



Planning

MAJOR PROJECT ASSESSMENT:
Murrumbidgee to Googong Water Transfer
(NSW Component)



Director-General's
Environmental Assessment Report
Section 75I of the
Environmental Planning and Assessment Act 1979

March 2010

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EXECUTIVE SUMMARY

ACTEW Corporation Ltd has submitted an Environmental Assessment (EA) to the Director-General for the proposed Murrumbidgee to Googong Water Transfer Project. The pipeline and associated infrastructure would be situated within both the Australian Capital Territory (ACT) and New South Wales (NSW). A dual approvals process has been undertaken by each respective Government. The Commonwealth Government is also an approval authority as the project is considered a "Controlled Action" under the *Environment Protection and Biodiversity Conservation Act 1999*. The project is not being assessed bilaterally with the NSW Government because although it is located in NSW it crosses Commonwealth land and therefore requires separate approval from the Commonwealth Government. Within NSW, the pipeline is located within the Palerang local government area.

The aim of the project is to provide a reliable alternate water source to Googong Reservoir in order to assist in securing the ACT's and surrounding NSW region's water supply. Recent droughts have threatened the region's water security, such climatic conditions are projected to increase in intensity and frequency in the future. In addition to this, projected population growth in the region is expected to place further pressure on the existing water supply.

The project involves the construction and operation of a water transfer pipeline and associated infrastructure 13 kilometres from the Murrumbidgee River (in the ACT) to Burra Creek, NSW. Approximately 10.2 kilometres of pipeline would be in NSW. The pipeline would transfer up to 100 megalitres of water per day in order to increase flows to the Googong Reservoir. The pipeline would be below ground (trenched), approximately one metre in diameter and made of mild steel.

Associated infrastructure to be constructed as part of the project includes;

- an intake structure and low lift pump station located on the eastern bank of the Murrumbidgee River at Angle Crossing in the ACT;
- a high lift pump station located approximately 290 metres to the east of the intake structure, also in the ACT;
- an outlet structure located on the southern bank of Burra Creek (NSW), however within the Commonwealth owned Googong Foreshore area;
- a mini hydro power facility, located near the outlet structure (NSW); and.
- power supply including a sub station located 700 metres from the Monaro Highway (ACT) along the pipeline route and an 11kV underground cable located in the pipeline trench.

On 14 August 2008, the Director-General as delegate for the Minister for Planning formed the opinion that the project is a development of a kind described in Schedule 1 of *NSW State Environmental Planning Policy (Major Developments) 2005* namely development for the purpose of a pipeline in respect of which an application for a licence is made under the *NSW Pipelines Act 1967* and is therefore a project to which Part 3A of the *Environmental Planning and Assessment Act 1979* applies. Consequently, the Minister for Planning is the approval authority for the project. On 26 June 2009, the Minister for Planning formed the opinion under section 75C of the *Environmental Planning and Assessment Act 1979* that the project is essential to the State for economic, social and environmental reasons and therefore declared the project to be a critical infrastructure project.

The Department received a total of 53 public submissions on the project (including those sent to ACT Planning and Land Authority). Of these, twelve objected to the project, three indicated inprinciple support and the remainder did not specifically state a position. About half of the public submissions suggested an alternative pipeline route. Six submissions were received from NSW public authorities including: the Department of Planning Heritage Branch, NSW Department of Environment, Climate Change and Water, NSW Department of Industry and Investment (Fisheries), NSW Office of Water and Palerang Council, and five from ACT/Commonwealth public authorities (Murray Darling Basin Authority, Planning and Land Management, Environment Protection Authority and National Capital Authority). None of the agencies objected to the proposal, however raised issues for the Department's consideration including the impact of additional flows on receiving waterways, biodiversity impacts and potential impacts to existing infrastructure and heritage.

This report considers the proposed infrastructure for development within NSW. The ACT Government is undertaking its own assessment for the components of the project within the ACT. The Commonwealth Government is assessing matters of national environmental significance that relate to the project. NSW has developed this report in consultation with both the ACT and Commonwealth Governments.

The key issues raised by submissions and associated with the project are:

- alternative route selection- alternative options including an 'upstream' option as a preferred route or direct discharge into the Googong dam;
- flora and fauna impacts of the proposed pipeline- removal of vegetation and risks to threatened species, the need for a vegetation offsets package, aquatic ecology, spread of weeds from construction and maintenance activities;
- water quality and hydrology- changes in flows affecting stream water quality and geomorphology at the outlet, actual total flow amounts, inadequate water quality data available for assessment, impacts of potential Tantangara releases;
- noise- potential for noise to impact livestock and horses, inadequate consideration of noise from air release valves, concerns that the noise modelling is not representative of all sensitive receivers, potential vibration and blasting impacts;
- land use- cumulative impacts (noise, visual) may affect rural amenity and lifestyle, constraints due to pipeline easement, property values affected by amenity impacts and compensation matters;
- justification- project need with respect to the Cotter Project; and
- heritage- potential impacts to indigenous and non-indigenous heritage items, in particular London Bridge.

The Department has assessed the Proponent's Environmental Assessment, Preferred Project Report (Submissions Report) and Statement of Commitments and submissions received by public agencies and the community regarding the project. The Proponent has modified the project following consideration of submissions, by preparing an alternative (upstream) discharge point to Burra Creek. Reasons for this alteration include minimisation of construction and operational noise impacts to residents located within Burra, minimisation of clearing of areas of Endangered Ecological Communities as well as minimising geomorphological impacts from having the pipeline avoid crossing a number of minor creeks. The Department accepts the alternative route selection provided in the Preferred Project Report. Based on its assessment, the Department is satisfied that the Proponent has provided a considered assessment of the impacts of the alternative route and that the impacts associated with the preferred project can be managed and mitigated to achieve acceptable environmental standards.

On balance, the preferred project aims to secure water supply to the Australian Capital Territory and surrounding region. This report is not assessing the availability nor the access to water within the region as this is already being assessed by the Commonwealth Government under their approval process. The Department has drafted a recommended instrument of approval incorporating stringent and comprehensive environmental mitigation and management requirements and to enhance commitments made by the Proponent in its Statement of Commitments.

The Department considers the project to be justified and in the public's interest and should be approved subject to the Department's recommended conditions of approval and the Proponent's Statement of Commitments.

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1. BACKGROUND

The Murrumbidgee to Googong Water Transfer project is one of a suite of projects and initiatives proposed by ACTEW Corporation Limited (the Proponent) in response to sustained drought conditions, predicted climate change and long term population growth. The 'Water Security Program' has identified a range of new water supply projects, for delivering improved security and increasing water supply reliability to the Australian Capital Territory (ACT) and the surrounding NSW region which includes Queanbeyan.

The proposal involves pumping water from the Murrumbidgee River (in the ACT) and transferring it via a pipeline to Burra Creek (in New South Wales), from where it would flow for approximately 10 km to the Googong Reservoir. The proposal would have the ability to transfer up to 100 ML of water per day, to supplement natural inflows of water into Googong Reservoir.

As the project is located in both the ACT and New South Wales (NSW), ACTEW prepared a combined Environmental Assessment and draft Environmental Impact Statement to satisfy the legislative requirements of the NSW *Environmental Planning and Assessment Act 1979* and the ACT *Planning and Development Act 2007*. The draft Environmental Impact Statement and Environmental Assessment responds to the NSW Department of Planning Director-General's Requirements that were issued on 7 October 2008, the adequacy review issued on the 16 July 2009 and the ACT Planning and Land Authority's Final Scoping Document dated 16 December 2008. A separate referral has been submitted to the Commonwealth Department of Environment, Water, Heritage and the Arts for its consideration as a controlled action under the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999*. The proposal is not being assessed bilaterally with the NSW Government as the project crosses Commonwealth land and is therefore a separate referral. The Proponent has sought project approval from the Minister for Planning for the construction and operation of the proposal located within NSW.

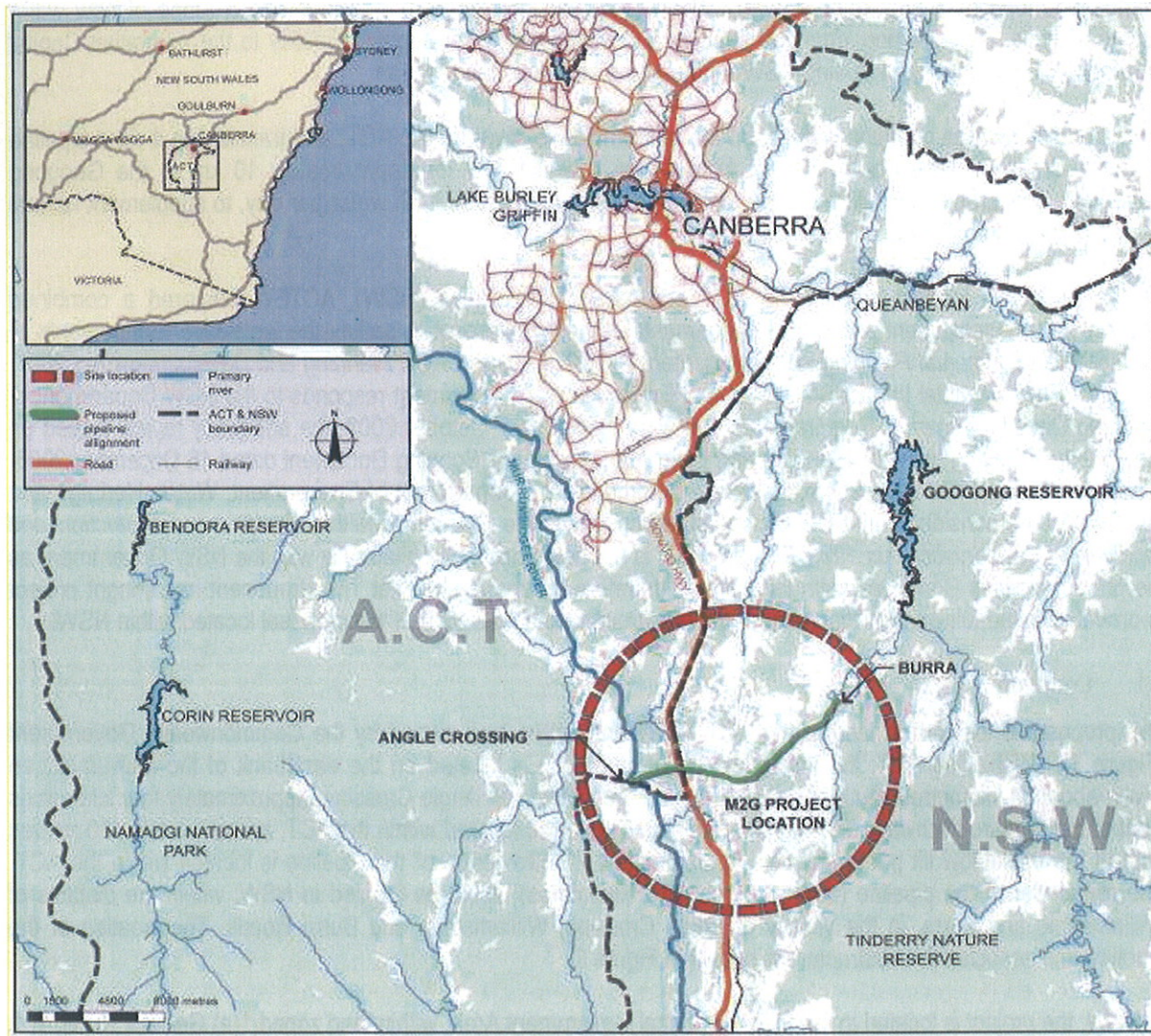
1.1 Location

The proposal is located on land in the ACT, NSW and within land owned by the Commonwealth Government (Figure 1). Within the ACT, the intake/low lift pump station is located on the east bank of the Murrumbidgee River, about 34 kilometres south of Canberra, in an area known as Angle Crossing, approximately four kilometres west of the Monaro Highway. The high lift pump station is also located within the ACT, approximately 290 metres east of the intake/low lift pump station. Approximately 2.8 kilometres of the pipeline is located within the ACT. The remainder of the pipeline (approximately 10.2 kilometres) would be located in NSW, within the districts of Williamsdale and Burra, in the vicinity of Angle Crossing, Williamsdale and Burra Roads. The location of the pipeline and associated infrastructure is shown in Figure 2.

In NSW, the project is located in the Palerang Local Government Area, within land zoned 1(a) General Rural, 1(d) Rural Residential, 5(a) Water Catchment, and 6(a) Recreation in the *Yarrowlumla Local Environmental Plan 2002*, under which the proposal (a "public utility undertaking") is permissible with consent.

A Preferred Project Report was prepared by the Proponent and made public by the Department on 8 January 2010 as a response to submissions received during the public exhibition period within NSW. In responding to submitters concerns the pipeline route has been altered by the Proponent in order to avoid impacts from the previous route. The new pipeline route now terminates approximately one kilometre upstream of the original proposed outlet on Burra Creek. It is now located 60 metres upstream from the low level crossing on Williamsdale Road, near the junction of Burra and Williamsdale roads (Figure 3).

Figure 1: Project Location



1.2 Surrounding Land Use

The project is predominantly located within a modified agricultural environment, mainly comprising livestock grazing, small scale cropping, pasture improvement and equine farms. Approximately 120 rural residential properties are scattered along the length of the pipeline corridor, and are concentrated along Williamsdale Road and near the altered pipeline outlet at Burra Creek (Figure 4). The pipeline corridor starts within the Gigerline Nature Reserve (ACT), and the outlet structure has been re-located one kilometre north of the Googong Foreshores (located within NSW, owned by the Commonwealth). Googong Foreshores is a water catchment, wildlife refuge and public recreation area. Other land uses within the vicinity of the area are Googong Reservoir and Dam, and the Burra Creek Nature Reserve, as well as roads and recreational areas.

Figure 2: Pipeline and Infrastructure Location

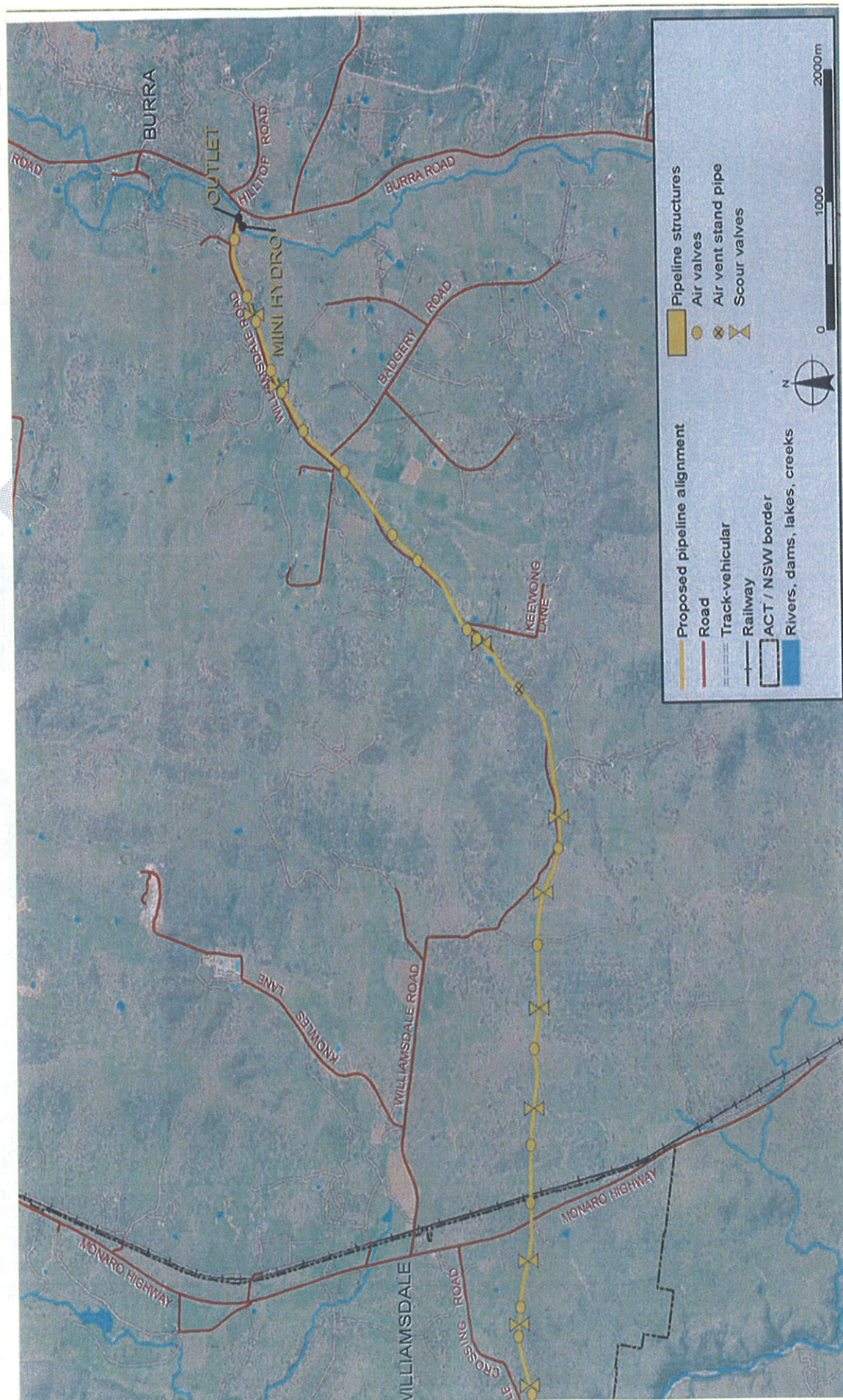


Figure 3: Altered Pipeline Outlet Location

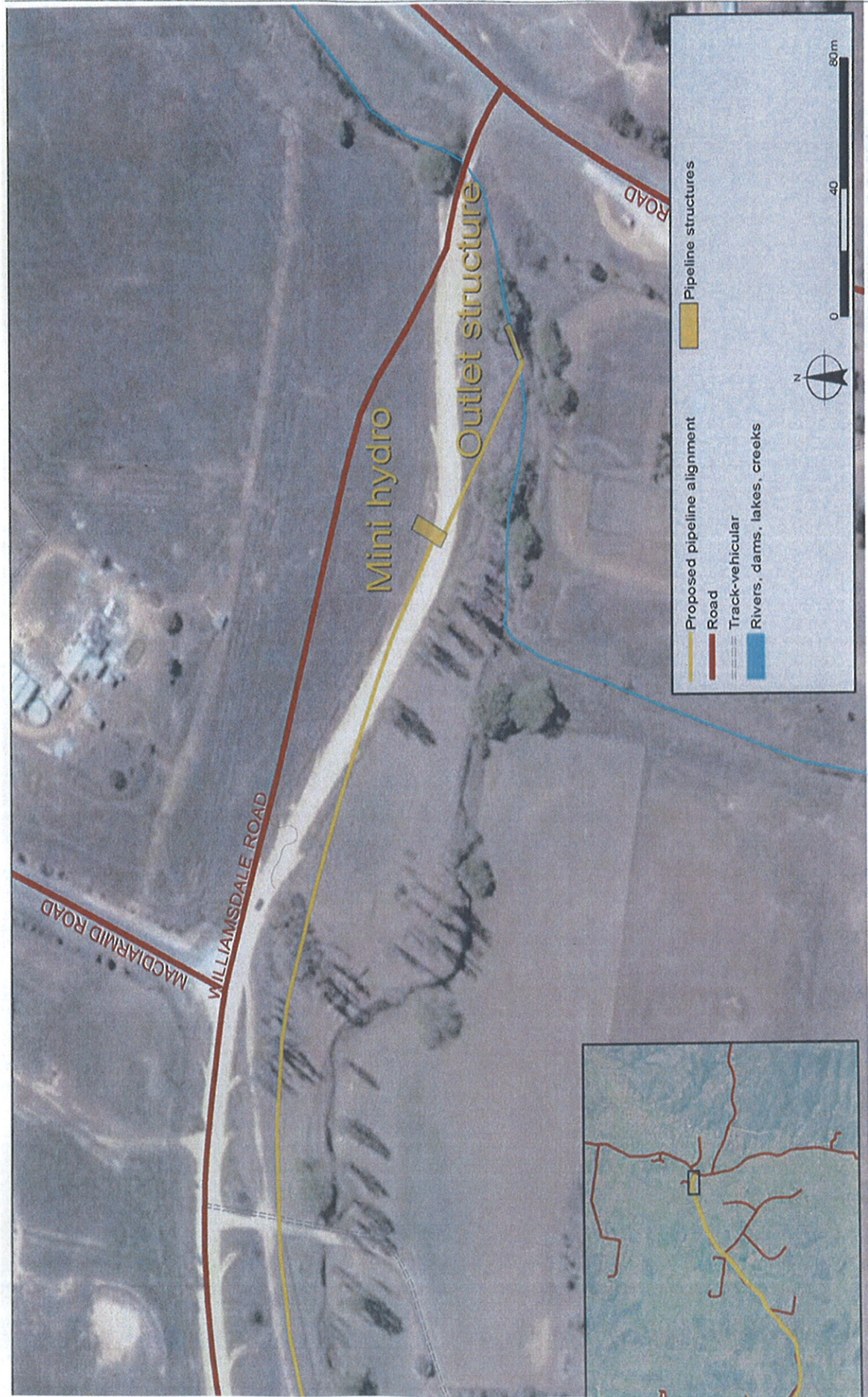
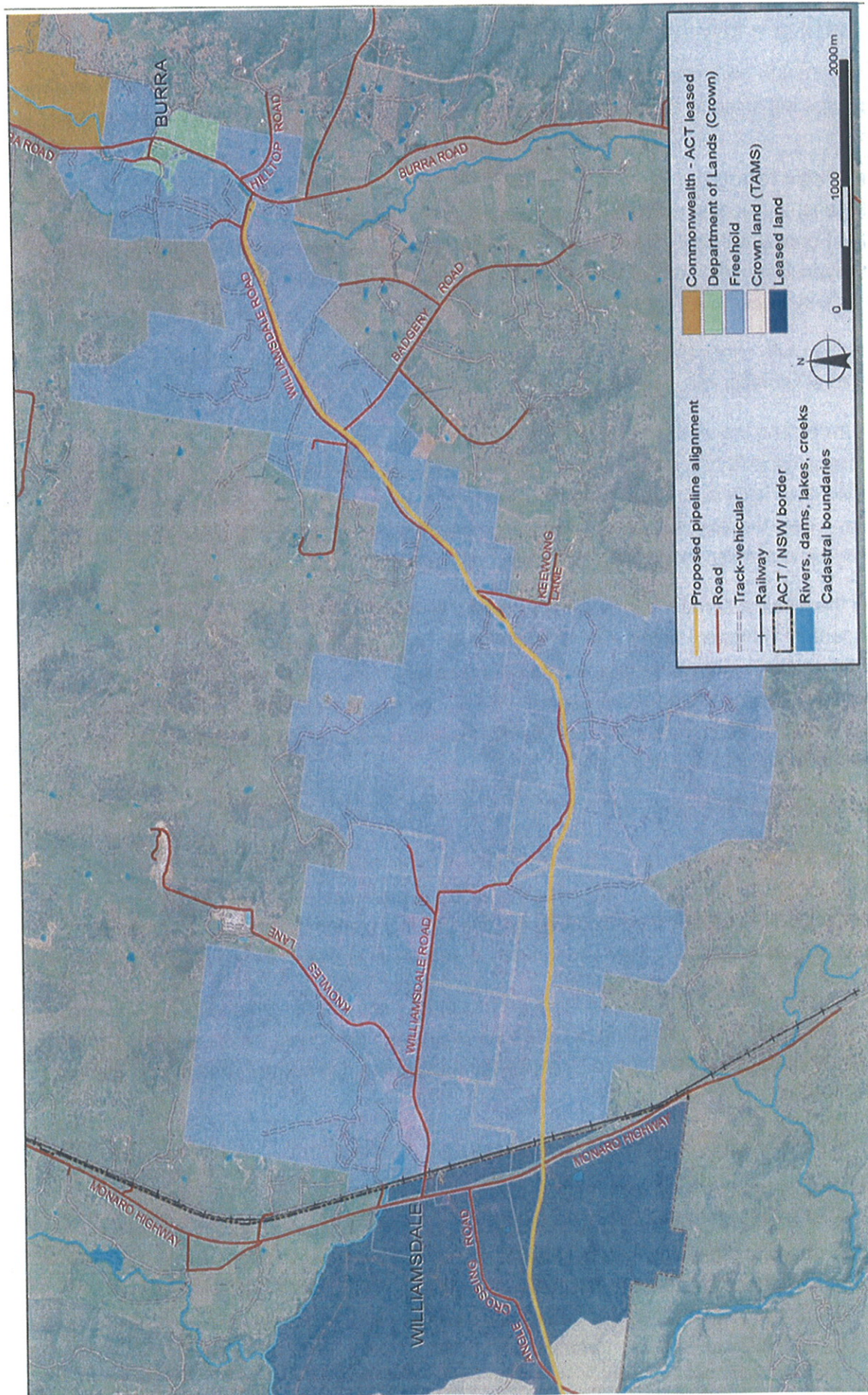


Figure 4: Adjacent Landholdings



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2. PROPOSED DEVELOPMENT

2.1 Project Description

The project involves construction and operation of infrastructure to transfer up to 100 ML/day of water a distance of approximately 13 kilometres from the Murrumbidgee River at Angle Crossing and then to the Googong Reservoir via run-of-river flow in Burra Creek (Figure 2).

Water would be pumped from the Murrumbidgee River via an intake/low lift pump station and a high lift pump station in the ACT and transferred to Burra Creek via underground pipeline. The water would discharge into Burra Creek via an outlet structure. Following discharge, water would flow along Burra Creek to the Googong Reservoir. Associated with the pipe and pumping infrastructure would be a mini-hydro power facility to capture and reuse part of the energy required to transfer the water. This electricity would be used by the high lift pump station to reduce the projects overall energy requirements. To supplement the electricity captured from the mini-hydro power facility, the project includes construction of an 11 kV power supply for the operation of the intake and pump station, and various associated works. An underground powerline, contained in the pipeline easement will carry power to the high lift pump station.

The Proponent is seeking project approval for the construction and operation of the pipeline and associated infrastructure within NSW. This includes:

- approximately 10.2 kilometres of pipeline;
- the outlet structure and release of water into Burra Creek;
- mini hydro power facility; and
- underground transmission line.

ACT planning requirements will apply to the intake/low lift pump station, the high lift pump station, approximately 2.8 kilometres of pipeline and parts of the 11kV power supply infrastructure.

Pipeline

The pipeline would be constructed of mild steel, approximately 1,016 millimetres diameter (outside), with a wall thickness of 8-10 millimetres. The pipeline would be located at shallow depths of approximately 1.8 to 4 metres below ground level. Air and scour valves would be located at regular intervals along the pipeline to provide air release and entry for cleaning. Other ancillary items including isolation valves, concrete pits and pipeline marker posts would also be required. A typical cross section of the pipeline is shown in Figure 5 below.

Construction of the pipeline would require a 40 metre wide (maximum) corridor. A 15 metre wide easement would be acquired for operation and maintenance purposes. Diesel generators would provide power during construction, due to the remote location of the project.

Outlet structure

The outlet structure would be a weir box arrangement on the western bank of Burra Creek, approximately 60 metres upstream from the low level crossing on Williamsdale Road (Figure 6). The structure would comprise a rectangular concrete box, approximately 12 metres long with a 0.25 metre grated opening, built into the creek bank with a weir located on the sidewall closest to the creek. Water would flow into the weir box from the pipeline and discharge over the weir, and then run down the creek bank to the creek, which flows to Googong Reservoir.

The installation of the outlet facility would require excavation into the creek bank up to approximately 2.5 metres deep and approximately 13 metres long in a direction parallel to the creek alignment. It is proposed to provide rock protection to the bank and install rock rip rap across the creek bed to prevent scour and erosion in the vicinity of the outfall weir. The site for the outlet structure would occupy an area of approximately 1,200 m².

Mini hydro power facility

The mini-hydro power facility would reduce the overall energy requirements of the project during operation. The facility has the capacity to generate approximately one megawatt of electricity by recovering approximately 26 to

27% of the energy used to move water along the pipeline. The electricity generated would be used to help power the pump stations, as the electricity required for pumping has been estimated at 1.138MWh/megalitre. The electricity would be transmitted via an underground transmission cable located within the pipeline trench, which would terminate at the proposed electrical substation near Angle Crossing, or at the high lift pump station.

The facility would be located near the outlet structure within the pipeline construction corridor, and would comprise a turbine, generator and substation. With the exception of the substation, these components would primarily be located below ground, with some minor above ground auxiliary components. The above ground dimensions (foot print area) are anticipated to be 10.7 metres x 7 metres (approximately 75 m²).

Key features of the facility would include:

- a generating plant comprising a hydro generating unit;
- an 11 kV substation;
- a main water control inlet valve to the turbines;
- fire detection and fire fighting facilities;
- drainage structures for stormwater collection; and
- oil spill collection and separation units.

Figure 5: Typical cross section of the water transfer pipeline

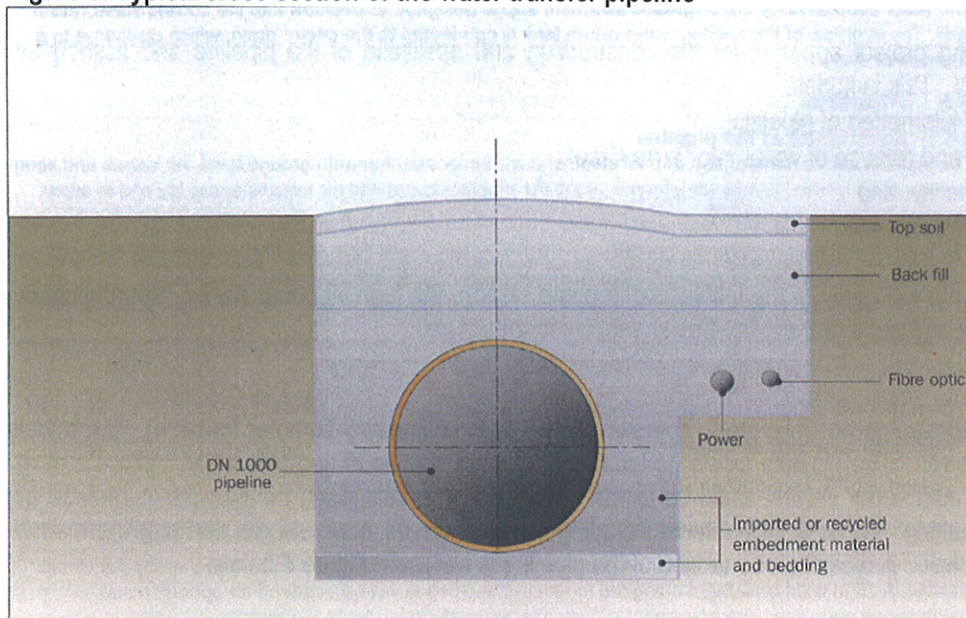
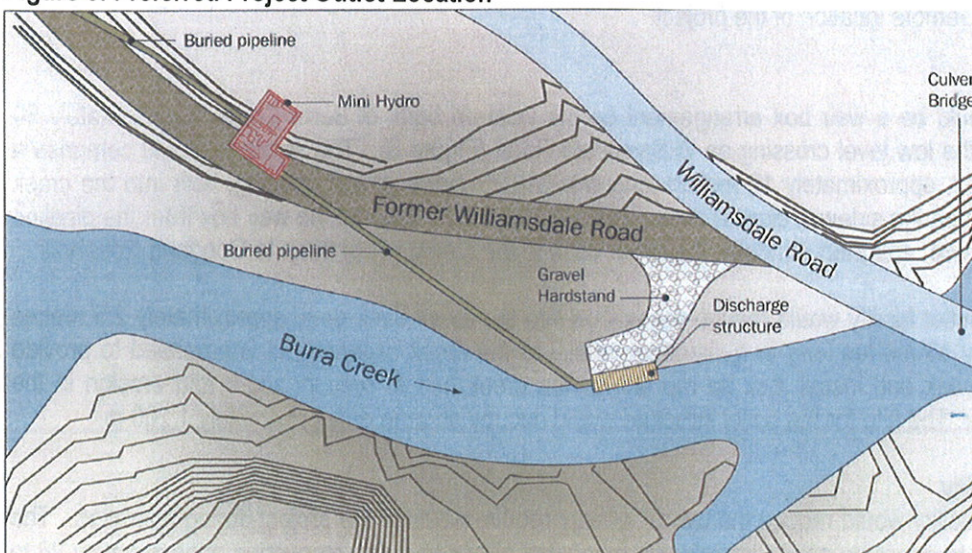


Figure 6: Preferred Project Outlet Location



2.2 Water Supply

The pipeline aims to transport water out of the Murrumbidgee River Catchment into the Burra Creek Catchment. Based on modelling conducted by the Proponent it is expected that the average supply rate from Angle Crossing on the Murrumbidgee River to Googong Reservoir would be in the order of 8 to 10 gigalitres a year. Seasonal distribution of supply from the Murrumbidgee River would be determined by the following factors:

- seasonal variation of Googong Dam storage and natural inflows; and
- availability of water in the Murrumbidgee River.

The ACT has a net cap of 40 gigalitres per annum that it can divert from the Murrumbidgee River under the Murray Darling Basin inter-governmental agreements. Diversions made by this pipeline project would not exceed this cap. The project is expected to have a less than 1% impact on average flows leaving the ACT and flowing down the Murrumbidgee River into Burrinjuck Reservoir. Within the ACT the Proponent's operating licence to divert water from the Murrumbidgee River will include conditions on the use of ACT's Environmental Flow Guidelines as established by the *Water Resources Act 2007* (ACT). These requirements will ensure protection of downstream environmental flows within the Murrumbidgee River.

Based on modelling conducted by the Proponent, there is a 31% chance the pipeline will not be used at all during a calendar year in the first ten years the project is in operation. This is due to the varying availability of water within the Murrumbidgee River system. Estimated average monthly water supply rates to Googong Reservoir are related to the average monthly reservoir storage levels. Googong reservoir water levels are typically highest at the end of summer and lowest at the end of spring. The Proponent plans to use the pipeline when reservoir levels fall below 80%. Therefore it is likely more water will be pumped into Burra Creek during the end of spring.

2.3 Amendments to the Proposal

The following changes have been included into the Preferred Project Report when compared to the exhibited Environmental Assessment:

- new re-located pipeline outlet structure and associated minor pipeline re-routing (Figure 6);
- re-siting of the mini-hydro power generator to be approximately 65 metres from the pipeline outlet; and
- closure of Angle Crossing Beach due to construction impact concerns. (This change occurs on land within the ACT and is therefore subject to assessment by the ACT Planning and Land Authority).

Changes to the pipeline outlet are a result of a large proportion of submissions proposing an alternative upstream outlet option in order to minimise impacts along the downstream portion of Burra Creek and the entrance into Googong Reservoir. Changes to the location of the mini hydro facility are to avoid potential flooding risk. The Preferred Project Report includes an assessment of the impacts resulting from these changes.

2.4 Project Need

The ACT region has experienced severe drought conditions over the period 1997-2006, with significant decreases in water storage levels, and inflow of water into the ACT catchments. The report *Future Water Options for the ACT and Region* (ACTEW 2005a) suggests that bushfire impacts, climate change impacts and a growing population mean that the implementation of water efficiency measures alone is not sufficient to meet current and future supply requirements. Medium and long term outlooks suggest further declines to long term average supply flows. Various ACT Government strategies identify the need for securing further water resource measures in order to meet current and future demand for the region. The ACTEW report, *Water Security for the ACT and Region: Recommendations to the ACT Government* (July 2007) was commissioned by the ACT Government to review regional water security and the need for diverse supply options. This proposal is included as part of the recommendations resulting from the report.

In terms of NSW, the proposal is one of a number of key mechanisms that will ensure the future availability of water to sustain Queanbeyan's expected population growth over the next 30 years (*Sydney-Canberra Corridor Regional Strategy*). The proposal also allows for other areas in NSW such as Yass, Bungendore or Goulburn to be supplied with water, should the need arise.

The ACT and surrounding region primarily rely on two water sources to service their needs. These include Cotter Dam and Googong Reservoir. Between 2003 and 2009 total inflows into the Cotter Dam and Googong Reservoir

have averaged 71 gigalitres a year. Average inflows during the past 130 years are 200 gigalitres a year. Water availability was further threatened during the 2006 Canberra bushfires. Also the potential exists for a further 10,000 new residential homes to be built in the Queanbeyan Area based on the *Queanbeyan City Council Residential and Economic Strategy 2031*. Arising from these figures is a need to secure water and increase its level of availability within the region. The pipeline proposed by the Proponent is justified based on the need for providing water to the region. The Department is satisfied an adequate justification for the project has been provided. The Murrumbidgee to Googong Water Transfer would facilitate enhanced security of water supply for existing need in the region as well as assist in supplying proposed growth areas within Queanbeyan.