

SENSITIVE: CABINET

20/056

Cabinet Brief

Cabinet Meeting Date: 26 May 2020
Title of Submission: Queanbeyan Sewage Treatment Plant Upgrade
Minister: Minister for Environment and Heritage, Mick Gentleman, MLA

Recommended position: **SUPPORT**

Submission recommendations

This discussion paper outlines the planning, environmental and regulatory considerations for the ACT region on the upgrade of the Queanbeyan Sewage Treatment Plant. It's recommended you note the discussion paper and TCCS' role with respect to water quality, stormwater and the land development process – as outlined in this Cabinet brief.

Issues/comment

Sewage treatment process

Sewage is produced by domestic, commercial and industrial sources and is disposed of within a sewerage network. The network carries sewage to a treatment plant where it is treated to remove contaminants and pathogens, before it can be safely returned as effluent to the natural water cycle.

Queanbeyan Sewage Treatment Plant

The Queanbeyan Sewage Treatment Plant (QSTP) is located within the ACT Division of Jerrabomberra, adjacent to Oaks Estate. The facility is operated by the Queanbeyan-Palerang Regional Council. The QSTP is approaching the end of its operational life and is due to be upgraded to serve existing and future community needs.

Effluent from the QSTP is discharged into the Molonglo River upstream of Lake Burley Griffin. It provides an important source of water entering the lake, particularly during drought conditions. Due to the discharge location, nutrient and bacteria levels within the effluent can impact on water quality downstream if its not appropriately managed. This can lead to lake closures and impacts on recreational uses. Effluent discharge limits are regulated by the ACT Environment Protection Authority.

Sewage treatment in the ACT

Icon Water owns and operates the sewerage infrastructure and assets in the ACT. Icon Water operate two main sewage treatment plants, the Lower Molonglo Water Quality Control Centre (LMWQCC) and the Fyshwick Sewage Treatment Plant (FSTP). Icon Water's FSTP currently treats water from the Majura and Jerrabomberra districts. Discharge from this facility either undertakes further treatment at the LMQCC and is subsequently discharged or supplies the North Canberra Water Reuse Scheme which provides recycled water for irrigation, including public open space. The LMQCC discharges effluent into the Molonglo River downstream of the Lake Burley Griffin. This flows into the Murrumbidgee River and drains into the Murray-Darling Basin.

The FSTP is nearing end of life within the next 10-15 years. Icon Water's current strategy is to upgrade the facility, accommodating future population growth within the catchment. This strategy will also seek a licence from the Environment Protection Authority to discharge effluent into the Molonglo River upstream of Lake Burley Griffin.

TCCS role on water quality

Cleared: Geoff Davidson, Executive Branch Manager Development Coordination
Prepared by: Amelia Dillon, A/g Transport Planner

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TCCS does not have jurisdiction over the ACT sewerage network, however, the Development Coordination Branch within TCCS assesses Icon Water's development activities on TCCS land such as the laying of new pipes.

Roads ACT is responsible for managing, monitoring and maintaining the physical condition of the municipal stormwater network, for setting standards for the construction of new stormwater assets and for ensuring the safe and effective functioning of the stormwater network, not including Lake Burley Griffin, which is managed by NCA.

Development Approval Process

In accordance with the *Planning and Development Act 2007* the proposal to upgrade the QSTP is subject to assessment through an Environmental Impact Statement (EIS) and Development Application (DA).

The EIS process will gather information on the potential impacts of the proposal, such as the cumulative impact on water quality should Icon Water also discharge effluent upstream of Lake Burley Griffin. The DA will assess the development proposal.

A scoping document for an EIS was issued by the ACT Planning and Land Authority in September 2019. TCCS provided input on the EIS Scoping Document, input centred around the potential impact on urban reserves. Following the EIS process, TCCS as a referral entity for DAs, will review the proposal.

Context and consultation

The Utilities Technical Regulation (UTR) engaged with key stakeholders to obtain formal positions on the proposed upgrade of the QSTP. TCCS was not engaged by the UTR, TCCS is engaged in the EIS process and will be referred the proposal within a future DA process.

Key stakeholders noted that whilst effluent from the QSTP is important to maintain the volume of water within Lake Burley Griffin, careful management of nutrient and bacterial discharge limits is vital. This is particularly important to ensure that water quality within the Molonglo River and Lake Burley Griffin do not deteriorate, resulting in lake closures caused by outbreaks of toxic blue-green algae.

The following agencies were engaged by the UTR:

- ACT Environment Protection Authority
- Independent Competition and Regulatory Commission
- Water Policy, Environment, Planning and Sustainable Development Directorate
- ACT and Region Catchment Management Coordination Group
- Economic and Regional Policy, Policy and Cabinet, Chief Minister, Treasury and Economic Development Directorate
- National Capital Authority
- Icon Water
- Queanbeyan-Palerang Regional Council
- NSW Department of Planning, Industry and Environment

Cleared: Geoff Davidson, Executive Branch Manager Development Coordination

Prepared by: Amelia Dillon, A/g Transport Planner

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For Cabinet

20/056

Queanbeyan Sewage Treatment Plant Upgrade**Minister for Environment and Heritage, Mick Gentleman, MLA**

Cabinet Office Rec

Wednesday, 20 May 2020 at 4:36 PM

Key Issue:

The Queanbeyan Sewage Treatment Plant (QSTP), operated by the Queanbeyan-Palerang Regional Council (QPRC) and located in the ACT, is approaching the end of its operational life and is due to be upgraded. Discussion points to note incorporate a range of planning, environmental and regulatory considerations for the ACT region.

Discussion Points:1. Background

The QSTP is located within the ACT Division of Jerrabomberra adjacent to Oaks Estate and effluent water from the plant flows into the Molonglo River and Lake Burley Griffin. The existing plant was established in the 1930s and is due to be upgraded in 2025 as it is approaching the end of its operational life and to accommodate future significant population growth.

Effluent from the QSTP is an important source of water for Lake Burley Griffin and is the major source of water entering the lake in drought conditions. Without the flow of effluent water from the QSTP into the lake in the dryer months, water would need to be sourced from Googong Dam's drinking water supply, with possible implications for Canberra's water security during extended dry periods.

Accordingly, the proposed upgrade of the QSTP is needed to improve the condition of the plant, accommodate for an increased plant capacity from population growth and to retain the volume of water in Lake Burley Griffin.

2. Implications for the ACT – Water Quality in Lake Burley Griffin

Poor water quality, and especially blue-green algae, as a result of high nutrient and bacteria levels is an ongoing issue in ACT lakes and waterways, with lake closures causing significant disruption to triathlon, rowing and sailing events.

In addition, the potential for sewage overflow events from the plant has implications in that restrictions may need to be placed on the use of the Molonglo River and Lake Burley Griffin if water quality deteriorates in receiving waters.

Key stakeholders have identified that whilst effluent from the QSTP is important to maintain the volume of water in the lake, a careful management of nutrient and bacterial discharge limits is required. This will help maximise lake availability for recreational purposes and minimise lake closures due to toxic blue-green algae.

3. Regulatory Process – Environmental Impact Statement Assessment

The upgrade proposal is subject to assessment through an Environmental Impact Statement (EIS) and development application (DA) in accordance with the *Planning and Development Act 2007*. A scoping document for an EIS was issued by the planning and land authority on 10 September 2019 (Attachment A).

A draft EIS needs to be submitted to the planning and land authority within 18 months of the scoping document being issued. The EIS process is not an approval process. It is an information gathering exercise about the potential impacts of a proposal. The DA is the decision making stage.

The scoping document sets out the issues to be addressed by QPRC in the EIS. One of the key issues identified is water quality parameters to ensure the plant releases water of an acceptable quality for receiving waters including the Molonglo River and Lake Burley Griffin. Water quality requirements can affect the design of the plant and there is a risk to the EIS process, if requirements are not agreed before, or change during the design of the plant and preparation of the EIS. If the plant design changes during the EIS process, then a new EIS process could be required resulting in substantial time delays.

4. Stakeholder Positions

Utilities Technical Regulation (UTR) engaged with key stakeholders with the aim of obtaining formal positions on the proposed QSTP upgrade from each stakeholder.

5. Internal – ACT Government

Environment Protection Authority

The QSTP is subject to environmental regulation through an Environmental Authorisation issued under the *Environment Protection Act 1997*, which establishes environmental requirements such as effluent discharge limits and water quality standards. The Environment Protection Authority (EPA) has varied the Environmental Authorisation for the QSTP several times since it was issued in 1997, with the latest variation being implemented in 2017.

The EPA and QPRC have been engaging to establish satisfactory environmental parameters. The EPA has advised QPRC that the design of the upgraded plant must include environmental requirements that establish effluent water quality parameters, along with a range of other technical advice provided in a letter by the EPA to QPRC ([Attachment B](#)). Evidence of changes to environmental risk identified during the proposed design consultation or EIS process could lead to the EPA varying the conditions of the Environmental Authorisation for the plant.

Independent Competition and Regulatory Commission

The Independent Competition and Regulatory Commission (ICRC) has been engaging with QPRC to determine whether QPRC is potentially providing a sewerage service in the ACT and if QPRC is required to hold a utility licence or valid exemption for the QSTP under the *Utilities Act 2000*.

On 2 March 2020, QPRC advised the ICRC that it is preparing a submission to the ACT Minister for Environment and Heritage seeking a utility class exemption under both the *Utilities Act 2000* and the *Utilities (Technical Regulation) Act 2014*. QPRC advised it will seek a meeting with the Minister. The ICRC will await the outcome of that submission before considering the next steps in ensuring compliance with licensing obligations under the Utilities Act.

Water Policy, Environment Planning and Sustainable Development Directorate (EPSDD)

Water Policy has indicated that its main priority for the QSTP upgrade is for water quality in the Molonglo River and Lake Burley Griffin to remain satisfactory.

Water Policy has identified that poor water quality, and especially blue-green algae, as a result of high nutrient and bacteria levels is an ongoing issue in ACT lakes and waterways, with lake closures causing significant disruption to triathlon, rowing and sailing events. Water Policy has also noted that while the QSTP is an important source of water that flows into Lake Burley Griffin, particularly during dry weather events, the nutrients carried with those flows represent a major hazard as a contributor to the potential formation of blue-green algae.

The Commissioner for Sustainability and the Environment's 2011 inquiry into poor water quality in Lake Burley Griffin (Attachment C) estimated that in the event of continued deterioration in the quality and reliability of Lake Burley Griffin as a recreational venue, the annual economic cost to the ACT and region would be in the order of \$25 million.

EPSDD provided a submission to the QSTP master plan process in December 2016 outlining issues relevant to the maintenance and improvement of water quality in Lake Burley Griffin, emphasising phosphorous concentration and load reduction as a critical input in providing future water quality and associated economic benefits.

ACT and Region Catchment Management Coordination Group

The ACT and Region Catchment Management Coordination Group (ACT&RCMCG) is a statutory Ministerial advisory group under the *Water Resources Act 2007* and has provided regular advice relevant to the QSTP upgrade including the potential benefits of a "Best for Region" approach in conjunction with Icon Water.

At the request of Queanbeyan Council, the ACT&RCMCG provided a submission to the QSTP master plan process in December 2016 (Attachment D). That submission identified that the QSTP is the major source of nutrients to Lake Burley Griffin and recommended water quality discharge parameters that should apply to an upgraded QSTP plant focussing on phosphorous, nitrate and bacterial concentrations, with the objective of reducing nutrient concentration and load levels over time.

The recommendations in the submission were determined by an expert panel workshop. The recommended water quality parameters represent a high standard, and therefore more costly, outcome than the current parameters that are set out in the Environmental Authorisation for the QSTP. If met, these parameters will significantly increase the capital and operating costs for QPRC.

No consideration was given to these economic implications when the recommended water quality parameters were issued to QPRC in December 2016. There was no supporting economic assessment of the increased costs or cost apportionment between the QPRC, the ACT Government and Federal Government to support development of the high standard water quality parameters. Furthermore, this standard does not represent a regulatory obligation which would have required preparation of a regulatory impact statement. The forthcoming EIS process will consider advice provided by the EPA and EPSDD's Water Policy area.

*Economic and Regional Policy, Policy and Cabinet
Chief Minister, Treasury & Economic Development Directorate*

The ACT Government has a *Letter of Intent* with QPRC which articulates the principles and priorities to support an effective and productive relationship between the two governments.

The ACT-QPRC Letter of Intent is underpinned by the *ACT-NSW MOU for Regional Collaboration* and the *NSW South East and Tablelands Regional Plan* and includes as a guiding principle pursuit of a borderless approach to infrastructure. A priority under the Letter of Intent is “collaborating on policy and planning opportunities to consider management of water, sewage, waste and renewable energy on a regional scale”. The ACT and NSW governments are in the process of finalising an updated *ACT-NSW MOU for Regional Collaboration* however the updated MOU does not impact the relevance of the ACT-QPRC Letter of Intent.

The ACT Government and QPRC are members of the Canberra Region Joint Organisation (CRJO). On 30 October 2018 the CRJO released a *Water and Waste Water Prospectus* (Attachment E) that identifies the QSTP upgrade as a priority project in the Canberra region.

6. External

National Capital Authority

The National Capital Authority (NCA) sent a letter to the Technical Regulator on 26 February 2020 (Attachment F) detailing its position in relation to the proposed QSTP upgrade.

The NCA undertakes weekly water quality testing in Lake Burley Griffin and closes the lake if there is a deterioration in water quality. The NCA has advised that it does not want to see an increase in lake closures and welcomes an improvement in the QSTP effluent quality. The NCA has also advised that it prefers the QSTP’s effluent remains available as a source of water to Lake Burley Griffin and for irrigators taking water from the lake, as a result of the QSTP upgrade. The NCA has further relayed the importance of potential impacts raised by the EIS process to be considered in the detailed design phase.

Icon Water

Icon Water sent a letter to the Technical Regulator on 28 February 2020 (Attachment G) detailing its position in relation to the proposed QSTP upgrade.

Icon Water plans to upgrade its Fyshwick Sewage Treatment Plant within the next 10-15 years and has indicated that its current preference is to construct a larger upgraded plant with a discharge licence to the Molonglo River, upstream of Lake Burley Griffin. Icon Water has advised that major planning decisions affecting these waterways, such as determining water quality discharge limits for the QSTP upgrade, should consider a cumulative impact on waterways from future population growth in the ACT that may require additional sewage treatment plants discharging effluent into the Molonglo River and Lake Burley Griffin.

The EIS process will consider the advice provided by Icon Water, including advice in relation to a future state where both Icon Water and QPRC could operate sewage treatment plants discharging effluent into the Molonglo River and Lake Burley Griffin and how the cumulative effluent would impact the receiving waterways, however the proposal will be assessed on its standalone merits. The EIS process will also consider the management of environmental impacts from QPRC and Icon Water. However, the EIS process has no statutory remit to resolve disputes regarding cost implications for Icon Water, QPRC, the ACT Government and the Federal Government and how costs could be distributed, if both plants were to discharge into the Molonglo River and lake.

Queanbeyan-Palerang Regional Council

QPRC sent a letter to the Technical Regulator on 6 March 2020 (Attachment H) detailing its position in relation to the proposed QSTP upgrade.

QPRC advised its upgrade project is subject to two parallel key regulatory processes, the EIS and DA process in the ACT and the Section 60 approval under the NSW *Local Government Act 1993* for the Department of Planning, Industry and Environment (DPIE) in NSW. The Section 60 approval process is detailed in QPRC's letter.

The QSTP upgrade has not yet been designed, although QPRC have indicated that its design focussed team is using preliminary findings from site investigations which include elements such as water quality, ecology and air quality, as well as considering regulatory requirements to assist with the design of the upgraded plant.

QPRC has provided an update on the project which includes site investigations being complete in the coming months along with an expectation for the draft Concept Design to be issued in May 2020 and the draft EIS to be out for public exhibition around October 2020. QPRC have also advised that its continuing to work with regulators, stakeholders and consultants to drive project outcomes that address the needs of all parties and that community consultation will be a focus as it moves towards the public consultation period to address comments for consideration in the Final EIS which is expected to be delivered around March 2021.

QPRC has advised that it envisages seeking an exemption from the ACT Minister for Environment and Heritage from the *Utilities Act 2000* and the *Utilities (Technical Regulation) Act 2014* for the QSTP and noted parallel stringent operational and reporting requirements of the NSW DPIE.

QPRC's letter advises that funding for the project is being developed and it is expected that QPRC will be seeking further partners in 2020 as the project requirements progress and indicated that it particularly looks forward to continuing liaison with the ACT Government.

QPRC has previously indicated that it could potentially request funding from the ACT Government and NCA in the future to assist with the upgrade of the QSTP, as substantial costs could be imposed on QPRC if stringent water quality parameters for the QSTP's effluent are determined through the Environmental Authorisation by the ACT Government. However, this has not represented an official position from QPRC and initial views from ACT Government indicates that QPRC is responsible for costs to comply with regulation.

NSW Department of Planning, Industry and Environment

A position from the NSW DPIE in relation to the proposed QSTP upgrade was requested on 13 February 2020. As of 2 April 2020, DPIE has not confirmed whether a submission will be provided.

Future Action

QPRC is required to submit a draft EIS to the planning and land authority for the QSTP upgrade proposal around March 2021. The EIS process includes a consultation period where all key stakeholders will have the opportunity to provide further comprehensive comments on the proposed QSTP upgrade and detailed design. EPSDD and UTR officers will continue to engage with key stakeholders with the aim of progressing the QSTP upgrade in a timely matter.

Minister's signature _____ Date ____/____/____

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ACT
Government

Environment, Planning and
Sustainable Development

Scoping Document

Under Division 8.2.2 of the *Planning and Development Act 2007*

APPLICATION NUMBER: 201900029		DATE OF THIS NOTICE: 10 September 2019
DATE LODGED: 30 July 2019		
PROJECT: Upgrade of the Queanbeyan Sewage Treatment Plant (STP) to cater for a future equivalent population of 75,000		
IMPACT TRACK TRIGGER: <i>Planning and Development Act 2007</i> , Schedule 4 Part 4.2 Item 5		
BLOCKS: 27 and 2087	SECTION: 0	DISTRICT/DIVISION: JERRABOMBERRA
ADDRESS: 7 Mountain Road, Jerrabomberra ACT		
PROPONENT: Queanbeyan Palerang Regional Council (QPRC)		
APPLICANT: Queanbeyan Palerang Regional Council (QPRC)		
LESSEE/LAND CUSTODIAN: Queanbeyan Palerang Regional Council (QPRC)		

SCOPING DOCUMENT

The planning and land authority (the Authority) within the Environment, Planning and Sustainable Development Directorate (EPSDD) received your application under s 212(1) of the *Planning and Development Act 2007* (the PD Act) for Scoping of an Environmental Impact Statement (EIS) for the above proposed development. Pursuant to s 212(2) of the PD Act, the Authority has:

- Identified the matters that are to be addressed by an EIS in relation to the development proposal; and
- Prepared a written notice (the **scoping document**) of the matters.

NB: The EIS must conform to the requirements of this scoping document. This document does not indicate approval or support in any way, nor does it indicate approval in principle.

TERM OF SCOPING DOCUMENT

Pursuant to s 213(2) of the PD Act, the proponent must give the draft EIS to the Authority by the end of the period of 18 months starting on the day the Authority gives the scoping document for the development proposal to the applicant.

FORM AND FORMAT OF EIS

The Authority requires that the proponent engage a suitably qualified independent consultant to prepare an EIS, OR the proponent submits, with the draft EIS, an independent review of the draft EIS undertaken by a suitably qualified consultant. The EIS must be in the following form and format:

- The EIS must be prepared in accordance with s 50 of the *Planning and Development Regulation 2008*.
- The EIS must be written in plain English and avoid the use of jargon as much as possible.



ACT
Government

**Environment, Planning and
Sustainable Development**

Scoping Document

Under Division 8.2.2 of the *Planning and Development Act 2007*

- The EIS is required to be provided in the same structure as described in this scoping document as closely as possible (e.g. executive summary, introduction, proposal details, legislative context, risk assessment, assessment of impacts, consultation, recommendations/mitigation, conclusion).
- A table that cross-references the EIS to the scoping document must be included in the EIS submission.
- The EIS must reference any figures or supporting information such as appendices and page numbers, tables and figures.
- Additional technical detail, including relevant data, technical reports and other sources of the EIS analysis must be provided in appendices.
- A redacted version (in addition to the full version) of any reports containing restricted or sensitive information must be provided for public notification, such as a Cultural Heritage Assessment report.
- Maps, diagrams and other illustrative material should be included in the EIS to assist readers to interpret information.
- The EIS document sized A4 with maps and drawings in A4 or A3 format.
- The proponent must supply a copy of all draft EIS and revised EIS documents in electronic formats for circulation and web posting. These are to be supplied by email, USB, or another agreed method. Digital files must not exceed 20 MB each.
- The proponent must supply three hard copies of the draft EIS and two copies on individual USB's once it has been accepted for lodgement and three hard copies and three copies on individual USB's of the revised EIS once it has been accepted for lodgement.

COST OF PREPARATION OF EIS

The proponent is responsible for the preparation of the draft and revised EIS and any related applications and associated costs. This includes additional copies of the draft and revised EIS and other associated documents as required by the Authority from time to time.

NEXT STEPS

The proponent is required to prepare a document (a **draft EIS**) that addresses each matter raised in the scoping document for the proposal within the timeframe provided in this scoping document. Once the draft EIS has been accepted for lodgement, a public notification fee is payable in order for notification, referrals and assessment to commence. After the notification period has closed, the Authority will provide comments and any public representations received for the proponent to address in preparing a **revised EIS**, and any further instructions on the application.

Delegate

Brett Phillips
Executive Group Manager
Planning Delivery Division
Environment, Planning and
Sustainable Development Directorate

Contact

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Impact Assessment and Business Improvement
Environment, Planning and
Sustainable Development Directorate
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GENERAL REQUIREMENTS FOR THE EIS

1. Cover Page

The cover page must clearly display the following:

- The name of the proposal (project title)
- The block identifier(s) and street address for the proposal
- The date of the preparation of the document
- Full name and postal address of the designated proponent
- Full name and postal address of the designated applicant
- Name and contact details of the person/organisation who prepared the documents (if different to the above)

2. Glossary

Provide a glossary of technical terms, acronyms and abbreviations used in the EIS.

3. Executive Summary

Provide a non-technical summary of the EIS including a description of the proposal, key findings and recommendations.

4. Introduction

Summarise the proposal background and justification for the proposal.

5. Proposal Details

5.1. Project Description

Provide a description of the proposal, including:

- a) The objectives and justification for the proposal;
- b) The location of the land to which the proposal relates, including detailed maps;
- c) The division and/or district names and block and/or section numbers of the land under the *Districts Act 2002*;
- d) If the land is leased – the lessee's name;
- e) If the land is unleased or public land – the custodian of the land;
- f) The purposes for which the land may be used;
- g) A clear identification of all lands subject to direct disturbance from the proposal and associated infrastructure and geomorphic features such as waterways and wetlands. This is to be supported by a map showing all affected lands;
- h) An outline of any developments that have been, or are being, undertaken by the proponent, or other person(s) or entities, within the proposal area and broadly in the region. Describe how the proposal relates to these developments;
- i) A description of all the components of the proposal (such as sewage collection, sewage and sludge treatment and disposal systems), including the proposal specifications, the predicted timescale for implementation (design, approvals, construction, operation, decommissioning

- and future expansion) and project life;
- j) A description of technology, skills and workforce requirements to operate and maintain a modern sewage treatment plant;
 - k) A comparison of the existing and proposed system such as discharge quantity, Total Phosphorus, Total Nitrogen, and Biological Oxygen;
 - l) A plan/description of the precise location of any works to be undertaken, structures to be built or elements of the proposal that may have relevant impacts; and
 - m) A description of the construction methodologies for the proposal.

5.2. Alternatives to the proposal

Provide details of any alternatives to the proposal considered in developing the proposal including a description of:

- a) Any design and location (any site within the ACT or other jurisdictions) alternatives to the proposal and provide reasons for selecting the preferred option with an analysis of site selection;
- b) The criteria used for assessing the performance of any alternative to the proposal considered;
- c) Any matters considered to avoid or reduce potential impacts prior to the selection of the preferred option; and
- d) Details of the consequences of not proceeding with the proposal.

6. Legislative and Strategic Context

A description of the EIS process including any statutory approvals obtained or required for the proposal, and how the proposal is aligned with strategic priorities for the ACT.

6.1. Statutory requirements

The EIS must include information on the following statutory requirements:

- *Planning and Development Act 2007*
- *Planning and Development Regulation 2008*
- *Utilities Act 2000*
- *Utilities (Technical Regulation) Act 2014*
- *Environment Protection Act 1997*
- *Environment Protection Regulation 2005*
- *Nature Conservation Act 2014*
- *Tree Protection Act 2005*
- Other related statutory approvals

6.2. Climate change

The EIS must include information on how the proposal will reduce the risks from climate change impacts and include proposed adaptation measures to reduce vulnerability and increase resilience of the community and the Territory, particularly in relation to extreme events such as heatwaves, droughts, storms with flash flooding and bushfires. The information must address impacts on the local microclimate and how it will avoid contribution to urban heat and positively contribute to urban

cooling measures.

Additionally, the EIS must address the contribution the proposal will make to reducing greenhouse gas emissions and meeting the legislated target for a net zero emissions Territory (by 2045 at the latest).

Preparation of the EIS must consider the ACT Government's policies:

- ACT Climate Change Adaptation Strategy, 2016
- AP2 – A new climate change strategy and action plan for the Australian Capital Territory, 2012

6.3. Other requirements

The description must also include information on how each of the following has been considered in the preparation of the EIS and the development of the proposal:

- Territory Plan 2008
- ACT Planning Strategy
- National Capital Plan
- Relevant Environment Protection Policies and Separation Distance Guidelines for Air Emissions (https://www.environment.act.gov.au/environment/legislation_and_policies)
- Canberra Airport Master Plan 2020 Preliminary Draft (<https://www.canberraairport.com.au/masterplan/>)
- Contaminated Sites Environment Protection Policy 2017
- Plans of Management for any public land
- Any relevant Master Plan
- Other relevant planning and environmental guidelines, action plans and management plans.

6.3.1. Ecologically sustainable development (ESD)

Provide a description of the proposed action in relation to the long-term and short-term considerations of economic development, social development and environmental protection. The proponent should ensure that the EIS adequately addresses the principles of sustainable development as defined by s 9 of the P&D Act, especially the economic consequences of the environmental impacts from the proposed development.

6.3.2. Territory Plan strategic directions

A statement must be provided regarding the proposal's consistency with the principles in the Statement of Strategic Directions in the Territory Plan 2008 (Section 2.1 - Strategic Direction).

7. Risk Assessment

7.1. Risk Assessment Methodology

Provide a risk assessment in accordance with the Australian and New Zealand Standard for risk management AS/NZS ISO 31000:2009 *Risk Management – Principles and guidelines*. The proposed criteria for determining which risks are potentially significant impacts must be described.

The Preliminary Risk Assessment (PRA) submitted as part of the request for a scoping document must be revised to include, but not be limited to, the risks identified by the Authority in Table 1.

-Assessment guide-

Provide a table with the headings below to describe the risks identified and the original risk rating without any mitigation strategies in place. This table format is one option, however alternative formats can be used

provided the methodology is clearly described and in accordance with AS/NZS ISO 31000:2009 *Risk Management – Principles and guidelines*

Risk	Likelihood	Consequence	Risk rating
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The risks identified in Table 1 are based on the scoping document application and comments received from entities on the application. All of these risks are considered potentially significant (i.e. a medium risk level or above), and must be addressed in the EIS. Should any risk levels change during the preparation of the EIS or any new risks become apparent, these must be assessed and included with a justification in the EIS, and where relevant, the residual risk assessment.

Table 1 – Identified impacts and requirements to be addressed in the EIS

Environmental Theme	Risk identified	See section/s below for further detail
Planning and Land Status	- Impact on existing and potential adjacent land uses - Impact on the STP operation if existing lease cannot be renewed	8.2.1
Traffic and Transport	Increased traffic congestion and reduced road safety during construction	8.2.2
Utilities	- Impacts to existing infrastructure, including the underground sewage pipes, during construction - Utility failure causing issues with the STP operation	8.2.3
Materials and Waste	- Increased waste to landfill during construction, demolition and operation - Impacts from storage of large amount of contaminated sludge and biosolids - Spill of liquid waste or fuel during operation	8.2.4
Soils and Geology	- Contamination of soil from uncontrolled release of chemical spills and leaks - Impact of existing soil contamination from existing and previous uses, including the burial of solids and screenings - Potential to increase run-off (sediment and erosion) entering into the Molonglo River in high rainfall events during construction	8.2.5
Water Quality and Hydrology	- Impact on water quality of Molonglo River and Lake Burley Griffin from effluent leaving the site - Leakage or spills of untreated or partially treated sewage contributing to contamination of surface and groundwater - Potential for bank stabilisation works to impact on the river water quality - Microplastics, Endocrine Disrupting Chemicals	8.2.6

Environmental Theme	Risk identified	See section/s below for further detail
	(EDCs) and other non-organic contaminants impacting water quality and ecosystems	
Climate Change and Air Quality	Emissions from construction traffic and equipment	8.2.7
	Increases in the frequency and intensity of extreme climatic events result in the breach / failure of infrastructure and contamination of water	
Socio-economic and Health	Risk of odour impacting nearby land uses, including but not limited to residential uses	8.2.8
	Health risk associated with the effluent leaving the site	
	Impact on recreational use of Molonglo River and Lake Burley Griffin due to water quality impact	
	Impact on health from accidental leakage or spill of untreated or partially treated sewage	
Noise	Noise impacts on the amenity of sensitive receivers during operation	8.2.9
Hazard and Risk	Impacts of failure to construct the new STP within the proposed timeframe	8.2.10
	Risk of bushfire or fire damaging the proposed facility	
	Impacts related to infrastructure damage/ failure due to flooding or extreme rain event	
Ecology and Natural Environment	Impact on terrestrial and aquatic species or ecological communities from construction and operation	8.2.11
	Discharged wastewater from the site impacting on aquatic habitat and species in the waterway	
Heritage	Impacts on Aboriginal places and objects	2.2.12

8. Assessment of Impacts

Sufficient information is required to provide the Authority with an adequate understanding of the environmental impacts associated with the proposal.

Each potentially significant risk identified in Table 1 and in the proponent's PRA must be addressed, and structured, as set out in sections 8.1.1-8.1.5 below.

8.1. Standard requirements

8.1.1. Environmental conditions and values

Describe the environmental conditions and values for the environmental themes identified in Table 1. This section should discuss the baseline conditions for the area.

8.1.2. Investigations

Identify the findings and results of any environmental investigation in relation to the land to which the proposal relates.

8.1.3. Impacts

Describe the environmental impacts associated with the construction and operation for the environmental themes identified in Table 1 and in the proponent's risk assessment (including cumulative, consequential and indirect effects) on physical and ecological systems and human communities. Particular emphasis should be placed on the potentially significant impacts identified in the risk assessment. Include a discussion of the timeframes of impacts i.e. short or long term, their nature and extent and whether they are reversible or irreversible, unknown or unpredictable. Include an analysis of the significance of the relevant impacts. Information must include any technical data and other information used or needed to make a detailed assessment of the impacts.

8.1.4. Mitigation

Discuss the proposed safeguards and mitigation measures that will be implemented to reduce the potentially significant impacts identified in Table 1 and the proponent's risk assessment. This is to include:

- a) A description and an assessment of the proposed impact avoidance, mitigation or offsetting measures to deal with the environmental impact of the proposal, along with which stage the mitigation measures will be adopted
- b) Any statutory or policy basis for the mitigation measures
- c) An outline of an environmental management plan (EMP) that sets out the framework for continuing management, mitigation and monitoring programs for the relevant impacts of the action, including any provisions for independent environmental auditing
- d) The frequency, duration and objectives of monitoring proposed
- e) The name of the agency responsible for endorsing or approving each mitigation measure or monitoring program
- f) Any corrective actions should the mitigation measures fail
- g) A description of the cost effectiveness of environmental mitigation or rehabilitation measures proposed and the expected or predicted effectiveness of those measures.

8.1.5. Residual risk

Provide a table that details the residual risk for potentially significant impacts identified in Table 1 and the proponent's risk assessment. A residual risk assessment is only required where the significance of impact is determined as medium or above. The calculation of the residual risk should take into account the implementation of mitigation or offsetting measures. A discussion of how the calculations were determined should also be included, including the expected or predicted effectiveness of the mitigation measures.

-Assessment Guide-				
Provide the residual risk assessment as set out in the table below.				
Risk identified in	Original risk rating from	Residual	Residual	Residual risk

Section 7	Items identified in 7	likelihood	consequence	rating
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8.2. Detailed requirements

The following matters relate to Table 1 and must be addressed in detail in the EIS. Please note this is not an exhaustive list of matters that may be required to accurately detail the assessment scenarios.

8.2.1. Planning and Land Status

- Include a description of planning context of the area where the project will be located.
- Describe planning and development status of any land or project relevant to the proposal.
- Describe land use of the proposed land and any land to be affected (including, but not limited to, zoning, lessee(s) or custodian of the land, the permissibility of the proposed use defined in the Territory Plan).
- Investigate the impacts associated with the proposal including the potential requirement for a buffer zone, on the surrounding uses and whether the proposal will limit existing or future use for the surrounding blocks.
- Describe the potential impacts of lease expiration on future operation of the STP.

8.2.2. Traffic and Transport

- Describe arrangements for the transport of construction materials, equipment, products, and personnel during the construction phase of the development proposal.
- Include a description of the volume of traffic generated during construction.
- Investigate the impacts the proposal will have on traffic congestion and road safety and describe mitigation measures to reduce the impacts.
- Investigate the impacts the proposal will have on the structural capacity and the design life of the road network due to heavy vehicles accessing the facility during construction works and describe mitigation measures to reduce the impacts.
- Investigate the impacts on the vehicular route chosen to transport oversized equipment and accessories by heavy vehicles and describe mitigation measures to reduce the impacts.

8.2.3. Utilities

- Describe the existing utilities located on the land subject to this proposal.
- Describe any new utilities, removal or realignments required as a result of this development.
- Investigate potential impacts to existing infrastructure and provide mitigation measures to reduce the impacts.
- Explain how the proposal will meet the licensing requirements under the *Utilities Act 2000*.

8.2.4. Materials and Waste

- Describe all hazardous chemicals to be used on the site.
- Provide details on the quantity, storage and disposal of all sludge and biosolids.
- An asbestos management plan is required to address potential asbestos contamination.
- Discuss proposed treatment of biosolids prior to final disposal.

- Discuss mitigation measures to reduce impacts of storing large amounts of contaminated sludge and biosolids.

8.2.5. Soils and Geology

- Describe the soil and geology features of the area.
- A contaminated land search for the site needs to be performed and reflected in the EIS.
- Discuss any contamination impacts that are present at the site, and how the site will be remediated, if required.
- A contamination assessment must be undertaken in accordance with the PFAS (the per-and poly-fluoroalkyl substance) National Environmental Management Plan 2018, considering Poly-fluoroalkyl substances along with other contaminants.
- Describe erosion impacts from construction and operation activities, especially during extreme weather, and measures to reduce the impacts.
- Provide information on measures to limit impact on soil from spills.

8.2.6. Water Quality and Hydrology

- Undertake a water quality assessment which details management of water quality within the site and operational discharges from the site to ensure the upgrade meets the water quality standards in the *Environment Protection Regulation 2005* and/or as set by the EPA in the updated license for the upgraded STP.
- The water quality assessment should include comparison of the management of water quality within the site and operational discharges from the site to other similar plants (recently established) within Australia or internationally.
- Include consideration of future expansion of the STP and resultant outputs in analysis of water impact.
- Provide consideration of how the new STP will satisfy the requirements of 2012 report from the Commissioner for Sustainability and Environment (https://www.envcomm.act.gov.au/_data/assets/pdf_file/0010/590860/Part_1_Report.pdf) and the subsequent water quality expert panel recommendations.
- Provide an assessment of impacts to receiving waters, particularly Lake Burley Griffin and Molonglo River.
- Provide measures to mitigate against potential flooding and the impacts of the release of partially treated effluent in the Molonglo River system and Lake Burley Griffin.
- Discuss how the recommendations in the EPSDD submission to the QPRC master plan have been considered.
- Describe how the proposal meets the National Capital Authority Lake Burley Griffin Water Quality Management Plan (<https://www.nca.gov.au/national-land/lake-burley-griffin-management/lake-burley-griffin-water-quality-management-plan-2011>).
- Provide a suitable performance monitoring program to ensure discharge from the site meets the agreed standards.

8.2.7. Climate Change and Air Quality

- A climate change and air quality assessment must be prepared by a suitably qualified consultant, using South Australian Environment Protection Authority Air Quality

Assessment Methodology Guidelines and must consider the impact of increased frequency and intensity of extreme climatic events.

- The assessment must also include recommendations on air quality management and controls.

8.2.8. *Socio-economic and Health*

- An odour impact assessment (using a maximum possible value and considering future expansion) must be completed by a suitably qualified environmental consultant.
- The assessment must also include recommendations on odour controls such buffer requirements.
- Include consideration of future STP expansion in analysis of buffer requirement.
- Provide maps showing impacts on the surrounding sensitive receivers.
- Provide suitable performance indicators to monitor the odour emissions from the operation.
- Provide a formal Health Impact Assessment that includes an analysis of the potential impacts on human health and proposed measures to mitigate these impacts.
- Provide detail of any potential source of contamination and contaminants of concern at the site and their risk to human health or amenity.
- Discuss potential impacts on recreational use of Molonglo River and Lake Burley Griffin (including fishing) and provide mitigation measures to address the impacts.
- Describe the suitability of the land for the type of proposal described in terms of socio-economics and health.

8.2.9. *Noise*

- Undertake a noise assessment for the operation of the proposed STP to ensure compliance with the noise zone standards detailed in the *Environment Protection Regulation 2005* for the site.
- Identify any potentially sensitive receivers which may be affected by the project.

8.2.10. *Hazard and Risk*

- Provide an assessment of the potential hazard and risk associated with the operation of the project including fire, flooding and accidents.
- Provide measure to manage risks in relation to potential hazards.
- Provide detailed analysis of the potential causes and impacts of infrastructure failure and how the associated risks will be managed.
- Provide bushfire protection measures, such as asset protection zone and vegetation management, in accordance with the ACT Strategic Bushfire Management Plan V3 (or any updated version).
- Provide an assessment of the potential threat of flooding, utilising higher exceedance probabilities and recurrence intervals to reflect the critical nature of the infrastructure.
- Explain the availability of technology, skills and workforce requirements to operate and maintain the new STP.

8.2.11. Biodiversity

- Provide a description of the ecological values (including native vegetation, endangered ecological communities) and potential aquatic and terrestrial threatened species and their habitat on and adjacent to the site.
- Undertake ecological surveys by a qualified ecologist for the Golden Sun Moth (GSM), Pink-tailed Worm-lizard (PTWL) and their habitats. Please note all surveys must be undertaken using standard survey techniques.
- Provide maps showing the location of PTWL and GSM habitat in relation to the proposal.
- Discuss the impacts of the development on the ecological values, and provide mitigation measures to reduce the impacts.
- Provide an assessment of the potential impacts on aquatic habitat and species (including, but not limited to Murray Cod, Silver Perch and Macquarie Perch) and mitigation measures proposed to reduce the impacts.

8.2.12. Heritage

- A Cultural Heritage Assessment (CHA) must be prepared by a suitably qualified and experienced archaeologist in accordance with ACT Heritage Council 'Cultural Heritage Reporting Policy', and in consultation with Representative Aboriginal Organisations. This CHA must consider potential development impacts to Aboriginal places and objects, including the 'King Billy's Cottage Site' which has been nominated to the ACT Heritage Register.

8.3 Entity requirements

The EIS must address the entities comments provide in Attachment A. If the issues raised by entities have been addressed in other sections of the EIS, this must be cross referenced.

9. Community and stakeholder consultation

9.1. Consultation must be undertaken with:

- Lease holders and land managers of land potentially impacted by the proposal such as adjacent businesses and residents of Beard and Oaks Estate;
- Any recreational groups which may be affected by the proposal;
- Any volunteer conservation, landscape management or land care groups active in the area who may be affected by the proposal; and
- The local community and community groups, such as ACT and Region Catchment Management Coordination Group, Lake Burley Griffin User Groups, Lake Burley Griffin Guardians, Molonglo Catchment Group, Jerrabomberra Residents' Association, Inner South Canberra Community Council, and Pialligo Residents Association.

9.2. Consultation methods

- Describe the community consultation undertaken (methodology and criteria for identifying stakeholders and the communication methods used).
- Provide details on the information provided during the community consultation process. A plain English statement explaining the proposal and conceptual drawings must be made available to the community and stakeholders.
- Consultation should occur as early as possible and avoid, or make allowances for public holidays, school holidays and the summer holiday (Christmas) shutdown period.

9.3. Consideration of community feedback

- Provide a summary of how the community and stakeholders responded to the proposal and the main comments raised.
- Describe how any concerns have been considered and identify any changes that have been made to the proposal.

9.4. Consideration of public representations from Draft EIS notification

- The revised EIS must include the representations received, issues raised in the representations and a response to the issues and values identified. The summary response must clearly identify the representation(s) to which the responses relate.

10. Recommendations

Provide a summary of commitments to avoid, mitigate and offset the potential significant impacts associated with the proposal.

Describe the monitoring parameters, monitoring points, frequency, data interpretation and reporting proposals.

11. Other relevant information

The proponent may wish to include issues outside the scope of the EIS as a separate section of the EIS. This allows the proponent to identify matters not required to be addressed in the EIS, but that would be subject to development assessment consideration and notification. This can provide additional context for members of the public regarding management of environmental issues, by ensuring that the public is aware that these issues will be addressed in the detailed design of the proposal.

12. References

A reference list using standard referencing systems must be included.

13. Required Appendices

13.1. Scoping document for the EIS

A copy of the final scoping document should be included in the EIS. Where it is intended to bind appendices in a separate volume from the main body of the EIS, the final scoping document should be bound with the main body of the EIS for ease of cross-referencing.

13.2. Scoping Document Reference

Include a table that cross-references the EIS to the scoping document. If the EIS addresses the scoping document in multiple places then this must be also referenced.

13.3. Proponent's Environmental History

Provide details of any proceedings under a Commonwealth or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against:

- The person proposing to take the action
- For an action for which a person has applied for a permit, the person making the application.

If the person proposing to take the action is a corporation, then provide details of the corporation's

environmental policy and planning framework.

13.4. Information Sources

For information given the following must be stated:

- The author or any reports or studies
- The publication date
- The source of the information
- How recent the information is (i.e. when a study was conducted or when primary sources were produced)
- How the reliability of the information was tested
- What uncertainties (if any) are in the information

13.5. Study team

The qualifications and experience of the study team and specialist sub-consultants and expert reviewers must be provided.

13.6. Specialist studies

All reports generated based on specialist studies undertaken as part of the EIS are to be included as appendices.

13.7. Research

Any proposals for researching alternative environmental management strategies or for obtaining any further necessary information should be outlined in an appendix.

GLOSSARY

Controlled Action (EPBC): An action defined under the EPBC Act, s 67.

Development application (DA): Application for development as defined under the PD Act.

Environment: As defined under the *Planning and Development Act 2007* (the PD Act), each of the following is part of the environment:

- (a) the soil, atmosphere, water and other parts of the earth;
- (b) organic and inorganic matter;
- (c) living organisms;
- (d) structures, and areas, that are manufactured or modified;
- (e) ecosystems and parts of ecosystems, including people and communities;
- (f) qualities and characteristics of areas that contribute to their biological diversity, ecological integrity, scientific value, heritage value and amenity;
- (g) interactions and interdependencies within and between the things mentioned in paragraphs (a) to (f);
- (h) social, aesthetic, cultural and economic characteristics that affect, or are affected by, the things mentioned in paragraphs (a) to (f).

Environmental Impact Statement (EIS): As defined under the PD Act.

EPBC Act: *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)

Impact Track: An assessment track that applies to a development proposal defined under the PD Act, s 123.

Long term: Greater than 15 years duration.

Medium term: Greater than three (3) years to 15 years duration.

PD Act: *Planning and Development Act 2007* (ACT)

Regulated waste: waste defined under the *Environment Protection Act 1997*

Scoping: The process of identifying the matters that are to be addressed by an EIS in relation to the development proposal - see the PD Act, s 212 (2).

Short term: Zero to three (3) years duration.

Socio-economic: Involving both social and economic factors.

ATTACHMENT A -- ENTITY COMMENTS

ACT Health

The Health Protection Service (HPS) requests that the EIS for the project consider and include the following details:

- *The need for Stage 1 and Stage 2 contamination assessments to be undertaken as required.*
- *The need for a Construction Environmental Management Plan to be prepared before construction.*
- *Odour emissions on nearby residential properties and propose suitable odour mitigation measures.*
- *Measures to mitigate against flooding potential and the release of partially treated effluent in the Molonglo River system.*

Environment Protection Authority (EPA)

A contaminated land search for the site should be performed and the report updated accordingly. The report should also be updated to detail what proposed contamination assessments are to be undertaken as part of site development works. All contamination assessment reports must be reviewed by the EPA prior to commencement of works.

Conservator of flora and fauna

There are several major concerns which have been identified and are required to be included in the Scoping Document and addressed in the EIS process. In particular, the EIS will need to incorporate potential impacts of the future operation of the plant in addition to the impacts during construction. The specific items for inclusion are:

1. Impacts to terrestrial biodiversity

*Both the Golden Sun Moth (*Synemon plana*) and Pink-tailed Worm-lizard (*Aprasia parapulchella*) have been recorded in the close vicinity of the sewage works. It is possible that degraded native grassland at the possible stockpile site, and elsewhere within the block, could also be habitat of the critically endangered Golden Sun Moth which has been recorded in similar habitat within an adjoining block.*

If rocky outcrops are present within this grassland, then the proposal area may also be Pink-tailed Worm-lizard habitat.

It is suggested that surveys by a qualified ecologist using standard survey techniques be undertaken for Golden Sun Moth in addition to mapping Pink-tailed Worm-lizard habitat. If any habitat is present, then it should either be avoided or surveyed to determine if the species is present.

2. Impacts to aquatic biodiversity

Consideration of impacts to aquatic habitat and species are required to be included in the EIS. In particular, it needs to address threatened aquatic species listed and protected under the Nature Conservation Act 2014 and the Environment Protection and Biodiversity Conservation Act 1999, including, but not limited to:

- *Murray Cod (*Maccullochella peelii*)*
- *Silver Perch (*Bidyanus bidyanus*)*
- *Macquarie Perch (*Macquaria australasica*).*

Consideration of impacts to these threatened species is likely to lead to the need for EPBC assessment.

3. Water quality

The Queanbeyan sewage treatment plant contributes a significant amount (approximately 30%) of the nutrients to Lake Burley Griffin and is therefore a key driver of lake water quality, including blue-green algal blooms and associated lake closures.

It is essential that the EIS includes a rigorous assessment of impacts to receiving waters, particularly Lake Burley Griffin, along with proposing a plant design to achieve high quality effluent consistent with the recommendations of the previous Commissioner for Sustainability and Environment taskforce report and subsequent water quality expert panel recommendations.

The description of water quality impacts in the Scoping Document is not satisfactory as it only discusses concentration and fails to include details of loads (e.g. kg/year) of effluent. To make any meaningful assessments, loads from the Sewage Treatment Plant (including discharge, Total Phosphorus, Total Nitrogen, various species of the former, and Biological Oxygen Demand) need to be presented in the EIS. Furthermore, the statement that discharge of nitrates into the waterways has a positive impact is not supported without detailed information on the discharge.

ACT Emergency Services Agency

The Queanbeyan sewage treatment plant upgrade environment impact assessment scoping report correctly identified that the subject site falls within the Bushfire Prone Area as defined by the ACT ESA.

On this basis any environment impact assessment should firstly assess the likely required bushfire protection measures such as the creation of expansion of Asset Protection Zones and therefore the potential impact on the surrounding landscape as a result of vegetation management.

The specifications for APZs are detailed in the strategic bushfire management plan v3 and the associated bushfire management standards.

Transport Canberra and City Services Directorate

Several urban reserve sites are impacted by this proposal, including presence of GSM on Block 2242 adjacent to south of the site and some exotic shrubland along the river corridor. EIS must address this matter while preparing a draft EIS report.

The site seems to be contaminated with stockpiles of biosolids, asbestos and general waste disposal. Asbestos Management Plan be prepared as part of EIS documentation.

TCCS will provide comments which we have a full set of EIS documentations including Development Application.

ACT Heritage Council

Review of the ACT Heritage Register has identified one registered heritage place (Oaks Estate 1 – Aboriginal Places in the District of Jerrabomberra) and one nominated heritage place (King Billy's Cottage Site) on the block. The register entry for Oaks Estate 1, identifies that there is high potential for further Aboriginal cultural materials on the block and broader locality.

The works described in the scoping report include ground disturbance which has potential to damage Aboriginal places and objects. To determine the potential impact of the proposed works on Aboriginal places and objects, a Cultural Heritage Assessment (CHA) prepared by a suitably qualified and experienced archaeologist, and in accordance with the ACT Heritage Council 'Cultural Heritage Reporting Policy' must be prepared as part of the Environmental Impact Statement.

**Utilities Technical Regulation, Chief Minister, Treasury and Economic Development
Directorate (CMTEDD)**

1. Compliance with the Utilities (Technical Regulation) Act (UTR Act)

The scoping document needs to explicitly reference that the proponent must meet their regulatory requirements under the Utilities Act 2000 and the Utilities (Technical Regulation) Act 2014.

2. Definition of a Buffer Zone to the QSTP site

The QSTP is to be developed as the major sewerage treatment facility to the east of Canberra. If the QSTP redevelopment is approved, the investment in the site needs to be strongly safeguarded to ensure that the benefit of the investment is realised over the full asset life of the facility. Accordingly the requirement to define a buffer zone which has support in regulation both in the ACT as well as NSW is needed in the EIS Scoping Document.

The buffer around Icon Water's Lower Molonglo Water Quality Control Centre is 2,450 metres (an area of approximately 470 hectares). Hence defined buffers although necessary, noting that these have the potential to constrain future development in the vicinity of the QSTP.

The extent of the buffer should recognise both visual and odour impacts of the QSTP. Noise may also be added as an associated consideration in determining the buffer.

3. Limit on Odour Emissions

The EIS Scoping Document considers odour as an issue. However it would be appropriate for the EIS Scoping Document to require the EIS to consider the maximum intensity of odour emissions permissible from the plant. The outcome of the EIS should be agreed limits on odour emissions, perhaps at the boundary of the QSTP, or alternatively at other defined locations. Defining clear odour intensity limits allows QPRC to efficiently plan and design the plant to meet the long term outcome required and so safeguard its tenure on the site. It also commits QPRC to building and managing the facility long term in a manner where odour from the QSTP does not become an issue for QPRC and communities in the ACT and NSW.

4. General

It would be helpful if the EIS Scoping statement were expanded to recognise and address the likelihood that QPRC will in the long term want to further increase capacity of the QSTP at the current site. Consideration of future buffer zones for development in the future should be referenced in the document.

National Capital Authority (NCA)

Sections 3.2.2 and 5.3 of the scoping report address the National Capital Plan (the Plan) and its relevance to the proposal. These sections in part correctly describe the application of the Plan, however the NCA makes the following comments aimed at ensuring the planning framework is accurately described in the report:

- *The NCA supports the statement that a 'Public Utility' is a permitted use on the subject land.*
- *The proponent should more accurately describe the application of Plan requirements. For example, there are general principles and policies of the Plan that apply (refer sections 3.2.5.2 and 3.2.5.3 of the Plan – clause 3 under the latter section is particularly relevant). The statement in section 3.2.2 that there are no requirements of the Plan that apply to the land isn't correct, and is also at odds with statements made at section 5.3 of the report.*

-
- *The site is not within Designated Areas, and therefore a development application must be lodged with the Territory planning authority. The Territory Plan is intended to be not inconsistent with the National Capital Plan, however where there are inconsistencies the Territory Plan has no effect. The statement at section 3.2.2 that compliance with the Territory Plan results in compliance with the National Capital Plan is not wholly accurate.*
 - *Section 5.3 of the scoping report suggests that a Works Approval or Development Control Plan is unlikely to be required as the site is not located near any Designated Areas. The assertion is accurate however they should make more definitive statements about the planning framework. The roadmap at section 5.12 should be equally definitive (engagement with the NCA is relevant, but the roadmap should accurately identify why this engagement is occurring).*

The NCA has an active interest in the water quality of the Molonglo River in this location as it flows into Lake Burley Griffin. The NCA is concerned with measures proposed to ensure that any discharge into Lake Burley Griffin does not impact on water quality.

The NCA supports the location for the upgraded STP as it is located outside of a flood zone. The risks identified and mitigation strategies to manage water quality are considered suitable by the NCA.

Jemena

On behalf of Evoenergy Gas, Jemena have reviewed the Request for EIS Scoping Document (EIS201900029) – Queanbeyan Sewage Treatment Plant and have no comment to make.

Independent Competition and Regulatory Commission

Compliance with the Utilities Act 2000

The scoping document needs to explicitly reference that the proponent must meet their licensing requirements under the Utilities Act 2000. A utility must not provide a utility service except in accordance with a licence, unless an exemption is given. Utility services are set out in Part 2 of the Utilities Act 2000. Commission staff are available to assist in discussions regarding utility services and licence requirements.



ACT
Government

Chief Minister, Treasury and
Economic Development

19/23045

Mr Phil Hansen
General Manager Community Connection
Queanbeyan-Palerang Regional Council (QPRC)
PO Box 90
Queanbeyan NSW 2620

Dear Mr Hansen

Queanbeyan Sewage Treatment Plant (QSTP) Upgrade - Basis for Design

Thank you for your letter dated 4 September 2019 and attached Memo Revision C of 20 August 2019 (the memo) authored by Dr Therese Flapper (TSA) and Dr Craig White (Hunter H₂O). The letter and attached memo were tabled at a meeting held on 9 September 2019 attended by Mr Robert Mitchell (Principal Technical Assessor, NSW Department of Planning, Industry and Environment, Lands & Water), ACT representatives from the Environment Protection Authority (EPA), the Independent Competition and Regulatory Commission and Utilities Technical Regulation and yourself.

Your letter advised that QPRC intends to replace the QSTP by 2025 as the existing facility is approaching the end of its asset life. In doing so QPRC intends to take the opportunity to significantly increase capacity of the QSTP to accommodate recent and future population growth. Your plans also allow for a further duplication of the QSTP within 15 years of commissioning the upgraded plant. These proposals could enable QPRC to significantly increase the pollutant load to the Molonglo River as the connected population to the QSTP grows.

QPRC is currently preparing under an Environmental Impact Statement (EIS) as part of a development application lodged on 30 July 2019. Accordingly it will be appropriate that I review your Environmental Authorisation No. 417 following consideration of information on potential impacts detailed in the EIS.

As preparation of the EIS will take some time and QPRC is wishing to proceed with design of the upgrades whilst also preparing the EIS, this letter provides some preliminary comments prior to finalisation of the EIS process.

Following are general comments on your letter dated 4 September 2019 addressing:

- Plant Biological Performance
- Plant Biological and Hydraulic Capacity
- Plant Master Planning
- Plant Redundancy and Module size of Process Tanks
- Plant Odour Generation

Plant Biological Performance

At our meeting of 9 September 2019 Robert Mitchell indicated that the upgraded QSTP will adopt the extended aeration process to biologically remove both nitrogen and phosphorus with subsequent tertiary filtration of plant flows. Using biological processes plants of this type can reliably remove total phosphorus to concentrations of around 2.0 mg/l. Further chemical removal of phosphorus to very low effluent concentrations (< 0.1 mg/l) is also reliably achievable with appropriate tertiary filtration and operational controls.

The most recent 90 percentile total phosphorus design criteria proposed by QPRC for the upgrade of the QSTP will need to be tested against the water quality criteria required of receiving waters, that is the Molonglo River and Lake Burley Griffin. In 2015, QPRC engaged AECOM and the University of Canberra to perform such assessment. The most recent design criteria are inconsistent with effluent water quality requirements determined for the plant from that earlier study.

The current Environmental Authorisation has the critical parameter of total phosphorus set at 0.3 mg/L 90 percentile. The current plant already achieves 0.15mg/L 90 percentile, therefore there is no justification to not maintain or enhance the discharge performance of an upgraded QSTP.

Plant Biological and Hydraulic Capacity

Your letter of 4 September 2019 notes that the upgraded QSTP is to be designed for flows up to 3 times ADWF (Average Dry Weather Flow) and based on 6-day composite sampling. This basis for design will result in deterioration in the water quality discharged from the QSTP causing regular and direct concerns in relation to water quality in receiving waters. Accordingly, the biological and hydraulic basis for design both require further review by QPRC.

The most obvious evidence of poor water quality will be that as the upgraded plant approaches design capacity unscreened sewage will be discharged directly to receiving waters on multiple (perhaps a dozen or more) days each year. Even immediately following commissioning of the upgraded QSTP plant bypasses will be a regular event, as the proposed screening capacity for the upgraded QSTP is no greater than provided currently, but with the added disadvantage that QPRC proposes to do away with the current effluent ponds as a part of the plant upgrade. The clear evidence of screenings bypasses will be toilet paper and other evident sewage solids strewn on the riverbanks downstream of the QSTP after a wet weather event.

Icon Water has a goal of discharging untreated or partially treated sewage to receiving waters from its Lower Molonglo Water Quality Control Centre (LMWQCC) no more frequently than once in six years on average and has recorded only three plant bypasses in the 20 years since its Bypass Storage dam was constructed. LMWQCC is downstream of the Canberra urban area. The QSTP is upstream of the Canberra urban area incorporating parts of the Molonglo River and Lake Burley Griffin which are extensively used for recreational purposes. Accordingly, one could anticipate that the basis for hydraulic design of the upgraded QSTP would achieve goals for the frequency of plant bypasses to receiving waters at least similar to that provided for at LMWQCC.

Plant Master Planning

The memo notes that the QSTP will require further upgrade to a capacity of 150,000 EP within 15 years of completion of the upgrade currently proposed by QPRC. This is a relatively short planning horizon in municipal terms. It is therefore essential that the current upgrade recognise the future need to further upgrade plant capacity. A reasoned site Master Plan for the site would provide confidence that the long-term goals for the site have been considered.

Icon Water and QPRC have advised that they currently have no plans to work jointly to provide sewage treatment to the eastern side of Canberra at the current QSTP site. However, in regional planning terms it could be appropriate to continue to consider such a possibility. Based on QPRC planning parameters, a decision by Icon Water and QPRC to consolidate sewage treatment activities to the east of Canberra at QSTP would trigger the need for a further immediate augmentation, and perhaps an increased ultimate capacity at the existing QSTP site.

Plant Redundancy and Module size of Process Tanks

Typically during dry weather, the peak instantaneous daily flow into sewage treatment plants (known as Peak Dry Weather Flow or PDWF) is at a rate around twice the ADWF. However, as the QSTP receives part of its inflow from pumped systems the PDWF may be a factor considerably higher than two times ADWF.

It is essential that during extended periods of dry weather when QPRC takes a decision to take a process tank or part of a system out of service for maintenance that the QSTP is still capable of providing full treatment capability to meet its licence conditions. This should be considered in planning module size for elements of the upgraded plant.

Trickling filter processes such as currently used at the QSTP are low energy use plants that have the capacity to accommodate short term power outages. However extended aeration processes such as proposed for the upgraded plant are intensive in their energy use and need a reliable power supply to maintain the biological process. A power outage of 4 - 6 hours could have significant implications for QPRC's ability to reliably meet licence conditions at the QSTP for perhaps weeks or even a month after the outage. Accordingly, reliability of site power supplies and a secondary source of power are important considerations for QPRC.

Plant Odour Generation

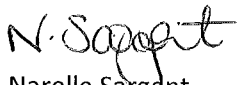
Sewage treatment plants have the potential to generate odour. Accordingly, the basis for design needs to consider appropriate means to ensure that odour from the plant does not become a source of nuisance to the surrounding community. This could be achieved by setting odour intensity limits for the plant and the establishment of realistic buffer zones around the plant. Reference should be made to the ACT Separation Distance Guidelines for Air Emissions. QPRC will need to make the case for odour limits and buffer zones in the EIS it is preparing.

The density of urban development in Queanbeyan and the ACT is likely to increase in the future. With that there is the possibility of increasing encroachment of urban development (including residential development) in the proximity of the QSTP. This encroachment needs to be managed in a manner that is sympathetic with QPRC's long term goals for the QSTP site.

The upgrade of the QSTP is a major project for QPRC, accordingly, it is important for all stakeholders that the upgrade proceeds in a timely manner to enable the plant to continue to protect the health and environment of our communities.

Please contact Mr Heath Chester Assistant Director Water Regulation on 6207 5728 for further assistance.

Yours sincerely



Narelle Sargent
Environment Protection Authority
4 November 2019

cc Ben Ponton
Director General
ACT Environment, Planning & Sustainable Development Directorate

cc: Mr Robert Mitchell
Principal Technical Assessor
NSW Department of Planning, Industry and Environment, Lands & Water

cc Mr Ian Falconer
Chair, Working Group, ACT & Region Catchment Management Coordination Group

Office of the Commissioner for Sustainability and the Environment

**Investigation into the state of Lake Burley Griffin and catchment:
Economic impact of water quality issues Report**

Ian Lawrence 4th December 2011



Acknowledgements:

The assistance provided by the Executive Officer of the National Capital Authority, Mr Gary Rake and his staff, Mr Ian Hill ACT Tourism, Mr Heath Chester Environment and Sustainable Development Directorate, and the Lake User Groups, is gratefully acknowledged. The support provided by Narelle Sargent & Joanna Temme (Office Commissioner for Sustainability and the Environment, ACT) is gratefully acknowledged.

The assistance provided by a number of Lake User organisations, who responded to the 'Economic Assessment Survey' Form, and provided written submissions on the impacts of Lake closures on the viability of their programs, is also acknowledged.

1. Background:

On the 27th May, the Minister for the Environment and Sustainable Development, Mr Simon Corbell MLA, directed the Commissioner for Sustainability and the Environment to undertake an ‘Investigation into the state of the water courses and catchment for Lake Burley Griffin’.

At its meeting of 28th July 2010, the Reference Group appointed to assist the Commissioner for Sustainability and the Environment in undertaking the Investigation, identified the need for an assessment of the annual economic value of the Lake, and the economic impact of Lake water quality issues on the Lake economic value.

This Report has been prepared in response to an Engagement by the Office of the Commissioner for Sustainability and the Environment, to produce a Paper on the economic impact of Lake water quality issues on the ACT economy.

2. Scope of Lake related values yielding economic benefits

Lake Burley Griffin was conceived by Walter Burley Griffin as one of the major axes of the Canberra Plan, underpinning the symbolic role of the National area. Constructed in 1960 to 63, today, the Lake is seen by the Canberra community as a key city recreational and activity venue, providing water based and related recreational opportunities, and attractive foreshore areas for walking, cycling and picnicking.

Unfortunately, in recent years, a number of triathlon, rowing and sailing events have been hampered through water quality and safety issues such as blue-green algae levels, faecal contamination and flood related debris. This has required, for example, the cancellation of triathlon swim legs which has negatively affected competitor numbers (particularly from interstate) and diminished Canberra’s reputation as a triathlon event host.

In view of the potential for these perceptions to adversely impact on Canberra’s economy, the Reference Group considered that an economic assessment was an important part of the wider assessment of social, environmental and economic costs to Canberra of Lake water quality issues.

This assessment is not intended as a Benefit/Cost analysis, but rather an identification of the economic benefits flowing to the Canberra community as a result of activities based on or associated with the Lake values and amenity, and the impact on these benefits as a result of actual or perceived water quality issues and Lake closures.

Section 1.2.2 of the *National Capital Plan* states that the Lake Burley Griffin and Foreshores are intended to provide a range of recreational, educational and symbolic experiences of the National Capital. Section 5.2 of the *Lake Burley Griffin Management Plan*, designates the Lake water uses, as:

- Primary contact (swimming) recreation;
- Secondary contact (boating) recreation;
- Passive (walking, cycling, picnicking) recreation;
- Fishing;
- Water supply,
- Drainage and flood management.

Lake Burley Griffin remains a key component of the visitor experience offered in the ACT. It is central to the design and layout of the national capital and is also a hub for a broad range of recreational and social activities including sailing, rowing, kayaking, dragon-boating, water-skiing, swimming, fishing, triathlon, walking, cycling and picnics/BBQ's.

A number of businesses situated around the lake's edge, including hire companies (bicycles, paddle boats, segways etc.), cruise operators and restaurants/cafe's/kiosks service both local and tourism markets throughout the year – enhancing the enjoyment of the Lake and its surrounds.

Lake Burley Griffin plays an important role as both a venue and iconic backdrop for a number of key tourism events during the year. Australian Capital Tourism, through its Events Assistance Program (EAP), has funded a number of these events – including:

- The Foreshore Summer Music Festival;
- The 2011 Australian Dragon Boat Racing Championships;
- The Canberra City Half Ironman Triathlon; and
- The Capital Summer Sports Festival (incorporating the Canberra Capital Triathlon)

Other events, including those held in and around the Canberra Festival celebrations (e.g. Enlighten, the Balloon Spectacular, and Skyfire), the Canberra Carp Out, sailing regattas and Australia Day Celebrations are also synonymously linked with activity both on the Lake and adjacent to the Lake foreshore.

From a marketing perspective, Lake Burley Griffin is regularly used as a key promotional tool for the destination. Views of the Lake from key city lookouts, the Captain Cook Memorial Jet, and spectacular images across the water to our national institutions are unique and in many cases instantly recognisable as 'Canberra'.

Australian Capital Tourism's flagship consumer publication – the *2011 Holiday Planner* magazine (refer to link below) – clearly highlights Lake Burley Griffin's importance and

relevance to our tourism marketing effort given its regular use in imagery and editorial content.
<http://www.visitcanberra.com.au/hp2011/index.html>

3. Basis for assessing economic benefits

The following material outlines the scope of activities included in the economic assessment. In addition, it flags a number of activities which are significant economically, but given their indirect link to the Lake and its water quality, or the absence of a pricing signal upon which to make an economic assessment, are more difficult to substantiate a benefit deriving from the Lake, and have not been included in the assessment.

Direct economic benefits include:

- Charges for the abstraction of water supply;
- Club membership fees, race entry fees, services (storage of boats/equipment, hire of boats/equipment), hire of amenities, sale of food & beverages;
- Paddle boat, canoe hire payments;
- Lake cruise tickets & charter payments;
- Cycle hire.

Indirect economic benefits:

- Accommodation, meals, other tourist entry fees, by Interstate/overseas visitors/participants in Lake related functions (National Rowing Events, National Sailing Regattas, Triathlon Events, Water Skiing Events);
- Enhanced sales value of properties having Lake frontage or Lake view;
- Enhanced property valuations – rates;
- Local purchase of sporting equipment – boats, sails, oars, fuel, fishing gear, clothing, etc;
- Enhanced patronage of Clubs, restaurants around the Lake;
- Water pollution control – removal of Phosphorus – protection of Murrumbidgee River;
- Flood protection of significant administrative, education and cultural assets within the 1 in 500 yr flood zone.

The Lake also provides a number of important environmental services, including:

- Water pollution control – protection of the Murrumbidgee River;
- Water supply;
- Drainage and flood management.

As many of these benefits do not involve a payment for enjoyment of the Lake and its foreshores (public good), their ‘economic’ value cannot be directly measured. However, there are a substantial range of activities, uses and services that do generate income.

ACT Tourism has provided survey data indicating the average length of stay of interstate and international visitors to Canberra. This data has been used in estimating the ‘flow-on’ economic benefits accruing to the wider Canberra community from the interstate and international visitors drawn to Canberra by the Lake based sporting events. This estimate has been included in the assessment of economic values attributable to the Lake.

In response to an ‘Economic impact of Lake Burley Griffin water quality issues’ Survey form, Lake users have provided information on:

- Club membership & annual fees;
- Sporting event participant numbers and entry fees;
- Training program fees;
- Fees for storage of boats, trailers & equipment;
- Hire of boats, equipment, buildings;
- Hire of bicycles;
- Lake cruise tickets & value;
- Lake cruise charter charges;
- Sale of food and beverages.

Where information has not been provided by some user groups, Web site information on their fee structures, membership, and national events has been utilized in compiling a profile and economic benefit accruing to the economic value of the Lake.

Lake users have also provided estimates of interstate visitors/participants in sports events.

The National Capital Authority and Environment ACT have provided information on the annual volume of water abstracted under licence from the Lake, for irrigation purposes.

As noted above, the Lake provides a number of environmental services. The Lake intercepts an average of 11 tonnes of Total Phosphorus each year (compared to LMWQCC interception of 90 tonnes of TP/yr), making a significant contribution to the protection of the Murrumbidgee River. It is difficult to place an economic value on this contribution. Standard economic evaluation practice would be to apply the cost of removal of an equivalent weight of phosphorus at Lower Molonglo Water Quality Control Centre. As P removal at LMWQCC is integrated into the overall treatment process, it is difficult to separate the P removal cost. At this stage, an estimate of the economic value of this environmental service has not been included in the economic assessment.

The annual benefit yielded by flood protection is also difficult to estimate. In most cases, institutions having facilities within the floodplain carry their own flood damage risk. Typical scales of flood risk insurance rates versus risk could be applied to these assets, but this is a major

analysis, beyond the scope of this economic assessment. However, in view of the magnitude of the assets held within a number of these institutions, this economic benefit is significant. As this economic component is not affected by water quality, its omission does not invalidate the assessment of the cost of Lake closure as a result of water quality degradation.

Similarly, the enhancement of the values of properties adjacent to or having views of the Lake, are significant. Enhancement of values as a result of waterway frontages, are typically of the order of 50 to 70%, while enhancement of values as a result of views across waterways, are typically of the order of 20 to 30%. In view of the scale of residential and commercial development of buildings in Kingston, and in Civic currently, these benefits are significant. While the enhanced sale value is a one-off economic return, the higher valuation for property rating purposes, yields an annual return. However, this analysis is beyond the scope of this economic assessment.

The value of water supply from the Lake, however, can be assessed. In this case, water is abstracted under licence. The value of this water has been based on 40% of the current value of the bulk water supply tariff (ACT Independent Competition & Regulatory Commission), and data on annual abstraction levels provided by the NCA and the ACT EPA.

4. Impact of water quality issues/Lake closures on economic value

A number of national and local sporting events have been cancelled over recent years, as a result of Lake closures or Health warnings. The cancellations or loss of participants as a result of Lake closures, has resulted in a significant loss to sporting organizations and the wider Canberra community.

Lake users have provided information on the number of events cancelled and their recent curtailment of event programs in the light of uncertainty (and hence participation) regarding the availability of the Lake on the programmed date.

The AIS questions the appropriateness of location of its National Rowing Centre of Excellence in Canberra, if reliable access to the Lake cannot be assured into the future. The Centre is a major investor in facilities, staff, athlete training programs, and national events.

Reliability was perhaps the key concern across all of the submissions – the concern regarding the ability to program events with a reasonable level of certainty that conditions on the day would permit the running of events, free of last minute constraints or program changes. The establishment of clear protocols on risk assessment and the determination of the location and use category related constraints are cited as important factors in building confidence regarding the reliability of the Lake as a sporting venue into the future.

A number of submissions also stressed that in the event of loss of access to the Lake for water sport activities, there would be a cost penalty to local sports people – the travel/accommodation costs incurred by Canberra residents, in travelling to alternative venues outside of the ACT.

Lake water quality also impacts on the suitability of water for irrigation (concern regarding irrigation spray generated aerosols containing bacteria/viruses). In this case, there is a loss in payment for Lake water, and an additional cost incurred by Lake water users, in having to purchase more expensive town mains water.

5. Assessment findings

The assessment estimated the annual economic value attributable to the Lake, at \$23,260,300. A summary of the economic benefits is provided in Table 1. Summary of Economic Assessment.

Major components of this economic value comprise the membership and income generated by national and international rowing regattas, and in particular, the investment made by AIS in the National Rowing Centre Excellence Program, based on Lake Burley Griffin, and the value of water abstracted from the Lake for irrigation water supply. The value added to restaurants adjacent to the Lake shore, as a result of enhanced patronage, is another significant economic benefit.

The impact of poor Lake water quality, leading to Lake closure, impacts at a range of levels on Lake User Groups. In some instance (primary contact sport), it results in cancellation of swimming related events, and ultimately, the transfer of these national events to more reliable locations elsewhere. This not only results in an economic loss as a result of termination of these events, but has impacts on membership within sporting clubs in Canberra.

Secondary contact sports such as rowing and sailing are also at risk. In this case, significant investment in equipment and venues, are also at risk.

The assessment estimated that in the event of continued deterioration in the quality and reliability of the Lake as a sport venue, the annual economic cost to Canberra would be \$25,513,500. This amount includes not only the loss in economic value accruing to Canberra as a result of termination of the Lake related activities, but additional costs incurred by organizations in terms of devaluation of equipment and facilities, and costs incurred in travelling to venues outside of the ACT.

Table 1. Summary of Economic Assessment

User category	Annual economic value	Added value	Total annual value	Annual loss of Lake closure
Water abstraction	\$2,453,340	0	\$2,453,340	\$6,146,540
Boat cruises & charter	\$1,422,000	\$1,032,000	\$2,454,000	\$1,652,000
Bicycle & boat hire	\$709,800	0	\$709,800	\$630,000
Restaurants added value	0	\$4,260,600	\$4,260,600	\$2,130,300
Sailing	\$655,000	\$240,000	\$895,000	\$1,026,000
Triathlons, marathons	\$610,000	\$1,120,000	\$1,730,000	\$1,852,000
Rowing	\$6,366,563	\$3,600,000	\$9,966,563	\$11,239,876
Dragon boats	\$148,000	\$200,000	\$348,000	\$377,600
Water skiing	\$40,000	\$80,000	\$120,000	\$128,000
Canoeing & kayaking	\$66,000	\$192,000	\$258,000	\$271,200
Model boats	\$600		\$600	\$720
Sea Scouts	\$19,900		\$19,900	\$23,880
Fishing	\$29,500	\$15,000	\$44,500	\$35,400
Total value	\$12,520,700	\$10,739,600	\$23,260,300	\$25,513,500

Notes:

Annual economic value: Income from membership, event entry fees, hire of equipment, hire of storage space, hire of facilities, sale of food & beverage.

Annual added value: Additional expenditure made by interstate & international participants in Club events, on accommodation, food & beverage, & patronage of other facilities.

Total annual value: Annual Club/Organisation value + Annual added value

Annual cost of closure: Annual income lost and expenses incurred as a result of loss of access to Lake, plus cost of disposal of equipment, plus cost to Canberra members For travel to facilities outside of Canberra, plus loss of 'annual added value'.

6. Marginal costing of the range of Lake water quality management objectives

In order to assess the Cost/Benefits of a range of Lake water quality management measures, and to provide an assessment of the economic impact of deteriorating water quality, an assessment of the progressive or marginal costs of several Lake water quality deterioration increments was undertaken.

The issue for Lake users is 'certainty' in respect to their ability to stage national, international and local Club events. Several submissions noted the impact of Lake closures on their loss of Club membership and participation in Lake events, as a result of dissatisfaction of members following cancellation of activities. Members tend to move to other outdoor activities free of this uncertainty. Several submissions also noted the economic impacts of late cancellation of events, in terms of lost income and additional costs incurred in arranging alternative venues.

From a marginal costing or sensitivity analysis perspective, the problem is that firstly, Lake closures are absolute - there is little gradation of impacts on activities - all activities involving contact or potential contact with the Lake's water are effectively closed down. Secondly, the events (toxins associated with BG algal blooms and/or elevated faecal bacteria levels) have a duration of 3 to 6 weeks - a significant part of the summer season.

It appeared that the most appropriate parameter to measure the economic impact of deteriorating water quality increments, is the number of closures per year.

Table 2: Risk of Lake closure during the summer season (20 weeks)

Number of closures/yr	Average closure period/closure	Probable percentage of summer period closure
0.5	4 weeks	10%
1.0	4 weeks	20%
2.0	4 weeks	40%
3.0	4 weeks	60%

Based on the submissions to the Commissioners Office, it was concluded that a probability of closure greater than 10% would be unacceptable in respect to international and national events, while a 20% probability would be unacceptable to local Club events.

From the perspective of organised sport and recreational activities, there appears to be just three water quality scenarios:

- a low probability (<10%) of closure, with some marginal loss in economic value of the Lake;
- an intermediate probability of closure (10% to 30%), with significant loss of national & international activities, and some decline in local activities;
- a high probability of closure (>30%), with major economic loss of income resulting from the substantial loss of Lake based recreational activities and services.

Table 3. Marginal costs of Lake closure scenarios

Annual frequency of closure	Period of summer closed	Annual cost to the ACT community
< 0.5	<10%	\$400,000
0.5 to 1.5	10% to 30%	\$16,000,000
>1.5	>30%	\$19,000,000

As noted above, the major issue for sport and recreational organizations and their members, is uncertainty. The establishment of clear and agreed protocols for assessing the risks associated

with Lake use, relevant to specific activities, and including user participation in risk management, would significantly reduce the past level of perceived uncertainty, both in respect to the user groups and the regulatory/management agencies.

The development of predictive tools for progressive upgrading of the risk assessment, approaching the timing of national and international events, would provide another means for reducing this uncertainty.

These approaches would provide additional layers in respect to the ‘closure scenarios’ and associated estimates of annual cost to the community.

7. Recommendations

The assessment of the economic value of the Lake to the ACT community has been identified by the Reference Group as a key element in the consideration of the state of the water courses and catchments for Lake Burley Griffin, and its implications for the ACT community.

This Paper has demonstrated the substantial economic and social benefits of the Lake’s sport, recreational, water and landscape values to the ACT community, and the serious potential for loss of these benefits as a result of decline in water quality of the Lake.

In view of the limited scope of information accessible for this analysis, and the emerging significance of the economic element to the investigation, it is recommended that a more detailed and rigorous economic assessment be commissioned, as necessary to guiding decisions on management of this valuable asset into the future.

Ian Lawrence

PSM, Dip. Civ.Eng, B.E (Civil), M.A (Public Admin)

Adjunct Professor Sustainable Design, University of Canberra,

Senior Research Fellow, CRC eWater

Appendix A. List of Submissions to Economic Impact of Lake Burley Griffin water quality issues

ACT Capital Tourism
ACT EPA: Water abstraction data
Australian Institute of Sport
AROC Sport
Canberra Model Yacht Club
Capital Region Fishing Alliance
Canberra Yacht Club
Burley Griffin Canoe Club
Lake Burley Griffin Sea Scouts
National Capital Authority: Water abstraction data
Rowing Australian Capital Territory
Turner Residents Association Inc
Wetspot Watersports

Em. Prof. Ian R. Falconer AO DSc
Chair, ACT and Region Catchment
Management Coordination Group
c/o Secretariat, Environment and
Sustainable Development Directorate
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Mr Peter Tegart
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Design effluent discharge standards for the proposed Queanbeyan Sewage Treatment Plant

In response to the opportunity for comment on the QPRC Masterplan for Sewage Treatment Plant Upgrade, the ACT and Region Catchment Management Coordination group set up a workshop of water quality experts and statutory and authority representatives to explore issues raised in the Plan. The notes taken at the workshop were distributed back to the participants, and they were invited to send in further written comment. In addition to employees of entities and agencies in the ACT and Queanbeyan, five independent experts attended, and myself as Chair of the Coordination Group.

There was general consensus among the group that the key issues were phosphorus discharge in the effluent, bacterial concentration and its measurement, the adverse impact of heavy rain on the system and the problem of accumulating solid waste.

Phosphorus

The Molonglo River which receives the effluent enters Lake Burley Griffin a short distance downstream. The Lake has been extensively studied and a Water Quality Management Plan is in place (2011). In addition there is a report from the ACT Commissioner for Sustainability and the Environment (2012) on the state of the watercourses and catchments. This clearly shows that the QSTP contributes 27% of the phosphorus, 67% of the Biochemical Oxygen Demand and 78% of the total nitrogen entering the lake in a dry year.

In wet years the situation is quite different, as the river carries particle-bound phosphorus washed off farmlands etc, which is largely unavailable for blue-green (cyanobacterial) algal growth, while conveying heavy phosphorus loads into the lake sediments. Stormwater is released from the lake as required to maintain the desired lake level.

To ensure that the lake is safe for recreational use, as well as aesthetically pleasing, potentially toxic cyanobacteria must be minimised, and ACT Health has set recreational safety standards. Cyanobacterial growth is limited by bio-available phosphorus, soluble reactive phosphorus, which is largely dissolved orthophosphate. Phosphate content of sewage plant effluent is approximately 80-90% soluble reactive phosphorus, and hence is a growth facilitator for cyanobacteria. The hydrology of the Molonglo River downstream of the discharge location has a deep pool prior to entering the lake, which allows cyanobacterial proliferation, thus 'seeding' the lake with potentially toxic organisms.

It is thus essential that the concentration of phosphorus discharged from the STP is minimised. A reasonable concentration to aim at is a 50th percentile of 0.04mg/L of total phosphorus. This has been achieved in the current old plant in dry periods (eg. January 2016). The AECOM data in the Masterplan shows a historical annual 90th percentile of 0.06, which fits with the dry period effluent concentration of 0.04mg/L of phosphorus. It is proposed that the 95th percentile should be 0.08 mg/L P, which allows some flexibility for rainfall events. Thus the effluent standard for the new plant would be comparable to the actual performance of the present plant under good conditions without heavy rainfall.

Bacterial Concentration

The new criteria for faecal contamination of water are measurement of faecal enterococci. The limits proposed in the Masterplan appear adequate for the purpose, but should be expressed in enterococcal counts.

Heavy rain

The current plant has vulnerability to rainfall events, which have historically caused faecal bacterial counts in Lake Burley Griffin to rise to the point where the lake has to be closed for recreation for health and safety reasons. The AECOM report shows that the current retention ponds are below the 100 year flood line, and hence liable to washout, particularly in the circumstances of more storms due to climate change. In addition to this hazard, there is a requirement for a by-pass storage dam to hold heavy sewage flows which cannot be managed by the STP. Currently following heavy rainfall partially treated sewage is discharged into the river, which is unacceptable as the flow is entering a recreational lake.

Other issues

The expert group did not regard the nitrogen effluent limits as a significant issue, but noted that nitrate is a beneficial oxidising agent and encourages plant growth, in contrast to ammonia, which is reducing and an effective nutrient source for toxic cyanobacterial growth. Plant design and operation should minimise ammonia concentrations.

The BOD, Suspended Solids and salinity limits proposed in the Masterplan appeared effective; where feasible sodium concentration should be minimised. Discharge of calcium and magnesium has beneficial effects downstream.

An independent point is the accumulation of biosolids at the present plant, and the projected solids coming from the new plant. Biosolids are a valuable commodity in agriculture, and should be managed to reduce the stockpile as well as not allowing further accumulation.

Increased population will result in increased nutrient loads in STP effluent as well as increased volumes discharged. The most effective mechanism for stabilising the effluent loads with increasing population is adopting a total water cycle approach, in which the increased effluent is used for irrigation of sports fields, parkland, and agriculture.

Personal informaton



Ian R. Falconer
Independent Chair
ACT and Region Catchment Management Coordination Group

6 December 2016



CANBERRA REGION
JOINT ORGANISATION

Water and Waste Water Prospectus

30 October 2018

Report prepared by



**INFRASTRUCTURE
COLLABORATIVE**



The Canberra Region Joint Organisation (CRJO) Water and Waste Water Prospectus presents a summary of priority Water and Waste Water Infrastructure Projects within the Canberra Region, which require funding from NSW State and Federal Governments.

A total of 56 Water and Waste Water Projects are included in this Prospectus; submitted by the eleven councils who are members of the CRJO. Project information was submitted by the Engineering, Infrastructure or Operations Department within each council.

The eleven councils who are members of the CRJO include: Queanbeyan Palerang Regional Council, Snowy Monaro Regional Council, Snowy Valleys Council, Yass Valley Council, Upper Lachlan Shire Council, Wingecarribee Shire Council, Hilltops Council, Goulburn Mulwaree Council, Eurobodalla Shire Council, Bega Valley Shire Council and Wagga Wagga City Council.

Information supplied in this Prospectus indicates that the estimated total cost to take the 56 projects to the "Next Stage" = \$23.4M. The estimated total cost to take all projects to "Shovel Ready" = \$60.6M. The estimated total cost to take all projects to "Commission" = \$905M.

The Prospectus provides a breakdown of the estimated total cost of projects within each council, costs to each stage, external funding required and council contributions. Full project details are communicated through a 2-page summary on each Project. The Project Delivery Framework provides an overview of all projects, indicating the progress and costs for each project.

Projects have been prioritised by the councils according to timeframes and the category under which they fall; "Safe and Secure" associated with issues around water and waste water that impact the community's health and safety, including WHS and environmental impacts, and; "Regional Growth" associated with water and waste water assets that require work to facilitate development and economic growth.

Priority 1A > falls under Safe and Secure Guidelines > project duration 1-3 years.

Priority 1B > falls under Regional Growth of Significance > project duration 1-3 years.

Priority 1C > falls under Regional Growth Guidelines > project duration 1-3 years.

Priority 2A > falls under Safe and Secure Guidelines > project duration 4-10 years.

Priority 2B > falls under Regional Growth of Significance > project duration 4-10 years.

Priority 2C > falls under Regional Growth Guidelines > project duration 4-10 years.

Cr. Rowena Abbey
Chair, Canberra Region Joint Organisation
Rowena.Abbey@yass.nsw.gov.au

Personal information



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Acronym Description

ADWG	Australian Drinking Water Guidelines
DICL	Ductile Iron Pipe
DWQMP	Drinking Water Quality Management Plan
EIS	Environmental Impact Statement
EP	Equivalent Population
EPSDD	Environment, Planning and Sustainable Development Directorate
EPA	Environment Protection Authority
ET	Equivalent Tenement
IDEA	Intermittently Decanted Extended Aeration
IWCM	Integrated Water Cycle Management
LGA	Local Government Area
ML	Megalitre
NCA	National Capital Authority
REF	Review of Environmental Factors
RFQ	Request for Quotation
RFT	Request for Tender
SSWP	Safe and Secure Water Program
STP	Sewage Treatment Plant
WAE	Work as Executed
WHS	Workplace Health and Safety
WTP	Water Treatment Plant

Acronym Description

QPRC	Queanbeyan Palerang Regional Council
SMRC	Snowy Monaro regional Council
SVC	Snowy Valleys Council
YVC	Yass Valley Council
ULSC	Upper Lachlan Shire Council
WSC	Wingecarribee Shire Council
HC	Hilltops Council
GMC	Goulburn Mulwaree Council
ESC	Eurobodalla Shire Council
BVSC	Bega Valley Shire Council
WWCC	Wagga Wagga City Council



Queanbeyan Sewage Treatment Plant Upgrade Project

Design and construct a new Queanbeyan Sewage Treatment Plant at an estimated cost of \$136M (P90), with a project duration of 52 months.

Project Brief

The Queanbeyan Sewage Treatment Plant is deteriorating from approximately 85 years of use. The updated plant will provide appropriate level of treatment and disposal of waste, helping to protect public health and the environment while remaining affordable to the community. The STP is located at Oaks Estate, ACT. ACT EPSDD and the NCA regulate in terms of environment, planning, and discharges to watercourses. The NSW Department of Primary Industries – CLAW regulates STP operations. A Masterplan (Options Study) was completed in 2016 and recommends a design for a 60,000 EP STP on the existing Queanbeyan STP site to cater for growth in the catchment over the next 15 years. The new facility must meet requirements of both ACT and NSW EPA and other regulatory bodies to ensure water quality, phosphorous and nitrogen requirements are met and improve discharge into the Molonglo River and Lake Burley Griffin.



Queanbeyan Palerang Regional Council

State: Monaro
Federal: Eden Monaro



\$136M



52mo

Rationale for Investment

QPRC prepared a Masterplan which reviewed the condition of the STP future growth in Queanbeyan and alternative options for upgrading / replacing the current STP. The recommendation from the masterplan was to construct a new STP. The masterplan was endorsed by council and NSW CLAW.



Benefits

A modern facility that will service Queanbeyan and Oaks Estate (ACT) for the next 50 years.
Adaptable design for future users.
Development of IWCM Strategy.

Alignment with Regional Strategies

QPRC IWCM (in progress).
QPRC Community Strategic Plan.

Location: Queanbeyan



Queanbeyan Sewage Treatment Plant Upgrade Project

Stage:	Plan
	Concept design
Now:	Under preparation, Funding Required
Approval:	SSWP - Council

Status

Completed identification phase. Progress is at 30% for Plan. STP is procuring Design Consulting Services and Project Management Services to assist in this phase.

To next stage

Cost \$7.9M
Time 1.5yr

To shovel-ready

Cost \$16.6M
Time 22mo

To commission

Cost \$136M
Time 52mo

Work underway

Plan

Next body of work

Concept Design

Next steps

- 1) Engage project manager.
- 2) Engage designer.
- 3) Designer to complete basis of design and concept design.

Council Contact:

Derek Tooth

Derek.Tooth@qprc.nsw.gov.au

Personal information

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Mr Ben Ponton
Director-General
Environment, Planning and Sustainable Development Directorate
ACT Government
GPO Box 158
Canberra ACT 2602

Dear Mr Ponton

Proposed Queanbeyan Sewage Treatment Plant (QSTP) Upgrade works

It has been brought to my attention that Queanbeyan Palerang Regional Council (QPRC) intends to replace the existing Queanbeyan Sewage Treatment Plant (QSTP) as the existing plant approaches the end of useful life. As part of these upgrade works, QPRC intends to significantly increase the capacity of the facility to accommodate future population growth. These works could significantly increase the pollutant load pumped into the Molonglo River and could adversely impact the water quality in Lake Burley Griffin. I am writing to you to make clear the position of the National Capital Authority (NCA) with regards to these planned upgrade works.

In drought conditions, the major source of water entering the lake is from the QSTP. During the millennium drought, the water level of the lake dropped to approximately 600mm below normal lake level. This was experienced again in recent months. Without the reliable flow from the QSTP, the drop in lake level could have been much more significant. The NCA would prefer that effluent from the QSTP remains available as a source of water to Lake Burley Griffin.

The NCA undertakes weekly water quality testing and analysis in accordance with the *ACT Guidelines for Recreational Water Quality (2014)* and closes the lake if required. Occasionally, the NCA also receives advice from the Environmental Protection Authority and closes the lake when relevant advice is received. Increased frequency of lake closures, whatever the reason, is something that NCA does not want to see. Hence, the NCA is interested to see that the effluent from the QSTP does not cause a deterioration of water quality in the lake over time. An improvement in the quality of the effluent from QSTP would be welcomed.

The NCA is aware that, on occasion, the current plant diverts partially treated sewage to the existing effluent ponds. This minimises the likelihood of discharge of untreated sewage directly into the Molonglo River. The proposed new design will do away with the effluent ponds. As such, NCA understands that as the upgraded plant approaches design capacity there is a possibility that the plant will bypass multiple times per year and discharge partially sewage directly into the receiving waters. The QSTP is directly upstream of LBG which is extensively used for recreation. An increased frequency of bypassing of the QSTP would not be welcome.

The NCA understands that the existing QSTP site and effluent ponds must be remediated as part of the upgrade project so that flood events do not increase the pollutant load entering the Molonglo River. It is also expected that the top of new structures constructed are above the 1 in 100 year flood level to minimise the risk of partially sewage being washed into the Molonglo River during flood events.

The NCA understands that the Environment Impact Statement (EIS) process is currently underway. QPRC intends to proceed with design whilst also preparing the EIS. The NCA wish to maintain a good working relationship with QPRC and ACT Government throughout this process, however, it is important to the NCA that potential impacts raised by the EIS, and other concerns raised in the letter above, are considered in the design process.

Yours sincerely

Personal informaton

Sally Barnes
Chief Executive

26 February 2020



28 February 2020

Mr Ben Ponton
Technical Regulator
Environment, Planning and Sustainable Development
Directorate
Canberra City ACT 2601

Eastern ACT Sewage Treatment and Discharge Water Quality Issues

Dear Mr Ponton,

Ben

I am writing to you to outline Icon Water's future strategy for sewage treatment in the eastern areas of the ACT and to put our position that any major planning decisions affecting these areas and waterways should incorporate allowances for future growth in the ACT that may require additional treated effluent discharges to waterways in the Molonglo River catchment upstream of Lake Burley Griffin (LBG).

Icon Water's Fyshwick Sewage Treatment Plant (FSTP) currently treats sewage from the Majura and Jerrabomberra districts in the ACT, although it currently does not have a licence for discharge and further treatment is required at Icon Water's main treatment plant, the Lower Molonglo Water Quality Control Centre (LMWQCC).

The FSTP is nearing end of its useful life in the next 10-15 years and whilst options are currently being assessed for the future of the facility, the current preferred strategy is to construct a new upgraded plant with a discharge licence to waterways just upstream of LBG as per our published documentation¹.

Considering projected growth in the ACT in the next 20 years and beyond and increasing capacity pressures on the trunk sewerage network, there are also potential options for this facility to be significantly larger than at present or for alternative additional sewage treatment facilities to be constructed discharging into these same waterways.

In recent discussions between areas of the ACT government and Icon Water, we are aware of planning work that is currently underway to determine the water quality discharge limits on the proposed new Queanbeyan Sewage Treatment Plant (QSTP).

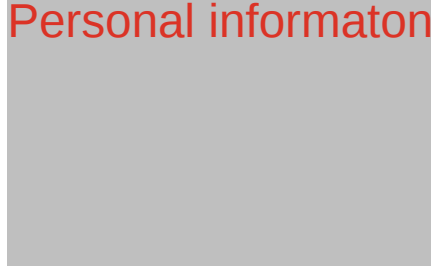
¹ <https://www.iconwater.com.au/Water-education/Water-and-sewerage-system/Sewage-Treatment/Fyshwick-Sewage-Treatment-Plant.aspx>

It is therefore Icon Water's position that all future ACT treated effluent discharges be allowed for at a catchment scale when considering the water quality discharge limits for other treatment facilities, such as the new QSTP, to ensure the most efficient sewerage services are able to be delivered to current and future residents in this region.

I am happy to discuss this in more depth with you if you have any questions or queries on the above.

Yours sincerely,

Personal informaton



Managing Director

06 March 2020

Mr Ben Ponton
Technical Regulator
Environment, Planning and Sustainable Development Directorate
GPO Box 158, Canberra City ACT 2601
By email: Ben.Ponton@act.gov.au

Dear Mr Ponton

Queanbeyan STP Upgrade – Project Update

Queanbeyan-Palerang Regional Council (QPRC) is well underway in its planning, design and business case activities to support the delivery of an upgraded sewage treatment plant (STP) to serve the needs of our communities. Several concurrent interdependent studies and work streams are progressing that will deliver a constructed upgraded STP by the middle of 2024.

The two parallel key regulatory elements that drive the studies and work streams being progressed are:

- Environmental Impact Statement (EIS) and Development Approval (DA) process in the ACT,
- the Local Government Act section 60 (S60 approval) under the Department of Planning, Industry and Environment (DPIE) in NSW.

The EIS and DA process is currently being driven by the EIS Scoping Document set by the Environment Planning Sustainable Development Directorate (EPSDD). All key site investigations have now either been completed or are planned to be conducted over the next few months. These include ecology, water quality, indigenous and heritage, site contamination, soils and geology, utilities location, noise, air quality, traffic, materials and waste management. The Draft EIS is currently expected to be out for public exhibition around October 2020.

Preliminary findings from the site investigations are being clearly communicated in a timely manner to the design focussed team, ensuring a collaborative and integrated approach to the design, as well as regulatory considerations to mitigate risks in an agile development manner.

The S60 process includes significant consideration of:

- technical design matters of an upgraded STP and associated enabling works,
- technical and climate resilience,
- robustness & reliability,
- Sustainability and efficiency,
- organisational capacity and capability,
- financial capacity, whole of life maintenance,
- environment, sustainability and protection of public health.

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The DPIE approval process will be through a seven (7) step process seeking progressive endorsement the stages from planning, concept design, detailed design, procurement, construction and commissioning.

Our design team have prepared a Basis of Design and Options Analysis (including multi criteria analysis) resulting in the commencement of the Concept Design. The draft Concept Design is expected to be issued in May this year. The s60 and design elements that are concurrently occurring with the regulatory EIS and DA processes are:

- the finalisation of the general arrangement and build zone,
- archaeological, site ecology, geology and indigenous heritage,
- design and layout considerate of traffic, noise and air quality.

QPRC continue to work in a collegiate manner with our stakeholders, regulators and consultants to drive project outcomes that address the needs of all parties. Ongoing Workshops are being held, Registers are maintained in a shared environment and future key Workshops are planned.

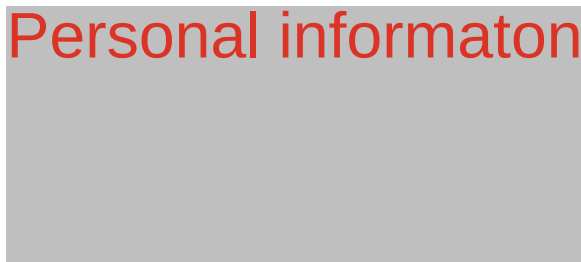
In the coming months community consultation will be a focus as we move towards the public exhibition period and address comments for consideration in the Final EIS, expected to be delivered around March 2021.

Stakeholder and regulator consultation will also continue as we prepare and deliver the Concept Design, Draft EIS and Reference Design during 2020. We are in consultation with the Independent Competition and Regulatory Commission (ICRC) with regard to the applicability of the Utilities Act and Regulation to the STP. We seek to reach a final agreement no later than May 2020 and it is envisaged that QPRC will seek an exemption from the application of the ACT Utilities Act 2000 and the ACT Utilities (Technical Regulation) Act 2014 noting the parallel stringent operational and reporting requirements of the NSW DPIE.

Funding for the project is being developed and it is expected that QPRC will be seeking further partners in 2020 as the project requirements progress. We look forward to continuing to liaise with all stakeholders, most notably the ACT Government.

Yours sincerely,

Personal informaton



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Queanbeyan-Palerang Regional Council