IPART
New South Wales

Independent Pricing and Regulatory Tribunal

Network Operator and Retail Supplier Licence Application Form

***Water Industry Competition Act 2006* (NSW)**

Application Form
June 2013

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

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Independent Pricing and Regulatory Tribunal of New South Wales
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www.ipart.nsw.gov.au

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	
Geoffrey Cameron	
Position title	Email address
Director	geoffcameron@ozemail.com.au
Business telephone number	Mobile telephone number
Postal address for correspondence	
ADDRESS	
25 Research Road	
Narara	
STATE	POST CODE
NSW	2250
SECONDARY CONTACT	
☒ Please check if the secondary contact should be copied into all correspondence.	
Full name	
John L Talbott	
Position title	Email address
Project Director	john@nararaecovillage.com
Business telephone number	Mobile telephone number
Postal address for correspondence	
ADDRESS	
2/83 Ramsgate Avenue	
Bondi	
STATE	POST CODE
NSW	2026

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	
Narara Ecovillage Co-operative Ltd	
ABN/ARBN	ACN
86 789 868 574	
Corporation's registered office	
ADDRESS	
Andrews and Holm Lawyers	
L7, 46 Market Street	
STATE	POST CODE
NSW	2000
Corporation's principal place of business	
ADDRESS	
25 Research Road	
Narara	
STATE	POST CODE
NSW	2250

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	Stuart King
Position title	Director, Chair
Date of birth	

Residential address	
ADDRESS	
STATE	POST CODE
PERSON TWO	
Full name	John Talbott
Position title	Director
Date of birth	
Residential address	
ADDRESS	
STATE	POST CODE
PERSON THREE	
Full name	Lyndall Parris
Position title	Director
Date of birth	
Residential address	
ADDRESS	
STATE	POST CODE
PERSON FOUR	
Full name	Mark Fisher
Position title	Director
Date of birth	
Residential address	
ADDRESS	
STATE	POST CODE
PERSON FIVE	

Full name	Geoff Cameron	
Position title	Director	
Date of birth		
Residential address		
ADDRESS		
STATE		POST CODE
PERSON SIX		
Full name	Donna Carey	
Position title	Director	
Date of birth		
Residential address		
ADDRESS		
STATE		POST CODE
PERSON SEVEN		
Full name	Verena MacLean	
Position title	Director	
Date of birth		
Residential address		
ADDRESS		
STATE		POST CODE

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.		
Construction of the network infrastructure to commence - March 2016 Construction of the temporary waste water treatment plant to commence - May 2016 Operation of the temporary potable water system and temporary waste water treatment plant to commence - October 2016 Supply to small retail customers to commence - December 2016		

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)).

As at December 2015 NEV had the following insurance policies in place:

Insurance Company	Insurance Coverage	Policy Number	Cover provided
GIO Insurers	GIO Business Insurance Fire and other damage. Public and Products Liability	GS00308716	Buildings: $2,142,450 Residences: $272,000 & $456,000 Public & Products Liability: $20,000,000
AIG Australia Ltd	Management Liability Corporate Liability Employment Practices Liability Crime Protection Statutory Liability	9607815PVE	Aggregate Limit of Liability $10,000,000
CGU Insurance Ltd	Personal Accident Insurance	V507440	For up to 30 volunteers. Aggregate limit $1,000,000
GIO	Commercial Motor vehicle policy	GS00386296	Mobile machinery Kubota tractor

Certificates of currency are attached at Appendix 3.3.1.

Product disclosure statements for current policies are provided as Appendix 3.3.1.5 and Appendix 3.3.1.6.

In February/March 2016 NEV reviewed its insurance arrangements and implemented the following additional or upgraded policies effective 3rd April 2016:

POLICT TYPE	POLICY NUMBER	COMMENT
Commercial Combined Insurance Policy	ONE-5143	Insurer: Lloyds of London Expiry Date 3rd April 2017 Insured Activity: Ecovillage and community program provider, Property Owner- Office &Community Buildings, Staff & Volunteer Accommodation, holder of water license including, but not limited to, all associated activities and any other activity incidental thereto Material Damage Limit of Liability $8,000,000 General & Products Liability $20,000,000 Policy Schedule & Wording attached
Workers Compensation (NSW)	WGB160236390122	As Per Statute Includes contractors deemed employees

Updated insurance arrangements comprising Risk Review Commentary, Lloyds Genesis One Certificate of Currency, policy schedule and policy wording are provided as Appendix 3.3.2.2, Appendix 3.3.2.3, Appendix 3.3.2.4 and Appendix 3.3.2.5.

NEV will implement construction insurance during the construction phase of the project.

NEV will establish further appropriate insurance cover as recommended by its broker in the Insurance & Risk Management Report prior to commercial operation.

Supply to small retail customers estimated to commence - December 2016

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)).

A report from an independent insurance broker taking into consideration NEV's business activity of: Ecovillage residential community, provider of community programs, property owner of 63 hectares and holder of related licences including WICA Licensing is attached at:

Appendix 3.3.2.1 - Narara Ecovillage Insurance & Risk Management Report.

An updated Risk Review Commentary is provided at Appendix 3.3.2.2.

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	
Aquacell Pty Ltd	
ABN/ARBN	ACN
79 072 487 015	
Corporation's registered office	
ADDRESS	
Suite 4, First Floor, 95 Henry Street	
Penrith	
STATE	POST CODE
NSW	2750

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.

NEV as the WICA license holder will be responsible for all aspects of the operation of the scheme and any conditions attached to the license.

To assist with the design, construction, documentation, monitoring and maintenance of the scheme NEV will sub-contract specific duties to its experienced third party sub-contractor Aquacell.

The principal activities sub-contracted to Aquacell are:

Design, construction, commissioning, documentation, monitoring and maintenance of the potable water treatment plant

Design, construction, commissioning, documentation, monitoring and maintenance of the temporary waste water treatment plant

Design, construction, commissioning, documentation, monitoring and maintenance of the permanent waste water treatment plant

Design, construction, commissioning, documentation, monitoring and maintenance of the level gauges, chlorine monitoring equipment and chlorine dosing system at the potable water header tanks.

NEV and Aquacell Role Assignments are specified in attachments:

Appendix 3.4.2.1 - Role Assignments - Potable Water
Appendix 3.4.2.2 - Role Assignments - Non-Potable and Sewerage
Appendix 3.4.2.3 - Role Assignments Catchment Reservoir and Dam

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 draft contracts and signed letter of intent between NEV and Aquacell covering:

Design, construction, commissioning, documentation, monitoring and maintenance of the potable water treatment plant
Design, construction, commissioning, documentation, monitoring and maintenance of the temporary waste water treatment plant
Design, construction, commissioning, documentation, monitoring and maintenance of the permanent waste water treatment plant
Design, construction, commissioning, documentation, monitoring and maintenance of the level gauges, chlorine monitoring equipment and chlorine dosing system at the potable water header tanks.

Are attached as:
Appendix 3.4.3.1 and 3.4.3.1B - Aquacell - NEV Contracts (Confidential application)
and
Appendix 3.4.3.2 - Signed Letter of Intent

Revised draft Aquacell contracts are attached as Attachments C1 and C2. (Confidential application)

Proposed contract execution timeframes are:
- GCC –June/July 2016
- Aquacell – June/July 2016
- Civil and hydraulic infrastructure –June/July 2016

3.4.1.B Other Third Parties

Water cycle analysis for the scheme, including water supply security, recycled water and irrigation studies, and reservoir and catchment management has been sub-contracted to:
Woodlots and Wetlands Pty Ltd
ABN 21 075 011 460
220 Purchase Road
Cherrybrook NSW 2126

Hydraulic design of the reticulation network has been sub-contracted to:

C J Arms and Associates
ABN 59 144 919 193
Level 2, 24 Hickson Road
Millers Point NSW 2000
www.cjarms.com.au

CJ Arms and Associates Pty Ltd is responsible for the design of the potable water reticulation

system, sewerage system and the non-potable sewerage reticulation system. This role includes the preparation of specifications and tender documents for the construction of the reticulation systems to ensure compliance with relevant standards.

Construction of the reticulation network will be sub-contracted to a civil construction contractor which will be selected from the following list by a competitive tender process:

Scape Constructions, Terrigal NSW
Robson Civil, Somersby NSW
KCE Beresfield, Beresfield NSW
Daracon Group, Wallsend NSW
Bolte Civil, Tuggerah NSW

A draft contract which will be used for construction of the reticulation network is attached as:

Appendix 3.4.3.3 - Tender Specification for Network Construction

The tender selection process which will be used for selection of the civils contractor is described in attachments:

Appendix 3.4.3.4 - Civil Construction Tender Selection Criteria
Appendix 3.4.3.5 - Best Practice Guide for Tendering

Dam safety analysis and dam safety management has been sub-contracted to:

Pells Consulting
ABN 74 978 620 434
49 Lakeside Drive
MacMasters Beach NSW 2251
www.pellsconsulting.com.au

NEV policies for engaging contractors are attached as -

Appendix 3.4.3.6 - Engaging Contractors and Consultants Policy
Appendix 3.4.3.7 - NEV Contractor Agreement_May 2015

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 proposed scheme forms part of the NEV residential sub-division project.

The Narara Ecovillage is located at 25 Research Road, Narara and is legally referred to as Lot 13 in DP 1126998. The site has a total site area of approximately 62.69 hectares. It is proposed to develop the site in stages as illustrated in the Staging Plan at Appendix 3.5.1.1.

The project site was purchased from NSW Department of Agriculture in 2013 and all of the proposed licensed infrastructure and activities are located within the site.

Stage 1 comprises a 40 lot community tittle subdivision and the construction of two cluster housing developments (27 houses in total) on residential Lots 15 and 36 (equivalent to approximately 60 dwellings in total).

Development consent (44994/2013 Part 1) was issued by Gosford City Council on 8 August 2014 for the community title subdivision of the entire NEV site (39 lots) and the construction of associate infrastructure to support Stage 1 of the development

The associated infrastructure includes the essential utility services and infrastructure to service Stage 1 of the development including the integrated water management system (sewer and water supply). The waste water treatment and recycled water system will be constructed in stages with the Stage 1 system capable of handling at least 30kL/day.

A copy of the Development Consent is included in Appendix 3.5.1.2.

The following conditions which specifically relate to the water and sewer supply are noted:

- Condition 1.1 - references approved plans and supporting information including Statement of Environmental Effects (Stage 1 subdivision and associated works) and relevant plants including Water and Waste Water Systems Overview and NEV Concept Integrated Water Scheme Design prepared by Aquacell;

- Condition 2.1.6 - specifies that water use from the existing dam for domestic water supply must be subject to appropriate approvals under the Water Management Act 2000;

- Condition 5.8 - requires satisfactory arrangement to be made for the provision of water and sewer services to the land; and

- Condition 5.15 - requires a license to be obtained under the Water Industry Competition

Act 2006

In relation to these conditions, it should be noted that:

- All WICA infrastructure which is the subject of this application is contained within the development consent outlined above;

- A Water Access License has been obtained from the NSW Office of Water for 29ML/year from the on-site dam - refer Appendix 3.5.1.5;

- The water modeling referred to in 4.1.13 is for the fully developed site, consisting of 130 lots (with some contingency). This is to demonstrate that the site can be sustained through the proposed potable water strategy when fully developed; and

- Development applications for the construction of individual dwellings and other development (eg community facilities which are part of the sustainable ecovillage) within Stage 1 and in future stages in the development of the NEV site will be lodged with Gosford City Council, as appropriate.

The Statement of Environmental Effects which was submitted above with the development application is provided at Appendix 4.1.13.1.

A detailed description of the Stage 1 development is provided in Section 3.0 of the Statement of Environmental Effects.

The water and sewer infrastructure is described in detail in Section 3.6 of this Statement of Environmental Effects.

It should be noted that development consent has also been obtained from Gosford City Council for the construction of two separate cluster housing developments on two of the lots (Lots 15 and 36) comprising a total of 27 dwellings. Copies of the relevant Notice of Determinations are included in Appendix 3.5.1.3 and 3.5.1.4.

In September 2015 NEV lodged a Section 96A application to vary the subdivision conditions of consent in regards to road and lot layout as shown in the Stage 1 Sec 96 Application plan at Appendix 3.5.1.2B. NEV are awaiting a decision from Gosford City Council on consent for this application.

It is anticipated that future stages of the project will bring the total number of residential lots to be serviced to between 120 and 140 lots. Development applications for future stages in the development of the NEV site will not be lodged with Gosford City Council until further sales have been made.

A Controlled Activity Application will be lodged for development works within 40m of a first order stream within the site.

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 applicant does not believe that the supply of water and/ or sewage services to customers will be a monopoly service. The rules of Narara Ecovillage Co-operative require the purchaser of each lot to maintain a minimum of 20,000 shares in the co-operative. The members of the co-operative have determined that Narara Ecovillage Co-operative shall be the provider of water and sewer services to the project but could collectively choose another service provider in the future. The Narara Ecovillage Co-operative Disclosure Statement is attached at Appendix 3.6.1.1. The rules of Narara Ecovillage Co-operative are set out in the attachment at Appendix 3.6.1.2. There are two classes of customers in the proposed scheme: - Residential customers - Community facilities which are or will be owned by the Community Association The opinion and reasoning above applies to both classes of customer.	

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

1. Protection of public health, public safety and consumers

Public health, public safety and consumers will be protected through the following:

By sourcing raw water from a high quality, secure resource which is appropriately monitored and managed.

By processing the raw water in a plant which has been appropriately designed, tested and monitored by an experienced operator using proven and reliable treatment technologies.

Customers will be protected under our Water Quality Policy (attached as Appendix 3.7.1.1) which outlines our commitment and policies in relation to water quality.

By monitoring, testing and managing the potable water from source to tap.

By producing high quality fit for purpose recycled water using proven and reliable treatment technologies.

Under the Aquacell contract, Aquacell will only supply treated water which meets all relevant Australian standards and guidelines. In particular the Australian Drinking Water Guidelines 6 -2011, Version 2.0 Updated December 2013, and the Australian Guidelines for Water Recycling 2008, both from NHMRC/NMMRC

By taking a risk based approach to the design, operation and maintenance of the scheme.

Customers will also be protected under our Customer Service Charter (attached as Appendix 3.7.1.2) which outlines our commitment and policies in relation to Customer enquiries and complaints.

By operation and maintenance of all infrastructure for the life of the scheme based on best practice principles and water industry standards.

By having key personnel involved in operation and management of the scheme who are resident in the licensed area and customers of the scheme and will be available 24 hours per day to respond promptly to incidents and emergencies.

2. Protection of the environment

The Statement of Environmental Effects and the supporting technical reports which include the Conservation Management Plan, the Arboricultural Impact Assessment, the Flora and Fauna Gap Analysis, the Ecological Restoration Plan, the Erosion and Sediment Control Plan, the Waste Management Plan and the Bushfire Protection Assessment have been lodged with the Stage 1 Development Application.
The following technical reports were also lodged and are appended as:
- Odour Impact Assessment - Appendix 4.1.13.2
- Noise Impact Assessment - Appendix 4.1.13.3
- Noise and Vibration Management Plan - Appendix 4.1.13.4

These reports have assessed the potential environmental impacts resulting from the construction and operation of the water infrastructure proposed in this WICA application.

Where relevant, recommendations have been made to mitigate environmental impacts. Reference should be made to Section 5.0 (Environmental Assessment) of the Statement of Environmental Effects. (Appendix 4.1.13.1)

Development Applications applicable to the site outline Gosford City Council's (GCC) requirements for the subdivision to proceed. This includes a number of conditions directly related to environmental responsibilities during the construction phase on site.

NEV have appointed Joel Green and Trevor Battle of TCB Project Management as its Project Managers to oversee the construction works. Joel and Trevor's resumes are included in Appendix 6.1.3.2. (Confidential application) This shows he has a demonstrated history of managing similar projects. They are experienced in complying with the general environmental conditions relevant to undertaking works on site, including the installation of water infrastructure.

The networks will be installed as part of the civil works occurring on site, and these will come under the direct supervision of NEV. Environmental management is noted in NEV's selection criteria shown in Appendix 3.4.3.3 - Tender Specification for Network Construction and Appendix 3.4.3.4 - Civil Construction Tender Selection Criteria to ensure the network constructor has a demonstrated history of environmental management.

Detailed risk assessments have been prepared for water - catchment to tap; sewage management and recycled water as noted above. The irrigation scheme has been conceived after completing a Land Capability Assessment, specific to this site, to ensure sustainable irrigation and management of the water cycle. A low rate of irrigation is to be used to minimise the possibility of recycled nutrients entering waterways.

Infrastructure operating plans will be developed for the services which will address specific environmental risks during operation.

NEV's Draft Environmental Management Procedure is attached as Appendix 3.7.1.3.

3. Encouragement of competition

The proposed scheme encourages competition in the water industry by providing NEV with an alternative to being serviced by Gosford City Council.

During preliminary discussions, Gosford City Council estimated that head works required to connect all 120 lots to their services may cost in excess of $20,000,000. If an alternative service provider under the WICA legislation was not available then the sub-division project would have been financially unviable.

4. Sustainability of water resources

The proposed scheme will provide a sustainable and drought-proof supply of water for the project. Re-use of water is maximised by recycling to toilets, landscaping and open irrigation.

100% of water is recycled for re-use on site.

Potable water is to be sourced from an existing onsite dam using an existing water access license hence no new potable water resources are being utilised and a new potable water resource is to be created.

5. Promotion of production and use of recycled water.

The Narara Ecovillage project is widely known in the wider community and has featured on ABC TV 7:30 Report.

Narara Ecoliving Network, which is the not-for-profit arm of Narara Ecovillage Co-operative runs the annual Ecoburbia Festival at Narara which promotes all aspects of sustainable living and attracts several thousand attendees each year.

The NEV website (www.nararaecovillage.com) discussess water cycle management for the project.

Gosford City Council have been informed, and subject to the formal consultation process, have been receptive to the concept.

6. Promotion of recycled water policy

The project is designed to recycle 100% of potable water for use in toilet flushing, domestic garden watering and agricultural irrigation.

Narara Ecovillage Co-operative supports and promotes the responsible use of recycled water and the application of a management approach that consistently meets the Australian Guidelines for Water Recycling.

7. Adverse financial implications

Prices charged by Aquacell for delivery of potable and recycled water from the potable water and waste water treatment plants to NEV will be fixed under the contracts agreed between the two parties.

As mentioned above, the rules of Narara Ecovillage Co-operative require the owner of each lot to be a member of the co-operative. Hence the customers of the services subject to this license will collectively have the ability to determine pricing policy and supply contract terms and conditions.

The potential of adverse financial events have been considered in a Project Risk Assessment, which considers the financial risks of this scheme (refer Appendix 3.7.1.4.) This was completed by NEV, and has since been reviewed by Risk Management experts (RiskEdge).

8. Promotion of equitable sharing of drinking water infrastructure costs

The scheme will use potable water sourced from an existing dam, which is currently used for irrigation. The repurposing of this water source provides an opportunity for sustainable residential development without imposing additional costs on the public water infrastructure.

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)).

A temporary supply connection to Gosford potable water will be used for a period of up to 18 months after the first 30 houses are constructed and occupied. This supply will then be replaced with the proposed permanent potable water system.

The temporary supply will access the existing Gosford City Council supply at the site boundary via a break tank and air gap located at the proposed WWTP. NEV will be responsible for all water infrastructure downstream from the potable water connection at the site boundary.

The temporary supply will then be pumped and stored in header tanks and delivered to customers via a reticulation network which will form part of the permanent system.

When the proposed permanent potable water system is commissioned potable water is to be sourced from an existing 45ML onsite reservoir known as Narara Dam.

Aquacell, with the assistance of NEV, have undertaken a sampling program on the Narara dam reservoir. Approximately 30 samples were taken over an 8 month period. The 8 month period started in August 2014 and finished at the end of March 2015.

An initial 12 week program was complete and the results of this sampling program was documented in the Narara Ecovillage Water Reservoir Initial Sampling Report which is included as Appendix 4.1.1.1.

Based on these results, further sampling was undertaken. The results of this sampling is documented as Narara Ecovillage Water Reservoir Follow Up Sampling Report in Appendix 4.1.1.2.

All samples were grab samples taken from the dam wall approximately at the location of the existing floating intake structure. This intake structure is the proposed extraction point for the

water treatment plant. The samples were taken at a depth of between 0.5 and 1 metre using a sampling device on a pole. The samples therefore closely replicate the quality of the water that would be delivered to the water treatment plant.

The water quality monitoring carried out so far identifies a number of water quality parameters that need to be addressed. The primary ones are colour, iron, manganese, low alkalinity and low hardness. The technical solution chosen for the treatment plant is a multi-barrier treatment process using a dual membrane system. The system incorporates oxidation for iron and manganese precipitation, ultra- filtration for disinfection and iron and manganese removal, and nano-filtration for colour and organics removal. There is post stabilisation of the water using calcite and alkalinity adjustment to ensure the water quality standards set out in the Australian Drinking Water Guidelines are met.

As it is an open water source there may be some potential for blue green algae blooms. The probability of this is considered low due to the catchment comprising almost entirely of conservation forest. The nano- filtration step in the potable water treatment plant has been selected with a molecular weight cut off to remove a very high level of algal toxins should they be present.

Periodic sampling to monitor source water quality will be included as part of the ongoing management of the dam reservoir. This will likely include sampling at various locations and depths around the dam. The sampling program will be detailed in the Reservoir Management Plan.

Narara Dam is categorised as a Low Consequence category dam. The dam has been de-prescribed by DPI. Pells Consulting have been engaged by NEV to prepare a Dam Safety Inspection Report and a Draft Dam Safety Management System according to the guidance in ANCOLD, 2003 applicable to a LOW hazard category dam and the Dam Safety Management System (SMS) outlined in document DSC2A, published by the NSW Dam Safety Committee. These reports are attached as Appendix 4.1.1.3 and Appendix 4.1.1.4.

The Narara Dam Operations and Maintenance Manual and Dam Safety Emergency Plan are provided in the SMS and will be included in the IOP for the scheme.

The SMS includes an inspection program which complies with Tables 5.1 and 5.2 of ANCOLD 2003. Monthly inspections will be undertaken by Pells Consulting until NEV staff have received appropriate training.

The SMS sets out requirements for Dam Safety Reviews as per ANCOLD 2003. Comprehensive surveillance is not required for a LOW hazard dam, as per ANCOLD 2003.

5 yearly intermediate inspections and review of the dam failure consequences, as per ANCOLD 2003, are required in the SMS.

1 in 100 Annual Exceedance Probability (AEP) study plans are attached as Appendix 4.1.1.4B.

The SMS includes include targets, systems and a program for carrying out safety improvements to the dam, including vegetation management.

NEV staff will establish and maintain a dam Databook.

An operations and maintenance manual, for dam safety, has been prepared as part of the SMS. This manual has been set out according to ANCOLD 2003, Appendix A. Document controls are specified in this report. Roles and responsibilities are also specified in this report.

Flood studies and mapping have been included in the SMS / O&M report. An overlay of flood scenarios on the planned development has been provided.

NEV in consultation with Pells Consulting are developing a Dam Safety Management Policy attached as Appendix 4.1.1.4C.

The raw dam water will be treated in a potable water treatment plant to be designed, constructed, monitored and maintained by Aquacell. The plant design uses ultrafiltration, nanofiltration, UV and chlorination to ensure compliance with the Australian Drinking Water Guidelines (ADWG).

Drinking water will be stored in 400 kL header tanks which will provide buffer storage for drinking water and the required storage for fire fighting water. The header tanks will have residual chlorine monitoring and dosing systems and a recirculation system to ensure residual chlorine levels remain within required limits.

Drinking water will be gravity fed to customers via a ring main distribution network.

A metered potable water connection will be provided to each residential lot and community facility within the scheme.

This WICA application is for Stage 1 of the project only as DA approval for the sub-division only covers stage 1. Information on Stage 2 is FYI only (and is best guess since Stage 2 has not been designed yet).

A detailed process flow diagram of the proposed drinking water infrastructure for Stage 1 and Stage 2 is provided in Appendix 4.1.1.5 and Appendix 4.1.1.6.

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).

The infrastructure is new with the exception of the existing Narara Dam and an existing 124 kL concrete in-ground header tank located at the top of the Western Rural Lot to be used for wet weather storage of back-wash water from the potable water treatment plant.

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 proposed scheme is located entirely within lot 13 in Deposited Plan 1126998 which is the site of the proposed NEV residential sub-division project.

A map showing the location of the proposed water infrastructure from source to end use is provided in Appendix 4.1.3.1.

A plan showing the proposed Narara Community Title Subdivision is attached at Appendix 4.1.3.2.

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.

A temporary supply connection to Gosford potable water will be used for a period of up to 18 months after the first 30 houses are constructed and occupied. This supply will then be replaced with the proposed permanent potable water system.

The temporary supply will access the existing Gosford City Council supply at the site boundary via a break tank and air gap located at the proposed WWTP. NEV will be responsible for all water infrastructure downstream from the potable water connection at the site boundary.

A copy of the Deed of Agreement - Interim Water Connection with Gosford City Council for temporary access to the town water supply is attached at Appendix 4.1.4.

GCC are redrafting the agreement to more clearly show that their potable water service will be available for a period of 18 months after 30 houses are constructed and occupied or until our proposed WICA licensed PWTP becomes operational.

There are no other interconnections with other infrastructure.

GCC are redrafting the proposed agreement to more clearly show that their potable water service will be available for a period of 18 months after 30 houses are constructed and occupied or until our WICA licensed PWTP becomes operational.

The revised agreement is expected to be signed in June/July 2016.

According to the NEV Project Plan 30 houses will be completed and occupied at

approximately the end of 2017. Hence the WICA licensed PWTP will need to be brought on-stream by mid-2019.

The duration of the temporary supply is appropriate as it is intended to delay expenditure of the capital required to build the PWTP until after members have paid for their lots and hence reduce the interest expense incurred in funding the construction.

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.

As the WICA license holder, NEV is responsible for the construction, operation and maintenance of all water infrastructure from source to customer connection.

NEV will be responsible for the design, construction, commissioning and maintenance of the distribution network up to the customer connection points in accordance with the Water Services Association of Australia (WSAA) guidelines.

NEV have engaged the following contractors to carry out specific tasks in the design, construction, operation and maintenance of water infrastructure:

Infrastructure	Design	Construct	Operate and Maintain
Narara Dam	N/A	N/A	NEV
Potable Water Treatment Plant	Aquacell	Aquacell	Aquacell
Potable Water Reticulation	CJ Arms	Civil Contractor to be selected by competitive tender	NEV

For a further detailed breakdown of roles and responsibilities refer to Appendix 3.4.2.1.

Each customer connection point will be provided with a meter, check valve for backflow prevention and isolating valve located approximately at the boundary of each lot.

NEV will enter into a water services supply contract with each of its customers. This contract will include:

1. Pricing information
2. Education information regarding the scheme
3. Obligations regarding compliance with plumbing codes
4. Obligations regarding responsibility for infrastructure, and inspections required before connection of a new customer
5. Ongoing obligations of the supplier and the customer

The contract will require that licensed domestic plumbing contractors engaged by the owner or

builder will be responsible for the private plumbing installations to comply with AS 3500 and the NSW Code of Practice for Plumbing and Drainage.

Connections for firefighting will be provided with drinking water via hydrants located within road reserves and constructed to WSAA standards.

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 Narara Dam Water Access License is for extraction of 29ML/year (Appendix 3.5.1.5) which equates to 79kL per day.

The dam has a volume of 45 ML. Hydraulic modelling of the dam inflows are contained in the Integrated Water Cycle Report (Appendix 4.1.13.5). This modelling shows the dam inflow is approximately 450 ML/year.

At peak demand when the proposed project is fully developed of 76 kL/day (27.7 ML/yr) this represents 6.2% of estimated dam inflow and only occurs during extended interruption to production of recycled water from the WWTP and potable water is used as a back up.

At average demand of 46 kL/day it is 3.7% of estimated dam inflow.

A submission from the Minister of Lands and Water notes that the water is not currently a high security entitlement and restrictions may be applied to the volume. Should circumstances occur where it is mandated that Narara Ecovillage no longer have access to some, or all or the water under the Water Sharing Plan, Aquacell's contingency is to tanker water into the village. The viability of carting water is discussed in RFI 35. Given the volume, cost and availability of water, supplying water by tanker is a viable option, even for an extended period of time.

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.

All drinking water will be processed by the permanent potable water treatment plant. The average and peak daily flow rates treated by the scheme are shown in the WTP Block Diagram at Appendix 4.1.1.5.

The average daily raw water demand, when Stage 1 is fully developed, will be 35 kL/day consisting of 18 kL/day potable water supply and 17 kL/day for plant backwash and membrane rejectate.

Peak daily raw water demand is 58 kL/day and occurs when there is no recycled water available and 14 kL/day of potable water is used to make up the deficit.

This WICA application is for stage 1 only as DA approval for the sub-division only covers stage 1. Information on Stage 2 is FYI only (and is best guess since Stage 2 has not been fully designed yet).

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.

All drinking water will be processed by the permanent potable water treatment plant.

The average daily volume of potable water produced and supplied to end users is 18 kL/day.

The peak daily volume of potable water produced occurs when recycled water is unavailable and potable water is used to make up the deficit and is 32 kL/day.

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)).

A Potable Water Risk assessment was facilitated by RiskEdge has been undertaken

according to ADWG methodology and is documented in Appendix 4.1.9.1.

The objectives of the workshop were to:

1. Understand the system from catchment to tap from a water quality perspective;
2. Understand, assess and prioritise the events, hazards and risks to drinking water consumers;
3. Identify the control measures in place for addressing the identified events, hazards and risks; and
4. Identify any additional controls or actions which may be required to improve the risk management and/or system understanding of the scheme.

Control measures arising from the preliminary risk assessment are detailed in the Drinking Water Improvement Plan shown in Appendix 4.1.9.2. This document links control measures to risks in the risk assessment by referencing the unique risk number.

The control measures will be incorporated into the detailed design of the scheme and the Infrastructure Operating Plan. Control measures will be completed according to the timelines nominated in the plan.

NEV and Aquacell will continue to work through the actions in the Drinking Water Improvement Plan as the project progresses and will review both the risk assessment and improvement plan periodically to update and close out risks.

Aquacell and NEV will review the risk assessment upon completion of detailed design and update accordingly. It will be reviewed again prior to bringing the plant into commercial operation to review all existing risks, identify any new risks and ensure all outstanding actions designed to mitigate risk have been closed out.

The Drinking Water Improvement Plan will form part of the Drinking Water Management Plan.

The PWTP backwash water use is assessed in the Sewer and Non Potable Water risk assessment workshop supervised by Atom Consulting (Appendix 4.2.10).

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 the 12 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)).

A Draft Drinking Water Management System Development Plan for the scheme is provided in Appendix 4.1.10. This Draft Drinking Water Management System Development Plan is based on the 12 elements of the framework in the ADWG.

The Drinking Water Management Plan will include a management plan specifically for the

temporary potable water supply arrangement with Gosford Water.

After detailed design has been completed, NEV and Aquacell will amend the Drinking Water Management Plan to match the final process train.

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)).

Continuity of raw water from Narara Dam is discussed in section 4.1.6.

Continuity of treated water supply has been addressed during the risk assessment (Appendix 4.1.9.1) and control measures have been identified to mitigate the risk of supply interruption.

These design and operational measures will be detailed in the Infrastructure Operating Plan.

Monitoring, control and alarms on the potable water system will be connected via NBN fibre to remote online monitoring systems managed by Aquacell.

All critical monitoring and alarm systems have battery backup power supply.

Standard process pumps, valves, instruments, etc. will be specified wherever possible to assist the timely acquisition of spare parts and replacement parts.

The plant design includes redundant delivery pumps at the potable water pumping station.

The potable water supply to residential lots is gravity fed from a header tank reservoir and therefore not contingent on operation of any plant or equipment. These header tanks will provide approximately 5 days backup potable water supply.

In the event that potable water is not available from the potable water treatment plant for an extended period, potable water will be trucked in and pumped into the potable water storage reservoir.

NEV have identified 5 local contractors suitable for this role:

1. ABC Water Cartage – based in Ourimbah (8km from Narara) with two trucks operating. One truck has capacity of 10kL while the second truck has 13kL capacity. A 10kL load costs $110 while a 12kL load is $130.

2. Mr Waterman – based in Ourimbah (8km from Narara) with truck capacity 12kL and a cost per load of $130.

3. Wally's Water Cart – based in Matcham (14km) with truck capacity 15kL and a cost of $140 per load

4. Turners Water Cartage – based in Wadalda (23km from Narara) with truck capacity 13kL and a cost of $120 per load.

5. Central Coast Water Cartage – based in Warnervale (27km from Narara) with two trucks both capacity 14kL at a cost of $140 per load.

Referring to Section 4.1.6 of the WICA application and the block diagram in Appendix 4.1.1.1 of the same application, the average operating flow for the DA approved development is 18kL per day. A peak flow of 32kL per day occurs when there is no recycled water available for reuse. This condition occurs if and only if the sewage treatment plant is non-operational and would only be a short term state.

Based on demand, average cost to supply potable water during an interruption will be $180 per day and could be satisfied by approximately three water deliveries every two days. There will be 100kL buffer capacity in the treated water storage which can also be used to buffer demand between deliveries. Trucking potable water in as an alternate supply is both commercially and practically viable option even in the unlikely event that peak demand of 32kL per day is required.

Further details of the procedures for emergency sourcing potable water will be documented in the project's Infrastructure Operating Plan (IOP).

Procedures to be followed on failure within the distribution network will also be detailed in the IOP. The network is designed as a ring main hence the first option will be to isolate the failed section. The second option will be to install "blue line" temporary connections to bypass the failed section of the network. Details of suitably qualified local plumbing contractors will be shown in the IOP.

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)).

NEV will be responsible for preparation of the Infrastructure Operating Plan (IOP).

NEV's nominated third party Aquacell will provide technical input to assist NEV in preparation of relevant portions of the Potable Water Management Plan, Sewer Management Plan and Recycled Water Management Plan.

Appendix 4.1.12.1 is an example of a Water Quality Plan developed by Aquacell for a drinking water scheme it is involved with in Victoria, which uses rainwater as the source.

NEV have engaged Woodlots and Wetlands Pty Ltd to assist in preparation of the Reservoir Water Management Plan and relevant portions of the Potable Water Management Plan, Sewer Management Plan and Recycled Water Management Plan.

The Reservoir Management Plan is attached as Appendix 4.1.12.2.

NEV have engaged Pells Consulting to assist in preparation of the Narara Dam Safety Inspection Report and Narara Dam Safety Management System.,

NEV has engaged with NSW Health and private consultants familiar with municipal drinking water schemes in NSW during the preparation of the drinking water risk assessment (Appendix 4.1.9.1), and in development of the DWMS (Appendix 4.1.10).

The Infrastructure Operating Plan will include the Infrastructure Asset Management Plans which will outline lifecycle planning, system redundancy, condition monitoring and management of maintenance processes. Infrastructure Asset Management Plans will be prepared for the dam, networks and treatment plants on completion of construction.

Where required, NEV will consult with additional experts to assist in developing management plans.

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 Statement of Environmental Effects prepared for the NEV residential sub-division project and submitted to Gosford City Council as part of the project Development Application is attached as Appendix 4.1.13.1.

Specifically, the following key sections in respect to the environmental assessment should be noted:

- Section 5.2: Geotechnical and Slope Stability
- Section 5.5: Integrated Water Management System - design, water supply and land capability
- Section 5.6: Flora and Fauna, tree removal and ecological restoration
- Section 5.8.2: Heritage - cultural heritage and aboriginal heritage

- Section 5.12: Amenity Impacts - air quality, noise and vibration, lighting
- Section 5.15: Construction Impacts

In summary, the SEE concludes that the construction and operation of the water infrastructure will have minimal adverse environmental impact for the following reasons:

- The locations selected for the water infrastructure is well within the NEV site and therefore will have minimal visual impact. The location for the water treatment plant is proposed adjacent to the existing pumping station and will be suitably integrated into the setting of the dam.
- The construction footprint for the treatment plant and the reticulation will not adversely affect the EEC's or threatened species identified in the Flora and Fauna Gap Analysis Report.
- No identified Aboriginal archaeological sites are located within the proposed developable areas of the site
- Most of the reticulation associated with water infrastructure will be integrated with the other servicing and can be sited within the 1.2m services corridor which runs parallel with the road network. This will ensure the efficient provision of services to the individual lots and will minimise site disturbances and requisite excavation.
- There are no air quality impacts with associated with the water infrastructure
- The noise generated from the treatment plant will be within acceptable limits
- Construction can be managed to ensure impacts are controlled and appropriate tree protection zones and sediment and erosion control measures are in place.

The following technical reports from the SEE are appended:

- The Odour Impact Assessment Report is attached as Appendix 4.1.13.2
- The Noise Impact Assessment report is attached as Appendix 4.1.13.3
- The Noise and Vibration Management Plan is attached as Appendix 4.1.13.4

An Integrated Water Cycle Management plan prepared by Woodlots and Wetlands Pty Ltd is attached at Appendix 4.1.13.5.

A Sewage Production, Treatment and Reuse Report prepared by Woodlots and Wetlands Pty Ltd is attached at Appendix 4.1.13.6.

The proposed scheme design does not involve discharge of water or waste products into the reservoir or streams hence the applicant does not believe that an environment protection licence will be required for the licensed activities.

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)).

Waste streams from the proposed potable water treatment plant are shown diagrammatically in the block diagram at Appendix 4.1.1.5.

These waste streams will mainly consist of 17 kL/day of backwash and 0.1 kL/day of neutralised Clean-In-Place chemicals (CIP) from the membranes. The backwash will be pumped to a 124 kL header tank above the Western rural lot located immediately above the

potable water treatment plant and will be disposed by spreader and trickle irrigation of NEV community agricultural land. CIP chemicals are typically low pH (approximately 2) and high pH (approximately 11) solutions. This Clean-In-Place solution will be neutralised in a dedicated CIP tank at the water treatment plant before being sent to the WWTP for treatment.

The average total volume of backwash to be disposed of is approximately 17 kL/day.

The peak volume to be disposed of is approximately 26 kL/day and will only occur when recycled water from the WWTP is unavailable for an extended period.

The backwash header tank and the non-potable water header tank are separate.

The backwash header tank has been added to the site infrastructure plan. The backwash irrigation field is directly south of the treatment plant on the site plan. An updated site infrastructure plan is attached as Appendix 4.1.3.1.

Process chemicals such as sodium hypochlorite and sodium hydroxide will be purchased in bulk where possible.

Other waste chemical containers will be handled according to the following principles:

Reduce: Chemical consumption in the treatment plant and header reservoir is minimised by online monitoring and automatic dosing.

Reuse: Where possible empty containers will be returned to the manufactorer for reuse.

Recycle: Where possible chemical containers will be made from recycled and / or recyclable materials.

Disposal: When required containers will be disposed of in an approved landfill facility.

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 proposed scheme provides for all black water generated on site to be piped through a sewerage network and collected in a buffer tank at the waste water treatment plant (WWTP).

Recycled water production from the WWTP is to be reticulated to each residential lot and community facilities for toilet flushing and garden irrigation and to rural lots for disposal through irrigation of community agricultural land.

Non-potable water produced by the WWTP will be stored in one of two treated water tanks. One of these tanks will be dedicated to supplying non-potable water for reuse in houses and community facilities and will be used for toilet flushing and irrigation only. The second tank will be used to supply treated water for disposal via irrigation of community rural land. This configuration for treated water has been selected as it allows water which is out of specification for non-potable household usage to be disposed of directly to irrigation.

The WWTP will be constructed in two stages. A temporary WWTP will be constructed first with capacity to accommodate approximately 30 dwellings. The permanent WWTP will then be constructed and brought online when the temporary plant has reached its design capacity.

A detailed process flow diagram of the proposed non-potable water infrastructure from source to end use is attached as Appendix 4.2.1.

A map showing the location of the proposed infrastructure from source to end use is provided in Appendix 4.1.3.1

NEV has taken a three step approach to ensuring that impurities in the recycled water do not exceed the relevant guidelines.

1) A HACCP and HAZOP have been undertaken (supplied as Appendix 4.2.10 of this application) to determine what the critical water quality parameters are, and how the plant will

respond when the recycled water does not meet the specification. Through this process NEV has defined the quality of water which will be provided for reuse. Recycled Water Management Plan (RWQMP) – the purpose of the RWQMP is to document the quality of the treated water produced by the waste water treatment plant. A draft of the Narara scheme RWQMP has been submitted at Appendix 4.2.11.

2) A land capability study was undertaken by Dr Peter Bacon as part of the Integrated Water Cycle Management Plan submitted as Appendix 4.1.13.5 of the application. Sections 10 considers the capacity of the land to sustainable accept irrigation base on soil sampling undertaken on site.

3) The above two documents indicate that the land is suitable for sustainably irrigating with the quality and quantity of recycled water that will be produced on site. The quality of the recycled water produced by the treatment plant will not vary outside the specified parameters, however NEV acknowledges the theoretical nature of the soil analysis, and that the chemistry and properties of soil will likely vary over time. NEV will arrange for periodic soil sampling by a suitably qualified contractor to assess if there is a build-up of impurities over time, due to irrigation activities.

The soil samples taken for the land capability study establish a base line soil quality for the area to be irrigated. Results are tabulated in Table 11.2.

Section 11 of the IWCMP report recommends that the soil be re-tested after three years of operation. The soil sampling regime for the irrigation area will be established by NEV and documented in the site's Infrastructure Operating Plan.

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 of the proposed non-potable water infrastructure is to be constructed.

A detailed process flow diagram of the proposed non-potable water infrastructure from source to end use is attached as Appendix 4.2.1.

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).

All of the non-potable water infrastructure for the proposed scheme is contained within the Narara Ecovillage residential subdivision project site.

A map showing the location of the proposed infrastructure from source to end use, including the location of the reticulation network from the non-potable water treatment plant and the irrigation fields are shown on the updated infrastructure plan attached as Appendix 4.1.3.1.

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 between the proposed non-potable water infrastructure and any other infrastructure not part of this scheme.

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.

NEV is responsible for the construction, operation and maintenance of all non-potable water infrastructure from source to customer connection and disposal.

NEV will be responsible for the design, construction, commissioning and maintenance of the distribution network up to the customer connection points in accordance with the Water Services Association of Australia (WSAA) guidelines.

NEV have engaged the following contractors to carry out specific tasks in the design, construction, operation and maintenance of non-potable water infrastructure:

Infrastructure	Design	Construct	Operate and Maintain

Sewerage System	CJ Arms	Civil Contractor to be selected by competitive tender	NEV
Waste Water Treatment Plant	Aquacell	Aquacell	Aquacell
Non-potable Reticulation System	CJ Arms	Civil Contractor to be selected by competitive tender	NEV
Irrigation Field	Woodlots and Wetlands Pty Ltd	Civil Contractor to be selected by competitive tender	NEV

For a further detailed breakdown of roles and responsibilities refer to Appendix 3.4.2.2.

The non-potable water reticulation system will be colour coded to comply with the WSAA guidelines.

Each customer connection point will be provided with a check valve for backflow prevention and an isolating valve located approximately at the boundary of each lot.

NEV will enter into a water services supply contract with each of its customers. This contract will include:

1. Pricing information
2. Education information regarding the scheme
3. Obligations regarding compliance with plumbing codes
4. Obligations regarding responsibility for infrastructure, and inspections required before connection of a new customer
5. Ongoing obligations of the supplier and the customer

The contract will require that licensed domestic plumbing contractors engaged by the owner or builder will be responsible for the private plumbing installations to comply with AS 3500 and the NSW Code of Practice for Plumbing and Drainage

Testing of private water installations for cross connection with the potable water system will be conducted prior to customer connection.

All drinking water customer connections will include a check-valve to protect the drinking water reticulation system from cross connections on customer lots.

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)).

All blackwater produced in the licensed area will be processed by the waste water treatment

plant.

The average daily volume of non-potable water produced when Stage 1 is fully populated will be 23 kL/day.

Point	Volume
A	Raw Sewage – the volume of raw sewage is 24 kL per day at full occupancy of the Stage 1 development. Calculation of sewage flows concludes in Section 7 of the report that based on total internal use, the volume of raw sewage is 24 kL per day.
	Waste from WTP – the technologies used in the water treatment plant will produce a waste stream of reject and backwash which will be directed to the Western Rural Lot for disposal via irrigation. At average flows, these waste streams comprise 17 kL/day.
	The total input to the waste water treatment plant is 24 kL/day at average flow.
B	Waste activated sludge – this will be removed from the system and trucked off site by a licensed contractor for disposal. Based on treatment volumes the volume has been calculated as 1 kL/day
D	Reuse for toilet flushing – from Section 7 of the IWCMP, 6 kL per day will be used for toilet flushing
E	Reuse for household irrigation – treated water will also be used by households to irrigate around the owners lots. This is different to the water disposed of to the irrigation field and will be on average 9 kL/day. The value of 9 kL/day is calculated from information in the IWCMP. Table 5.3 of the IWCMP provides a value for "Daily External Use" based on the number of occupants each household has. It is assumed that all external use can be substituted with non-potable water. The site is DA approved for 60 dwellings in Stage 1. The IWCMP assumes that the 33 dwellings have 5 occupants and Table 5.3 indicates daily external usage of 152 litres per day per person for this type of occupancy. Table 5.4 of the IWCMP shows the assumed attributes of the cluster housing and the number of occupants in each type. The cluster houses have assumed occupancy of 2, 4 or 6 people which Table 5.3 indicates daily external usage of 139, 151, and 163 litres per person per day respectively. If all of the above data is consolidated, total external usage for fully occupied Stage 1 of the Ecovillage will be 9 kL/day. As stated above, this is the volume of recycled water which will be used for household irrigation.
C	Disposal to the irrigation field – this is a calculated value. Treated water will be prioritised for reuse as toilet flush water or for household irrigation. The irrigation field will be used to dispose of treated water that is in excess of the reuse demand. Therefore, at average flows, the plant has incoming flows of 24 kL/day, of which 1

	kL/day is removed as waste activated sludge, 6 kL/day is used for toilet flushing and 9 kL/day is used by households for irrigation. The balance of 8 kL/day will be disposed of to the irrigation field.

If there is no recycled water available for household use, the demand will be made up with potable water. The effect of this is twofold:

1. Increased demand on water treatment plant – the treatment plant is required to produce the shortfall. Increase throughput will increase the backwash and reject waste sent to irrigation disposal. Appendix 4.2.1 WTP Block Diagram shows that at peak flow of the WTP it will generate a 26 kL per day waste stream which will go to the WTP irrigation field.

2. Decrease in disposal to WWTP irrigation field – by definition, the peak flow at the WTP occurs when there is no water available for irrigation disposal from the WWTP.

It should be noted there is no effect on the volume of sewage produced by residents as it is independent of the availability of non-potable water. Average and peak flows for the WWTP are summarised as:

Inflows	Average Day kL/day	Peak Day kL/day
Incoming Raw Sewage	24	24
Waste from WTP	0	0
Total inflow to the WWTP Requiring Treatment	24	24
Outflows		
Waste Activate Sludge	1	1
Recycled Water for Toilet Flushing	6	0
Recycled Water for Household Irrigation	9	0
Disposal to Irrigation Field	8	23

Maximum treatment capacity of the recycled water treatment plant is 60kL/day. This is well in excess of the maximum demand for stage 1 of the NEV development. The plant has been sized to accommodate proposed future developments on the site. These future developments would be the subject of a WICA license amendment prior to any works being undertaken.

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 waste water treatment plant has been designed to treat 100% of the sewage produced.

The maximum daily capacity of the temporary plant will be 25kl/day kL/day.

The average daily volume to be treated by the permanent plant when Stage 1 is complete is estimated be 24 kL/day.

The peak daily volume to be treated by the permanent plant is also estimated be 24 kL/day.

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 temporary waste water treatment plant will produce a maximum volume of approximately 24 kL/day of recycled water and 1 kL/day of sludge.

The permanent waste water treatment plant is estimated to produce an average of approximately 23 kL/day of recycled water and 1 kL/day of sludge when Stage 1 of the project is fully developed.

Peak daily volume is also estimated to be an average of approximately 23 kL/day of recycled water and 1 kL/day of sludge when Stage 1 of the project is fully developed.

The non-potable water reticulation network will be sized to provide flow and pressure requirements throughout the system.

Potable water will be used to top up the supply at the buffer tank via an air gap when recycled water is insufficient to meet demand or is unavailable.

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)).

Intended end uses for the non-potable water are:

Toilet flushing,

Irrigation of individual dwelling lots and

Irrigation of community agricultural land.

A residential water supply contract (and / or trade waste agreements if applicable) will be entered into with each customer. The agreement will outline the mutual obligations under the scheme and procedures for safe use of recycled water. Continuing education on the safe use of recycled water will be provided to customers.

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)).	
A Sewer and Non Potable Water risk assessment was conducted in a multifunctional workshop setting, with independent review, supervised by Atom Consulting. A risk assessment for Sewer and Non Potable Water from source to end use based on methodologies outlined in the Australian Guidelines for Water Recycling is attached as Appendix 4.2.10. A number of hazards and hazardous events were identified and a qualitative risk assessment undertaken based on the risk assessment criteria outlined in the Australian Guidelines for Water Recycling. The control measures identified in the risk assessment will be incorporated into the detailed design of the scheme and the Infrastructure Operating Plan to ensure they are implemented in the ongoing service, operation and maintenance of the scheme. The preliminary risk assessment in Appendix 4.2.10 will be updated and reviewed periodically through the project. Formal reviews will be undertaken upon completion of detailed design, and again prior to commercial operation to ensure all actions identified have been completed, and to identify any new risks.	
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.	
The Recycled Water Quality Management Plan attached as Appendix 4.2.11 addresses each of the 12 elements of the AGWR framework.	
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)).	
Non-potable water for household use will be stored in a 100 kL buffer storage which will provide up to 7 days buffer capacity at average demand. Potable water top-up is provided when recycled water is insufficient to meet demand or not available. The potable water treatment plant is sized to handle this load. Standard process pumps, valves, instruments, etc. will be specified wherever possible to assist the timely acquisition of spare parts and replacement parts. The plant design includes redundant delivery pumps at the recycled water pumping station. A back-up generator will be provided for the WWTP. Continuous online monitoring, control and alarms on the non-potable water system will be connected via NBN fibre to remote online monitoring systems managed by Aquacell. All critical monitoring and alarm systems have battery backup power supply.	
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)).	
NEV will be responsible for preparation of the Infrastructure Operating Plan.	

NEV's nominated third party Aquacell will provide technical input to assist NEV in preparation of relevant portions of the Potable Water Management Plan, Sewer Management Plan and Recycled Water Management Plan

Aquacell has an audited blackwater recycling IOP currently in use for exisiting WICA licence.

This is attached at Appendix 4.1.12.1 Sample Rainwater Quality Management Plan.

The Recycled Water Quality Management Plan (Appendix 4.2.11) forms the basis of the Infrastructure Operating Plan. As detailed in Section 9 of this plan, it is supported by the Operation and Maintenance manual for the plant, calibration and monitoring of instruments protocols and organisational quality management through Aquacell's Integrated Management System.

The non-potable risk assessment (refer Appendix 4.2.10) identifies operating, maintenance and monitoring actions which have been identified to mitigate risk. These actions are included in the Recycled Water Quality Management Plan to ensure risk mitigation actions are incorporated into the operation of the infrastructure.

Aquacell monitors the waste water treatment plant remotely and continuously with critical alarms being sent to service personnel via email to initiate immediate corrective actions. Aquacell will also perform weekly plant inspections as part of their service agreement with NEV.

The Narara Infrastructure Operating Plan will include the Infrastructure Asset Management Plans which will outline lifecycle planning, system redundancy, condition monitoring and management of maintenance processes. Infrastructure Asset Management Plans will be prepared for the dam, networks and treatment plants on completion of construction.

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).

The Statement Of Environmental Effects prepared for the project and submitted to Gosford City Council as part of the Development Application is attached as Appendix 4.1.13.1.

A detailed description of the water infrastructure is provided in Section 3.0 of the SEE and the

assessment of environmental impacts is provided in Section 5.0 and is supported by relevant detailed technical studies. Specifically, the following key sections in respect to the environmental assessment should be noted:

- Section 5.2: Geotechnical and Slope Stability
- Section 5.5: Integrated Water Management System - design, water supply and land capability
- Section 5.6: Flora and Fauna, tree removal and ecological restoration
- Section 5.8.2: Heritage - cultural heritage and aboriginal heritage
- Section 5.12: Amenity Impacts - air quality, noise and vibration, lighting
- Section 5.15: Construction Impacts

In summary, the SEE concludes that the construction and operation of the water infrastructure will have minimal adverse environmental impact for the following reasons:

- The locations selected for the infrastructure is well within the NEV site and therefore will have minimal visual impact. Landscaping is proposed to the perimeter of the sewerage treatment plant to ensure that it is suitably integrated within the Stage 1 site and its impact when viewed from surrounding land minimised. Notwithstanding this, by design, the plant is low in scale and will not dominate the landscape.
- The construction footprint for the treatment plant and the reticulation will not adversely affect the EEC's or threatened species identified in the Flora and Fauna Gap Analysis report
- No identified Aboriginal archaeological sites are located within the proposed developable areas of the site
- Most of the reticulation associated with the infrastructure will be integrated with the other servicing and can be sited within the 1.2m service corridor which runs parallel with the road network. This will ensure the efficient provision of services to the individual lots and will minimise site disturbance and requisite excavation

- the Air Quality Assessment and the Noise Impact Assessments prepared for the sewer treatment plant have concluded that odour and noise generated will be within acceptable limits and that there are unlikely to be adverse amenity impacts to surrounding development including within the NEV site and neighboring dwellings - refer discussion in Sections 5.12 of the SEE
- The capability of the landform and soil character is suitable for the water infrastructure. The land capability analysis has assessed the capability of the landform and the soil character support the proposed irrigation. It is recommended that a low pressure, low application rate, spray/drip irrigation be installed to minimise run off and other environmental risks. In order to minimise the environmental impacts from irrigation, Woodlots & Wetland has also recommended that the following measures be employed:
- A contour bank be constructed to the west of the site to divert run-off from the forested areas
- A long term strategy be developed to increase the organic matter in the soil and to increase soil structure and stability
- A good cover of vegetation, either crops or long term pasture, is critical to the irrigation area

Subject to the above recommendations, it is concluded that the site is suitable for irrigation and that effluent irrigation can form an appropriate strategy to eliminate excess reclaimed water

- Construction can be managed to ensure impacts are controlled and appropriate tree protection zones and sediment erosion controls measures are in place.

The following technical reports from the SEE are appended:

The Odour Impact Assessment Report is attached as Appendix 4.1.13.2

The Noise Impact Assessment report is attached as Appendix 4.1.13.3

The Noise and Vibration Management Plan is attached as Appendix 4.1.13.4

Appendix 4.1.13.5 is the Integrated Water Cycle Management plan

The process design does not involve discharge of water or waste products into the reservoir or streams hence the applicant does not believe that an environment protection license will be required for the licensed activities.

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)).

Under normal operations the only process waste to be disposed off site will be wastewater residuals (screenings and biosolids). These will be disposed off-site using commercial licensed liquid waste contractors. The volumes are likely to be too small to dispose of onsite in a commercially viable way. Anticipated volume for off-site disposal is 10 m3 per month when the scheme is fully developed.

There will be provision in the scheme IOP for emergency pump-out of sewage for tanker transport to off-site disposal in the event of a prolonged failure of the WWTP infrastructure.

Process chemicals such as sodium hypochlorite and sodium hydroxide will be purchased in bulk where possible.

Other waste chemical containers will be handled according to the following principles:

Reduce: Chemical consumption in the treatment plant and header reservoir is minimised by online monitoring and automatic dosing.

Reuse: Where possible empty containers will be returned to the manufacturer for reuse.

Recycle: Where possible chemical containers will be made from recycled and / or recyclable materials.

Disposal: When required containers will be disposed of in an approved landfill facility.

4.3 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 proposed scheme provides for gravity sewer reticulation from each residential lot and community facility to the Waste Water Treatment Plant (WWTP).

The WWTP uses a membrane bioreactor, UV disinfection and chlorine disinfection to produce fit-for-purpose recycled water for use in toilet flushing, household irrigation and Irrigation of community agricultural land.

A detailed process flow diagram of the proposed sewer and non-potable water infrastructure from source to end use is attached as Appendix 4.2.1.

A map showing the location of the proposed infrastructure from source to end use is provided in Appendix 4.1.3.1

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 of the sewer infrastructure is to be constructed.

The WWTP will be constructed in two stages. A temporary WWTP will be constructed first with capacity to accommodate approximately 30 dwellings. The permanent WWTP will then be

constructed and brought online when the temporary plant has reached its design capacity" Only the WWTP will be staged as detailed above, all other sewer and non-potable water infrastructure will be constructed in its permanent configuration.
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 of the sewer infrastructure for the proposed scheme is contained within the Narara Ecovillage residential subdivision project site. A map showing the location of the proposed infrastructure from source to end use is provided in Appendix 4.1.3.1
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.
There are no interconnections with other licenced network operators or public utilities.
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.

All sewage produced in the licensed area will be processed by the waste water treatment plant.

The maximum daily volume of sewage to be treated during operation of the temporary plant will be 25 kL/day.

The average daily volume of sewage to be treated during operation of the permanent plant, when Stage 1 is fully developed, will be 24 kL/day.

The peak daily volume of sewage to be treated during operation of the permanent plant, when Stage 1 is fully developed, will also be 24 kL/day.

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 treated effluent will be disposed of onsite as recycled water with the exception of a small volume of sludge (1 kL/day) which is to be trucked off site by a licensed contractor for disposal. Treated water is irrigated by households on their residential lots, and in an irrigation field for disposal of treated water which is excess to re-use requirements.

The volume of treated effluent to be disposed of is described in the table below:

kL/day	Raw sewage in	Sludge	Toilet flushing	Domestic irrigation	Broad irrigation
Average volume	24	1	6	9	8
Peak volume	24	1	0	0	23

A land capability assessment including water and pollutant balance modelling has been undertaken and the results are attached as Appendix 4.1.13.5 Integrated Water Cycle Management Plan (IWCMP).

This IWCMP includes an assessment of the soils on the Narara site. Section 9 of this report concludes that according to AS/NZS 1547 (2012), the soil type at Narara can sustainably accept an irrigation rate of 3.5 to 4mm per day. This is equivalent to 3.5 to 4 L/m2/day.

Assuming a design net flow of 337 L/dwelling/day then some 112 msq is needed for each dwelling.

Reducing the rate to 1mm/day would result in a total irrigation area requirement of 18,000 msq. The Stage 1 residential lots cover some 27,700 msq. Assuming 30% of the lots must be garden as per table 9.2, some 9,200 msq of irrigation area would occur around the dwellings. Therefore another 9,000 msq of irrigation area must be sourced for disposal.

This irrigation area is shown on the WICA Infrastructure Location Plan at Appendix 4.1.3.1.

6,200 m2 + 3,000 m2 + 9,000 m2 = 18,200 m2

Which is the irrigation area required, hence only one 9,000 m2 parcel of irrigation field is required, not two.

Location of the recycled water irrigation area has now changed from “South of stage 1” to “East of stage 1” (an area known as the Western Rural Blocks). The new location of the proposed recycled water irrigation area is shown on the updated infrastructure site map attached as Appendix 4.1.3.1.

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).

All treated effluent will be disposed of onsite as recycled water with the exception of a small volume of sludge which is to be trucked off site.

Intended end uses for the non-potable water are:

Toilet flushing,
Irrigation of individual dwelling lots and
Irrigation of community agricultural land.

Land capacity studies for irrigation disposal of recycled water are shown in Appendix 4.1.13.5 the Integrated Water Cycle Management Plan.

Soil analysis results from the proposed irrigation disposal areas will be used as baseline data for ongoing monitoring of soil nutrient and pollutant levels and for comparison against the modelling of future soil nutrient and pollutant levels shown in the Integrated Water Cycle Management Plan.

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.

Wastewater collected will be domestic sewage. It is household waste collected from showers, toilets, kitchens and laundries of domestic households, and similar types of sewage from the community facilities.

The Narara Ecovillage members have a philosophy of minimum resource usage. As such, the expected water usage per resident is likely to be significantly lower than the generally accepted values used when calculating sewage characteristics and the sewage characteristics will change accordingly. The expected waste water characteristics are therefore:

BOD	480 mg/L
COD	960 mg/L*
Suspended Solids	210 mg/L

TKN	68 mg/L as N

* Assumed 2 x BOC

Analysis of wastewater will be undertaken periodically during operation of the WWTP to ensure pollutant and contamination loads are within design parameters.

Catchment characterisation studies are detailed in -

Integrated Water Cycle Management Plan at Appendix 4.1.13.5
NEV Water Reservoir Initial Sampling Report at Appendix 4.1.1.1
Narara Water Reservoir Follow Up Sampling Report August 2015 at Appendix 4.1.1.2

Analysis of raw water from the supply reservoir will be undertaken periodically during operation of the PWTP to ensure pollutant and contamination loads are within design parameters.

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)).

A preliminary risk assessment for Sewer and Non Potable Water from source to end use based on methodologies outlined in the Australian Guidelines for Water Recycling is attached as Appendix 4.2.10.

A number of hazards and hazardous events were identified and a qualitative risk assessment undertaken based on the risk assessment criteria outlined in the Australian Guidelines for Water Recycling.

The control measures identified in the risk assessment will be incorporated into the detailed design of the scheme and the Infrastructure Operating Plan to ensure they are implemented in the ongoing service, operation and maintenance of the scheme.

The preliminary risk assessment in Appendix 4.2.10 will be updated and reviewed periodically through the project. Formal reviews will be undertaken upon completion of detailed design, and again prior to commercial operation to ensure all actions identified have been completed, and to identify any new risks.

The Sewer and Non Potable Water risk assessment will be reviewed in a multifunctional workshop setting, with independent review, supervised by Atom Consulting. The revised assessment report is expected to be available in April/May 2016.

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)).

NEV will be responsible for preparation of the infrastructure operating plan.

NEV's nominated third party Aquacell will provide technical input to assist NEV in preparation of relevant portions of the Potable Water Management Plan, Sewer Management Plan and Recycled Water Management Plan.

Aquacell has an audited black water recycling IOP currently in use for exisiting WICA licence.

This is attached at Appendix 4.1.12.1 Sample Rainwater Quality Management Plan.

The Recycled Water Quality Management Plan (Appendix 4.2.11) forms the basis of the Infrastructure Operating Plan. As detailed in Section 9 of this plan, it is supported by the Operation and Maintenance manual for the WWTP plant, calibration and monitoring of instruments protocols and organisational quality management through Aquacell's Integrated Management System.

The non-potable risk assessment (refer Appendix 4.2.10) identifies operating, maintenance and monitoring actions which have been identified to mitigate risk. These actions are included in the Recycled Water Quality Management Plan to ensure risk mitigation actions are incorporated into the operation of the infrastructure.

Aquacell monitors the waste water treatment plant remotely and continuously with critical alarms being sent to service personnel via email to initiate immediate corrective actions. Aquacell will also perform weekly plant inspections as part of their service agreement with NEV.

The Infrastructure Operating Plan will include the Infrastructure Asset Management Plans which will outline lifecycle planning, system redundancy, condition monitoring and management of maintenance processes. Infrastructure Asset Management Plans will be prepared for the dam, networks and treatment plants on completion of construction.

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)).

The design of the treatment system includes 400 kL of sewage buffer tanks which is sufficient capacity for approximately 17 days at average flow.

Standard process pumps, valves, instruments, etc. will be specified wherever possible to assist the timely acquisition of spare parts and replacement parts.

The plant design includes redundant delivery pumps at the recycled water pumping station.

A back-up generator will be provided for the WWTP.

Continuous online monitoring, control and alarms on the WWTP will be connected via NBN fibre to remote online monitoring systems managed by Aquacell.

All critical monitoring and alarm systems have battery backup power supply.

Innovative intelligent monitoring systems are being evaluated for early detection of blockages or failures.

Installations will be done by an experienced contractor and be compliant with all relevant codes and industry practices.

Appropriate testing will be completed during commissioning which will minimise the risk of network failures once customers are connected.

Notwithstanding the above, NEV acknowledge that network failures will occur, and the likelihood of failure increases with the age of the network. To that end, when notified of a suspected network failure, NEV will:

1. Identify which network has failed by understanding which service has been interrupted

2. Establish the severity of the failure by determining which customers have had their service partially of wholly interrupted.

3. Use as-built drawings and site observations (wet ground, smell etc.) to determine the likely location of the network failure

4. Assess the likely cause, eg blockage or pipe break, and estimate the approximate repair duration.

Once the above information has been established, NEV will use similar methodologies to urban water utilities. These would include, but not be limited to:

1. Where the failure is considered minor and is readily repairable, undertake the repair immediately

2. Review the as-built drawings and determine if it is possible to isolate the failure and provide service through alternate pipe routes

3. Undertake further diagnostics such as inspecting the network with a camera, or localised excavation to determine the extent of the problem

4. Consider temporary alterations to pipe work to bypass the fault and restore services.

NEV's normal service and maintenance activities are not aligned with diagnosis and repair of networks. A suitable contractor would typically be used to undertake this work. Local plumbers with excavation and water jetting capabilities are able to rectify most network problems. This type of resource is not highly specialised and there are a many options available at short notice. Notwithstanding this, NEV will establish a preferred local supplier who knows the site and can respond quickly when required.

In the event of prolonged failure of the treatment plant, or of any of the network nodes, provision has been made for pump-out of the buffer tanks and tankering of raw sewage off site for disposal by an authorised contractor. Assessment of tankering options has been made through local contractors, and factored into the operating budget.

Actions to be undertaken in the event of a network failure will be documented in the site's Infrastructure Operating Plan. This would include the contact details of contractors who could be engaged to undertake network repairs.

Detailed operational procedures for tanker disposal will be prepared prior to commissioning the plant, and reviewed periodically during operation of the plant.

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).

The Statement Of Environmental Effects prepared for the project and submitted to Gosford City Council as part of the Development Application is attached as Appendix 4.1.13.1.

A detailed description of the water infrastructure is provided in Section 3.0 of the SEE and the assessment of environmental impacts is provided in Section 5.0 and is supported by relevant detailed technical studies. Specifically, the following key sections in respect to the environmental assessment should be noted:

- Section 5.2: Geotechnical and Slope Stability
- Section 5.5: Integrated Water Management System - design, water supply and land capability
- Section 5.6: Flora and Fauna, tree removal and ecological restoration
- Section 5.8.2: Heritage - cultural heritage and aboriginal heritage
- Section 5.12: Amenity Impacts - air quality, noise and vibration, lighting
- Section 5.15: Construction Impacts

In summary, the SEE concludes that the construction and operation of the water infrastructure will have minimal adverse environmental impact for the following reasons:

- The locations selected for the infrastructure is well within the NEV site and therefore will have minimal visual impact. Landscaping is proposed to the perimeter of the sewerage treatment plant to ensure that it is suitably integrated within the Stage 1 site and its impact when viewed from surrounding land minimised. Notwithstanding this, by design, the plant is low in scale and will not dominate the landscape.
- The construction footprint for the treatment plant and the reticulation will not adversely affect the EEC's or threatened species identified in the Flora and Fauna Gap Analysis report
- No direct clearing or tree removal is required for the water infrastructure
- No identified Aboriginal archaeological sites are located within the proposed developable areas of the site
- Most of the reticulation associated with the sewer infrastructure will be integrated with the other servicing and can be sited within the 1.2m service corridor which runs parallel with the road network. This will ensure the efficient provision of services to the individual lots and will minimise site disturbance and requisite excavation

- the Air Quality Assessment and the Noise Impact Assessments prepared for the sewer treatment plant have concluded that odour and noise generated will be within acceptable limits and that there are unlikely to be adverse amenity impacts to surrounding development including within the NEV site and neighboring dwellings - refer discussion in Sections 5.12 of the SEE
- The capability of the landform and soil character is suitable for the sewer infrastructure. The land capability analysis has assessed the capability of the landform and the soil character support the proposed irrigation. It is recommended that a low pressure, low application rate, spray/drip irrigation be installed to minimise run off and other environmental risks. In order to minimise the environmental impacts from irrigation, Woodlots & Wetland has also recommended that the following measures be employed:
- A contour bank be constructed to the west of the site to divert run-off from the forested areas
- A long term strategy be developed to increase the organic matter in the soil and to increase soil structure and stability
- A good cover of vegetation, either crops or long term pasture, is critical to the irrigation area

Subject to the above recommendations, it is concluded that the site is suitable for irrigation and that effluent irrigation can form an appropriate strategy to eliminate excess reclaimed water

- Construction can be managed to ensure impacts are controlled and appropriate tree protection zones and sediment erosion controls measures are in place.

The following technical reports from the subdivision DA are appended:

The Odour Impact Assessment Report is attached as Appendix 4.1.13.2

The Noise Impact Assessment report is attached as Appendix 4.1.13.3

The Noise and Vibration Management Plan is attached as Appendix 4.1.13.4

Land capacity studies for irrigation disposal of recycled water are shown in Appendix 4.1.13.5 the Integrated Water Cycle Management Plan.

The process design does not involve discharge of water or waste products into the reservoir or streams hence the applicant does not believe that an environment protection license will be required for the licensed activities.

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).

A land capability assessment including water and pollutant balance modelling has been undertaken and the results are attached as Appendix 4.1.13.5 Integrated Water Cycle Management Plan (IWCMP).

This IWCMP includes an assessment of the soils on the Narara site. Section 9 of this report concludes that according to AS/NZS 1547 (2012), the soil type at Narara can sustainably accept an irrigation rate of 3.5 to 4mm per day. This is equivalent to 3.5 to 4 L/m2/day.

Assuming a design net flow of 337 L/dwelling/day then some 112 msq is needed for each dwelling.

Reducing the rate to 1mm/day would result in a total irrigation area requirement of 18,000 msq. The Stage 1 residential lots cover some 27,700 msq. Assuming 30% of the lots must be garden as per table 9.2, some 9,200 msq of irrigation area would occur around the dwellings. Therefore another 9,000 msq of irrigation area must be sourced for disposal.

A Sewage Production, Treatment and Reuse Report prepared by Woodlots and Wetlands Pty Ltd is attached at Appendix 4.1.13.6.

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)).
The proposed MBR treatment plant produces small volumes of screenings, biosolids and CIP waste which will be disposed of in a sustainable maner. All wastewater residuals (screenings and biosolids) will be disposed off-site using commercial licensed liquid waste contractors. The volumes are likely to be too small to dispose of onsite in a commercially viable way. Anticipated volume for off-site disposal is 1 kL per day when the Stage 1 of the scheme is fully developed. Process chemicals such as sodium hypochlorite and sodium hydroxide will be purchased in bulk where possible. Other waste chemical containers will be handled according to the following principles: Reduce: Chemical consumption in the treatment plant and header reservoir is minimised by online monitoring and automatic dosing. Reuse: Where possible empty containers will be returned to the manufacturer for reuse. Recycle: Where possible chemical containers will be made from recycled and / or recyclable materials. Disposal: When required containers will be disposed of in an approved landfill facility.

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)).

NEV will provide all retail services associated will the provision of potable water, sewer and recycled water supply within the NEV residential sub-division project area.

NEV has applied for a Network Operator's License to cover the following potable water infrastructure:
- dam (existing on NEV site);
- water treatment plant including storage tanks (to be constructed); and
- potable water reticulation network (to be constructed).

NEV will access this infrastructure to supply water potable water.

NEV has applied for a Network Operator's License to cover the following infrastructure for non-potable water:
- sewerage network (to be constructed);
- waste water treatment plant and storage tanks (to be constructed); and
- non-potable water reticulation network (to be constructed).

NEV will access this infrastructure to supply non-potable water.

A temporary supply connection to Gosford potable water will be used until approximately 30 houses are occupied. This supply will then be replaced with the permanent potable water system.

The temporary supply will access the existing Gosford City Council supply at the site boundary and pumped to buffer storage tanks via a break tank and air gap. NEV will be responsible for all water infrastructure from the connection to the Gosford Water supply.

The temporary supply will then be stored in 400 kL header tanks which will provide buffer storage for drinking water and the required storage for fire fighting water. The header tanks will have residual chlorine monitoring and dosing systems to ensure residual chlorine levels remain within required limits.

Potable water will then delivered to customers via a reticulation network which will form part of the permanent system.

When the permanent potable water system is commissioned potable water is to be sourced from an existing 45ML onsite dam.

The raw water will be treated in a potable water treatment plant to be designed, constructed, monitored and maintained by Aquacell. The plant design uses ultrafiltration, nanofiltration, UV and chlorination to ensure compliance with the Australian Drinking Water Guidelines (ADWG).

Drinking water will be stored in 400 kL header tanks which will provide buffer storage for drinking water and the required storage for fire fighting water. The header tanks will have residual chlorine monitoring and dosing systems to ensure residual chlorine levels remain within required limits.

Drinking water will be gravity fed to customers via a ring main distribution network.

The Potable Water Treatment Plant Block Diagram is attached at Appendix 4.1.1.5.

Recycled water production from the WWTP is to be reticulated to each residential lot and community facilities for toilet flushing and garden irrigation and to rural lots for disposal through irrigation of community agricultural land.

Non-potable water produced by the WWTP will be stored in one of two treated water tanks. One of these tanks will be dedicated to supplying non-potable water for reuse in houses and community facilities and will be used for toilet flushing and irrigation only. The second tank will be used to supply treated water for disposal via irrigation of community rural land. This configuration for treated water has been selected as it allows water which is out of specification for non-potable household usage to be disposed of directly to irrigation.

The WWTP will be constructed in two stages. A temporary WWTP will be constructed first with capacity to accommodate approximately 30 dwellings. The permanent WWTP will then be constructed and brought online when the temporary plant has reached its design capacity.

A detailed process flow diagram of the proposed non-potable water infrastructure from source to end use is attached as Appendix 4.2.1.

A map showing the location of the proposed infrastructure from source to end use is provided in Appendix 4.1.3.1

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)).

A Water Access License has been obtained from the NSW Office of Water for 29ML/year

from the on-site dam. Refer Appendix 3.5.1.5.

The potable water system has a design capacity of 70 kL/day.

The forecast average daily potable water demand from the WTP is 18 kL/day and the forecast peak day potable water demand is 70 kL/day.

The permanent sewage system has a design capacity of 60 kL/day.

The forecast average daily sewage volume is 24 kL/day.

The forecast average daily recycled water production is 23 kL/day.

Details of these flows are shown in the following table:

kL/day	Raw sewage in	Sludge	Toilet flushing	Domestic irrigation	Broad irrigation
Average volume	24	1	6	9	8
Peak volume	24	1	0	0	23

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)).

There are two classes of customers in the proposed scheme:
Residential customers
Community facilities

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.

Yes. All customers of the proposed scheme will be small retail customers.

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)).

Risk to retail supply can come from a number of sources. The principal source of risk is that NEV, as the network operator, is unable to provide services due to a failure of the infrastructure covered under the license.

A preliminary risk assessment for the potable and recycled water supply systems from source to end use has been undertaken according to ADWG methodology and is documented in Appendix 4.1.9.1. This risk assessment has a focus on operational risks from the perspective of the network operator.

A risk assessment for the retail activities related to the scheme was prepared and reviewed with by Annette Davison of Risk Edge (Feb/March 2016) and is attached at Appendix 5.1.5. This identifies mitigation measures implemented during design, construction and operation.

The potential of adverse financial events have been considered in a Project Risk Assessment, which considers the financial risks of this scheme (refer Appendix 3.7.1.4.) This was completed by NEV, and has since been reviewed by Risk Management experts (RiskEdge).

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)).

Potable Water

Continuity of raw water from Narara Dam is discussed in section 4.1.6.

Continuity of treated water supply has been addressed during the risk assessment (Appendix

4.1.9.1) and control measures have been identified to mitigate the risk of supply interruption.

These design and operational measures will be detailed in the Infrastructure Operating Plan.

Monitoring, control and alarms on the potable water system will be connected via NBN fibre to remote online monitoring systems managed by Aquacell.

All critical monitoring and alarm systems have battery backup power supply.

Standard process pumps, valves, instruments, etc. will be specified wherever possible to assist the timely acquisition of spare parts and replacement parts.

The plant design includes redundant delivery pumps at the potable water pumping station.

The potable water supply to residential lots is gravity fed from a header tank reservoir and therefore not contingent on operation of any plant or equipment. These header tanks will provide approximately 5 days backup potable water supply.

In the event that potable water is not available from the potable water treatment plant for an extended period, potable water will be trucked in and pumped into the potable water storage reservoir.

NEV have identified 5 local contractors suitable for this role:

1. ABC Water Cartage – based in Ourimbah (8km from Narara) with two trucks operating. One truck has capacity of 10kL while the second truck has 13kL capacity. A 10kL load costs $110 while a 12kL load is $130.

2. Mr Waterman – based in Ourimbah (8km from Narara) with truck capacity 12kL and a cost per load of $130.

3. Wally's Water Cart – based in Matcham (14km) with truck capacity 15kL and a cost of $140 per load

4. Turners Water Cartage – based in Wadalda (23km from Narara) with truck capacity 13kL and a cost of $120 per load.

5. Central Coast Water Cartage – based in Warnervale (27km from Narara) with two trucks both capacity 14kL at a cost of $140 per load.

Further details of the procedure for emergency trucking of drinking water will be shown in the Infrastructure Operating Plan.

Procedures to be followed on failure within the distribution network will be detailed in the Infrastructure Operating Plan. The network is designed as a ring main hence the first option will be to isolate the failed section. The second option will be to install "blue line" temporary connections to bypass the failed section of the network. Details of suitably qualified local plumbing contractors will be shown in the Infrastructure Operating Plan.

Recycled Water

Non-potable water will be stored in 200 kL buffer storage which will provide approximately 4 days buffer at average demand.

Potable water top-up is provided when recycled water is insufficient to meet demand or not available. The potable water treatment plant is sized to handle this load.

Standard process pumps, valves, instruments, etc. will be specified wherever possible to assist the timely acquisition of spare parts and replacement parts.

The plant design includes redundant delivery pumps at the recycled water pumping station.

Continuous online monitoring, control and alarms on the non-potable water system will be connected via NBN fibre to remote online monitoring systems managed by Aquacell.

All critical monitoring and alarm systems have battery backup power supply.

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)).

NEV will be responsible for all retail services associated will the provision of potable water, sewer and recycled water supply within the NEV residential sub-division project area and any conditions attached to the WICA license.

On granting of the Retail Provider License, NEV will enter into a service supply contract with each of its customers. This contract will include:

1. Pricing information
2. Education information regarding the scheme
3. Obligations regarding compliance with plumbing codes
4. Obligations regarding responsibility for infrastructure, and any inspections required before occupancy
5. Ongoing obligations of the supplier and the customer

The systems and processes that NEV will have in place to manage retail activities include -

Customer database - Customer details, usage history, credit history, customer satisfaction history

Rating model - calculate appropriate customer charges based on fixed and variable network costs and demand volume

Billing system - Interface with customer database, interface with meter reading, periodic fixed and volumetric charges based on the customer contract rates, invoicing, receipting, receivables aging, bill reminders and debt collection letters

Debt recovery procedures

Complaint handling process

Marketing and education - via periodic bill delivery, web site and notice boards

Billing and service enquiry - call centre and office (all customers in the scheme will be within walking distance of the NEV Water Utility office)

Emergency response - call centre, office and 24 hour duty officer who will be located within the NEV residential sub-division project.

Service KPI recording and reporting

Following approval of the Retail Supplier License NEV will enter into formal retail supply agreements with each of its customers in the NEV residential sub-division project.

For further details refer to:
Draft Retail Supply Management Plan at Appendix 5.1.7.1
NEV Complaints Handling and Dispute Resolution Policy at Appendix 5.1.7.2.

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).

NEV will be responsible for all retail services associated will the provision of sewage services within the NEV residential sub-division project area and any conditions attached to the WICA license.

NEV has applied for a Network Operator's License to cover the following:
- sewerage network (to be constructed);
- waste water treatment plant and storage tanks (to be constructed);
- non-potable water reticulation network (to be constructed); and
- irrigation field (to be constructed);

NEV will access this infrastructure to supply sewerage services.

The proposed scheme provides for gravity sewer reticulation from each residential lot and community facility to the Waste Water Treatment Plant (WWTP).

The WWTP uses a membrane bioreactor, UV disinfection and chlorine disinfection to produce fit-for-purpose recycled water for use in toilet flushing, household irrigation and Irrigation of

community agricultural land.

A detailed process flow diagram of the proposed sewer and non-potable water infrastructure from source to end use is attached as Appendix 4.2.1.

A map showing the location of the proposed infrastructure from source to end use is provided in Appendix 4.1.3.1

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)).

There are two classes of customers in the proposed scheme:
Residential customers
Community facilities

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.

Yes. All customers of the proposed scheme will be small retail 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)).

A preliminary risk assessment for Sewer and Non Potable Water from source to end use based on methodologies outlined in the Australian Guidelines for Water Recycling is attached as Appendix 4.2.10.

A number of hazards and hazardous events were identified and a qualitative risk assessment undertaken based on the risk assessment criteria outlined in the Australian Guidelines for Water Recycling.

The control measures identified in the risk assessment will be incorporated into the detailed design of the scheme and the Infrastructure Operating Plan to ensure they are implemented in the ongoing service, operation and maintenance of the scheme.

The preliminary risk assessment in Appendix 4.2.10 will be updated and reviewed periodically through the project. Formal reviews will be undertaken upon completion of detailed design, and again prior to commercial operation to ensure all actions identified have been completed, and to identify any new risks.

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)).

The design of the treatment system includes 400 kL of sewage buffer tanks which is sufficient capacity for approximately 17 days at average flow.

Standard process pumps, valves, instruments, etc. will be specified wherever possible to assist the timely acquisition of spare parts and replacement parts.

The plant design includes redundant delivery pumps at the recycled water pumping station.

A back-up generator will be provided for the WWTP.

Continuous online monitoring, control and alarms on the WWTP will be connected via NBN fibre to remote online monitoring systems managed by Aquacell.

All critical monitoring and alarm systems have battery backup power supply.

Innovative intelligent monitoring systems are being evaluated for early detection of blockages or failures.

Installations will be done by an experienced contractor and be compliant with all relevant codes and industry practices.

Appropriate testing will be completed during commissioning which will minimise the risk of

network failures once customers are connected.

Notwithstanding the above, NEV acknowledge that network failures will occur, and the likelihood of failure increases with the age of the network. To that end, when notified of a suspected network failure, NEV will:

1. Identify which network has failed by understanding which service has been interrupted

2. Establish the severity of the failure by determining which customers have had their service partially of wholly interrupted.

3. Use as-built drawings and site observations (wet ground, smell etc.) to determine the likely location of the network failure

4. Assess the likely cause, eg blockage or pipe break, and estimate the approximate repair duration.

Once the above information has been established, Aquacell will use similar methodologies to urban water utilities. These would include, but not be limited to:

1. Where the failure is considered minor and is readily repairable, undertake the repair immediately

2. Review the as-built drawings and determine if it is possible to isolate the failure and provide service through alternate pipe routes

3. Undertake further diagnostics such as inspecting the network with a camera, or localised excavation to determine the extent of the problem

4. Consider temporary alterations to pipe work to restore services, eg, for potable water making temporary connections to the mains and using blue line pipe or similar to provide potable water to customers who are effected by the failure

NEV's normal service and maintenance activities are not aligned with diagnosis and repair of networks. A suitable contractor would typically be used to undertake this work. Local plumbers with excavation and water jetting capabilities are able to rectify most network problems. This type of resource is not highly specialised and there are a many options available at short notice. Notwithstanding this, NEV will establish a preferred local supplier who knows the site and can respond quickly when required.

In the event of prolonged failure of the treatment plant, or of any of the network nodes, provision has been made for pump-out of the buffer tanks and tankering of raw sewage off site for disposal by an authorised contractor. Assessment of tankering options has been made through local contractors, and factored into the operating budget.

Actions to be undertaken in the event of a network failure will be documented in the site's Infrastructure Operating Plan. This would include the contact details of contractors who could be engaged to undertake network repairs.

Detailed operational procedures for tanker disposal will be prepared prior to commissioning the plant, and reviewed periodically during operation of the plant.

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)).

NEV will be responsible for all retail services associated will the provision of potable water, sewer and recycled water supply within the NEV residential sub-division project area and any conditions attached to the WICA license.

On granting of the Retail Provider License, NEV will enter into a service supply contract with each of its customers. This contract will include:

- Pricing information
- Education information regarding the scheme
- Obligations regarding compliance with plumbing codes
- Obligations regarding responsibility for infrastructure, and any inspections required before occupancy
- Ongoing obligations of the supplier and the customer

The systems and processes that NEV will have in place to manage retail activities include -

Customer database - Customer details, usage history, credit history, customer satisfaction history

Rating model - calculate appropriate customer charges based on fixed and variable network costs and demand volume

Billing system - Interface with customer database, interface with meter reading, periodic fixed and volumetric charges based on the customer contract rates, invoicing, receipting, receivables aging, bill reminders and debt collection letters

Debt recovery procedures

Complaint handling process. Refer to NEV Complaints Handing and Dispute Resolution Policy at Appendix 5.1.7.2 for details.

Marketing and education - via periodic bill delivery, web site and notice boards

Billing and service enquiry - call centre and office (all customers in the scheme will be within walking distance of the NEV Water Utility office)

Emergency response - call centre, office and 24 hour duty officer who will be located within the NEV residential sub-division project.

Service KPI recording and reporting

Following approval of the Retail Supplier License NEV will enter into formal retail supply agreements with each of its customers in the NEV residential sub-division project.

For further details refer to the NEV Draft Retail Supply Management Plan at Appendix 5.1.7.1.

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)).

NEV is incorporated as a trading co-operative under the Co-operatives Act 1992 (NSW) on 27 July 2012.

As a co-operative, NEV is owned by it's members. There are 67 active memberships as at November 2015. Each membership holds a minimum of 20,000 shares in the co-operative.

There are no other entities that have an ownership interest in the applicant corporation.

The Project Organisational Diagram is attached as Appendix 6.1.1.

6.1.2	Describe the applicant corporation's (and, where relevant, the nominated third parties) current experience in the construction, maintenance and operation of water 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)).

NEV, as a new entity, has no current experience in the construction, maintenance and operation of water and/or other utility infrastructure. NEV does however have a number of qualified and experienced personnel within the co-operative and its Water Utility division. Their CVs are detailed in the following section of the application.

NEV's nominated third party, Aquacell is a current WICA licencee, and are specialists in treatment and reuse schemes, having established numerous commercial schemes across Australia, including NSW, VIC, ACT, QLD and WA.

Their personnel have been involved with potable water schemes over more than 20 years in the design and operation. They have the knowledge and experience to confidently deliver a successful scheme for this project.

A summary of Aquacell's water industry experience is attached as Appendix 6.1.2.

In addition to Aquacell, NEV will utilise other experienced specialist subcontractors to provide experetise where required.

Water cycle analysis for the scheme, including water supply security, recycled water and irrigation studies, and reservoir and catchment management has been sub-contracted to:
Woodlots and Wetlands Pty Ltd
ABN 21 075 011 460
220 Purchase Road
Cherrybrook NSW 2126

Hydraulic design of the reticulation network has been sub-contracted to:

C J Arms and Associates
ABN 59 144 919 193
Level 2, 24 Hickson Road
Millers Point NSW 2000
www.cjarms.com.au

CJ Arms and Associates Pty Ltd is responsible for the design of the potable water reticulation system, sewerage system and the non-potable sewerage reticulation system. This role includes the preparation of specifications and tender documents for the construction of the reticulation systems to ensure compliance with all relevant standards.

Dam safety analysis and dam safety management has been sub-contracted to:

Pells Consulting
ABN 74 978 620 434
49 Lakeside Drive
MacMasters Beach NSW 2251
www.pellsconsulting.com.au

NEV policies for engaging contractors are attached as -

Appendix 3.4.3.6 - Engaging Contractors and Consultants Policy
Appendix 3.4.3.7 - NEV contractor agreement_May 2015

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)).

A NEV Organisational Diagram is attached as Appendix 6.1.3.1

CVs and Biographies for the key staff are contained in Appendix 6.1.3.2 (Confidential application).

Position descriptions with roles and responsibilities are attached as Appendix 6.1.3.3

An Aquacell Organisational Diagram is attached as Appendix 6.1.3.4

NEVs Related Entities are attached as Appendix 6.1.3.5 (Confidential application)

Aquacells Related Entities are attached as Appendix 6.1.3.6 (Confidential application)

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)).

A Development Application for the construction of the water infrastructure under Part 4 of the EP&A Act 1979 has been approved by with Gosford City Council - refer to sections 3.5.1, 4.1.13, 4.2.14 and 4.3.12. The development application consent is attached at Appendix 3.5.1.2.

Aquacell holds a WICA network operators and retail suppliers licence for a blackwater recycling plant located at 1 Bligh Street, Sydney. An application for similar licences are currently before IPART for a blackwater recycling plant located at Workplace 6, Darling Island, Sydney, and Tallowood Development - Kurrajong .

Aquacell has gained similar approvals in other Australian states over last 10 years, and recently was given approval for a similar-sized recycled water scheme in USA.

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)).

NEV is currently designing and developing an Integrated Management System (IMS) to meet the requirements of the recently revised and published international standards for quality and environmental management; ISO 9001:2015 for Quality Management Systems and ISO 14001:2015 for Environmental Management Systems. This IMS will adopt a risk-based approach that utilises the principles and guidelines provided by risk management standard, AS/NZS ISO 31000:2009.

As the standards for quality (ISO 9001) and environmental (ISO 14001) management have been revised late this year (2015), NEV have determined to delay any decisions regarding

whether to obtain external third party certification until the IMS has been fully developed and implemented. This will ensure that prospective third party certification bodies have developed audit experience with the revised 2015 standards across a broad range of organisational types and contexts. Regardless of whether external certification will be sought, the IMS will include an audit programme in accordance with the guidelines for auditing management systems provided by, ISO 19011:2011.

The IMS will also identify the context of the organisation (for example, the cooperative structure and applied sociocratic system of governance); and regulatory, technical, and other stakeholder requirements, including the NSW WIC Act 2006 Section 7 licensing principles.

NEV is also developing:
Risk Management and Audit Policy attached at Appendix 6.1.5.1
Customer Service Charter attached at Appendix 3.7.1.2
Draft Environmental Management Procedure attached at Appendix 3.7.1.3
Complaints Handing and Dispute Resolution Policy attached at Appendix 5.1.7.2
Code of Conduct attached at Appendix 6.1.5.2
NEV Document Control & Records Management Policy (draft) at Appendix 6.1.5.3.

NEV's nominated third party Aquacell employs an Integrated Management System (IMS) which is based on the ISO 9001 system. It has been audited under their current WICA licence obligations.

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)).

NEV was incorporated as a trading co-operative under the Co-operatives Act 1992 (NSW) on 27 July 2012.

As a co-operative, NEV is owned by it's members. There are 67 active memberships as at November 2015. Each membership holds a minimum of 20,000 shares in the co-operative.

There are no other entities that have an ownership interest in the applicant corporation.

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)).

NEV, as a new entity, has no current experience in the construction, maintenance and operation of water and/or other utility infrastructure. NEV does however have a number of qualified and experienced personnel within the co-operative and its Water Utility division. Their CVs are detailed in Appendix 6.1.3.2. (Confidential application)

NEV's nominated third party, Aquacell is a current WICA licencee, and are specialists in treatment and reuse schemes, having established numerous commercial schemes across Australia, including NSW, VIC, ACT, QLD and WA.

Their personnel have been involved with potable water schemes over more than 20 years in the design and operation. They have the knowledge and experience to confidently deliver a successful scheme for this project.

A summary of Aquacell's water industry experience is attached as Appendix 6.1.2.

Stage 1 of the Narara Ecovillage will consist of 60 residences, all of whom will be members of the Ecovillage Co-operative. NEV will invoice these customers individually for water services. It is proposed that NEV will also be the electricity service provider for the project and will develop common business systems for these services.

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)).

A NEV Organisational Diagram is attached as Appendix 6.1.3.1

CVs and Biographies for the key staff are contained in Appendix 6.1.3.2 (Confidential application)

Position descriptions with roles and responsibilities are attached as Appendix 6.1.3.3

An Aquacell Organisational Diagram is attached as Appendix 6.1.3.4

NEVs Related Entities are attached as Appendix 6.1.3.5 (Confidential application)

Aquacells Related Entities are attached as Appendix 6.1.3.6 (Confidential application)

CVs of NEV members with relevant retail experience are attached as Appendix 6.2.3. (Confidential application)

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)).

A Development Application for the construction of the water infrastructure under Part 4 of the EP&A Act 1979 has been approved by with Gosford City Council - refer to sections 3.5.1, 4.1.13, 4.2.14 and 4.3.12. The development application consent is attached at Appendix 3.5.1.2.

Aquacell holds a WICA network operators and retail suppliers licence for a blackwater recycling plant located at 1 Bligh Street, Sydney. An application for similar licences are currently before IPART for a blackwater recycling plant located at Workplace 6, Darling Island, Sydney, and Tallowood Development - Kurrajong .

Aquacell has gained similar approvals in other Australian states over last 10 years, and recently was given approval for a similar-sized recycled water scheme in USA.

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)).

NEV is currently designing and developing an Integrated Management System (IMS) to meet the requirements of the recently revised and published international standards for quality and environmental management; ISO 9001:2015 for Quality Management Systems and ISO 14001:2015 for Environmental Management Systems. This IMS will adopt a risk-based approach that utilises the principles and guidelines provided by risk management standard, AS/NZS ISO 31000:2009.

As the standards for quality (ISO 9001) and environmental (ISO 14001) management have been revised late this year (2015), NEV have determined to delay any decisions regarding whether to obtain external third party certification until the IMS has been fully developed and implemented. This will ensure that prospective third party certification bodies have developed audit experience with the revised 2015 standards across a broad range of organisational types and contexts. Regardless of whether external certification will be sought, the IMS will include an audit programme in accordance with the guidelines for auditing management systems provided by, ISO 19011:2011.

The IMS will also identify the context of the organisation (for example, the cooperative structure and applied sociocratic system of governance); and regulatory, technical, and other stakeholder requirements, including the NSW WIC Act 2006 Section 7 licensing principles.

NEV is also developing:
Risk Management and Audit Policy attached at Appendix 6.1.5.1
Customer Service Charter attached at Appendix 3.7.1.2
Draft Environmental Management Procedure attached at Appendix 3.7.1.3
Complaints Handing and Dispute Resolution Policy attached at Appendix 5.1.7.2
Code of Conduct attached at Appendix 6.1.5.2
Draft NEV Document Control & Records Management Policy 6.1.5.3

NEV's nominated third party Aquacell employs an Integrated Management System (IMS) which is based on the ISO 9001 system. It has been audited under their current WICA licence obligations.

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.

As at November 2015 NEV has raised $6.27 million in paid up share capital and $6.85 million in unsecured loans from members and their families.

NEV currently believe they will be able to complete the NEV residential sub-division project as designed without recourse to bank or other 3rd party finance.

Narara Ecovillage Co-operative Ltd (NEV) is self funded through it's members via equity and bridging loans and ultimately by the sale of land and land and house packages to its members. NEV currently has equity and bridging finance from its members to fund property holding and developer costs until land and land and house package sales proceeds are received. NEV has also negotiated a 'staged payments' mechanism with members to pre-pay nearly 70% of the land sale prices as civil works proceed. An example copy of our member Bridging Loan Agreement is attached in Appendix 7.1.1 (Confidential application)

To further assist cash flow for the project, many member consultants working on the project have elected to defer a portion of their fees until Stage 2 is complete and members may also choose to capitalise their loan interest. At 31 October 2015 these mechanisms have deferred $661,152 in fees and interest.

Relevant balances at 31 October 2015 are:

(See Confidential Application for financial details)

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).

No such events exist or are reasonably anticipated.

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.

A 5.1-year projected capex and operating cash flow forecast showing cost of service provision and when cashflow is positive is attached as Appendix 7.3.1. (Confidential application)

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?

All of the proposed water infrastructure will be the property of NEV with the exception of the temporary WWTP which will remain the property of Aquacell.

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)).

NEV will be responsible for all retail services associated will the provision of potable water, sewer and recycled water supply within the NEV residential sub-division project area.

NEV's pricing policy is to limit charges so they do not exceed those of Gosford Water by more than 25% for equivalent services.

Our rating price structure is based on:

- Fixed charge component for potable water, recycled water, sewer
- Volumetric charge component for potable and recycled water
- Trade waste component - if applicable in Stage 2

NEV will also levy customers a contribution towards whole-of-site storm water management and environmental protection costs.

See revised 5.1 year cashflow showing cost of service provision attached as Appendix 7.3.1. (Confidential application)

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.

NEV was incorporated as a trading co-operative under the Co-operatives Act 1992 (NSW) on 27 July 2012.

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.	
N/A	
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**.
NEV currently believe they will be able to complete the NEV residential sub-division project as designed without recourse to bank or other 3rd party finance. Bank statements demonstrating the applicants ability to fund the proposed activities is attached as Appendix 7.6.1. (Confidential application)	
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)	
2012-13 The financial year ending 30 June 2013 was the first year of operation of NEV. The development land at 25 Research Rd Narara NSW was purchased in August 2012 and settled for $5million plus stamp duty on 30th May 2013. The purchase was financed entirely from the Co-operative membership . 2013-14 The year ending 30 June 2014 included two principal areas of activity: the occupation, operation and running of the Narara site; and the ongoing preparation for the first stage of the project construction with development applications being submitted to Gosford City Council at the end of 2013 and approved late 2014. These activities were financed through three avenues; increased share equity and debt finance and deferment of member fees and loan interest. 2014-15	

During the year ending 30 June 2015 work continued on the development and members grew to a total of 65, with 18 new memberships added in the year. This inflow of funds ensured NEV is able to self-fund the Stage One development, an unexpected but highly beneficial outcome, resulting in our decision to not pursue bank finance for Stage One. Additional shareholding (above the minimum required for active membership) and the bridging loans will be applied to the purchase price of lots or cluster houses once titles are available.

Revenue:

NEV receives a small amount of rental, storage and interest income. In the year ending 30 June 2015 NEV received a grant of $70,000 to offset the design costs for our internal power supply grid.

Expenses:

Expenses incurred by NEV are related to managing the site and progressing the development. About 75% of costs fall into the latter category and are capitalised into the cost of the land.

Tax returns for the corporation for the last 3 years are provided in Appendix 7.4.4(a) (Confidential application)

1) Tax Return for the year ending 30 June 2013 – first year of operation
2) Tax Return for the year ending 30 June 2014

   Note Tax Return for the year ending 30 June 2015 has not yet been prepared.

Audited financial statements for the last 3 years are provided in Appendix 7.4.4(b) (Confidential application)

1) Audited Financial Statement for year ending 30 June 2013
2) Audited Financial Statement for year ending 30 June 2014
3) Audited Financial Statement for year ending 30 June 2015
4) Management Reports at 30th October 2015 including a Trading Statement, Profit and Loss Statement and the Trial Balance

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.

As at November 2015 NEV has raised paid up share capital and unsecured bridging loans from members and their families/affiliates.

NEV has no bank debt or other 3rd party finance.

(Confidential application for details)

7.5 Contacts

7.5.1	Does the applicant corporation have an accountant? If yes, what are the

	accountant's contact details?
Megan Wallace CPA accounts@nararaecovillage.com	
7.5.2	Does the applicant corporation have an external auditor? If yes, what are the external auditor's contact details?
Kathy Kelly kkelly@boyceca.com P (02) 6452 3344 | F (02) 6452 4060 Boyce Chartered Accountants 36 Bombala Street, Cooma NSW 2630 PO Box 36, Cooma NSW 2630	
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.
Bank reconciliations, aged accounts receivable reports and aged accounts payable reports for the following dates are provided in Appendix 7.6.1 (Confidential application) 31 Oct 2015 (latest management accounts) 30 Sept 2015 30 June 2015 (annual financial statement date) 31 March 2015 31 December 2014	
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.
There are no direct employees of NEV as at November 2016.	
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**.
Narara Ecovillage has 3 bank accounts. Bank statements for each account for August to October 2015 are attached as Appendix 7.6.3. (Confidential application)	

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:

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:	Narara Ecovillage Co-operative Ltd
Scheme name:	Narara Ecovillage
Date:	12/12/2015

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)	Y
■ Other regulatory approvals/licences (Appendix 3.5.1)	Y
Part 4: network operator (if applicable)	
For **drinking 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 4.1.1)	Y
■ A map of the proposed infrastructure from source to end use showing interconnections and customers and/or end users (Appendix 4.1.3)	Y
■ Where relevant, a copy of any agreements and/or licences to access the source water (Appendix 4.1.6)	Y
■ A preliminary risk assessment for the scheme from source to end use (Appendix 4.1.9)	Y
■ Evidence of the applicant's capacity to implement the 12 elements of the Australian Drinking Water Guidelines Framework (Appendix 4.1.10)	Y
■ Evidence of the applicant's capacity to develop and implement an infrastructure operating plan (Appendix 4.1.12)	Y
■ Any environmental study and/or risk assessment (Appendix 4.1.13)	Y
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)	Y
■ A map of the proposed infrastructure from source to end use showing interconnections and customers and/or end users (Appendix 4.2.3)	Y

Item	Confirm complete
■ Where relevant, a copy of any agreements and/or licences to access the source water (Appendix 4.2.6)	Y
■ A preliminary risk assessment for the scheme from source to end use (Appendix 4.2.10)	Y
■ Evidence of the applicant's capacity to implement the 12 elements of the Australian Guidelines for Water Recycling Framework (Appendix 4.2.11)	Y
■ Evidence of the applicant's capacity to develop and implement an infrastructure operating plan (Appendix 4.2.13)	Y
■ Any environmental study and/or risk assessment (Appendix 4.2.14)	Y
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)	Y
■ A map of the proposed infrastructure from collection to disposal or reuse showing interconnections (Appendix 4.3.3)	Y
■ A summary report of any wastewater characterisation or catchment studies (Appendix 4.3.8)	Y
■ A preliminary risk assessment for the scheme from collection to disposal (Appendix 4.3.9)	Y
■ Evidence of the applicant's capacity to develop and implement an infrastructure operating plan (Appendix 4.3.10)	Y
■ Any environmental study and/or risk assessment (Appendix 4.3.12)	Y
■ Where relevant, a copy of a soil capability assessment (Appendix 4.3.13)	Y
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)	Y
■ A preliminary risk assessment for the retail activities related to the scheme (Appendix 5.1.5)	Y
■ Evidence of the applicant's capacity to develop and implement a retail supply management plan (Appendix 5.1.7)	Y
For the **provision of sewerage services**	
■ A preliminary risk assessment for the retail activities related to the scheme (Appendix 5.2.4)	Y

Item	Confirm complete
■ Evidence of the applicant's capacity to develop and implement a retail supply management plan (Appendix 5.2.6)	Y
Part 6: applicant experience and systems	
For a **network operator** (if applicable)	
■ An organisational diagram (Appendix 6.1.1)	Y
■ Position descriptions for each of the key personnel positions (Appendix 6.1.3)	Y
For a **retail supplier** (if applicable)	
■ An organisational diagram (Appendix 6.2.1)	Y
■ Position descriptions for each of the key personnel positions (Appendix 6.2.3)	Y
Part 7: financial capacity	
■ Evidence of any financial guarantees or commitment of financial support (Appendix 7.1.1)	Y
■ Where relevant, projected cash flows for minimum 5 years and key financial modelling assumptions (Appendix 7.3.1)	Y
■ 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)	N/A
■ 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)	Y
■ Where relevant, tax return for the applicant for the last 3 years (Appendix 7.4.4(a))	Y
■ Where relevant, financial statements for the applicant for the last 3 years (Appendix 7.4.4(b))	Y
■ 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)	Y
■ Where relevant, extracts of the superannuation payable ledger (Appendix 7.6.2)	N/A
■ Where relevant, bank statements for the 3 months to date or annual financial statements (Appendix 7.6.3)	Y