

Part A

Introduction

Chapter 1 Introduction

1.1 Overview

In recent years the Australian Capital Territory (ACT) region has been experiencing severe drought conditions which has resulted in substantial reductions of inflow into regional dams. As a result, Canberra and Queanbeyan have been subject to water restrictions for six years. Level three water restrictions have applied for the last three years and permanent water conservation measures were introduced in 2005. The current drought, together with predicted climate change and long term population growth, is driving the implementation of a more reliable water supply for the ACT. In response to this need, ACTEW developed the Water Security Program, which identified a range of new water supply projects.

The Murrumbidgee to Googong Water Transfer (referred to as 'the project' for the purposes of this document) is one of the recommended options for delivering improved security to the water supply for the ACT and region. It involves pumping water from the Murrumbidgee River (within the ACT) and transferring it via a pipeline to Burra Creek (in NSW), from where it would flow for approximately 10 km to the Googong Reservoir. The proposed transfer of water would supplement natural inflows to the reservoir, which have decreased by about 85% from 2001 to 2008. Googong Reservoir supplies water that is treated to drinking quality standards to Queanbeyan and the ACT.

This environmental assessment/draft environmental impact statement (referred to as 'the assessment' for the purposes of this document) has been prepared in accordance with the requirements of Part 3A of the *NSW Environmental Planning and Assessment Act 1979* and section 216(2) of the *ACT Planning and Development Act 2007*. The assessment has been prepared to support an application to the NSW Minister for Planning and the ACT Planning and Land Authority for planning approval to construct and operate the project. The assessment addresses the requirements of the Director-General of the NSW Department of Planning (the Director-General's Requirements) dated 7 October 2008 and the Final Scoping Document prepared by the ACT Planning and Land Authority (the Scoping Document) dated 16 December 2008.

1.2 The proponent

1.2.1 Who is the proponent

ACTEW Corporation Limited (ACTEW) is the proponent for the project. ACTEW is an ACT Government owned company with assets and investments in water, wastewater, electricity, gas and telecommunications totalling \$1.4 billion. It supplies water to the population of Canberra, Queanbeyan and the ACT region.

ACTEW owns the water and wastewater assets and business in the ACT. ACTEW was corporatised on 1 July 1995 and has reporting and compliance obligations under the *Commonwealth Corporations Act 2001* and other legislation.

ACTEW strives to optimise its water and wastewater utility services, and in doing so maintain a leadership role of a multi-utility operating in the public-private partnership model. ACTEW aims to manage its assets and business in a sustainable manner to provide quality service to its customers while building value for its owners.

1.2.2 Proponent's environmental policy and planning framework

ACTEW is subject to environmental regulation by both NSW and the ACT Governments in respect of the operation of water treatment plants, by the *ACT Water Resources Act 2007* and the *ACT Public Health Act 1997*. ACTEW provides performance indicators within its Annual Report and a statement of compliance.

Environmental management of ACTEW's water and wastewater business is undertaken by its joint venture ActewAGL. ActewAGL is committed to ecologically and environmentally sustainable development and continues to seek initiatives that will help protect the environment.

ActewAGL's five-year Environment Management Plan 2005-2010 addresses the water, wastewater and electricity aspects of ActewAGL's operations. The plan sets out environment policy directions and priorities.

ActewAGL's annual Environment Action Program identifies specific tasks in line with the directions set out in the Environment Management Plan.

1.2.3 Proponent's commitment to sustainability

As a provider of essential services in the ACT and surrounding region, ACTEW has a long term view of its operations. Providing these services and maintaining growth cannot be done while overburdening the environment.

ACTEW has a commitment to make sure that its operations do not harm communities and that it safeguards the environment to ensure that future generations can enjoy its benefits.

ACTEW is governed by the operation of the *Territory-owned Corporations Act 1990* which establishes a main objective for ACTEW as being to operate in accordance with the object of ecologically sustainable development. This is defined in the *Territory-owned Corporations Act 1990* as meaning the effective integration of environmental and economic considerations in decision-making processes, achieved through implementation of the following principles:

- (a) The precautionary principle;
- (b) The inter-generational equity principle;
- (c) Conservation of biological diversity and ecological integrity; and
- (d) Improved valuation and pricing of environmental resources.

Throughout the planning and development of this project ACTEW has sought to maintain the balance between economic, social and environmental interests. This report describes how the project will be delivered to meet ACTEW's long term commitment to sustainability.

Section 6.12 details how ACTEW will incorporate sustainability across all aspects of the project and its operation.

1.3 Objective of the project

The overall objective of the project is to secure a water supply for the ACT region that can account for the more frequent, longer, drier droughts that are predicted to occur without having to go into high-level water restrictions for extended periods. The project would assist in securing the ACT's and surrounding region's water supply by transferring water from the Murrumbidgee River to Googong Reservoir in a sustainable manner, which:

- Protects the health and ecology of the Murrumbidgee River, Burra Creek and Googong Reservoir;
- Does not cause significant impact in the pipeline corridor, or to the broader natural and cultural environment;
- Is acceptable to the local communities; and
- Ensures safety during construction and operation.

1.4 Key features of the project

The project involves construction and operation of infrastructure with the capacity to transfer up to 100 ML/day of water a distance of approximately 13 km from the Murrumbidgee River to Burra Creek. Once water from the Murrumbidgee River is discharged into Burra Creek, the water would flow along the creek to Googong Reservoir, which is located approximately 10 km to the north of the outlet structure.

Although the project would be designed with the capacity to transfer up to 100 ML/day (up to 36.5 GL/year), projections indicate that initially, the average amount of water transferred would be 8 to 10 GL/year. This figure could increase to 10 to 15 GL/year if water releases from Tantangara, a separate but closely related project, occur in the future (the link between the project and Tantangara Transfer project is discussed further in section 5.3.4). The volume transferred represents less than 1% of the water available in the

Murrumbidgee River and less than 5% of the average flow at Angle Crossing. Water transfer would be limited or cease during periods of low river flow, to protect the environmental health of the Murrumbidgee River.

Water would only be transferred when the following conditions are met:

- Googong Reservoir is less than about 80% of its total operating capacity; and
- The flow left in the Murrumbidgee River at Angle Crossing is not less than the required environmental flow.

The infrastructure required to transfer the water includes an intake/low lift pump station, a high lift pump station, an underground pipeline, an outlet structure, ancillary infrastructure (power supply) and mini-hydro facility. These features are described briefly in Table 1.1. Further information on the project is provided in chapter 6.

Table 1.1 Key features of the project

Infrastructure	Description
Intake/low lift pump station	The intake/low lift pump station would comprise a concrete box structure built into the riverbank. The low lift pump station would include a screen, grit collection and removal, filtration to prevent fish transfer and pumps and valves.
High lift pump station	The pump station would pump water to a high point at Gibraltar Range, from where it would run under gravity to the discharge point. The high lift pump station would consist of a building enclosing a pump hall and electrical services and an amenities area.
Pipeline	The pipeline would transfer the water from the low lift pump station to the high lift pump station, then onto the outlet structure. It would be constructed of 1016 mm diameter mild steel pipe. The pipeline would be approximately 13 km long, with the pipe located approximately 1.8 m to 4 m below ground level. Air valves and scour valves would be located at regular intervals along the pipeline to provide pressure relief and to allow cleaning.
Outlet structure	The outlet structure would take the form of a weir box arrangement located on the bank of Burra Creek. It would comprise a rectangular concrete box 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 would discharge over the weir and run down the creek bank to the creek, which flows to Googong Reservoir. This method of discharge is designed to minimise scouring of the creek bed near the outlet.
Ancillary infrastructure	Ancillary infrastructure required to support the operation of the project would include the following power supply facilities: • Electricity provided by the grid would be supplemented by electricity generated by a mini-hydro electric power facility which would be constructed as part of the project. The mini-hydro power facility would have the capacity to recover approximately 26% (without Tantangara flows) and 27% (with Tantangara flows) of the 1,138 kWh/ML of electricity required for pumping activities; • The electrical infrastructure would comprise two main elements being a 132 kV/11 kV substation and a single 11 kV cable to the high lift pump station.

1.5 The location of the project

The project location is shown in Figure 1.1.

The intake/low lift pump station would be located on the east bank of the Murrumbidgee River, within the ACT, approximately 34 km south of Canberra. It would be located in an area known as Angle Crossing, located on Angle Crossing Road, approximately 4 km west of the Monaro Highway.

The high lift pump station would be located within the ACT, approximately 290 m to the east of the intake/low lift pump station.

The pipeline would cross rural residential land in an east/northeast direction for approximately 13 km. It is generally located in the vicinity of Angle Crossing, Williamsdale and Burra Roads, within the districts of Williamsdale and Burra. The majority (approximately 10.2 km) of the pipeline would be located in NSW, with approximately 2.8 km located in the ACT.

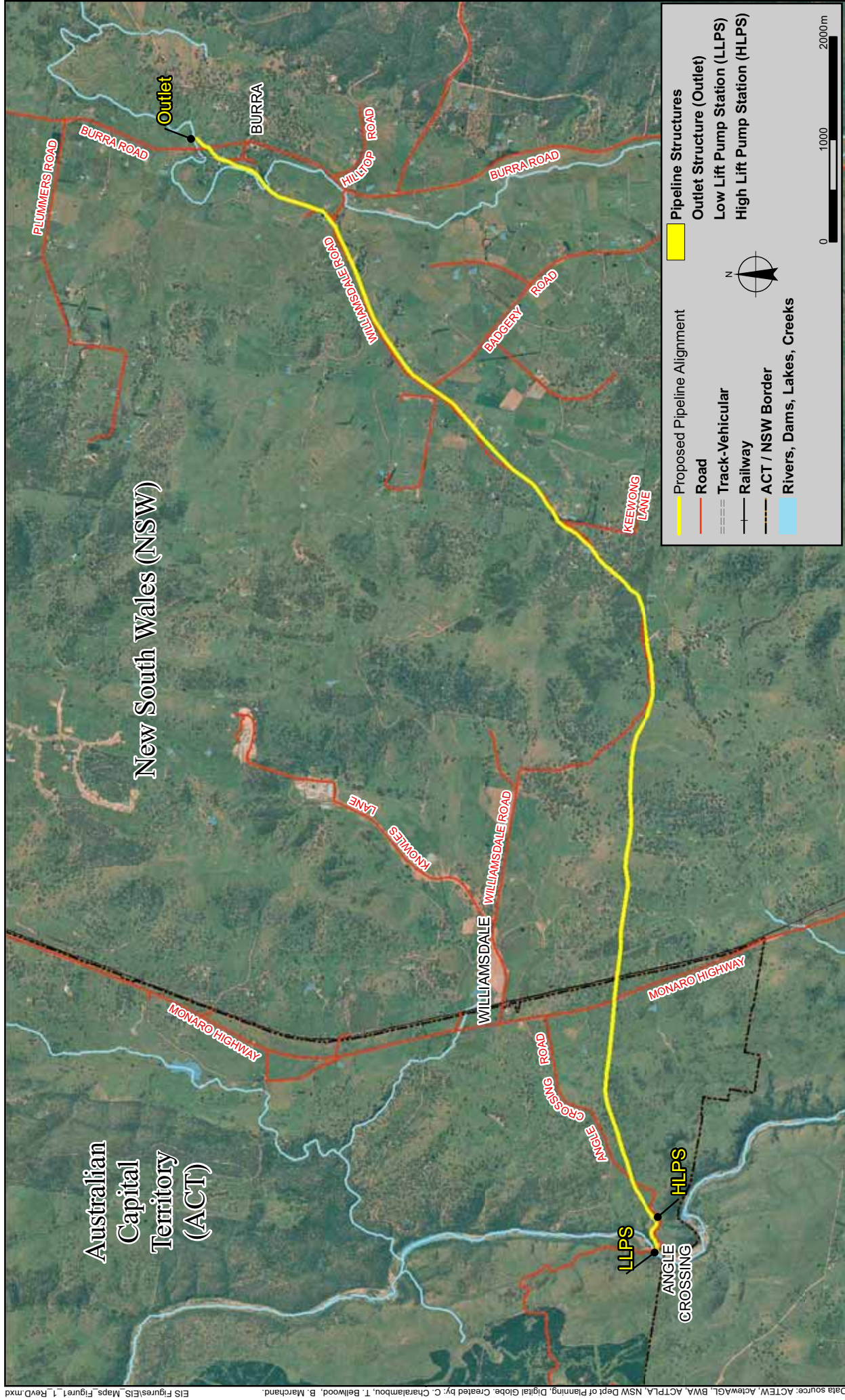


Figure 1.1 Location of the project

The outlet structure would be located in the Burra Creek bank, within NSW, just downstream of Burra Road and an existing flow measuring station. The outlet structure is located within Commonwealth owned land known as the Googong Foreshores, which is managed by the ACT Government.

In NSW, the project is located within the Palerang local government area.

Further information on the study area in which the project is located is provided in chapter 3.

1.6 Summary of planning approval process

As the project is located in NSW and the ACT and impacts on Commonwealth owned land, different planning approval processes apply to the parts of the project located in each jurisdiction.

NSW requirements apply to:

- Approximately 10.2 km of pipeline;
- The outlet structure and the release of water within the Googong Foreshores; and
- The mini-hydro power facility.

ACT requirements apply to:

- The intake/low lift pump station;
- The high lift pump station;
- Approximately 2.8 km of pipeline; and
- The 11 KV power supply infrastructure.

Commonwealth requirements apply to the project overall, as well as to specific parts of the project that are located within the Googong Foreshore and designated areas under the National Capital Plan.

The planning approvals required for the project are described briefly below. The approval process, and other approvals and licences required are described in more detail in chapter 2.

1.6.1 NSW planning approval requirements

Part 3A of the *NSW Environmental Planning and Assessment Act 1979* applies to those parts of the project located in NSW. The project meets the definition of a pipeline listed in Schedule 1 Clause 26A of *State Environmental Planning Policy (Major Projects) 2005* as the proponent has made an application for a pipeline licence under the *NSW Pipelines Act 1967*. The application of Part 3A and the critical infrastructure status were confirmed by the Director General of the NSW Department of Planning on 14 August 2008. The project was declared 'critical infrastructure' under section 75C of the *Environmental Planning and Assessment Act 1979* on 10 July 2009.

The NSW Minister for Planning is the approval authority for those parts of the project located in NSW, and an environmental assessment (this document) is required to support the application for project approval in accordance with the requirements of the *NSW Environmental Planning and Assessment Act 1979*.

1.6.2 ACT planning approval requirements

The *ACT Planning and Development Act 2007* applies to those parts of the project located in the ACT. Section 123(b) of the *ACT Planning and Development Act 2007* states that the 'impact track' provisions of the Territory Plan applies to a proposal of the kind mentioned in Schedule 4. The project is considered to meet these definitions, and as such, an environmental impact statement is required.

The ACT Planning and Land Authority (ACTPLA) is the approval authority for those parts of the project located in the ACT, and an environmental impact statement (this document) is required to support the application for development approval in accordance with the requirements of the *ACT Planning and Development Act 2007*.

1.6.3 Commonwealth planning approvals

Part of the project where the pipeline crosses the Monaro Highway is located within a designated area under the National Capital Plan. Approval from the National Capital Authority is therefore required under the Commonwealth *Australian Capital Territory (Planning and Land Management) Act 1988*.

An approval from the Commonwealth Minister for the Environment, Heritage and the Arts under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* may be required. Commonwealth legislative requirements that apply to the project include:

- Impacts on Commonwealth land (Googong Foreshores); and
- Potential impacts of the whole project on Matters of National Environmental Significance.

Other approvals that may be required are listed in chapter 2.

1.6.4 A single environmental assessment document

To provide the context of the project as a whole, one environmental assessment document (this document) has been prepared to assess the overall environmental impacts of the project. This document has been prepared to meet the requirements of an environmental assessment under Part 3A of the NSW *Environmental Planning and Assessment Act 1979*, and a draft environmental impact statement under section 216(2) of the ACT *Planning and Development Act 2007*. Matters that are affected by the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* are also considered.

1.7 Purpose and structure of the environmental assessment / environmental impact statement

This assessment supports an application to the planning approval authorities for approval of the project. It provides:

- Information on the project, including the project need and alternatives considered;
- An assessment of the potential environmental impacts of the project in accordance with the NSW Director General's Requirements and the ACT final Scoping Document; and
- Information on the management and mitigation of impacts identified, including the proponent's commitments in terms of measures to minimise and manage potential environmental impacts.

The environmental assessment is structured as follows:

Volume 1 – Main Report

Volume 1 includes:

- **Part A** Introduction and context – provides an introduction to the environmental assessment (chapter 1); information on the assessment requirements under relevant legislation and environmental planning instruments and the methodology for the assessment (chapter 2); a description of the location and existing environmental features of the study area (chapter 3); and a summary of the consultation that occurred during the assessment process and planned consultation (chapter 4).
- **Part B** The project – describes the strategic context and need for the project, and the alternatives considered as part of the project development process (chapter 5); and includes a detailed description of the project (chapter 6).
- **Part C** Environmental values and impacts – based on the project described in Part B, this part provides an assessment of the potential environmental impacts of the project. It includes an environmental risk analysis identifying key potential environmental issues (chapter 8); and describes the results of the assessment of environmental issues identified by the NSW Director General's Requirements and the ACT final Scoping Document (chapters 9-26).

- **Part D** Conclusion and justification – for the project described in Part B, and considering the results of the assessment summarised in Part C, this part provides information on proposed environmental management and monitoring practices (chapter 27); a statement of commitments made by the proponent in relation to mitigation, management and monitoring of potential environmental impacts (chapter 28); and the project justification and conclusion to the environmental assessment (chapter 29).

Volume 2 and 3 – Appendices

Volume 2 and 3 contains the specialist reports prepared during project development and as part of the environmental assessment.

Chapter 2 The environmental assessment process

2.1 Overview

The project is located in both NSW and the ACT, and impacts on Commonwealth owned land (refer to Figure 1.1). As such, different approval processes apply to the parts of the project located in the different jurisdictions.

NSW legislative requirements apply to the construction and operation of:

- Approximately 10.2 km of pipeline;
- The discharge structure and release of water within the Googong Foreshores; and
- The mini-hydro power facility.

ACT legislative requirements apply to the construction and operation of:

- The intake/low lift pump station;
- The high lift pump station;
- Approximately 2.8 km of pipeline; and
- The power supply infrastructure.

In addition to these State and Territory requirements, there are Commonwealth legislative requirements that apply to the project:

- Impacts on Commonwealth land (Googong Foreshores); and
- Potential impacts of the whole project on Matters of National Environmental Significance.

This section outlines the relevant legislation applying in each jurisdiction, with a focus on the principal planning approval requirements, and defines the environmental assessment process. It also provides an outline of the methodology undertaken in the preparation of this assessment.

2.2 NSW statutory framework and approval process

2.2.1 Environmental Planning and Assessment Act 1979

The NSW *Environmental Planning and Assessment Act 1979* forms the statutory framework for planning approval and environmental assessment in NSW. Implementation of the NSW *Environmental Planning and Assessment Act 1979* is the responsibility of the Minister for Planning, statutory authorities and local councils.

The NSW *Environmental Planning and Assessment Act 1979* contains three schemes that impose requirements for planning approval:

- Part 3A provides for control of 'major projects' that require approval from the Minister for Planning;
- Part 4 provides for control of 'local development' that requires development consent from the local council; and
- Part 5 provides for control of 'activities' that do not require approval or development consent under Part 3A or Part 4.

The need or otherwise for development consent is set out in environmental planning instruments – State Environmental Planning Policies (SEPPs), Regional Environmental Plans (REPs) or Local Environmental Plans (LEPs).

Permissibility of the project

In NSW, the project is located in the Palerang local government area. The *Yarrowlumla Local Environmental Plan 2002* applies to the area of the local government area in which the project is located, and the project is located within the following zones:

- Zone No 1(a) – General Rural Zone;
- Zone No 1(d) – Rural Residential Zone;
- Zone No 5(a) – Water Catchment Zone; and
- Zone No 6(a) – Recreation Zone.

The zoning is shown in Figure 2.1.

Clause 11 of *Yarrowlumla Local Environmental Plan 2002* specifies what development is allowed or prohibited in each zone.

The project is considered to meet the definition of a ‘public utility undertaking’ as provided in the dictionary to *Yarrowlumla Local Environmental Plan 2002*:

‘public utility undertaking means a building, work or undertaking carried out under the authority of any Government agency or other public authority (including the Council), or in pursuance of any Commonwealth or State Act for the purpose of:

- (a) railways or roads, or*
- (b) railway, road, water or air transport, or wharf or river undertakings, or*
- (c) the provision of sewerage or drainage services, or*
- (d) the supply of water, hydraulic power, electricity or gas, or*
- (e) telecommunications facilities.’*

The project is considered to meet this definition as it is being undertaken for the supply of water in pursuance of the Commonwealth *Canberra Water Supply (Googong Dam) Act 1974*.

According to clause 11 of *Yarrowlumla Local Environmental Plan 2002*, public utility undertakings are permissible with development consent in each of the zones in which the project would be located.

Application of Part 3A of the NSW Environmental Planning and Assessment Act 1979

Part 3A of the *NSW Environmental Planning and Assessment Act 1979* establishes an assessment and approval regime for development that is declared to be a Part 3A project by either a State Environmental Planning Policy or Ministerial Order (section 75B).

According to section 75D(1) the Minister for Planning is the approval authority for Part 3A projects.

The proponent is seeking project approval from the Minister for Planning for the project under Part 3A of the *NSW Environmental Planning and Assessment Act 1979*. Part 3A applies because the project meets the definitions of a Part 3A project included within Schedule 1 of the *State Environmental Planning Policy (Major Projects) 2005* (the Major Projects SEPP).

The following Part 3A project definition is included in Schedule 1, clause 26A of the Major Projects SEPP:

‘26A Pipelines

Development for the purposes of a pipeline in respect of which:

- (a) a licence is required under the Pipelines Act 1967, or*
- (b) an application for a licence is made under that Act on or after the commencement of this clause, or*
- (c) a licence was granted under that Act before the commencement of this clause.’*

The project meets this definition as the proponent made an application for a licence under the *NSW Pipelines Act 1967* on 5 February 2009.

Section 75B(3) of the *NSW Environmental Planning and Assessment Act 1979* states:

'If part of any development is a project to which this Part applies, the other parts of the development are (subject to subsection (4)) taken to be a project to which this Part applies.'

This means that Part 3A applies to all those aspects of the project located in NSW.

The application of Part 3A was confirmed by a Minister's clause 6 opinion provided by the Director General of the NSW Department of Planning. The project has also been declared as 'critical infrastructure' under section 75C(1) of the NSW *Environmental Planning and Assessment Act 1979*, as it essential to the State for economic and social reasons, particularly in providing a secure water supply for the people of ACT and surrounding region.

The application of Part 3A and the critical infrastructure status were confirmed by the Director General of the NSW Department of Planning on 14 August 2008 and 10 July 2009, respectively. Copies of the declarations are provided in Appendix A.

2.2.2 Approval process and requirements

The approval process is summarised below and illustrated in Figure 2.2.

Agency consultation and the planning focus meeting

For some projects, the NSW Department of Planning convenes a planning focus meeting with relevant government authorities. The meeting provides a forum for participants to obtain information on the project, and discuss key issues and potential environmental impacts. Following the meeting, the Department seeks written comments from agencies on issues that should be addressed in the environmental assessment.

A planning focus meeting was held for the project on 4 September 2008. The meeting was attended by the proponent and the following organisations:

- NSW Department of Planning;
- Commonwealth Department of the Environment, Water, Heritage and the Arts;
- NSW Department of Environment and Climate Change;
- NSW Department of Water and Energy;
- Queanbeyan City Council;
- Palerang Council;
- ActewAGL.

Further details of the consultation process are outlined in chapter 4.

Addressing the Director General's requirements

Under clause 75F of the NSW *Environmental Planning and Assessment Act 1979*, the Director-General is required to prepare and issue the proponent with requirements for undertaking the environmental assessment. These identify key issues to be addressed and the level of assessment required.

The proponent was notified of the requirements for the environmental assessment of the project (the Director-General's Requirements) on 7 October 2008. A copy of the requirements is included in Appendix A, along with a summary of the assessment requirements which outline the section of this document that addresses these requirements.

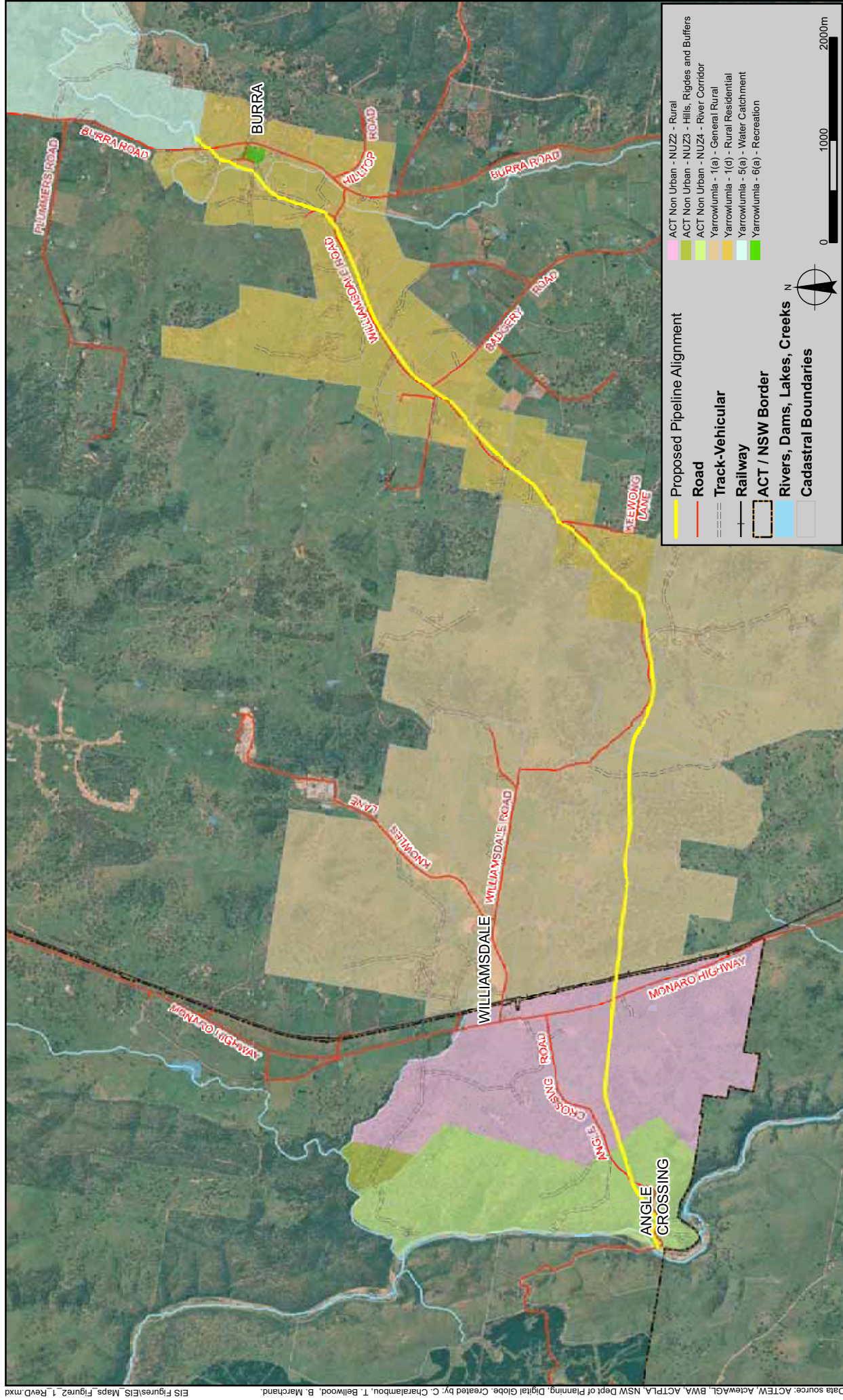


Figure 2.1 Land zoning in the vicinity of the project

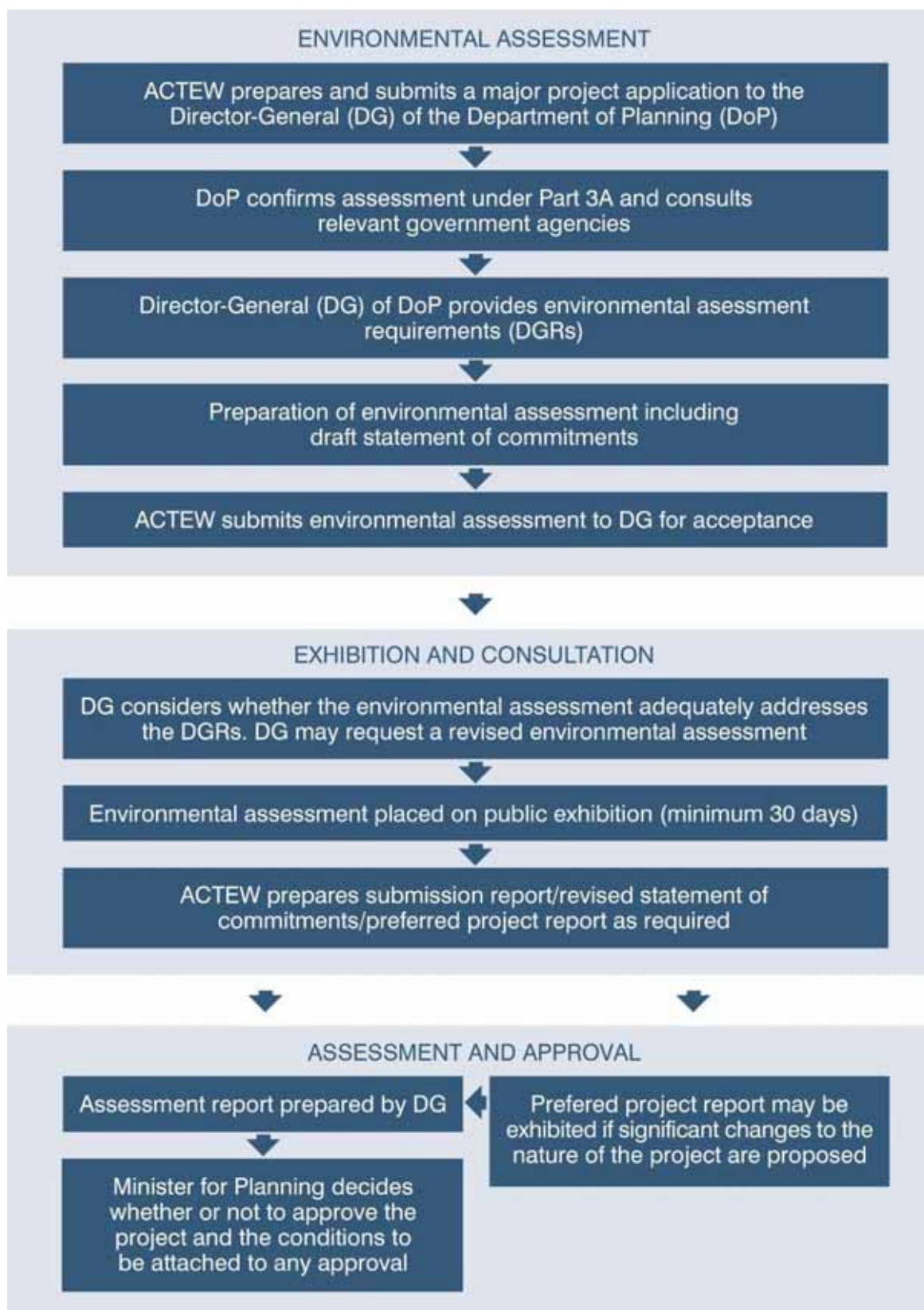


Figure 2.2 NSW approval process

Exhibition

If the environmental assessment is considered to meet the Director-General's requirements, the NSW Department of Planning will place it on public exhibition for at least 30 days. During the exhibition period, submissions are invited from relevant agencies and members of the community.

The NSW Department of Planning will provide the proponent with a copy of the submissions or a summary of the issues raised in the submissions. The proponent will be asked to respond to the issues and may modify the project and the draft Statement of Commitments to minimise impacts on the environment, if required.

If the project or statement of commitments are modified in response to issues raised, a preferred project report would be prepared to describe the scope of the revised project. The Director-General would make this report public.

Assessment and determination

Following the exhibition period, the NSW Department of Planning would, on behalf of the Minister, review the environmental assessment, any preferred project report, and submissions received. Once the Department has completed its assessment, a draft assessment report would be prepared for the Director-General, which may include recommended conditions of approval.

The recommended conditions would refer to the Statement of Commitments and may modify them and/or add additional provisions.

The assessment report would then be submitted to the Minister for determination. The Minister may refuse the project, or approve it with any conditions considered appropriate.

The Minister's determination and the Director-General's report would be published on the NSW Department of Planning's web site immediately following determination.

2.2.3 Other relevant environmental legislation

In addition to the NSW *Environmental Planning and Assessment Act 1979*, there are a number of relevant NSW environmental legislative requirements, as discussed below.

Relationship to the NSW Environmental Planning and Assessment Act 1979

Section 75U(1) of the NSW *Environmental Planning and Assessment Act 1979* identifies the approvals and licences under other NSW legislation that are not required for an 'approved project' under Part 3A:

- '(a) the concurrence under Part 3 of the Coastal Protection Act 1979 of the Minister administering that Part of the Act,*
- (b) a permit under section 201, 205 or 219 of the Fisheries Management Act 1994,*
- (c) an approval under Part 4, or an excavation permit under section 139, of the Heritage Act 1977,*
- (d) a permit under section 87 or a consent under section 90 of the National Parks and Wildlife Act 1974,*
- (e) an authorisation referred to in section 12 of the Native Vegetation Act 2003 (or under any Act to be repealed by that Act) to clear native vegetation or State protected land,*
- (f) a permit under Part 3A of the Rivers and Foreshores Improvement Act 1948,*
- (g) a bush fire safety authority under section 100B of the Rural Fires Act 1997,*
- (h) a water use approval under section 89, a water management work approval under section 90 or an activity approval under section 91 of the Water Management Act 2000.'*

Section 75U (2) of the Act also states that:

'Division 8 of Part 6 of the Heritage Act 1977 does not apply to prevent or interfere with the carrying out of an approved project.'

Section 75A defines 'approved project' as *'a project to the extent that it is approved by the Minister under this Part, but does not include a project for which only approval for a concept plan has been given'*.

Consequently, if the Minister grants project approval to carry out the project under Part 3A, the approvals identified by section 75U(1) would not be required.

Section 75V of the NSW *Environmental Planning and Assessment Act 1979* stipulates approvals and legislation that must be applied consistently to the approval of a project under Part 3A:

'(1) An authorisation of the following kind cannot be refused if it is necessary for carrying out an approved project and is to be substantially consistent with the approval under this Part:

- (a) an aquaculture permit under section 144 of the Fisheries Management Act 1994,*
- (b) an approval under section 15 of the Mine Subsidence Compensation Act 1961,*
- (c) a mining lease under the Mining Act 1992,*
- (d) a production lease under the Petroleum (Onshore) Act 1991,*
- (e) an environment protection licence under Chapter 3 of the Protection of the Environment Operations Act 1997 (for any of the purposes referred to in section 43 of that Act),*
- (f) a consent under section 138 of the Roads Act 1993,*
- (g) a licence under the Pipelines Act 1967.'*

Water Management Act 2000 and Water Act 1912

The NSW *Water Management Act 2000* and NSW *Water Act 1912* control the extraction of water, the use of water, the construction of works such as dams and weirs and the carrying out of activities in or near water sources in NSW. The provisions of the *Water Management Act 2000* are being progressively implemented to replace the *Water Act 1912*. Since 1 July 2004 the new licensing and approvals system has been in effect in those areas of NSW covered by operational water sharing plans – these areas cover most of the State's major regulated river systems and therefore the largest areas of water extraction. As water sharing plans are finalised and commenced for the rest of the state, the licensing provisions of the *Water Management Act* are introduced extending the benefits for the environment of defined environmental rules and for licence holders of perpetual water licences and greater opportunities for water trading.

The project involves the discharge of raw water into Burra Creek within NSW. There is currently no water sharing plan for Burra Creek. As such, the *Water Management Act* would not apply to the project and the provisions of the *Water Act 1912* would apply. These provisions are discussed below.

The purpose of the *Water Act 1912* primarily relates to the control of water extraction from streams, and the return of effluent (that is, potentially polluted water) to waterways. As the initial extraction of water would not occur within NSW and raw water, as opposed to effluent, would be discharged into Burra Creek, neither a licence nor permit would be required for the project in accordance with the provisions of the *Water Act 1912*.

Furthermore, the NSW Department of Water and Energy has confirmed that there are currently no licensed water diverters on Burra Creek. Hence, there is no short term risk of licensed loss of water discharged to Burra Creek as part of the project. If an occupier were to submit a licence application for water extraction and/or diversion in the future, the Department of Water and Energy would consider special arrangements for this lower section of Burra Creek.

The NSW Department of Water and Energy has indicated that water licences may be required under Part 5 of the *Water Act 1912* should groundwater be intercepted during construction in a volume that would necessitate dewatering. Due to the imposition of the NSW Inland Water Shortage Orders No.1 and 2-2008, early consideration of this issue should be undertaken to avoid delays in obtaining any necessary approval.

As identified above, the project is exempt from requiring authorisations under the *Water Management Act 2000* and *Water Act 1912* (except if a licence is required for dewatering during construction). Nonetheless, the objectives of these Acts are considered relevant to the project and have been duly taken into consideration. Furthermore, the Department of Water and Energy has been consulted about the project and was represented at the planning focus meeting for the project held on 4 September 2008. The issues raised by the Department of Water and Energy at the planning focus meeting are addressed by this environmental assessment.

Protection of the Environment Operations Act 1997

The NSW *Protection of the Environment Operations Act 1997* regulates water, air, and noise pollution in NSW. The NSW Minister for the Environment administers the *Protection of the Environment Operations Act 1997*. Chapter 3 of the *Protection of the Environment Operations Act 1997* covers the issue of environment

protection licences, with section 43 setting out the purposes for which licences can be issued. Environment protection licences are generally issued for scheduled activities or scheduled development work.

The project involves the discharge of raw water into NSW waters. This does not constitute a scheduled activity in accordance with Schedule 1 of the *Protection of the Environment Operations Act 1997*.

Furthermore, the project does not constitute 'scheduled development work', which is defined as:

'work at any premises at which scheduled activities are not carried on that is designed to enable scheduled activities to be carried on at the premises'

as well as anything that is specified by the regulations as such.

As the project is neither a scheduled activity nor scheduled work as defined by the *Protection of the Environment Operations Act 1997*, it is considered that no licence would be required for the project under the *Protection of the Environment Operations Act 1997*.

Pipelines Act 1967

Section 11 of the NSW *Pipelines Act 1967* outlines the licensing requirements for pipelines as follows:

'(1) A person shall not:

(a) commence, or continue, the construction of a pipeline, or

(b) alter or reconstruct a pipeline,

unless the person is, or is acting on behalf of, the registered holder of a licence and the activity is in pursuance of the licence.

(2) A person shall not operate a pipeline:

(a) unless the person is, or is acting on behalf of, the registered holder of a licence and the operation is in pursuance of the licence, and

(b) unless he or she has obtained the consent of the Minister under section 25 to the commencement or resumption, as the case may be, of the operations and commences or resumes the operations and thereafter operates the pipeline in accordance with the conditions, if any, to which the instrument of consent is for the time being subject.'

Section 5 of the NSW *Pipelines Act 1967* identifies those pipelines that do not require a licence under the *Pipelines Act 1967*. This includes 5(1)(d):

'a pipeline constructed or to be constructed for the purpose of the supply of water (including for irrigation), the drainage of land or the conveyance of waste water, mine water, aqueous slurries of minerals, mineral concentrates or mineral tailings.'

As the project would be constructed for the purpose of supplying water, a licence would not be required for the pipeline under the NSW *Pipelines Act 1967*.

However, section 5(1) goes on to state that:

'...nothing in this section prevents a person from making any application under this Act in respect of any such pipeline or apparatus or works or from being granted and holding a licence in respect of the construction or operation of such a pipeline.'

Section 12 states that:

'Any person who proposes to construct a pipeline may apply to the Minister for a licence.'

There is a need to acquire easements or land for the construction and ongoing operations and maintenance of the project.

In order to facilitate this process, an application was made to the NSW Department of Water and Energy for a pipeline licence for the project on 5 February 2009. If the project is approved by the Minister for Planning under Part 3A, then the pipeline licence cannot be refused.

Roads Act 1993

Section 138 of the NSW *Roads Act 1993* states:

'(1) A person must not:

(a) erect a structure or carry out a work in, on or over a public road, or

(b) dig up or disturb the surface of a public road, or

- (c) remove or interfere with a structure, work or tree on a public road, or
- (d) pump water into a public road from any land adjoining the road, or
- (e) connect a road (whether public or private) to a classified road, otherwise than with the consent of the appropriate roads authority.'

Sections of the project would be constructed within a number of public road reserves in NSW.

Section 138(5) of the *Roads Act 1993* states that section 138 applies:

'despite the provisions of any other Act or law to the contrary, but does not apply to anything done under the provisions of the Pipelines Act 1967...'

As such, consent under section 138 of the *Roads Act 1993* would not be required for the project provided a pipeline licence is granted.

2.3 ACT statutory framework and approval process

There are two Acts that contain the core legislation relating to planning and development activities that are undertaken in the ACT. These are the Commonwealth *Australian Capital Territory (Planning and Land Management) Act 1988* and the *ACT Planning and Development Act 2007*.

The *Australian Capital Territory (Planning and Land Management) Act 1988* is Commonwealth legislation that establishes the National Capital Authority as the Commonwealth government agency with responsibility to prepare and administer a National Capital Plan. This plan sets out designated areas within the ACT, within which the National Capital Authority is responsible for approval of any development. The *Australian Capital Territory (Planning and Land Management) Act 1988* is discussed in section 2.4.

The *ACT Planning and Development Act 2007* is ACT legislation that applies to development proposals within the remainder of the ACT that is not within the *Australian Capital Territory (Planning and Land Management) Act 1988* Act designated areas. This Act and other relevant ACT legislation is discussed below.

2.3.1 Planning and Development Act 2007

The *ACT Planning and Development Act 2007* came into effect on 31 March 2008 and reformed the planning system within the ACT. The reforms to the planning system included:

- A restructured Territory Plan;
- An updated development assessment process; and
- Replacement of preliminary assessments with an environmental impact statement process.

In accordance with the *ACT Planning and Development Act 2007*, the ACT Planning and Land Authority (ACTPLA) administers the Territory Plan. This is the primary statutory planning document against which development proposals are assessed.

The Territory Plan identifies land zoning in all areas of the territory. The nature of the approval process depends on the nature of the project and the zoning of the land that the project will affect.

Development applications, as required under the *ACT Planning and Development Act 2007*, are assessed in one of three tracks of increasing complexity reflecting the nature of the proposal. The three tracks are code, merit and impact.

The Territory Plan

The Territory Plan is the key statutory planning document in the ACT, providing the policy framework for the administration of planning in the ACT. The Territory Plan includes a map (the Territory Plan Map) which sets out zones and precincts in the ACT, and development tables applying to each zone which identify the assessment track applicable to particular types of development within the zone.

Under the definitions of the Territory Plan, the project would be classified as a 'major utility installation', as the project meets the definitions of a 'major pump station' and 'major service conduits'. A major pump

station includes any water supply pump station with a capacity of greater than 500 litres per second. A major service conduit includes bulk water supply mains with a diameter of 675 mm or greater.

The project is located on lands within the River Corridor Zone (NUZ4) and the Rural Zone (NUZ2), as identified by the Territory Plan Map. The development tables for both zones identify that the merit assessment track applies to development for the purposes of a major utility installation in these zones.

Impact track assessment

Notwithstanding that the Territory Plan identifies that the merit assessment track applies, any proposed development may be escalated to the impact assessment track for reasons outlined in the *Planning and Development Act 2007* and Territory Plan. The impact track applies to proposals that:

- Are listed in a development table in the Territory Plan as requiring impact assessment;
- Would trigger an environmental impact statement (Schedule 4 of the ACT *Planning and Development Act 2007*);
- Are not foreseen in the development table;
- Are declared by the Planning Minister or the Minister for Public Health to be subject to impact track assessment; or
- Are declared by the Commonwealth Minister responsible for the *Environmental Protection and Biodiversity Conservation Act 1999* to be controlled actions under that Act but that may be assessed under the ACT *Planning and Development Act 2007*.

Schedule 4 of the ACT *Planning and Development Act 2007* identifies activities and processes that require an environmental impact statement. It includes a number of likely 'triggers' associated with the project including:

- '1 A proposal that is likely to adversely impact on the conservation status of—
 - a) a species or ecological community that is endangered; or
 - b) a species that is vulnerable; or
 - c) a species that is protected; or
 - d) a species with special protection status; or
 - e) a species or ecological community if the flora and fauna committee has specified criteria for assessing whether the committee should recommend the making of a declaration under the Nature Conservation Act 1980, section 38 (Declaration of species, community or process) in relation to the species or ecological community; or

Note Criteria are specified under the Nature Conservation Act 1980, s 35. An instrument under that Act, s 35 is a disallowable instrument and must be notified, and presented to the Legislative Assembly, under the Legislation Act.

 - f) an endangered species, an endangered population, an endangered ecological community, a critically endangered species, a critically endangered ecological community or presumed extinct under the Threatened Species Conservation Act 1995 (NSW), if the potential impact of the proposal will be on the species or community in New South Wales
- 2 proposal that is likely to contribute to a threatening process in relation to a species or an ecological community
- 3 proposal involving—
 - a) the clearing of more than 0.5ha of native vegetation; or
 - b) the clearing of native vegetation if the clearing could have a significant impact on land identified in a nature conservation strategy, or action plan, under the Nature Conservation Act 1980 or a biodiversity corridor...
- 5 proposal with the potential to have a significant impact on—
 - a) a domestic water supply catchment; or
 - b) a water use purpose mentioned in the territory plan (water use and catchment general code); or
 - c) a prescribed environmental value mentioned in the territory plan, (water use catchment general code) of a natural waterway or aquifer

- 6 *proposal that is likely to result in environmentally significant water extraction or consumption, other than a proposal for the use of a stormwater system or other wastewater reuse scheme that is part of a residential subdivision and is a water sensitive urban design.'*

It is considered that the project would trigger items 3, 5 and 6, and has the potential to impact on significant species (as per items 1 and 2). As a result, it would fall within the impact assessment track.

All projects assessed under the impact track require an environmental impact statement (ACT *Planning and Development Act 2007* section 127), unless specifically exempted by the Minister. The proponent has not sought and the Minister has not granted exemption for this project.

2.3.2 Approval process and requirements

The process for the preparation of an environmental impact statement (as described in the Act and Regulation) is described below:

- The proponent lodges a description of the proposal and requests an environmental impact statement scoping document from the planning authority (the Act, s. 212);
- ACTPLA prepares scoping documentation and circulates the documentation to those entities defined in section 51 of the Regulation;
- In this circulation, ACTPLA seeks input from agencies and stakeholders, and identifies potentially significant environmental impacts that must be addressed in the environmental impact statement;
- ACTPLA issues an Environmental Impact Statement Scoping Document which forms the basis of the environmental impact statement to be prepared. It specifies all the matters to be addressed in the environmental impact statement (s.54 of the Regulation). The purpose of scoping is to ensure that the environmental impact statement is focused on those matters with the potential to cause a significant environmental impact;
- The proponent prepares a draft environmental impact statement to address the requirements outlined in the scoping document and lodges it with ACTPLA;
- The draft environmental impact statement is put on public display by ACTPLA with agencies, stakeholders and the wider community given the opportunity to comment on the project, the possible impacts and the proposed environmental controls;
- The proponent prepares a final environmental impact statement and a consultation report that responds to all of the issues raised during public display; and
- The environmental impact statement is considered by ACTPLA and the Minister. There are opportunities for the authority to seek responses to outstanding matters, or for the Minister to call for an inquiry.

The environmental impact statement is completed when any of the following events occur:

- The Minister gives ACTPLA a notice of no action in relation to the environmental impact statement;
- The Minister decides not to establish a panel to conduct an inquiry about the environmental impact statement;
- The Minister has established an inquiry panel for the environmental impact statement and the panel has reported the results of the inquiry; or
- The time for reporting (section 230) has ended.

Once the environmental impact statement is deemed complete, the proponent may lodge a Development Application for the project with the completed environmental impact statement as supporting documentation.

The development application will be placed on public display by ACTPLA (notified) for a minimum period of 15 days giving the community the opportunity to comment on the final environmental impact statement incorporating outcomes and responses to previous community consultation. The time for deciding a

Development Application in the Impact Track is 30 working days (after the day that the application is made) if no representations are made, or 45 working days in any other case.

The Development Application will then be assessed, having regard to the following statutory requirements:

- The relevant Code of the Territory Plan;
- Suitability of the land for the development;
- All representations;
- Referral entity advice;
- A plan of management for any public land;
- Probable impact of the development, including environmental impact;
- Completed environmental impact statement for the proposal; and
- Conclusions of any inquiry about an environmental impact statement for the proposal.

The approval of the Development Application provides the proponent with the planning consent to construct the proposed works. The Notice of Decision of an approval may include any conditions that ACTPLA consider important to be fulfilled in acting on the decision. Conditions often relate to matters to be finalised immediately (within a set timeframe e.g. 28 days), prior to construction commencing and/or prior to construction being completed.

The Minister may 'call in' the Development Application at any time, in which case the Minister makes the determination on the application.

This process is depicted in Figure 2.3.

The proponent was notified of the requirements for the environmental impact statement for the project (the Scoping Document) on 16 December 2008. A copy of the Scoping Document is included in Appendix A, along with a summary of the assessment requirements which outlines the section of this document that addresses those requirements.

2.3.3 Other relevant environmental legislation

In addition to the ACT *Planning and Development Act 2007*, there are a number of relevant ACT environmental legislative requirements, as discussed below.

Water Resources Act 2007

The ACT *Water Resources Act 2007* has two relevant requirements. Firstly, the *Water Resources Act 2007* sets out the licensing requirements to take water in the ACT and secondly, require specific permission to be sought before undertaking works in a waterway.

The *Water Resources Act 2007* prescribes which activities must be licensed for water use and where a license to take water is required. The proponent already holds licences to take water for drinking water purposes in the ACT. Any amendment required to ACTEW's current licences would be subject to a separate process.

The *Water Resources Regulation 2007* provides that application may be made for exemption from a licence to take water for construction purposes. An exemption would be sought to use water from the Murrumbidgee River at Angle Crossing for construction purposes.

It is anticipated that the construction of the intake facility would require a waterway work licence under the *Water Resources Act 2007*.

This approval would be sought once the design is resolved. While there is no statutory timeframe for obtaining such an approval, the typical turnaround is relatively short and would be undertaken while the Development Application is being assessed.

Environment Protection Act 1997

The ACT *Environment Protection Act 1997* provides the regulatory framework to protect the environment from pollution and its effects in the ACT. The Act establishes the ACT Environment Protection Authority (EPA) as the statutory decision maker for environmental regulation and policy. The EPA administers legislation covering air and water quality, waste, contaminated land, noise control and hazardous chemicals.

Under the *Environment Protection Act 1997* there is a general environmental duty to take steps that are practicable and reasonable to prevent or minimise environmental harm or environmental nuisance. Causing pollution of water, significant erosion or loss of soil, contaminating soil and groundwater could be considered to cause environmental harm or environmental nuisance.

Under the *Environment Protection Act 1997*, an Environmental Authorisation is needed to undertake certain activities (Class A activities). An Environmental Protection Agreement or an Environmental Authorisation is needed to undertake other activities (Class B activities). The extraction of material (other than water) from a waterway is a Class A activity and therefore an Environmental Authorisation is required. The placement of more than 100 m³ of soil on land in the ACT is also a Class A activity and would also require authorisation. The EPA may also require an Environmental Protection Agreement to be entered into for undertaking activities associated with the project that are not Class A or Class B activities.

The necessary authorisation can be acquired in parallel with the development approval.

Building Act 2004

The ACT *Building Act 2004* applies to building work (including basic and specialist building work), site works and non-structural work. The *Building Act 2004* sets out requirements relating to building matters including building approvals, commencement, undertaking and completion of building work, building occupancy and building certification, building work administration (building work inspection), building codes and recognised standards and liability.

The project includes the construction of structures that require building approval under the *Building Act 2004*.

Heritage Act 2004

The ACT *Heritage Act 2004* protects heritage items, Aboriginal places and objects and makes it an offence to diminish or damage their significance without authorisation. A description of the heritage items in and around the project area, their significance and the provisions of the *Heritage Act 2004* requirements associated with these artefacts and places are presented in chapters 14 and 15.

Nature Conservation Act 1980

The ACT *Nature Conservation Act 1980* provides for the protection of native flora and fauna. It also provides for the listing of species for protected status and the creation of reserve areas. A licence is required for any disturbance to flora and fauna that is protected by the *Nature Conservation Act 1980*, or for impacts on a nature reserve. The Angle Crossing area is a nature reserve under the *Nature Conservation Act 1980*, so a licence would be required for the impact on the reserve.

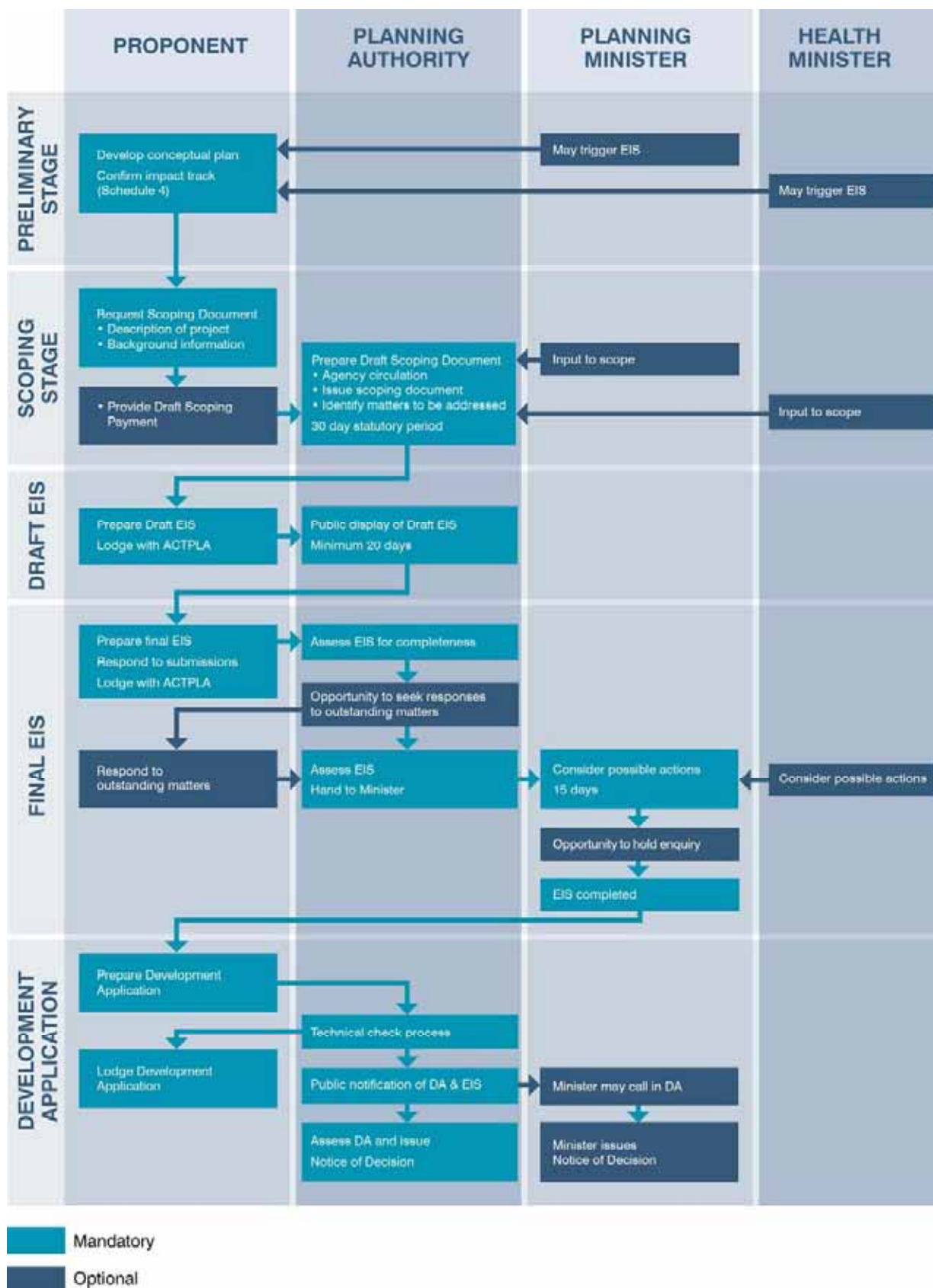


Figure 2.3 Flow chart for impact track approvals in the ACT

Utilities Act 2000

Section 3 of the ACT *Utilities Act 2000* outlines the objectives under this Act. These include:

- '(a) To encourage the provision of safe, reliable, efficient and high quality utility services at reasonable prices.*
- (d) To encourage long term investment, growth and employment in utility service industries.*
- (e) To promote ecologically sustainable development in the provision of utility services.*
- (h) To ensure the Government's programs about the provision of utility services are properly addressed.'*

The *Utilities Act 2000* states in section 11 that the collection of water is a water service and that the infrastructure associated the collection of water (from the Murrumbidgee River) is part of the water network.

Part 4 of the Act makes provision for the establishment of industry codes that may set out '*practices, standards and other matters about the provision of a utility service*'. Section 64 provides for the establishment of technical codes (requirements) for a number of purposes including, '*to ensure ... that a network facility (infrastructure) has particular design features, or meets performance requirements stated in a relevant industry code*', and also '*protecting private and public property and the environment*'.

The proponent is not aware of the existence of any adopted industry and/or technical codes that apply to these works within the ACT.

Given the requirement for a full impact track assessment under the ACT *Planning and Development Act 2007*, it is considered that the requirement for protection of the environment in the design, construction and operation of the proposed infrastructure under the *Utilities Act 2000* would be met once other planning and related approvals are met.

The *Utilities Act 2000* provides powers to the Territory to enter and carry out work on land that is necessary for the installation of territory network facilities. These powers include conducting surveys, taking soil and other samples or investigations, removal of vegetation, construction and operation of plant and machinery, earthworks, road construction and the like. These powers are subject to either the Executive having an interest in the land or the owner/custodian agreeing to the action.

It is important to note that notwithstanding the provisions of the *Utilities Act 2000*, all requirements of other legislation (including the Environment Protection Act and ACT *Planning and Development Act 2007*) apply.

The *Utilities Act 2000* (section 104) states that a utility may compulsorily acquire land (including an interest in land) for the purpose of exercising functions under the *Utilities Act 2000*. The acquisition must be in accordance with the *Land Acquisitions Act 1994*.

Fisheries Act 2000

The objects of the ACT *Fisheries Act 2000* are to conserve native fish species and their habitats; manage sustainably the fisheries of the ACT, provide high quality and viable recreational fishing; and to cooperate with other Australian jurisdictions in sustaining fisheries and protecting native fish species.

The *Fisheries Act 2000* emphasises protection of ACT native fish species through the introduction of recreational angling rules on size and bag limits, fishing gear restrictions, fishing closures and for several species, a closed season. The *Fisheries Act 2000* also makes ACT legislation consistent with the corresponding fisheries legislation in NSW, thus minimising potential confusion when anglers cross the State/Territory border.

Under section 13 of the *Fisheries Act 2000* Prohibited Waters are declared to protect vulnerable populations of fish or significant fish habitats. These declared areas include the Murrumbidgee River downstream of Angle Crossing to the junction with the Gudgenby River, and are specifically closed to fishing to protect threatened fish species such as Macquarie Perch and Trout Cod. The project does not impact on the provisions included within this *Fisheries Act 2000*.

2.4 Commonwealth statutory framework and approval process

2.4.1 Australian Capital Territory (Planning and Land Management) Act 1988

The *Australian Capital Territory (Planning and Land Management) Act 1988* is Commonwealth legislation that establishes the National Capital Authority as the Commonwealth government agency with responsibility to prepare and administer a National Capital Plan.

National Capital Plan

The National Capital Plan sets out designated areas within the ACT within which the National Capital Authority is responsible for approval of any development. The designated areas include the central national area, the inner hills and the main avenues and approach routes. The only designated area within the pipeline corridor is the Monaro Highway Corridor, which will be intersected by the pipeline route. Approval for work within this area is therefore required from the National Capital Authority.

The National Capital Plan identifies land use categories and policies for all land within the Territory. These policies provide a framework for land use and development within which the territory operates. The relevant land use policies for the project are the river corridors and rural policies. The river corridor policy is a subset of the National Capital Open Space System policy. The National Capital Plan specifically refers to the Murrumbidgee River Corridor at Appendix F. In its assessment of the environmental impact statement, ACTPLA will be required to confirm that the project is consistent with the National Capital Plan and associated policies.

The National Capital Plan also identifies special requirements for some areas within the Territory, which are not designated areas. Where special requirements have been identified, development approval is the responsibility of ACTPLA. In these circumstances, ACTPLA must ensure that any approval granted is consistent with the special requirements of the National Capital Plan. Special requirements primarily relate to the visual impact of the works. Those applicable to the pipeline corridor include those that flank the Monaro Highway (outside the road reserve but within 200 m of the road centreline), and those for the Murrumbidgee River Corridor.

2.4.2 Environment Protection and Biodiversity Conservation Act 1999

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) prescribes the Commonwealth's role in environmental assessment, biodiversity conservation and the management of protected areas and species, populations and communities, and heritage items. The *Environment Protection and Biodiversity Conservation Act 1999* applies to all land, waters, seabed and airspace in, under or above Australia.

Approval under the *Environment Protection and Biodiversity Conservation Act 1999* is required for:

- An action which has, will have or is likely to have a significant impact on 'matters of national environmental significance';
- An action by the Commonwealth or a Commonwealth agency which has, will have or is likely to have a significant impact on the environment;
- An action on Commonwealth land which has, will have or is likely to have a significant impact on the environment; or
- An action, which has, will have, or is likely to have, a significant impact on the environment on Commonwealth land, no matter where it is to be carried out.

Where the proponent considers that an action will have or is likely to have a significant impact on matters of national environmental significance, or on Commonwealth land, a referral is made to the Commonwealth Department of Environment, Water, Heritage and the Arts (DEWHA). The proponent may also, but is not required to, make a referral where they consider that the action will not have or is not likely to have a significant impact.

If it is determined through the referral process by DEWHA that a project is likely to have a significant impact on a matter of national environmental significance, or on Commonwealth land, then the project is a controlled

action and approval from the Commonwealth Minister for the Environment, Heritage and the Arts would be required.

Matters of National Environmental Significance

Matters of national environmental significance include:

- The World Heritage values of a declared World Heritage property;
- The National Heritage values of a listed National Heritage place;
- The ecological character of a declared Ramsar wetland;
- Listed threatened species and ecological communities;
- Listed migratory species;
- The Commonwealth marine environment; and
- Nuclear actions.

Further information on the application of the *Environment Protection and Biodiversity Conservation Act 1999* is provided in chapter 26.

An assessment of the potential ecology issues undertaken by the aquatic and terrestrial ecological impact assessments has determined that, providing the mitigation measures contained in this environmental assessment are implemented, it is unlikely that the project would have a significant impact on aquatic and terrestrial threatened species or ecological communities, or heritage matters of national environmental significance. Nevertheless, a referral will be submitted to the DEWHA for further consideration of the predicted impacts to high quality Box Gum Grassy Woodland Endangered Ecological Community, Pink-tailed Worm Lizard habitat, Trout Cod and Macquarie Perch habitat.

The proponent is currently in the process of preparing the referral and it is expected that this will be lodged with DEWHA shortly. The assessment requirement and associated timeframes to obtain Commonwealth approvals are dependant on the Commonwealth decision whether to 'control' the activity and the assessment process required for approval by them. The proponent is aiming to achieve Commonwealth approval in a similar timeframe to obtaining NSW and ACT planning approval.

Commonwealth land – Googong Foreshores

As discussed in section 2.4.3, the project includes Commonwealth owned land, comprising part of the Googong Foreshores. Under the terms of the sublease of the Googong Dam, the proponent is required to refer any proposed action, including any enlargement, expansion or intensification of a permitted use, which may have an impact on the environment, even where it is considered that there would not be a significant impact.

Further information on the application of the *Environment Protection and Biodiversity Conservation Act 1999* is provided in chapter 26.

2.4.3 Other relevant environmental legislation

Water Act 2007 (Commonwealth)

On 3 March 2008 the Commonwealth's *Water Act 2007* came into effect. This legislation was enacted to make provision for the management of water resources in the Murray-Darling Basin.

In this context it is important to address the *Water Act 2007*, even though its implications for the project are indirect and relatively limited compared to other legislation described.

The relevant objects of the *Water Act 2007* with respect to the Murray-Darling Basin (paraphrased below) are:

- To enable the Commonwealth, in conjunction with the Basin States, to manage the Basin water resources in the national interest;

- To give effect to relevant international agreements which may address the threats to the Basin's water resources;
- To provide for matters of national interest in relation to water resources, while optimising environmental, economic and social outcomes;
- To ensure the return to environmentally sustainable levels of extraction for water resources that are over-allocated or overused;
- To protect, restore and provide for the ecological values and ecosystem services of the Murray-Darling Basin; and
- To maximise the net economic returns to the Australian community from the use and management of the Basin's water resources.

To ensure that these objects are implemented, the *Water Act 2007* and recent amendments have provided for the creation of an independent Murray-Darling Basin Authority with the functions and powers needed to ensure that Basin's water resources are managed in an integrated and sustainable way. In December 2008 the Authority replaced and absorbed all the functions of the former Murray-Darling Basin Commission.

For the Authority to carry out its functions, the *Water Act 2007* requires it to prepare a strategic plan for the integrated and sustainable management of water resources in the Basin. This plan is referred to as the *Basin Plan*, and the *Water Act 2007* stipulates that its contents must include:

- Limits on the amount of water that can be taken from the Basin;
- Management of surface and ground water resources on a sustainable basis;
- Identification of risks to basin water resources;
- An environmental watering plan to optimise environmental outcomes for the Basin; and
- A water quality and salinity management plan and rules about trading of water rights in relation to Basin water resources.

In March 2008 the Commonwealth and Basin States, including the ACT, agreed to a *Memorandum of Understanding* in order to implement co-operative, efficient and effective governance arrangements in the Murray-Darling Basin. Participants later signed an *Intergovernmental Agreement on Murray-Darling Basin Reform* to give effect to the *Memorandum of Understanding*. Under the *Intergovernmental Agreement*, governments committed to a new culture and practice of basin-wide management and planning, through new structures and partnerships.

Given that the project would be operated under the water take allowance as per the agreed cap it is considered that the project is unlikely to impact upon the objects of the *Water Act 2007* or Basin Plan, or contradict terms of the *Intergovernmental Agreement*. It can therefore be concluded that the implications of the *Water Act 2007* for the project are relatively limited (compared to the other legislation described above).

Under the Murray Darling Basin Agreement, the ACT adheres to a Water Abstraction Cap of 42 GL/year net. The project would not result in any exceedance of the current CAP.

Canberra Water Supply (Googong Dam) Act 1974

The pipeline corridor traverses Commonwealth owned land, comprising part of the Googong Foreshores. The Googong Foreshores is an area encompassing 5,089 ha, surrounding and including the Googong Dam and part of its tributaries to the south. The Googong Foreshores lie within NSW state boundaries, to the southeast of the ACT. The land represents that defined in the *Canberra Water Supply (Googong Dam) Act 1974* as the Googong Dam area. The Commonwealth acquired this land from NSW in 1973 for the purpose of constructing the Googong Dam.

The ACT Government has vested responsibility for the management of the Googong Foreshores area and ACTEW is responsible for the water resource it contains. Specifically, the '*operation, maintenance,*

upgrading and augmentation of water supply and treatment infrastructure within the Googong Dam area'. The responsibility for dam operation is vested in ACTEW via a written instrument by the ACT Executive (dated 13 August 2003), which appoints ACTEW as an authorised person for the purposes of the *Canberra Water Supply (Googong Dam) Act 1974* (permitted under section 7 of the Act). Both the ACT Government and ACTEW conduct their respective responsibilities for management of the Googong Foreshores on behalf of the ACT Executive. There are no approval requirements for this project under the *Canberra Water Supply (Googong Dam) Act 1974* since the intended outcomes are in line with the functions outlined in the Act.

As land acquired by the Commonwealth, the Googong Foreshores remain part of NSW (unlike a 'territory'). As such, NSW laws apply to this section of the pipeline corridor where they are capable of operating concurrently with the *Canberra Water Supply (Googong Dam) Act 1974* (as stated in section 27). In the event of contradiction of law, Commonwealth legislation takes precedence over any other.

This interpretation of this legislative framework is mirrored in *Cross Border Water Supply between the ACT and NSW* (Government of NSW, Government of Australian Capital Territory and Government of Australia, 2006), which states that the ACT has overall management responsibility for water supply and land management with the Googong Dam area, and the power to carry out works in NSW necessary for Territory water supply.

Development within the Googong Foreshores, where consistent with the Commonwealth's *Canberra Water Supply (Googong Dam) Act 1974*, is controlled mainly under the provisions of the NSW *Environmental Planning and Assessment Act 1979*, as discussed in section 2.2.1.

2.5 Summary of approvals required

Table 2.1 provides a summary of the environmental approvals required to enable the project to be carried out.

Table 2.1 Summary of approvals required

Approval	Legislation	Authority
NSW		
Part 3A Major Project Approval	<i>Environmental Planning and Assessment Act 1979</i>	Minister for Planning
Pipeline Licence	<i>Pipelines Act 1967</i>	Department of Water and Energy
Construction Certificate	<i>Environmental Planning and Assessment Act 1979</i>	Principal Certifying Authority
ACT		
Development Approval	<i>Planning and Development Act 2007</i>	ACT Planning and Land Authority
Water access entitlement to extract water from Angle Crossing	<i>Water Resources Act 2007</i>	Environment Protection Authority
Amendment to licence to take water for drinking water purposes (if required)	<i>Water Resources Act 2007</i>	Environment Protection Authority
Application for exemption to take water for construction purposes	<i>Water Resources Regulation 2007</i>	Environment Protection Authority

Approval	Legislation	Authority
Waterway work licence	<i>Water Resources Act 2007</i>	Environment Protection Authority
Environmental Authorisation	<i>Environment Protection Act 1997</i>	Environment Protection Authority
Building Approval	<i>Buildings Act 2004</i>	ACT Building Certifier
Licence to impact on a nature reserve	<i>Nature Conservation Act 1980</i>	Department of the Environment, Climate Change, Energy and Water
Commonwealth		
Works Approval	<i>Australian Capital Territory (Planning and Land Management) Act 1988</i>	National Capital Authority
EPBC Referral (action on Commonwealth land)	<i>Environment Protection and Biodiversity Conservation Act 1999</i>	Department of Environment, Water, Heritage and the Arts

2.6 Methodology for this assessment

2.6.1 General

This environmental impact assessment has been prepared to address the NSW Director General's requirements and the ACT Scoping Document.

These documents have identified potential key issues or general issues requiring assessment and consideration in the environmental impact assessment. A number of specialist studies were undertaken to assist with this assessment of impacts.

Determining significance of impact

A description of existing conditions relevant to the surrounding environment was undertaken for each issue requiring assessment. This provided a baseline for the assessment.

An assessment of the level of change, as a result of the project, was then undertaken. Consideration was given to short term impacts (which were generally related to construction) or long term impacts (which were generally related to the ongoing operation) associated with the project. Where the uncontrolled impact is judged to be significant the proponent would adopt mitigating measures in order to reduce impact to moderate or minor levels. Even at lower levels of uncontrolled impact the proponent proposes to implement further controls for impact reduction.

Consideration of relevant guidelines, standards and applicable legislation was then applied to determine the level of significance of the change.

Some impacts are difficult to quantify, as the impact may depend on the quantities of transfer of water and how the ecosystem will react to this. There could be beneficial as well as negative impacts. An ongoing monitoring and an adaptive management approach would be adopted for the project. Adaptive management is a process whereby the results of environmental monitoring are continually assessed and modifications or additional safeguards adopted if necessary. Environmental monitoring and management is addressed further in chapter 27.

The methodologies for the individual specialist assessments are summarised at the beginning of each assessment chapter in Part C.

2.6.2 Specialist studies

Previous studies

The proponent has investigated the options for securing the ACT and surrounding region's water supplies as part of the Future Water Options program completed in 2005 and the Water Security Program in 2007. This project was included as part of these investigations.

These investigations resulted in the preparation of a wide range of technical and other reports that describe ACTEW's preferred supply options as well as the potential environmental impacts associated with each option. The total body of work includes a suite of more than 30 titles relating to the proposed water supply options for the ACT and region. Of particular interest when considering the project are the following reports describing the project as well as the likely environmental impacts that should be considered:

Future Water Options / Water Security Project

- Options for the next ACT Water Source, ACTEW Corporation, ActewAGL Water Division, 2004;
- Future Water Options for the ACT and Region Implementation Plan – recommended strategy to increase the ACT's water supply, ACTEW, 2005;
- Sustainable Framework and Assessment Plan, Institute for Sustainable Futures and CEE, 2005;
- Greenhouse Gas Emissions, Atech, 2005;
- Future Water Options Risk Assessment, URS, 2005;
- Economic Benefit – Cost Analysis of new water supply options for the ACT, Centre for International Economics, 2005;
- Future Water Options Review, Water Security Program, ACTEW Corporation, ActewAGL, 2007; and
- Water Security for the ACT and Region, Recommendations to ACT Government, ACTEW Corporation, 2007.

Murrumbidgee to Googong Water Transfer

- Future Water Options, Options for extraction of water from the Murrumbidgee River, A comparison of Angle Crossing and ECGBT, ACTEW Corporation, 2006;
- Angle Crossing Option, ACTEW Corporation, 2007; and
- Murrumbidgee to Googong water transfer preliminary design study - pipeline corridor selection report, ACTEW Corporation, 2008.

Previous environmental studies associated with the project

- Terrestrial flora, fauna and vegetation study – A preliminary flora, fauna and vegetation assessment for new water source options for the ACT, Biosis Research, 2005;
- Ecological Risk Assessment of ACT Water Source Options, CRC for Freshwater Ecology, 2004;
- Murrumbidgee to Googong Raw Water Transfer Preliminary Design – Approvals Process and Risk Review (Planning and Environment), CBRE and Manidis Roberts, 2008;
- Draft Overview of Ecological constraints for the Murrumbidgee River to Googong Dam Raw Water Transfer – Preliminary Design Project, Biosis Research, 2007;
- Murrumbidgee to Googong pipeline; Interim Aquatic Advice, Biosis Research, 2008;
- Aquatic Ecology Assessment of Burra Creek NSW, Biosis Research, 2007;
- Murrumbidgee to Googong Raw Water Transfer Preliminary Design Project – Desktop Cultural Heritage Assessment of Shortlisted Options, Navin Officer Heritage Consultants, 2008;

- Murrumbidgee to Googong Raw Water Transfer – Assessment of Alternate Route S3 (Part), Navin Officer Heritage Consultants, 2008;
- An evaluation of potential geomorphic and biophysical impacts on discharges to Burra Creek, Barry Star, 2005; and
- Stage 1 Social Impact Assessment, Tania Parkes Consulting and Ernst and Young, 2005.

Studies undertaken for this assessment

The following studies have been undertaken as part of preparation of this assessment. A summary of results has been provided throughout Part C. Full copies of the reports are provided in Volumes 2 and 3:

- Impact of the M2G on Flow in the Murrumbidgee River and Burra Creek, ActewAGL, 2009 (chapters 9 and 10);
- Fluvial Geomorphic Assessment, Bulk Water Alliance, 2009 (chapters 9 and 10);
- Potential implications for the London Bridge natural arch and karst, Optimal Karst Management, 2009 (chapter 10);
- Water Quality Data, ActewAGL, 2009 (chapter 11);
- Aquatic Impact Assessment, Biosis Research, 2009 (chapter 12);
- Terrestrial Flora and Fauna Impact Assessment, Biosis Research, 2009 (chapter 13);
- Cultural Heritage Assessment, Navin Officer Heritage Consultants, 2009 (chapters 14 and 15);
- Soils, Contamination and Groundwater Assessment, Bulk Water Alliance, 2009 (chapter 16);
- Landscape and Visual Impact Assessment Report, Bulk Water Alliance, 2009 (chapter 18);
- Noise and Vibration Assessment, Bulk Water Alliance, 2009 (chapter 20);
- Climate Change Risk Assessment, Bulk Water Alliance, 2009 (chapter 21);
- Greenhouse Gas Assessment, Bulk Water Alliance, 2009 (chapter 22);
- Social Impact Assessment, Bulk Water Alliance, 2009 (chapter 23);
- Quantitative Risk Assessment for Drinking Water, Future Water Options, 2009 (chapter 24); and
- Construction Traffic Impact Assessment, Bulk Water Alliance, 2009 (chapter 25).

Chapter 3 Location and setting

3.1 Regional setting

The project is located approximately 34 km south and southeast of Canberra. The project area is bounded by the Murrumbidgee River in the west (at Angle Crossing) and the western edge of the Burra Creek arm of the Googong Foreshores in the east (refer to Figure 3.1). Approximately 2.8 km of the proposed pipeline is within the ACT and approximately 10.2 km of the proposed pipeline is within NSW (in the Palerang local government area).

Key features of the surrounding region are described in the following section.

3.1.1 Key regional features

Water features

The intake/low lift pump station is located on the bank of the Murrumbidgee River upstream of Angle Crossing within the ACT (refer to Figure 3.1). Angle Crossing is a causeway where Angle Crossing Road crosses the Murrumbidgee River. An area just upstream of the crossing is used as an informal recreation area.

The Murrumbidgee River is a major river located in NSW and the ACT. A major tributary of the Murray River, the Murrumbidgee travels 900 km from the Fiery Range of the Snowy Mountains, through the ACT, and to a confluence with the Murray. Approximately 66 km of the Murrumbidgee River, from Angle Crossing in the south to Uriarra Crossing in the north, lies within the ACT. This section of the river, along with a narrow strip of land either side of the river, is managed as the Murrumbidgee River Corridor, which is a collection of nature reserves, recreation reserves, a European heritage conservation zone and rural leases along the Murrumbidgee River.

The outlet structure for the project is located on the southern bank of Burra Creek, just downstream of Burra Road (refer to Figure 3.10). Burra Creek is a tributary of the Queanbeyan River. The Queanbeyan River and its tributaries are impounded by the Googong Dam to form the Googong Reservoir. The primary purpose of the reservoir is to supply potable water to the ACT and Queanbeyan.

The location of the outlet structure is within an area known as Googong Foreshores. This area surrounds the Googong Reservoir and sections of Burra Creek and the Queanbeyan River. The Googong Foreshores is managed as a water catchment, wildlife refuge and public recreation area. The Googong Foreshores area is owned by the Commonwealth and managed by the ACT Government (with delegation of water resource responsibilities to ACTEW).

Reserves

The pipeline corridor starts within the Gigerline Nature Reserve in the ACT, which includes the Murrumbidgee River and a strip of land either side of it from Angle Crossing to the junction with the Gudgenby River. The Gigerline Nature Reserve covers an area of approximately 130 ha and is part of the Murrumbidgee River Corridor.

The pipeline corridor does not pass through another nature reserve. The Burra Creek Nature Reserve is located approximately 1,250 m east of the outlet structure in NSW. As noted above, the outlet point is located within the Googong Foreshores, which is both a regional and national resource. Other distant reserves in the surrounding region include Ingledene State Forest (ACT), Namadgi National Park (ACT) and Tinderry Nature Reserve (NSW).

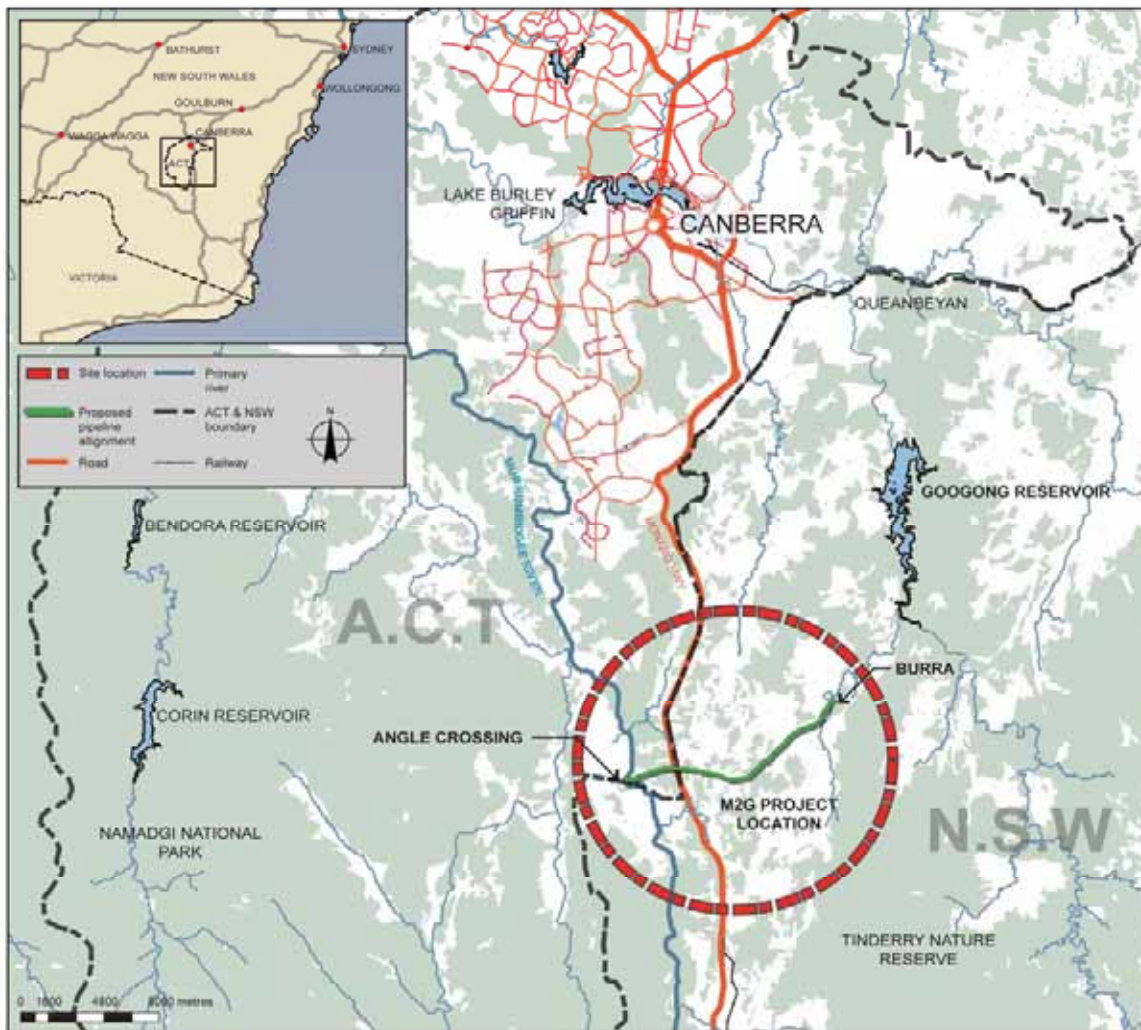


Figure 3.1 Regional setting of the project

3.1.2 Canberra's water supply system

The ACT's and Queanbeyan's water supply is sourced from three river catchments located in the vicinity of the ACT, these catchments are the:

- Cotter River Catchment;
- Googong System (built on the Queanbeyan River); and
- Murrumbidgee River Catchment.

A schematic representation of the ACT's water supply and treatment system is presented in Figure 3.2.

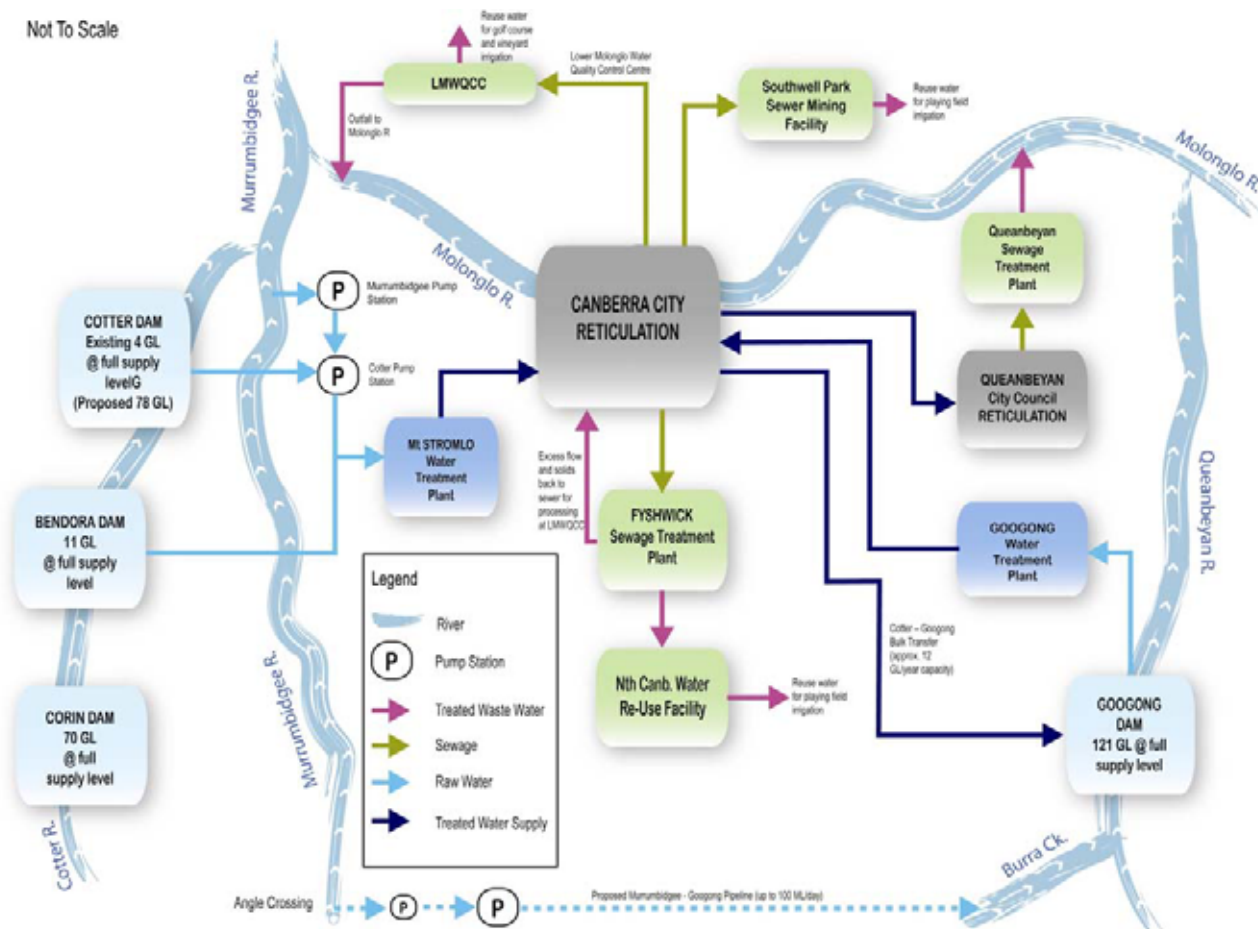


Figure 3.2 Schematic representation of the ACT's water supply and treatment system

The Cotter River Catchment consists of a series of three dams located on the Cotter River; these dams are Corin Dam, Bendora Dam and Cotter Dam. Water is gravity fed from Bendora Dam to the Mount Stromlo Water Treatment Plant for treatment and distribution throughout Canberra and Queanbeyan. Water is pumped from Cotter Dam via Cotter Pump Station to the Mount Stromlo Water Treatment Plant. ACT Government approval exists for an increase in the capacity of Cotter Dam to 78 GL by constructing a new dam wall down stream of the existing dam; an environmental impact statement has been prepared for this project.

The Murrumbidgee Catchment is located on the Murrumbidgee River. Water from this catchment is pumped from the river at the Murrumbidgee Pump Station, which is located adjacent to the Cotter Pump Station. The water is then pumped to the Mount Stromlo Water Treatment Plant, where the water is treated before it is released into the Canberra City and Queanbeyan system.

Another component of Canberra's water distribution network is the Cotter to Googong Bulk Transfer Scheme. This scheme involves the capacity to transfer water from the Cotter Pump Station via Canberra's reticulated network to Googong Dam for storage. This system has the potential to transfer up to 12 GL per year to the Googong Dam.

The Googong System is located on the Queanbeyan River in NSW and includes Googong Dam. Googong Dam has a storage capacity of 121 GL. Water from Googong Dam is pumped to the Googong Water Treatment Plant where it is treated before being pumped into Canberra City and Queanbeyan reticulation systems.

Sewage from the ACT is treated at the Lower Molonglo Water Quality Control Centre and Fyshwick Sewage Treatment Plant in order to make the water safe to be discharged back into the Murrumbidgee River via the Molonglo River.

3.2 Project location

The location of the key features of the project are described below and shown in Figure 3.5 to Figure 3.11.

3.2.1 Intake/low lift pump station

The intake/low lift pump station would be located within the ACT, on the east bank of the Murrumbidgee River approximately 15 m south (upstream) of the Angle Crossing causeway (refer to Figure 3.3 and Figure 3.5). The Angle Crossing causeway is where Angle Crossing Road crosses the Murrumbidgee River.

Angle Crossing Road is an unsealed road that provides access to rural properties from the Monaro Highway and Tharwa. Angle Crossing Road also provides access to a natural beach/swimming area, which is located immediately south (upstream) of the proposed intake/low lift pump station location. It also allows access to the Gigerline Nature Reserve, of which Angle Crossing is located in the southern most extremity.

A car park to service the recreational activities in the area, along with a toilet block, is located approximately 25 m northeast of the proposed location of intake/low lift pump station on the opposite side of Angle Crossing Road (refer to Figure 3.3).



Figure 3.3 Looking west towards Angle Crossing and the intake/low lift pump station site, from the high lift pump station site

3.2.2 High lift pump station

The high lift pump station would also be located within the ACT, approximately 300 m east of the intake/low lift pump station on the northern side of Angle Crossing Road (refer to Figure 3.6). The site of the proposed high lift pump station is on unsealed elevated ground, which is used informally as an overflow parking area to service recreational activities.

3.2.3 Pipeline

The pipeline is approximately 13 km long, and extends from Angle Crossing to Burra Creek. The construction impact zone for the pipeline would generally include a 40 m corridor around the pipeline location (referred to as the pipeline corridor). The actual construction impact would vary in width from 15 m to 40 m and would be determined by considering a number of drivers including occurrences of critical habitats for endangered species and communities, vegetation sensitivity and quality, constructability, construction management and safety considerations, land form, slopes and anticipated sub-soil structures. The actual construction impacts would be minimised based on the influence of these characteristics.

The pipeline corridor starts at the proposed intake location on the banks of the Murrumbidgee River and continues in an easterly direction for approximately 2.8 km before crossing the Monaro Highway and the ACT/NSW border into the Palerang local government area south of Williamsdale (refer to Figure 3.7).

The pipeline corridor then continues in an easterly direction for approximately 4 km where it meets Williamsdale Road. The pipeline corridor then follows the route of Williamsdale Road in a northeast direction to Burra before continuing north through Burra and on to the outlet point on Burra Creek (refer to Figure 3.8).

3.2.4 Outlet structure

The outlet structure would be located on the southern bank of the creek approximately 100 m downstream of the Burra Road Bridge and also downstream of the gauging weir at Burra Creek (refer to Figure 3.4 and Figure 3.10).

This area is within the Googong Foreshores, which is a water catchment, wildlife refuge and public recreation area. The Googong Foreshores area is Commonwealth Land within NSW, and is located approximately 10 km south of Queanbeyan.

The Googong Reservoir is located approximately 10 km further downstream of the outlet structure.



Figure 3.4 Looking west from Burra Road towards the outlet structure location

3.2.5 Mini-hydro power facility

The mini-hydro power facility would be located near the outlet structure within the pipeline construction corridor away from the immediate environs of the Burra Creek bank to minimise local impacts and to protect the infrastructure from flooding.

The power would be transferred to the high lift pump station via an underground cable in the same trench as the water transfer pipeline.

3.2.6 Power supply

A substation would be located approximately 700 m from the Monaro Highway and approximately 1.5 km east of the high lift pump station. The power supply would consist of an 11 kV underground cable route from the substation to Angle Crossing Road. The 11 kV cable would then continue to the substation (transformers) at the high lift pump station. Most of the 11 kV cable route would be located within Angle Crossing Road reserve. This is shown in Figure 3.11.

3.3 Land leases/ownership

Land within the pipeline corridor is predominantly privately held rural residential land. There are also a small number of allotments that are Commonwealth land and Crown land.

The proponent is currently in the process of negotiating with landowners over access to their land for the purposes of construction, including land rehabilitation, and operation of the pipeline.

The location (lot reference and ownership) of the intake, pump stations and outlet structures are shown in Table 3.1. Land leases and ownership in the vicinity of the project are shown in Figure 3.12.

Table 3.1 Location of structures

Structure	Lot (NSW) Block (ACT)	DP (NSW) Division (ACT)	Land status/ownership
Intake/low lift pump station	1611	Tuggeranong	ACT TAMS – environmental
High lift pump station	1572	Tuggeranong	ACT TAMS – environmental
Outlet	Lot 7	DP 592796	Commonwealth land leased to ACT and managed by ACT TAMS

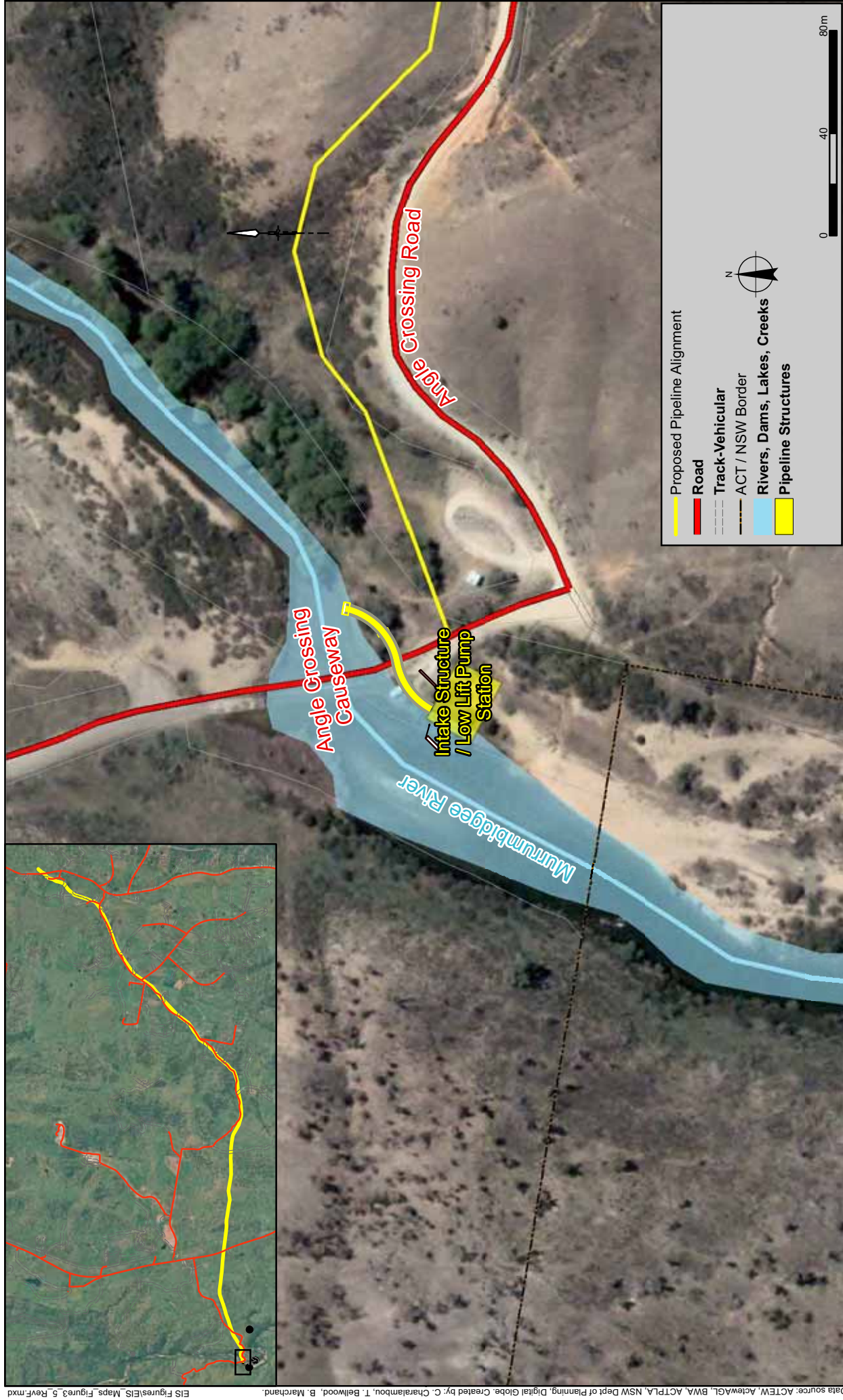


Figure 3.5 Location of the intake / low lift pump station

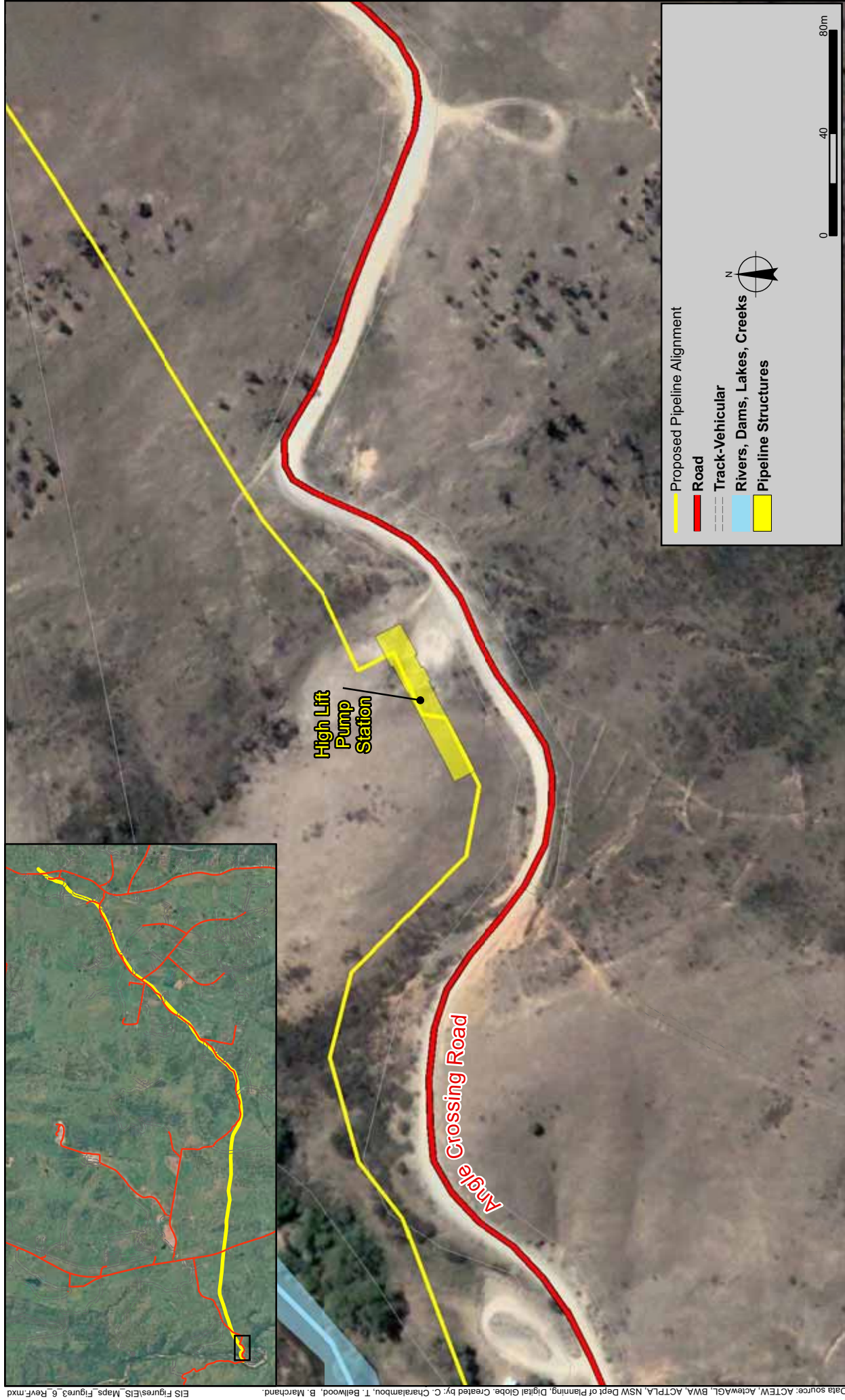


Figure 3.6 Location of the high lift pump station

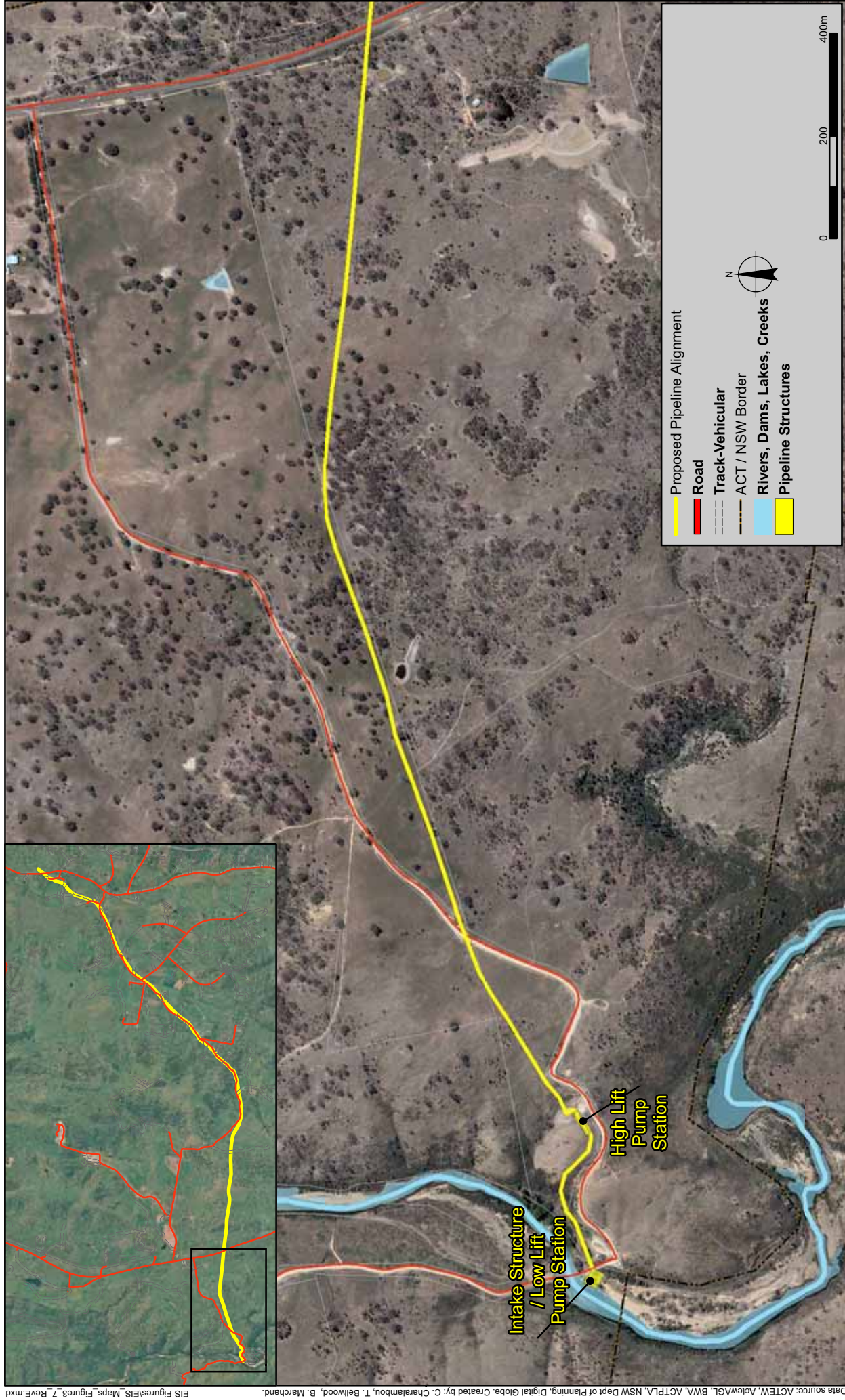


Figure 3.7 Location of the pipeline (ACT section)

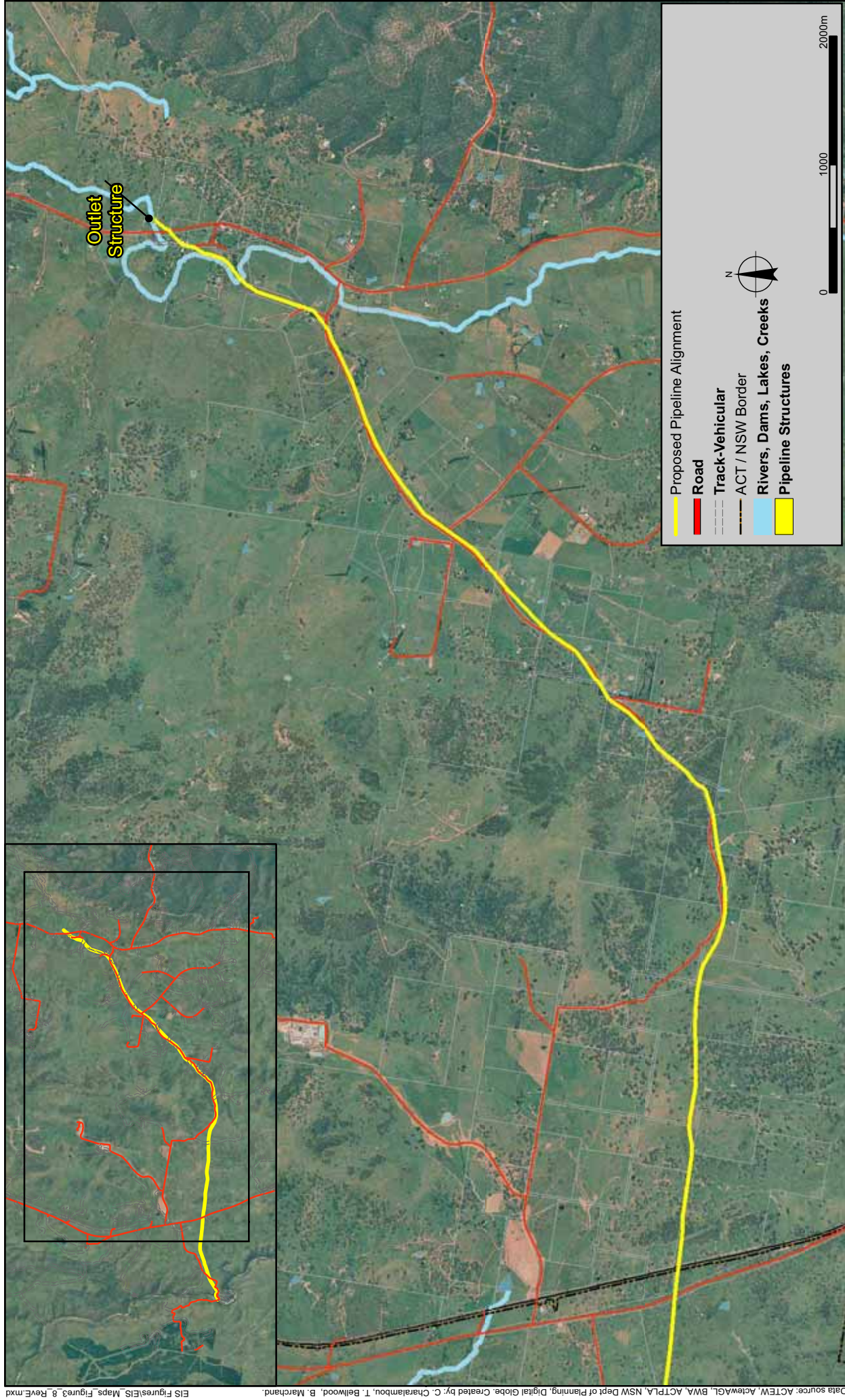


Figure 3.8 Location of the pipeline (NSW section)

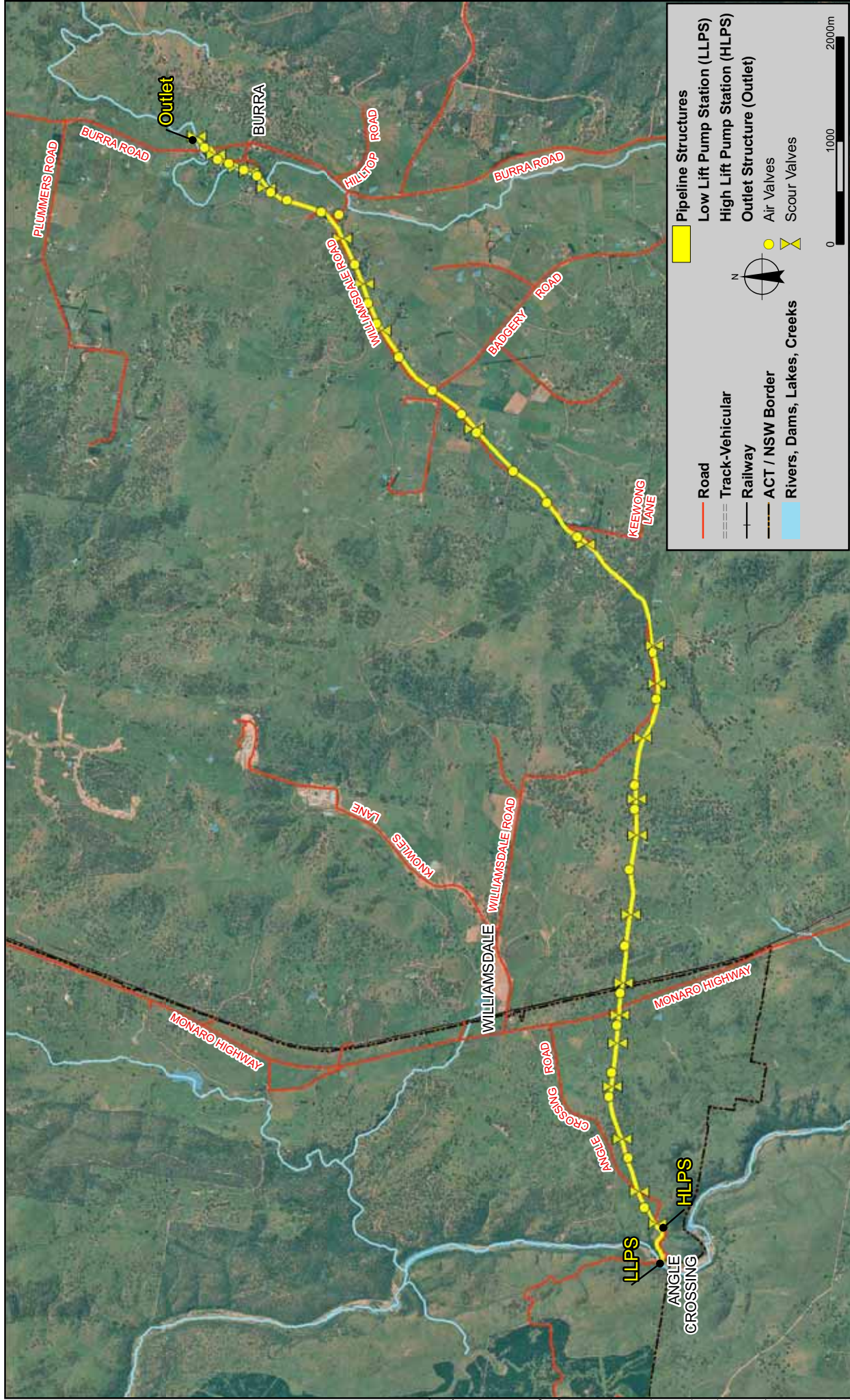


Figure 3.9 Location of scour valves

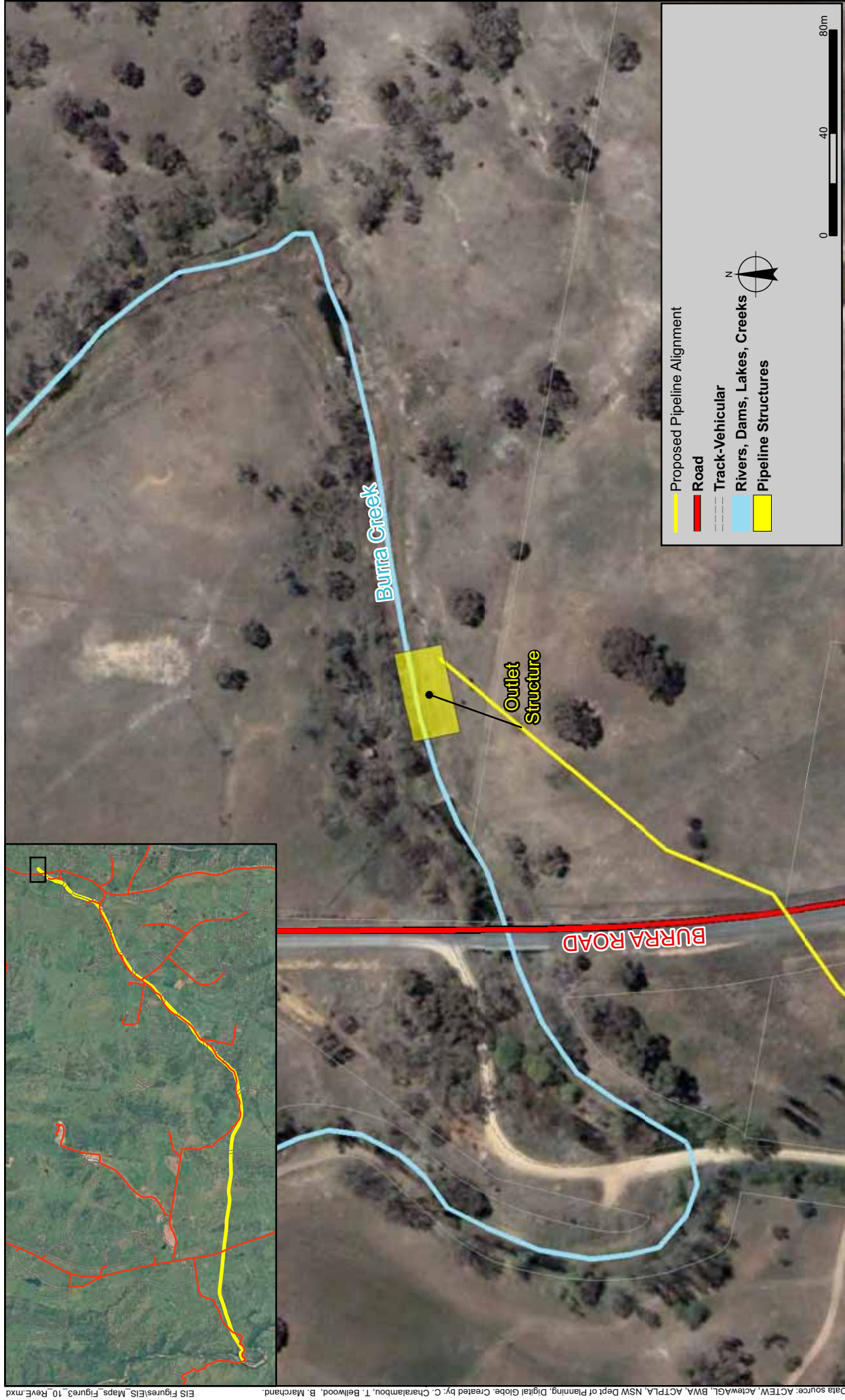
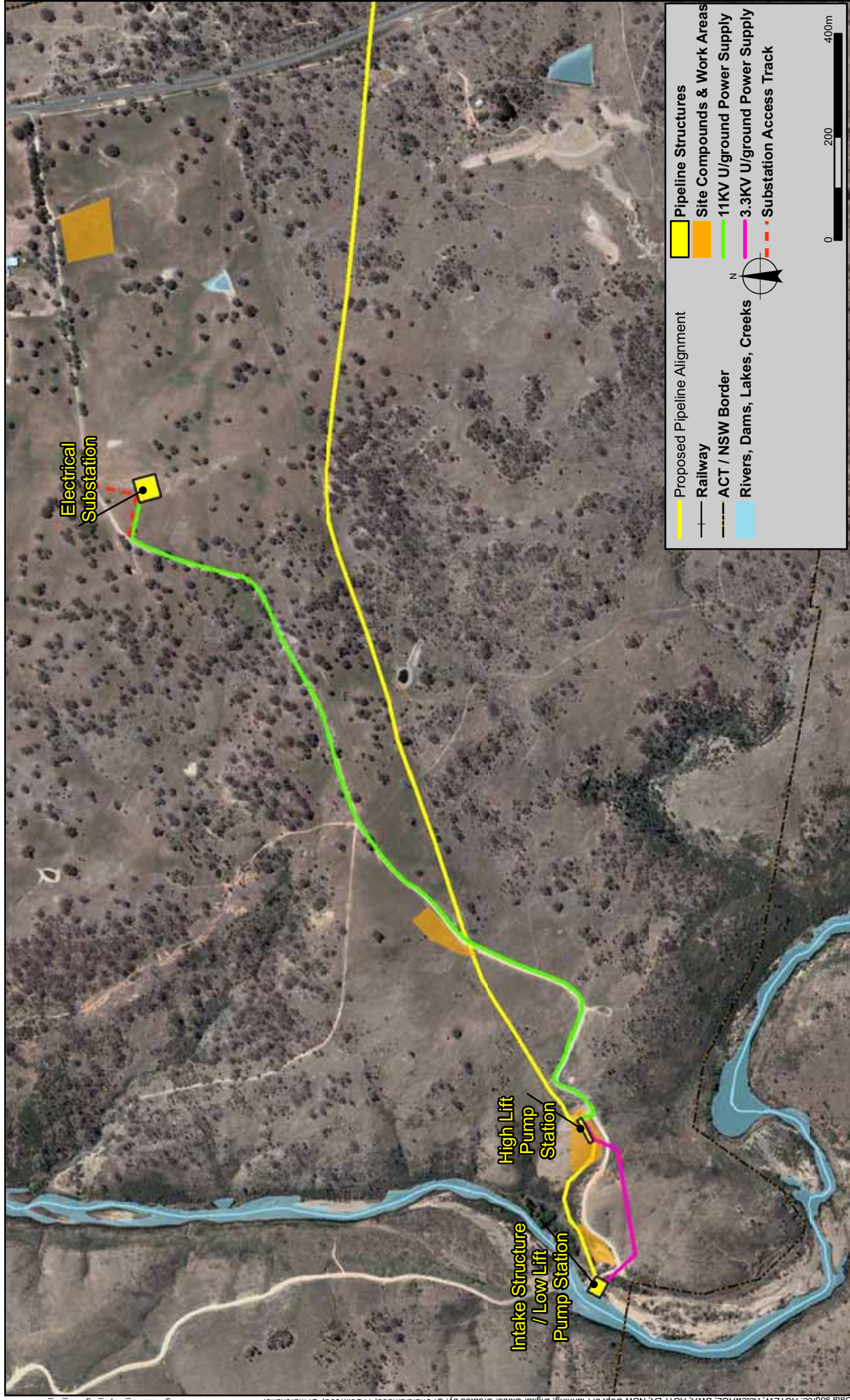


Figure 3.10 Location of the outlet structure



Data source: ACTEW, ActewAGL, BWA, ACTPLA, NSW Dept of Planning, Digital Globe, Created by: C. Charalambou, T. Bellwood, B. Marchand.

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Figure 3.11 Location of the power supply

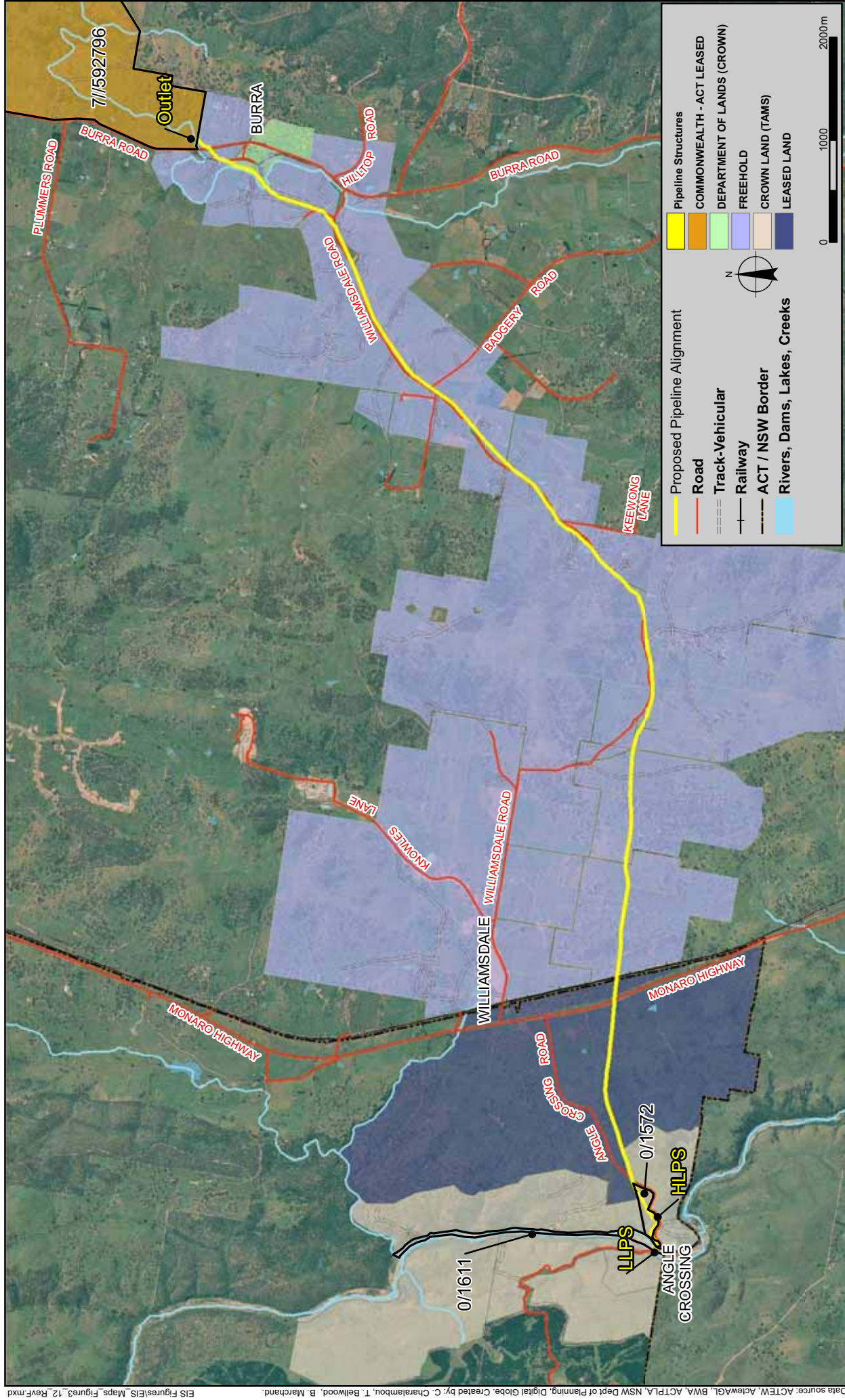


Figure 3.12 Land leases and ownership

3.4 Local setting – key features of the existing environment

The sections below provide a summary of the elements of the existing environment surrounding the pipeline corridor, which may be impacted by the project. More detail on each element of the environment is provided in Part C.

3.4.1 Landscape and topography

The study area is generally located within a rural landscape characterised by large and small rural landholdings, State Forests and small townships. The nearest townships and urban residential areas are located in Queanbeyan (approximately 10 km distant). The corridor falls under two local landscape units as used by Fallding (2002). These are Tharwa and Royalla units.

Topography along the route changes considerably. Elevation in the corridor varies from 600 m at Angle Crossing to 1,120 m at Gibraltar Hill.

The topography surrounding the western end of the pipeline corridor, around Angle Crossing, is characterised by deeply incised hills and gorges along the Murrumbidgee River Corridor. The land sharply rises towards the Monaro Highway to broad, elevated, flat to undulating plains before dropping away to the east of the Highway where the land is characterised by the broad low lying plains of the Jerrabomberra and Tuggeranong Valleys and smaller flood plains associated with Jerrabomberra Creek.

The central part of the pipeline corridor then passes through the Gibraltar Range, which is an abruptly rising ridge line with the peak of Gibraltar Hill to the north of the proposed pipeline at an elevation of 1,120 m. The land surrounding the eastern extent of the pipeline corridor then falls back down to the broad low lying plains of the Jerrabomberra and Tuggeranong Valleys and smaller flood plains associated with Jerrabomberra Creek, Burra Creek and local drainage lines. These landforms continue to the Burra township and the conclusion of the pipeline corridor at Burra Creek.

Further information is provided in chapter 16.

3.4.2 Geology and soils

The proposed pipeline is within the Cowra-Yass Synclinal Zone, bounded to the west by the Murrumbidgee Fault and to the east by the Foxlow Beds. The pipeline corridor appears to traverse six geological units, predominantly sourcing from Silurian period geological material of the Palaeozoic era.

There are three soil landscapes in the vicinity of the pipeline corridor: the Burra; Campbell; and Williamsdale. It is also considered likely that the Murrumbidgee Gorge soil landscape may occur locally at Angle Crossing. All the above soil landscapes are characterised by moderate erodibility at the surface, and high to moderate erodibility below the topsoil.

Further information is provided in chapter 16.

3.4.3 Water and hydrology

The project falls within the Murrumbidgee catchment, which is a major sub-catchment of the Murray Darling Basin, covering approximately 87,348 km² or 8.2% of the Murray Darling Basin. Drainage in the vicinity of the pipeline corridor to the west of Gibraltar Range enters the Murrumbidgee River either directly or through one of many minor tributaries including Waterhole Creek, Lobb's Hole Creek, Deep Creek, Guises Creek, Dunn's Creek and Tuggeranong Creek.

The eastern section of the pipeline corridor (to the east of the Gibraltar Range) falls within the Molonglo River sub-catchment. Drainage in this area flows into the Queanbeyan River system via Burra Creek and other tributaries such as Dog Trap Gully, Jerrabomberra Creek, Four Mile Creek and Barracks Creek. The Queanbeyan River and its tributaries are impounded by Googong Dam to form the Googong Reservoir. The primary purpose of the Googong Reservoir is to supply potable water to the ACT and Queanbeyan in NSW. The Queanbeyan River continues to the north of Googong Reservoir and joins the Molongolo River on the outskirts of Queanbeyan. The Molongolo River then flows to Canberra where it has been dammed to form Lake Burley Griffin prior to joining with the Murrumbidgee River to the northwest of Canberra, in the ACT.

The catchment area boundaries have been shown in Figure 3.13. Further information is provided in chapters 9 – 11.

3.4.4 Flora and fauna

Aquatic ecology

The major waterways in the study area provide habitat for several native and exotic fish species. The Murrumbidgee River is likely to provide known and potential habitat for three threatened aquatic species: Trout Cod (stocked population); Macquarie Perch; and Murray River Crayfish. A further two threatened species are known to occur in the Googong Reservoir and the Murrumbidgee River downstream of Tharwa Sandwash: Murray Cod and Silver Perch. However, both these fish are only present in the Googong Reservoir as a stocked population.

The Murrumbidgee River provides habitat for other aquatic or semi-aquatic plants, mammals, reptiles, amphibians, crustaceans and aquatic invertebrates including Eastern Water Dragons, Eastern Water Rat and Long-necked Turtle. There have also been reports of Platypus sightings, however none were observed during the field surveys conducted for this assessment.

Burra Creek also provides habitat for a diverse range of other aquatic animals including macroinvertebrates, Long-necked Turtle, frog species and the Eastern Water Rat.

Further information is provided in chapter 12.

Terrestrial ecology

Remnant vegetation across the study area ranges from non-native pastures to native grasslands, grassy woodlands on the undulating lowland hills and dry grassy/shrubby sclerophyll forest elevated rocky parts of Gibraltar Hill and Mount Burra and on the 'saddle' that links the two. The condition of vegetation west of the 'saddle' ranges from poor to good with some smaller components in very good condition. The 'saddle' area contains mostly intact dry grassy/shrubby sclerophyll forest, which grades to grassy forest/woodland on the intermediate and lower slopes. Vegetation on the lower flats east of the 'saddle' contains variable quality grassy woodland/forest. However, most of the paddocks along Williamsdale Road to the east contain highly modified vegetation, such as low diversity native pasture and non-native pasture. Road-side vegetation is mostly exotic and in poor condition as were the nearby drainage channels. In contrast, vegetation of good quality was noted along some sections of Burra Road and at Burra Creek, east of Burra Road.

Main fauna habitats included grassland, woodland, open forest, rock outcrops, tree hollows and wet areas that ranged from major river systems to farm dams. Hollow-bearing trees occurred widely within many woodland and forest habitats, and occasionally as isolated paddock trees or stags. Extensive areas of rock outcrop were encountered in the Murrumbidgee River corridor, along Burra Creek and to a lesser extent on the Gibraltar 'saddle'. Smaller outcrops were associated with low hills and knolls, mainly in the western sections of the study area.

Further information is provided in chapter 13.

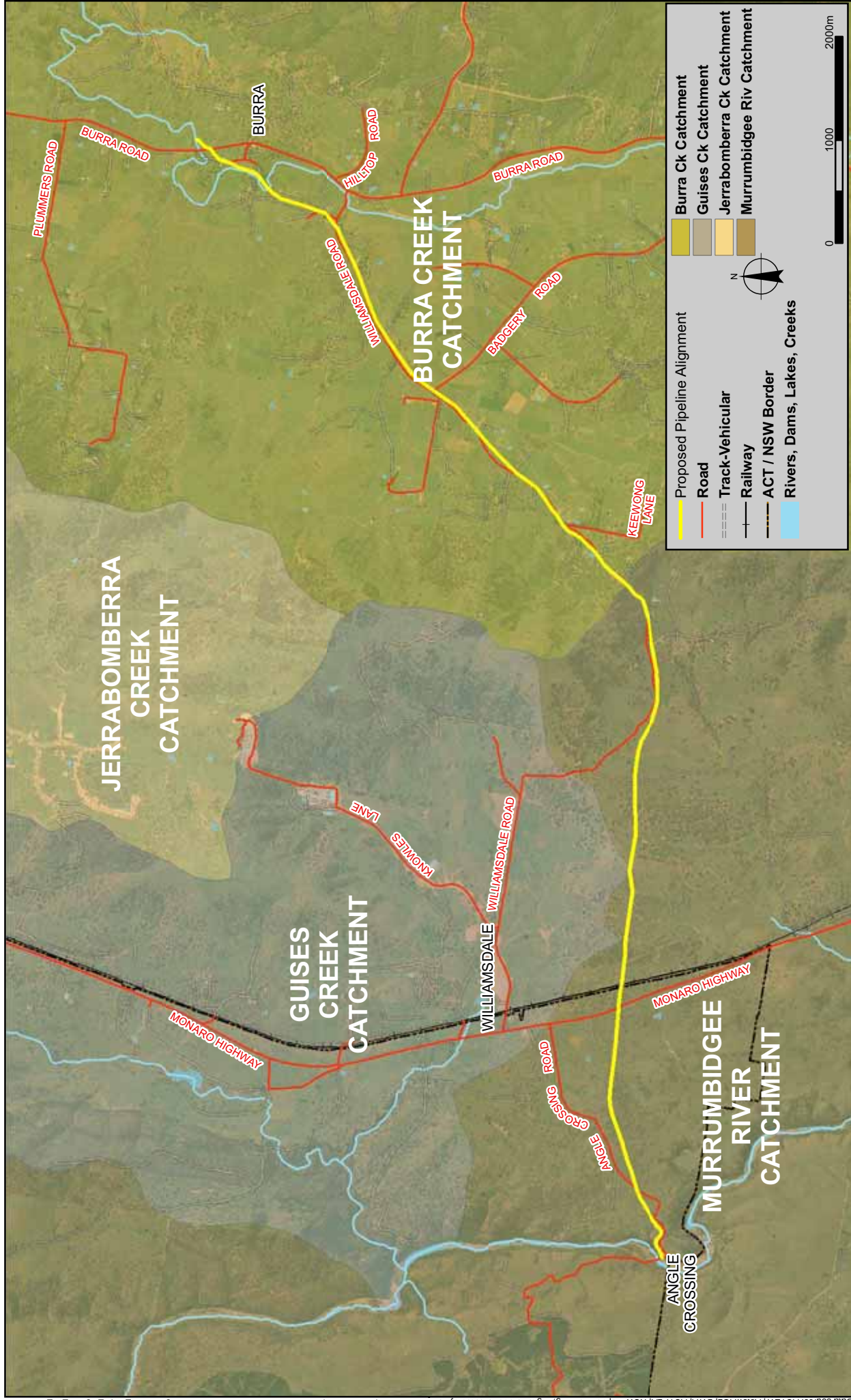


Figure 3.13 Catchment area boundaries

3.4.5 Cultural (Aboriginal and European) heritage

In the ACT, the study area includes Angle Crossing and adjacent lands which affects the four Aboriginal groups listed as Representative Aboriginal Organisations with the ACT Government under the ACT *Heritage Act 2004*. These groups are:

- The Buru Ngunawal Aboriginal Corporation;
- The Consultative Body Aboriginal Corporation;
- The Little Gudgenby River Tribal Council; and
- The Ngarigu Currawong Clan.

The NSW section of the study area falls within the boundaries of the Mogo Local Aboriginal Land Council, based in Mogo on the NSW south coast.

Aboriginal recordings, inclusive of previously recorded sites, identified within the study area comprise:

- Isolated finds;
- Artefact scatters;
- Rockshelter/cave sites;
- Potential archaeological deposits; and
- Possible scarred tree.

Historical (European) sites, inclusive of previously recorded sites, identified within the study area comprise:

- A former schoolhouse site;
- London Bridge Homestead;
- The Goulburn to Cooma railway;
- A cadastral boundary marker;
- A refuse dump;
- The site of a former homestead; and
- A line of trees.

One natural site, London Bridge Natural Arch, is located in the study area. This site has cultural and archaeological significance.

Subsurface testing undertaken during the investigation recovered numerous stone artefacts. Overall, the artefact assemblages retain high research potential in a regional context due to intactness and potential to inform about land use and manufacturing technology, but no individual sites yielded assemblages dense enough or rich enough to warrant especially high significance or preservation.

Further information is provided in chapters 14 and 15.

3.4.6 Land use

The main land uses in the vicinity of the project are:

- River corridor/water catchment;
- Agriculture;
- Rural residential development; and
- Transport, power, water and communications easements.

River corridor/water catchment

The intake/low lift pump station for the pipeline would be located within the Murrumbidgee River Corridor and the Gigerline Nature Reserve. The outlet structure would be located within the Googong Foreshores.

The Murrumbidgee River Corridor is partly managed as an area for nature-based recreation and, in particular, water-based activities such as swimming, fishing and canoeing. The Gigerline Nature Reserve provides opportunities for bushwalking and wildlife watching.

The primary purpose of the Googong Foreshores is for the protection of the raw water supply to Googong Dam. The Googong Foreshores is also partly managed as a recreation area and is a significant Wildlife Refuge. The heritage-listed items of London Bridge Arch and London Bridge Homestead are located within the Foreshores to the northwest of the proposed discharge location.

Agriculture

The majority of the pipeline corridor traverses a highly modified agricultural landscape. Traditional farming practices operate in the area from the Monaro Highway to the Gibraltar Range. These activities include sheep and cattle grazing, small-sale cropping, pasture improvement and equine farming. Non-traditional farming and hobby farming practices mostly operate to the east of the Gibraltar Range within rural residential properties in the Burra Rural District.

Rural residential development

Rural residential development is present along most of the pipeline corridor but is predominantly concentrated to the east of the Gibraltar Range.

The eastern extreme of the pipeline corridor passes through the rural locality of Burra. At the western end, the corridor passes approximately 900 m south of the rural locality of Williamsdale.

Transport, power, water and communications easements

The corridor would traverse several roads including Angle Crossing Road, the Monaro Highway, Macdiarmid Road, Lagoon Road and Burra Road, as well as three Crown road reserves ('paper roads') that are marked on plans but are not formed on the ground. The pipeline corridor would also follow the Williamsdale Road corridor for approximately 5.5 km and would cross the disused Goulburn to Cooma Railway Line.

Utilities exist in the vicinity of the Monaro Highway. Traffic use in the area of the proposed pipeline development consists mainly of rural traffic, with the exception of the Monaro Highway. Associated noise levels are therefore generally low.

The section of the disused Goulburn to Cooma Railway Line (including the local Michelago Railway Reserve) is mostly closed, with the nearest local station (Williamsdale Railway Platform/Station) closed since 1975.

Further information is provided in chapter 17.

3.4.7 Air quality and climate

Air quality throughout the study area is considered to be good, and consistent with that of a rural environment.

Climatic information has been derived from the Bureau of Meteorology Records (BoM, 2008) sourced from the nearest automated weather station located at Canberra Airport, approximately 38 km from the pipeline corridor. The pipeline corridor is located within a temperate climate, distinctively characterised by mild/warm summers and cold winters. Mean temperatures are within the range of 13–27°C during summer and between 0–12°C in winter. The average annual rainfall is 620 mm.

Further information is provided in chapter 21.

Chapter 4 Consultation during preparation of the environmental assessment

4.1 Consultation prior to the assessment

In 2005, the proponent released the report 'Future water options for the ACT region', in which the project was recommended as one of the preferred options to secure the ACT's water supply (ACTEW 2005a). Consultation undertaken in conjunction with this report included:

- Briefings of community and business groups (18 briefings);
- Briefings of ACT Government, Commonwealth agencies and advisory bodies (15 briefings);
- Development of a project website available from August 2004, which received 3,200 visits;
- Information sent to 450 community groups;
- Media advertisements;
- Sustainability workshops held with participants including community, government and professionals;
- Community meetings (four meetings) were held to explore stakeholder interests and values;
- The 'Palette of Possibilities' exhibition was held in Canberra, Queanbeyan and Cooma attracting over 800 visitors; and
- The proponent received 255 written responses, mainly as a result of the exhibition and via the website.

The results of this consultation process are outlined in detail in the Future Water Options Consultation Report (ACTEW 2005b).

4.2 Consultation for the project and environmental assessment

4.2.1 Consultation plan

A community engagement and stakeholder management plan has been prepared to support the approvals, design and delivery phases of the project. Implementation of the plan commenced in January 2008 and will continue for the duration of the project to mid 2011. The plan outlines the process for community engagement and stakeholder management. It provides the following in relation to consultation for the project:

- An overview of the organisational and community context;
- A description of the community engagement and stakeholder management strategy and approach;
- The methodology for identifying the community's issues;
- Identification of the project's stakeholders, likely issues, and communication messages, and the phases where stakeholders are likely to be impacted or interested;
- An overview of the communication tools and techniques that will be used to engage and communicate with stakeholders, aligned with project delivery milestones;
- A mechanism for recording and evaluating community comments and issues;
- A reporting framework to inform design and construction; and
- An evaluation and monitoring program to assess the level of community engagement and effectiveness of the plan.

The delivery of the plan has considered:

- Appropriateness to audience, goal and message;

- Relevance to project goals;
- Timing and consistent information;
- Attitudes of the community toward the issue/activity;
- Cultural appropriateness including language; and
- Environment—geographic considerations.

The most appropriate tools were selected to engage and communicate effectively with the community about the project. The consultation activities undertaken are described below.

Aboriginal consultation is described in section 14.1.1.

4.2.2 Community scan

The proponent undertook a community scan to ensure that all stakeholders and community groups were considered and captured in the stakeholder database and distribution list. The community scan identified residents, business owners and operators, local community and environmental groups, local government and agency contacts. A site visit also formed part of the community scan.

Stakeholders included:

- Statutory authorities:
 - Elected representatives (federal, state, territory and local);
 - Local councils;
- Representative Aboriginal organisations and land councils;
- Individual landowners;
- Commonwealth, state (NSW) and territory (NSW and ACT) government agencies;
- Industries – potential customers;
- Industries – bystanders;
- Media – local, metropolitan and national;
- Community groups:
 - Environment groups;
 - Local residents groups;
 - Local interest groups;
 - Recreational user groups;
 - Non-local interest groups;

The plan categorises each of the stakeholder groups according to their potential level of interest in the project.

4.2.3 Feedback mechanisms

A hotline telephone number, reply paid post, website and email facility were established at the commencement of the project to enable all stakeholders to provide feedback to the project team for consideration in the assessment. Project fact sheets, a frequently asked question document, community newsletters and website updates were used to inform community members and encourage feedback.

A database management system was established to manage contact and issue information received. Since project inception over 500 discussions or other forms of contact with stakeholders have taken place and been recorded on the project's consultation database.

4.2.4 Initial contact with directly affected landholders

As the general route corridor for the pipeline was refined, and detailed survey and assessment work was undertaken, a letter was sent to, and visits undertaken with, potentially directly impacted landholders.

Initial contact was made with all directly affected landholders by letter in February 2008. Additional letters were sent to landholders in March 2008 inviting them to attend the community drop in session held at Burra on 25 March 2008.

Ongoing liaison has taken the form of written letters and an extensive series of individual meetings with landholders.

There are approximately 30 landholders on the directly impacted landholders list.

The purpose of contact with directly affected landowners is to ensure they are fully informed about the nature of the project in relation to their land holding and that they understand the proponent's approach to gaining access to land and subsequent compensation. The aim is to gain access on a voluntary basis. The meetings with landowners are also aimed at ensuring that the concerns of landowners during construction, rehabilitation and operation are addressed.

4.2.5 Community information sessions

Three community information sessions have been held to provide project information, seek community feedback and provide an opportunity for community members to ask the project team questions:

- Drop-in session at Burra Community Hall on 25 March 2008, attended by 35 residents;
- Community meeting on 9 December 2008, attended by approximately 70 local residents; and
- A community meeting held on 10 March 2009 detailing the proposed route alignment and preliminary findings of the environmental studies, attracting approximately 50 local residents.

In addition to these meetings, The Hon. Mike Kelly, Federal Member of Parliament for Eden-Monaro, convened a stakeholder roundtable meeting at Burra Community Hall on 20 January 2009. The meeting was well attended by community members, Palerang Council and senior ACTEW staff.

4.2.6 Other meetings and discussions with community and non-government groups

Consultation has been undertaken with the following groups:

- ACT Rural Landholders Association;
- Australian Railway Historical Society;
- Building Science Forum of Australia;
- Burra Community Association;
- Burra Landcare Group;
- Burra Rural Fire Brigade;
- Burra-Urila Residents and Ratepayers Association and Pipeline Subcommittee;
- Canberra Investment Corporation;
- Community Alliance Party;
- Conservation Council of South East Region and Canberra;
- Landcare groups;
- Molonglo Catchment Group;
- Queanbeyan Business Council;
- RSPCA;

- Southern ACT Catchment Group;
- Tuggeranong Community Council;
- United Ngunnawal Elders Council;
- Universal Resources;
- Upper Murrumbidgee Catchment Coordinating Committee;
- The Village Building Company (via Queanbeyan City Council).

Presentations have been given to many of these groups, while other groups have sought information on the project on behalf of members. Meetings have also been held with the appropriate Indigenous groups, representatives of which have also participated in the community drop in session.

A project update was presented to the Burra Community Association at their monthly meeting on the 30th September 2008. Several meetings have been held with the Molonglo Catchment Group, including a presentation on 10 October 2008 and a walk along the potential impacted area of Burra Creek on 19 November 2008. A presentation and project update was provided to the Burra-Urila Residents and Ratepayers Association on 13 November 2008.

4.3 Consultation with government agencies

During 2005 initial consultation occurred with the NSW Government, Palerang Shire Council, and the Burra-Urila Residents and Ratepayers Association. During 2008 and the early part of 2009 members of the project team met or held discussions with a large number of agencies, during preparation of the assessment, to identify issues for consideration. The following agencies have been consulted:

Local Government

- Palerang Shire Council;
- Queanbeyan City Council;

ACT Government

- ACT Planning and Land Authority;
- ACT Health;
- Tourism ACT;
- Territory and Municipal Services including, Parks, Conservation and Lands, ACT Roads, ACT Heritage Council, ACT Emergency Services, ACT Flora and Fauna Committee;
- Department of Environment, Climate Change, Energy and Water;
- ACT Chief Minister's Department;
- TransGrid;
- ActewAGL;

NSW Government

- Department of Environment and Climate Change;
- Department of Primary Industries;
- Department of Water and Energy;
- Department of Planning;
- RailCorp;
- Department of Lands;

- Roads and Traffic Authority;
- Southern Rivers Catchment Management Authority;
- Murrumbidgee Catchment Management Authority;

Commonwealth Government

- Department of Environment, Water, Heritage and the Arts;
- National Capital Authority;
- Murray Darling Basin Authority; and

Other

- Australian Rail Track Corporation Ltd (ARTC).

Issues raised by agencies are summarised in section 4.3.1.

In addition, the NSW Department of Planning convened a planning focus meeting on 4 September 2008. Further information on this meeting is provided in chapter 2.

Additional meetings involving the NSW Department of Planning, ACT Planning and Land Authority and the Commonwealth Department of Environment, Water, Heritage and the Arts have been undertaken to discuss cross jurisdictional matters and coordination.

4.3.1 Issues raised by agencies

Key issues during consultation activities are summarised in Table 4.1. These issues are cross-referenced to where they are addressed in the assessment. It is to be noted that the table below is a summary of the main issues raised.

Table 4.1 Issues raised by agencies

Stakeholder	Key issues	Document reference / comment
NSW Department of Environment and Climate Change	• Aboriginal heritage issues • Water quality • Ecological impacts • Construction impacts, including soil removal, noise, dust	Chapter 14 Chapter 11 Chapters 12, 13 Chapters 9 – 25
NSW Department of Primary Industries	• Impact on fish • Operating rules	Chapter 12 Chapter 6
NSW Department of Planning	• Planning approval	Chapter 2
NSW Department of Water and Energy	• Mechanism for purchase of additional water • Impacts on water supply • Operational regime with particular reference to dry years • Proposed extraction levels for both Tantangara and run of river • Cumulative impacts of projects • Potential impacts on flora and fauna • Pipeline licence and authority to survey	Chapter 2 Chapters 9, 10 Chapters 6, 9, 10 Chapters 6, 9, 10 Chapter 26 Chapters 12, 13 Chapter 2
NSW RTA	• No issues	N/A

Stakeholder	Key issues	Document reference / comment
RailCorp	• ACTEW to consult ARTC	Chapter 25
Southern Rivers Catchment Management Authority	• Consult with Murrumbidgee Catchment Management Authority	Chapter 23
Murrumbidgee Catchment Management Authority	• No issues	N/A
Murray Darling Basin Authority	• Matters of flow, use, control and quality • Cap on water use • Impact on salinity • Operating rules	Chapters 6, 9 – 11 Chapter 5 Chapter 16 Chapter 6
ACT Health	• Water quality • Impact on water restrictions	Chapters 11, 24 Chapter 23
ACT Territory and Municipal Services <i>Including Parks, Conservation and Lands, Roads ACT, Environment Protection Authority, Tourism, ACT Heritage Council, ACT Flora and Fauna Committee</i>	• Traffic impacts • Impacts on Angle Crossing • Operating rules • Aboriginal heritage issues • Impact on flora and fauna, ACT and Googong Foreshores • Environmental offsets	Chapter 25 Chapter 25 Chapters 6, 28 Chapter 14 Chapters 9, 10, 12, 13 Chapter 13
ACT Department of Environment, Climate Change, Energy and Water	• Operating rules • Environmental flows • Ecological communities • Spoil management	Chapter 6 Chapters 6, 9, 10 Chapter 13 Chapter 19
ActewAGL	• Environmental offsets	Chapter 13
TransGrid	• Environmental offsets	Chapter 13
Queanbeyan City Council	• Water supply • Traffic impacts at Googong Dam • Consult with the two major property developers for Queanbeyan's urban release areas	Chapters 6, 11 Chapter 25 Chapter 23
ACT Rural Landholders Association	• Flows in Murrumbidgee River • Traffic at Angle Crossing	Chapter 9 Chapter 25
Palerang Council	• Impact on Murrumbidgee River • Impact on Burra Creek • Possible community benefits • Impact on landholders in the area	Chapters 9, 11, 12 Chapters 8, 11, 12 Chapter 23 Chapters 17, 23
Commonwealth Department of Environment, Water, Heritage and the Arts	• Impact on Ecological Endangered Communities • Operating rules	Chapters 13, 26 Chapter 6
National Capital Authority	• Consistency with National Capital Plan	Chapter 2

Stakeholder	Key issues	Document reference / comment
ARTC	• Timing of construction works on rail crossing • Consult with the lessee of the rail crossing (Australian Railway Historical Society) regarding construction timing	Chapter 25 Chapters 23, 25

4.4 Next steps for consultation

The NSW Department of Planning and the ACT Planning and Land Authority will place the assessment on public exhibition for at least 30 days. The Department of Planning and the Planning and Land Authority will manage the exhibition and public submission process. Further information on this process is provided in section 2.5.

In association with the formal exhibition process, the proponent will maintain the project information line and email for community members to seek further information.

Additional community information sessions will also be held during the exhibition period. The community information sessions will be advertised in local newspapers and by letterboxed brochure. The proponent will write to community groups to offer a briefing on the assessment findings.

ACTEW will continue to work closely with directly affected landholders to discuss construction requirements and in particular develop individual agreements with landholders around the long term rehabilitation of land.

The proponent would work with Palerang Council and community members to identify potential community benefits in recognition that benefits derived from the project (including secure water supply and a stable economy) are not directly related to the local impacted community.

The proponent would keep the community informed about the project during construction via regular letterboxed updates, the project website and where appropriate, through advertisements in the local newspaper and community information sessions. ACTEW's toll-free project info line and construction response line would also be used.