinement during detailed design and the commissioning phase.

4.3 Waste Products generated by the processes at the WWTP Site

4.3.1 MBR Screenings

All influent to the MBR Modules receives primary treatment by a 1 mm perforated plate inlet screen to remove hair, gross pollutants and other foreign matter in the inlet tank of the screening Unit. The screen includes a rotating brush, dewatering auger and automatic bagging unit to avoid operator contact with screenings. As each bag is filled with dewatered screening at approximately fortnightly intervals the waste will be disposed of by a licensed waste transport contractor to an approved solid waste landfill facility.

4.4 Waste Products generated by the processes at the WWTP Site

4.4.1 MBR Screenings

All influent to the MBR Modules receives primary treatment by a 1 mm perforated plate inlet screen to remove hair, gross pollutants and other foreign matter in the inlet tank of the screening Unit. The screen includes a rotating brush, dewatering auger and automatic bagging unit to avoid operator contact with screenings. As each bag is filled with dewatered screening at approximately fortnightly intervals the waste will be disposed of by a licensed waste transport contractor to an approved solid waste landfill facility.

Note: No backwash from the AWTP process is discharged off site.

The Recycled Water Supply

All recycled water from the AWTP is stored in the 2 x 2 ML recycled water storage tanks. The 4 ML of recycled water storage provides more than 48 hours storage at ultimate peak day recycled water demands.
During Stage A the 2ML recycled water tank will be filled with potable water. Once the AWTP is commissioned and signed off for commercial operation by IPART in stage B (After the first 500 lots) the 2ML storage tank will be filled with Class A+ recycled water from the AWTP and drinking water will only be used for top-up and emergency backup to the recycled water system.

The chlorine residual in the recycled water storage tank will be maintained with continuous on line monitoring and providing top up dosing when required. Sufficient free chlorine residual will be maintained in the recycled water network to ensure the minimum free residual chlorine is achieved at the furthest point in the reticulation system at all times.

24/7 monitoring of the chlorine dosing rates will be carried out during operation to achieve the minimum residuals required throughout the network.

The recycled water storage tanks will be operated based on the set points outlined below.

Recycled Water Storage Tank Operation

>99% full	Shut down AWTP
<70% full	Start AWTP
>50% full	Open drinking water top-up valve
<30% full	Close drinking water top up valve – Low Level Alarm
<20% full	Critical alarm
<5% full	Shut off recycled water supply pumps

1. Set points are adjustable and will be optimized by the operator during operation. Recycled water from the 4 ML recycled water storage will be supplied to customers through a separate purple pipe network using a variable speed drive pump stations located at the WWTP site. An emergency standby diesel generator with automatic changeover switch for the WWTP operation will be provided to back up the recycled water supply pumps to ensure provision of essential services is continuously maintained.

For further information refer to Appendices,

- Appendix 4.2.1(a) Recycled Water PFD Diagram,

- Appendix 4.2.1(b) Kings Forest P&IDs, Refer To Appendix I in the REF

- Appendix 4.2.1(c) Kings Forest Recycled Water Master Plans,

- Appendix 4.2.1(d) Kings Forest WWTP Layout Drawings,

- Appendix 4.2.1(e) Kings Forest Waste Water Discharge BCR Report, (T of C)

- Appendix 4.3.10(e) Kings Forest HAZOP & HAZID Workshop Report, Refer To Appendix I in the REF

4.2.2	Describe whether the infrastructure is existing infrastructure or is to be constructed. If the infrastructure is existing, please describe its current condition and operability. If the infrastructure is a mixture of existing and to be constructed **identify the infrastructure as existing or to be constructed on the process flow diagram in Appendix 4.2.1**.

The response to this question will be used as a context for the assessment of environmental risks from the proposed scheme (Act s.10(4)(e), Reg cl.7).

All the Recycled Water infrastructure to be designed and installed at the Kings Forest Estate is new.

For more information refer to,

- Appendix 4.2.1(c) Kings Forest Recycled Water Master Plan,

4.2.3	Describe the location of the proposed infrastructure. For example include: ▾ The identification of specific lot descriptors (eg, lot and DP numbers) for the production, treatment, filtration and/or storage infrastructure. ▾ The location of infrastructure for the conveyance and/or reticulation of non-potable water by street name, local government area or other description as appropriate to the size of the scheme. **Provide a map showing the location of the proposed infrastructure from source to end use in Appendix 4.2.3.**

The map may include all water industry infrastructure (ie, drinking water, non-potable water and/or sewerage) where the scheme includes more than one type of infrastructure.

The response to this question is a requirement for any network operator's licence for water infrastructure (Reg cl.6(1)(a)). The response to this question will be used to specify the authorised area of operations (Act s.11(1)), if a licence is granted. The response will also be used as a context for the assessment of environmental risks from the proposed scheme (Act s.10(4)(e), Reg cl.7).

The Recycled Water infrastructure is contained in the Kings Forest Development boundary as described above.

The AWTP, Storages, Pumps and chemical dosing equipment is contained on the WWTP in Precinct 3. The Lilac colored recycle water network will run throughout the Kings Forest development.

For more information refer to,

- 3.2.5(c) Kings Forest Development ET table and Precinct Master Plan,
- 4.2.1(c) Kings Forest Recycled Water Master Plan,
- 4.2.1(d) Kings Forest WWTP Layout Plans,

4.2.4	Describe any interconnections between the proposed non-potable water infrastructure and other infrastructure not part of this scheme (eg, interconnections with other licensed network operators or public utilities such as sewers or water mains). Identify in your description who is responsible for the construction, operation and maintenance of which infrastructure. **Identify all interconnections with other infrastructure on the process flow diagram in Appendix 4.2.1 and the map in Appendix 4.2.3.**

Examples of interconnections may include potable water top up or trade waste disposal, as well as to other network operators.

The response to this question will be used to ensure the correct area of operation is specified in the licence, if a licence is granted (Act s.11(1)). The response will also be used as a context for the assessment of risks from the proposed scheme and to identify possible additional licence conditions relating to the inter-connected systems and responsibilities for risks.

There are no interconnections with any other outside water sources for the recycled water scheme for the Kings Forest development.

Drinking water top up/back up will be provided by a connection to the recycled water storage tanks via a 300mm physical air gap for back flow protection.

Prior to NWS issuing and installing a recycled water meter to any customer, the customer must provide a copy of a cross flow connection test certificate from the authority PCA with their connection application to NWS.

For more information refer to,

- Appendix 4.2.1(a) Kings Forest Recycled Water PFD's,

4.2.5	Where applicable, describe the connection point to customers or end users (eg, the customer connection point may be a water meter). Identify in your description who is responsible for the construction, operation and maintenance of which infrastructure. **Identify all customer and/or end user connections on the process flow diagram in Appendix 4.2.1 and the map in Appendix 4.2.3.**

The response to this question will be used to ensure the correct area of operation is specified in the licence, if a licence is granted (Act s.11(1)). The response will also be used as a context for the assessment of risks from the proposed scheme.

NWS is responsible for the Recycled Water network from the source to the end customer within the Kings Forest development boundary.

The detailed design and master plan for the construction of the recycled water infrastructure from the connection point at the WWTP boundary to the networks that run throughout the development and the recycled water service from street main to the stop tap located 400mm inside of each customer boundary. These services will be provided by the developer and signed off by NWS.

The developer upon completion of the construction of the staged recycled water network and achieving the necessary sign offs including quality assurance, pressure testing and ITPs from NWS, will gift the recycled water infrastructure to NWS to own and operate up stream of the recycled water stop tap and meters.

NWS will provide the recycled water meter to the customer upon receiving a completed connection notice to NWS from the customer/property owner's builder and must provide a cross flow test certificate as a prerequisite by NSW Fair Trading or its delegate before a recycled water meter can be issued and installed by NWS.

For more information refer to Appendices,

- Appendix 4.2.1(a) Kings Forest Recycled Water PFD's,

- Appendix 4.2.1(c) Kings Forest Recycled Water Master Plans,

- Appendix 4.2.5(a) Recycled Water Service to Meter Drawings 1 & 2,

4.2.6	What volume of water is available from the proposed source? Where applicable, please provide the capacity of the source and the (allowable) average daily extraction rate from the source. If there is more than one source, please provide the requested information for each of the sources. **Where relevant, provide a copy of any agreements and/or licences to access the source water in Appendix 4.2.6.**

The response will also be used as a context for the assessment of the technical, organisational and financial capacity of the applicant corporation (Act s.10(4)(a)).

The source for the recycled water is from the waste water generation from the Kings Forest development. The projected waste water generation is approximately 1,827kL/day. After losses by the treatment by the MBR and AWTP the recycle water production volume will be 1,790kL/day.

As outlined above drinking water will be substituted in Stage A for up to the first 500 lots. The AWTP to produce the Class A+ recycled water for domestic reuse will be completed for commercial operation in Stage B.

After that time, the recycled water will be supplied to the network and drinking water will be provided as back up in the case of an emergency. As detailed in the Kings Forest Water Balance report there is a surplus of recycled water throughout the development stages even taking into account the open space and sports field irrigation requirements as to the application rates detailed in the Kings Forest soil assessment report and the Kings Forest Water Balance Report.

For more information refer to Appendices,

- Appendix 3.5.1(a) Kings Forest REF,

- Appendix 4.2.1(a) Kings Forest Recycled Water PFD's,

- Appendix 4.3.13(a) Kings Forest Soil & Geotechnical Assessment Report, (T of C)

- Appendix 4.1.6(a) Kings Forest Water Balance Report, (T of C)

4.2.7	What volume of water will be treated by the scheme? Please provide the average and peak daily flow rates treated by the scheme.

This information will be used to determine the fee category for the scheme, if a licence is granted. The response to this question may be used to draft a proposed licence, if a licence is granted.

The Kings Forest AWTP can treat up to 1.6MLD of MBR permeate. All waste water generated by the Kings Forest development will be pre-treated by the MBR WWTP. The treated effluent permeate will then provide the source feed water for the AWTP to further process and provide the Class A+ recycled water as the end product to be used for domestic reuse.

The recycled water is then stored in the 2 x 2ML Storage Tanks located at the WWTP site to provide the redundancy necessary to meet the morning, evening peaks and irrigation requirements when required. The storage also provides more than 48 hours emergency storage if required to meet the schemes requirements for recycled water for domestic reuse, open space area and sports field area irrigation purposes an average daily volume of 1,530kL/day will be provided by the scheme.

Average Day Flow Rate 17.7l/S 1,530kL/day

Peak Day Flow Rate 20.7l/S 1,790kL/day

Peak Hour Flow Rate 23.2l/S 83.5k/L/hour

For more information refer to,

- Appendix 4.1.6(a) Kings Forest Water Balance Report, (T of C)

4.2.8	What volume of non-potable water will be produced by the scheme? Please provide the average and peak daily volume supplied to end users or retail suppliers.

This information will be used to assess the retail supplier's obligation not to over commit, if a licence is granted. The response to this question may be used to draft a proposed licence, if a licence is granted.

The Kings Forest recycled water scheme has the capacity to produce 1,600kL/day of Class A+ recycled water.

The scheme will require 1,530kL/day and the balance will be used for other purposes both onsite and offsite but not limited to,

- Industrial uses,

- Agricultural uses,

- Nurseries,

- Golf Courses, road verges and water features,

For more information refer to,

- Appendix 4.1.6(a) Kings Forest Water Balance Report, (T of C)

4.2.9	List all the intended end uses for the non-potable water generated by the scheme.

The response to this question will be used to determine whether there are any issues of public interest arising from the proposed scheme (Act s.10(4)(f)). The response to this question will also be used to draft a proposed licence. The licence will specify the purpose for which the infrastructure can be used, if a licence is granted (Act s.6(1)(a), Reg cl.8(1)).

The NWS Kings Forest scheme will provide recycled water for the following end uses,

Toilet flushing;
Laundry washing machine cold water service, hard plumbed;
Outdoor cleaning including bin washing, car washing and general hosing down of foot paths and driveways; and
Irrigation of private lot gardens and lawns;
Water features throughout the development;
Open space irrigation for sports fields, parks and road verges;
Industrial uses Cooling Towers, Urinals, Concrete production;
Nurseries, Golf courses and food crops;

There is an excess of recycled water as indicated in the water balance report. The excess occurs when we have wet weather events on an average of 132 days PA, when these events happen the excess permeate is discharged to the TSC sewerage system under a trade waste agreement with TSC. NWS has allowed in its modelling that at least 50% of the excess will be taken up during the build out of the development for open space, verge, water features and commercial uses over the 15/20 year period. The other 50% if available at the time will be provided for offsite customers which include golf course, nurseries and agricultural use if no customers are available any excess treated effluent will be discharged to the TSC existing sewerage network.

For more information refer,

- Appendix 4.1.6(a) Kings Forest Water Balance Report, (T of C)

4.2.10	**Provide your preliminary risk assessment for the scheme from source to end use in Appendix 4.2.10**. It is important that your preliminary risk assessment accurately identifies any hazards present in the source water or likely to result from the proposed treatment process. The risk assessment will also address the intended, inadvertent and unauthorised end uses (and therefore routes of exposure) to the non-potable water. The preliminary risk assessment will identify any reasonably foreseeable risk event with the potential to expose people or the environment to hazards. The preliminary risk assessment will outline the broad mitigation measures where the risk of exposure to a hazard is unacceptable to human health or the environment in order to reduce the risk of exposure. The risk assessment must also identify the events and circumstances that could adversely affect the applicant corporation's ability to carry out the activities for which the licence is sought (including any activities undertaken by a nominated third party), the probability of the occurrence of any such event or circumstance and the measures to be taken by the applicant corporation to prevent or minimise the likelihood of any such event or circumstance.
The preliminary risk assessment should demonstrate the application of a consistent methodology for identifying hazards and assessing potential impacts and risks to health and the environment. We strongly recommend that the applicant corporation utilises an established risk management system, such as outlined in AS/NZS ISO 31000:2009 (Risk management – Principles and guidelines), which is consistent with the approach outlined in the Australian Guidelines for Water Recycling (element 2).	
The response to this question is a requirement for any network operator's licence for water infrastructure (Reg cl.6(1)(b) and cl.6(1)(c)(ii)). The response to this question will be used to determine whether there are any issues of public interest arising from the proposed scheme (Act s.10(4)(f)). The response to this question will also be used to draft a proposed licence. The licence will specify the purpose for which the infrastructure can be used, if a licence is granted (Act s.6(1)(a), Reg. cl.8(1)). The response will also be used to assess the applicant corporation's technical capacity to undertake the activities for which you are seeking a licence (Act s.10(4)(a)).	
NWS has prepared a preliminary risk assessment in accordance with sections of the "Australian Guidelines for Water Recycling": Managing Health and Environmental Risks (Phase-1) 2006. For more information refer to, - Appendix 4.2.10(a) Preliminary Non Potable Water Risk Assessment Summary.	
4.2.11	Describe how the 12 elements of the framework for the management of recycled water, as detailed in the Australian Guidelines for Water Recycling (AGWR), have been addressed and will be implemented and maintained. **Provide evidence of the applicant corporation's capacity to implement the 12 elements of the framework in the AGWR in Appendix 4.2.11.**
The evidence should be in the form of management plans for either the proposed scheme or other similar schemes undertaken by the applicant corporation, or in a comprehensive statement detailing the process by which the management plan will be developed. For existing (brownfield) schemes you should provide the actual water quality plan for the site.	

The response to this question is a requirement for any network operator's licence for water infrastructure (Reg cl.6(1)(d)(i)). The response to this question will also be used to draft a proposed licence. The licence will specify the purpose for which the infrastructure can be used, if a licence is granted (Act s.6(1)(a), Reg. cl.8(2)). The response will also be used to assess the applicant corporation's technical capacity to undertake the activities for which you are seeking a licence.

NWS has prepared a preliminary recycled water quality management plan (RWMP) including the 12 elements of the framework for the management of recycled water, as detailed in the Australian Guidelines for Water Recycling (AGWR)

For more information refer to,

- Appendix 4.2.11(a) Preliminary Recycled Water Quality Management Plan, (T of C)

4.2.12	How will the continuity of supply of the non-potable water be ensured? What contingency plans are in place in the case of failure of the infrastructure? What alternative supplies of non-potable water will be used when the infrastructure is inoperable?

The response to this question is a requirement for any network operator's licence for water infrastructure (Reg cl.6(1)(c)). The response to this question will be used to determine whether there are any issues of public interest arising from the proposed scheme (Act s.10(4)(f)). The response will also be used to assess the applicant corporation's technical capacity to undertake the activities for which you are seeking a licence (Act s.10(4)(a)).

NWS has put in place the following to ensure the continuity of supply in case there is a failure in the recycled water infrastructure at the Kings Forest development,

1. 48 hours redundancy has been built into the storage facility of 4ML,

2. The variable speed pumping units have duty/standby configurations built in,

3. NWS has an agreement with TSC for drinking water back up/ top up in an emergency,

4. Emergency Generator power supply has been provided in the case of a power failure,

5. Trucking arrangements will be put in place with a fully licensed operator in the case of an extreme emergency to truck in drinking water,

NWS will develop detailed contingency plans in the event of infrastructure failure. The contingency plans are included in the NWS Infrastructure Operating Plan and include,

- Minimizing the use of recycled water through customer notification by Web site, Media outlets, Mail or Verbal contact with customers in the Kings Forest Community.

- Providing emergency response network set up to go in the case of an emergency.

For more information refer to Appendices,

- Appendix 4.1.6(a) Kings Forest Water Balance Report, (T of C)

- Appendix 3.5.1(b) Kings Forest IWMP, (T of C)

- Appendix 4.1.12(a) Kings Forest IOP, (T of C)

- Appendix 4.2.11(a) Kings Forest Recycled Water Quality Management Plan, (T of C)

4.2.13	Describe the systems and processes that the applicant corporation will have in place to manage the non-potable water infrastructure. **Provide evidence of the applicant corporation's capacity to develop and implement an infrastructure operating plan in Appendix 4.2.13.**

The evidence may include examples of processes and procedures for either the proposed scheme or other similar schemes undertaken by the applicant corporation. The processes and/or procedures should demonstrate good operational practice including life cycle planning, system redundancy, contingency planning, condition monitoring, management maintenance processes and processes of supporting skills needs. The examples should demonstrate links to a risk management process. For existing (brownfield) schemes you should provide the actual water quality plan for the site.

The response to this question is a requirement for any network operator's licence for water infrastructure (Reg cl.6(1)(c)). The response will also be used to assess the applicant corporation's technical capacity to undertake the activities for which you are seeking a licence (Act s.10(4)(a)).

NWS has produced an Integrated Water Management Plan for the Kings Forest Development which covers in detail the above and should be read in conjunction with the Recycled Water Quality Management Plan, Water Infrastructure Operating Plan, The Recycled Water Risk Assessment and the Functional Specification. The HAZOP and HAZID for the Recycled Water Infrastructure have been produced as a result from workshops assessing the Functional Specifications for the Kings Forest Scheme. These reports have been produced and have been included in the IWMP with this application.

For more information refer to,

- Appendix 3.5.1(b) Kings Forest Integrated Water Management Plan, (T of C)

- Appendix 4.1.6(a) Kings Forest Water Balance Report, (T of C)

- Appendix 4.1.12(a) Kings Forest IOP, (T of C)

- Appendix 4.2.1(a) King Forest Recycled Water PFDs,

- Appendix 4.2.1(b) Kings Forest P&IDs, Refer To Appendix I in the REF

- Appendix 4.2.10(a) Kings Forest Recycled Water Preliminary Risk Assessment, (T of C)

- Appendix 4.2.11(a) Kings Forest Recycled Water Quality Management Plan, (T of C)

- Appendix 4.3.10(b) Kings Forest MBR Operations & Maintenance Manual, (T of C)

- Appendix 4.3.10(e) Kings Forest HAZOP & HAZID workshop report, (T of C) Refer To Full Report In Appendix I in the REF

4.2.14	Describe the studies that have been completed to investigate any environmental impacts (including but not limited to water quality, quantity, air, odour, noise, sea level rise, biodiversity and Aboriginal cultural heritage) from the construction and operation of the infrastructure? Have the studies identified any significant environmental impacts from the scheme? If so, how are the environmental impacts proposed to be managed? **Provide a copy of any environmental study and/or risk assessment in Appendix 4.2.14.**

As a minimum an application must be accompanied by a statement of environmental effects (SEE) (unless the development is designated development, Part 5 development or a major project, in which case either an environmental impact statement (EIS) or comprehensive environmental assessment is required). The SEE may be prepared by the applicant corporation or by a consultant acting on behalf of the applicant. The SEE must identify the environmental impacts of the proposed scheme, and the steps which will be taken to protect the environment or reduce the harm. Where the study is in the form of a comprehensive environmental assessment or EIS, please include only the executive summary.

The response to this question may be used to draft a proposed licence, if a licence is granted. The response to this question will be used to determine whether the activities authorised by a licence (if granted) present a significant risk of harm to the environment (Reg cl.7).

NWS is preparing a Review of Environmental Factors that will be submitted shortly after this application for the WWTP site and reticulation areas as part of the planning requirements under Part 5. Included in the REF is the EPL WWTP & EPL Pressure Sewer Works Application to EPA NSW, SEE, CEMP, Odor Report, Noise Testing Report, Soil Assessment, Open Space & Sports Fields Irrigation Management Plan, Storm Water Management Plan, Civil Works, WWTP layout drawings and all other relevant studies issued with the development planning proposal by the developer.

For more information refer to the following Appendices,

- Appendix 3.5.1(a) Kings Forest REF,

- Appendix 3.5.1(b) Kings Forest IWMP, (T of C)

- Appendix 3.5.1(c) List of Environmental Assessments and Modifications,

4.2.15	If a treatment process forms part of the infrastructure for which the applicant corporation is seeking a licence, what waste streams will be generated by the proposed treatment plant and how will the waste be disposed of or handled?

The response to this question will be used to determine whether the activities authorised by a licence (if granted) present a significant risk of harm to the environment (Reg cl.7). The response will also be used as a context for our assessment of the applicant corporation's technical capacity to undertake the activities for which you are seeking a licence (Act s.10(4)(a)).

The waste streams created by the Kings Forest development are from the waste water processes. All waste water generated from within the Kings Forest development boundary will be transported by the pressure sewer networks to the redundancy tanks located on the WWTP site for processing by the MBR WWTP. Note All waste water from the Kings Forest development is treated on site by the Kings Forest WWTP located in precinct 3. The waste streams created by the different processes and how they will be handled and disposed of are as follows,

1. Solid waste in the form of dewatered screenings will be collected by a sealed polyethylene bagging unit adjacent the MBR screening unit. The bag when full will be sealed and replaced. The screenings will be collected by a fully qualified waste contractor for disposal off site at a licensed land fill disposal facility.

2. Activate Sludge Waste generated by the MBR process will be pumped when advised automatically by the system to Activated Sludge waste holding tanks located adjacent the MBR Redundancy tanks. The Tanks have a purpose built concrete bund truck out loading facility to collect the sludge waste by an authorized waste management contractor for disposal at a licensed facility.

3. All Excess treated effluent permeate that is not used for recycled water production will be discharged to the TSC existing sewerage network via a new sewerage pump station and rising main located at the Tweed Coast road roundabout owned and operated by TSC under a trade waste agreement with NWS. The main discharge events will be when the Kings Forest development has a rain event or the AWTP is shut down for routine preventative maintenance or a plant failure. In the case of an extreme emergency a truck out procedure will be put in place by NWS with an authorized waste contractor for disposal at a licensed facility.

4. Backwash waste water generated from the AWTP UF plant will be reused by processing through the MBR WWTP. In an extreme emergency the back wash water would trucked offsite by an authorized contractor and disposed of at a licensed facility.

5. The AWTP chemical enhanced backwash (CEB) will be neutralized in a holding tank and when neutralized it will be discharged to the MBR inlet tank in Stage A for reprocessing. In an extreme emergency the CEB back wash water would trucked offsite by an authorized contractor and disposed of at a licensed facility.

6. Waste Water which contains chemicals from the MBR Clean in Place (CIP) process will be pumped to the Sludge Waste holding tanks. The Tanks have a purpose built concrete bund

Truck out loading facility to collect the sludge waste by an authorized waste management contractor for disposal at a licensed facility.

7. Chemical drums used during the different processes will be stored and housed in purpose built concrete bund storage on the WWTP site. The chemical drums when empty will be stored in a protected area for collection and disposal by an authorized contractor at a licensed facility.

Note: All movement of waste products collected, transported and disposed of from the Kings Forest WWTP site will be by authorized contractors that will provide records and copies of receipts from the disposal site, will be provided to NWS for recording.

For more information refer to Appendices,

- Appendix 4.2.1(a) Kings Forest Recycled Water PFDs,

- Appendix 4.2.1(b) Kings Forest WWTP P&IDs, Refer to Appendix I in the REF

- Appendix 4.2.1(d) Kings Forest WWTP Layout Plans,

- Appendix 4.3.10(b) Kings Forest MBR O&M, (T of C)

- Appendix 4.3.10(e) Kings Forest HAZOP & HAZID Workshop Report, (T of C)

4.5 Sewerage infrastructure

Only provide a response to the questions in the following section if the applicant corporation is seeking a licence for the construction, maintenance and operation of sewerage infrastructure.

4.3.1	Describe the proposed sewerage infrastructure from the collection to disposal or reuse. Include in your description all of the sewerage infrastructure for which the applicant corporation is seeking a licence. This will include any infrastructure that is to be used for the collection, treatment, filtration, storage, conveyance or disposal of the sewerage or treated effluent. **Provide a detailed process flow diagram of the proposed infrastructure from collection to disposal or reuse in Appendix 4.3.1.**

You must attach a process flow diagram in response to this question. The process flow diagram should only include the sewerage infrastructure where the scheme includes more than one type of infrastructure and must cover the process from source to end use. You may also include a piping and instrumentation diagram for additional information.

The response to this question will be used to draft a proposed licence. The response to this question is a requirement for any network operator's licence for sewerage infrastructure (Reg cl.6(2)(d)(ii)). The licence will specify the type of water industry infrastructure, if a licence is granted (Act s.6(1)(a)). The response will also be used to ensure you have applied for the correct licence(s) and as a context for our assessment of the applicant corporation's technical, organisational and financial capacity to undertake the activities for which you are seeking a licence (Act s.10(4)(a)).

The Kings Forest sewerage infrastructure consists of the following from the collection, treatment, providing treated effluent for the feed source for the production of recycled water via the AWTP and the discharge of the excess permeate in the case of wet weather events or an emergency from the Kings Forest development site.

The Pressure Sewer Collection Network

All lots within the Kings Forest development boundary will be serviced using a pressure sewer system. The pressure sewer units (PSU) are owned and operated by NWS and each PSU can service up to four lots. Each lot connects to the PSU via a sub-gravity sewer from the customer connection points located on each lot installed during the construction of the subdivision. The pressure sewer lot plans and master plans are provided in Appendix 4.3.1(d)

The pressure sewer network is owned and operated by NWS and includes a continuous online SCADA monitoring and control system to ensure all flows, faults and alarms are detected. The pressure sewer network includes:

- The sub gravity sewer from each lot can connect up to four lots to each PSU;
- A duty and standby grinder pumps are installed in each PSU;
- 24 hours redundancy has been designed for in each pressure sewer unit (PSU);
- Every PSU is fitted with an electrical type pillar that houses the control panel connected to the central SCADA system for controlling pump operation and - - provision of flow monitoring and alarms 24/7 for:
- Wet well water level;
- Number of starts and hours run for each pump;
- Each PSU voltage, current and power factor;
- Pump and electrical faults; and

- Communications signal strength.
-A fibre type communication cabling system will be installed with the piping network to connect all PSU control panels to the central SCADA system which will enable central integration, monitoring and control of the pressure sewer network with the WWTP operation 24/7.

The NWS designed pressure sewer network provides the following benefits to the Kings Forest Estate scheme compared to a business as usual (BAU) gravity type sewerage system:

- Reduced groundwater and storm water infiltration;
- Control peak inflows into the wastewater treatment plant by utilizing network storage;
- Each PSU provides a minimum of 24 hours storage that will be utilized during power outages, when carrying out preventative maintenance on the network system or during WWTP routine shutdowns or break downs;
- The fusion welded PN 16 HDPE pipe network will minimize pressure pipe breakages and ground water infiltration
(i&i) and leaks.
The pressure system reduces the potential of blockages as all sewage is macerated into a slurry before entering the network and is transported via the network at high velocity to keep the transport system clean;
- The monitoring of each pump operation at each PSU allows for detection of abnormal inflows which can be caused by incorrect storm water connections, swimming back wash or ground water pooling etc;
- Waste Water quality is monitoring 24/7 via probes (i.e. pH, TDS, NTU, Phosphorous and Nitrogen etc) which will be installed in specific locations in the - WWTP to detect inappropriate waste disposal practices;
- Simple staging in line with the rate of development; and
The system is continuously monitored with alarms hence residents are not required to respond to audible alarms or flashing lights as is the case with conventional pressure sewer systems.

Wastewater Treatment

An overview of the four stages for the proposed Kings Forest Water & Waste Water Treatment Plant (WWTP) can be found in the Process Flow Diagrams (PFDs) in Appendix 4.3.1(a). The WWTP Site Civil Concept Plans can be found in Appendix 4.2.1(d) WWTP Site Layout Drawings.

Membrane Bioreactor Stages A, C & D

All wastewater generated on the Kings Forest development is treated on site via the NWS membrane bioreactor (MBR) WWTP with a peak design capacity of 1,980kL/day. The full capacity of the MBR WWTP will be reached during Stage D.

The MBR WWTP Process Description

The MBR is designed and constructed by NWS and is a modified activated sludge process with a number of treatment zones as outlined below.

Description of the MBR WWTP Process

	MBR Process Description
Primary Treatment	All incoming wastewater from the pressure sewer network is stored in the 2 x 330 KL Redundancy Tanks which provides extra redundancy to the system during morning and evening peak flows and in emergencies. When each MBR inlet tank signals that it needs more waste water the inlet valve to the screening unit which is mounted on the inlet side of the screening unit inlet tank will open. The waste water then undergoes primary treatment in a screening unit with a 1 mm perforated plate inlet screen to ensure removal of gross solids, hair, grit and other pollutants to protect the downstream treatment process and submerged membranes. The screening unit automatically dewaters and stores the solids collected from the screen in a bagging unit. When each bag is full it will be removed from the site by a licenced solid waste contractor and taken to the nearest accepting licenced landfill facility.
Inlet Tank	Primary treated wastewater from the inlet screen is discharged into the inlet tank. The inlet tank provides buffer storage capacity to ensure the flow of wastewater into the downstream treatment process is controlled. If the inlet tank is full during peak periods the flow of wastewater from the pressure sewer network will be stored in the redundancy tanks and the redundancy built into the pressure network until the screening unit inlet tanks are ready to receive more waste water.
Anaerobic Tank	Primary treated wastewater from the inlet tank is pumped into the anaerobic tank in a controlled manner. The anaerobic tank is used to pre-condition wastewater and microorganisms for the downstream biological processes.
Anoxic Tank	Wastewater from the anaerobic tank is pumped into the anoxic tank where it is mixed with nitrified water from the aeration tank to create conditions suitable for denitrification to occur. Excess liquid from the anoxic tank flows back to the anaerobic tank via an overflow weir. Acetic acid will be supplied to the anoxic tank as an additional carbon source for denitrification.
Aeration Tank	Wastewater from the anoxic tank is pumped into the aeration tank where microorganisms break down BOD and nitrify ammonia. Excess liquid from the aeration tank flows back to the anoxic tank via an overflow weir. Dissolved Oxygen (DO) in the aeration tank is maintained to an adjustable set point of 2 mg/L via continuous online monitoring of DO and a variable speed drive blower unit that supplies the submerged fine bubble diffuser grid at the base of the Aeration tank. The system operates with a high biomass concentration of around 8000-13000 mg/L Mixed Liquor Suspended Solids (MLSS). The MLSS concentration in the aeration tank can be maintained during low demand periods with supplementary carbon dosing into the anoxic tank if required. The Waste Activated Sludge (WAS) is pumped from the MBR tank when MLSS increases above approximately 13,000 mg/L. The WAS generation from each MBR train will be stored in two 30 kL Sludge Tanks until it is removed from the site by a licenced liquid waste transport contractor to the nearest accepting licenced facility.

Typical effluent quality from the MBR

MBR Treated Effluent Permeate Class A

BOD/SS	<10mg/L
pH	6-8.5
Turbidity	<1 NTU

TN	<10mg/L
TP	<0.3mg/L
TDS	700-850mg/L

4.6 Stage B - The Advanced Water Treatment Plant

The two .8 ML/day Ultra Filtration (UF) Skids that make up the Advanced Water Treatment Plant (AWTP) that further processes the MBR Class A permeate to produce Class A+ recycled water suitable for domestic reuse as to the Australian Recycled Water Guidelines for use inside the home for supply to customers will be installed inside the WWTP building during Stage B of the WWTP and will be commissioned and operational by the time the first 500 lots have been connected to the scheme. Note: Prior to the first 500 lots being connected to the scheme the recycled water network will be substituted with drinking water.

The feed water for the AWTP will be taken from the MBR permeate 2ML storage tank located adjacent the WWTP building at the WWTP site. The surplus permeate water will accumulate in the 2ML permeate storage tank and be managed by land irrigation in Stage A or offsite discharge to the TSC existing sewerage network as outlined in Section **Error! Reference source not found.**. Once the AWTP becomes operational in Stage B the volume of surplus permeate water will reduce due to it being used as the feed water to the AWTP that produces the supply of Class A+ recycled water to households and other end users.

Recycled Water Quality for Domestic Re-use Class A+

BOD/SS	<5mg/L
pH	6.5-8.5
Turbidity	<1 NTU
TN	< 7mg/L
TP	< .25mg/L
TDS	500mg/L
Virus	6 log removal
Protozoa	7 log removal

The Class A+ Recycled Water supplied to individual customers will be used for the following uses:

Toilet flushing;
Laundry washing machine cold water service, hard plumbed;
Outdoor cleaning including bin washing, car washing and general hosing down of foot paths; and
Irrigation of private lots gardens, lawns;
Water features throughout the development;
Open space irrigation for sports fields, parks and road verges;
Industrial uses Cooling Towers, Urinals, Concrete production;
Nurseries, Golf courses and food crops;

4.7 Waste Products generated by the processes at the WWTP Site

4.7.1 MBR Screenings

All influent to the MBR Modules receives primary treatment by a 1 mm perforated plate inlet screen to remove hair, gross pollutants and other foreign matter in the inlet tank of the screening Unit. The screening unit includes a rotating brush, dewatering auger and automatic bagging unit to avoid operator contact with screenings. As each bag is filled with dewatered screening at approximately fortnightly intervals the waste will be disposed of by a licensed waste transport contractor to an approved solid waste landfill facility.

4.7.2 MBR Waste Sludge

The MBR is an activated sludge process that produces waste activated sludge at approximately 1.2% of the inflow rate. At Stage A of the development approximately 5 kL/day of waste activated sludge at a solids content of approximately 10,000 mg/L will be generated from each of the MBR modules.
When the development reaches full maturity the Waste sludge production will be approximately 40 kL/day.
The waste sludge will be stored in 2 x 30KL sealed sludge waste tanks until it is removed from the site by a licensed liquid waste transport contractor and disposed of to the nearest approved municipal wastewater treatment plant.

UF Filtration Back Wash

The Ultra Filtration (UF) membrane skids will backwash every day on a set timer or when the trans- membrane back pressure exceeds the set point with Class A + recycled water. The back wash waste water is discharged to the inlet of the MBR tank in Stage A for processing.

The chemical enhanced back wash (CIB) which consists of chlorine and caustic dosing being directly injected into the back wash line on a set timer or when the membrane pressure exceeds the back pressure on a regular basis. The waste water is then neutralized in a Neutralizing Backwash Tank and when ready discharged to the inlet tank of the MBR train in Stage A for processing.
No backwash from the AWTP process is discharged off site to land or waterways.

For more information refer to,

- Appendix 4.3.1(a) Kings Forest Sewerage PFDs,

- Appendix 4.3.1(d) Kings Forest Pressure Sewer Master Plans,

- Appendix 4.3.10(d) Kings Forest WWTP Layout Drawings,

4.3.2	Describe whether the infrastructure is existing infrastructure or is to be constructed. If the infrastructure is existing, please describe its current condition and operability. If the infrastructure is a mixture of existing and to be constructed **identify the infrastructure as existing or to be constructed on the process flow diagram in Appendix 4.3.1**.

The response to this question will be used as a context for the assessment of environmental risks from the proposed scheme (Act s.10(4)(e), Reg cl.7).

All sewerage infrastructure to be constructed inside the Kings Forest development is new.

For more information refer to,

- Appendix 4.3.1(a) Kings Forest Sewerage PFD's

4.3.3	Describe the location of the proposed infrastructure. For example include: ▾ the identification of specific lot descriptors (eg, lot and DP numbers) for the collection, treatment, ▾ filtration and/or storage infrastructure ▾ the location of infrastructure for the conveyance and/or reticulation of sewage by street ▾ name, local government area or other description as appropriate to the size of the scheme. **Provide a map showing the location of the proposed infrastructure from source to end use in Appendix 4.3.3.**

The map may include all water industry infrastructure (ie, drinking water, non-potable water and/or sewerage) where the scheme includes more than one type of infrastructure.

The response to this question is a requirement for any network operator's licence for sewerage infrastructure (Reg cl.6(2)(a)).
The response to this question will be used to specify the authorised area of operations (Act s.11(1)), if a licence is granted.
The response will also be used as a context for the assessment of environmental risks from the proposed scheme (Act s.10(4)(e), Reg cl.7).

All the sewerage infrastructure described above in 4.3.1 is contained inside the Kings Forest development boundary area as shown In the pressure sewer master plan and the WWTP site located in precinct 3.

For more information refer to,

- Appendix 4.3.1(d) Kings Forest Pressure Sewer Master Plans,
- Appendix 4.2.1(d) Kings Forest WWTP Layout Plans,
- Appendix 4.1.3(a) Kings Forest Waste Water Discharge Plan from Source to End,

4.3.4	Describe any interconnections between the proposed sewerage infrastructure and other infrastructure not part of this scheme (eg, interconnections with other licensed network operators or public utilities such as sewers). Identify in your description who is responsible for the construction, operation and maintenance of which infrastructure. **Identify all interconnections with other infrastructure on the process flow diagram in Appendix 4.3.1 and the map in Appendix 4.3.3.**

The response to this question will be used to ensure the correct area of operation is specified in the licence, if a licence is granted (Act s.11(1)). The response will also be used as a context for the assessment of risks from the proposed scheme and to identify possible additional licence conditions relating to the inter-connected systems and responsibilities for risks.

An emergency discharge point will be provided by TSC located a Tweed Coast road roundabout. A new sewerage pump station (SPS) and rising main will be installed by the developer and gifted to the TSC on completion and sign off. The new rising main will be connected to the existing TSC network in the Tweed Coast Road.

The new SPS and rising main will provide a metered connection point the NWS will connect the new emergency permeate discharge main from the WWTP sit boundary during construction of Stage A.

A temporary connection of the pressure sewer network will be provided for up to the first 500 lots.

When the WWTP has been commissioned and gained approval for commercial use the pressure sewer network will be connected to the Kings Forest pressure sewer network

For the collected waste water to be treated by the MBR WWTP. All waste water collected will be treated via the MBR WWTP from this point on.

For more information refer to,

- Appendix 4.3.1(a) Kings Forest Sewerage PFDs,

4.3.5	What volume of sewage will be treated by the scheme? Please provide the average and peak daily (hydraulic and biological, where relevant) flow rates treated by the scheme.

This information will be used to determine the fee category for the scheme, if a licence is granted. The response to this question may be used to draft a proposed licence, if a licence is granted.

The waste water treatment plant has a peak capacity to treat the waste water generated by the scheme is 1,980KLD when fully built out. As detailed in the water balance report the Kings Forest development will generate approximately 1,872.3 KLD.

The MBR WWTP has a peak flow rate of 20.4l/S.

- The instantaneous peak flows will be buffered by the redundancy in the pressure sewer network system,

- The controlled flow from the pressure sewer network by the SCADA control system,

- WWTP redundancy tanks,

- The pressure sewer system will eliminate i&i during wet weather events due to the sealed network system thus eliminating peak wet weather flows,

- The peak daily flow will be maintained to be equal to the average daily flow at all times by the distribution from the redundancy tanks located at the WWTP to the MBR influent tanks.

For further information refer to,

- Appendix 4.1.6(a) Kings Forest Water Balance Report, (T of C)

- Appendix 3.5.1(b) Kings Forest Integrated Water Management Plan, (T of C)

-Appendix 4.3.1(c) Kings Forest Pressure Sewer Master Plan Report, (T of C)

4.3.6	What volume of treated effluent will be disposed of from the scheme? Please provide the average and peak daily disposal rates disposed from the scheme.

The response will be used as a context for the assessment of environmental risks from the proposed scheme (Act s.10(4)(e), Reg cl.7). The response to this question may be used to draft a proposed licence, if a licence is granted.

All the waste water collected from the Kings Forest development will be treated onsite by the MBR WWTP. The treated effluent will be Disposed of from the development by different means as shown in the table below,

Summary of the Kings Forest Integrated Water Scheme Average Daily Flows,

Flows at MBR WWTP							
WWTP Waste Generation Rate	Ave. Daily Wastewater Generation (kL/Day)	Ave. Daily WWTP Waste Generation (kL/Day)	Annual Wastewater Generation (kL/pa)	Annual WWTP Waste Generation (kL/pa)	Ave. Daily Volume of Recycled Water Generated (kL/d)	Ave. Daily Flow Rate Recycled Water Generated (L/s)	Annual Volume of Recycled Water Generated (kL/pa)
-2.0%	1,827	-37	666,979	13,340	1,790	20.72	653,639

Kings Forest Recycled Water Balance

Recycled Water Balance		
Daily Volume of Recycled Water Generated (kL/d)	Daily Volume of Recycled Water Consumed Within Development (kL/d)	Daily Excess Recycled Water (kL/d)
1,790	1,530	260

Emergency Waste Water Discharge.

Summary of Daily External Recycled Water Reuse Not Required on Wet Days		
Daily Residential External Reuse Volume (kL/Day)	50% of Offsite Recycled Water Use (kL/Day)	Total Wet Day Excess External Recycled Water (kL/Day)
344.5	130	474.3

Based on the findings of the water balance in the event of a significant wet weather event the ability to discharge excess recycled water may be required. In order to provide a suitable level of redundancy into the system NWS require there to be suitable back up discharge options available to cater for the worst case opera scenario. Based on this requirement the emergency waste water discharge agreement with TSC will cater for the following:

Provide access to discharge a maximum daily volume of treated waste water of 171 kL/Day at a maximum discharge flow Rate of 5.40 L/s.
Discharge to the metered discharge point at the new TSC SPS at Tweed Coast Road roundabout of no more than 6 l/s Annual discharge cap of 75.974 ML/PA

For more information refer to,

- Appendix 4.1.6(a) Kings Forest Water Balance Report, (T of C)

4.3.7	How will the treated effluent be disposed of from the scheme?

The response to this question may be used to draft a proposed licence, if a licence is granted. The response will also be used as a context for the assessment of environmental risks from the proposed scheme (Act s.10(4)(e), Reg cl.7).

Refer to the above section 4.3.6.

For more information refer to,

- Appendix 4.1.6(a) Kings Forest Water Balance Report, (T of C)

- Appendix 3.5.1(b) Kings Forest IWMP, (T of C)

4.3.8	What wastewater and/or catchment characterisation studies have been undertaken? **Provide a summary report of any wastewater characterisation or catchment studies including results in Appendix 4.3.8.**

This information will be used as a context to the potential health and environmental risks posed by the scheme.

Refer to section 4.3.6 above.

For more information refer to,

- Appendix 4.1.6(a) Kings Forest Water Balance Report, (T of C)

- Appendix 4.3.1(c) Kings Forest Pressure Sewer Master Plan Report, (T of C)

4.3.9	**Provide your preliminary risk assessment for the scheme from collection to disposal in Appendix 4.3.9**. It is important that your preliminary risk assessment accurately identifies any hazards present in the sewage or likely to result from the proposed treatment process. The risk assessment should also address the intended method of disposal and any inadvertent releases (and therefore routes of exposure) to the treated effluent. The preliminary risk assessment will identify any reasonably foreseeable risk event with the potential to expose people or the environment to hazards. The preliminary risk assessment will outline the broad mitigation measures where the risk of exposure to a hazard is unacceptable to human health or the environment in order to reduce the risk of exposure. The risk assessment must also identify the events and circumstances that could adversely affect the applicant corporation's ability to carry out the activities for which the licence is sought (including any activities undertaken by a nominated third party), the probability of the occurrence of any such event or circumstance and the measures to be taken by the applicant corporation to prevent or minimise the likelihood of any such event or circumstance.

The preliminary risk assessment should demonstrate the application of a consistent methodology for identifying hazards and assessing potential impacts and risks to health and the environment. We strongly recommend that the applicant corporation utilises an established risk management system, such as outlined in AS/NZS ISO 31000:2009 (Risk management – Principles and guidelines). Where relevant, the risk assessment should identify and include any environmental risks and/or management actions identified in the development approval.

The response to this question is a requirement for any network operator's licence for sewerage infrastructure (Reg cl.6(2)(b), cl.6(2)(c)(ii), cl.6(2)(d)(i)). The response to this question will be used to determine whether there are any issues of public interest arising from the proposed scheme (Act s.10(4)(f)). The response to this question will also be used to draft a proposed licence. The licence will specify the purpose for which the infrastructure can be used, if a licence is granted (Act s.6(1)(a)). The response will also be used to assess the applicant corporation's technical capacity to undertake the activities for which you are seeking a licence (Act s.10(4)(a)).

NWS has prepared a preliminary risk assessment in accordance with the "Australian Guidelines for

Water Recycling"

For more information refer to,

- Appendix 4.3.9(a) Kings Forest Preliminary Sewerage Risk Assessment,

4.3.10	Describe the systems and processes that the applicant corporation will have in place to manage the sewerage infrastructure. **Provide evidence of the applicant corporation's capacity to develop and implement an infrastructure operating plan in Appendix 4.3.10.**

The evidence may include examples of processes and procedures for either the proposed scheme or other similar schemes undertaken by the applicant corporation. The processes and/or procedures should demonstrate good operational practice including life cycle planning, system redundancy, contingency planning, condition monitoring, management maintenance processes and processes of supporting skills needs. The examples should demonstrate links to a risk management process. For existing (brownfield) schemes you should provide the actual water quality plan for the site.

The response to this question is a requirement for any network operator's licence for sewerage infrastructure (Reg cl.6(2)(c)). The response will also be used to assess the applicant corporation's technical capacity to undertake the activities for which you are seeking a licence (Act s.10(4)(a)).

NWS has developed a draft infrastructure operating plan (IOP) for the Kings Forest development.

This should be read in conjunction with other management plans, risk assessments and detailed reports submitted with this application.

For more information refer to,

- Appendix 3.5.1(b) Kings Forest Integrated Water Management Plan, (T of C)
- Appendix 4.3.9(a) Kings Forest Preliminary Sewerage Risk Assessment,
- Appendix 4.3.10(a) Kings Forest IOP, (T of C)
- Appendix 4.3.10(b) Kings Forest MBR O&M Manual, (T of C)
- Appendix 4.3.10(c) Kings Forest WWTP & AWTP Functional Specification, (T of C)
- Appendix 4.3.10(e) Kings Forest HAZOP & HAZID Reports, (T of C)

4.3.11	How will the continuity of the provision of sewerage services be ensured? What contingency plans are in place in the case of failure of the infrastructure?

The response to this question is a requirement for any network operator's licence for sewerage infrastructure (Reg cl.6(2)(c)). The response to this question will be used to determine whether there are any issues of public interest arising from the proposed scheme (Act s.10(4)(f)). The response will also be used to assess the applicant corporation's technical capacity to undertake the activities for which you are seeking a licence (act s.10(4)(a)).

NWS will ensure the continuity of the provision of sewerage services through the following contingency's,

- The Pressure sewer network will provide up to 24 hours redundancy storage for each lot in each PSU tank well,
- The pressure sewer SCADA control system provides controlled flow at all times especially after a power outage
- The SCADA control system provides 24/7 monitoring and alarms of each individual PSU the network and All ancillary systems (WWTP, AWTP, Storages, Pumping Units & Power supply) associated with the Sewerage Services,
- The MBR WWTP, Storages and pumping systems are interlinked with the pressure sewer network via the SCADA,
- The redundancy built into the scheme provides over 24 hour back up in the case of an emergency by providing

(a) 24 hour redundancy in the pressure sewer network,

(b) Up front 660KL redundancy tanks,

(c) 500KL in the MBR Inlet and anoxic tanks

- A concrete bund truck out facility has been provided as a further back up located at the Redundancy tank at WWTP site for emergency purposes,
- A back up emergency power generator with auto-changeover switch has been provided for in the event of a Failure.
- Emergency discharge system from the Permeate Storage Tank to the TSC sewerage network under a trade waste for treated effluent has been included in the case AWTP has a failure and is off line, AWTP routine maintenance or reduces use due to wet weather events. This will enable the MBR WWTP to continue to treat the Kings Forest waste water if any of these events occur.

For more information refer to,

- Appendix 3.5.1(b) Kings Forest IWMP, (T of C)

- Appendix 4.3.10(c) Kings Forest WWTP Functional Specification (T of C)

- Appendix 4.3.10(e) Kings Forest HAZOP & HAZID Workshop Report, (T of C)

4.3.12	Describe the studies that have been completed to investigate any environmental impacts (including but not limited to water quality, quantity, air, noise, sea level rise, biodiversity and Aboriginal cultural heritage) from the construction and operation of the infrastructure? Have the studies identified any significant environmental impacts from the scheme? If so, how are the environmental impacts proposed to be managed? **Provide a copy of any environmental study and/or risk assessment in Appendix 4.3.12.**

As a minimum an application must be accompanied by a statement of environmental effects (SEE) (unless the development is designated development, Part 5 development or a major project, in which case either an environmental impact statement (EIS) or comprehensive environmental assessment is required). The SEE may be prepared by the applicant corporation or by a consultant acting on behalf of the applicant. The SEE must identify the environmental impacts of the proposed scheme, and the steps which will be taken to protect the environment or reduce the harm. Where the study is in the form of a comprehensive environmental assessment or EIS, please include only the executive summary.

The response to this question may be used to draft a proposed licence, if a licence is granted. The response to this question will be used to determine whether the activities authorised by a licence (if granted) present a significant risk of harm to the environment (Reg cl.7).

NWS has prepared a Review of Environmental Factors (REF) that will be submitted with this application for the Kings Forest WWTP site and reticulation areas as part of the planning requirements under Part 5.

Included in the REF is the Pressure Sewer Network Works, Recycled Water reticulation SEE, CEMP, Odor, Noise, Soil Assessment, Storm Water, Civil Works and all relevant studies issued with the development planning proposal by the developer.

For more information refer to the following,

- Appendix 3.5.1(a) Kings Forest REF,

- Appendix 3.5.1(b) Kings Forest IWMP, (T of C)

4.3.13	Where relevant, what land capability assessments have been undertaken on the proposed land disposal area? **Provide a copy of any soil capability assessment in Appendix 4.3.13.**

The response to this question may be used to draft a proposed licence, if a licence is granted. The response to this question will be used to determine whether the activities authorised by a licence (if granted) present a significant risk of harm to the environment (Reg cl.7).

NWS has prepared a soil capability assessment to produce the Water Balance report for open space areas and sports field areas.

For more information refer to,

- Appendix 4.1.6(a) Kings Forest Water Balance Report, (T of C)

- Appendix 4.3.13(a) Kings Forest Geotechnical Report, (T of C)

- Appendix 3.5.1(b) Kings Forest IWMP Irrigation of treated effluent management plan (T of C)

4.3.14	If a treatment process forms part of the infrastructure for which the applicant corporation is seeking a licence, what waste streams will be generated by the proposed treatment plant (such as screenings and biosolids but not including the treated effluent) and how will the waste be disposed of or handled?
The response to this question will be used to determine whether the activities authorised by a licence (if granted) present a significant risk of harm to the environment (Reg cl.7). The response will also be used as a context for our assessment of the applicant corporation's technical capacity to undertake the activities for which you are seeking a licence (Act s.10(4)(a)).	
Refer to section 4.2.15 of this Application which describes the waste streams generated by the treatment processes and how they are disposed of.	

5 Retail Supplier

Only to be completed by applicants seeking a retail supplier's licence.

Note a retail supplier's licence may only be granted if sufficient quantities of the water supplied will have been obtained otherwise than from a public water utility (Act s.10(4)(d)).

5.1 Supply of water

Please provide a response to the questions in the following section if you are seeking a licence for the supply of water by means of any water industry infrastructure. This section applies to the supply of drinking water and non-potable water.

5.1.1	Describe the water industry infrastructure that the applicant corporation will access to supply water.

The response to this question is a requirement for any retail supplier's licence for water industry infrastructure (Reg cl.10(1)(a). The response will also be used to ensure you have applied for the correct licence(s)).

NWS will provide the drinking water and recycled water retail services for all the infrastructure in the Kings Forest development. The water services will be approved under the WIC Act as outlined in Section 4.1 and 4.2 of this IPART application.

Source of the Drinking Water Supply.

The drinking water supply will be sourced under an agreement from the Tweed Shire Council (TSC) under sections 305 - 307 of the Water Management Act 2000.

TSC have advised after receiving endorsement from Council the supply of the drinking water requested by NWS is technically feasible. (Refer to letter received from Council in Appendix 4.1.6(b) and the drinking water Boundary Conditions Report between TSC & NWS detailing the proposed scope of works, terms & conditions for the drinking water supply.

For a detailed description of the drinking water infrastructure refer to the relevant appendices listed below,

- Appendix 4.1.1 Kings Forest Description of the drinking water infrastructure,

- Appendix 4.1.1(b) Kings Forest TSC letter of feasibility,

- Appendix 4.1.1(c) Kings Forest Process Flow Diagrams,

-Appendix 4.1.1(d) Kings Forest Drinking Water BCR, (T of C)

-Appendix 4.1.1(e) Kings Forest Drinking Water Master Plan,

- Appendix 4.1.6(a) Kings Forest Water Balance Report, (T of C)

The Recycled Water Supply.

The Class A+ Recycled Water supplied to individual customers will be used for the following uses:

Toilet flushing;
Laundry washing machine cold water service, hard plumbed;
Outdoor cleaning including bin washing, car washing and general hosing down of foot paths and driveways; and
Irrigation of private lot gardens and lawns;
Water features throughout the development;
Open space irrigation for sports fields, parks and road verges;
Industrial uses Cooling Towers, Urinals, Concrete production;
Nurseries, Golf courses and food crops;

The AWTP is designed to produce high quality Class A+ recycled water that complies with the highest bacteria, virus and protozoa log reduction targets for dual reticulation from the Australian Guidelines for Water Recycling: Managing Health and Environmental Risks

All recycled water from the AWTP is stored in the 2 x 2 ML recycled water storage tanks. The 4 ML of recycled water storage provides more than 48 hours storage at ultimate peak day recycled water demands.
During Stage A the 2ML recycled water tank will be filled with potable water. Once the AWTP is commissioned and signed off for commercial operation by IPART in stage B (After the first 500 lots) the 2ML storage tank will be filled with Class A+ recycled water from the AWTP and potable water will only be used for top-up and emergency backup to the recycled water system.

The chlorine residual in the recycled water storage tank will be maintained with continuous on line monitoring and providing top up dosing when required. Sufficient free chlorine residual will be maintained in the recycled water network to ensure the minimum free residual chlorine is achieved at the furthest point in the reticulation system at all times.

24/7 monitoring of the chlorine dosing rates will be carried out during operation to achieve the minimum residuals required throughout the network.

For more information refer to,

- Appendix 4.2.1(a) Kings Forest Recycled Water PFD's,
- Appendix 4.2.1(c) Kings Forest Recycled Water Master Plan,
- Appendix 4.2.1(d) Kings forest WWTP Site Layout Drawings,
- Appendix 4.2.11(a) Kings Forest Recycled Water Quality Management Plan, (T o C)

5.1.2	What volume of water is available from the proposed source? Where applicable, please provide the capacity of the source and the (allowable) average daily extraction rate from the source. If there is more than one source, please provide the requested information for each of the sources. **Where relevant, provide a copy of any agreements and/or licences to access the source water in Appendix 5.1.2.**

The response to this question will be used to determine whether sufficient quantities of the water supplied will have been obtained otherwise than from a public water utility (Act s.10(4)(d)).

NWS will be responsible for providing the volume of drinking water and recycled water as the authorized private network operator and retail supplier for the Kings Forest development.

The Drinking Water:

Tweed Shire Council under agreement with NWS will provide the drinking water supply to a metered connection point located at Tweed Coast road roundabout at the entrance to the Kings Forest development. For more detailed information refer to Section 4.1.1 of this application.

The volume of drinking water per day is

1,385kL/day. Refer to the following for more

information,

- Appendix 5.1.2 Kings Forest Letter of Feasibility from the TSC,

- Appendix 4.1.6(a) Kings Forest Water Balance Report, (T of C)

The Recycled Water Scheme:

The NWS recycled water scheme AWTP can treat up to 1,980kL/day. All waste water generated by the Kings Forest development will be pre-treated by the MBR WWTP the treated effluent permeate will then provide the source for the AWTP to process and provide the recycled water as the end product.

The recycled water is then stored in the 2 x2ML Storage Tanks to provide the redundancy necessary to meet the morning, evening peaks and irrigation

requirements when required. The storage also provides more than 48 hours emergency storage if required to meet the schemes requirements for recycled water for domestic reuse, open space area and sports field irrigation purposes an average daily volume of 1,530kL/day will be provided by the scheme.

Average Daily Flow Rate = 17.7l/S

For more information refer to,

- Appendix 4.1.6(a) Kings Forest Water Balance Report, (T of C)

5.1.3	What customers or classes of customers does the applicant corporation propose to supply with water?

Classes of customers may include residential, industrial, commercial or agricultural.

The response to this question is a requirement for any retail supplier's licence (Act s.6(1)(b)). The response will also be used to assess the applicant corporation's technical capacity to undertake the activities for which you are seeking a licence (Act s.10(4)(a)).

The Kings Forest development is mainly made up of residential and commercial customers.

The classes of customers proposed to be supplied by the NWS Kings Forest Scheme,

1. Residential

2. Commercial

3. Light Industrial

4. Recreational

5. Agricultural

Refer to the Kings Forest Land Use Table below.

Land Use	Area
Total Developable Area	**447.1 Ha**
Residential Development	325.9 Ha
Commercial Precincts	12.3 Ha
Community Precincts	14.0 Ha
Public Open Space	94.9 Ha

5.1.4	Will you be supplying small retail customers with water (ie, less than 15Ml/year)?
A person is a small retail customer in relation to water supply if the maximum rate at which water is supplied, pursuant to one or more water supply contracts, to all premises that the person owns, leases or occupies is less than 15 megalitres per year.	
The response will be used as context to assess the applicant corporation's technical capacity to undertake the activities for which you are seeking a licence (Act s.10(4)(a)). The response will also be used as a context for the assessment of risks from the proposed scheme and to identify possible additional licence conditions relating to the supply of water to small retail customers.	
The majority of customers supplied under the Kings Forest Scheme will be residential and small commercial customers. There will be no high end users that will have a demand in excess of 15ML/year.	

5.1.5	**Provide your preliminary risk assessment for the retail activities related to the scheme in Appendix 5.1.5.** The risk assessment must identify the events and circumstances that could adversely affect the applicant corporation's ability to carry out the activities for which the licence is sought (including any activities undertaken by a nominated third party), the probability of the occurrence of any such event or circumstance and the measures to be taken by the applicant corporation to prevent or minimise the likelihood of any such event or circumstance.
The preliminary risk assessment should demonstrate the application of a consistent methodology for identifying hazards and assessing potential impacts and risks. We strongly recommend that the applicant corporation utilises an established risk management system such as outlined in AS/NZS 4360 (Risk Management).	
The response to this question is a requirement for any retail supplier's licence (Reg cl.10(1)(b). The response to this question will be used to determine whether there are any issues of public interest arising from the proposed scheme (Act s.10(4)(f)).	
NWS has developed a preliminary retail & business risk assessment that identifies the events and circumstances that may adversely affect the retail services. For more information refer to, - Appendix 5.1.5(a) Retail Risk & Business Assessment,	

5.1.6	How will the continuity of the supply of water to customers be ensured? What contingency plans are in place in the case of failure of the infrastructure?

The continuity of supply may differ between customer classes. If this is the case for your project please define the different levels of service for each customer class and how the continuity of supply of water, relevant to that class of customer, will be maintained.

The response to this question is a requirement for any retail supplier's licence (Reg cl.10(1)(b)(iii)). The response to this question will be used to determine whether there are any issues of public interest arising from the proposed scheme (Act s.10(4)(f)). The response will also be used to assess the applicant corporation's technical capacity to undertake the activities for which you are seeking a licence (Act s.10(4)(a)).

NWS has ensured the continuity of the drinking water and recycled water supply as the retail supplier have been catered for within the design parameters in the network infrastructure.

The networks have been designed to provide an uninterrupted supply of services to the customers in the event of an incident that causes an interruption to the retail services. The network operators risk management assessment policies will ensure that any interruption will be kept to a bare minimum.

Drinking Water:

- NWS will have a commercial agreement in place with the TSC to supply metered drinking water to ADWG to the gate at the required flow and pressure to supply the drinking water at the average daily demand of 1,385kL/day at 16.0 l/S over 24 hour period for the development. The supply agreement will be under section 305 - 307 of the Water Management Act NSW 2000.

- As part of the TSC drinking water supply agreement TSC have guaranteed the drinking water supply will not be interrupted for more than any 24 hour period. Note: for more details on the drinking water supply agreement between TSC & NWS refer to the Kings Forest Drinking Water Boundary Conditions Report in Appendix 3.4.32(b).

- The required amount of redundancy has been built into the Kings Forest drinking water scheme. NWS has calculated that 3 x 2ML of storage tanks will be required. The storage facility will be built on the WWTP site.

- Variable Speed pump stations will be provided with adequate duty standby pumping arrangements to provide continuous supply at the pressure and flow required throughout the networks.

- Emergency power supply has been designed into the drinking water scheme. In the event of a power failure or a notified shut down by the energy provider an emergency power generator with auto changeover switch will be activated Automatically with the loss of power. This system is monitored and maintained by the NWS WWTP SCADA CMS.

- NWS has developed the following contingency plans as a last resort backup in the event of infrastructure failure which include:

(a) Minimize the use of drinking water through customer notification by letter drop, Web site posting and verbal contact notification,

(b) Rapid response to infrastructure failure by putting in place rapid emergency plans and response times with NWS operations staff, site operators and contractors,

(c) If the interruption will be longer than 48 hours or storage levels are reduced to the emergency level (30%) NWS in conjunction with the TSC will organize trucking in of drinking water by a fully qualified tanker operators from the nearest Tweed Shire Council fill points.

Recycled Water:

NWS has put in place the following to ensure continuity of supply of recycled water in case there is a failure in the infrastructure,

1. 48 hours redundancy has been built into the storage facility of 2 x 2ML,

2. The variable speed pumping units have duty/standby configurations built in,

3. NWS has an agreement with TSC for drinking water back up/ top up in an emergency,

4. Emergency power supply has been provided in the case of a power failure,

5. Trucking arrangements will be put in place with a fully licensed operator in the case of an extreme emergency to truck in drinking water,

NWS will develop detailed contingency plans in the event of infrastructure failure. The contingency plans are included in the NWS Infrastructure Operating Plan and include,

- Minimizing the use of recycled water through customer notification by Web site, Media outlets, Mail or Verbal contact with customers in the Kings Forest Community. - Providing emergency response network set up to go in the case of an emergency.

For more information refer to,

- Appendix 4.1.6(a) Kings Forest Water Balance Report, (T of C)

- Appendix 4.1.9(a) Kings Forest Drinking Water Risk Assessment,

- Appendix 4.2.10(a) Recycled Water Preliminary Risk Assessment

5.1.7	Describe the systems and processes that the applicant corporation will have in place to manage retail activities including billing systems, complaint and debt recovery procedures. **Provide evidence of the applicant corporation's capacity to develop and implement a retail supply management plan in Appendix 5.1.7.**

The evidence may include examples of processes and procedures for either the proposed scheme or other similar schemes undertaken by the applicant corporation. The examples should demonstrate links to a risk management process. For existing (brownfield) schemes you should provide the actual systems and procedures.

The response to this question is a requirement for any retail supplier's licence (Reg cl.10(1)(b)(iv)). The response will also be used to assess the applicant corporation's technical capacity to undertake the activities for which you are seeking a licence (Act s.10(4)(a)).

NWS has developed a preliminary Retail Supply Management Plan utilizing systems and processes that will be put in place for our customers.

NWS will operate to the requirements and standards set out by the IPART and the relevant NSW Legislation.

For more Informational refer to,

- Appendix 5.1.7(a) Draft Retail Supply Management Plan, (T of C)

5.2 Provision of sewerage services

Please provide a response to the questions in the following section if you are seeking a licence for the provision of sewerage services by means of any water industry infrastructure.

5.2.1	Describe the water industry infrastructure that the applicant corporation will access to provide sewerage services.

The response to this question is a requirement for any retail supplier's licence for water industry infrastructure (Reg cl.10(2)(a)). The response will also be used to ensure you have applied for the correct licence(s).

NWS will provide the sewerage retail services for all the infrastructure in the Kings Forest Scheme. The sewerage services will be approved under the WIC Act as outlined in Section 4.3 of this IPART application.

For more detailed description of the sewerage infrastructure refer to Section 4.3.1 of this application,

For more information refer to,

- Appendix 4.3.1(a) Kings Forest Sewerage PFDs,

5.2.2	What customers or classes of customers does the applicant corporation propose to provide with sewerage services?

Classes of customers may include residential, industrial, commercial or agricultural. The licence may also specify whether the customers are small retail customers.

The response to this question is a requirement for any retail supplier's licence (Act s.6(1)(b)). The response will also be used to assess the applicant corporation's technical capacity to undertake the activities for which you are seeking a licence (Act s.10(4)(a)).

For more information on classes of customers refer to section 5.1.3 of this IPART application.

5.2.3	Will you be providing small retail customers with sewerage services (i.e. less than 10.5 ML/year)?

A person is a small retail customer in relation to the provision of sewerage services if the maximum rate at which sewage is discharged, pursuant to one or more sewerage service contracts, from all premises that the person owns, leases or occupies is less than 10.5 megalitres per year, as determined in accordance with guidelines issued by IPART.

The response will be used to assess the applicant corporation's technical capacity to undertake the activities for which you are seeking a licence (Act s.10(4)(a)). The response will also be used as a context for the assessment of risks from the proposed scheme and to identify possible additional licence conditions relating to the supply of water to small retail customers.

The majority of NWS customers will be residential and small commercial customers.

NWS providing the sewerage services for the Kings Forest development will not be providing services to customers that produce in excess of 10.5ML/year waste water or trade waste customers.

5.2.4	**Provide your preliminary risk assessment for the retail activities related to the scheme in Appendix 5.2.4.** The risk assessment must also identify the events and circumstances that could adversely affect the applicant corporation's ability to carry out the activities for which the licence is sought (including any activities undertaken by a nominated third party), the probability of the occurrence of any such event or circumstance and the measures to be taken by the applicant corporation to prevent or minimise the likelihood of any such event or circumstance.
The preliminary risk assessment should demonstrate the application of a consistent methodology for identifying hazards and assessing potential impacts and risks. We strongly recommend that the applicant corporation utilises an established risk management system such as outlined in AS/NZS 4360 (Risk Management).	
The response to this question is a requirement for any retail supplier's licence (Reg cl.10(2)(b)). The response to this question will be used to determine whether there are any issues of public interest arising from the proposed scheme (Act s.10(4)(f)).	
NWS has developed a preliminary retail risk assessment that identifies the events and circumstances that may adversely affect the retail services. For more information refer to, - Appendix 5.1.5(a) Retail Risk & Business Assessment,	
5.2.5	How will the continuity of the provision of sewerage services be ensured? What contingency plans are in place in the case of failure of the infrastructure?
The response to this question is a requirement for any retail supplier's licence (Reg cl.10(2)(b)(iii)). The response to this question will be used to determine whether there are any issues of public interest arising from the proposed scheme (Act s.10(4)(f)). The response will also be used to assess the applicant corporation's technical capacity to undertake the activities for which you are seeking a licence (Act s.10(4)(a)).	
NWS has ensured the continuity of the sewerage services as the retail supplier have been catered for within the design parameters in the network infrastructure. For more information on continuity of sewerage supply refer to Section 4.3.11 of this IPART Application. The networks have been designed to provide an uninterrupted supply of services to the customers in the event of an incident that causes an interruption to the retail services. The network operators risk management assessment policies will ensure that any interruption will be kept to a bare minimum.	

NWS will ensure the continuity of the provision of sewerage services through the following contingency's,

- The Pressure sewer network will provide up to 24 hours redundancy storage for each lot in each PSU tank well,

- The pressure sewer SCADA control system provides controlled flow at all times especially after a power outage

- The SCADA control system provides 24/7 monitoring and alarms of each individual PSU the network and

All ancillary systems (WWTP, AWTP, Storages, Pumping Units & Power supply) associated with the Sewerage Services,

- The MBR WWTP, Storages and pumping systems are interlinked with the pressure sewer network via the SCADA,

- The redundancy built into the scheme provides over 24 hour back up in the case of an emergency by providing

(a) 24 hour redundancy in the pressure sewer network,

(b) Up front 660KL redundancy tanks,

(c) 500KL in the MBR Inlet and anoxic tanks in the 4 Stages,

- A concrete bund truck out facility has been provided as a further back up located at the Redundancy tank at the WWTP site for emergency purposes,

- A back up emergency power generator with auto-changeover switch has been provided for in the event of a power failure,

- Emergency discharge system from the Permeate Storage Tank to the TSC sewerage network under a trade waste for treated effluent has been included in the case AWTP has a failure and is off line, AWTP routine maintenance or reduces use due to wet weather events. This will enable the MBR WWTP to continue to treat the Kings Forest waste water if any of these events occur,

For more information refer to,

- Appendix 3.5.1(b) Kings Forest IWMP, (T of C)

- Appendix 4.3.10(c) Kings Forest WWTP Functional Specification, (T of C)

- Appendix 4.3.9(a) Kings Forest Sewerage Risk Assessment

- Appendix 4.3.10(e) Kings Forest HAZOP & HAZID Workshop Reports (T of C)

5.2.6	Describe the systems and processes that the applicant corporation will have in place to manage retail activities including billing systems, complaint and debt recovery procedures. **Provide evidence of the applicant corporation's capacity to develop and implement a retail supply management plan in Appendix 5.2.6.**

The evidence may include examples of processes and procedures for either the proposed scheme or other similar schemes undertaken by the applicant corporation. The examples should demonstrate links to a risk management process. For existing (brownfield) schemes you should provide the actual systems and procedures.

The response to this question is a requirement for any retail supplier's licence (Reg cl.10(2)(b)(iv)). The response will also be used to assess the applicant corporation's technical capacity to undertake the activities for which you are seeking a licence (Act s.10(4)(a)).

Prior to NWS being issued a retail operator's license NWS will have in place processes and systems to operate to the requirements and standards set out by IPART and the relevant NSW legislation.

For more information refer to,

- Appendix 5.1.7 Preliminary Supply Management Plan, (T of C)

- Appendix 5.1.7(a) Preliminary Audit Procedures, (T of C)

6 Applicant experience and systems

The response will be used to assess the applicant corporation's technical and organisational capacity to undertake the activities for which you are seeking a licence (Act s.10(4)(a)).

6.1 Network operator

Only provide a response to the questions in the following section if the applicant corporation is seeking a network operator's licence

6.1.1	Describe the structure of the applicant corporation. Include in the description a list of the entities that have an ownership interest in the applicant corporation, whether legal or equitable. **Provide an organisational diagram in an Appendix 6.1.1.** The diagram should clearly show all entities that have an ownership interest in the applicant corporation,

The response will be used to assess the applicant corporation's technical and organisational capacity to undertake the activities for which you are seeking a licence (Act s.10(4)(a)).

Northern Water Solutions Pty Ltd is a fully owned subsidiary of Leda Holdings Pty Ltd.

NWS has the benefit of significant additional resourcing and financial support from its parent, Leda Holdings Pty Ltd.

For more information refer to,

- Appendix 6.1.1(a) Ownership Chart,

- Appendix 6.1.1(b) Parent Company (Leda Holdings Profile),

- Appendix 6.1.1(c) NWS Organizational Chart,

6.1.2	Describe the applicant corporation's (and, where relevant, the nominated third parties) current experience in the construction, maintenance and operation ofwater and/or other utility infrastructure such as gas, electricity or telecommunications.

The response will be used to assess the applicant corporation's technical and organisational capacity to undertake the activities for which you are seeking a licence (Act s.10(4)(a)).

Northern Water Solutions Pty Ltd (NWS) is a new clean skin company that is wholly owned subsidiary of Leda Holdings Pty Ltd.

NWS experience in the Water Industry is based on the collective experience of selected Directors, CEO, Specialist Consultants and other personal that have formed the executive management team who are key members of the NWS Project Construction, Operations, Maintenance and future Retail team.

The experienced members of the team will provide the Senior Management skills in Providing and understanding of NWS Financial Requirements, Equity, Insurance, Legal, Design, Planning Requirements, Construction Project Management, Procurement, Operations and Maintenance Health and Environmental management in providing Water and Sewerage Schemes as a Private Water Utility under the WIC Act (2006) NSW and in other States over many years to come.

With the support of the Board and the Shareholders, NWS CEO and senior staff have been given a mandate to develop the company with what is required into being a market leader in the Private Water Utility market in NSW operating under the WIC Act (2006).

NWS has currently orders to provide services to over 13,000 customers over the next 17 years in NSW. The Cobaki Estate development is the current NWS flag ship with over 6,064 new customers and Kings Forest 4,903 new customers to come online over the next 17 years.

With the experience and support of the Tweed Shire Council in providing drinking water and offsite waste water treatment for excess treated effluent under agreement is a valued asset to have on board for the Kings Forest Estate Development.

The NWS staff and consultants have the experience in preparing and operating environmental management plans as detailed in the REF in Sections 2.4 and 2.5 Environment Management Plans including,

2.4.1 Construction Environmental Management Plans
2.4.2 Operating Environmental Management Plans
2.4.3 Emergency Response Plan
2.5.1 MBR Permeate + UV Effluent Quality Monitoring
2.5.2 AWTP Recycled Water Monitoring
2.5.3 Environmental Monitoring of the Irrigation Scheme
2.5.4 External Communications Plan

Planit Consulting will provide in house support to NWS staff and specialist consultants with NWS Environmental Management Commitments.

NWS is currently preparing for the implementation and certification of our Integrated Management System to International Standards ISO-9001, ISO-14001 and Australian Standard AS4801:2001 and WHS Legislation.

NWS will outsource our Certification Audits and ongoing on line system interface and monthly maintenance requirements by a fully qualified consultant to assist staff and selected contractors in their day to day responsibilities in managing and reporting on Health, Safety and Environmental issues.

For more information refer to,

- Appendix 6.1.1(a) NWS Ownership Chart,

- Appendix 6.1.2(a) NWS Organization Chart,

- Appendix 6.1.2(b) Construction & Environment Management Plan (T of C)

- Appe3ndix 6.1.2(c) Previous Environmental Management Plans (Confidential)

- Appendix 6.1.3(a) Position Description of Key Personal

- Appendix 3.5.1 REF

- Appendix 4.3.10(e) Kings Forest HAZOP & HAZID Workshop Reports (T of C)

6.1.3	List the key personnel involved in each of the significant activities (construction, maintenance and operation) and summarise their required skills, qualifications and experience. **Provide a position description for each of the key personnel positions in Appendix 6.1.3.**
Clearly identify whether the key personnel are employees of the applicant corporation or, where relevant, the nominated third party. It is not necessary to list all the employees. Ensure that the key personnel include the person or persons responsible for managing the applicant corporation's compliance with their legislative responsibilities.	
The response will be used to assess the applicant corporation's technical and organisational capacity to undertake the activities for which you are seeking a licence (Act s.10(4)(a)).	

Wayne Williamson - NWS Chief Executive Officer

Shane Corbell - Chief Financial Officer (Responsible for all financial requirements for overheads, design, construction, operations and maintenance)

Kris Saunders - Project Manager (Responsible for project planning, environmental assessments, project delivery, quality compliance and project safety.)

Adam Smith - Planning & Licensing (Responsible for licensing and compliance with all regulatory authorities)

Andrew Wells - Head of the Design Team (Responsible for all design engineering, drawing, equipment selection and documentation specifications and reports required for NWS, contractors and regulatory authorities)

Chris Burrell - Legal Counsel (Responsible for providing legal advice on regulatory and other matters and formulating contracts and agreements when required)

Operations Manager TBA - (Responsible for operations and maintenance of NWS schemes)

Risk & Compliance Officer TBA - (Responsible for all risk management, licensing compliance with all regulatory requirements)

Environmental Officer TBA – (Responsible for operating, maintaining, training and auditing ISO-9001, ISO-14001, AS4801:2001 and WHS legislation)

For more information refer to,

- Appendix 6.1.3(a) Position Descriptions of Key Personal,

6.1.4	Please provide details of any other regulatory approvals or licences the applicant corporation or nominated third party holds in relation to the infrastructure activities for which you are seeking a licence.
Include relevant approvals for similar projects interstate or overseas to demonstrate the experience of the applicant corporation. We may seek confirmation of your compliance history in relation to other regulatory approvals or licences as part of our assessment.	
The response will be used to assess the applicant corporation's technical and organisational capacity to undertake the activities for which you are seeking a licence (Act s.10(4)(a)).	

NWS is a new company and is putting together an experienced team in the Private Water Industry in NSW to operate under the WIC Act.

Leda Holdings Pty Ltd civil works company Ecovale Pty Ltd has delivered many new residential developments over the years and provided water and sewerage infrastructure for these developments which has been up to date after sign off been gifted to Local Councils and State Incorporated Government Water Utilities in NSW and QLD. Ecovale Pty Ltd will oversee and provide the water and sewerage infrastructure for the Kings Forest development. After NWS are satisfied that all quality assurance and ITPs have been witnessed and signed off by NWS or its representative, the drinking water, recycled water and pressure sewer infrastructure will be gifted to NWS to operate and maintain.

The Tweed Shire Council has many years of experience in the Water & Sewerage industry in NSW. The TSC will be providing NWS Cobaki Estate Scheme and the Kings Forest Scheme with drinking water and Emergency discharge of excess treated waste water under agreement with NWS.

6.1.5	What business systems will the applicant corporation have in place to ensure they can comply with your regulatory requirements? Are any of the systems certified or will they be certified?
Business systems may include but not be limited to quality assurance, asset management and environmental management systems.	
The response will be used to assess the applicant corporation's technical and organisational capacity to undertake the activities for which you are seeking a licence (Act s.10(4)(a)).	

NWS will put in place the following management systems that will be audited by an approved IPART auditor before commencing commercial operations;

1. Compliance and Risk Management

NWS will cover all relevant laws and regulations as well as ensuring compliance with all contractual agreements. NWS will have in place best practice reporting management plans for all internal and external reporting which will include but not limited to,

(a) Requirements under the WIC Act Licenses,

(b) BASIX Planning Requirements,

(c) EPA, EPL Reporting Requirements,

(d) TSC Supply Agreement Reporting,

(e) Corporate Requirements (i.e. ATO, WHS, ASIC etc)

2. Legal Requirements,

NWS has appointed FUSE Lawyers to provide advice to NWS of any changes to legislative, regulatory, corporate, WHS, ATO or environmental requirements that may have an effect on NWS business or meeting licensing obligations,

3. Asset Management Requirements,

Enterprise Asset Management System (EAMS)

IBM Maximo Asset management system provides NWS a system that accurately accounts for total value of assets within the Kings Forest networks. The system provides schedule maintenance alerts of the assets, assigns work flows and provides forecasting of upcoming maintenance and replacement costs. The EAMS also integrates this information into the financial accounting system.

The Maximo Asset Management System includes six management modules,

- Asset Management,

- Work Management,

- Service Management,

- Contract Management,

- Inventory Management,

- procurement Management,

4. Work Place Health and Safety (WHS)

NWS will have in place systems to monitor and record work place incidents to ensure that safety processes and procedures include consultation and training of all NWS staff, employees and contractors. NWS is in the process of being certified to AS4801 and OSHAS18001 for safety management systems.

5. Retail Management Systems,

NWS will have in place the following systems,

(a) The Oracle System will provide NWS Customer Management System (CMS) and Customer Relationship Management (CRM) will provide NWS

with the ability to handle customer complaints, account enquiries and reporting incidents.

(b) To provide 24/7 customer back up out of hours Service Works will provide the road map to meet NWS requirements.

(c) The billing system ACCESS will provide the billing services with NWS customers and is compatible and integrate with the CMS system.

(d) NWS will provide an online customer portal on its WEB site to allow customers to lodge enquiries, complaints, provide feedback, view there quarterly invoices and water usages on-line.

6. Quality Assurance and Environmental Management

NWS is developing its business using the principles of ISO 9001 for quality assurance systems and ISO 14001 for Environmental management systems. At present NWS is going through the ISO process for gaining accreditation.

7. Document Control System

NWS has a central server system that access is provided to all staff and employees. The system archives all procedures, policies, management plans, work procedures, project specifications, equipment details, project drawing registers and drawings, OH&S documents, operation reports etc,

Or more information refer to,

- Appendix 5.1.7(a) Retail & Operation Systems, (T of C)

6.2 Retail supplier

Only provide a response to the questions in the following section if the applicant corporation is seeking a retail supplier's licence

6.2.1	Describe the structure of the applicant corporation. Include in the description a list of the entities that have an ownership interest in the applicant corporation, whether legal or equitable, and a list of the entities that the applicant corporation has an ownership interest in. **Provide an organisational diagram in Appendix 6.2.1.** The diagram should clearly show all entities that have an ownership interest in the applicant corporation.

The response will be used to assess the applicant corporation's technical and organisational capacity to undertake the activities for which you are seeking a licence (Act s.10(4)(a)).

NWS is solely owned by Leda Holdings Pty Ltd.

Or more information refer to,

- Appendix 6.2.1(a) NWS Organizational Chart,

6.2.2	Describe the applicant corporation's (and, where relevant, the nominated third parties) current experience in the supply of water or the provision of sewerage services. Please also outline any previous experience in the retailing of other services such as gas, electricity or telecommunications.

The response will be used to assess the applicant corporation's technical and organisational capacity to undertake the activities for which you are seeking a licence (Act s.10(4)(a)).

NWS staff have current experience in the supply of water and sewerage services under the local government act and WIC Act in NSW. Our third party the TSC have had many years as a water and sewerage provider under the local government act in NSW.

6.2.3	List the key personnel involved in the retail activities and summarise their required skills, qualifications and experience. **Provide a position description for each of the key personnel positions in Appendix 6.2.3.**

Clearly identify whether the key personnel are employees of the applicant corporation or, where relevant, the nominated third party. Ensure that the key personnel include the person or persons responsible for managing the applicant corporation's compliance with their legislative responsibilities.

The response will be used to assess the applicant corporation's technical and organisational capacity to undertake the activities for which you are seeking a licence (Act s.10(4)(a)).

NWS will set their retail business with experienced staff in the following retail management positions,

- Retail Manager

- Customer Relations Manager

- Customer Complaints Manager

For more information refer to,

- Appendix 6.2.3(a) Retail Staff Position Descriptions

6.2.4	Please provide details of any other regulatory approvals or licences the applicant corporation or nominated third party holds in relation to the retail activities for which you are seeking a licence.

Include relevant approvals for similar projects interstate or overseas to demonstrate the experience of the applicant corporation. We may seek confirmation of your compliance history in relation to other regulatory approvals or licences as part of our assessment.

The response will be used to assess the applicant corporation's technical and organisational capacity to undertake the activities for which you are seeking a licence (Act s.10(4)(a)).

Refer to information above in the other sections and refer to the relevant Appendix.

6.2.5	What business systems will the applicant corporation have in place to ensure they can comply with your regulatory requirements? Are any of the systems certified or will they be certified?

Business systems may include but not be limited to quality assurance and environmental management systems. Retails systems such as billing and complaint management should be included in the response to this question.

The response will be used to assess the applicant corporation's technical and organisational capacity to undertake the activities for which you are seeking a licence (Act s.10(4)(a)).

At present NWS is applying for accreditation and putting in place,

- Environmental Management system ISO 14001:2004

- Quality Management System ISO 9001:2008

- Safety Management System AS/NZ 4801:2001

- Appendix 5.1.7(a) Retail and Operation Systems. (T of)

7 Financial capacity

The response to the following questions will be used to assess the applicant corporation's financial capacity to undertake the activities for which you are seeking a licence (Act s.10(4)(a)).

Provide a response to the financial questions according to the following matrix:

	Question					
	7.1	**7.2**	**7.3**	**7.4**	**7.5**	**7.6**
Retail supply licence only	✓	✓	✓			
Network operator licence						
For infrastructure used for self supply	✓	✓				
For infrastructure used to supply large retail customers	✓	✓	✓			
For infrastructure used to supply small retail customers with non-essential services	✓	✓	✓	✓	✓	
For infrastructure used to supply small retail customers with essential services[a]	✓	✓	✓	✓	✓	✓

[a] Applicant corporations who are providing essential services to small retail customers will be required to meet with our financial assessment team following submission of the application to discuss the information requirements for making the financial capacity assessment.

7.1 How will the applicant corporation finance the proposed activity?

7.1.1	Describe the mechanisms by which the applicant corporation's activities are financed or to be financed. **Provide evidence of any financial guarantees or commitment of financial support in Appendix 7.1.1.**

Evidence of financial support may include, but is not limited to; a letter from a financial institution (being a bank, credit union or the government) confirming indicative financing of the applicant corporation's activities, including:

- the nature of finance (eg, bridging, long term, corporate debt, government funding)
- type and limit of the facility
- type and limit of any guarantee, and
- terms and conditions.

For more information on financial support from the parent company refer to,

- Appendix 7.4.2(a) Deed of Financial Guarantee & Indemnity (CIC)

7.2 Are there any events that could affect the applicant corporation's future financial capacity?

7.2.1	Are there any events or circumstances, that you are currently aware of, that could affect the applicant corporation's future financial capacity? If applicable, provide details of all such events relevant to the applicant corporation for the last 3 years from the date of this application.

Events and circumstances may include but are not limited to:

- Government or other investigation of the applicant corporation or related entities
- Contract terminated
- Factors which might impact on the applicant corporation such as significant litigation, business commitments, contingent liabilities, collections by debt collection agencies on behalf of creditors or liquidation proceedings
- Any outstanding tax liabilities
- Any other particulars which are likely to adversely affect the applicant corporation's capacity to undertake the services under the licence (if granted).

Nil: New clean Skin Business

7.3 What is the projected financial performance of the proposed activities?

7.3.1	Summarise the projected cash flows (net EBITDA), including key financial modelling assumptions, such as capex, for the first 5 years of operation (at minimum). Provide the projected cash flows for a minimum of the next five (5) years of operation (including projected closing balance sheets and profit and loss statements), taking into account the licensing agreements, with details of all key financial modelling assumptions in **Appendix 7.3.1**.

If necessary, a longer period may be provided to demonstrate financial viability of the project.

Refer to Projected Cash Flow for the first 5 - 20 years.

For more information refer to,

- Appendix 7.3.1 Projected Cash Flows, Balance Sheets & P&Ls, (C in C)

7.3.2	Where the applicant corporation is seeking a network operator's licence, who is the owner of the infrastructure for which the applicant corporation is seeking a licence?

Northern Water Solutions Pty Ltd

7.3.3	Where the applicant corporation is applying for a retail supplier's licence to supply water or provide sewerage service to residential households, provide an estimate of the cost per household per year to supply water and/or provide sewerage services (as is relevant). Who will pay the cost? What is the proposed price level and structure for the first five years of operation?

The response to this question will be used to determine whether there are any issues of public interest arising from the proposed scheme (Act s.10(4)(f)).

NWS charges the same rates as per the Local Government Water Utility in this case it is the Tweed shire Council.

The charges and operational costs are detailed in Appendix 7.3.3 and have been used in the 0 to 20 year cash flow schedule in Appendix 7.3.1.

For more information on rates, charges and operating costs refer to,

- Appendix 7.3.3 list of fees, charges & costs, (C in C)

7.4 What is the applicant corporation's financial history?

7.4.1	Does the applicant corporation have a financial history? If not, explain why.

N/A

7.4.2	Where the applicant is a new corporation, supported by one or more parent entities, provide a copy of guarantee or cross deed of indemnity provided by the parent entity, and financial statements for the parent entity for the last 3 years in **Appendix 7.4.2**.

Please include any parent entity with more than 20 per cent of equity in the applicant corporation.

Northern Water Solutions Pty Ltd is a new corporation wholly owned by Leda Holdings Pty Ltd. For financial statements for Leda Holdings Pty Ltd for the last 3 years contact Mr.

For a copy of the draft Deed of Financial Capacity & Guarantee refer to,

- Appendix 7.4.2(a) Draft Deed of Financial Capacity & Guarantee, (C in C)

7.4.3	Where the applicant is a new corporation financed through alternative arrangements (eg, debt or equity), provide a letter from a financial institution (eg, bank, credit union or the government) certifying an existing or proposed line of credit or financial support, and a copy of guarantee or cross deed of indemnity provided by an entity such as a holding company or Director (provide financial statements demonstrating the financial viability of the guarantor) in **Appendix 7.4.3**.
For confidential information contact (C in C)	
7.4.4	Where the applicant is not a new corporation, summarise the performance of the applicant corporation over the past 3 years below. Provide copies of tax returns for the corporation for the last 3 years in **Appendix 7.4.4(a)**. Provide financial statements for the last 3 years in **Appendix 7.4.4(b)**. Where the latest annual financial statements are more than 3 months old, provide the latest available management reports showing: ▾ a trading statement ▾ a profit and loss statement, and ▾ a trial balance.
It is preferable that these financial statements are audited. It is recognised that not all corporations are required to have their annual financial statements audited. However, where you are required to lodge audited financial statements with the Australian Securities and Investments Commission (ASIC), provide copies of these statements. (Note: consolidated accounts for the parent organisation or group to which the applicant corporation belongs would not be considered acceptable)	
N/A	
7.4.5	If applicable, what is the applicant corporation's credit rating? Provide the applicant corporation's Credit rating memorandum (eg, Standard & Poor's, Moody's or Fitch), if available in **Appendix 7.4.5**.
N/A	
7.4.6	Provide details of the applicant corporation's debt/equity finance and any debt covenants on existing borrowings.
N/A	
7.5 Contacts	
7.5.1	Does the applicant corporation have an accountant? If yes, what are the accountant's contact details?

Chief Financial Officer Contact: Mr. Email:	
7.5.2	Does the applicant corporation have an external auditor? If yes, what are the external auditor's contact details?
Leda Holdings head auditor. (C in C) Contact Mr. Company: Telephone:	
7.5.3	If required, may we contact the accountant and/or external auditor registered taxation agent to clarify any information provided?
Yes	
7.6 Internal accounting records	
7.6.1	Provide bank reconciliations, aged accounts receivable reports, and aged accounts payable reports in **Appendix 7.6.1** at the dates of: ▾ The latest management accounting reports (if applicable) and annual financial statements ▾ 30 September (most recent) ▾ 31 December (most recent) ▾ 31 March (most recent), and ▾ 30 June (most recent) for the applicant corporation.
N/A	
7.6.2	Provide an extract of the superannuation payable ledger in **Appendix 7.6.2** for: ▾ the 12 months ending on the date of the latest annual financial statements, and ▾ the period commencing on the date of the latest annual financial statements and ending on the date of the latest management accounting reports (if applicable) for the applicant corporation.
N/A	

7.6.3	Provide bank statements for the 3 months to the date of the latest management accounting reports (if applicable) or annual financial statements for the applicant corporation, whichever has been submitted with the application in **Appendix 7.6.3**.
N/A	

8 Statutory declaration and acknowledgement

To be completed by all applicants

8.1 Statutory declaration

Provide a statutory declaration from:

(a) the Chief Executive Officer and a director of the applicant corporation (each must complete a separate declaration); or

(b) the sole director and Chief Executive Officer of the applicant corporation; or

(c) such other person that IPART agrees may provide the statutory declaration/s;

to the effect that the information provided in the application is true and correct. For the purposes of Part 3 of this application form, the statutory declaration should also state that the applicant corporation is not a disqualified corporation and that no director or person concerned in the management of the applicant corporation is or would be a disqualified individual within the meaning of the WIC Act.

A statutory declaration must be signed by an authorised witness.

This is a list of NSW authorised witnesses:

- a justice of the peace;
- a solicitor or barrister with a current New South Wales or interstate practising certificate;
- a commissioner of the court for taking affidavits;
- a notary public; and
- a person by law authorised to administer an oath (eg, authorised witnesses in other jurisdictions).

8 Statutory declaration and acknowledgement

To be completed by all applicants

8.1 Statutory declaration

Provide a statutory declaration from:

(a) the Chief Executive Officer and a director of the applicant corporation (each must complete a separate declaration); or

(b) the sole director and Chief Executive Officer of the applicant corporation; or

(c) such other person that IPART agrees may provide the statutory declaration/s;

to the effect that the information provided in the application is true and correct. For the purposes of Part 3 of this application form, the statutory declaration should also state that the applicant corporation is not a disqualified corporation and that no director or person concerned in the management of the applicant corporation is or would be a disqualified individual within the meaning of the WIC Act.

A statutory declaration must be signed by an authorised witness.

This is a list of NSW authorised witnesses:

-. a justice of the peace;

-. a solicitor or barrister with a current New South Wales or interstate practising certificate;

-. a commissioner of the court for taking affidavits;

-. a notary public; and

-. a person by law authorised to administer an oath (eg, authorised witnesses in other jurisdictions).

I, do solemnly and sincerely declare that:

I.,.,W W\,O

1. I aR\s eirsstsr / the Chief Executive Officer **/** the sale diree!er aAEI Chief E*eeuiite Offieer [delete as applicable] of the applicant (named in the application form accompanying this declaration);

2. the information provided in this application is true and correct to the best of my knowledge;

3. I am aware of the requirements under the *Water Industry Competition Act 2006* (NSW) (WIC Act) for the licence being applied for;

4. the applicant corporation is not a disqualified corporation within the meaning of the WICAct;

5. no director or person concerned in the management of the applicant corporation is, or would be, a disqualified individual within the meaning of the WIC Act;

6. I have the authority to make this application on behalf of the applicant (named in the application form accompanying this declaration);

and I make this solemn declaration conscientiously believing the same to be true and by virtue of the provisions of th_e *Oaths Act 1900* (NSW).

Name of person making the declaration:

f>\--\._.:i ...._:,.::, ', U..:IA.I'C'\';,9

Title of person making the application:

Cl.:::..O

Signature of person making the declaration:

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Declared at

[place]:. -'-=-'c:,=-.,;=-"='=-c<:::s.' '----'"-c,.'o-..'S.-- _,Q'=--D---- - - - - -

On *[date]:* 12\05\2017

In the presence of an authorised witness, who states:

I *[insert name of authorised witness]*

IJ.//C/ L

a *[insert qualification to be authorised witness]*

Jeµ,>-VA-'-) ,

certify the following matters concerning the making of this statutory declaration by the person who made it: *r please cross out any text that does not apply]*

1. *I saw the face of the person or *I eliEI Ast see the faee sf lhe perseA beeause the persen was woarin!J a fase se'o'ering, but I am satisfied that the perseA had a speeiaW jusilfisallen fer no! rsmeving !he severing. /4

2. 'I liave RIIow11 tile persor, for at least 12 111011tl,s or *I have confirmed the person's identity using an identification document and the document I relied on was *[describe identification document relied on]* 1 e - /Ob '? A;t.7

Signature of authorised witness: _____ Date: 12·05·2017

JUSTICE OF THE PEACE (QUALIFIED)
QUEENSLAND GOVERNMENT
Reg. No.: 82591.
DEPT. OF JUSTICE & ATTORNEY-GENERAL

I, do solemnly and sincerely declare that:

1. I am a director / the Chiit **5XiGI.ltive** OffiGer .' the sele diFOater and Gl=lief **eHeeuU¥e O#ieer** [delete as applicable] of the applicant (named in the application form accompanying this declaration);

2. the information provided in this application is true and correct to the best of my knowledge;

3. I am aware of the requirements under the *Water Industry Competition Act 2006* (NSW) (WIC Act) for the licence being applied for;

4. the applicant corporation is not a disqualified corporation within the meaning of the WIC Act;

5. no director or person concerned in the management of the applicant corporation is, or would be, a disqualified individual within the meaning of the WIG Act;

6. I have the authority to make this application on behalf of the applicant (named in the application form accompanying this declaration);

and I make this solemn declaration conscientiously believing the same to be true and by virtue of the provisions of the *Oaths Act 1900* (NSW).

Name of person making the declaration:

WI I-L I .A /!..p f.,€¼ EU----

Title of person making the application:

£,/ -r

Signature of person making the declaration:

Declared at

[place]: SUlf£{<..J PA ,St€:

On *[d ate]:*

5 MAY 2017

In the presence of an authorised witness, who states:

I *[insert name of authorised witness]*

ll l./M- t

a *[insert qualification to be authorised witness]*

c.. EC-.. <ij'7 '?c;'(,

c ertify the following matters concerning the making of this statutory declaration by the person who made it: f *please cross out any text that does not apply]*

1 . *I saw the face of the person or *I **aia** **Rat** see the fooe of the persoA because u,e persen was wearing a kleo so•.«oring, 01:1t I aFA saUsfiod that tho person had a spoeial juetifieatiefl fer Aet reffietvifl§ Hie eeveriAQ.

2 *I have known the person for at least 12 months or *I ha•,e sonfirR'leel the person's ielontity using an ielentif i cation eosument ane tho deouA'lent I relied on was *e'eseribe icJefltifieatiofl e'oet:JffleRt* Uoe SRj _ _ _ _ _ _ _ _ _ _ _ _ _

Signature of authorised witness: _____ Date:

M.i\7 'Lo,

8.2 Acknowledgement

An acknowledgement should be provided by:

(a) company secretary and a director, or

(b) 2 directors, or

(c) in the case of a sole director, the sole director, or

(d) such other person that IPART agrees may provide the acknowledgement.

The applicant (named in the application form accompanying this acknowledgement) agrees to IPART furnishing a copy of the applicant's completed application form, including any confidential information contained in that application form, to:

- the Minister administering the *Water Industry Competition Act 2006* (NSW) (except Part 3)
- the Minister administering the *Public Health Act 1991* (NSW)
- the Minister administering Chapter 2 of the *Water Management Act 2000* (NSW)
- the Minister administering the *Environmental Planning and Assessment Act 1979* (NSW), and
- the Minister administering the *Protection of the Environment Operations Act 1997* (NSW),

in accordance with section 9(1) of the *Water Industry Competition Act 2006* (NSW) and clause 17 of the *Water Industry Competition (General) Regulation 2008* (NSW).

In the interest of expediting the processing of your application, would you please indicate below whether you agree to a copy of your completed application form (including any confidential information contained in that application form) being provided on a confidential basis directly to relevant departmental staff with responsibility to advise the Ministers named above on issues relating to the provision of water and sewerage services.

I **agree** that a copy of my completed application form (including any confidential information contained in that application form) may be provided to relevant departmental staff as outlined above.

D I **do not agree** that a copy of my completed application form (including any confidential information contained in that application form) may be provided to relevant departmental staff as outlined above.

Name of person making the acknowledgement: _____

Title of person making the acknowledgement: _____

[Director I Company Secretary]

On *[date]:* _____

Signature of person making the acknowledgement:

_____

Name of person making the acknowledgement:

_____

Title of person making the acknowledgement:

_____

[Director I Company Secretary]

On *[date]:* _____

The applicant (named in the application form accompanying this acknowledgement) agrees to IPART furnishing a copy of the applicant's completed application form, including any confidential information contained in that application form, to:

- the Minister administering the *Water Industry Competition Act 2006* (NSW) (except Part 3)
- the Minister administering the *Public Health Act 1991* (NSW)
- the Minister administering Chapter 2 of the *Water Management Act 2000* (NSW)
- the Minister administering the *Environmental Planning and Assessment Act 1979* (NSW), and
- the Minister administering the *Protection of the Environment Operations Act 1997* (NSW),

in accordance with section 9(1) of the *Water Industry Competition Act 2006* (NSW) and clause 17 of the *Water Industry Competition (General) Regulation 2008* (NSW).

In the interest of expediting the processing of your application, would you please indicate below whether you agree to a copy of your completed application form (including any confidential information contained in that applicationform) being provided on a confidential basis directly to relevant departmental staff with responsibility to advise the Ministers named above on issues relating to the provision of water and sewerage services.

I **agree** that a copy of my completed application form (including any confidential information contained in that application form) may be provided to relevant departmental staff as outlined above.

D I **do not agree** that a copy of my completed appllcation form (including any confidential information contained in that application form) may be provided to relevant departmental staff as outlined above.

Name of person making the acknowledgement: 0 "o\e ."\ /.:\ o\r\tJ ELL

Title of person making the acknowledgement: """-\\r" °|\t1_ DIRECTOR

[Director I CeFR13aRj' Sea,cefflry]

On *[date}*: ___ \"2 - Mf_'-___ 'A.D\7_ ____________________

Signature of person ma[redacted] knowledgement: r(LA, |-

Name of person making the acknowledgement:

____

Title of person making the acknowledgement:

____

[Director I Company Secretary]

On *[date}* : _

Signature of person making the acknowledgement:

_____

I, do solemnly and sincerely declare that:

1. I am a director / the Chief Executive Officer / the sole director and Chief Executive Officer [delete as applicable] of the applicant (named in the application form accompanying this declaration);

2. the information provided in this application is true and correct to the best of my knowledge;

3. I am aware of the requirements under the *Water Industry Competition Act 2006* (NSW) (WIC Act) for the licence being applied for;

4. the applicant corporation is not a disqualified corporation within the meaning of the WIC Act;

5. no director or person concerned in the management of the applicant corporation is, or would be, a disqualified individual within the meaning of the WIC Act;

6. I have the authority to make this application on behalf of the applicant (named in the application form accompanying this declaration);

and I make this solemn declaration conscientiously believing the same to be true and by virtue of the provisions of the *Oaths Act 1900* (NSW).

Name of person making the declaration:

_____

Title of person making the application:

_____

Signature of person making the declaration:

_____

Declared at
[place]:_____

On *[date]*:

_____

In the presence of an authorised witness, who states:

I *[insert name of authorised witness]*

_____,

a *[insert qualification to be authorised witness]*

_____,

certify the following matters concerning the making of this statutory declaration by the person who made it: *[* please cross out any text that does not apply]*

1. *I saw the face of the person or *I did not see the face of the person because the person was wearing a face covering, but I am satisfied that the person had a special justification for not removing the covering.

2. *I have known the person for at least 12 months or *I have confirmed the person's identity using an identification document and the document I relied on was [*describe identification document relied on*]_____.

Signature of authorised witness:_____Date:
_____

8.2 Acknowledgement

An acknowledgement should be provided by:

(a) company secretary and a director, or

(b) 2 directors, or

(c) in the case of a sole director, the sole director, or

(d) such other person that IPART agrees may provide the acknowledgement.

The applicant (named in the application form accompanying this acknowledgement) agrees to IPART furnishing a copy of the applicant's completed application form, including any confidential information contained in that application form, to:

- the Minister administering the *Water Industry Competition Act 2006* (NSW) (except Part 3)
- the Minister administering the *Public Health Act 1991* (NSW)
- the Minister administering Chapter 2 of the *Water Management Act 2000* (NSW)
- the Minister administering the *Environmental Planning and Assessment Act 1979* (NSW), and
- the Minister administering the *Protection of the Environment Operations Act 1997* (NSW),

in accordance with section 9(1) of the *Water Industry Competition Act 2006* (NSW) and clause 17 of the *Water Industry Competition (General) Regulation 2008* (NSW).

In the interest of expediting the processing of your application, would you please indicate below whether you agree to a copy of your completed application form (including any confidential information contained in that application form) being provided on a confidential basis directly to relevant departmental staff with responsibility to advise the Ministers named above on issues relating to the provision of water and sewerage services.

☐ I **agree** that a copy of my completed application form (including any confidential information contained in that application form) may be provided to relevant departmental staff as outlined above.

☐ I **do not agree** that a copy of my completed application form (including any confidential information contained in that application form) may be provided to relevant departmental staff as outlined above.

Name of person making the acknowledgement:_____

Title of person making the acknowledgement:_____

[Director / Company Secretary]

On *[date]:* _____

Signature of person making the acknowledgement:

_____

Name of person making the acknowledgement:

_____

Title of person making the acknowledgement:

_____

[Director / Company Secretary]

On *[date]:* _____

Signature of person making the acknowledgement:

_____

Attachment A: Summary of appendices

Applicant:	Northern Water Solutions Pty Ltd
Scheme name:	KINGS FOREST SCHEME
Date:	5th of May 2017

Are the following supporting documents labelled and attached as appendices?

Item	Confirm complete
Part 3: general information	
■ Copies of relevant insurance certificates (Appendix 3.3.1)	Yes
■ Other regulatory approvals/licences (Appendix 3.5.1)	Yes
Part 4: network operator (if applicable)	
For **drinking water** infrastructure	Yes
■ A process flow diagram from source to end use showing infrastructure that is existing or to be constructed, interconnections and customers and/or end users (Appendix 4.1.1)	Yes
■ A map of the proposed infrastructure from source to end use showing interconnections and customers and/or end users (Appendix 4.1.3)	Yes
■ Where relevant, a copy of any agreements and/or licences to access the source water (Appendix 4.1.6)	Yes
■ A preliminary risk assessment for the scheme from source to end use (Appendix 4.1.9)	Yes
■ Evidence of the applicant's capacity to implement the 12 elements of the Australian Drinking Water Guidelines Framework (Appendix 4.1.10)	Yes
■ Evidence of the applicant's capacity to develop and implement an infrastructure operating plan (Appendix 4.1.12)	Yes
■ Any environmental study and/or risk assessment (Appendix 4.1.13)	Yes
For **non-potable water** infrastructure	
■ A process flow diagram from source to end use showing infrastructure that is existing or to be constructed, interconnections and customers and/or end users (Appendix 4.2.1)	Yes

Item	Confirm complete
■ A map of the proposed infrastructure from source to end use showing interconnections and customers and/or end users (Appendix 4.2.3)	Yes
■ Where relevant, a copy of any agreements and/or licences to access the source water (Appendix 4.2.6)	N/A
■ A preliminary risk assessment for the scheme from source to end use (Appendix 4.2.10)	Yes
■ Evidence of the applicant's capacity to implement the 12 elements of the Australian Guidelines for Water Recycling Framework (Appendix 4.2.11)	Yes
■ Evidence of the applicant's capacity to develop and implement an infrastructure operating plan (Appendix 4.2.13)	Yes
■ Any environmental study and/or risk assessment (Appendix 4.2.14)	Yes
For **sewerage infrastructure**	
■ A process flow diagram from collection to disposal or reuse showing infrastructure that is existing or to be constructed, and interconnections (Appendix 4.3.1)	Yes
■ A map of the proposed infrastructure from collection to disposal or reuse showing interconnections (Appendix 4.3.3)	Yes
■ A summary report of any wastewater characterisation or catchment studies (Appendix 4.3.8)	Yes
■ A preliminary risk assessment for the scheme from collection to disposal (Appendix 4.3.9)	Yes
■ Evidence of the applicant's capacity to develop and implement an infrastructure operating plan (Appendix 4.3.10)	Yes
■ Any environmental study and/or risk assessment (Appendix 4.3.12)	Yes
■ Where relevant, a copy of a soil capability assessment (Appendix 4.3.13)	Yes
Pat 5: retail supplier (if applicable)	
For the **supply of water**	
■ Where relevant, a copy of any agreements and/or licences to access the source water (Appendix 5.1.2)	Yes
■ A preliminary risk assessment for the retail activities related to the scheme (Appendix 5.1.5)	Yes
■ Evidence of the applicant's capacity to develop and implement a retail supply management plan (Appendix 5.1.7)	Yes

Item	Confirm complete
For the **provision of sewerage services**	
■ A preliminary risk assessment for the retail activities related to the scheme (Appendix 5.2.4)	Yes
■ Evidence of the applicant's capacity to develop and implement a retail supply management plan (Appendix 5.2.6)	Yes
Part 6: applicant experience and systems	
For a **network operator** (if applicable)	
■ An organisational diagram (Appendix 6.1.1)	Yes
■ Position descriptions for each of the key personnel positions (Appendix 6.1.3)	Yes
For a **retail supplier** (if applicable)	
■ An organisational diagram (Appendix 6.2.1)	Yes
■ Position descriptions for each of the key personnel positions (Appendix 6.2.3)	Yes
Part 7: financial capacity	
■ Evidence of any financial guarantees or commitment of financial support (Appendix 7.1.1)	Yes
■ Where relevant, projected cash flows for minimum 5 years and key financial modelling assumptions (Appendix 7.3.1)	Yes
■ Where relevant, the guarantee or cross deed of indemnity provided by the parent entity, and financial statements for the parent entity for the last 3 years (Appendix 7.4.2)	Yes
■ Where relevant, evidence of alternative funding arrangements such as a letter, guarantee or cross deed of indemnity provided by the guarantor (Appendix 7.4.3)	N/A
■ Where relevant, tax return for the applicant for the last 3 years (Appendix 7.4.4(a))	N/A
■ Where relevant, financial statements for the applicant for the last 3 years (Appendix 7.4.4(b))	N/A
■ Where relevant, the applicant's credit rating memorandum (Appendix 7.4.5)	N/A
■ Where relevant, bank reconciliations, aged accounts receivable reports, and aged accounts payable reports (Appendix 7.6.1)	N/A
■ Where relevant, extracts of the superannuation payable ledger (Appendix 7.6.2)	N/A

Item	Confirm complete
■ Where relevant, bank statements for the 3 months to date or annual financial statements (Appendix 7.6.3)	N/A