Executive summary

Introduction

CIC Australia Ltd (CIC) proposes to develop the new township of Googong in the Canberra region, within the Queanbeyan local government area, 16 kilometres south-east of Parliament House in Canberra (see Figure ES.1). The study area encompasses the entirety of the proposed Googong township and includes an additional corridor to the north-east.

The township will be built on 780 hectares of former grazing land. It will take about 25 years to create and include 5,550 homes of varying types and sizes to house about 16,000 people.

The Googong township has been designed to be one of the first purpose-built, large-scale water-efficient communities in Australia. The township is designed around an integrated water cycle, with a dedicated water recycling plant, which would reduce potable water consumption by at least 60 per cent and recycle 62 per cent of the township's wastewater for non-potable use.

This would allow the township's population of 16,000 to use the same amount of drinking water that traditionally would only sustain 6,000 people.

This environmental assessment specifically relates to the Googong Water Cycle Project ('the Project'), which comprises the infrastructure for the potable water, recycled water and sewage system required to service the township. It has been prepared to address the environmental assessment requirements issued by the Director General of the NSW Department of Planning on 12 January 2009 (the Director General's Requirements).

In this environmental assessment, CIC is applying to the Minister for Planning to give:

- Concept approval for the Project – that is, for the water cycle infrastructure required to service the anticipated population of the entire Googong township. The concept plan is at a broad level.
- Project approval for Stage 1 of the Project – that is, the water cycle infrastructure required for the first subdivision areas of the township, which would comprise about 1200 lots.

The Googong township would be established in stages over a 25-year period. Therefore, completion of the final stages of the Project would not occur for about 25 years (completion would depend on the growth rate of the township, estimated at 300 dwellings per year). Detailed design and approvals for these subsequent stages would be sought at a later date, prior to development of further subdivisions.

Structure of this environmental assessment

This environmental assessment responds to the Director General's Requirements and is structured accordingly. It comprises the following parts.

Part A – Introduction and description of the project

This part provides background information, the strategic context, an overview of the legislative and statutory framework for the Project, the alternatives considered, and a detailed description of the Project.

Part B – Environmental assessment

This part identifies the environmental issues and assesses the potential impacts of the Project in accordance with the Director General's Requirements. It also identifies the corresponding mitigation and management measures that would be implemented to address these issues.

Part C – Consultation, conclusions and commitments

This part outlines the stakeholder engagements and consultation undertaken for the environmental assessment. It also provides an overall conclusion and justification for undertaking the Project, and a draft statement of commitments for the Project.

Appendices

The appendices provide detailed information about the Project and contain specialist studies commissioned to address specific environmental aspects.

Planning status

On 24 December 2009, following over eight years of planning work, the NSW Government rezoned the Googong site for urban use, allowing work on the township to begin. The development application for the first stages of the subdivision has been recently submitted to Queanbeyan City Council for its consideration. Up-to-date information regarding all aspects of the Googong township is available at www.googong.net.

Planning for the water cycle project has been underway for several years. On 12 January 2009, the NSW Department of Planning approved the preliminary environmental assessment for the Project and issued the Director General's Requirements.

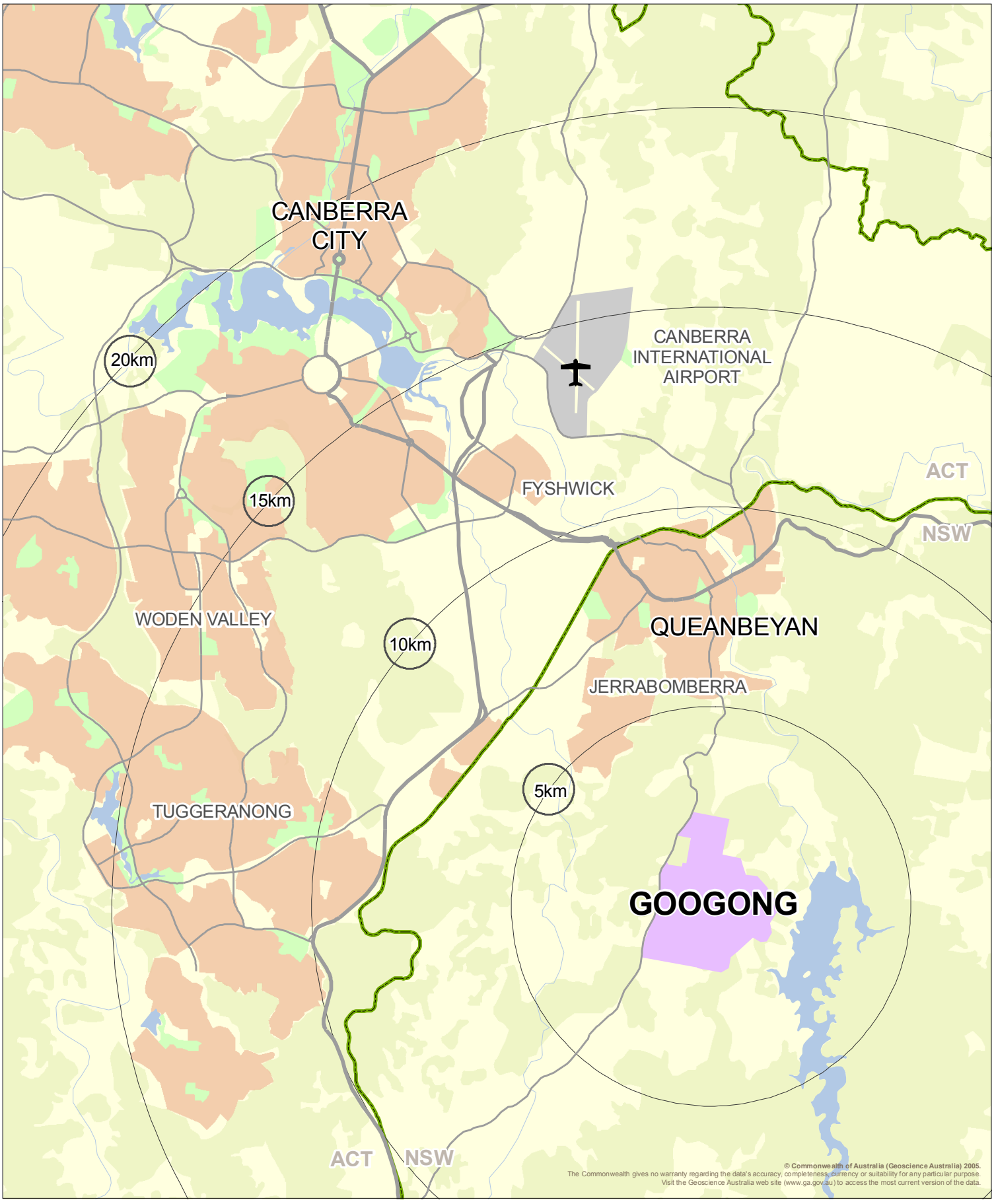
This environmental assessment has been prepared to meet the requirements of Part 3A of the NSW *Environmental Planning and Assessment Act 1979* and to address each of the Director General's Requirements. The draft environmental assessment was submitted to the NSW Department of Planning in February 2010 for review by government agencies. This report addresses the issues raised by these agencies in their reviews and subsequent consultation.

Strategic context and project need

With 5,550 dwellings, the Googong township will provide 55 per cent of the 10,000 new dwellings required in the Queanbeyan region by 2031 and 22 per cent of the 25,200 required for the entire Sydney–Canberra corridor region. Figure ES.1 shows the location of the Googong township in relation to Canberra and Queanbeyan. The Project would provide the essential water and wastewater services to the Googong township.

The need for the Project and the strategic context of the proposed the Googong township are underpinned by a number of key government planning documents, including:

- The *Sydney–Canberra Corridor Regional Strategy 2006–31* (DoP, 2008).
- The *Queanbeyan Residential and Economic Strategy 2031* (Queanbeyan City Council, 2006).
- Memoranda of Understanding between the ACT, NSW and Commonwealth governments on Cross Border Water Resources and Cross Border Settlement (2006).



Googong Environmental Assessment

Proponent CIC Australia

Date 20 August 2010

Drawing no. 08003g_ea_figES-1

Source Geoscience Australia

Googong township
Waterbody
Built-up area
Recreation area
Vegetation
River
Primary road
Secondary road
State boundary

1:125,000

0 1 2 3 4Km

Figure ES.1 Geographical context - Googong township

Hyder Consulting

To manage future regional population growth and the environmental impact of settlement, the government planning strategy is to focus new urban development in the major regional centres of Bowral, Goulburn and Queanbeyan. CIC has worked closely with key stakeholders, including the Commonwealth, NSW and ACT governments, to ensure a coordinated outcome for urban development in the region. A sustainable water supply for the Googong township is a vital part of regional and state plans to reduce potable water consumption and achieve water security.

The ACT Government, through the ACTEW Corporation (the government agency that provides essential utility services in the ACT), has developed water security and demand management programs in response to continually declining inflows and the uncertainty of climate change. The aim of the programs is to ensure future water security for the ACT and region, and to reduce the severity of future water restrictions and the associated economic cost to the community.

The programs include a commitment to reduce per capita water consumption by 12 per cent by 2013 and 25 per cent by 2023. The Project would significantly exceed these targets – with savings of 60 per cent or greater – and would thereby make a significant contribution towards achieving water savings for the ACT and the surrounding region.

The Project

The Googong water cycle project is the result of several years of planning and design. Several scenarios and alternative options have been considered throughout this time to arrive at the proposed concept design. While various designs would be viable, the Project is considered the most sustainable and feasible solution. As design progresses into the detailed design and pre-construction phases, the Project would be further improved.

The Project would provide all necessary infrastructure to deliver potable water to a distribution system together with a sewage collection network to transfer waste flows to a water recycling plant. The recycled water system would store recycled water and allow for reuse for non-potable purposes. The recycled water system would be supplemented by collected rainwater at households and, when necessary, potable water.

Figure ES.2 outlines how the Project would integrate with the development of the township and the stormwater management system. Figure ES.3 shows the study area boundary and locations of key elements of the Project. Figure ES.4 shows the subject site, which includes all aspects of Stage 1 of the Project.

Key elements of the Project

Figure ES.2 outlines how the Project would integrate with the development of the township and the stormwater management system. The key elements of the Project are described below (refer to Figure ES.2 for reference points).

1 Potable water system

A new bulk water pumping station located adjacent to the existing Googong water treatment plant would be provided to transfer flows from the existing ACTEW water supply system to new potable water reservoirs via a new rising main. A potable water reticulation system would be provided to transfer flows from the potable reservoir tanks to supply consumers within the township. The potable water system would be separated from the sewerage and recycled water systems (except when used to top-up the recycle water reservoir, as described in 4, below).

2 *Sewerage system*

Sewage would be collected from the township and transferred to the water recycling plant. In some sections, sewage would be pumped; in others, it would flow by gravity. The system would therefore contain a series of sewage pumping stations to transfer the flow to the water recycling plant.

3 *Water recycling plant*

A new water recycling plant would treat sewage from the Googong township to a standard suitable for both non-potable reuse and discharge to the environment. Sewage treatment would include physical removal, biological treatment and disinfection, utilising membrane bioreactor technology. Treated effluent from the plant would be used in the recycled water system. When recycled water availability exceeds demand, the excess water would be released into the stormwater system. The recycling plant would be located within the north-east corner of the study area.

4 *Recycled water system*

Recycled (non-potable) water from the water recycling plant would be pumped to reservoirs. Flow from these reservoirs would then be transferred to the recycled water reticulation system and used within the Googong township for such things as garden watering, toilet flushing and open space irrigation. To maintain the supply of non-potable water during times of high demand, the potable water system would be used to top-up the recycled water reservoirs. Rainwater would also be collected throughout the township for non-potable uses. The reservoirs would be located on a hill in the south-west of the study area.

Stormwater system

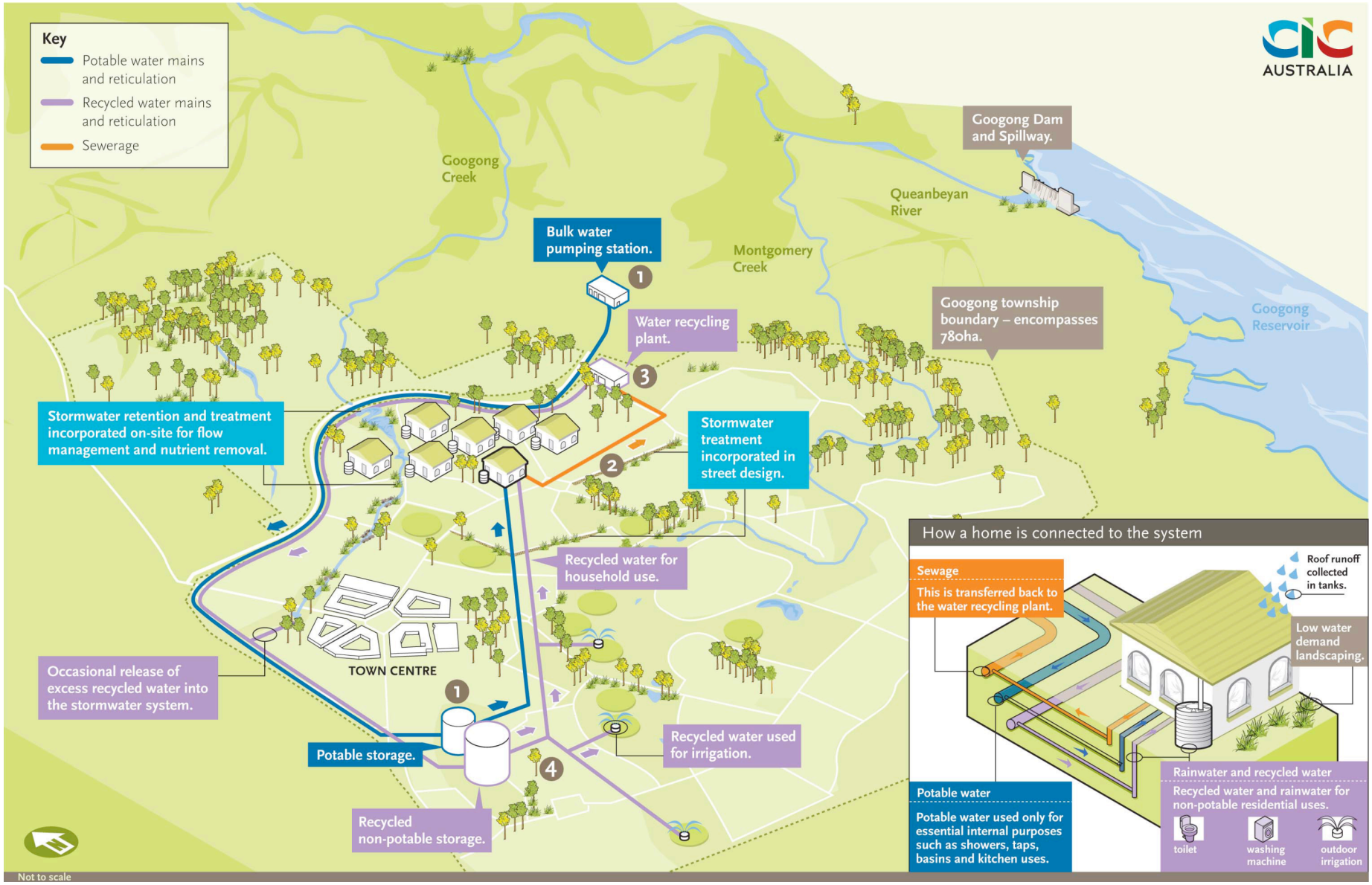
The stormwater management system for Googong township is not part of the Project assessed in this environmental assessment. However, as the stormwater system forms part of the integrated water cycle, it is described in this document as context for the Project. The stormwater management system will utilise the principles of water-sensitive urban design and mitigate the potential impacts of the township's development on stormwater quality, stormwater peak flows, flood risk and riparian zones.

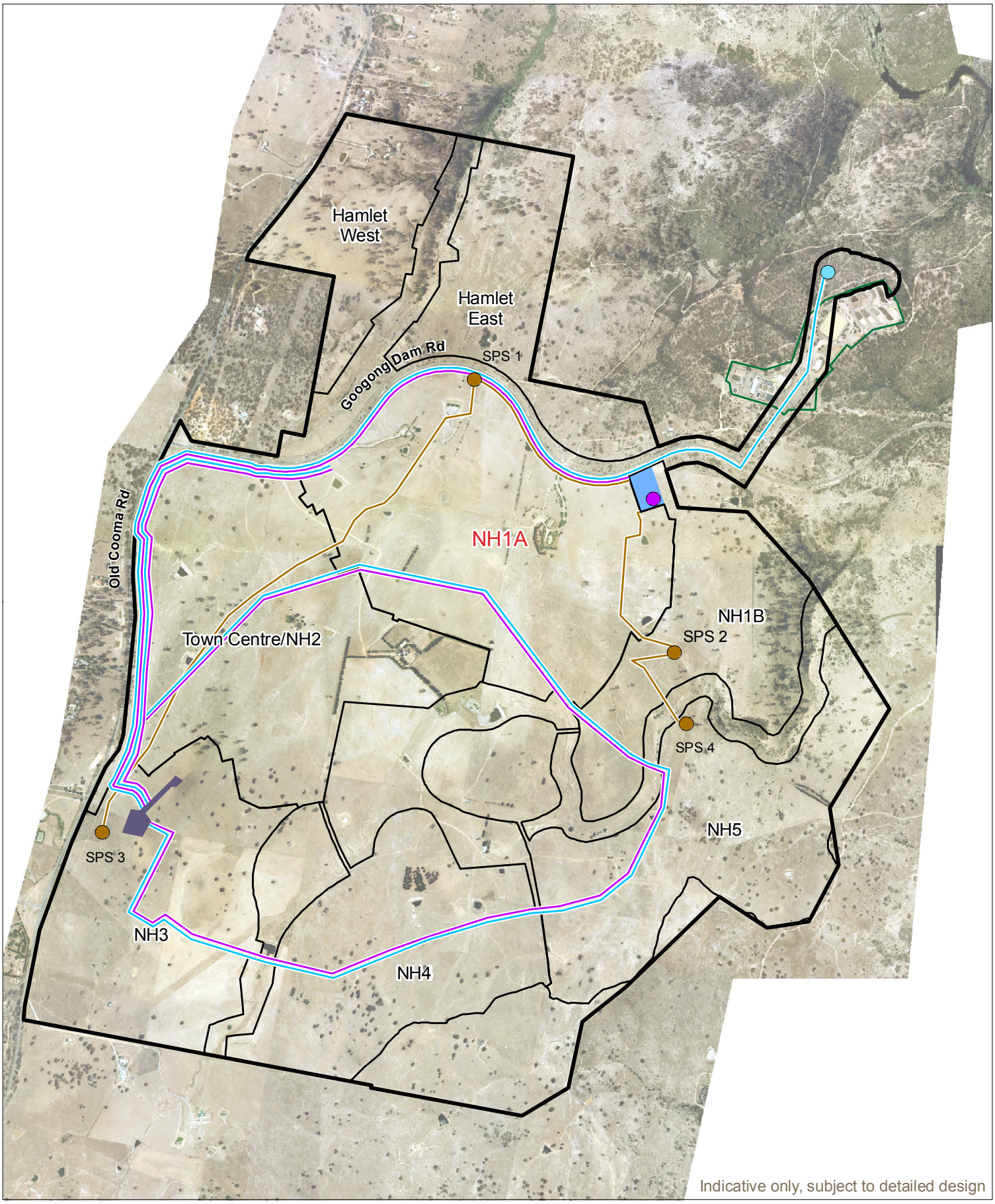
Proposed infrastructure

The concept plan comprises the following infrastructure (see Figure ES.3):

- A water recycling plant.
- Reservoirs for recycled and potable water.
- Pumping stations for sewage, recycled water and potable water.
- Mains pipework (including rising and distribution mains) for sewage, recycled water and potable water throughout the township.
- Connection to the stormwater management system.

Figure ES.2 Overview of the Project





Googong Environmental Assessment

Proponent CIC Australia

Date 20 August 2010

Drawing no. 08003g_ea_figES-3

Source Brown Consulting, MWH

- Bulk water pumping station
- Recycled water pumping station
- Sewage pumping station
- Potable water mains
- Recycled water mains
- Sewage mains
- Neighbourhood boundary
- Existing ACTEW Googong water treatment plant site
- Reservoir area
- Water recycling plant
- Study area

1:20,000

0 150 300 450 600m

Figure ES.3 Concept plan (the Project)

Hyder Consulting / Yarnidis Roberts

Stage 1 of the Project

Stage 1 is the portion of the Project required to facilitate construction of the first subdivision areas of the Googong township. The subject site (see Figure ES.4) represents the geographical extent of Stage 1. It comprises:

- Stage 1 of the water recycling plant.
- Stage 1 reservoirs. There would be four interim reservoirs (two main reservoirs and two small reservoirs), located on a small hill near the intersection of Old Cooma Road and Googong Dam Road.
- Stage 1 pumping stations for sewage, recycled water and potable water:
  - One sewage pumping station would be located within the northern part of the subject site, adjacent to Googong Dam Road; and another would be located within the south-east corner of the site.
  - The recycled water pumping station would be located within the water recycling plant.
  - The bulk water pumping station would be located adjacent to the existing Googong water treatment plant.
- Stage 1 mains pipework. This includes rising mains for sewage, recycled water and potable water; and distribution mains connecting the interim recycled water and potable water reservoirs to the edge of the initial subdivision stages of the proposed Googong township.

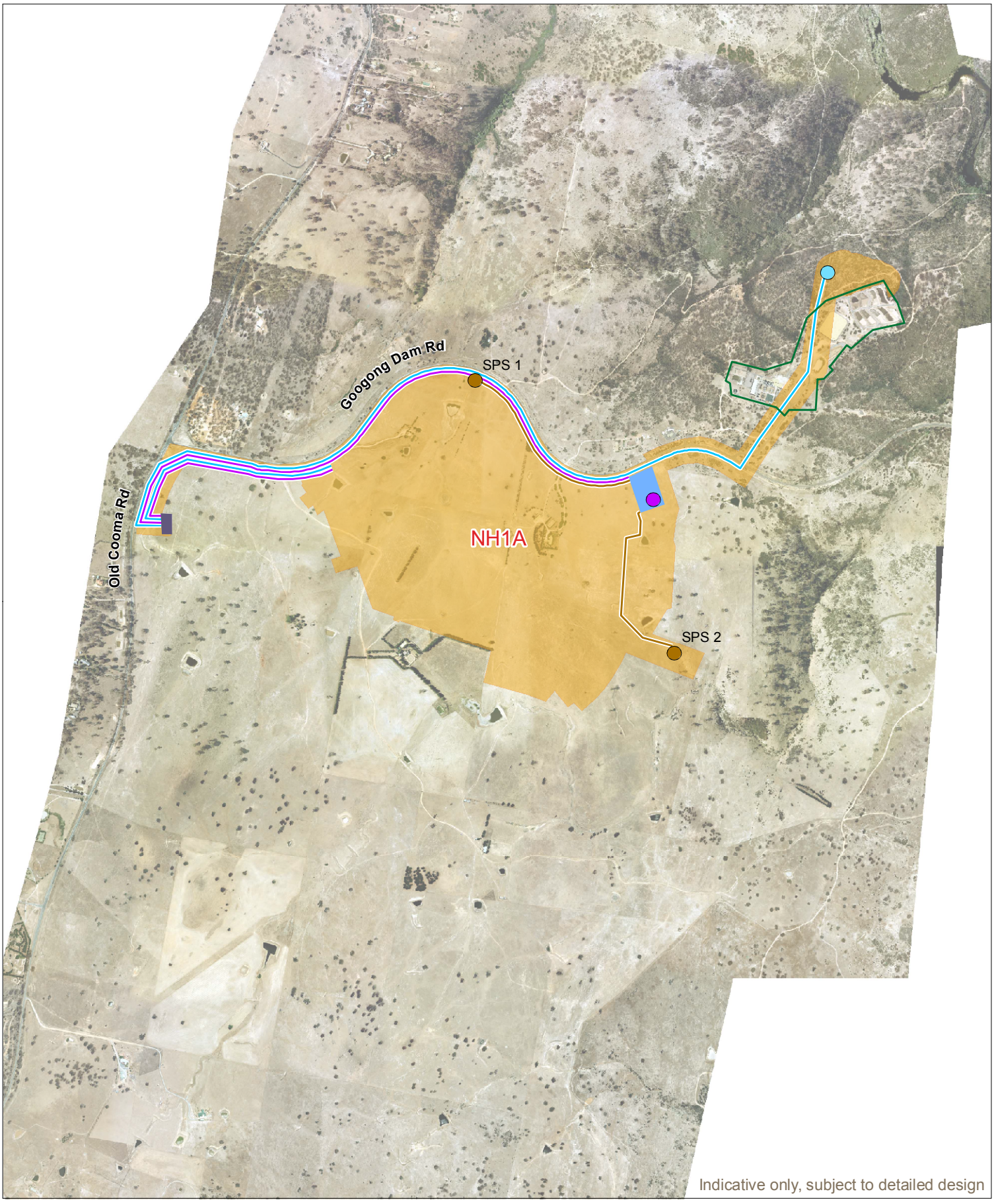
Benefits

Setting a new benchmark for environmental sustainability, the Project would reduce potable water consumption by at least 60 per cent and recycle about 62 per cent of the new township's wastewater. This would enable future population growth and increase the water security of the region.

The Project would provide significant environmental, economic and social benefits, as follows.

Environmental benefits

- The Project would create a water cycle system that uses at least 60 per cent less potable water than a typical development. It is estimated that the township of 16,000 people would use only as much water as that which traditionally is used by 6,000 people. Further water-saving initiatives are being investigated as the design progresses, with a possible additional increase in water efficiency, achieving up to 68 per cent less potable water use.
- The Project would treat all the wastewater produced by the Googong township to produce high quality recycled water. Sixty-two per cent of the recycled water would be re-used within the Googong township to irrigate open spaces, recreational areas, and for landscaping. The remainder of the recycled water would be released to the environment through the stormwater management system.
- The Project would increase the water security of the Sydney–Canberra region by diversifying water supply and reducing the burden on the existing water infrastructure. This would not normally be anticipated with traditional developments.



Googong Environmental Assessment

Proponent CIC Australia

Date 20 August 2010

Drawing no. 08003g_ea_figES-4

Source Brown Consulting, MWH

Bulk water pumping station
Recycled water pumping station
Sewage pumping station
Potable water mains
Recycled water mains
Sewage mains
Existing ACTEW Googong water treatment plant site
Water recycling plant
Interim reservoir area
Subject site

1:20,000

0 150 300 450 600m

Figure ES.4 Stage 1 of the Project

Hyder Consulting

Economic benefits

- The Project would boost the regional economy by directly creating around 300 jobs during construction and injecting over $80 million (the capital construction cost).
- The Project would facilitate the creation of a new township, which would provide a $1.6 billion boost to the regional economy, stimulating economic activity and employment. It is estimated that the creation of the township would create an average of 560 full-time construction jobs each year over 25 years, and a further 2,370 jobs would be created once the township is complete.

Social benefits

The Project would facilitate the creation of a new township that would:

- Meet the future population demands of the region by providing 5,500 new houses and accommodating 16,000 people. This is around 22 per cent of the additional population expected to live in the Sydney–Canberra corridor region by 2031 and about 55 per cent of the total new dwellings projected for greater Queanbeyan by 2031.
- Provide recreational and community facilities for the region, such as schools, sporting fields, indoor recreation centres, libraries, community spaces and parks. The township would also include public transport, walking and cycling facilities.
- Demonstrate that a truly water-efficient, ecologically sustainable town can be developed, which can serve as an Australian benchmark for future communities and developments.

Legislative framework and approvals

The Project's environmental planning and assessment framework involves three levels of government: Commonwealth, state (NSW) and local (Queanbeyan City Council). The ACT government is also relevant, through its responsibilities in relation to water supply for the region.

Commonwealth legislation, including the *Environment Protection and Biodiversity Conservation Act 1999* and the *Canberra Water Supply (Googong Dam) Act 1974,* are relevant to the Project, predominantly in relation to the management of Googong Foreshores and the ACT water supply infrastructure located within the area. Commonwealth legislation is also relevant in terms of assessing potential impacts on matters of national environmental significance and Commonwealth-owned land.

In NSW, the Project is defined as a major project under Schedule 1 of the NSW *State Environmental Planning Policy (Major Projects) 2005* and as such has been assessed under Part 3A of the NSW *Environmental Planning and Assessment Act 1979*. The NSW Department of Planning issued the environmental assessment requirements under section 75F of the *Environmental Planning and Assessment Act 1979* on 12 January 2009. At a local level, the Project fits within the framework of the local environmental plan for Googong and the land zoning.

This environmental assessment relates primarily to the NSW approvals process. Concept approval is being sought for the Project – that is, the entirety of the water cycle infrastructure required for the Googong township. Project approval is being sought for Stage 1 of the Project – that is, the water cycle infrastructure required for the first subdivision areas of the development comprising about 1200 lots (known as Neighbourhood 1A).

Table ES.1 outlines the concept and project approval sought by CIC.

Table ES.1 Summary of approvals sought

Component	Concept approval	Project approval for Stage 1 of the Project
Reference	**Figure ES.3**	**Figure ES.4**
Water recycling plant	Entire water recycling plant.	Stage 1 of the water recycling plant.
Bulk water pumping station	Entire bulk water pumping station.	Stage 1 of the bulk water pumping station.
Potable and recycled water reservoirs	Five reservoirs and associated infrastructure (three main reservoirs and two small high-level reservoirs).	Four interim reservoirs and associated infrastructure (two main reservoirs and two small elevated reservoirs).
Sewage pumping stations	Four sewage pumping stations.	Sewage pumping stations 1 and 2.
Mains pipework	Mains pipework to service the entire Googong township: • Rising mains for sewage, recycled water and potable water. • Distribution mains connecting the recycled water and potable water reservoirs to the township.	Mains pipework to service Neighbourhood 1A: • Rising mains for sewage, recycled water and potable water. • Distribution mains connecting the interim recycled water and potable water reservoirs to the edge of Neighbourhood 1A.

Environmental impacts and mitigation measures

Investigations have been undertaken during the preparation of the environmental assessment to assess potential environmental impacts. Chapters 7 to 14 of this report and the appendices include an assessment of the following elements, in accordance with the Director General's Requirements:

- Water quality and hydrology.
- Cultural heritage (Aboriginal and historical).
- Geology and soils/geomorphology.
- Air quality.
- Biodiversity.
- Traffic and access.
- Visual amenity and landscape/urban design.
- Noise and vibration.
- Utilities and services.
- Waste.
- Socio-economic aspects.
- Hazards and risk (including human health).

The potential impacts on the above elements have been assessed for the life of the project – during both construction and operation. The recent decision by the NSW Government to rezone the land for urban development indicates that potential environmental impacts of the Project should be considered within

the context that all relevant government agencies have already considered the general issues associated with creating a township at Googong. A summary of the key environmental impacts and mitigation measures related to construction and operation is provided below.

Construction impacts

The site for the Googong township has been selected and refined based on extensive environmental and social studies. Many potential impacts associated with new developments would be avoided or minimised due to the location and nature of the site. The Project has been located outside of the catchment for Googong Reservoir.

The primary impacts of the proposal during construction would be associated with clearing and earthworks to construct the water cycle infrastructure. Potential impacts on two threatened species – the Pink-tailed Legless Lizard and the Hoary Sunray – would be avoided by the placement of infrastructure and implementation of appropriate management measures. Potential impacts on heritage items would be avoided during detailed design of infrastructure or managed during the pre-construction phase in accordance with appropriate protocols and in consultation with relevant organisations.

Typical construction impacts – such as noise, dust, traffic, erosion and sedimentation – would be adequately addressed through the implementation of management and mitigation measures.

Construction activities would have a minimal effect on recreational users of Googong Foreshores as works would be located outside of any recreational areas of the Foreshores. Similarly, construction would have a minimal effect on people who use Googong Dam Road for work purposes, as traffic management measures would be implemented along Googong Dam Road.

Operational impacts

The operational impacts of the Project would be minimal, as most issues would have been addressed prior to or during construction, and because the Project would be outside the Googong Reservoir catchment. Potential operational impacts include:

- Environmental and human health impacts associated with discharge of water that is not treated to the relevant standards due to emergency events, accidents or maintenance of the system.
- Odour, noise, visual and other human amenity issues associated with the built infrastructure, particularly the water recycling plant and reservoirs.
- Changes in downstream water quality and flows.
- Risks associated with recycled water production and use throughout the township, such as salinity.

These operational impacts are considered typical of projects of this nature and generally would be addressed adequately by implementing industry standards and procedures. It should also be noted that operational impacts should be considered with the view that the Googong township would be created, forming a largely urban environment.

The design of the Project, particularly the water recycling plant treatment process, has focussed on minimising potential environmental impacts and risks. The design of the system is considered to be best practice in terms of recycled water quality, particularly for salt, nutrient and pathogen levels.

Monitoring of various environmental parameters, such as water quality, water flows, air quality and soil characteristics, would be undertaken prior to and throughout the construction of the new township. This monitoring would inform an adaptive management approach for future stages of the township.

Conclusion

The proposed water cycle project for the Googong township would be a major advance in developing new urban areas in a more sustainable way. The Project would significantly reduce potable water consumption, through water recycling and other water conservation measures, facilitating the development of a new township that uses 60 per cent less water than a typical development. This would enable the township of 16,000 people to use the same amount of water typically consumed by 6,000.

The Project would provide the necessary water and wastewater services for the Googong township, achieving outstanding environmental outcomes, enabling significant economic growth and long-term social benefits. The Project would directly create around 300 jobs during construction and has a capital construction cost of over $80 million. Additionally, the Project underpins the Googong township, which is estimated to generate $1.6 billion in overall economic activity over the next 25 years.

The environmental assessment was prepared to address the Director General's Requirements and it indicates there would be no significant impacts, provided the mitigation measures identified are implemented.

A draft statement of commitments is included in this environmental assessment, which incorporates a comprehensive suite of measures to reduce the severity of any residual impacts arising from the Project. Detailed construction and operational environmental management plans would be prepared to implement these measures.

CIC is seeking the Minister's approval for a concept plan for the Project and a project approval for Stage 1 of the Project, which is the water cycle infrastructure required for the first subdivision areas of the township.