

# Technical report K: Land Use Planning

Goschen Rare Earths and Mineral Sands Project

16-Aug-2023

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### Goschen Rare Earths and Mineral Sands Project

Client: VHM Ltd

Co No.: 601 004 102

#### Prepared by

AECOM Australia Pty Ltd  
Wurundjeri and Bunurong Country, Tower 2, Level 10, 727 Collins Street, Melbourne VIC 3008, Australia  
T +61 3 8670 6800 www.aecom.com  
ABN 20 093 846 925

16-Aug-2023

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## Executive Summary

### Overview

This technical report is an attachment to VHM Limited's Goschen Rare Earth and Mineral Sands Project (the Project) Environment Effects Statement (EES). It contains a land use impact assessment of the Project and has been used to inform the EES.

The Minister for Planning decided that an EES was required on 10 October 2018, on the basis that the Project has the potential for a range of significant environmental effects.

On 19 December 2018, under delegated authority from the Minister for the Environment, the Department of Agriculture, Water and the Environment (now the Department of Climate Change, Energy, the Environment and Water) decided that the Project is a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999* and would require assessment and a decision about whether approval should be given under the Act. The Department of Climate Change, Energy, the Environment and Water also confirmed the Victorian Government's advice that the Project be assessed under a bilateral agreement under the *Environment Effects Act 1978*.

### Land Use Planning context

This assessment provides analysis of:

- Land use type surrounding the Project site
- Commonwealth, state and local planning policy applicable to the Project
- The approvals pathway for the Project; and
- Land use impacts and mitigation measures.

The EES scoping requirements issued by the Minister for Planning, set out the specific environmental matters that the Project must address to satisfy the Victorian assessment and approval requirements. The scoping requirements include a set of evaluation objectives. These objectives identify the desired outcomes to be achieved in managing the potential impacts of constructing and operating the Project in accordance with the Ministerial guidelines for assessment of environmental effects under the *Environment Effects Act 1978*.

The following evaluation objective is relevant to the Land Use Planning Impact Assessment:

- To minimise potential adverse social and land use effects, including on agriculture and transport infrastructure.

The key issues for Land Use Planning that will be investigated through this assessment are:

- The potential for reduced access to farmland, businesses, social networks, and community facilities.
- Potential for benefits and adverse effects on the existing and future land and beneficial uses, including agriculture and other local businesses.
- The potential for changes to and interruption of the existing infrastructure in the project area and in its vicinity, including water supply infrastructure, power transmission lines and local and regional roads or rail.
- The potential to increase risk to environmental and landscape hazards such as bushfires.

### Existing Conditions

To define the existing environment for the Project and assess the potential adverse land use effects, the Project area has been divided into the Mining Study Area, Water Pipeline Study Area and Transport Study Area. The Mining Study Area comprises the mine site and land within a five kilometre radius of the mine site boundary. The Water Pipeline and Transport Study Areas follow the proposed water pipeline and transport routes, along with land within one kilometre of these proposed routes. The Project and associated study areas extend across the municipality boundaries of the Gannawarra Shire Council and Swan Hill Rural City Council, and therefore the existing conditions have been assessed across both municipalities.

The proposed mine site is located within the Avoca Ward of Gannawarra Shire Council, just south of the municipality's boundary with Swan Hill Rural City Council. It is situated on the farmlands and paddocks between Donald-Swan Hill Road west of the site and Quambatook-Swan Hill Road east of the site. North of the site is Mystic Park-Meatian Road and south of the site is Nalder Road. The water supply pipeline route is proposed to be installed within the road reserves between the mine site and Kangaroo Lake. Materials are proposed to be transported between the site and Ultima for broader distribution.

The features of the landscape provide a strong foundation for farming, nature-based tourism and emerging industries such as mining. Land use immediately surrounding the Project typically comprises broadacre farming, consisting of dryland cropping and the production of wheat, barley, pulses, legumes, sheep and lambs.

Closer towards Kangaroo Lake, land is situated within the Goulburn Murray Irrigation District. This land benefits from irrigation from Kangaroo Lake, which enables more intensive forms of agriculture. The farms in the region commonly consist of land that has been significantly modified or cleared for use as farming. Despite this, there is still significant vegetation present within some road reserves that would be used for the water pipeline route. Kangaroo Lake itself is one of the largest and deepest permanent freshwater lakes supplied by the Torrumbarry Irrigation system. It is a vital water resource for the agricultural industry and a popular recreational boating and water sports destination.

Significant natural features within the broader region include; the Murray River, Gunbower National Park and the Kerang Lakes. There are also several smaller creeks and waterways that feed wetlands and lagoons among the Redgum forests, Black Box swamps and floodplains. This roadside vegetation acts as a wildlife corridor and a repository for flora species.

The largest source of employment across both municipalities is agriculture. Local municipal policies and strategies recognise that the outputs and means of farming are continually evolving in response to external influences such as market conditions, water access, drought and climate change. Policies therefore identify the need to use the land strategically to ensure continuous investment into the region. Although mining has not historically played a large part in the Gannawarra Shire municipality's history, there are a few quarries scattered across the region and there is recognition in the strategies and policies of both Gannawarra Shire and Swan Hill Rural City Council of the economic opportunities that mining could create for the broader region.

### **Regulatory Framework**

The assessment considers Commonwealth and Victorian legislation, policy and standards along with specific assessment criteria, including:

- Gannawarra Planning Scheme which provides context for the Land use impact assessment and approval requirements associated with the water pipeline and
- Swan Hill Planning Scheme which applies to a portion of the proposed transport route, land within the designated study areas and provides context for the Land use impact assessment.

The land use activity within the mine site can be characterised using the Clause 73.03 (Land Use Terms) of the Gannawarra Planning Scheme as a "Mining" land use associated with mining operations.

The proposed water pipeline is defined as a "utility Installation" under Clause 73.03 (Land use terms) of the Gannawarra and Swan Hill Planning Schemes (the Planning Schemes).

The terms 'Road' and 'roadworks' are not defined in the Planning Schemes and therefore have their ordinary meanings.

## Approvals Pathway

The holder of a mining or prospecting licence is not required to obtain a permit under the *Planning and Environment Act 1987* for the use or development of the land for mineral extraction in accordance with the exemptions set out under Sections 42(6) and 42(7) of the *Mineral Resources (Sustainable Development) Act*. In addition, under clause 52.17-7 of the Planning Schemes, the holder of a mining licence is not required to obtain a planning permit for the removal of native vegetation provided such removal is to the minimum extent necessary and done in accordance with an approved work plan.

Any approvals associated with the use and development of the proposed water pipeline and pump infrastructure, roadworks and any required native vegetation removal are not subject to the exemptions set out above because the works would be constructed outside of the proposed Mining Licence boundary.

The use and development of the proposed water pipeline (utility installation) and roadworks would result in a number of permit requirements. Furthermore, works on the north-west bank of Kangaroo Lake within the Public Conservation and Resource Zone would be prohibited unless it complies with the requirements set out in Clause 36.03-1 Table of Uses. Refer to Appendix A for mapping relating to the Public Conservation and Resource Zone.

Addressing permit requirements through individual planning permit applications would likely result in a fragmented approach to land use management and place a burden on the resources of the responsible authority. Further, a permit application process would be unable to facilitate the proposed use and development of land within the Public Conservation and Resource Zone for the pump station (as a prohibited use).

To provide a consistent and holistic set of controls for the use and development of land for the Project, the application of an Incorporated Document should be applied to land outside of the Mining Licence boundary through a Specific Controls Overlay via a Planning Scheme Amendment. The Incorporated Document would allow for the use and development of the final pipeline alignment, pump station, roadworks and areas required for ancillary works such as construction laydown areas, together with associated native vegetation removal, in accordance with approved plans. As works would span two council areas, Gannawarra and Swan Hill, a GC amendment capturing both Planning Schemes would be used.

It is also anticipated that agreements will need to be established between VHM Limited and relevant land managers including Council, and the Department of Transport and Planning for works on public land such as within the Public Conservation and Resource Zone and Road Reserves.

## Strategic Impact

The key attributes of the Project in relation to land use impacts to existing and foreseeable land uses include:

- The mine site is surrounded entirely by agricultural operations, limiting the extent of potential land use impacts on sensitive receptors and existing land use operations
- The pipeline alignment has been designed to avoid direct impacts on surrounding agricultural land uses by following the alignments of existing roads as much as possible
- The design and route of the pipeline seeks to avoid, minimise, and mitigate the potential and actual loss of roadside vegetation
- The proposed pump station has been designed and sited on a section of the Kangaroo Lake bank that is characterised by agricultural infrastructure, has low recreational value and limits the Project's impact on the environmental, cultural and landscape values of Kangaroo Lake
- Rehabilitation of the land would ensure that there is no permanent loss of agricultural land following decommissioning of the mine.

The key conclusions derived from the review of relevant policies and strategies include that there is broad planning policy support for the Project as:

- Environmental management measures set out in the Environmental Management Framework and Environmental Management Plan would ensure that the Project would not result in a permanent loss of agricultural land or adversely affect the use of surrounding land for broadacre farming
- It would diversify the region's economy, delivering new employment and training opportunities that would support the retention of the region's population
- The pump station (which is technically prohibited under the provisions of the Public Conservation and Resource Zone), is generally considered to be consistent with the purpose of the zone, which includes *'to provide for appropriate resource based uses'*
- Works associated with proposed intersection upgrades would be managed to address impacts to land use and would improve safety for all road users in accordance with Clause 02.03-8 of the Gannawarra Planning Scheme and Clause 02.03-7 of the Swan Hill Planning Scheme.

Approval of the Planning Scheme Amendment and implementation of mitigation measures derived from the EES assessment would be required to address the Project's potential land use conflicts and environmental matters protected by the *Planning and Environment Act 1987*.

### **Construction impact assessment**

Aspects of the Project that have been identified as having potential land use impacts include:

- Temporary land use change that is inconsistent with land use policy and/or conflict with established land uses, such as:
  - The temporary loss of agricultural land due to the construction footprint
  - Temporary disruptions to existing infrastructure such as rail, roads, irrigation and water channels, and power lines
  - An increased risk of fire due to increased use of construction plant and equipment.
- The permanent loss of native vegetation within road reserves, contrary to the following established land use policies
- Impacts to land access and access routes of surrounding land uses because of:
  - Increased construction traffic on roads surrounding the site
  - Temporary road closures and/or restrictions to facilitate road infrastructure upgrades.
- Temporary amenity impacts that are inconsistent with existing or reasonably foreseeable land use and policy.

This assessment, which partially relies on the findings and recommendations of the other specialist technical assessments, determines that the above land use impacts can be appropriately managed and mitigated as part of the Project.

### **Operation impact assessment**

Aspects of the Project that have been identified as having potential land use impacts include:

- A cumulative loss of agricultural land in the region, which could occur if there are multiple proposals approved to use agricultural land for non-farming purposes or permanent impacts to irrigation and water channel infrastructure.
- Impacts to landscape dominated by agricultural and farming land uses and more broadly, internationally recognised Ramsar wetlands and associated high-value natural features
- Access issues resulting from the closure of parts of Bennett Road and Thompsons Road, increased mining traffic impacting the condition of the local road network and creating congestion and delays to the transportation of agricultural goods. This impact would be more apparent during sowing and cropping seasons, when large trucks and semi-trailers transport agricultural produce to distribution centres in the region
- Changes to flood patterns as a result of pump station infrastructure displacing surface water during episodes of flooding.

- An increased risk of fire associated with operation of the mine and pump station infrastructure.
- Amenity impacts that are inconsistent with existing or reasonably foreseeable land use and policy.

This assessment, which partially relies on the findings and recommendations of the other specialist technical assessments, determines that the above land use impacts can be appropriately managed and mitigated as part of the Project.

### **Decommissioning and rehabilitation impact assessment**

There is a potential risk that decommissioning and rehabilitation activities associated with the closure of the mine could result in land use, access and amenity impacts including visual, noise, social, dust and vibration, that have impacts to surrounding agricultural operations and sensitive receptors. Furthermore, poor rehabilitation of the mine could result in soil contamination and radiation levels that make the land inappropriate for use in accordance with existing or future land use policy.

This assessment, which partially relies on the findings and recommendations of the other specialist technical assessments, determines that the above land use impacts can be appropriately managed and mitigated as part of the Project.

### **Mitigation and monitoring measures**

This assessment identifies several potential land use impacts associated with construction, operation and decommissioning and rehabilitation phases. In most instances, it is determined that land use planning specific mitigation and monitoring measures are not necessary as potential land use impacts identified during construction, operation, decommissioning and rehabilitation phases are addressed through relevant mitigation and monitoring measures that are set out in other specialist technical studies and summarised in the Environmental Management Framework as part of the EES.

Specifically, potential land use impacts would be addressed by requirements of the Environmental Management Framework, which sets out a variety of regulatory documents and management plans to be prepared by the Project including (but not limited to) an Environmental Management Plan (as required by the Incorporated Document) and a Work Plan.

The Work Plan and Environmental Management Plan would implement mitigation measures (as set out in the Environmental Management Framework) including:

- Biodiversity and habitat protection measures that are designed to minimise impacts to trees, native vegetation and remnant vegetation and control the spread and introduction of weeds and pathogens.
- Landscape and visual amenity measures that seek to minimise adverse effects on landscape and visual amenity associated with the environs of the Project Site.
- Measures to address social and land use effects on agriculture, accommodation, transport infrastructure and amenity resulting from Traffic and Transport, noise and air emissions and accommodation of the workforce.
- Air quality, noise, amenity and safety measures that seek to minimise noise and air emissions.
- Measures to minimise impacts to water resources, including surface water, ground water and related catchment values.
- Land stability, erosion and agricultural land use protection measures, including implementing strategies to reduce soil degradation, minimise potential adverse land use effects and ensure rehabilitation and closure returns the land for agricultural purposes.
- Land use and safety, including the risk of Bushfire through the implementation of bushfire management plans and rehabilitation requirements.

It is expected that potential land use impacts would be further supported through the proposed conditions of the Planning scheme Amendment documentation.

The mitigation measures set out in the EMF includes one mitigation measure that is recommended by this assessment. Bushfire risk associated with the mine itself will be addressed through the Work Plan



and a mitigation measure is proposed to address State and local policies relating to the Project's location within a Designated Bushfire Prone Area. This mitigation measure is set out in the Table 1.

**Table 1 Proposed land use mitigation measure**

Mitigation Measure ID	Mitigation Measure	Project Phase	Implementation Document
MM-LU01	<b>Bushfire Management Plan</b> A Bushfire Management Plan must be prepared to ensure that construction outside of the mining licence area is undertaken safely and any infrastructure maintained in consultation with the relevant authorities such as the Country Fire Authority and relevant asset owners.	All phases	EMP under Incorporated Document.

## Conclusion

The purpose of this report is to assess the potential land use impacts associated with the Project, address the EES scoping requirements and inform the preparation of the EES required for the Project. The assessment concludes, on balance, that the Project, supported by the mitigation measures outlined in the Environmental Management Framework and requirements of the proposed Incorporated Document, is consistent with and supported by State and local planning policies. Policy supports appropriate use of natural resources and the associated economic and social benefits.

The assessment found that the Project is consistent with the long-term vision for growth and land use planning in the broader region.

The assessment raised and addressed potential impacts as a result of the Project, including:

- Loss of agricultural land and permanent change of landscape
- Loss of roadside vegetation
- Disruption of Aboriginal cultural heritage
- Disruption of access routes for surrounding land uses and increased traffic
- Decreased environmental conditions and amenity, such as dust and noise

The assessment found that the Project would not result in unacceptable short, medium, or long-term land use planning impacts associated with the impacts above and others outlined in this report. This is achieved by all amenity management and mitigation controls identified in the EES being implemented and monitored, and through design solutions first seeking to avoid potential impacts.

The land use planning impacts identified during this assessment would be addressed through the mitigation measure proposed in this assessment, mitigation measures recommended in other relevant specialist technical studies, the Environmental Management Framework and the provisions of a Planning Scheme Amendment that facilitates works outside the Mining Licence area.

## Abbreviations

Abbreviation	Definition
AECOM	AECOM Australia Pty Ltd
AH Act	Aboriginal Heritage Act 2006
AHD	Australian Height Datum
BMO	Bushfire Management Overlay
BMP	Bushfire Management Plan
CEMP	Construction Environment Management Plan
CFA	Country Fire Authority
CHMP	Cultural Heritage Management Plan
Cth	Commonwealth
DAWE	Department of Agriculture, Water and the Environment (from 1 January 2023)
DBPA	Designated Bushfire Prone Area
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DEECA	Department of Energy, Environment and Climate Action (from 1 January 2023)
DELWP	Department of Environment, Land, Water and Planning (to 1 January 2023)
DTP	Department of Transport and Planning (from 1 January 2023)
EE Act	Environmental Effects Act 1978
EAO	Environmental Audit Overlay
EES	Environment Effects Statement
EMF	Environmental Management Framework
EMP	Environmental Management Plan
EPA	Environment Protection Authority
EP Act	Environment Protection Act 2017
EPBC Act	Environment Protection and Biodiversity Conservation Act 1977
ERR	Earth Resources Regulations
ESO	Environmental Significance Overlay
FFG Act	Flora and Fauna Guarantee Act 1988
FPP	Feed preparation plant
FZ	Farming Zone
GP Scheme	Gannawarra Planning Scheme
HAL	Hot Acid Leach
HMC	Heavy Mineral Concentrate
LSIO	Land Subject to Inundation Overlay
MNES	Matters of National Environmental Significance
MREC	Mixed Rare Earth Carbonate
MRSD Act	Mineral Resources (Sustainable Development) Act 1990

Abbreviation	Definition
MPS	Municipal Planning Strategy
MSP	Mineral Separation Plant
MSA	Mine Study Area
MUP	Mining Unit Plant
NCCMA	North Central Catchment Management Authority
NSW	New South Wales
OEMP	Operation Environment Management Plan
P&E Act	Planning and Environment Act 1987
PCRZ	Public Conservation and Resource Zone
PPF	Planning Policy Framework
PSA	Planning Scheme Amendment
PUZ1	Public Use Zone 1
REMC	Rare Earth Mineral Concentrate
REMP	Rehabilitation Environment Management Plan
FO	Floodway Overlay (shown in maps as RFO)
SA	South Australia
SCO	Specific Controls Overlay
SHPS	Swan Hill Planning Scheme
The Project	Goschen Mineral Sands and Rare Earths Project
TMP	Transport Management Plan
TRZ (1 and 2)	Transport Zone (1 and 2)
TSA	Transport Study Area
TZ	Township Zone
VHM	VHM Limited
VHR	Victorian Heritage Register
VHI	Victorian Heritage Inventory
VPO	Vegetation Protection Overlay
WA	Work Authority
WCP	Wet Concentrate Plant
WPSA	Water pipeline study area
WWTP	Wastewater treatment plant

## Glossary

Term	Definition
Construction Environmental Management Plan	Describes how activities undertaken during the construction phase of development will be managed to avoid or mitigate environmental or nuisance impacts, and how those environmental management requirements will be implemented.
Cultural Heritage Management Plan	A Cultural Heritage Management Plan assesses the potential impact of a proposed activity on Aboriginal cultural heritage.
Environmental Management Framework	Articulate clear accountabilities for managing and monitoring environmental effects and risks associated with all Project components and phases
Environmental Management Plan	Plan for managing and monitoring the environment, during different phases of the Project. This management plan is guided by the EMF, and forms part of the Incorporated Document. It only applies to land outside the Mining Licence area.
The Project	Proposed 20-year rare earth and mineral sands mine and processing facility
Mining	As defined in the Mineral Resources Sustainable Development) Act, mining means extracting minerals from land for the purpose of producing them commercially and includes processing and treating ore.
Project Investigation Area	The Project Investigation Area that has been selected for this Project extends in a 5km radius from the mine site and one kilometre radius from the proposed water pipeline and transport routes as shown in Figure 4.
Retention Licence	The primary purpose of a retention licence is to undertake further evaluation work on a mineral resource, which is not currently economically viable to mine, in order to establish its economic viability and lead to mining of the mineral resource. A retention licence also provides for retention of rights to a mineral resource that will be required in future to sustain the operations of an existing mine

## 1.0 Introduction

AECOM Australia Pty Ltd (AECOM) has been engaged by VHM Limited (VHM) to undertake a Land Use Impact Assessment (LUIA) to support the Environment Effects Statement (EES) for construction, operation, decommissioning and rehabilitation activities associated with the Goschen Mineral Sands and Rare Earths Project (the Project).

This assessment has been prepared in support of the EES by providing a detailed understanding of the land use and planning impacts of the Project and addressing the scoping requirements issued in May 2019 by the then Department of Environment, Land, Water and Planning (DELWP) (now Department of Transport and Planning (DTP)). The findings of this assessment have been used to inform the development of mitigation measures in the form of construction and operational management plans, that would exist within a robust Environmental Management Framework (EMF) for the Project.

This assessment provides the identification of:

- Land use type surrounding the Project site
- Commonwealth, state and local planning policy applicable to the Project
- The approvals pathway for the Project
- Land use impacts and mitigation measures to avoid, minimise and manage potential impacts.

### 1.1 Why understanding land use is important

Project activities have the potential to impact existing and future land uses or land use policies during the construction and operation phases. Land use impacts can be positive or negative, and occur:

- When a new use or development, or a change to an existing use or development, influences the use, form, function, amenity or appearance of the existing land use, its environment and/or the character of a place or location; and
- Where a change in an existing use or development now or in the future may have an impact on a seriously entertained or an introduced and now established Project.

Land use impacts may include:

- A permanent use or change related to a use, which is inconsistent with existing or future land uses or land use policies, or which impacts on the viability of other lawfully established and desired land uses; and
- A temporary use or change related to a use, which is inconsistent with existing or future land uses or land use policies.

Understanding how the Project would impact land use is important to inform the development of effective and appropriate management measures to minimise or manage impacts during construction, operation decommissioning and rehabilitation of the Project.

### 1.2 Requirement for an EES

The Project was referred to the Minister for Planning to seek advice on the need for an EES under the *Environment Effects Act 1978* (Vic) (EE Act). On 10 October 2018, the Minister for Planning decided that an EES was required on the basis that the Project has the potential for a range of significant environmental effects.

On 19 December 2018 under delegated authority from the Minister for the Environment, the Department of Agriculture, Water and the Environment (DAWE) (now the Department of Climate Change, Energy, the Environment and Water (DCCEEW)) made a decision that the Project is a controlled action under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) and would require assessment and a decision about whether approval should be given under the EPBC Act. DCCEEW also confirmed the Victorian Government's advice that the Project will be assessed under a bilateral agreement under the EE Act.

The EES enables stakeholders to understand the likely environmental impacts of the Project and how they are proposed to be managed. The Minister's assessment of the EES will inform statutory decisions that need to be made on the Project. The EES was developed in consultation with the community and stakeholders.

## 2.0 Project Description

### 2.1 Project overview

The Project comprises the development of a rare earth and mineral sands mine and processing facility with an approximately 20-year lifespan. VHM has been developing the Project in the context of a rapidly growing global demand for rare earths. One of the world's largest, highest-grade zircon, rutile and rare earth mineral deposits is in the Loddon Mallee region of Victoria in Australia. VHM intends to establish the Project to mine and process these deposits to produce and market a range of products to national and international consumers.

The mine footprint has been restricted to avoid intersection with groundwater and significant areas of remnant native vegetation. VHM will implement a staged development approach. The initial development of Phase 1 consists of a mining unit plant (MUP), wet concentrator plant (WCP), rare earth mineral concentrate (REMC) flotation plant and a hydrometallurgical plant that will further refine the REMC that is produced at Goschen. The product suite for phase 1 consists of a zircon/titania heavy mineral concentrate (HMC) and mixed rare earth carbonate (MREC).

Phase 2 will commence approximately two years post-production and consists of an additional mineral separation plant (MSP) and, subject to prevailing market circumstances at that time, a hot acid leach (HAL) and chrome removal circuit that will produce additional products such as premium zircon, zircon concentrate, HiTi rutile, HiTi leucoxene, LoTi leucoxene, low chromium ilmenite.

### 2.2 Project area

The Project is located approximately four hours' drive (280 kilometres) northwest of Melbourne and 30 minutes (35 km) south of Swan Hill within Gannawarra Shire (Figure 1).

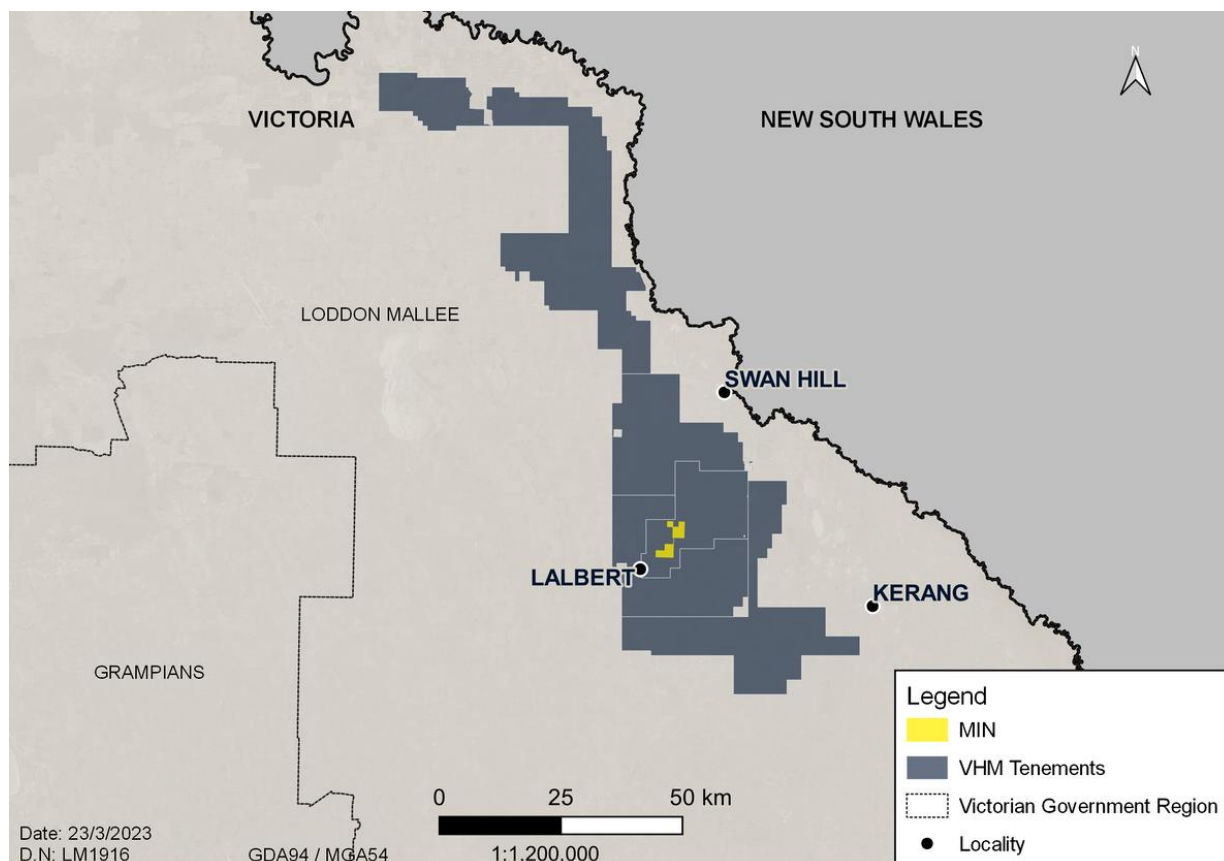


Figure 1 Goschen Project Location

## 2.3 Key Project components

The Project proposes a heavy mineral sand mining and processing operation that will produce several HMC and a range of critical rare earth minerals across two defined mining areas known as Area 1 and Area 3 (Figure 2 and Figure 3). The key components that make up the Project are described below.

- **Mining** – Mining will take approximately 20-25 years at 5 mega tonnes of ore produced per year (Mtpa) and will occur only above groundwater level (no dewatering) across approximately 1,479 hectares of farmland using conventional open cut mining methods of excavation, load, and haul.
- **Processing** – Heavy mineral sands and rare earths ore will be separated via an on-site WCP and MSP to generate a REMC. Refining of the REMC on-site is limited to hydrometallurgical extraction to produce a mixed rare earth carbonate. Tailings from the various mineral processes will be homogenised and placed back into the ore zone earlier mined.
- **Rehabilitation** – The mined areas will be progressively backfilled in a staged manner, with tailings dewatered in-pit to allow overburden and topsoil placement in a profile that reinstates the background soil structure. This will result in the ability for a return to the current agricultural land uses within three years.
- **Power** – Electrical power needed for mining and processing will be produced on-site from dual fuel diesel/LNG fired power generators, with a gradual evolution over the life of mine to renewables, hydrogen and/or battery storage as technologies and commercial viability increase. Heat energy for the on-site gas fired appliances shall be provided from an extension of the distribution network from the main LNG storage and regasification system.
- **Transport** – Final products shall be containerised in 20ft sealed sea containers on site and exported via Melbourne Port using road and/or rail-based land logistics solutions. Ultima will provide an intermodal rail solution, to reach the shipping export ports.
- **Water** - Water will be required for construction earthworks, processing, dust suppression and rehabilitation. Up to 4.5 gigalitres (GL) will be needed for the start-up of the Project. Water will be sourced from Goulburn Murray Water (GMW) from a new pumpstation at Kangaroo Lake via the open water market. A 38km underground pipeline is proposed beneath existing local road easements as shown in Figure 4, noting the section of pipeline labelled 'alternative route' is not proposed to be constructed.



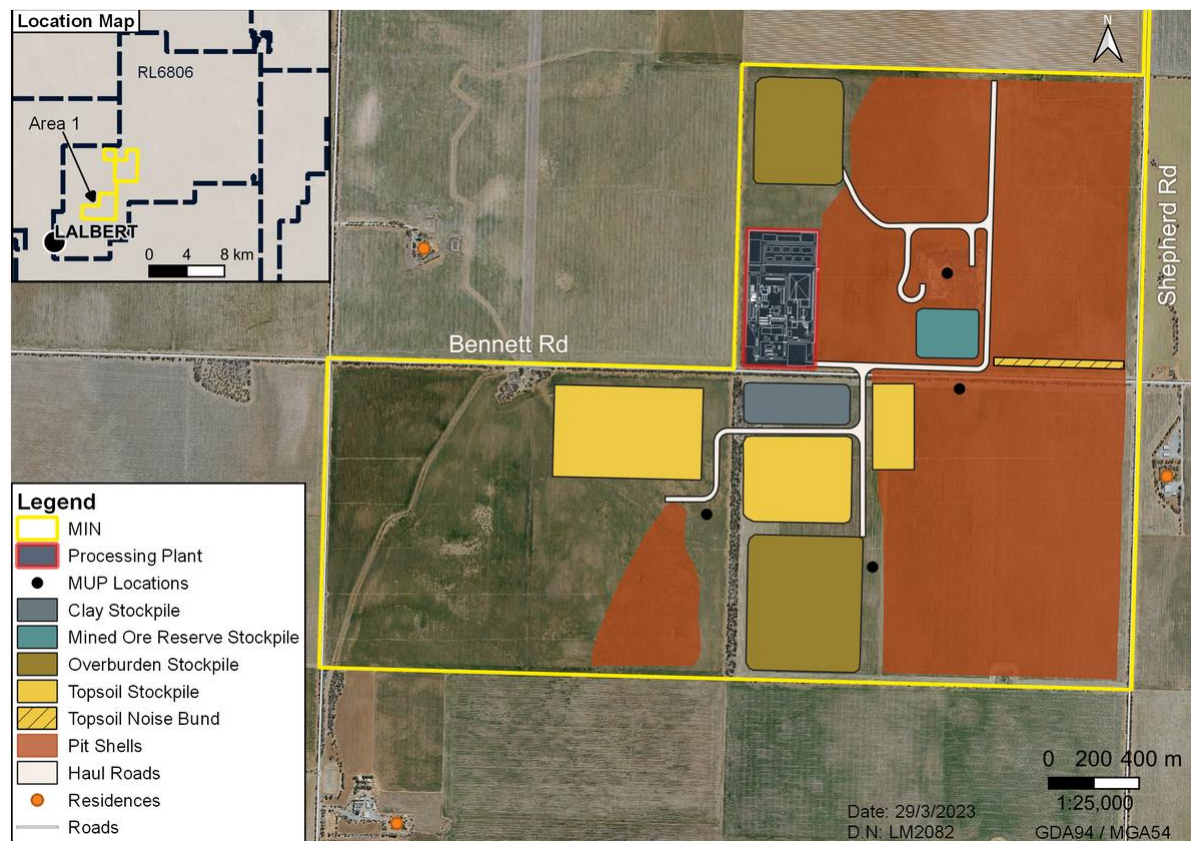


Figure 2 Area 1 Goschen Project

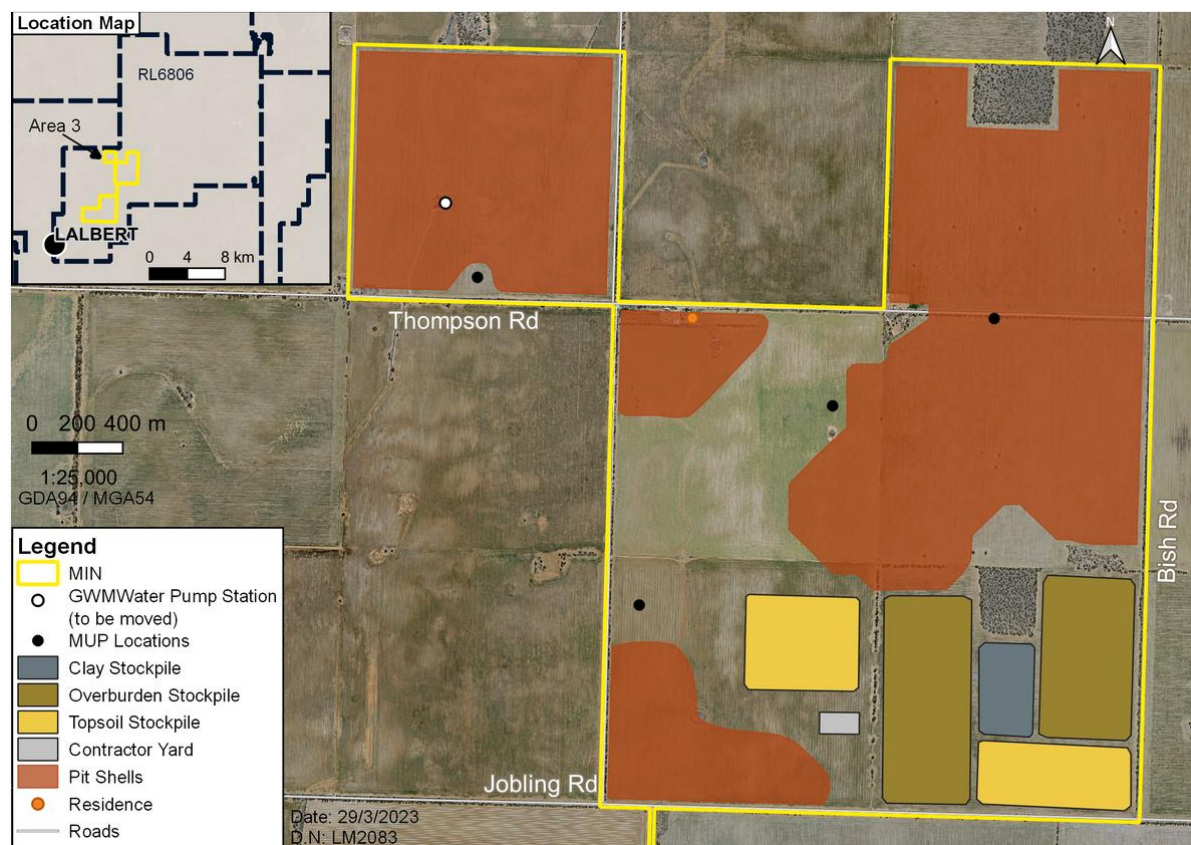


Figure 3 Area 3 Goschen Project



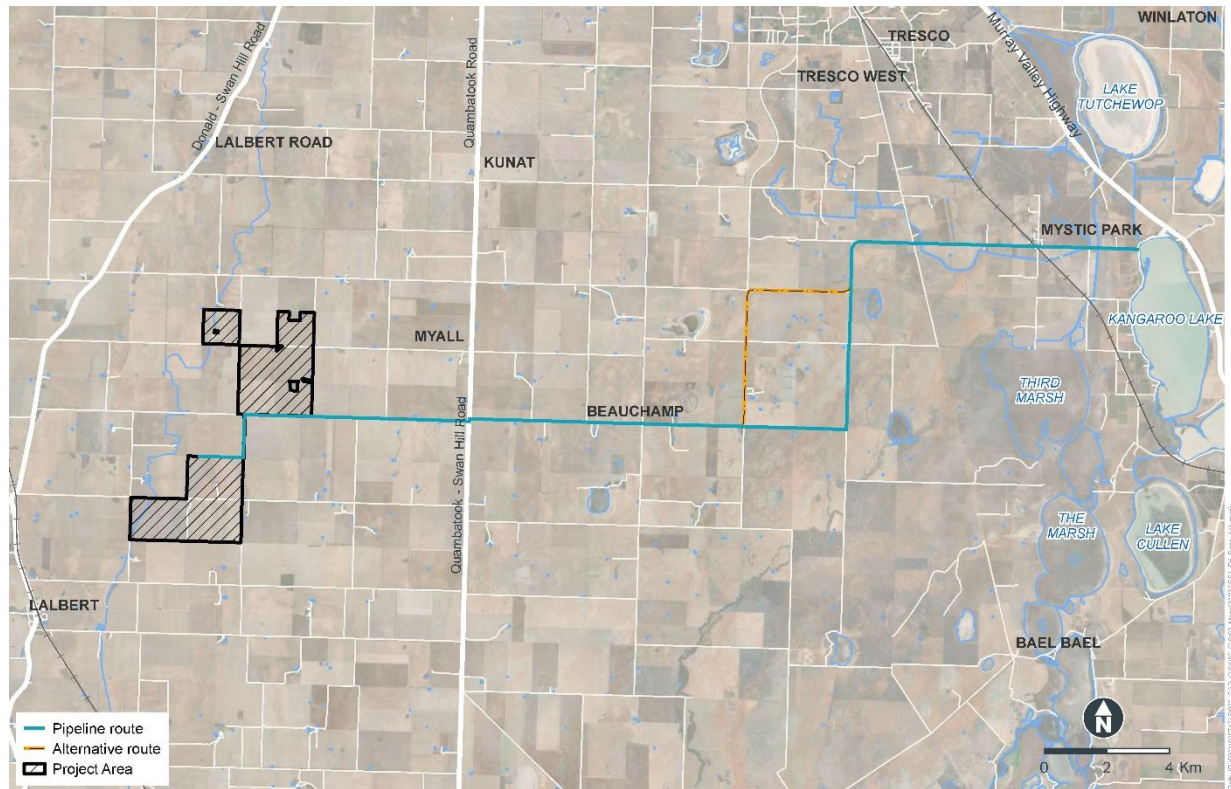


Figure 4 Proposed water supply pipeline

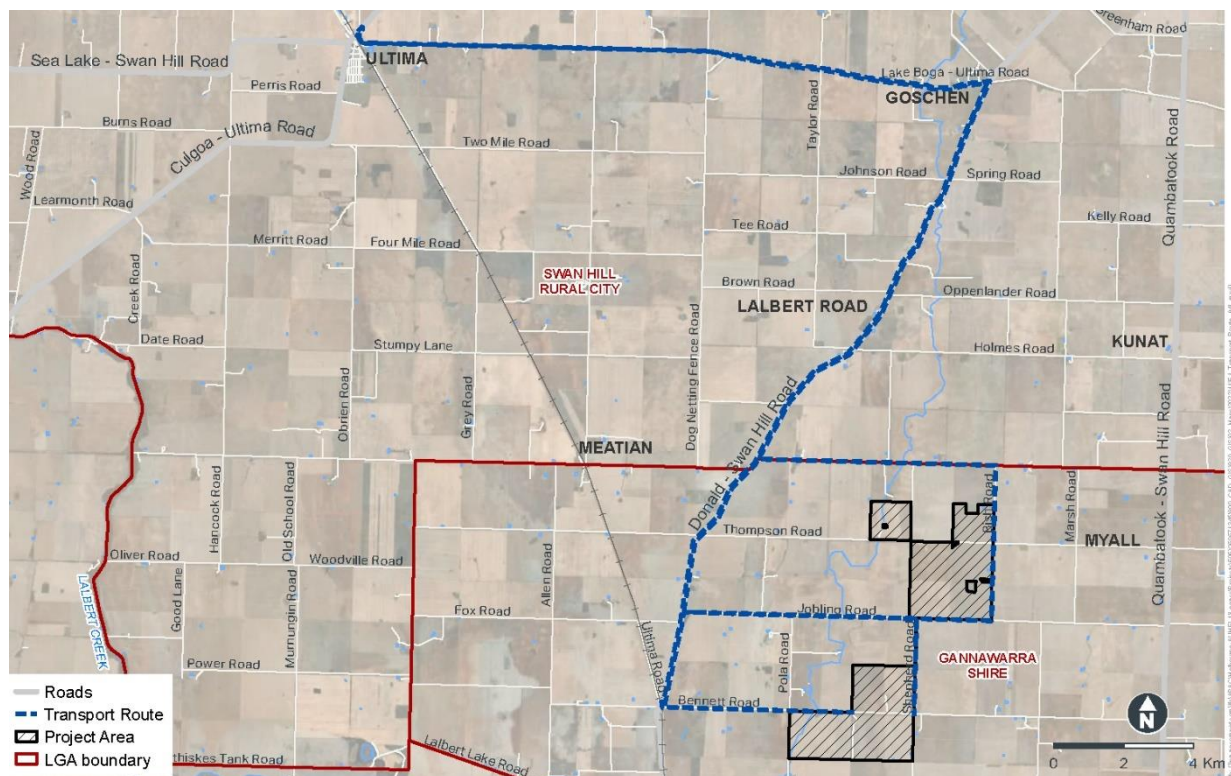


Figure 5 Proposed transport route

## 2.4 Key construction activities

Project construction would occur over a period of approximately nine months with the following phases:

### First phase – Site Establishment

- Establishment of site access from Bennett Road.
- Site establishment with temporary construction services such as: site offices, site ablutions, and lay down areas.

### Second phase - Earthworks

- Earthworks including clearing and stripping of topsoil layers and bulk filling of the site to design level. The primary focus during this phase would be on the construction of feed preparation plant (FPP) and WCP pads to allow works to continue in these areas
- Earth and concrete works for the MSP, REMC flotation plant and re-agents area
- Construction of the mine water storage and stormwater dams, roads, car parks and other ancillary areas in key plant locations.

### Third phase – Structural, mechanical and piping construction

- Buildings and works for the overland piping REMC plant
- Works associated with the mechanical installation of the WCP and MSP, with work beginning at the ground floor before progressing to upper levels
- The installation of underground high voltage cabling to the mining area.

### Fourth phase - Electrical and instrumentation construction

- The installation of cabling, trays, switch rooms and instruments

### Fifth phase – Commissioning

- Testing and calibration of plant, including the loading of the control system, 'bump testing' of drives, initial instrument calibration, testing of critical safety systems, running of rotary machinery and circulating water through identified systems.

### Sixth Phase – Ancillary construction and utilities

- Construction of a 10.2-megawatt (MW) power station. The proposed power supply is based on an off-grid solution using on-site generators to provide a reliable source of electrical energy to operate the mine.
- Construction of the water supply pipeline. It is expected that the pipeline will take 9-12 months to construct. Most of the pipeline is expected to use the standard pipeline construction methodology of trenching, which would require approximately a 6-metre-wide construction corridor, predominantly within the existing road reserve. Where this is not feasible, construction may impact private land or require non-destructive digging (NDD) to minimise the construction footprint and avoid and minimise impacts to native vegetation wherever possible.
- The water pipeline includes:
  - Approximately 38 kilometres of underground pipeline along road corridors
  - A pipe diameter of approximately 450 millimetres, installed in a nominal one-metre-wide trench (to a maximum depth of 1.5 metres depending on ground conditions and topography).
- Construction of an intake pump station at Kangaroo Lake. The concept design for the pump station anticipates two bank-mounted, skid-mounted 400 kilowatt (kW) horizontal pumps each with an electric motor. Each 400-volt (V) motor will be controlled by a variable speed drive (VSD) powered from a common switchboard. The switchboard will be connected to the Powercor electricity grid but will also be able to be powered by a 2-megavolt ampere (MVA) diesel-powered generator.

- Construction of a seven-day capacity storage tank at the mine for potable water which would be delivered by truck.
- Construction of water recycling systems at the mine where practicable.
- Construction of a packaged wastewater treatment plant (WWTP) at the mine to treat wastewater from showers, toilets and sinks. Raw sewage would also be fed to the WWTP.
- Works associated with upgrades to roads within existing road reserves (both within and beyond the project areas assessed in this report) to support expected vehicle movements resulting from the construction and operation of the mine. Road upgrades may include widening, re-surfacing, acceleration, deceleration and turning lanes and expanding intersections for increased turning circles. Appropriate signage and road markings would also be installed as required by the Responsible authority.
- Construction of on-site offices and amenities including store warehouse, chemicals and hydrocarbon storage and vehicle washdown and weighbridge.
- Perimeter and security fencing would be constructed around secure areas, such as the on-site fuel depot which would be regularly supplied by fuel tankers. Perimeter fencing would consist of four strands of galvanised barbed-wire and steel star pickets.

## 2.5 Key operation activities

The Project is expected to be in operation for approximately 20-25 years. Key mining operations would begin in the north-east paddock of Area 1 and continue to the south-east before moving west. Once Area 1 has been mined, operations would begin in the eastern paddocks of Area 3 before heading west. Mining operations would use a strip-mining methodology, whereby each mined segment, or block, would be approximately 200 metres along-strike and would be variable in width to suit. Mining operations would take place above the groundwater water table, with the depth of mining proposed to be approximately 30 to 40 metres below ground level.

Project operations associated with the mine would include:

- Cross-ripping, pushing up bunds and contouring waste dumps. These primary mining operations would be supported by dozers and front-end loaders. Dozers may also be used to accurately remove overburden immediately above ore zones to minimise dilution. Front-end loaders and dozers may be used for feeding the MUP and to assist in cleaning the pit floor to improve mining recovery.
- Transportation of the overburden using trucks and excavators. This fleet would be used to transport majority of the overburden from its in-situ location to the surface. It is proposed that 200 tonne excavators would be used for the removal of overburden and 100 tonne excavators would be used for ore mining. 130 tonne rigid body trucks would be used for the transportation of material throughout the mine.
- The mining of the area in blocks, with excavation, tailings deposition and rehabilitation being undertaken in a progressive sequence. Initially overburden and ore extracted from the first mining block would be stored at the surface in stockpiles. However, once the first block has been mined, overburden stockpiled at the surface would be used to make tailings bunds within the void of mined blocks. Mining areas would be progressively backfilled in a staged manner, with tailings dewatered in-pit to allow overburden and topsoil placement in a profile that reinstates the background soil structure. It is expected that each block would only be open for a maximum of 8-12 months.
- On-site water dams that would serve as storage to support the overall water demand of the site. This water would be reticulated to various areas for dust suppression and storage for use in the various mineral processes, whereafter it would be referred to as process water. Process water is a closed circuit and will only be used within the processing plant and mining areas, with evaporation being the only discharge from site
- The use of potable water for consumption and washing during operation. Water from storage dams would be transferred to an on-site water treatment plant, treated and stored in potable water tanks. Potable water would be trucked to remote mining facilities as required.

- Operation of an inground sewage pump station located in proximity to the plant area. Wastewater, including sewage, potable waste and other discharge waste sources would be directed to the sewage pump station. Wastewater would be periodically collected and removed from site by appropriately licenced contractors.
- Generation, storage and removal of non-hazardous and hydrocarbon waste. Non-hazardous waste would be stored in dedicated areas and removed by an appropriately licenced waste management contractor for offsite disposal or recycling. Hydrocarbon waste would be collected using appropriate equipment and specialised storage vessels local to potential discharge points. The waste would be stored in bunded and double skinned storage vessels as required. Hydrocarbon waste would be collected, transported, treated and/or disposed by appropriately licenced contractors.
- Management of dust. This would primarily consist of water spray from rigid or articulated all-wheel drive water tankers. Additionally, material would only be excavated, transported and stockpiled as necessary to limit the potential for dust generation.

In addition to the operation of the mine itself and transportation of waste, transportation of product from the mine is expected to entail the following:

- Products to be packaged and transported in 20-foot standard shipping containers. The shipping container packing and sealing would take place on site.
- Products to be transported to the Port of Melbourne (the preferred port for export and import), however Port of Geelong is also an option.
- Transportation of products to the rail loading facility at the town of Ultima, approximately 25 km north-west of the project.

## **2.6 Key decommissioning and rehabilitation activities associated with closure**

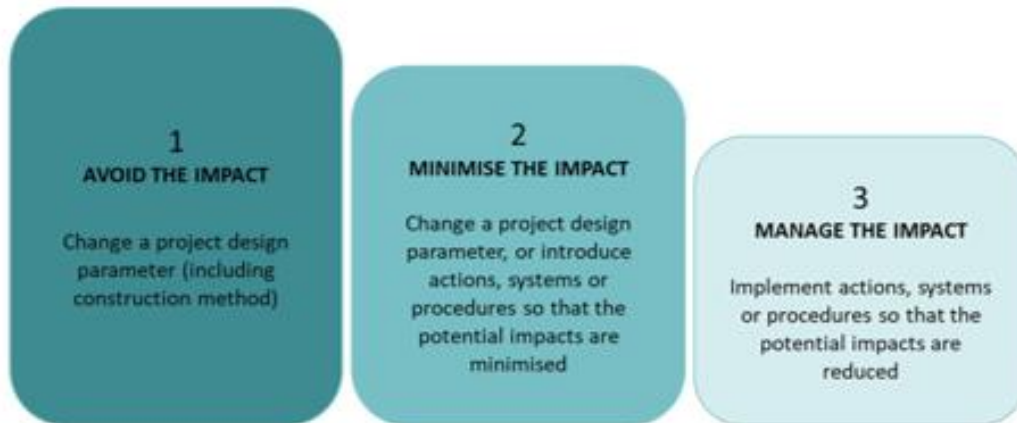
Mined areas would be progressively backfilled in a staged manner to reinstate background soil structure which enables a return to the current agricultural land uses within three years. Decommissioning of plant areas would require a contamination assessment with any necessary remediation taking place prior to closure. In plant and infrastructure areas, activities undertaken upon decommissioning include:

- Plant and ancillary facilities would be dismantled, with material removed from site.
- Full decommissioning of the water pipeline would occur unless otherwise agreed with the Responsible authority.
- Materials may be sold for scrap to local merchants, taken off-site for recycling or transported to an appropriate disposal facility licenced to receive the waste.
- Soil testing would be undertaken to identify any potential soil contamination.
- Building materials, foundations and contaminated soil would be remediated and/or removed from site and disposed of at an appropriate facility licenced to receive the waste.
- All exposed soil would be graded to approximately pre-project contours, ripped to reduce compaction, spread with topsoil (if necessary) and revegetated.

Rehabilitation in low-disturbance areas would typically comprise of compaction or ripping, application of fertiliser and grading.

## **2.7 Project development**

It is recognised that there are opportunities to avoid and minimise environmental impacts during the many stages of Project development. During Project inception and early design development stages of the Project, decisions on the location of the Project and its design and construction techniques have enabled impacts to be significantly avoided and minimised in accordance with the hierarchy presented in Figure 6.



**Figure 6 Mitigation hierarchy**

Avoidance and minimisation of social and environmental impacts is central to the Project's decision making and as such, the Project will continue to be refined in response to technical requirements and potential environmental and social impacts identified during the development phase.

This was considered in the preparation of a Project description which is found at Chapter 4: Project description of the EES. A description of how avoidance of impact has informed the design in relation to Land Use Planning can be found in Section 5.4. Examples of this include the decision to create vegetation protection zones within the Project (mining area), restricting mining operations to daylight hours only to avoid noise related impacts to certain receptors, and restricting mining to depths above the water table to avoid impacts to the groundwater table.

After opportunities to avoid impact were incorporated into the Project, minimisation and rehabilitation measures were developed. These are described in the construction and operation impact assessment sections below.



### 3.0 Scoping Requirements

The scoping requirements for the EES ('scoping requirements') by the Minister for Planning, set out the specific environmental matters the Project must address in order to satisfy the Victorian assessment and approval requirements.

The scoping requirements include a set of evaluation objectives. These objectives identify the desired outcomes to be achieved in managing the potential impacts of constructing and operating the Project in accordance with the *Ministerial guidelines for assessment of environmental effects* under the EE Act. The following evaluation objective is relevant to the LUA:

- *To minimise potential adverse social and land use effects, including on agriculture and transport infrastructure.*

The aspects from the scoping requirements relevant to the evaluation objective are shown in Table 2 as well as the location where these items have been addressed in this report.

**Table 2 Scoping requirements relevant to land use**

Aspect	Scoping requirement	Section addressed
<b>Key issues</b>	<i>The potential for reduced access to farmland, businesses, social networks and community facilities.</i>	Sections 7.0, 9.0 and 10.0
	<i>Potential for benefits and adverse effects on the existing and future land and beneficial uses, including agriculture and other local businesses.</i>	Sections 7.0, 9.0, 10.0 and 11.0
	<i>The potential for changes to and interruption of the existing infrastructure in the project area and in its vicinity, including water supply infrastructure, power transmission lines and local and regional roads or rail.</i>	Sections 7.0, 9.0 and 10.0
	<i>The potential to increase risk to environmental and landscape hazards such as bushfires</i>	Sections 7.0, 9.0 and 10.0
<b>Existing environment</b>	<i>Characterise the existing and planned land use and the existing beneficial uses within and in the vicinity of the proposed Project.</i>	Section 6.0
	<i>Describe the existing infrastructure for water supply, irrigation, wastewater collection and power supply in the Project area and in its vicinity.</i>	Section 6.3
	<i>Describe existing emergency response infrastructure and resources</i>	Section 6.3
	<i>Describe the bushfire hazard for immediate site and broader landscape conditions and undertake appropriate risk assessment that considers the risk of bushfire to people, property and community infrastructure</i>	Sections 6.3, 7.0, 9.0 and 10.0
<b>Assessment of likely effects</b>	<i>Assess potential social and land use impacts arising from the Project including access to accommodation and social services.</i>	Sections 7.0, 9.0, 10.0 and 11.0
	<i>Evaluate the consistency of the Project with the policies and provisions of the Gannawarra and Swan Hill planning schemes and other relevant land use planning strategies.</i>	Sections 7.0, 9.0, 10.0 and 11.0
<b>Design and mitigation measures</b>	<i>Outline and assess design and mitigation measures that address the potential for adverse land use effects during construction, operations (including progressive rehabilitation), decommissioning and post-closure, including the proposed principles for sustainable land use set for rehabilitation of soils and landforms post-mining.</i>	Section 13.0

Aspect	Scoping requirement	Section addressed
	<i>Outline measures to minimise potential adverse effects on local communities and infrastructure</i>	Section 13.0
	<i>Outline measures to minimise potential adverse effects to local businesses, including agriculture, and to enhance potential benefits to local and regional businesses.</i>	Section 13.0
	<i>Outline appropriate bushfire protection measures to address the identified bushfire risk.</i>	Sections 7.0, 9.0, 10.0 and 13.0
<b>Approach to manage performance</b>	<i>Describe monitoring programs to measure social, land use, economic and infrastructure outcomes for communities living within or in the vicinity of the Project area including a framework for identifying and responding to any emerging issues.</i>	Section 13.0



## 4.0 Evaluation Framework

The assessment considers Commonwealth and Victorian legislation, policy and standards along with specific assessment criteria, including the following planning schemes (the Planning Schemes):

- Gannawarra Planning Scheme (GP Scheme) which provides context for the LUIA, and approval requirements associated with the water pipeline; and
- Swan Hill Planning Scheme (SHPS) which applies to some land within the study area and provides context for the LUIA.

### 4.1 Regulatory framework and permitting

The mining areas (Areas 1 and 3) of the Project are situated entirely on land within the Farming Zone (FZ) under the provisions of the GP Scheme. The land use activity within Areas 1 and 3 can be characterised using the Clause 73.03 (Land Use Terms) of the GP Scheme as “Mining” land use associated with the Earth and energy resources industry.

#### Mining

*Land used for mining as defined in the Mineral Resources (Sustainable Development) Act 1990.*

The Mineral Resources (Sustainable Development) Act 1990 (MRSD Act) provides the following definition:

*Mining means extracting minerals from land for the purpose of producing them commercially, and includes processing and treating ore.*

The *Mineral Resources (Sustainable Development) Act 1990* (MRSD Act) provides the following exemptions in relation to permits for a mineral extraction land use:

- *Section 42(6) - Despite anything in any planning scheme approved under the Planning and Environment Act 1987, the holder of a mining licence or prospecting licence may be granted a permit under the scheme for carrying out mining on the land covered by the licence even if the scheme prohibits that use or development of the land (whether absolutely or unless specified conditions are complied with) and does not provide for the granting of a permit for that use or development.*
- *Section 42(7) If under subsection (6) or any planning scheme a permit is required to be obtained for carrying out mining on the land covered by a mining licence or prospecting licence in accordance with that licence, the licensee is not required to obtain a permit for that work if—*
  - a. *an Environment Effects Statement has been prepared under the Environment Effects Act 1978 on the work proposed to be done under the licence; and*
  - b. *an assessment of that Statement by the Minister administering the Environment Effects Act 1978 has been submitted to the Minister.*

In summary, the holder of a mining or prospecting licence is not required to obtain a permit under the *Planning and Environment Act 1987* (P&E Act) for the use or development of the land for mining in accordance with the exemptions set out under Sections 42(6) and 42(7) of the MRSD Act.

The proposed water pipeline infrastructure, roadworks associated with the transport route and any native vegetation removal are not subject to the exemptions set out above because the works would be constructed outside of the proposed Mining Licence boundary.

The proposed water pipeline is defined as a “utility Installation” under Clause 73.03 (Land use terms) of the GP Scheme

Road is not specifically defined in the Planning Schemes and has its ordinary meaning.

The use and development of the pipeline, roadworks and any associated vegetation removal outside of the Mining Licence boundary would result in a number of potential permit requirements set out in Table 3, Table 4 and Table 5. The consistency of the Project with the planning provisions set out in Tables 3, 4 and 5 are addressed in Section 7.2 of this report. Furthermore, works within the Public Conservation

and Resource Zone (PCRZ) would be prohibited unless it complies with the requirements set out in Clause 36.03-1 Table of Uses (refer to Appendix C for further information)

Addressing permit requirements through individual planning permit applications would likely result in a fragmented approach to land use management and place a burden on the resources of the responsible authority. Further, a permit application process would be unable to facilitate the proposed use and development of land within the PCRZ for the pump station (as a prohibited use).

**Table 3 Zoning and Overlay approval requirements for the water pipeline, roadworks and any associated vegetation removal under the Planning Schemes**

Provision	Potential Use and Works	Approval Requirement	
		Permit required for Use	Permit required to construct or carry out works
Farming Zone (FZ) Gannawarra and Swan Hill	Use of land and works associated with a Utility installation.	A permit <b>is required</b> for use of the land for a Utility installation (see Clause 35.07-1 Table of uses).	A <b>permit is required</b> to construct a building or carry out works (see Clause 35.07-4)
	Use of land and buildings and works associated with a Road	A <b>permit is not required</b> pursuant to Clause 62.01.	A <b>permit is not required</b> pursuant to Clause 62.02-2
Public Conservation and Resource Zone (PCRZ) Gannawarra	Use of land and works associated with a Utility installation.	Use of the land for a Utility installation <b>is prohibited</b> (see Clause 36.03-1 Table of uses) unless the use is conducted by or on behalf of a public land manager or Parks Victoria under relevant provisions of the <i>Local Government Act 1989</i> , the <i>Reference Areas Act 1978</i> , the <i>National Parks Act 1975</i> , the <i>Fisheries Act 1995</i> , the <i>Wildlife Act 1975</i> , the <i>Forests Act 1958</i> , the <i>Water Industry Act 1994</i> , the <i>Water Act 1989</i> , the <i>Marine Safety Act 2010</i> , the <i>Port Management Act 1995</i> or the <i>Crown Land (Reserves) Act 1978</i> or; is specified in an Incorporated plan in a schedule to this zone.	<p>A <b>permit is required</b> to construct a building or carry out works.</p> <p>This does not apply to:</p> <ul style="list-style-type: none"> <li>a building or works shown in an Incorporated plan which applies to the land</li> <li>a building or works specified in Clause 62.02-1 or 62.02-2 carried out by or on behalf of a public authority or municipal council, if the public authority or municipal council is carrying out functions, powers or duties conferred by or under the <i>Local Government Act 1989</i>, the <i>Reference Areas Act 1978</i>, the <i>National Parks Act 1975</i>, the <i>Fisheries Act 1995</i>, the <i>Marine Safety Act 2010</i>, the <i>Port Management Act 1995</i>, or the <i>Crown Land (Reserves) Act 1978</i>; or</li> <li>a building or works carried out by or on behalf of a public land manager or Parks Victoria under the above mentioned Acts or the <i>Road Management Act 2004</i>.</li> </ul>

Provision	Potential Use and Works	Approval Requirement	
		Permit required for Use	Permit required to construct or carry out works
Transport Zone 1 – State Transport Infrastructure (TRZ1) Gannawarra	Use of land and works associated with a Utility installation.	A permit <b>is required</b> for use of the land as a Utility installation (see Clause 36.04-1 (Table of uses)).	A <b>permit is required</b> to construct or carry out works (see Clause 36.04-2)
Transport Zone 2 – Principal Road Network (TRZ2) Swan Hill	Use of land and buildings and works associated with a Road	A <b>permit is not required</b> pursuant to Clause 62.01.	A <b>permit is not required</b> pursuant to Clause 62.02-2
Township Zone (TZ) Gannawarra	Use of land and works associated with a Utility installation.	A permit <b>is required</b> for use of the land as a Utility installation (see Clause 32.05-2 (Table of uses)).	A <b>permit is required</b> to construct or carry out works (see Clause 32.05-10)

**Table 4 Overlay approval requirements for the water pipeline, roadworks and any associated vegetation removal under the Planning Schemes**

Provision	Potential Works	Approval Requirement	
		Permit required to construct or carry out works	Removal of Native Vegetation
Bushfire Management Overlay (BMO) Swan Hill	Roadworks	A permit is not required pursuant to Clause 62.02-2	N/A
Environmental Significance Overlay – Schedule 2 (ESO2) Gannawarra	Roadworks and Traffic Control Devices	A permit is not required pursuant to Clause 62.02-2	A permit <b>is required</b> to destroy or lop any vegetation, including dead vegetation (see Clause 42.01-2)
Environmental Significance Overlay – Schedule 3 (ESO3) Gannawarra	Buildings and works associated with a Utility installation.	A permit <b>is required</b> to construct or carry out works (see Clause 42.01-2)	
Environmental Significance Overlay – Schedule 4 (ESO4) Gannawarra	Buildings and works associated with a Utility installation.		

Provision	Potential Works	Approval Requirement	
		Permit required to construct or carry out works	Removal of Native Vegetation
Land Subject to Inundation Overlay (LSIO) Gannawarra	Buildings and works associated with a Utility installation.	No permit required provided the laying of underground water pipelines do not alter the topography of the land and are undertaken in accordance with plans prepared to the satisfaction of the responsible authority.	N/A
Floodway Overlay (Shown on maps as RFO) Gannawarra	Buildings and works associated with a Utility installation.	A permit <b>is required</b> to construct a building or to construct or carry out works associated with the proposed pump station. No permit required for the laying of underground water pipelines provided works do not alter the topography of the land and are undertaken in accordance with plans prepared to the satisfaction of the responsible authority.	N/A
Specific Controls Overlay – Schedule 2 (SCO2) Gannawarra	Buildings and works associated with a Utility installation	N/A	N/A
Vegetation Protection Overlay – Schedule 1 (VPO1 Roadside and Corridor Protection) - Gannawarra	Buildings and works associated with a Utility installation.	N/A	A <b>permit is required</b> to remove, destroy, or lop native vegetation on land within the road reserve and within 50 metres of the road reserves designated by this overlay (see Clause 42.02-2 and Clause 3.0 in Schedule 1)
Vegetation Protection Overlay – Schedule 1 – (VPO1 Remnant Vegetation) Swan Hill	Roadworks	N/A	A <b>permit is required</b> to remove, destroy, or lop any native vegetation, including any dead trees that are standing.

**Table 5 Approvals required under Particular Provisions for the water pipeline, roadworks and any associated vegetation removal under the Planning Schemes**

Provision	Description	Approval Requirement
Clause 52.02 (Easements, restrictions and reserves)	Seeks to ensure that easements and restrictions are applied appropriately to facilitate development that is consistent with the provisions and directions of the planning scheme, while balancing the interests of affected parties.	A permit may be required to create, vary or remove an easement to facilitate the use and development of the pipeline
Clause 52.05 (Signs)	Regulates the development of land for signs and associated structures. Land within the Farming Zone is considered a <i>Category 4 – Sensitive area</i> .	Approval may be required if the total display area to each premises exceeds 3 square metres.
Clause 52.06 (Car parking)	Ensures the provision of an appropriate number of car parking spaces having regard to the demand likely to be generated, activities on the land and the nature of the locality in accordance with the Municipal Planning Strategy (MPS) and Planning Policy Framework.	Utility installation is not specified in Table 1 to Clause 52.06, the Parking Overlay does not apply, and car parking requirements are not specified in any other provision of the GP Scheme. In accordance with Clause 52.06-6 (Number of car parking spaces required for other uses), car parking spaces must therefore be provided to the satisfaction of the responsible authority.
Clause 52.08 (Earth and energy resources industry)	Encourages land to be used and developed for exploration and extraction of earth and energy resources in accordance with acceptable environmental standards. The table of exemptions found at Clause 52.01-1 (Permit requirement) provides that no permit is required to use or develop land for Earth and Energy Resources Industry if the mining complies with Section 42(7) or Section 42A of the MRSD Act.	No permit is required to use or develop land for earth and energy resources industry if mining complies with Section 42(7) of the MRSD Act.
Clause 52.17 (Native Vegetation)	Seeks to ensure that there is no net loss to biodiversity as a result of the removal, destruction or lopping of native vegetation in accordance with the <i>Guidelines for the removal, destruction or lopping of native vegetation (DELWP, 2017)</i> (The Guidelines).	A permit <b>is required</b> to remove, destroy or lop native vegetation, including dead native vegetation (see Clause 52.17-1).
Clause 52.29 (Land Adjacent to the Principal Road Network)	Seeks to ensure appropriate access to the Principal Road Network or land planned to form part of the Principal Road Network, and to ensure appropriate subdivision of land adjacent to Principal Road Network or land planned to form part of the Principal Road Network.	A permit is required to create or alter access to a road in a Transport Zone 2. An application to create or alter access to, or to subdivide land adjacent to, a road declared as a freeway or an arterial road under the <i>Road Management Act 2004</i> , or land owned by the Head, Transport for Victoria for the purpose of a road, must be referred to the Head, Transport for Victoria (determining referral authority) (pursuant to Clause 66.03 Referral of permit application under other state standard provisions).

To provide a consistent and holistic set of controls for the use and development of land for the Project, the application of a Specific Controls Overlay (SCO) via a Planning Scheme Amendment (PSA) is proposed to be applied to the final pipeline alignment, pump station and areas required for ancillary works such as road upgrades or construction laydown areas. The proposed alignment is shown in the zoning and overlay maps in Appendix A as 'Project Infrastructure Land'. A PSA is the most appropriate planning approval mechanisms for the following reasons:

- The Project is of regional significance for the Loddon Mallee Region and of state significance for Victoria
- A PSA would ensure that the use and development of the land for the Project (including uses that would otherwise be prohibited in the planning scheme) is undertaken in accordance with specific and comprehensive conditions contained in an Incorporated Document rather than ad-hoc planning permits
- The application of an Incorporated Document would ensure that there is an integrated and co-ordinated planning control for the proposed works across land of different tenures and subject to complex and multiple approval requirements. All planning permit triggers will be encapsulated with the conditions of the Incorporated Document to allow for consolidated consideration and approval
- The PSA would be jointly exhibited with the EES, minimising approval timeframes and the administrative burden on Gannawarra Shire Council and Swan Hill Rural City Council. Joint exhibition also allows the PSA to be the subject of public submissions and to be considered by the inquiry and advisory panel established for the EES
- The PSA can be considered in the context of the thorough environmental impacts assessment that is currently being undertaken and presented in the EES, which would be publicly exhibited prior to Ministerial assessment under the *Environment Effects Act 1978*
- The PSA would allow the Minister for Planning to be the Responsible Authority for the Project, which is appropriate given the importance of the Project to the state of Victoria, the need to co-ordinate the requirements of a range of Victorian Government decision makers and the number of stakeholders with an interest in the Project.

The draft PSA would seek to:

- Apply a SCO to allow the use and development of land for the proposed Project in accordance with the incorporated document in the SHPS and GP Scheme and amend the schedule to Clause 72.03 to include the new Planning Scheme Maps for the SCO
- Amend the Schedule to Clause 45.15 (SCO) and Clause 72.04 to insert an Incorporated Document enabling the use and development of the land for a Utility Installation

Given the Project traverses two municipalities, the proposed Incorporated Document makes the Minister for Planning responsible for approving key documents. Other key stakeholders identified in the Incorporated Document, including Gannawarra Shire Council and Swan Hill Rural City Council would be consulted during the preparation of relevant plans required to be prepared and approved under the provisions of the Incorporated Document.

For approvals that are not covered by the provisions of the proposed Incorporated Document, Gannawarra Shire Council and Swan Hill Rural City Council would be the Responsible Authorities for the Project within their municipalities.

## 4.2 Legislation, policy, guidelines and standards

The legislation, policy, guidelines and standards relevant to this assessment are summarised in Table 6. Sections of the table refer to Appendix C, where a more detailed overview of key policies, guidelines and standards is provided.

**Table 6 Commonwealth legislation relevant to the assessment**

Document	Summary	Relevance to the Project
Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)	The EPBC Act is the Commonwealth's principal environmental protection and biodiversity conservation legislation. It provides for the conservation of biodiversity and the protection of the environment, particularly those aspects considered to fall within the nine Matters of National Environmental Significance (MNES), including World Heritage Properties, National Heritage Places, Ramsar Wetlands, nationally listed threatened species and ecological communities and listed migratory species. The EPBC Act states that 'controlled' actions, including actions that are determined as likely to have a significant impact on MNES are subject to assessment and approval under the EPBC Act.	The Project is a controlled action requiring assessment and approval under the EPBC Act. The Project will be assessed through a Bilateral Assessment Agreement that exists between the Commonwealth and the State of Victoria.
Water Act 2007	The Water Act 2007 is the Commonwealth's legislative framework for ensuring that the Murray-Darling Basin is managed in the national interest. It acknowledges the Ramsar Convention and seeks to provide for the collection, collation, analysis and dissemination of information about Australia's water resources.	The Kerang Wetlands, including Kangaroo Lake is a Ramsar Site as recognised under the Ramsar Convention.
Native Title Act 1993	The <i>Native Title Act 1993</i> provides a national system for the recognition and protection of native title for Aboriginal and Torres Strait Islanders and for its coexistence with the national land management system. Native Title may exist in areas where it has not been extinguished by an act of government and applies to Crown Land but not freehold land.	One previous native title claim within the Project area is listed on the Schedule of Native Title Applications - VC2000/005 – Wamba Wamba, Barapa Barapa and Wadi Wadi Peoples. This claim was struck out on 15 May 2015. There are no native title future act applications or determinations currently listed for the Project area or surrounding region.

**Table 7 State legislation relevant to the assessment**

Document	Summary	Relevance to the Project
Planning and Environment Act 1987 (P&E Act)	The P&E Act is the key legislative framework used to guide and regulate land use, planning and development related matters within Victoria. The P&E Act sets out the planning assessment process and provides the framework for planning schemes, which apply to each municipality in Victoria, and which manage land use development.	The holder of a mining or prospecting licence is not required to obtain a permit under the P&E Act for the use or development of the land for mineral extraction in accordance with the exemptions set out under Sections 42(6)



Document	Summary	Relevance to the Project
	<p>The P&amp;E Act requires land use and development to have regard to the objectives of planning in Victoria as set out in Section 4(1) of the P&amp;E Act. The relevant objectives are:</p> <ul style="list-style-type: none"> <li>• To provide for fair, orderly, economic and sustainable use and development of land</li> <li>• To provide for the protection of natural and man-made resources and the maintenance of ecological processes and genetic diversity</li> <li>• To secure a pleasant, efficient and safe working, living and recreational environment for all Victorians and visitors to Victoria</li> <li>• To conserve and enhance those buildings, areas or other places which are of scientific aesthetic, architectural or historical interest or otherwise of special cultural value</li> <li>• To protect public utilities and other assets and enable the orderly provision of coordination of public utilities and other facilities for the benefit of the community</li> <li>• To facilitate development in accordance with the objectives set out above</li> <li>• To balance the present and future interests of all Victorians</li> </ul>	<p>and 42(7) of the MRSD Act (see Section 4.1 for further detail). Nevertheless, the P&amp;E Act provides context for the land use and planning impact assessment and sets out the legislative framework for the approval of a PSA to facilitate the use and development of infrastructure including the water pipeline and pump station, which would be located outside of the mining licence area.</p>
Environment Effects Act 1978 (EE Act)	<p>The EE Act contains a framework by which a Project with the potential to have significant effects on the environment may require the preparation of an EES for consideration by the Minister for Planning.</p>	<p>An EES is required for the Project.</p>
Environment Protection Act 2017 (EP Act)	<p>The EP Act provides a legal framework to protect the environment and human health in Victoria, including the protection of air, land and water from pollution. The EP Act sets out the general environmental duty which requires all Victorians to take reasonable and practical steps to reduce the human and environmental health risks of their activities. The centrepiece of the EP Act 2017 is the general environmental duty (GED) which applies to all Victorians. In accordance with the GED, when conducting activities that pose a risk to human health and the environment, a person must understand those risks, and take reasonably practicable steps to eliminate or minimise them.</p>	<p>VHM is required to comply with the GED and other duties under the EP Act when carrying out its activities. Development and operating licences are not required for deposits solely to land or air in accordance with C01 of Schedule 1 to the MRSD Act. Nevertheless, EP Act requires that a Development Licence from the Environment Protection Authority (EPA) to be obtained before certain activities that have the potential to impact the environment can be undertaken. A development licence would be required for the power plant located within the Area 1 processing facility. Permission is also required for the discharge of water.</p>



Document	Summary	Relevance to the Project
Mineral Resources (Sustainable Development) Act 1990 (MRSD Act)	<p>This is the primary legislation for mineral exploration, development and operations in Victoria. It seeks to encourage mineral exploration and development which is <i>'compatible with the economic, social and environmental objectives of the state'</i>. The MRSD Act seeks to:</p> <ul style="list-style-type: none"> <li>encourage and facilitate the exploration for minerals and foster the establishment and continuation of mining operations</li> <li>establishes a legal framework that minimises adverse impacts on the environment and the community; and</li> <li>ensures that the exploration for, and mining or extraction of, mineral resources and stone is carried out in a way that is consistent with the <i>Native Titles Act 1993</i> (Cth) and the <i>Land Titles Validation Act 1994</i>.</li> </ul>	<p>VHM requires a mining licence and work plan under the MRSD Act. To facilitate the integrated consideration of issues and the timely completion of required approval processes, a Draft Mining Work Plan has been prepared in accordance with the <i>Preparation of Work Plans and Work Plan Variations – Guideline for Mining Projects December 20</i> and the <i>Preparation of Rehabilitation Plans, Guideline for mining and prospecting Projects, February 2020</i>.</p> <p>The abovementioned guidelines have also provided the structure for the risk assessment set out in Section 5.5.</p> <p>Approval of a Work Plan (and variations) will be required for the Project. Exemptions set out under Sections 42(6) and 42(7) of the MRSD Act mean the holder of a mining or prospecting licence is not required to obtain a planning permit for the use or development of the land for mineral extraction (see Section 4.1 for further detail).</p>
Aboriginal Heritage Act 2006 (AH Act)	<p>The AH Act primarily provides the protection of Aboriginal cultural heritage in Victoria. Section 49 of the AH Act states that a Cultural Heritage Management Plan (CHMP) is required to be prepared when an EES under the EE Act is required in respect of any works. This CHMP must be prepared and approved prior to the commencement of works.</p>	<p>The Project requires a CHMP under the AH Act. Further detail about the CHMP is provided in EES Technical Report C – Cultural Heritage.</p> <p>The CHMP needs to be approved within 30 days of the Ministers Assessment for the EES under the EE Act and align with the timeframes for approval of a PSA under the P&amp;E Act.</p>
Crown Land (Reserves) Act 1978	<p>The <i>Crown Land (Reserves) Act 1978</i> provides for the reservation of land for a range of public purposes, stipulates how reserved land must be dealt with and prescribes key governance arrangements for committees of management appointed to manage reserved land.</p>	<p>Approvals are required to access Crown Land for construction, remove native vegetation from crown land and use land for the water pipeline and pump station.</p>
Heritage Act 2017 (Heritage Act)	<p>The main purpose of the Heritage Act is to provide for the protection and conservation of places and objects of cultural heritage significance in Victoria. The Heritage Act establishes two registers, the Victorian Heritage Register (VHR) and the</p>	<p>Three heritage places listed on Commonwealth and State heritage databases are situated within the vicinity of but not within the Project Area. There are no protected places or</p>

Document	Summary	Relevance to the Project
	<p>Victorian Heritage Inventory (VHI): The VHR is a register of heritage places (including archaeological sites) and objects of state significance. Approval under the Heritage Act is required for any works to a registered place, including on registered land, unless it is determined to be exempt from the requirement for a permit.</p> <p>The VHI is a register of known non-Indigenous historical archaeological sites in Victoria. The consent of Heritage Victoria is required prior to any activity that would result in the excavation of or disturbance to an archaeological site or its objects included on the VHI.</p>	objects proposed to be disturbed as part of the Project.
Road Management Act 2004 and Road Management (General) Regulations 2016	The <i>Road Management Act 2004</i> and <i>Road Management (General) Regulations 2016</i> provide a rigorous framework designed to protect the purpose of the road and the road user.	A land management agreement will be required to be entered into by the land manager (Gannawarra Shire Council) and the beneficiary land owner (VHM) prior to approval of works for pipeline infrastructure within the road reserve. This agreement could be facilitated under Section 121 of the <i>Road Management Act 2004</i> and <i>P&amp;E Act</i> .
Water Act 1989	<p>The <i>Water Act 1989</i> provides the legal framework for managing Victoria's water resources. The purpose of the Act is to:</p> <ul style="list-style-type: none"> <li>Promote the equitable and efficient use of our water resources</li> <li>Make sure our water resources are conserved and properly managed for the benefit of all Victorians</li> <li>Increase community involvement in conserving and managing our water resources</li> </ul>	<p>The pump station would be constructed on the bank of Kangaroo Lake and the pipeline corridor would intersect a number of water channels. Consent for minor waterway works is required for each crossing of a waterway by the Project. Approval from the North Central Catchment Management Authority (NCCMA) would be required for any works on, over or under a designated waterway.</p> <p>A Section 67 works licence will be required from GMW to operate the pump to extract water from Kangaroo Lake, as well as a water-use registration and allocation.</p>

**Table 8 National and State strategies, policies and guidelines**

Document	Summary	Relevance to the Project
Victoria's Regional Statement (2015)	<i>Victoria's Regional Statement</i> identifies the diverse aspects of Victoria's regional economy. It is built on the foundation that every region is unique and therefore requires specialised, dedicated management. The Project is located within the Mallee region, which includes the local government area of Gannawarra Shire and Swan Hill Rural City. The region's economy is driven by agriculture, both broadacre cropping and irrigated agriculture. Key initiatives for the Mallee region include improving the wellbeing and economic participation of its people, protecting and enhancing the liveability and appeal of the region and growing the region through agriculture, food processing and other regionally significant industries.	This document provides policy context for the LUA.
Loddon Mallee North Regional Growth Plan (2014)	<p>The Loddon Mallee North Regional Growth Plan establishes a framework for strategic land use and settlement planning and identifies important economic, environmental, social and cultural resources to be preserved, maintained or developed. Future directions seek to facilitate vibrant and prosperous commercial centres and maximise the local and regional benefits of emerging economic opportunities associated with future growth in mining, food production, energy and tourism. The Plan identifies a number of relevant strategic directions, including:</p> <ul style="list-style-type: none"> <li>• Balance our irrigation, amenity and environmental water needs</li> <li>• Strengthen our settlements and communities, especially our small towns</li> <li>• Strengthen and diversify our economy</li> <li>• Improve our infrastructure</li> <li>• Improve education and training outcomes</li> <li>• Protect and enhance our natural environment</li> <li>• Resolve our cross-border issues.</li> </ul> <p>Furthermore, the Plan identifies the following future directions for addressing regional challenges and opportunities of relevance to the Project:</p> <ul style="list-style-type: none"> <li>• Further diversify the primary production, service and manufacturing industries to support job creation, investment and value-adding to local products</li> <li>• Maximise the local and regional benefits of emerging economic opportunities associated with future growth in mining, food production and energy</li> <li>• Manage risks to Loddon Mallee North's community and economy from natural hazards.</li> <li>• Protect and improve the condition of Loddon Mallee North's environmental and cultural heritage assets to achieve the best outcome for the region's environment, economy and community.</li> <li>• Plan for and manage potential risks and opportunities arising from climate change initiatives that support national and global action to reduce greenhouse gas emissions.</li> <li>• Support road, rail and logistics upgrades to improve economic growth and accessibility.</li> </ul>	This Plan is incorporated into the GP Scheme and provides local context to inform the LUA.

Document	Summary	Relevance to the Project
State of Discovery: Mineral Resources Strategy 2018-2023	<p><i>State of Discovery: Mineral resources strategy 2018-2023</i> outlines the Victorian Government's strategy to grow investment and jobs in the minerals sector within Victoria. It recognises the role that State's mineral resources and mining operations play as the economic backbone of many regional towns, providing employment and opportunity. The vision of the policy is to encourage 'a growing and responsible minerals sector that is valued by the community'. The strategy seeks to grow investment and jobs in Victoria's minerals sector and the responsible exploration and development of Victoria's minerals by:</p> <ul style="list-style-type: none"> <li>• Building community confidence in social, environmental and economic performance of mineral exploration and development</li> <li>• Improving Victoria's attractiveness for minerals investment</li> <li>• Strengthening Victoria's position as a global mining and mining services centre.</li> <li>• A key part of the strategy seeks to outline a path to create confident communities and responsible explorers, whilst advancing geoscience and encouraging mineral exploration and development that will turn Victoria into a mining hub.</li> </ul>	The vision and objectives of this strategy could be supported through the approval, construction and operation of the Project.
Critical Mineral Strategy March 2022	<p>The <i>Critical Mineral Strategy</i> March 2022 sets out a long-term plan to leverage growing global demand and develop a thriving and durable Australian critical minerals sector – one that contributes to the national security and economic prosperity of Australia and the Indo-Pacific region. It aims to realise its vision of 'By 2030, Australia is a global critical minerals powerhouse. [Australia is] integral to international critical minerals supply chains and technologies crucial to the global economy.'</p> <p>The Strategy highlights that the growing global demand for rare earth elements and critical minerals creates a significant opportunity for Australia, as it possesses the world's sixth largest reserves of rare earth elements.</p> <p>The strategy comprises three objectives to achieve its vision:</p> <ul style="list-style-type: none"> <li>• 'Ensure a stable supply of rare earth from Australia to the world</li> <li>• Increase sovereign capability in downstream processing of rare earths and critical minerals</li> <li>• Increase regional jobs and growth through this industry.'</li> </ul>	The vision and objectives of this strategy could be supported through the approval, construction and operation of the Project.

Table 9 Local policies and guidelines

Document	Summary	Relevance to the Project
<b>Planning Schemes</b>		
Gannawarra Planning Scheme (GP Scheme)	The GP Scheme outlines strategies and objectives to be achieved and planning permit requirements for development within the municipality.	The Project is situated within the municipality of Gannawarra Shire and therefore governed by the requirements of the GP Scheme, its strategies and objectives which provide the context for the LUIA and approval requirements associated with water pipeline and roadworks. Appendix C provides a detailed summary of the strategies and guidelines in the GP Scheme that are considered relevant to this Project. A PSA to the GP Scheme is proposed to facilitate use and development associated with the water pipeline, pump station and roadworks (where a permit is required), which are not exempt under the provisions of the MRSD Act.
Swan Hill Planning Scheme (SHPS)	The SHPS outlines strategies and objectives to be achieved and planning permit requirements for development within the municipality.	Sections of the transport route to Ultima and portions of the study areas are governed by the Swan Hill Rural City Council. The strategies and objectives outlined in the SHPS provide the context for the LUIA. Appendix C provides a detailed summary of strategies and guidelines in the SHPS that are considered relevant to this Project.
<b>Policies and Guidelines</b>		
Gannawarra Shire Council Economic Development Strategy 2019-2024	This strategy is regarded by Council as a key strategic document, providing a clear and achievable strategy for economic development in Gannawarra Shire. The strategy recognises that the Gannawarra Shire has significant natural features which provide a strong foundation for nature-based tourism and emerging industries such as energy and mining, including <i>'a mining proposal being promoted by Western Australian mining company VHM, which has the potential to create around 300 full time jobs.'</i>	This Plan provides local context to inform the LUIA.
Gannawarra Shire Council 2021-2025 Council Plan	This Plan is a strategic document reflecting where Council and the community want to be in 2025 and how it will achieve those outcomes. The Plan sets out Council's vision and objectives in relation to liveability, growth and sustainability. This Plan leads on from the	This Plan provides local context to inform the LUIA.

Document	Summary	Relevance to the Project
	Council Plan 2017-2021 which is referenced in the GP Scheme municipal strategic vision.	
Gannawarra, Taking up the challenge, 2025	This document provides a long range strategic plan for how the community will cope with challenges ahead including changes to demographics, climate change, water resource management and the economy.	This Plan provides local context to inform the LUAIA
Rural Land Use Strategy (RMCG 2016)	This policy document was prepared on behalf of Swan Hill Rural City Council to guide land use and development in rural areas. The Strategy sets out planning policy and provides guidance on how planning permit applications to change rural land use will be assessed.	This policy document provides land use context for the LUAIA, particularly with regard to the types of farming uses that are expected within broadacre farming, private irrigation diversion areas and gazetted irrigation districts.
Swan Hill Community Vision and Council Plan 2021-2025	This policy document is Swan Hill Rural City Council's key strategic document that sets out directions, objectives and initiatives to achieve Council's 2031 Community Vision. It includes four strategic pillars: liveability, prosperity, harmony and leadership.	This policy document provides land use context for the LUAIA.
Swan Hill Region Economic Development Strategy (2017-2022)	This policy document provides strategic direction for economic growth in the Swan Hill municipality over a five-year period and beyond. It aims to build on the region's strengths, capture new opportunities and address challenges to make the region a highly desirable place to invest, live, work and visit. The Strategy seeks to expand on strengths and develop new opportunities.	This policy document provides land use context for the LUAIA.

### 4.3 Planning Scheme Amendments and Planning Permit Applications of relevance

A review of online databases and discussions with Gannawarra Shire Council and Swan Hill Rural City Council have confirmed that there are no planning scheme amendments or planning permit applications of relevance to this assessment. Further information regarding non-agricultural land uses within the broader region is located in Section 6.3. Negligible land use change is expected to surrounding townships, transport corridors and areas zoned for farming and public resource and conservation.

### 4.4 Assessment criteria

Land use and planning in Victoria is guided by the legislative framework of the P&E Act. Although the P&E Act does not directly apply to the entire Project because of the application of the MSRD Act, the Planning Minister's views on the land use and planning impacts of a mine must be considered. As such, identification of the environmental, social and safety impacts of the Project based on the surrounding current land uses and reasonably foreseeable future land uses must be undertaken.

The land use and planning criteria of this assessment comprises of the relevant clauses, objectives and strategies outlined in the PPF and MPS as well as the outcomes sought by the relevant zones, overlays and particular provisions of the GP Scheme and where relevant, the SHPS. An overview of the relevant clauses, objectives and strategies can be found in Section 4.2 and Appendix C of this report.



## 4.5 Consultation and engagement

Development of the Project and preparation of the EES have been informed by consultation with stakeholders and the community. Table 10 lists specific community and stakeholder feedback on the LUA and how this feedback has been considered by the Project in this impact assessment.

**Table 10 Stakeholder engagement undertaken for LUA**

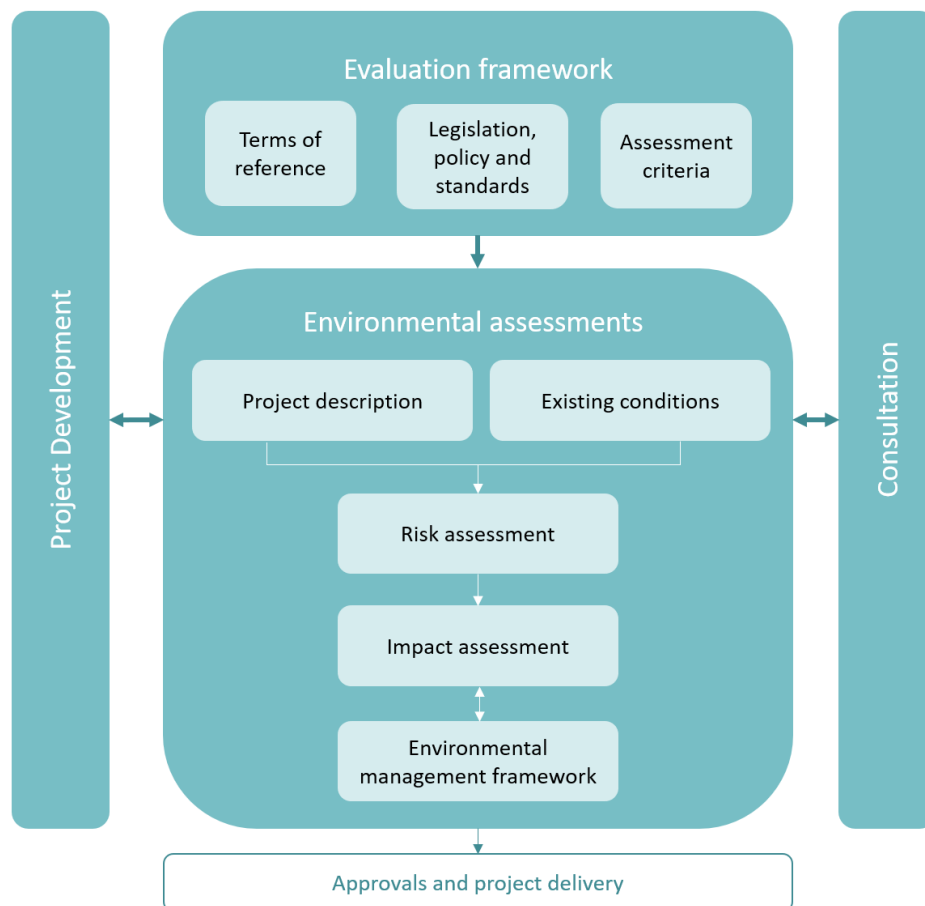
Stakeholder	Description
<b>Gannawarra Shire Council</b>	A meeting was undertaken with Gannawarra Shire's Economic Development Manager and Director of Infrastructure and Development to understand current and future land use matters within Gannawarra Shire and its surrounds. This included discussions regarding land ownership and acknowledgement that works on land managed by Gannawarra Shire would require VHM to enter into agreements with Gannawarra Shire.
<b>Swan Hill Rural City Council</b>	A meeting was undertaken with Swan Hill Rural City Council's Development Manager to understand current and future land use matters within the municipality.
<b>Technical Reference Group</b>	In accordance with the scoping requirements, a Technical Reference Group (TRG) was convened and chaired by DTP (formerly DELWP) on behalf of the Minister for Planning. The TRG has provided input throughout the EES process. In particular, GMW has provided direction to VHM regarding the proposed water supply arrangements. Consultation and feedback undertaken with DEECA regarding vegetation removal is addressed in Technical Report A – Flora Impact Assessment, including in EES Chapter 21 Environmental Management Framework with regard to flora ecology mitigation measures.
<b>Community and landowner consultation</b>	<p>Consultation and stakeholder engagement has been undertaken for the Project with a broad range of community participants and stakeholders. Consultation involved community information sessions at Lalbert, Kerang and Swan Hill on 27-28 July 2022, and 28-29 September 2022. Community information sessions were also held online on 15 November, 22 November and 30 November 2022.</p> <p>There have been no matters raised by community members regarding the change of the use of land from agriculture to mining, or concerns regarding the Project's compatibility with planning policies under the Planning Schemes. Notwithstanding, community members have raised concerns regarding the ability for VHM to restore the land and rehabilitate to a standard that is productive for (the resumption of) agriculture. These matters have been addressed in Technical Report P: Rehabilitation and Closure.</p> <p>Four agricultural properties comprise the mining Area 1 and mining Area 3, one of which accommodates a residential dwelling. These properties are owned by four separate landholders, with whom VHM has, or is negotiating, land acquisition contracts for the freehold. Landowners who have entered into contracts with VHM have agreed to sell their land to VHM to enable access during the mining period.</p>

## 5.0 Methodology

### 5.1 Overview of method

This section describes the method that was used to assess the potential impacts of the Project. Figure 7 shows an overview of the assessment method. A risk-based approach was applied to prioritise the key issues for assessment and inform measures to avoid, minimise and offset potential effects.

The approach used in the assessment has been guided by the evaluation framework that applies to the Project comprising the regulatory framework (that is, applicable legislation and policy) as well as the scoping requirements set by the Victorian Minister for Planning.



**Figure 7 Overview of assessment framework**

The environmental assessments were undertaken according to the following steps:

- Establishment of a study area and characterisation of existing environment
- Review of the Project description, comprising the key Project components (including locations and form), proposed construction and operation activities (in the context of existing environment) and decommissioning and rehabilitation activities associated with closure of the Project to determine the location, type, timing, intensity, duration and spatial distribution of potential Project interactions with sensitive receptors
- An initial risk-based analysis to evaluate the potential effects of proposed Project activities and their likelihood of occurring (considering initial mitigation measures) to determine the relative importance of environmental impacts associated with the Project and therefore prioritise issues for attention in the subsequent assessment of impacts. Initial mitigation measures would include measures that are common industry practice or required to meet legislation



- An assessment of impacts that examines the severity, extent, and duration of the potential impacts and considers the sensitivity and significance of the affected receptors
- Evaluation of predicted outcomes against benchmarks and criteria such as those described in applicable legislation, policy and standards
- Evaluation of the potential for cumulative impacts (where relevant) caused by impacts of the Project in combination with impacts of other existing and proposed Projects that may have an overall significant impact on the same environmental asset
- Identification of additional mitigation measures where necessary to address potentially significant environmental impacts
- Evaluation and reporting of the residual environmental impacts including magnitude, duration and extent, taking into account the proposed mitigation measures and their likely effectiveness.

Based on the findings of the environmental assessments, an Environmental Management Framework (EMF) has been prepared to monitor and control environmental performance during Project implementation. The EMF has specified the committed mitigation measures to avoid, minimise and manage impacts, proposed contingency measures and offset commitments, and describe the roles and responsibilities for implementation throughout Project construction, operation, and decommissioning.

The specific methods adopted during the key steps are described in the sections below.

## 5.2 Study area

The study area for the LUIA has been divided into the Mining Study Area (MSA), Water Pipeline Study Area (WPSA) and Transport Study Area (TSA) to help assess the potential land use effects. A distinction has been made between the three study areas as the extent of their potential land use impacts during construction, operation, decommissioning and rehabilitation differ significantly. A more detailed description is provided below:

- The MSA comprises the mine site outlined in Figure 2 and Figure 3, and land within a 5-kilometre radius of the Project area boundary. This area is considered appropriate as:
  - the construction, operation, and decommissioning, rehabilitation and closure of the mining activities are expected to be consistent across the entire Project Area;
  - the rural context and large landholdings are typical of the locality;
  - beyond the study area, it is anticipated that the effect of the Project on land use and planning is likely to be negligible.
- The WPSA follows the two most likely options of the proposed water pipeline route and land within one kilometre of these proposed routes. This area is considered appropriate as key land use impacts, which are expected to occur during the construction phase of the pipeline are anticipated to be more localised in nature and within the immediate vicinity of the pipeline. In considering the two options that the pipeline would follow, the impacts would not be dissimilar and can therefore be considered together. Notwithstanding, the planning provisions to be introduced under the proposed Planning Scheme Amendment to allow the use and development of the water pipeline will only include the preferred pipeline route, not the second 'alternative' route option.
- The TSA follows the routes that have been identified for transportation of material to the intermodal terminal in Ultima and land within one kilometre of the routes. The TSA is considered appropriate as key land use impacts are expected to be associated with roadworks during the construction phases of the project.

The study areas described above are shown in Figure 8 below and on zoning and overlay mapping in Appendix A of this assessment. It is acknowledged that there may be Project impacts beyond the immediate study areas outlined below, however such impacts are generally considered to fall outside the scope of this report. For example, there may be traffic impacts associated with the Project. The potential for such impacts is addressed in other technical reports. For an overview of technical assessments that relate to the land use planning assessment, refer to Section 5.8.

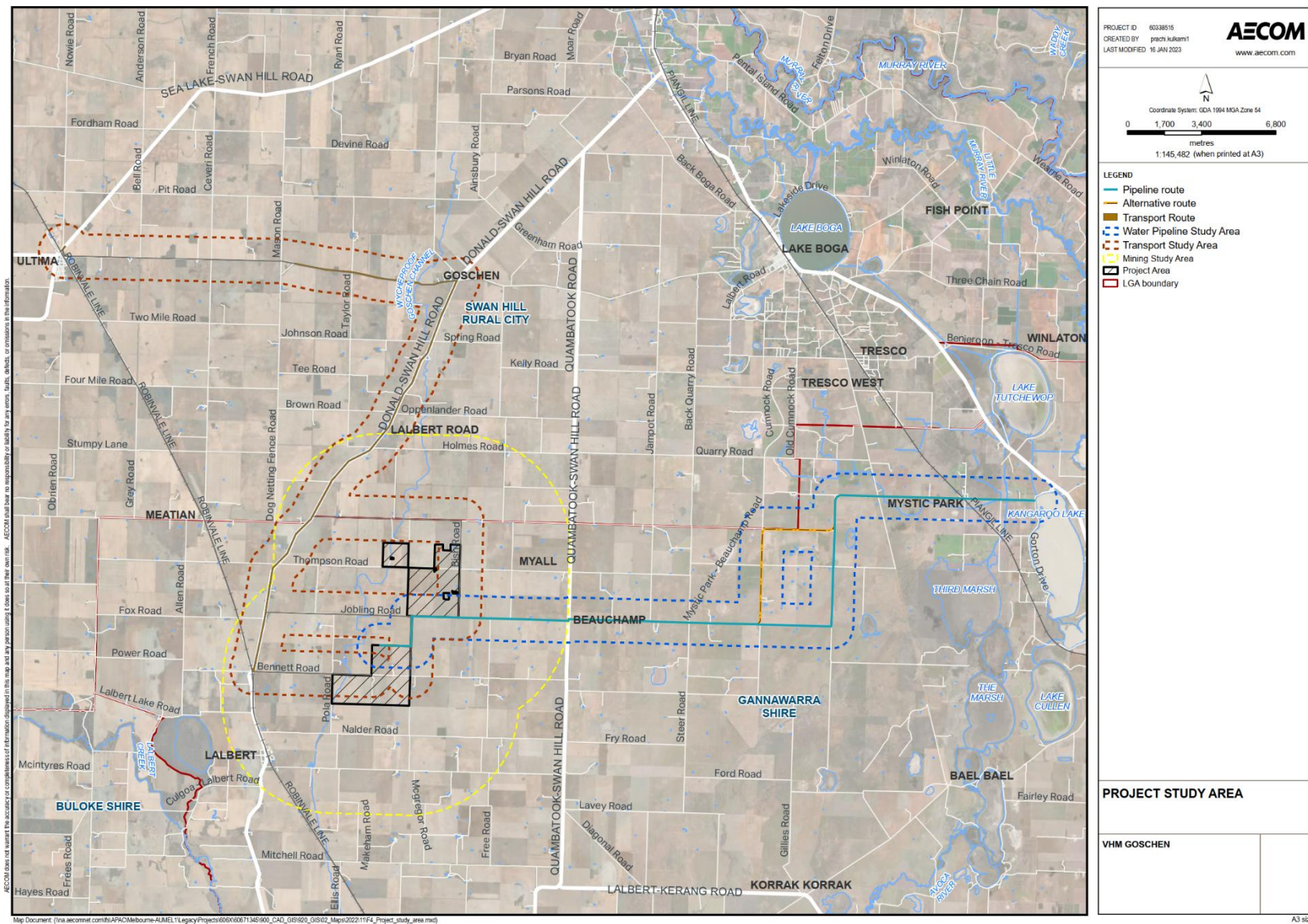


Figure 8 Mine, Water Pipeline, and Transport Study Areas

### 5.3 Existing conditions methodology

The purpose of the existing conditions assessment was to identify the baseline conditions for the study areas for the impact assessment, as well as describe relevant planning policy, strategy and planning controls and current land uses on affected parcels of land. This provided the basis for the assessment of any potential impacts of the Project to existing and reasonably foreseeable future land use policies and conditions.

The assessment included preparation of a desktop assessment and baseline data review, site visits and consultation with Gannawarra Shire and Swan Hill Rural City Councils. The desktop assessment drew on information provided by VHM, available state and local government legislation, policy, guidelines and land use and planning databases to understand the existing conditions within the study area. The following baseline data was reviewed as part of the desktop report:

- The planning framework which applies to the Project, including:
  - Relevant planning policy, including the state-wide Planning Policy Framework (PPF) and the MPS contained in the GP Scheme and SHPS
  - Other notable state and local government strategic planning policy
  - Other strategic plans and land use plans
  - Relevant zones, overlays and particular provisions contained in the GP Scheme and SHPS.
- Current strategic planning work and future planning scheme amendments being considered by the State, Gannawarra Shire Council and Swan Hill Rural City Council
- Current planning permit applications and recently approved permits within the study area, obtained via local government and state agency websites and directly from stakeholders
- Land data information including tenure, land use and Project requirements
- Publicly accessible aerial imagery and ground level photography
- Publicly available zoning, overlay and heritage mapping.

The following activities were also undertaken:

- A site visit was conducted on 24 of May 2022 to determine the type of existing land uses and development occurs within the vicinity of the Project
- Specific consultation was undertaken with Gannawarra Shire Council and Swan Hill Rural City Council. Further information regarding consultation is provided in Section 4.5.

### 5.4 Avoidance and minimisation

Relevant to the LUA, the following measures have been adopted in relation to the design, construction and operation of the Project to avoid and minimise impacts:

- The Project scope was redefined to minimise environmental impacts on the surrounding land use while maximising mine output:
  - Avoiding all significant remnant patches of native vegetation
  - Avoiding mining below the water table
  - Reducing the footprint of the mine, thus minimising the extent of temporary land use change.
- The proposed water pipeline route alignment options have sought to avoid and minimise temporary and permanent land use impacts by selecting alignments that:
  - Protect and conserve the natural environment of Kangaroo Lake in accordance with Clause 36.03 (Public Conservation and Resource Zone), by co-locating pumping infrastructure with existing infrastructure in an area of low environmental, cultural and amenity value.

- Use existing road reserves as much as possible to avoid direct land use impacts to farming operations and avoid potential issues associated with land ownership and management agreements with multiple private landholders.
- Avoid, minimise, and mitigate the potential and actual loss of roadside native vegetation in accordance with Clause 52.17 (Native Vegetation) of the Planning Scheme
- The Project sought to minimise losses to local biodiversity in accordance with local planning policy and objectives of VPO1 by excluding areas of high biodiversity value.
- Dial Before You Dig investigations, site observations and consultation with relevant organisations during the design process was undertaken and is ongoing, to ensure that the final design of the pipeline avoids any potential land use conflicts associated with existing above and below ground infrastructure.
- The proposed transport route follows the most direct routes to Ultima and utilises the existing principal road network wherever possible. Proposed upgrades along the transport route are therefore anticipated to be limited to strengthening of road verges in some sections along the route and widening of some intersections (see Technical E: Traffic and Transport) for more information regarding proposed works and transport impacts.

## 5.5 Risk Screening Methodology

A risk assessment of Project activities was performed to prioritise the focus of the impact assessments and development of mitigation measures. The risk pathways link Project activities (causes) to their potential effects on the environmental assets, values or uses that are considered in more detail in the impact assessment. Risks were assessed for the construction, operation, decommissioning, and rehabilitation phases of the Project.

The likelihood and consequence ratings determined during the risk assessment process and the adopted mitigation measures are presented in Appendix D. The risk assessment has been undertaken in line with the Preparation of Work Plans and Work Plan Variations Guideline for Mining Projects December 2020 (version 1.3). The criteria and consequence rating methodology can be found in Appendix D.

The following tasks were undertaken to identify, analyse and evaluate environmental risks:

- **Establishment of the context of the risk assessment** – this identified the boundaries of the Project including the Project definition, the duration of construction and operation, the design and environmental controls that would be in place, the location of the Project, and the environmental values, assets and uses with the potential to be impacted
- **Identification of mining hazards** – this identified risk pathways that link Project activities (causes) to their potential effects on the environmental assets, values or uses, including sources of risk, areas of impacts, the type and location of receptors, risk events and their causes and their potential consequences
- **Conduct Risk Assessment:** this process included:
  - Analysis of the risk: assessment of risk pathways, determining the likelihood and consequences of events
  - Evaluation of the risk: a decision-making process based on the outcomes of the analysis to rank receptors and risks and determine the risk level and priority for treatment implementation
  - Treatment of the risk: implementing of management and mitigation measures to risks, to reduce risk levels (where possible).

## 5.6 Impact assessment

A change to baseline conditions (or the no-Project case) as a result of Project activities in any of the Project phases (construction, operation or decommissioning and rehabilitation) may give rise to impacts.

The impact assessment involved identifying the severity, extent and duration of any impacts, positive or negative, that the Project may have on the existing environment.

The significance of the impacts has been assessed in accordance with the evaluation framework, based on applicable legislation, policy and standards and the evaluation objectives and environmental significance guidelines arising from the government terms of reference established to guide the assessments.

This study has assessed the impacts of construction, operation, decommissioning and rehabilitation of the Project on land use planning assets and values to be protected.

The land use and planning impacts during construction, operation, decommissioning and rehabilitation of the Project were assessed against the EES scoping requirements, including:

- Strategic land use and planning for Victoria and the Loddon Mallee region of Victoria
- Existing and reasonably foreseeable land uses occupying land to be traversed by, or adjacent to the Project, which includes the consideration of:
  - Existing and planned infrastructure and easements
  - Existing planning permissions
  - Planning permit applications that have been publicly advertised
  - Seriously entertained planning scheme amendments
  - Opportunities to protect other existing or reasonably foreseeable uses, or the Project itself.

Other inputs to the LUA include:

- Review of the conclusions of other relevant EES specialist studies
- Review and consideration of relevant existing and seriously entertained policies, and strategies applicable to land affected by the Project
- Anticipation of potential land use changes into the future.

## 5.7 Limitations and assumptions

The following limitations and assumptions apply to this assessment.

**Table 11 Assumptions and Limitations**

Assumption	Overview
<b>Reasonably foreseeable land uses</b>	Planning schemes are dynamic and subject to change over time. The LUA is based on current policies and strategies and the estimated life of the Project as set out in Appendix C.
<b>Assessments and Approvals</b>	The LUA responds to the evaluation objectives and scoping requirements as set out by the Minister for Planning where applicable to the LUA. Associated approvals under various applicable state and local legislation and policy will be addressed where appropriate by other parts of the Project EES.
<b>Land value</b>	The LUA does not consider the perceived or actual impact of the Project on residual land values which do not form part of the Project scoping requirements.

## 5.8 Linkages to other technical reports

This report has interdependencies with, and has considered the recommendations and conclusions of the following technical impact assessment reports prepared as part of the EES:

- A: Flora ecology
- D: Landscape and Visual
- E: Traffic and Transport
- F: Noise and Vibration
- G: Air Quality
- H1: Regional Surface Water
- I: Groundwater
- J: Geotechnical
- L: Agriculture
- M: Soils and land resource
- N: Radiation
- O: Social Impacts
- P: Rehabilitation and Closure



## 6.0 Existing Conditions

### 6.1 Introduction and Overview

The existing conditions assessment is divided into three parts comprising:

- A review of planning policies, guidelines and strategic plans specifying or encouraging land use outcomes for land to be occupied by the Project
- A review of the regional context within which the study area is located
- A study area description identifying existing and reasonably foreseeable land uses occupying land to be traversed by, adjacent to, or otherwise potentially affected by impacts from the Project
- A review of land ownership and management.

### 6.2 Planning policies and guidelines

The relevant planning framework that informs this land use impact assessment was identified in Section 4.1 and 4.2 of this assessment, and Appendix A and Appendix C as outlined in Table 12 below.

**Table 12 Planning policies and guidelines assessment**

Planning Framework	Section Addressed
Planning Policy Framework (PPF)	Appendix C
MPS of Gannawarra Shire Council and Swan Hill Rural City Council	Appendix C
Other strategic plans and land use plans	Section 4.2
Relevant zones and overlays	Summary of permit requirements associated with relevant zones and overlays is in Section 4.1. Zone and overlay mapping is located in Appendix A Overview of relevant zone and overlay provisions is in Appendix C.
Particular Provisions of the GP Scheme	Appendix C and Section 7.0.
Current strategic planning and future planning scheme amendments	As outlined in Section 4.3, there are no current planning permits or strategic planning and future planning scheme amendments of relevance.

### 6.3 Regional Context

This section describes the existing land use patterns within the three study areas and provides a broader regional context, identifying existing and reasonably foreseeable land uses occupying land to be traversed by, adjacent to or otherwise potentially affected by impacts from the Project. This description is supported by maps in Appendix A.

#### 6.3.1 Location

The Project is located within the Avoca Ward of Gannawarra Shire Council, just south of the municipality's boundary with Swan Hill Rural City Council. The proposed mine site is situated on the farmlands and paddocks between Donald-Swan Hill Road west of the site and Quambatook-Swan Hill Road east of the site. North of the site is Mystic Park-Meatian Road and south of the site is Nalder Road.

The proposed water pipeline infrastructure would also be located entirely within Gannawarra Shire Council. The two proposed water pipeline route options run entirely within the road reserve between the mine site and Kangaroo Lake. Materials mined from the site are proposed to be transported to an intermodal terminal in Ultima, which is situated within Swan Hill Rural City Council municipal area.

Gannawarra Shire Council has an area of 3,725 square kilometres and is located approximately 280 kilometres northwest of Melbourne and 20 km south of Swan Hill. The municipality is located within the

Loddon Mallee Region, in the northwest of Victoria. It borders New South Wales (NSW) along its north-eastern border and is surrounded by the municipalities of Swan Hill Rural City Council, Buloke Shire, Loddon Shire and Campaspe Shire. The municipality contains the regional centre of Kerang and the small towns of Murrabit, Mystic Park, Lake Charm, Lalbert, Quambatook, Macorna, Leitchville, Cohuna and Koondrook. The closest town to the mine site is Lalbert, which is approximately 3 kilometres southwest. The water pipeline also runs through the town of Mystic Park.

Swan Hill Rural City Council covers 6,116 square kilometres and sits just north of the Gannawarra Shire Council. The study areas for the mine and pipeline extends beyond the Gannawarra Shire municipal boundary into the municipality of Swan Hill Rural City. Towns of note located close to the Project are Swan Hill, Lake Boga and Ultima.

The populations of both Gannawarra Shire and Swan Hill Rural City Council have remained constant over the past 10 years. However, a review of key policy documents has made it evident that there is a consistent flow of people moving away from the smaller towns into the regional centres such as Kerang, Swan Hill and around the Lakes.

### **6.3.2 Topography**

The Project area is characterised by a gently undulating topography, with small depressions in the landscape. The Cannie Ridge is located on the east side of the Project area, trending from north to south, and is the peak in the topography at 123.05 metres AHD. The lowest point is 53.04 metres AHD, which is characterised by Lake Lalbert, located 4 kilometres from the Project area. There are no outstanding features located within or near the Project area.

Surrounding the Project area, the main landform is a wide flat alluvial plain with minor features such as swamps, shallow lakes, lunettes, sand sheets and minor drainage features. The main water features near the Project area are Lake Boga to the northeast and the Kerang wetlands 15 kilometres to the east.

### **6.3.3 Regional natural assets**

The Gannawarra Shire has identified within its Economic Development Strategy 2019-2024 that the region contains significant natural features. These provide a strong foundation for agricultural activities, nature-based tourism and emerging industries such as mining. The natural assets include the Murray River, Gunbower National Park and the Kerang Lakes. There are also several smaller creeks and waterways that feed wetlands and lagoons among the Redgum forests, Black Box swamps and floodplains.

The Kerang lakes comprises 23 lakes, swamps and waterways of varying size, permanence, depth, salinity and vegetation type. They are a designated Ramsar wetlands and includes wetland types such as permanent open freshwater, deep freshwater marshes, tree-dominated wetlands, and permanent and semi-permanent saline wetlands. The Wetlands are part of the Murray-Darling drainage basin and sit on the floodplains associated with the Murray, Avoca and Loddon Rivers.

The broader region is managed by the NCCMA and water volumes of many of the lakes are managed by GMW, which uses the lakes as part of the irrigation distribution system for the Torrumbarry Irrigation Area. The NCCMA and GMW work together on the management of a number of the lakes. Clause 02.03 (Strategic directions) of the GP Scheme seeks to protect and enhance the environmental values of the Kerang Lakes.

Kangaroo Lake is well known for fishing and water sports. The north end of the lake is popular for day visitors and contains a caravan park on the lake foreshore. Land along the south-west bank of the lake (south of Kangaroo Lake Road) also has high amenity and recreational value. It contains several residences and is used for water sports, fishing and swimming. As recognised in the Kerang Cohuna Koondrook Visitor Guide 2019, the south-west bank of the lake also includes commemorative markers celebrating the history of the lake and tourist accommodation.

In addition to the Lake's recreational value, water from Kangaroo Lake is a key resource to surrounding agricultural land and many sections of its banks are characterised by water channel and pumping infrastructure that facilitates the distribution of water to agricultural land in the broader region. Agriculture is the largest source of employment in the region. Local municipal policies and strategies recognise that the outputs and means of farming are continually evolving in response to external



influences such as market conditions, water access, drought and climate change. Policies therefore identify the need to use the land strategically to ensure continuous investment into the region. Although mining has not historically played a large part in the Gannawarra Shire municipality's history, there are a few quarries scattered across the region and there is recognition in Council strategies and policies of the opportunities that mining could create for the broader region.

#### **6.3.4 Transport and access**

The Murray Valley Highway and Loddon Valley Highway are the two major arterial roads that service the region from the south, west and north. Kerang acts as a confluence for many of the arterial roads servicing the region, including: The Murray Valley Highway, Kerang-Murrabit Road, Kerang-Koondrook Road, Loddon Valley Highway, Boort-Kerang Road, and Kerang-Quambatook Road. Other arterial roads within the Gannawarra Shire municipality include Cohuna-Koondrook Road, Dumosa-Quambatook Road and Donald-Swan Hill Road.

The local road network between the arterial roads consists of a variety of asphalt, limestone and sand roads that are primarily used to access the broadacre farms in the region and enable local broadacre farming businesses to service their crops and deliver produce to grain stores at Ultima and Lalbert for wider distribution. The local road reserve network is recognised in Clause 12.01-1L (flora and fauna protection) of the GP Scheme as a wildlife corridor and repository for flora species.

The Bendigo regional passenger and freight rail line services the region, moving people and goods from Kerang to Swan Hill, Bendigo and Melbourne. Also within the region is a freight rail network that runs through Quambatook and Lalbert, south to Port Phillip Bay through Ballarat and north through Ultima to Mildura linking NSW and South Australia (SA). Ultima has been identified as the intramodal rail solution for the Project, where the final product from the mine would be sent.

There are three small airports within the region, the Swan Hill Airport, Kerang Airport and the Quambatook Airport. All airports service the private sector, small planes and emergency services.

#### **6.3.5 Power Infrastructure**

Power to the region is supplied by a 220kV transmission line, supplied to the Kerang Terminal Station located in Kerang. Several solar farms are located within the region, with more proposed due to the favourable conditions. The closest solar farm is approximately 19 kilometres away from the Project. The following solar farms have been constructed:

- Gannawarra Solar Farm and Storage System – 60MW capacity and 25MW/50Mwh storage, Stage 2 of this Project will include another 300MW
- Cohuna Solar Farm – 34MW capacity

The following solar farms are approved but not constructed yet

- Kerang Acciona Solar Farm – Proposed 40 MW
- Kerang CleanGen 1 Solar Farm – Proposed 60MW
- Kerang CleanGen 2 Solar Farm – Proposed 60MW
- Kerang Greenswitch Solar Farm – Proposed 50MW
- Tragowel/New Sky Solar Farm – Proposed 430MW
- Macorna/KIG Energy Solar Farm – Proposed 100MW

#### **6.3.6 Mining**

A review of the mining licences and work authorities across both Gannawarra Shire Council and Swan Hill Rural City Council identified several mining and quarry operations. Most of these are for smaller operations and some of the land that is covered by work authorities has not been developed. There is a mix of mines and quarries in the region extracting a variety of materials including clay, gravel, sand, mineral sands, gypsum and limestone. None of the mines or quarries are in close proximity to Project.

### 6.3.7 Fire management

Broadacre farming faces increased risk of bushfire during droughts and heat waves. Crops and other flammable vegetation can be ignited by a variety of natural and man-made sources, from lightening to farming machinery and equipment. Because of this risk, the entire Project Area is situated within a Designated Bushfire Prone Area (DBPA) and small sections of the MSA, WPSA and TSA that are heavily vegetated are affected by the Bushfire Management Overlay. Bushfire is a significant risk to broadacre farming operations and regional communities. The risk of fire and bushfire is managed via local farming operations and supported by brigades at Goschen, Ultima, Lalbert, Beauchamp, Quambatook, Lake Charm and Kerang.

## 6.4 Land uses and typologies

As outlined at Section 5.2, the Study area for the Project has been divided into the MSA, WPSA and TSA. To assess the existing land use conditions on the ground, the MSA includes the mine site and a five kilometre radius around the mine site boundary. The WPSA and TSA follow the proposed water pipeline and transport routes, along with land within a one kilometre radius of these proposed routes. The sections below explore the existing environment within all study areas and the land use typologies summarised in Table 13. For further information regarding zoning and overlay provisions associated with the land uses and typologies described below, refer to Appendix A.

**Table 13 Land use typologies within the Mine and Water Pipeline Study Areas**

Typology	Description
Agricultural	A range of production-based land uses focused around broadacre farming with associated infrastructure including farm dwellings.
Conservation	Areas of high policy and planning control protection reflecting a particular conservation or ecological significance.
Transport	Established road reserves and railway corridors.
Residential	Residential land uses typically comprise low density lots within established Township Zones
Service, utilities and infrastructure	Public land uses comprising community services and public infrastructure. Public land uses generally include local government services and public utilities.

### 6.4.1 Mine Study Area

The MSA stretches from the town of Goschen on its northern boundary past Lalbert on its southern boundary. The eastern boundary of the MSA stretches from Quambatook-Swan Hill Road to just past Donald-Swan Hill Road on its western boundary.

Most of the land found within the MSA is within the Farming Zone. The existing land use for the majority of the MSA is generally broadacre farming consisting of dryland cropping and the production of wheat, barley, pulses, legumes and sheep and lambs (refer Figure 9). These farms commonly consist of land that has been significantly modified or cleared for use as farming. Typically, each lot contains a farmhouse and number of outbuildings or storage sheds to support the farm (refer Figure 10). Generally, the tenure for these properties is freehold. VHM hold the rights to tenements across most of the study area, as well as the retention licence.



**Figure 9** Image of broadacre farming, taken on the corner of Jobling and Bish Road looking southwest



**Figure 10** Image of the typical layout of the farms in the region with a farmhouse and storage sheds, image taken on Mystic Park Meatian Road looking northwest

There are several small areas across the MSA zoned PCRZ. The land use within these zones consists of local reserves, including: Talgitcha Bushland Reserve, White Gate Bushland Reserve, Magpie Tank Bushland Reserve, and Lalbert Recreation Reserve. The reserves contain land where the remnant bushland is protected, or the use is protected for public use. Given the highly vegetated nature of these sites, they are often covered by a BMO. The tenure of the reserves would usually be Crown land.

The small town of Lalbert, within the TZ, is located on the southwestern border of the MSA. Land use within the town includes residential properties (Figure 11), a grain silo, the Country Fire Authority, a train station, a post office, playgrounds, sports fields, a church, a service station, a pub, and a general store (Figure 12). The tenure within the town would generally be freehold. Through discussion with the Gannawarra Shire Council it is understood that the general store has closed down for some time, the local football team has ceased to operate, and the grain silos have fallen into disrepair.





**Figure 11** Image of housing typology found in Lalbert, image taken on Main Street looking west



**Figure 12** Image of Lalbert Store, which has ceased operation, image taken on Main Street looking west

Located on the Lalbert-Kerang Road is an area zoned Public Use Zone – Service and Utility (PUZ1), which is used for a water reserve and pumping station. This land is approximately 3500 metres south of the proposed mine site Area 1, as shown on Figure F2-6 within Appendix A.

The MSA includes a number of disused water channels, including the following which cross the proposed mine site: Main Cannie Channel, Cannie Branch Channel, Goschen High Level Channel and the Wycheproof Goschen Channel. The water channels and associated dams found crossing over the mine site are redundant and have been decommissioned. In most cases the larger channels were filled in by Grampians Wimmera Mallee Water (GWM Water) and the smaller channels by the farmers. However, many of the disused channels are still the subject of a registered channel easement in favour of GWM Water. The only remaining water infrastructure in the proposed mine area is a pump station in Area 3, which continues to operate the domestic and stock supply pipeline network operated by GWMW. The pump station is located at 513 Thompson Road, Lalbert (Crown Allotment 9B Parish of Gnarwee), which is Crown land administered by GWM Water.

Donald-Swan Hill Road is an arterial road within the MSA. It is zoned Transport Zone 2 (TRZ2) which means the road forms part of Victoria's Principal Road Network. Donald-Swan Hill Road is a sealed two-way carriageway with unsealed shoulders. It serves the small towns between Swan Hill and Donald. Figure 13 provides an image of Bennett Road and Donald-Swan Hill Road. There are numerous other sealed and unsealed roads within the study area. These include Bennett Road, Jobling Road and Mystic Park Meatian Road which connect to Donald Swan Hill Road and have been identified in the Traffic Impact Assessment as roads requiring upgrades as part of the Project (Refer to EES Technical Report E – Traffic and Transport). Figure 14 provides a representation of the intersections found around the mine site. There is also a train line that runs through the MSA which is zoned Transport Zone 1 (TRZ1) for State transport infrastructure. The train line within the TSA (west of the mine site) is a freight line servicing towns between Robinvale in the north and Bendigo.





**Figure 13** Image taken from Bennett Road intersection looking southwest towards Donald-Swan Hill Road and the freight train line



**Figure 14** Image of the intersection of Jobling Road and Shepherd Road looking east

#### **6.4.2 Water Pipeline Study Area (WPSA)**

The WPSA stretches from the mine site in the west to Kangaroo Lake in the east. The pipeline is proposed to sit almost entirely within the road corridor that provides local access to broadacre farming operations in the area. The route is roughly 38 kilometres long and the pipe would be entirely underground.

The provisions of the MRSD Act will not extend to the associated water pipeline infrastructure that is required for the Project because the water pipeline infrastructure would be constructed outside of the proposed Mining Licence boundary.

The pipeline traverses land within the FZ, Transport Zone 1 – State Transport Infrastructure (TRZ1), Public Conservation and Resource Zone (PCRZ) and Township Zone (TZ) under the provisions of the GP Scheme. The GP Scheme also applies the Environmental Significance Overlay – Schedule 3 (ESO3) and Schedule 4 (ESO4), Land Subject to Inundation Overlay (LSIO), Floodway Overlay (shown as RFO in mapping) and Vegetation Protection Overlay – Schedule 1 (VPO1) on land along the proposed pipeline corridors.

Most of the land within the WPSA is zoned FZ and used for broadacre farming and local access roads. Closer towards Kangaroo Lake, land is situated within the Goulburn Murray Irrigation District. This land benefits from irrigation from Kangaroo Lake, which enables more intensive forms of agriculture (Figure 15). There are a few properties located closer to Kangaroo Lake which are zoned PCRZ. These include Kangaroo Lake, Mystic Park Bushland Reserve and the Mystic Park Recreation Reserve. Kangaroo Lake is a popular recreation and tourism location, used for water sports and fishing. The land use is zoned to protect the natural environment and public use of the land. As shown in Figure 14, there is also significant vegetation, including native vegetation present within road reserves that would be used for the water pipeline route. Relevant local policies and overlays (ESOs and VPOs) that apply to some



of this vegetation acknowledge the role roadside vegetation plays in providing a wildlife corridor and a repository for flora species.



**Figure 15** Image of irrigated farmland along Mystic Park E Road looking west

Kangaroo Lake is one of the largest and deepest permanent freshwater lakes supplied by the Torrumbarry Irrigation System. The zoning is a mix of FZ and PCRZ. The water pump station is proposed to be sited on the northern edge of Kangaroo Lake, in an area away from sensitive uses such as dwellings and recreational areas. An existing pump station is in close proximity to the proposed location for the water supply line pump station, which is used to feed water into Channel No 4/7 (Figure 16, Figure 17, Figure 18). GMW are the responsible body for the management of the channel.



**Figure 16** Image of the site of the pump station at Kangaroo Lake looking northeast



**Figure 17** Image of existing pump equipment at Kangaroo Lake





**Figure 18** Image from the site of the pump station at Kangaroo Lake looking northwest towards Mystic Park East Road

The small town of Mystic Park is located within the WPSA (See Figure 19 and Figure 20). The land use includes residential, a hotel, a pub, sports fields and a former train station (now closed). There are several roads, both sealed and unsealed which would intersect with the pipeline alignment. None of the roads are arterial routes. The WPSA also intersects the Swan-Hill Kerang railway line which is a passenger and freight rail line. The rail line is zoned TRZ1, State transport infrastructure.



**Figure 19** Image looking north up Wilson Street into Mystic Park



**Figure 20** Image of Mystic Park Road crossing the Swan-Hill Kerang railway line, looking northeast towards Mystic Park

The pipeline intersects with the following water channels: Main Cannie Channel, Cannie-Branch Channel, Talgitcha Channel, Karrack Channel, Channel No 4/7, Channel 2/4/7 and 3/4/7. Figure 21 highlights one of the points where the intersection may have to cross over Channel 4/7. Some of these



channels are decommissioned GWM Water assets, whilst others are part of a domestic and stock supply pipeline network that replaced the open channels.



**Figure 21** Image of Mystic Park-Beauchamp Road crossing over Channel 4/7, looking east

### 6.4.3 Transport Study Area

The TSA stretches from the mine site to Ultima and follows the proposed transport route. Key local access roads proposed to be used during construction and operation of the Project may require upgrades to facilitate safe movements of vehicles to and from the Mine Site. Road upgrades may include widening, re-surfacing, acceleration, deceleration and turning lanes and expanding intersections for increased turning circles. Appropriate signage and road marking would also be installed as required by the relevant road manager.

The provisions of the MRSD Act do not extend to permit requirements associated with roadworks (including potentially native vegetation removal) that would be constructed outside of the proposed Mining Licence boundary.

The proposed transport route seeks to utilise the existing principal transport network as much as possible and includes road reserves within the TRZ2 and FZ:

- Sea Lake-Swan Hill Road, Ultima
- David Street, Ultima
- Lake Boga-Ultima Road, Ultima / Ultima East / Goschen
- Donald-Swan Hill Road, Goschen / Meatian / Lalbert
- Mystic Park-Meatian Road, Goschen / Meatian / Lalbert
- Jobling Road, Lalbert
- Bennett Road, Lalbert
- Shepherd Road, Lalbert
- Bish Road, Lalbert

Except where the proposed transport route passes by Goschen and Clear Tank Bushland Reserves (both zoned PCRZ) and through Goschen and Ultima, the land use surrounding the transport route is generally characterised by broadacre farming and zoned FZ. Other zones that are also contained within the TSA include TRZ1, TRZ2, PCRZ, PUZ1 and TZ.

Table 14 and figures below provide an overview of existing conditions. In addition, Table 14 provides an overview of anticipated upgrades that have been identified for the purposes of the Project along the proposed transport route. For further information, refer to Technical Assessment E: Traffic and Transport.

Table 14 Existing conditions of proposed road upgrade locations

Road	Length (kilometres)	Condition	Width (metres)	Upgrade Requirements
<b>Bennett Road</b>	6.3	<u>Existing:</u> Gravel <u>Proposed:</u> Sealed	<u>Existing:</u> 5 - 6.5 <u>Proposed:</u> 6.2 – 7 with 1.5 metre unsealed shoulders	<ul style="list-style-type: none"> <li>Localised shoulder widening and shoulder sealing in the vicinity of the intersection with local roads including Donald Swan Hill Road to provide a wider turning lane</li> <li>One culvert present along length of road</li> </ul>
<b>Mystic Park – Meatian Road</b>	6.8	<u>Existing:</u> Gravel <u>Proposed:</u> Sealed	<u>Existing:</u> 5 – 7 <u>Proposed:</u> 6.2 – 7 with 1.5 metre unsealed shoulders	<ul style="list-style-type: none"> <li>Localised road widening to allow for bidirectional heavy vehicle movements</li> <li>Localised shoulder widening and shoulder sealing in the vicinity of the intersection with local roads to provide a wider turning lane</li> <li>Three culverts present along length of road</li> </ul>
<b>Bish Road</b>	4.5	<u>Existing:</u> Gravel/ dirt <u>Proposed:</u> Sealed	<u>Existing:</u> 4 – 5 <u>Proposed:</u> 6.2 – 7 with 1.5 metre unsealed shoulders	<ul style="list-style-type: none"> <li>Localised road widening to allow for bidirectional heavy vehicle movements</li> <li>Localised shoulder widening in the vicinity of the intersection with local roads to provide a wider turning lane</li> <li>One culvert present along length of road</li> </ul>
<b>Jobling Road</b>	8.9	<u>Existing:</u> Gravel/ dirt <u>Proposed:</u> Sealed	<u>Existing:</u> 5 – 6 <u>Proposed:</u> 6.2 – 7 with 1.5 m unsealed shoulders	<ul style="list-style-type: none"> <li>Localised road widening to allow for bidirectional heavy vehicle movements</li> <li>Localised shoulder widening in the vicinity of the intersection with local roads to provide a wider turning lane</li> <li>Three culverts present along length of road</li> </ul>
<b>Shepherd Road</b>	2.8	<u>Existing:</u> Gravel <u>Proposed:</u> Sealed	<u>Existing:</u> 5.5 – 6.4 <u>Proposed:</u> 6.2 – 7 with 1.5 m unsealed shoulders	<ul style="list-style-type: none"> <li>Localised upgrades and widening to be confirmed</li> </ul>

Road	Length (kilometres)	Condition	Width (metres)	Upgrade Requirements
<b>Donald-Swan Hill Road</b>	20.8	<u>Existing:</u> Sealed <u>Proposed:</u> Sealed	<u>Existing:</u> 7 – 7.5 <u>Proposed:</u> 1.5 m unsealed shoulders	<ul style="list-style-type: none"> <li>Localised upgrades and widening to be confirmed</li> </ul>
<b>Lake Boga – Ultima Road</b>	18	<u>Existing:</u> Sealed <u>Proposed:</u> Sealed	<u>Existing:</u> 6.2 <u>Proposed:</u> 6.2 – 7 with 1.5 m unsealed shoulders	<ul style="list-style-type: none"> <li>Localised upgrades and widening to be confirmed</li> </ul>
<b>David Street</b>	0.4	<u>Existing:</u> Sealed <u>Proposed:</u> Sealed	<u>Existing:</u> 6.1 <u>Proposed:</u> 6.2 – 7 with 1.5 m unsealed shoulders	<ul style="list-style-type: none"> <li>Localised upgrades and widening to be confirmed</li> </ul>
<b>Sea Lake – Swan Hill Road</b>	0.3	<u>Existing:</u> Sealed <u>Proposed:</u> Sealed	<u>Existing:</u> 7.2 <u>Proposed:</u> 1.5 m unsealed shoulders	<ul style="list-style-type: none"> <li>Localised upgrades and widening to be confirmed</li> </ul>



Figure 22 Typical condition of Bennett Road



Figure 23 Donald-Swan Hill Road and Bennett Road 'Y' priority intersection – looking southbound on Donald-Swan Hill Road towards Bennett Road (N) entry/exit





**Figure 24** Typical condition of Mystic Park Road



**Figure 25** Typical condition of Bish Road



**Figure 26** Typical condition of Jobling Road





**Figure 27** Donald-Swan Hill Road and Jobling Road 'T' priority intersection – looking eastbound on Jobling Road



**Figure 28** Typical condition of Shepherd Road



**Figure 29** Typical condition of Donald - Swan Hill Road



**Figure 30** Existing intersection at Lake Boga-Ultima Road and Donald-Swan Hill Road



**Figure 31** Typical condition of Lake Boga-Ultima Road



**Figure 32** Donald-Swan Hill Road and Mystic Park-Meatian Road 'T' priority intersection – looking eastbound on Mystic Park-Meatian Road



## 6.5 Land ownership and management

### 6.5.1 Mining area

The majority of land comprising the proposed mine site (Area 1 and Area 3) is freehold land and VHM has entered into contracts to purchase it.

However, the mine site also encompasses a number of local roads as well as two separate crown land parcels, namely:

- Crown allotment 61A Parish of Gnarwee (Volume 11737 Folio 712), which is a narrow ribbon of land within Area 1 on which the decommissioned Wycheeproof Goschen channel is located. The Crown land administrator is listed on the Crown folio as the Secretary to DELWP but this function would now lie with the Secretary to DEECA. The address of the parcel is Pola Road, Lalbert.
- Crown allotment 9B Parish of Gnarwee (Volume 11737 Folio 708), which is a small parcel of land within Area 3 on which the GWM Water pump station is located. This land is administered by GWM Water. The address of the parcel is 513 Thompson Road, Lalbert.

VHM will need to obtain the consent of the relevant Crown land administrator before it can carry out any works on either of these Crown land parcels.

Area 1 includes a section of Bennett Road, whereas Area 3 includes a section of Thompson Road, and mining activities are proposed on both these sections of road. In addition, VHM will require exclusive access over the part of Thompson Road that links land within Area 3 (e.g. between Shepherd Road/CA 9A and CA 11A) and possibly the part of Shepherd Road that links Area 1 and Area 3 at various times over the life of the mine, together with a services corridor. These roads are all municipal roads managed by Gannawarra Shire Council. VHM intends to ask Gannawarra Shire Council to obstruct or temporarily close the required sections of the roads and grant tenure to VHM to allow it to carry out the proposed mining and infrastructure activities and provide the required access. Prior to commencement of any such activities and access, VHM and Gannawarra Shire Council would need to enter into an agreement that requires VHM to prepare an appropriate traffic management plan and reinstate the roads at the conclusion of relevant activities.

### 6.5.2 Water pipeline alignment

The water pipeline alignment is proposed within local road reserves. The legislation framework for road reserves is established under the *Road Management Act 2004* as described in Section 4.2 and Gannawarra Shire Council is responsible for the provision of maintenance of local roads infrastructure, including road reserves. Prior to approval of works in the road reserve, an agreement would be required to be entered into by VHM with the Council which may include inspection and maintenance requirements, and matters relating to public liability insurance.

The water pipeline alignment may also cross or run parallel to other infrastructure (pipeline, irrigation, power etc.) in the road reserve.

### 6.5.3 Transport Route

The proposed transport route between the mine site and Ultima includes roads that are part of Victoria's principal transport network and managed by DTP, as well as local roads managed by Gannawarra and Swan Hill Councils. Any works undertaken on these roads would require the consent of the relevant road manager.

### 6.5.4 Kangaroo Lake

The following government bodies are responsible for management of Kangaroo Lake:

- Gannawarra Shire Council manages a committee of management for the western and northern sides of the lake and is responsible for recreational activities such as boating, fishing and water skiing in accordance with the provisions of the Marine Safety Act 2010.
- NCCMA is responsible for the integrated planning and coordination of land, water and biodiversity management at Kangaroo Lake. The NCCMA is the responsible authority for works on waterway



approvals under the Water Act 1989 and is also required to advise on matters of flood mitigation and provide support to flood responses.

- DTP is the overarching land manager for land surrounding the lake. It is anticipated that a land agreement would need to be entered into by VHM for the pump station on the bank of Kangaroo Lake. Further consultation with DTP is required to determine the details of this land agreement.
- GMW is a statutory corporation constituted by Ministerial Order under the provisions of the *Water Act 1989*. They manage twenty-four water storages that can hold approximately 11 million megalitres of water, including water storage at Kangaroo Lake. In addition, GMW are responsible for managing more than 100,000 hectares of public land surrounding the storages and responsible for providing approval for pump operation and water allocation as set out in Table 7 of this assessment.

## 6.6 Likely future development patterns

Over time, the MSA, WPSA and TSA have seen a change in farming practices. Farmers have and continue to modify farming practices to ensure the best yield from their farms. Meetings with Gannawarra Shire Council and Swan Hill Rural City Council confirmed that there are no current planning scheme amendments or planning permits which would alter the future land use and development patterns around the Project.

## 6.7 Sensitive receptors

Sensitive receptors have been identified within the MSA and WPSA. The sensitive receptors include several rural residences surrounding the proposed mine, along the proposed transport route and pipeline route, water channels which the mine and pipeline intercept, Kangaroo Lake, and a number of reserves.

Table 15 below summarises the distances to existing dwellings from the proposed mine as outlined in Table 8 of EES Technical Assessment G: Air Quality. Further information regarding these sensitive receptors and an assessment of potential impacts resulting from the Project are detailed Sections 9.0, 10.0 and 11.0 and relevant technical reports described in Section 5.8.

Sensitive receptors have been mapped in Figure 33 and Appendix B for the MSA and WPSA. Sensitive receptors have not been mapped along the transport route as all works will be within the existing road reserve, additional traffic demands along the transport route as a result of the Project are anticipated to be negligible and land use impacts are expected to be limited to amenity impacts during construction of roadworks.

**Table 15 Distances of dwellings from the mine (sourced from Technical Assessment G: Air Quality)**

ID	Description	Distance and Direction from the mine boundary (distance and direction)
R1	Residence	4.9km E (Area 3)
R2	Residence	3.2km E (Area 1)
R3	Residence	2.0km S (Area 1)
R4	Residence	5.0km NNE (Area 3)
R5	Residence	4.0km NNE (Area 3)
R6	Residence	4.0km NE (Area 3)
R7	Residence	1.6km NE (Area 3)
R8	Residence	2.3km NW (Area 3)
R9	Residence	0.0km (Area 3)
R10	Residence	3.0km WNW (Area 1)
R11	Residence	2.6km WNW (Area 1)
R12	Residence	1.0km S (Area 1)
R13	Residence	0.6km NW (Area 1)
R14	Residence	0.2km SW (Area 1)
R15	Residence	1.0km SW (Area 1)
R16	Residence	4.2km SWS (Area 1)
R17	Residence	3.1km SE (Area 1)
R18	Residence	4.3km N (Area 3)
R19	Residence	3.2km S (Area 1)
R20	Residence	3.2km S (Area 1)
R21	Residence	4.7km SE (Area 1)
R22	Residence	4.8km N (Area 3)
R23	Residence	4.6km SE (Area 1)
R24	Residence	4.8km SW (Area 1)

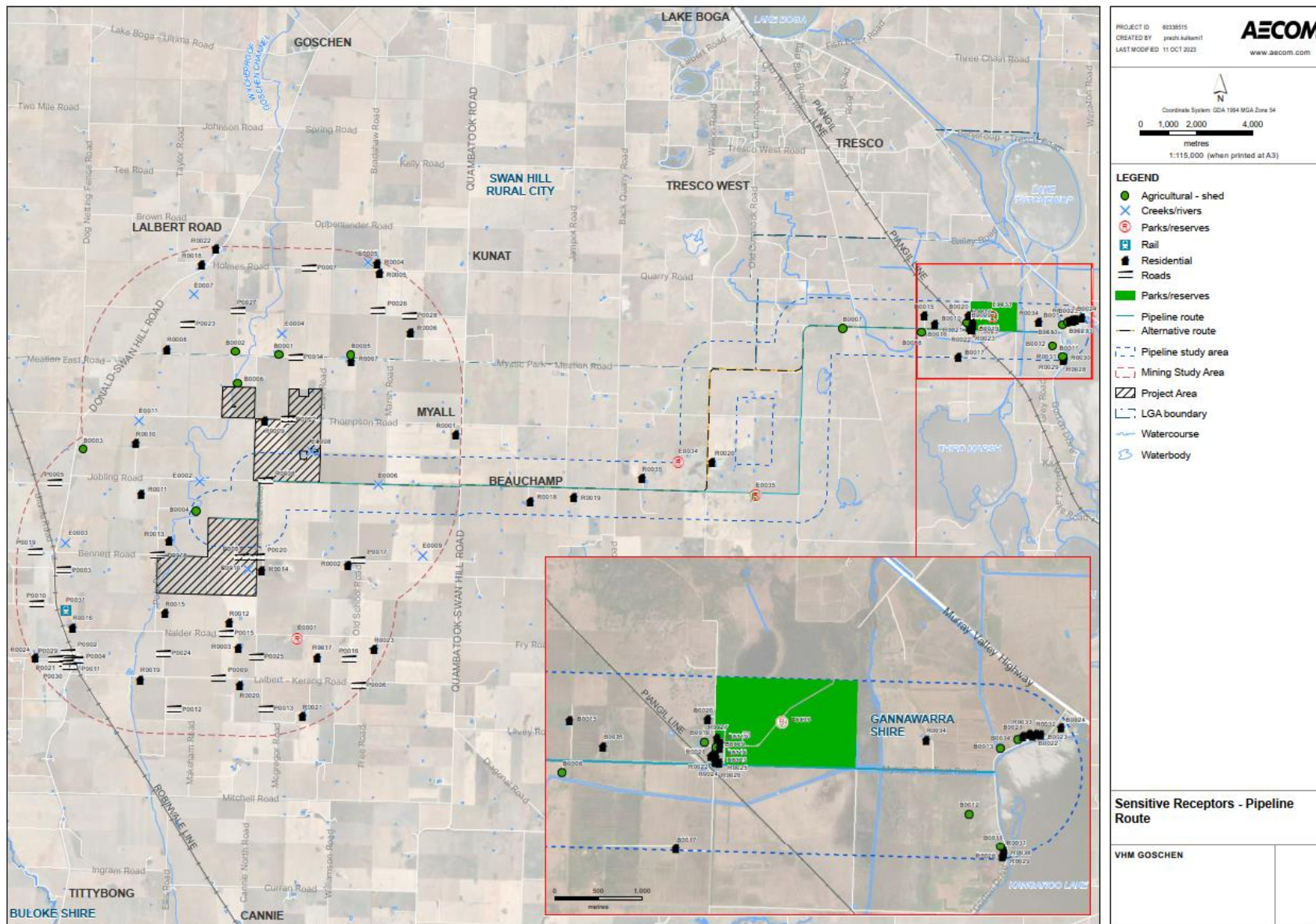


Figure 33 Sensitive Receptors within the MSA and WPSA

## 7.0 Strategic Impact Assessment

This section of the assessment provides a strategic assessment of the Project against relevant strategies, plans and policies that are identified in Section 4.2 and Appendix C. This analysis also informs the risk and impact assessments set out in Sections 8.0, 9.0, 10.0 and 11.0 of this report.

### 7.1 National strategies and plans

**Critical Minerals Strategy (2022)** sets out a long-term plan to leverage growing global demand and develop a thriving and durable Australian critical minerals sector – one that contributes to the national security and economic prosperity of Australia and the Indo-Pacific region. It aims to realise its vision of *‘By 2030, Australia is a global critical minerals powerhouse. [Australia is] integral to international critical minerals supply chains and technologies crucial to the global economy.’*

The Strategy highlights that the growing global demand for rare earth elements and critical minerals creates a significant opportunity for Australia, as it possesses the world’s sixth largest reserves of rare earth elements.

The strategy comprises three objectives to achieve its vision:

- *‘Ensure a stable supply of rare earth from Australia to the world’*
- *‘Increase sovereign capability in downstream processing of rare earths and critical minerals’*
- *‘Increase regional jobs and growth through this industry.’*

The development of the Mine aligns with this key Commonwealth Government priority, particularly by contributing to the supply of rare earth resources and by bringing investment into the region. While it is of strategic relevance, the Mine also includes minerals with high-growth potential like neodymium, praseodymium, and dysprosium. The high concentration of these minerals will enable VHM to produce up to 10 per cent of global rare earth demand.

### 7.2 State and local planning policy

This section assesses the Project against relevant state and local planning policies, considering the Project’s consistency with strategic planning policy and an assessment of strategic land use impacts. The Project is supported by the following policy documents which are described in Section 4.0 and Appendix C:

- **Victoria’s Regional Statement (2015)** – The Project responds to this policy as mining creates direct and indirect investment in the region and contributes to the economic and social wellbeing of the Loddon Mallee North region.
- **Loddon Mallee North Regional Growth Plan (2014)** – The Project responds to this policy by creating significant investment that would maximise local and regional benefits, strengthen and diversify the local and regional economy through mining and appropriately manage environmental risks.
- **State of Discovery: Mineral Resources Strategy 2018-2023** – The EES Assessment for the Project and identified mitigation measures within the EMF would manage environmental impacts during construction and operation of the Project, which would help to grow investment in Victoria’s mineral sector and build community confidence in the social, environmental, and economic performance of the Project.
- **Gannawarra Shire and Swan Hill Rural City Council Economic Development Strategies, Council Plans, and Gannawarra Taking up the Challenge 2025** – The Project responds to the vision, strategies and objectives outlined in these plans by providing investment and employment opportunities within the region. In addition, the EES process would ensure that a healthy and liveable environment is maintained during construction, operation, decommissioning and rehabilitation, and that any impacts are mitigated accordingly.

The Project would be required to adhere to state guidelines relating to vegetation removal, biodiversity and amenity impacts such as noise and dust which would be listed in a new Incorporated Document in the Planning Schemes. The Project is consistent with and supported by established and reasonably foreseeable land use policy identified in the GP Scheme and responds to relevant policy objectives and strategies of the GP Scheme and SHPS as set out in Table 16. The Project also responds to outcomes of the following relevant zones and overlays as set out in Table 17.

**Table 16 Planning Policy Assessment**

Clause	Assessment
Clause 02 (Municipal Planning Strategy)	<p>The Project supports and implements the municipal planning strategies of Gannawarra Shire and Swan Hill Rural City Council by:</p> <ul style="list-style-type: none"> <li>• Providing a more diversified economy with increased employment opportunities that would support population retention objectives</li> <li>• Ensuring that environmental and landscape values, established land uses and local infrastructure are protected through the preparation and implementation of construction, operation, decommissioning and rehabilitation management plans to the satisfaction of the Responsible Authority.</li> <li>• Producing mined products that would support the manufacture and development of renewable energy technologies.</li> </ul>
Clause 11 (Settlement)	<p>Accommodation is not proposed as part of the Goschen Project and would be accommodated within the surrounding townships and regional areas. As a result, this LUA does not contemplate potential permit requirements or approval processes associated with future accommodation uses. Nevertheless, the project aligns with the objectives and strategies of Clause 11 and relevant local policies. Specifically, the Project seeks to:</p> <ul style="list-style-type: none"> <li>• Provide sustainable growth and investment to the region, by facilitating '<i>growth of the mineral sands and solar energy generation industries</i>' (see Clause 2.03-6 (Economic Development) of the SHPS) and</li> <li>• '<i>Support township economics through continued economic development which is vital to the future of the municipality</i>' (see Clause 2.03-7 (Economic Development) of the GP Scheme).</li> </ul> <p>By furthering the above policies, the Project is expected to support local settlement patterns and objectives over the next 20 years. This would be further supported by a Workforce Accommodation Strategy that would be developed in accordance with the EMF and require consultation with relevant stakeholders including local councils to support short term accommodation challenges associated with construction of the Project. Rehabilitation of the land for agricultural purposes at the end of the Project also ensures that there is no long-term impact to agricultural land use and established settlement patterns.</p>



Clause	Assessment
Clause 12 (Environmental Landscape Values)	<p>The Project is consistent with the objectives and strategies of Clause 12 as follows:</p> <ul style="list-style-type: none"> <li>• The Project has been sighted to avoid and minimise impacts on flora and fauna values where possible. Where native vegetation avoidance has not been possible, offsets would be secured in accordance with relevant legislation and guidelines to ensure no net loss to the region's biodiversity.</li> <li>• The visual impact of the proposed mine on the broader natural landscape would be limited by the generally flat topography of the land combined with existing roadside vegetation.</li> <li>• The proposed pump infrastructure has been co-located with other agricultural infrastructure including pumps and water channels in a location that has low recreational value and would limit the Project's impact on the environmental, cultural and landscape values of Kangaroo Lake.</li> </ul> <p>Further consideration of native vegetation and environmental landscape values is considered in Technical Assessments A and B: Flora ecology and fauna ecology. This includes mitigation measures to minimise impacts to trees and native vegetation</p>
Clause 13 (Environmental Risks and Amenity)	<p>The Project seeks to be consistent with the objectives of Clause 13, including flooding, soil degradation, noise, bushfire risk, air quality, amenity, human health and safety through the implementation of mitigation measures within the EMF and compliance with relevant regulatory requirements for construction, operation, and rehabilitation of the mine. Where these mitigation measures are inadequate (such as inadequate separation distances between the Project and R9 and R14), the Project has acquired these properties.</p> <p>As outlined in Table 21, Clause 13.02-1S (Bushfire Planning) applies to all planning and decision making under the P&amp;E Act relating to land that is within a DBPA or subject to a BMO. Fire risks associated with the construction, operation and rehabilitation of the mine would be managed through the EMF and EMP by implementing fire management measures through a Bushfire Management Plan in consultation with relevant fire authorities and identify specific bushfire hazards and bushfire mitigation measures.</p>
Clause 14 (Natural Resource Management)	<p>The Project supports objectives and strategies of Clause 14 through mitigation measures outlined in the EMF which would require the preparation and implementation of a CEMP and OEMP. Compliance with mitigation measures would help to manage potential land use conflicts between agricultural and non- agricultural uses, ensuring that the Project operates in accordance with environmental standards. In addition, the region's agricultural base would be protected through the rehabilitation of the land at the end of the Project, thus ensuring no permanent loss of agricultural land.</p>
Clause 15 (Built Environment and Heritage)	<p>EES Technical Report C, Cultural heritage has been prepared as part of the EES to identify and protect heritage values on and around the Project site. A CHMP has also been prepared for the site which would provide management and protection of cultural heritage values.</p>
Clause 17 (Economic Development)	<p>The Project supports mining which is identified in local policy as an emerging growth sector for the region and would have a positive economic impact on the region. Specifically, The Socio-Economic Chapter of the EES confirms that the Project would contribute to the economic wellbeing of nearby townships through direct and indirect employment opportunities.</p>
Clause 18 (Transport)	<p>Compliance with mitigation measures set out in the EMF which would require the preparation and implementation of a CEMP, OEMP and TMP would help to</p>

Clause	Assessment
	ensure that local road infrastructure is maintained or improved to ensure the safety and amenity of the local road network. The Project supports Clause 18 as the increased use of roads, particularly by heavy vehicles, will be addressed through road upgrades to make it safer for all road users, even after the mine and associated traffic have left the local area.
Clause 19 (Infrastructure)	Existing infrastructure of national, state and regional significance would be protected in accordance with policies and objectives set out in the PPF through compliance with mitigation measures set out in the EMF which would require the preparation and implementation of a CEMP, OEMP and TMP.



Table 17 Project response to zoning and overlay outcomes

Provision	Project Response
Farming Zone (FZ)	Most of the proposed Project works would occur within this zone. There are no objectives or strategies for mining under the Farming Zone and whilst the Project would result in the temporary loss of agricultural land during construction and operation, rehabilitation of the land for farming purposes in accordance with mitigation measures set out in the EMF would ensure that there are no long-term impacts to agricultural land supply.
Public Conservation and Resource Zone (PCRZ)	The purpose of the PCRZ includes <i>'to provide for appropriate resource based uses'</i> , however it is envisioned that these uses are conducted by or on behalf of public land managers. Provided an appropriate land agreement is established between VHM Limited and the public land manager, it is considered that the use and development of a pump station within the PCRZ would generally be consistent with the stated purpose of the zone. In accordance with objectives of the zone which seek to protect and conserve the natural environment, the Project has sought to co-locate the proposed pump station with existing agricultural water channel and pump infrastructure in a location that is of low cultural, environmental and landscape value.
Transport Zone 1 – State Transport Infrastructure (TRZ1)	Where the Project's pipeline infrastructure is proposed to intersect with land within the TRZ1, it is expected that the safe and efficient use of the transport system would be protected and that any potential land use conflicts would be addressed through mitigation measures set out in the EMF.
Transport Zone 2 – Principal Road Network	The proposed transport route for transporting materials between the mine and the intermodal terminal in Ultima will require upgrades to roads that are part of the State's principal road network. The proposed roadworks are consistent with the purpose of TRZ2 as they will facilitate the operation of the mine and in term, ensure the safe use of transport infrastructure and help to implement the Gannawarra and Swan Hill municipal planning strategies and planning policy frameworks.
Township Zone (TZ)	Amenity impacts during construction of the pipeline within the Township Zone would be addressed through mitigation measures set out in the EMF. Compliance with these mitigation measures would require the preparation of a CEMP and TMP to ensure that impacts to local residential development and other commercial uses are appropriately managed.
Environmental Significance Overlay Schedule 2 (ESO2) Schedule 3 (ESO3) Schedule 4 (ESO4)	The Project seeks to achieve the environmental objectives set out in the ESO and relevant schedules. To ensure that the objectives can be met, technical studies have been completed and relevant mitigation measures are set out in the EMF to avoid and minimise impacts. These measures would be implemented through the Work Plan and relevant conditions of the Incorporated Document. For example, the Incorporated Document is proposed to contain a condition requiring an Environmental Management Plan that ensures relevant biodiversity and habitat mitigation measures set out in the EMF are applied across the Project Infrastructure Land.
Land Subject to Inundation Overlay (LSIO)	The proposed pipeline would intersect with flood prone land that is covered by the LSIO. It is expected that any potential impacts of the Pipeline to existing inundation patterns would be addressed by mitigation measures in the EMF, which would inform the Incorporated Document and be managed through the CEMP.

Provision	Project Response
Floodway Overlay (Shown on maps as RFO)	The proposed pumping infrastructure would be situated within the Floodway Overlay, which means the area carries active flood flows from Kangaroo Lake that are greater than one metre in depth. In order to ensure that development maintains the free passage and temporary storage of flood water and minimise flood damage, EES Technical Report H; Surface Water has been prepared. Mitigation measures outlined in this assessment are set out in the EMF and would require that the design and construction of the pumping station is undertaken to the satisfaction of the relevant floodplain management authority.
Specific Controls Overlay (SCO2)	The SCO facilitates irrigation modernisation works to be undertaken on behalf of the Goulburn-Murray Rural Water Corporation. Any potential conflicts between the Project and these upgrades would be addressed through mitigation measures set out in the EMF, which would inform the preparation of a CEMP in consultation with the Responsible Authority and relevant asset owners.
Vegetation Protection Overlay – Schedule 1 (VPO1)	The Project seeks to ensure that the environmental objectives set out in the VPO, and Clause 52.17 (Native vegetation) are protected. To ensure that the objectives can be met, Technical Reports A and B: Flora ecology and Fauna ecology have been completed. While some vegetation will need to be removed as part of the Project, the extent and associated impacts of such removal will be minimised where possible. Refer to the specific mitigation measures proposed in the EMF for minimising potential adverse impacts to native vegetation (in particular, see MM BD01-BD03 and MM-FE02).
Clause 52.17 (Native Vegetation)	
Bushfire Management Overlay (BMO)	The purpose of the BMO is to ensure that the development of land prioritises the protection of human life and is only permitted where the risk to life and property from bushfire can be reduced to an acceptable level. The BMO is concerned with buildings and works relating to sensitive uses or uses which may increase the bushfire hazard.

## 8.0 Risk Assessment

A risk assessment of the Project's activities was performed in accordance with the methodology described in Section 5.5 and Appendix D. The risk assessment has been used as a screening tool to prioritise the focus of the impact assessments and development of mitigation measures. The risk pathways link Project activities (causes) to their potential effects on the environmental assets, values or uses that are considered in more detail in the impact assessment. Risks were assessed for construction, operation and decommissioning and rehabilitation phases of the Project.

Inherent risks identified as medium or above according to the ERR Risk Matrix require additional controls to either eliminate the risk or minimise its rating as far as reasonably practicable. Low to Negligible identified risks will require an explanation of relevant Project design and aspects of the existing conditions that justify the assigned risk rating.

The identified risks and associated residual risk ratings are listed in Table 18. The residual risks reflect the level of risk after mitigation measures have been applied. The likelihood and consequence ratings determined during the risk assessment process and the mitigation measures to be applied are presented in Appendix D.

The initial risk ratings presented below considers an initial set of mitigation measures (where relevant), which are based on compliance with legislation and standard requirements that are typically incorporated into the delivery of infrastructure Projects of similar type, scale and complexity. Risk ratings were applied to each of the identified risk pathways assuming that these mitigation measures were in place. The risk assessment for land use impacts has considered the recommendations and conclusions of relevant EES specialist impact assessments as described in Section 5.8.

These specialist impact assessments have considered potential direct impacts (such as impacts on cultural heritage) and indirect or amenity impacts (such as noise impacts on sensitive land uses during construction and operation). The assessment of potential land use impacts has been informed by these related impact assessments.

**Table 18 Land Use residual risk rating**

Risk ID	Risk Event (Potential threat and effects on the environment)	Residual risk rating
<b>Construction</b>		
<b>LUR1</b>	Temporary land use and access impacts: The proposed construction activities result in temporary land use and access impacts that are inconsistent with existing or reasonably foreseeable land use and policy.	Low
<b>LUR2</b>	Temporary amenity impacts: The proposed construction activities result in temporary amenity impacts that are inconsistent with existing or reasonably foreseeable land use and policy.	Low
<b>Operation</b>		
<b>LUR3</b>	Land use and access impacts: The proposed siting and operation of the Project results in land use and access impacts that are inconsistent with existing or reasonably foreseeable land uses and policy	Low
<b>LUR4</b>	Amenity Impacts: The proposed siting and operation of the Project results in amenity impacts that are inconsistent with existing or reasonably foreseeable land use and policy	Low
<b>Decommissioning, rehabilitation and closure</b>		
<b>LUR5</b>	Land Use, access of amenity impacts: The proposed decommissioning and rehabilitation activities associated with closure of the Project results in land use, access or amenity impacts that are inconsistent with existing or reasonably foreseeable land uses and policy	Low

## 9.0 Construction Impact Assessment

As set out in Section 7.0, the Project strongly aligns with commonwealth, state and local policy. Nevertheless, during periods of construction, temporary amenity impacts may occur and there is the potential for land to be temporarily used in a manner that may interfere with established land management, land use practices and planning policies

This section assesses the potential impacts that construction of the Project may have on land use and identifies mitigation measures that aim to reduce impacts to as low a level as possible. An overview of construction activities is provided in Section 0. Mitigation measures referred to are summarised in Section 13.0.

Land use impacts during construction are generally temporary in duration and limited in nature. They tend to be associated with the temporary occupation of roads or land for the purpose of construction and can require activities that are inconsistent with established land use. The impacts may also include long-term impacts from the start of construction, such as acquisition or land agreements that result in a change of land use.

For the following assessment, the construction impacts are considered in the context of the land use study area described at Section 5.2.

### 9.1 Temporary land use and access impacts (LUR1)

#### 9.1.1 Impacts

During periods of construction, land could be temporarily used in a manner that may interfere with established land management, land use practices and planning policies that apply to land within the MSA, WPSA and TSA. The proposed construction activities could result in temporary land use and access impacts that are inconsistent with existing or reasonably foreseeable land use and policy.

Construction activities may result in:

- Temporary land use change that is inconsistent with land use policy and/or conflict with established land uses, such as:
  - The temporary loss of agricultural land due to the construction footprint
  - Temporary disruptions to existing infrastructure such as rail, roads, irrigation and water channels, and power lines
  - An increased risk of fire due to increased use of construction plant and equipment.
- The permanent loss of native vegetation within road reserves, contrary to the following established land use policies:
  - Local policies in Clause 12.01-1L (Flora and fauna protection) of the GP Scheme which encourages development *'to retain and enhance roadside vegetation as wildlife corridor and repository for flora species'*
  - Objectives of VPO1 which seek *'to protect and preserve indigenous vegetation and rare and endangered flora and fauna species on linear reserves'*
- Impacts to land access and access routes of surrounding land uses because of:
  - Increased construction traffic on roads surrounding the site
  - Temporary road closures and/or restrictions to facilitate road infrastructure upgrades.

It is not anticipated that land use agreements associated with the construction of the water pipeline or road upgrades within the established road reserve would result in permanent changes of land use as land use change would be limited to the duration of construction.

The design solution for the pipeline has reduced the amount of potential tree loss from 568 to 61. As outlined in Section 7.0, this design process demonstrates a consistency with state and local policies that seek to avoid, minimise and mitigate impacts to native vegetation. For detailed assessment of

native vegetation and ecological impacts, refer to Technical Reports A and B: Flora ecology and Fauna ecology.

### 9.1.2 Mitigation

Land use impacts and mitigation measures associated with the temporary loss of and impacts to agricultural land, irrigation, increased fire risk, land access and access routes during construction are addressed in this assessment, along with EES Technical Report L: Agriculture, EES Technical Report and EES Traffic and Transport and EES Technical Report H1 Regional Surface Water.

The permanent loss of native vegetation within road reserves, contrary to established land use policies and proposed mitigation measures are addressed by EES Technical Report A and B: Flora ecology and Fauna ecology.

Temporary changes to land use, impacts to existing infrastructure, fire management and the permanent loss of native vegetation during construction would be avoided, minimised and mitigated as appropriate through a combination of environmental management systems.

These systems include the EMF which outlines the plans and mitigation measures outlined in the above assessments to address risks identified in Section 9.1.1, including Mitigation Measure – Land Use -1 (MM-LU01) which requires the preparation of a Bushfire Management Plan.

Combined, the measures set out in the EMF seek to address environmental risks and impacts, including the avoidance and minimisation of permanent loss to trees and native vegetation, management of fire risks and mitigation of temporary changes and adverse land use effects resulting from the construction of the Project.

The measures set out in the EMF would be achieved through the preparation and implementation of an EMP (as required by the Incorporated Document) and a Work Plan. Furthermore, the Incorporated Document contains secondary approval requirements for the removal of native vegetation, creating and altering access to roads and flood management that would further support the management of potential impacts.

For example, the EMF requires the Work Plan and EMP to implement mitigation measures that will see the preparation of sub-plans including a Stakeholder Engagement Plan (SEP), Traffic Management Plan (TMP), Bushfire Management Plan (BMP), Road Safety Audit(s) and a Site Access Strategy.

### 9.1.3 Residual Impact

Through the use of mitigation measures set out the EMF (including MM-LU01), the severity, extent and magnitude of impacts to land use resulting from construction activities would be appropriately managed. Specifically, mitigation measures would provide pathways to ensure that residual impacts are avoided, minimised and, in the instance that they do arise, addressed so that the extent of any land use impacts is minimised.

For example, implementation of the TMP in accordance with mitigation measures set out in the EMF would ensure proposed road closures and roadworks are subject to consultation with potentially affected users prior to the works. The TMP seeks to avoid and minimise land use impacts associated with the road closures and provide solutions to ensure that residual impacts are temporary.

Implementation of a BMP in consultation with the CFA would seek to ensure that potential fire risks are considered in advance, while managing the risk of outbreaks and outlining clear emergency management procedures in the case of fire.

With regard to native vegetation, it is anticipated that there will be an impact to land that contains high value native vegetation that is inconsistent with land use planning provisions. Mitigation measures outlined in the EMF seek to minimise the extent of loss and include measures for rehabilitation in accordance with relevant planning policy and provide potential opportunities for revegetation over the life of the Project. Further information regarding the severity, extent and magnitude of key impacts can be found within the EES Technical assessments listed in Section 9.1.2.

## 9.2 Temporary amenity impacts (LUR2)

### 9.2.1 Impacts

During periods of construction, there is a risk that temporary amenity impacts may occur that would conflict with existing and reasonably foreseeable land use and policy within the MSA, WPSA and TSA. The proposed construction activities could result in temporary amenity impacts that are inconsistent with existing or reasonably foreseeable land use and policy. If not managed correctly, construction activities may result in:

- Unacceptable levels of dust, which could:
  - Impact sensitive land uses surrounding/on Kangaroo Lake
  - Lead to a drop in crop yields, impact farming practices and use of land for agriculture.
- Noise and vibration impacts, which may have an impact on sensitive receptors within the MSA, TSA or WPSA.

### 9.2.2 Mitigation

Temporary amenity impacts associated with air quality, noise pollution and vibration during construction and associated mitigation measures are addressed in EES Technical G: Air Quality and EES Technical Assessment F: Noise and Vibration. The mitigation measures outlined in these assessments would be implemented through a combination of environmental management systems.

These systems include the EMF, which outlines the plans and mitigation measures required to address the risks identified in Section 9.2.1. Combined, the measures set out in the EMF seek to address temporary amenity impacts associated with air quality, noise pollution and vibration resulting from the construction of the Project. These measures would be achieved through the preparation and implementation of an EMP (as required by the Incorporated Document) and a Work Plan.

These mitigation measures have been unable to address separation distance requirements set out in EPA *Publication 1518, Environment Protection Authority, March 2013* for sensitive receptors R9 and R14 and consequently, the project has acquired these properties to ensure regulatory compliance.

### 9.2.3 Residual Impact

Through the implementation of mitigation measures set out in the EMF, the severity, extent and magnitude of impacts during construction would be minimised and managed, recognising that construction activities are temporary in nature. Specifically, the implementation of mitigation measures identified in the EMF relating to air quality, noise pollution and vibration during construction would seek to minimise amenity impacts to surrounding land use. Further information regarding the severity, extent and magnitude of key amenity impacts can be found within the EES Technical assessments listed in Section 9.2.2.

## 10.0 Operation Impact Assessment

As set out in Section 7.0, the Project strongly aligns with Commonwealth, state and local policy. Nevertheless, during operation, amenity impacts may occur and there is the potential for land use and access impacts that are inconsistent with existing or reasonably foreseeable land uses and policy.

This section discusses potential impacts resulting from operation of the Project and the associated mitigation measures that seek to avoid and minimise impacts. Mitigation measures referred to are defined in Section 13.0.

### 10.1 Land use and access impacts (LUR3)

#### 10.1.1 Impact

Despite the Project strongly aligning with Commonwealth, state and local policy (see Section 7.0), the proposed siting and operation of the Project could result in land use and access impacts that are inconsistent with existing or reasonably foreseeable land uses and policy.

The proposed siting and operation of the Project would result in the temporary loss of approximately 0.0045% of the total agricultural land within the municipality (land zoned FZ) and the proposed siting and operation of the Project could result in the following land use and access impacts:

- A cumulative loss of agricultural land in the region, which would occur if there were multiple proposals approved to use agricultural land for non-farming purposes or permanent impacts to irrigation and water channel infrastructure.
- Impacts to landscape dominated by agricultural and farming land uses and more broadly, internationally recognised Ramsar wetlands and associated high-value natural features
- Access issues resulting from the closure of parts of Bennett Road and Thompsons Road, increased mining traffic impacting the condition of the local road network and creating congestion and delays to the transportation of agricultural goods. This impact would be more apparent during sowing and cropping seasons, when large trucks and semi-trailers transport agricultural produce to distribution centres in the region
- Changes to flood patterns as a result of pump station infrastructure displacing surface water during episodes of flooding.
- An increased risk of fire associated with operation of the mine and pump station infrastructure.

#### 10.1.2 Mitigation

Loss of agricultural land due to cumulative projects in the region is managed through requirements for planning permits under Clause 35.07 (Farming Zone) and the provisions of the PPF and MPS of the GP Scheme. These provisions ensure that non-farming uses on agricultural land are limited to uses that are temporary or highly consistent with the region's economic and agricultural policy objectives. In addition, impacts to irrigation are addressed in EES Technical Report L: Agriculture, and the loss of agricultural land is addressed in the Explanatory Report of the PSA documentation.

Visual impacts on the broader natural landscape would be limited by the generally flat topography of the land and mitigation measures identified in EES Technical Report D: Landscape and Visual in relation to screen planting and rehabilitation.

Surface water issues are addressed in EES Technical Report H1: Regional Surface Water. Technical Report E – Traffic and Transport, addresses access issues associated with the transportation of mined material on local roads including impacts from the closure of parts of Bennett Road and Thompson Road.

Potential fire impacts are explored and mitigated by MM-LU01 as recommended by this assessment.

Potential impacts during operation would be addressed through a combination of environmental management systems. These systems include the EMF which outlines the plans and mitigation measures identified in the above assessments to address risks identified in Section 10.1.1, including MM-LU01.



Combined, the measures set out in the EMF seek to address environmental risks and impacts, including the avoidance and minimisation of permanent impacts to agricultural operations, visual impacts, amenity and fire risk.

These measures would be achieved through the preparation and implementation of the EMP (as required by the Incorporated Document) and the Work Plan.

### **10.1.3 Residual Impact**

Through the use of mitigation measures set out in the EMF (including MM-LU01), the severity, extent and magnitude of impacts to land use, access and policy during operation would be avoided and minimised. Specifically, the mitigation measures would provide pathways to ensure that residual impacts are appropriately addressed, and in the instance that they do arise, can be managed and resolved so that any land use impacts are limited in nature.

For example, implementation of mitigation measures relating to traffic and transport, bushfire management and operation of the Project in accordance with mitigation measures set out in the EMF would ensure that potential land use impacts are identified and managed in consultation with relevant key stakeholders to minimise impacts as much as practicable and provide a pathway to address impacts if they occur. Further information regarding the severity, extent and magnitude of key impacts can be found within the EES Technical assessments listed in Section 10.1.2.

## **10.2 Amenity impacts (LUR4)**

### **10.2.1 Impact**

The proposed siting and operation of the Project could result in amenity impacts that are inconsistent with existing or reasonably foreseeable land uses and policy.

Land use conflicts occur when a land use is perceived to infringe upon the rights, values or amenity of other surrounding land uses. In rural areas, amenity issues are the most common land use conflict. Rural amenity issues include impacts that affect the use and enjoyment of neighbouring land, including air quality, noise, traffic, and visual amenity. Direct impacts from neighbouring land uses in a rural setting can also cause conflict such as soil erosion, visual impact as a result of the clearing of native vegetation or new infrastructure, restricting access to waterways, and changes in stormwater flows or water availability.

State planning policy sets out broad principles for use and development. This includes consideration of encroachment and land use compatibility. Clause 13.07-1S (Land use compatibility) of the PPF, aims to protect community amenity, human health and safety while facilitating appropriate commercial, industrial, or other uses with potential adverse off-site impacts.

The Project has the potential to result in two land use compatibility risks:

- Amenity impacts generated by the location and operation of the Project adjacent to existing or newly established land uses, particularly sensitive uses, and rural land for productive rural activities
- Reverse amenity impacts due to the encroachment of sensitive uses into the 'buffer' around the Project area which may impact or restrict Project construction or operations in order to mitigate the impacts at the source. These additional or unforeseen mitigation measures may place unreasonable constraints on the ongoing operation of the Project.

It is possible that mine operations and associated pipeline infrastructure could result in amenity impacts including visual, noise, social, dust and vibration, that result in impacts to surrounding agricultural operations, recreational use of Kangaroo Lake and sensitive receptors.

### **10.2.2 Mitigation**

It is anticipated that potential amenity impacts to surrounding agricultural operations and sensitive land uses can be appropriately managed through the mitigation measures set out in the EMF.

Implementation of the mitigation measures through the EMP (as required by the Incorporated Document) and the Work Plan would help to minimise the extent of land use impacts during operation and should include relevant mitigation measures set out in EES Technical Report D, Landscape and Visual; Technical Report E, Traffic and Transport, EES Technical Report F, Noise and Vibration, EES

Technical Report G, Air Quality, and EES Technical Report O, Social Impacts. Mitigation measures are further addressed in the Explanatory Report as part of the PSA documentation.

Mitigation measures have been unable to address separation distance requirements set out in EPA *Publication 1518, Environment Protection Authority, March 2013* for sensitive receptors R9 and R14 and consequently, the project has acquired these properties to ensure regulatory compliance.

### **10.2.3 Residual Impact**

Through the use of mitigation measures set out in the EMF, the severity, extent and magnitude of impacts during operation would be managed and minimised. For example, compliance with mitigation measures set out in the EMF relating to dust suppression would ensure that impacts to air quality would be appropriately managed. Further information regarding the severity, extent and magnitude of key amenity impacts can be found within the EES Technical assessments listed in Section 10.2.2.

## 11.0 Decommissioning and rehabilitation Impact Assessment

As set out in Section 7.0, the Project strongly aligns with Commonwealth, state and local policy. Nevertheless, during decommissioning and rehabilitation activities associated with closure of the mine, amenity impacts may occur and there is the potential for land use and access impacts that are inconsistent with existing or reasonably foreseeable land uses and policy.

This section discusses the potential impacts of the Project because of decommissioning and rehabilitation activities associated with the mines closure and the associated mitigation measures that aim to reduce impacts to as low a level as possible. Mitigation measures referred to are summarised in Section 13.0.

### 11.1 Land use, access or amenity impacts (LUR5)

#### 11.1.1 Impact

The proposed decommissioning and rehabilitation activities could result in land use, access and amenity impacts that are inconsistent with existing or reasonably foreseeable land uses and policy.

There is a risk that decommissioning and rehabilitation activities could result in amenity impacts including visual, noise, social, dust and vibration, that have impacts to surrounding agricultural operations and sensitive receptors. Furthermore, poor rehabilitation of the mine could result in soil contamination and radiation levels that make the project area and surrounding land inappropriate for use in accordance with existing or future land use policy.

Permanent loss of agricultural land may have a significant impact for land owners of the site and adjacent properties but would only result in a total loss of 0.0045% of the total agricultural land for the municipality (land zoned FZ), which is a small loss to the region.

#### 11.1.2 Mitigation

Mitigating amenity impacts and ensuring that the loss of agricultural land is temporary and limited to the duration of the mine's operation is important to minimising land use impacts. Potential impacts to land use and amenity are addressed in EES Technical Assessment G: Air Quality, EES Technical Assessment F: Noise and Vibration, EES Technical Report I: Groundwater, EES Technical Report J: Geotechnical, EES Technical Report L: Agriculture, EES Technical Report M: Soils and land resource, EES Technical Report O: Social Impacts and EES Technical Report P: Rehabilitation and Closure. The mitigation measures outlined in these assessments would be implemented through a combination of environmental management systems.

These systems include the EMF, which outlines the plans and mitigation measures required to address the risks identified in Section 11.1.1. Combined, the measures set out in the EMF seek to ensure that the land can return to agricultural use following closure and rehabilitation of the mine. These measures would be achieved through the preparation and implementation of the Work Plan and EMP as required by the EMF.

#### 11.1.3 Residual Impact

Through the implementation of mitigation measures set out in the EMF, the severity, extent and magnitude of impacts in relation to decommissioning and rehabilitation activities associated with mine closure would be managed to ensure land is progressively rehabilitated as part of the Project. The EMF seeks to ensure that there is no permanent loss of agriculture and appropriately manage any identified soil contamination or amenity impacts associated with decommissioning such as noise and dust. Further information regarding the severity, extent and magnitude of key impacts and how they will be addressed can be found within the EES Technical assessments listed in Section 11.1.2.

## 12.0 Cumulative Impacts with Other Projects

Cumulative impacts due to existing and proposed (committed) projects in the vicinity and with overlapping timeframes have been considered. A review of online databases and consultation with both Gannawarra Shire Council and Swan Hill Rural City Council indicated that there are no committed projects within the region that would result in cumulative land use impacts. Specifically:

- Mines and solar farms within the region are a considerable distance away from the Project and it is not expected that the cumulative construction and operation of these facilities would place a burden on existing infrastructure in the region.
- The cumulative loss of agricultural land resulting from non-agricultural land uses (such as mines and solar farms) within the FZ is negligible to the overall supply of farmland in the region. The temporary agricultural loss works out to only 0.0045% of the total agriculture for the region, which can be considered a small loss.
- Diversification of the economy through investment in non-agricultural uses in the Farming Zone is highly consistent with state and local economic policies that seek to strengthen regional economies.

## 13.0 Summary of Mitigation and Monitoring Measures

### 13.1 Mitigation measures

The land use planning impacts identified during this assessment would be addressed through the mitigation measures recommended by technical assessments that have been referenced in this assessment and proposed mitigation measure MM-LU01 as set out in Table 19. All relevant mitigation measures can be found in the EMF.

**Table 19 Proposed land use mitigation measure**

Mitigation Measure ID	Mitigation Measure	Project Phase	Implementation Document
MM-LU01	<b>Bushfire Management Plan</b> A Fire Management Plan must be prepared to ensure that construction outside of the mining licence area is undertaken safely and any infrastructure maintained in consultation with the relevant authorities such as the Country Fire Authority and relevant asset owners.	All phases	EMP under Incorporated Document.

The mitigation measures set out in the EMF would be implemented through the EMP (required by the Incorporated Document) and Work Plan.

The Incorporated Document provides a draft condition that requires the EMP to include *environmental mitigation measures which set the environmental outcomes that must be achieved during the design, construction, operation and rehabilitation of the Project, informed by the findings and conclusions of the EES and environmental risk assessment.*

### 13.2 Monitoring measures

There are no specific land use planning monitoring measures proposed to mitigate potential land use planning impacts. Relevant monitoring measures are set out in other specialist technical studies identified in Section 5.8 and the EMF. It is anticipated that these measures would be implemented through the combination of management systems including the EMP (as required by the Incorporated Document) and Work Plan.

Furthermore, the Incorporated Document provides a draft condition that requires the EMP to include:

*“Performance monitoring and reporting processes, including auditing to ensure environmental and amenity effects are managed in accordance with mitigation measures during construction and operation of infrastructure works required to support the Project on land outside the area subject to mining licence [xxx]”.*



## 14.0 Conclusion

The purpose of this report is to assess the potential land use impacts associated with the Project, address the EES scoping requirements set out in Section 3.0 and inform the preparation of the EES required for the Project. A summary of the key assets, values or uses potentially affected by the Project, and an associated assessment of land use impacts and relevant mitigation measures, are summarised below.

The assessment addresses the scoping requirements of the EES by describing existing infrastructure in the region, characterising existing and planned land uses and existing beneficial uses within the vicinity of the proposed project and evaluating the consistency of the Project with the policies and provisions of the Planning Schemes and other relevant land use planning strategies.

Based on the assessment of land use impacts, it concludes, on balance, that the Project is consistent with and is supported by State and local planning policies. In particular, policy supports appropriate use of natural resources and the associated economic and social benefits. The assessment found that the Project is consistent with the long-term vision for growth and land use planning in the broader region and that provided all amenity management and mitigation controls identified in the EES are implemented and monitored, the Project would not result in unacceptable or long term land use planning impacts.

### 14.1 Strategic planning

The key attributes of the Project in relation to land use impacts to existing and foreseeable land uses include:

- The Project area for the mine is surrounded entirely by agricultural operations, limiting the extent of potential land use impacts on sensitive receptors and existing land use operations
- The pipeline alignment has been designed to avoid direct impacts on surrounding agricultural land uses by following the alignments of existing roads as much as possible
- The design and route of the pipeline seeks to avoid, minimise, and mitigate the potential and actual loss of roadside vegetation
- The proposed pump station has been designed and sited on a section of the Kangaroo Lake bank that is characterised by agricultural infrastructure, has low recreational value and limits the Project's impact on the environmental, cultural and landscape values of Kangaroo Lake
- The proposed transport route and associated road upgrades will be able to accommodate the expected transport requirements of the site and would improve the region's local and principal road network
- Rehabilitation of the land would ensure that there is no permanent loss of agricultural land following decommissioning and closure of the mine.

The key conclusions derived from the review of relevant policies and strategies include that there is broad planning policy support for the Project as:

- It would not result in a permanent loss of agricultural land or adversely affect the use of surrounding land for broadacre farming
- It would diversify the region's economy, delivering new employment and training opportunities that would support the retention of the region's population
- The pump station (which is technically prohibited under the provisions of the PCRZ), is generally considered to be consistent with the purpose of the zone, which includes '*to provide for appropriate resource based uses*'
- Approval of the PSA and mitigation measures derived from the EES assessment would be required to address potential land use conflicts and environmental matters protected by the P&E Act

## 14.2 Existing environment

The review of existing conditions comprised an assessment of the following:

- The planning framework applicable to the Project
- Current strategic planning work and an investigation into relevant permit applications or future planning scheme amendments being considered the State, Gannawarra Shire Council or Swan Hill Rural City Council
- Publicly accessible zoning, overlay and heritage mapping and aerial imagery
- Site visit and consultation undertaken in May 2022
- Information including land owner details and affected land parcel identification and information.

Based on these elements, an overview of the existing conditions was prepared to provide the basis of the strategic assessment for the study area and the risk assessment.

## 14.3 Impact assessment findings

The impact assessment identified the potential for the Project to result in land use conflicts with surrounding land uses as a result of the amenity impacts associated with noise, ecology, dust, traffic and social impacts. The impacts of the Project on these conflicts are assessed in detail within the technical specialist reports identified in Section 5.8.

Furthermore, the assessment identified aspects of the Project that could result in land use conflicts with land within the MSA, WPSA and TSA. Aspects of the Project that have been identified as having potential land use impacts include:

- Construction activities have the potential to result in temporary land use and access impacts that are inconsistent with existing or reasonably foreseeable land use and policy.
- Construction activities could result in temporary amenity impacts that are inconsistent with existing or reasonably foreseeable land use policy.
- The proposed siting and operation of the Project could result in land use and access impacts that are inconsistent with existing or reasonably foreseeable land use and policy.
- The proposed siting and operation of the Project could result in amenity impacts that are inconsistent with existing or reasonably foreseeable land use and policy.
- The proposed decommissioning and rehabilitation activities associated with the closure of the Project could result in land use, access or amenity impacts that are inconsistent with existing or reasonably foreseeable land uses and policy.

## 14.4 Mitigation and contingency measures

This assessment identifies several potential land use impacts associated with construction, operation and decommissioning and rehabilitation phases. In most instances, it is determined that land use planning mitigation and monitoring measures are not necessary as potential land use impacts identified are addressed through relevant mitigation and monitoring measures that are set out in other specialist technical studies and summarised in the Environmental Management Framework as part of the EES.

Specifically, potential land use impacts would be addressed by requirements of the Environmental Management Framework, which sets out a variety of regulatory documents and management plans to be prepared by the Project including (but not limited to) a Work Plan and Environmental Management Plan (as required by the Incorporated Document).

The Work Plan and Environmental Management Plan would be required to implement mitigation measures (as set out in the Environmental Management Framework) including:

- Biodiversity and habitat protection measures that are designed to minimise impacts to trees, native vegetation and remnant vegetation and control the spread and introduction of weeds and pathogens.

- Landscape and visual amenity measures that seek to minimise adverse effects on landscape and visual amenity associated with the environs of the Project Site.
- Measures to address social and land use effects on agriculture, accommodation, transport infrastructure and amenity resulting from Traffic and Transport, noise and air emissions and accommodation of the workforce.
- Air quality, noise, amenity and safety measures that seek to minimise noise and air emissions.
- Measures to minimise impacts to water resources, including surface water, ground water and related catchment values.
- Land stability, erosion and agricultural land use protection measures, including implementing strategies to reduce soil degradation, minimise potential adverse land use effects and ensure rehabilitation and closure returns the land for agricultural purposes.
- Land use and safety, including the risk of Bushfire through the implementation of bushfire management plans and rehabilitation requirements.

It is expected that potential land use impacts would be further supported through the proposed conditions of the Planning scheme Amendment documentation.

The mitigation measures set out in the EMF includes one mitigation measure that is recommended by this assessment. Bushfire risk associated with the mine itself will be addressed through the Work Plan and a mitigation measure is proposed to address State and local policies relating to the Project's location within a Designated Bushfire Prone Area. This mitigation measure is set out in the Table 20.

**Table 20 Proposed land use mitigation measure**

Mitigation Measure ID	Mitigation Measure	Project Phase	Implementation Document
MM-LU01	<b>Bushfire Management Plan</b> A Bushfire Management Plan must be prepared to ensure that construction outside of the mining licence area is undertaken safely and any infrastructure maintained in consultation with the relevant authorities such as the Country Fire Authority and relevant asset owners.	All phases	EMP under Incorporated Document.

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# Appendix A

## Zoning and Overlay Maps





- Locality
- Municipal Boundaries
- Watercourse
- Specific Control Overlays
- ▨ Project Area
- Cadastre

### Planning Zones

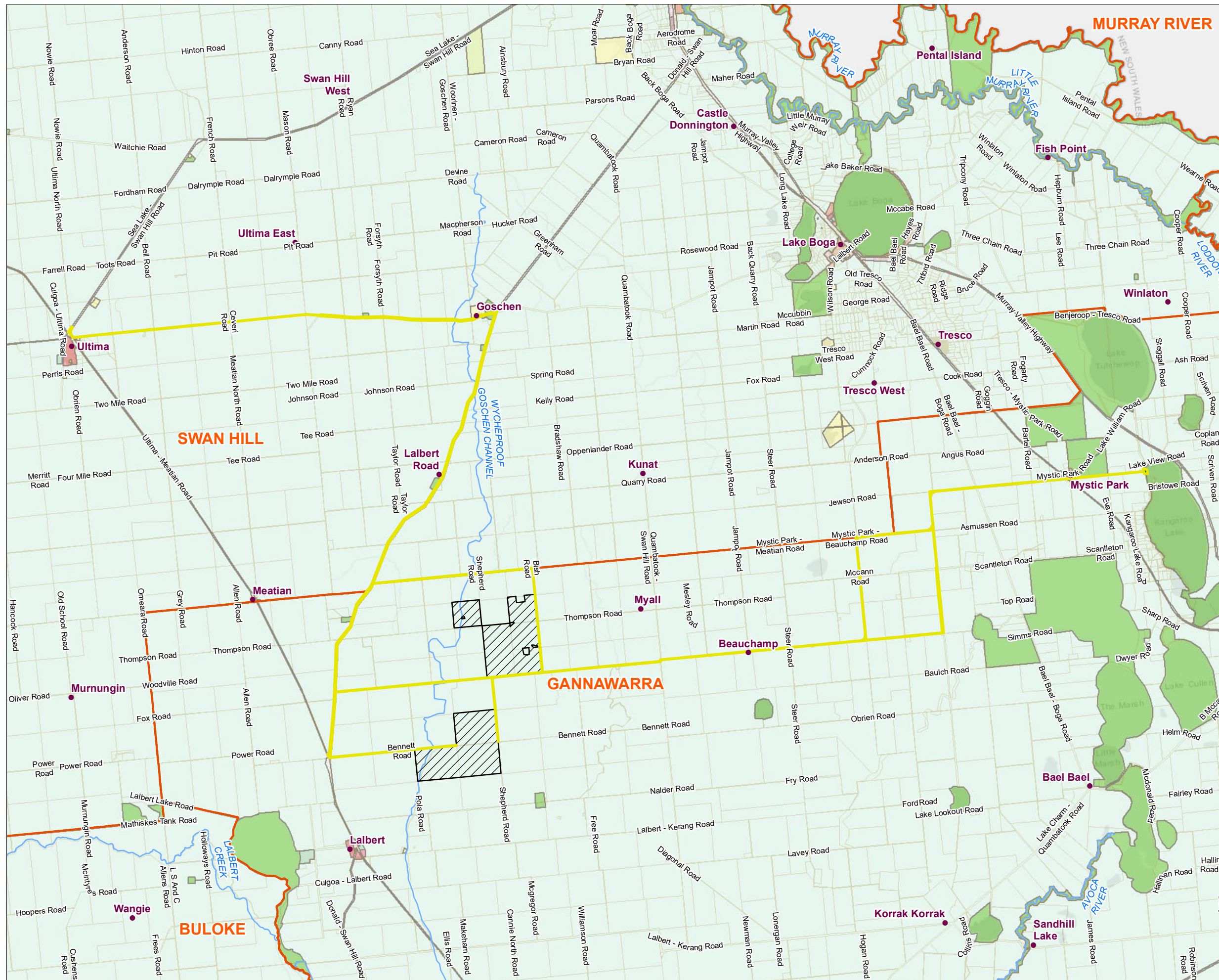
- C1Z - Commercial 1
- C2Z - Commercial 2
- FZ - Farming
- GRZ - General Residential
- IN1Z - Industrial 1
- LRDZ - Low Density Residential
- MUZ - Mixed Use
- PCRZ - Public Conservation & Resource
- PPRZ - Public Park & Recreation
- PUZ1 - Public Use - Service and Utility
- PUZ2 - Public Use - Education
- PUZ3 - Public Use - Health Community
- PUZ5 - Public Use - Cemetery/Crematorium
- PUZ6 - Public Use - Local Government
- PUZ7 - Public Use - Other Public Use
- SUZ - Rural
- TZ - Township

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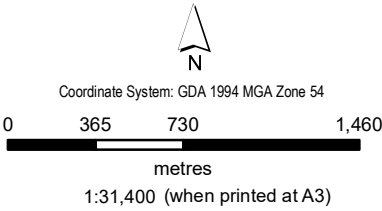
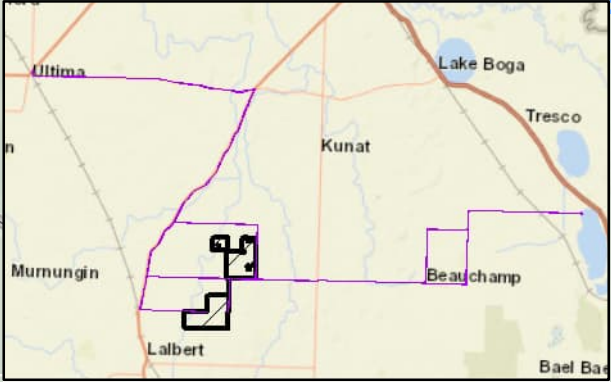
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- LEGEND
- Transport Route

Transport Study Area

Project Infrastructure Land

LGA boundary

FZ - Farming Zone

PPRZ - Public Park and Recreation Zone

PUZ1 - Public Use Zone-Service and Utility

PUZ2 - Public Use Zone-Education

PUZ5 - Public Use Zone-Cemetery/Crematorium

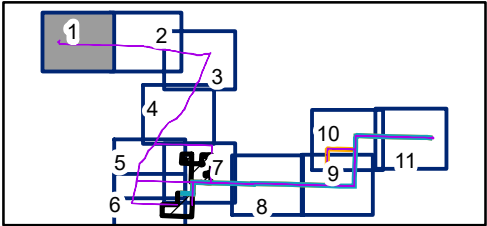
PUZ6 - Public Use Zone-Local Government

TRZ1 - State Transport Infrastructure

TRZ2 - Principal Road Network

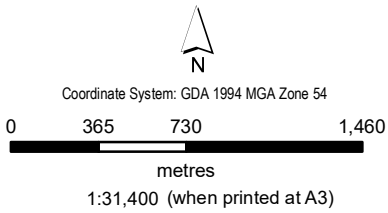
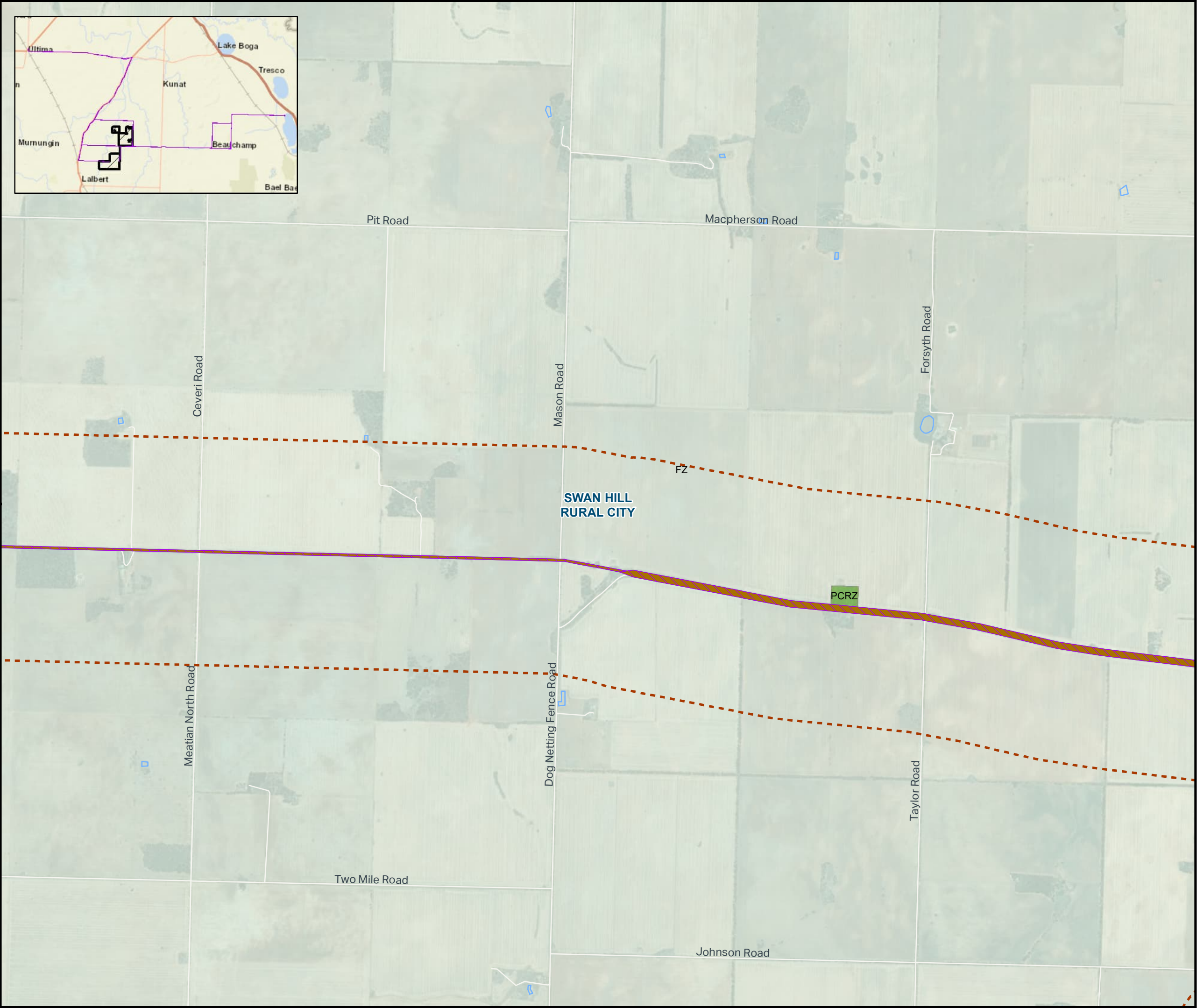
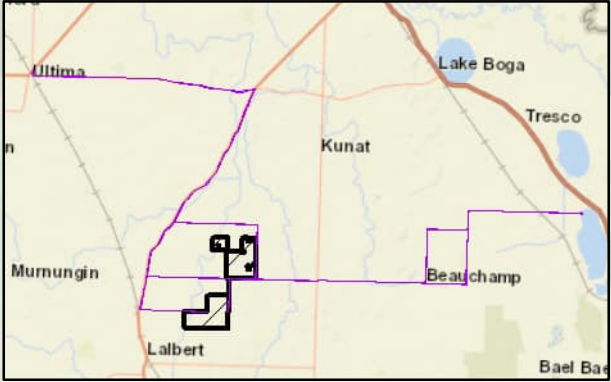
TZ - Township Zone

Mapsheet 1 of 6



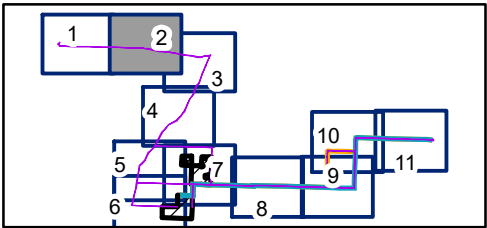
ZONING MAPSERIES

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- LEGEND**
- Transport Route
  - Transport Study Area
  - Project Infrastructure Land
  - LGA boundary
  - FZ - Farming Zone
  - PCRZ - Public Conservation and Resource Zone

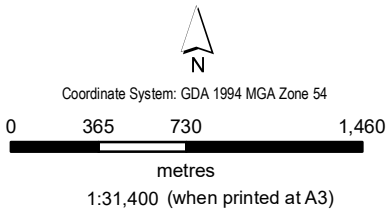
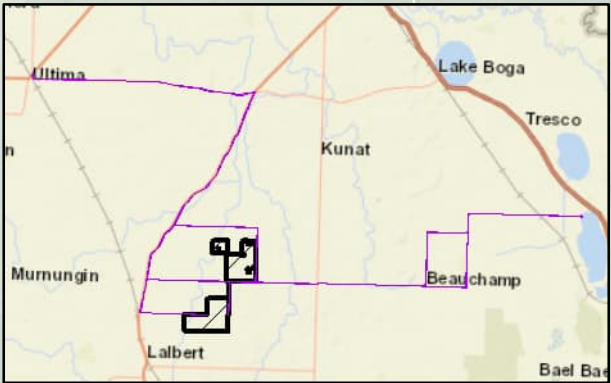
Mapsheet 2 of 6



**ZONING MAPSERIES**



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- LEGEND
- Transport Route

Transport Study Area

Project Infrastructure Land

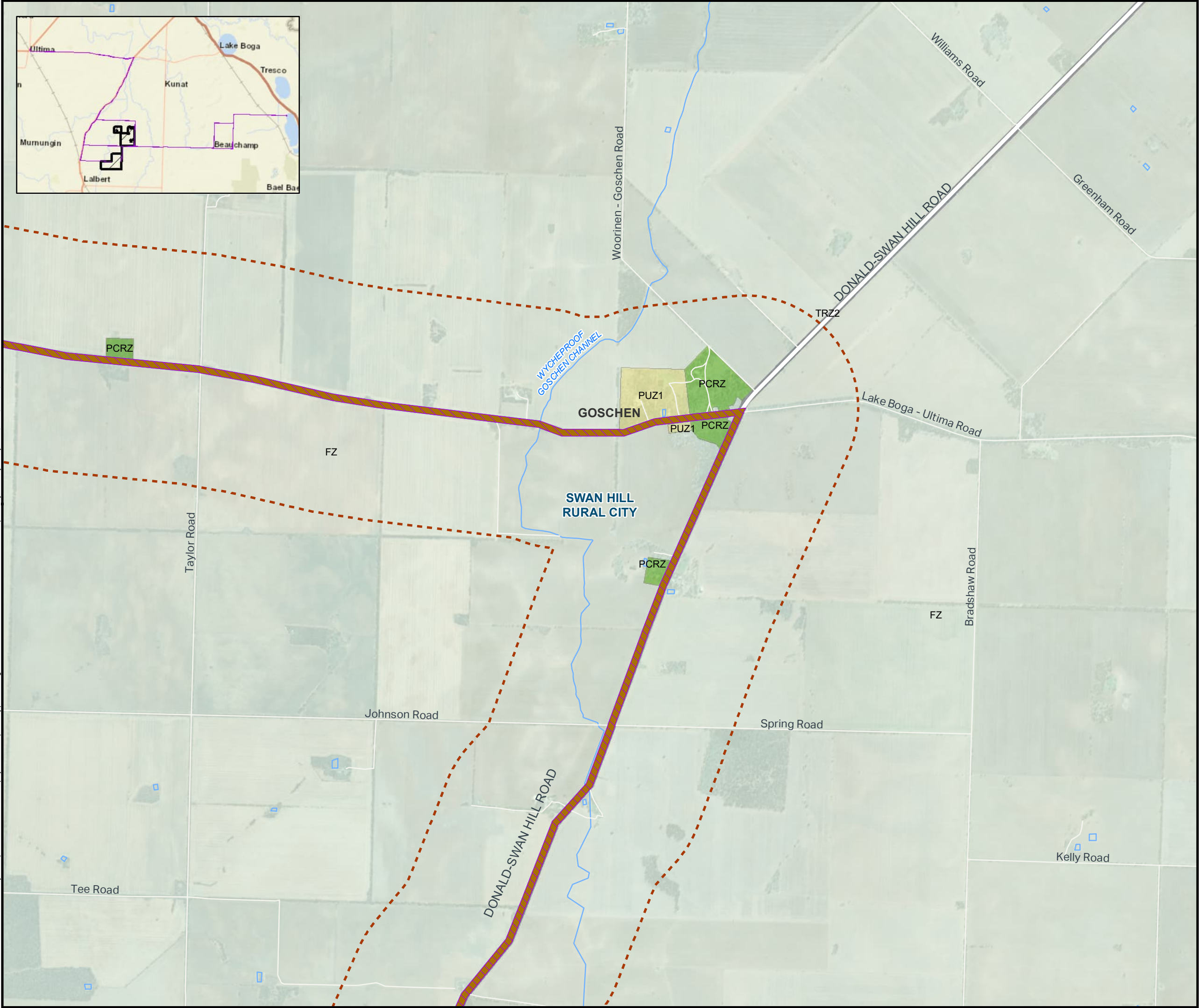
LGA boundary

FZ - Farming Zone

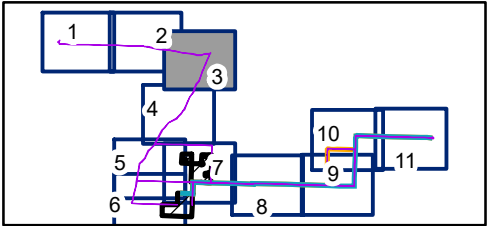
PCRZ - Public Conservation and Resource Zone

PUZ1 - Public Use Zone-Service and Utility

TRZ2 - Principal Road Network

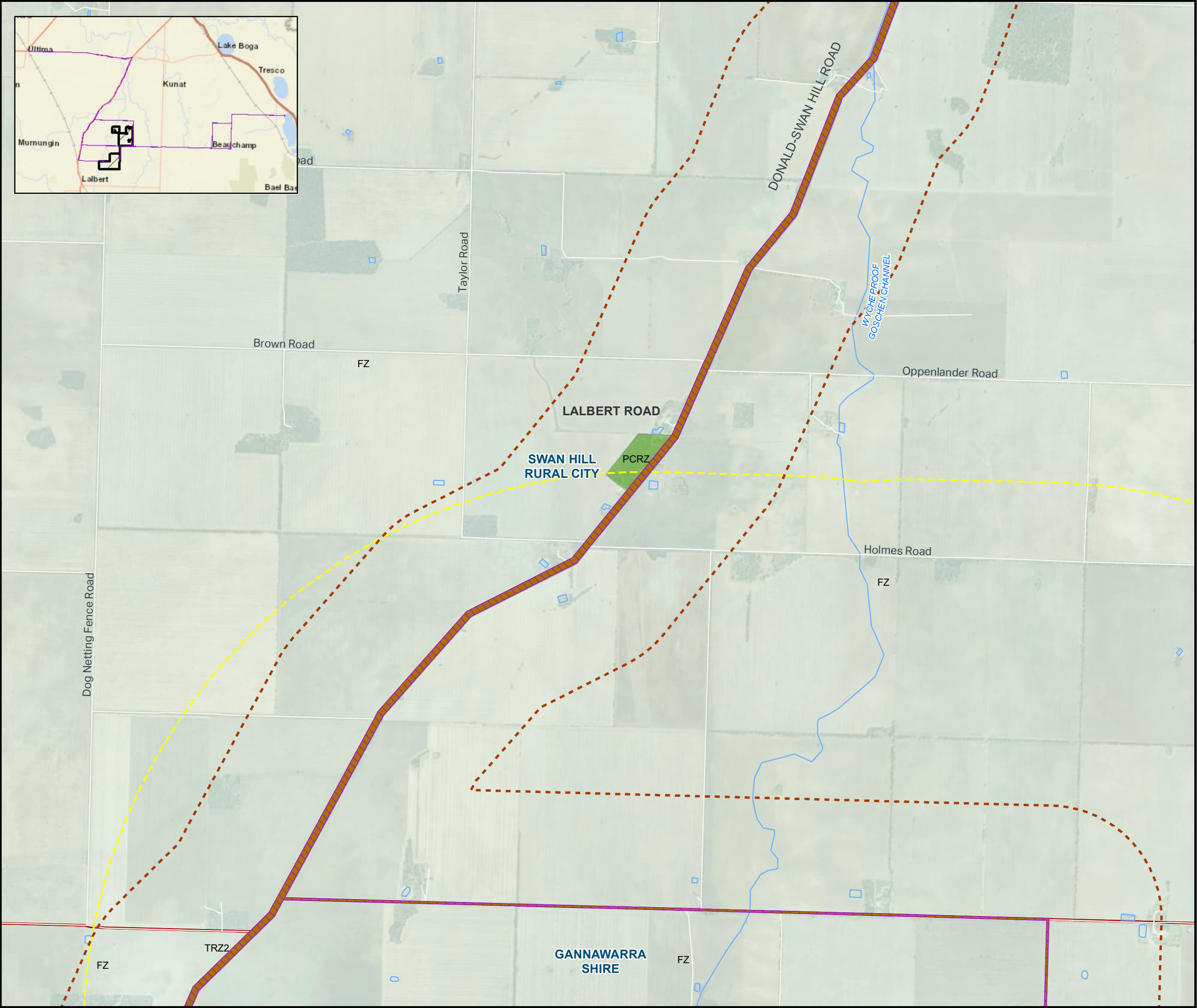
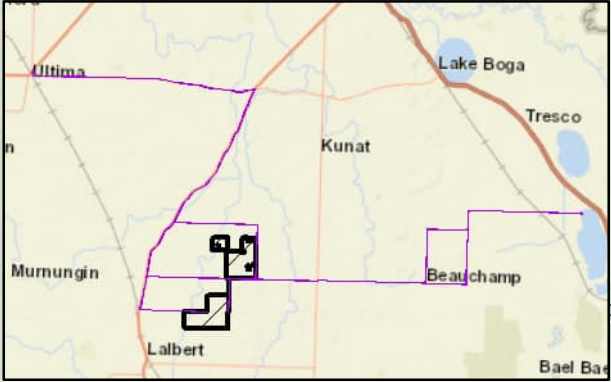


Mapsheet 3 of 6

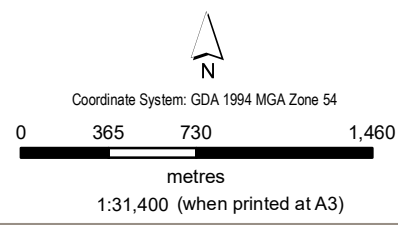


ZONING MAPSERIES

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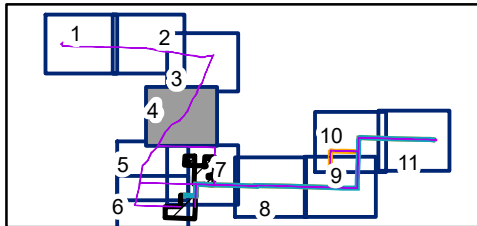


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CREATED BY prachi.kulkarni1  
LAST MODIFIED 11 JAN 2023



- LEGEND**
- Transport Route
  - Transport Study Area
  - Mining Study Area
  - Project Infrastructure Land
  - LGA boundary
  - FZ - Farming Zone
  - PCRZ - Public Conservation and Resource Zone
  - TRZ2 - Principal Road Network

Mapsheets 4 of 6



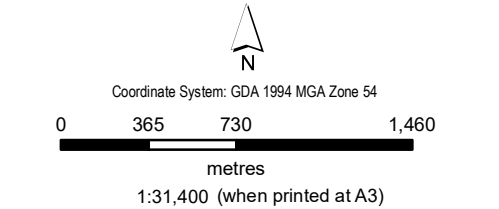
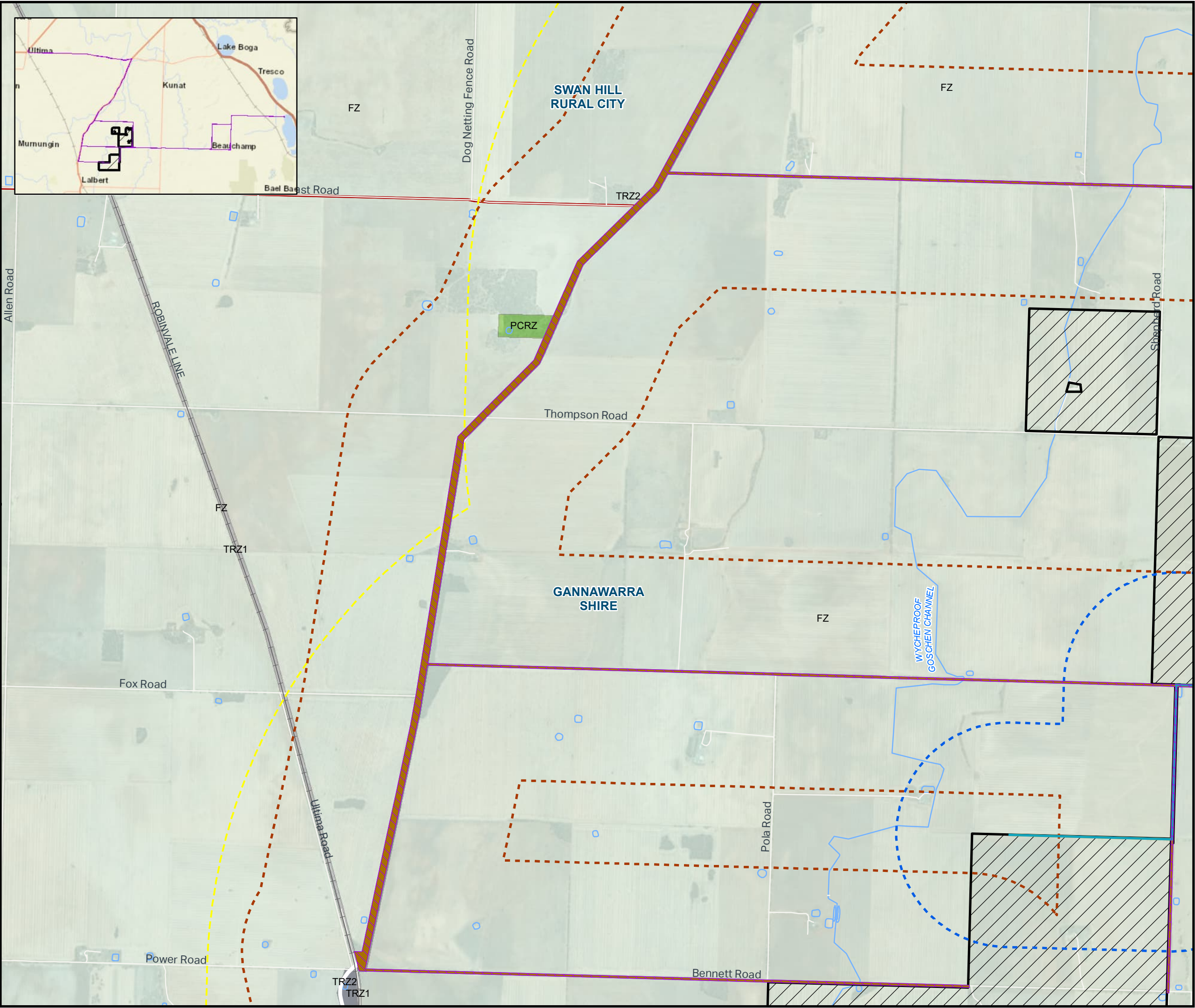
**ZONING MAPSERIES**

VHM GOSCHEN

Figure  
**F2-4**

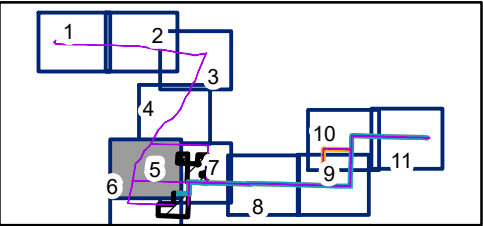


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- LEGEND**
- Pipeline route
  - Alternative route
  - Transport Route
  - Pipeline study area
  - Transport Study Area
  - Mining Study Area
  - Project Infrastructure Land
  - Project Area
  - LGA boundary
  - FZ - Farming Zone
  - PCRZ - Public Conservation and Resource Zone
  - PUZ1 - Public Use Zone-Service and Utility
  - TRZ1 - State Transport Infrastructure
  - TRZ2 - Principal Road Network

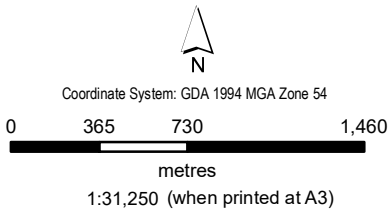
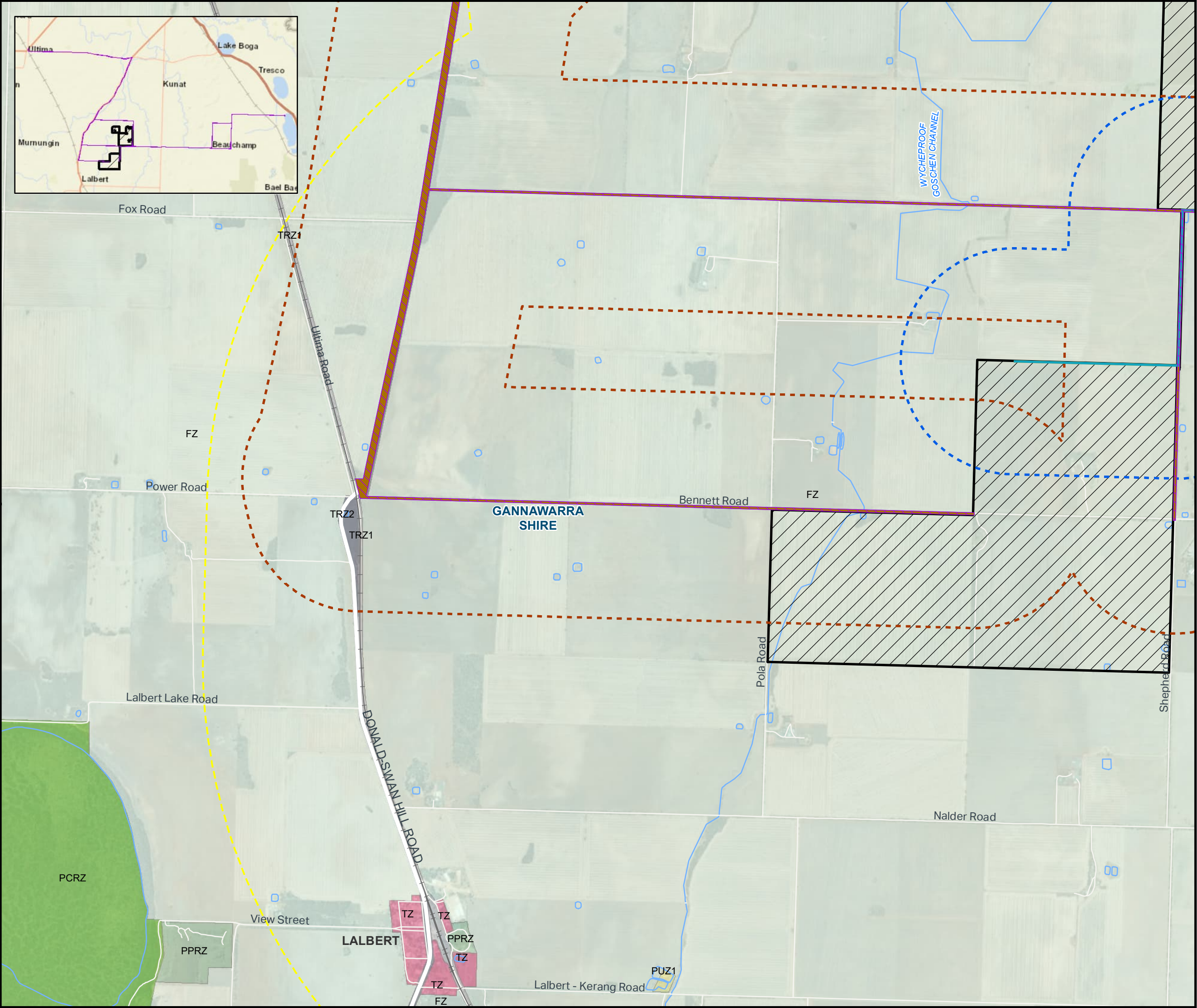
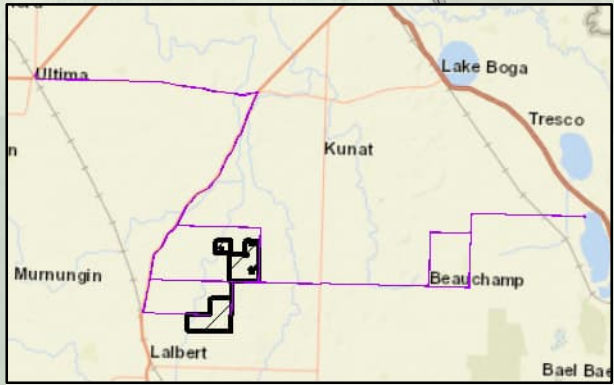
Mapsheet 5 of 6



**ZONING MAPSERIES**

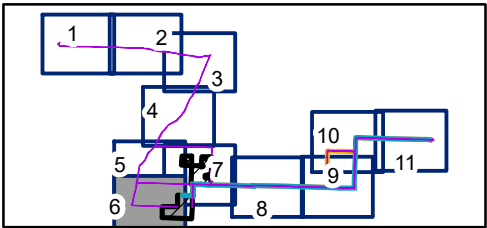


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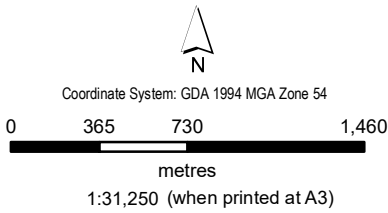
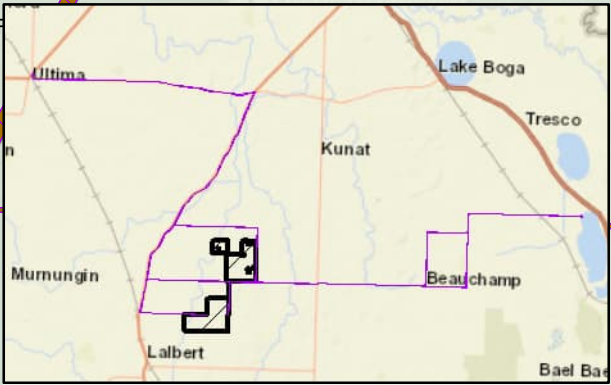
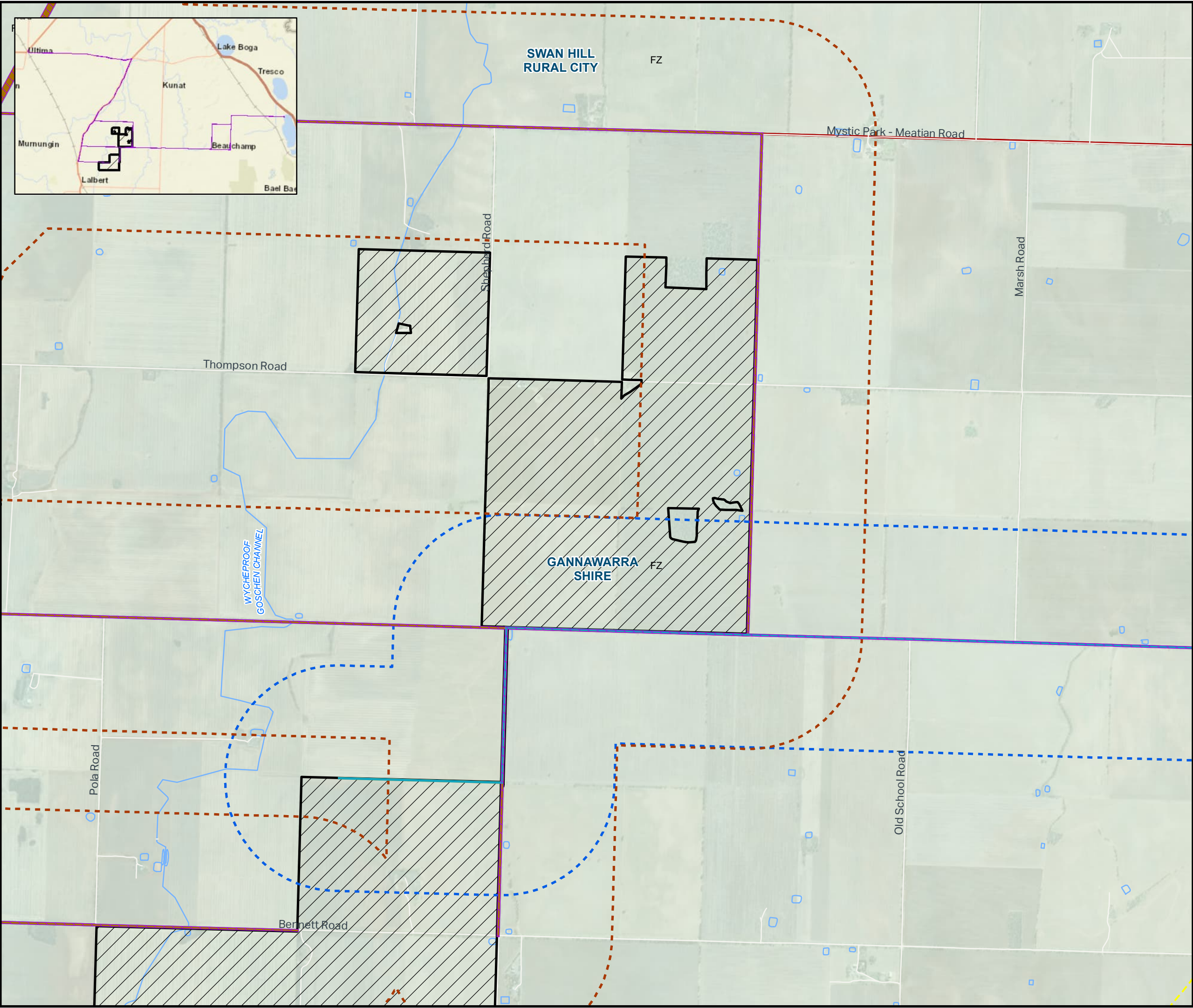
- LEGEND**
- Pipeline route
  - Alternative route
  - Transport Route
  - Pipeline study area
  - Transport Study Area
  - Mining Study Area
  - Project Infrastructure Land
  - Project Area
  - LGA boundary
  - FZ - Farming Zone
  - PCRZ - Public Conservation and Resource Zone
  - PPRZ - Public Park and Recreation Zone
  - PUZ1 - Public Use Zone-Service and Utility
  - TRZ1 - State Transport Infrastructure
  - TRZ2 - Principal Road Network
  - TZ - Township Zone

Mapsheet 6 of 6



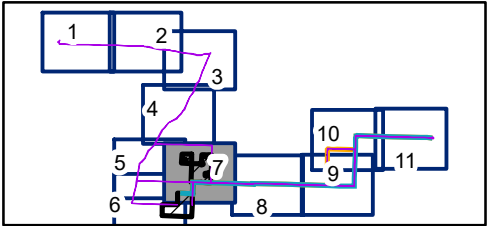
**ZONING MAPSERIES**

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- LEGEND**
- Pipeline route
  - Alternative route
  - Transport Route
  - Pipeline study area
  - Transport Study Area
  - Mining Study Area
  - Project Infrastructure Land
  - Project Area
  - LGA boundary
  - FZ - Farming Zone
  - TRZ2 - Principal Road Network

Mapsheets 7 of 6



**ZONING MAPSERIES**

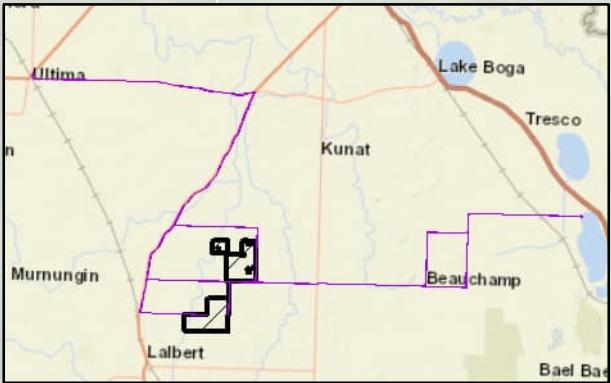
VHM GOSCHEN

Figure

**F2-7**



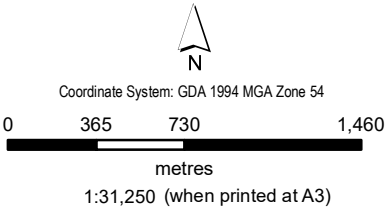
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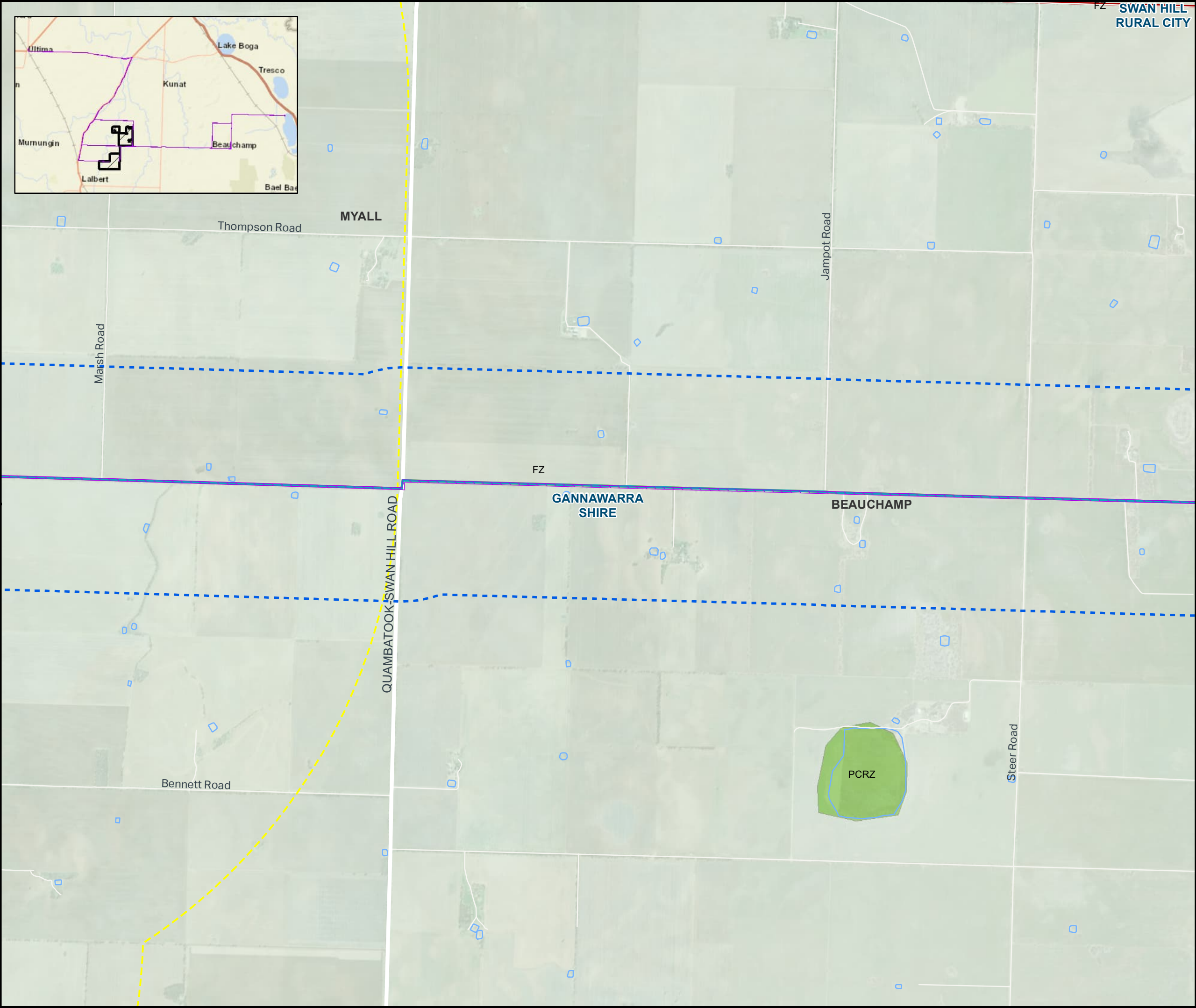
SWAN HILL  
RURAL CITY

PROJECT ID 60338515  
CREATED BY prachi.kulkarni1  
LAST MODIFIED 11 JAN 2023

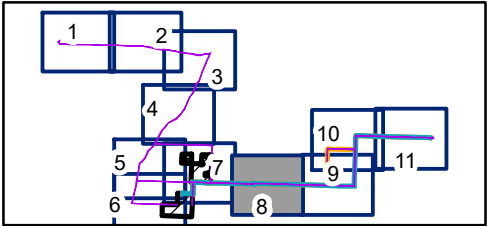
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- LEGEND**
- Pipeline route
  - Alternative route
  - Pipeline study area
  - Mining Study Area
  - Project Infrastructure Land
  - LGA boundary
  - FZ - Farming Zone
  - PCRZ - Public Conservation and Resource Zone



Mapsheet 8 of 6



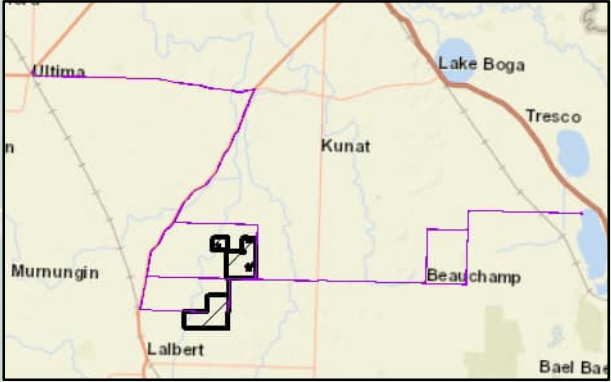
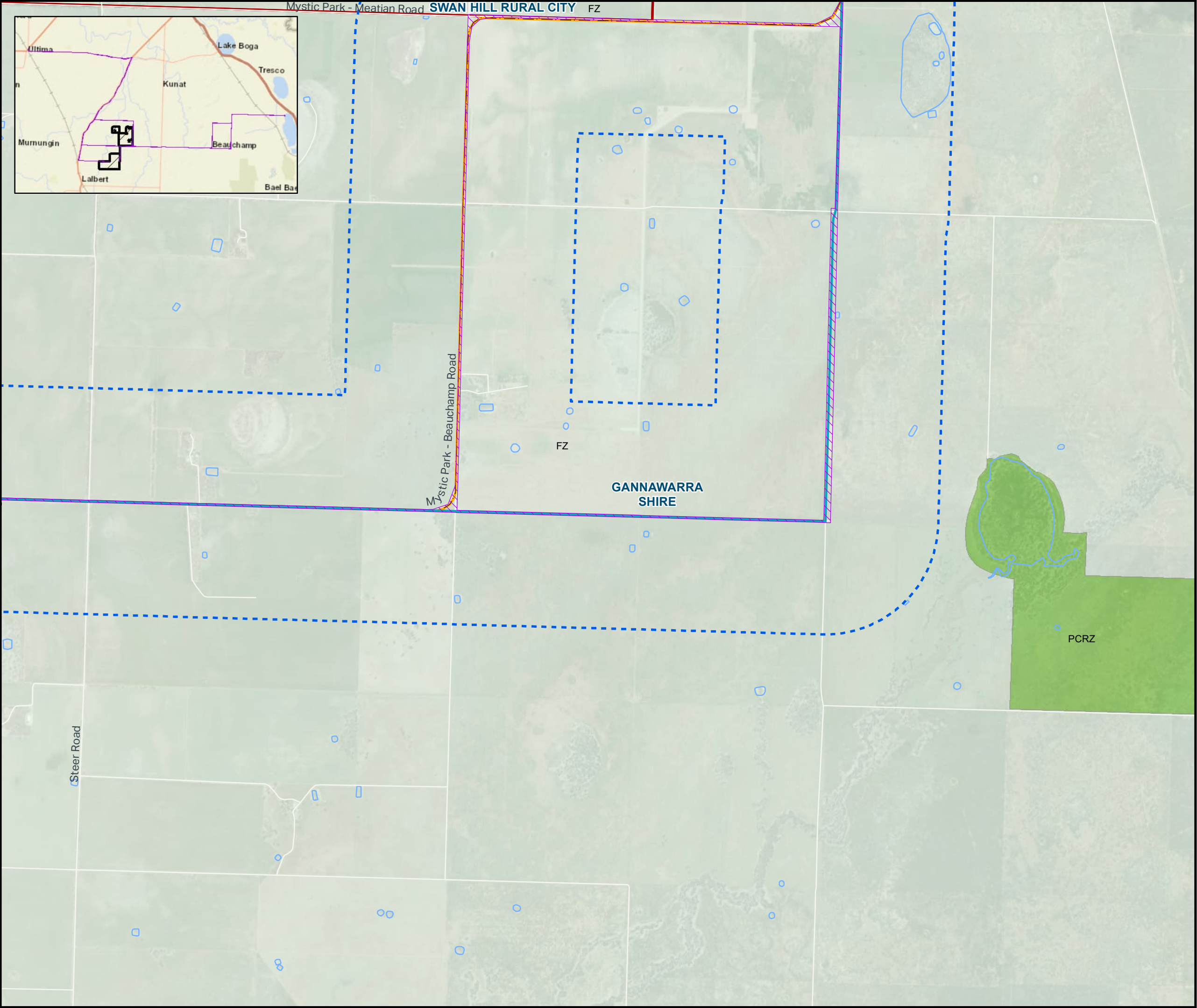
**ZONING MAPSERIES**

VHM GOSCHEN

Figure

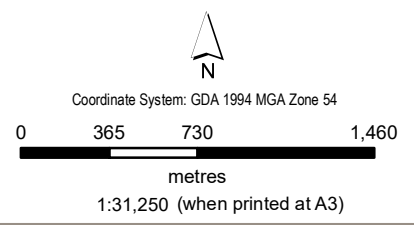
**F2-8**

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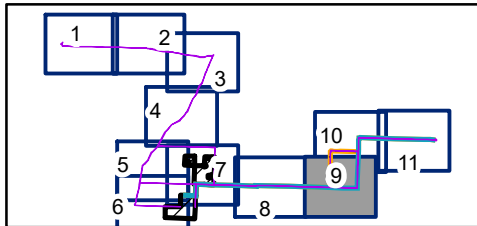
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LAST MODIFIED 11 JAN 2023

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- LEGEND**
- Pipeline route
  - Alternative route
  - Pipeline study area
  - Project Infrastructure Land
  - LGA boundary
  - FZ - Farming Zone
  - PCRZ - Public Conservation and Resource Zone

Mapsheets 9 of 6

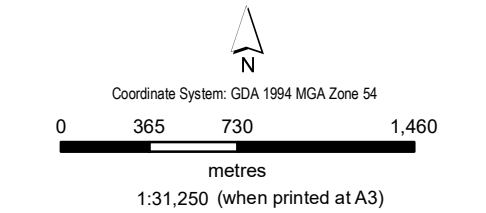
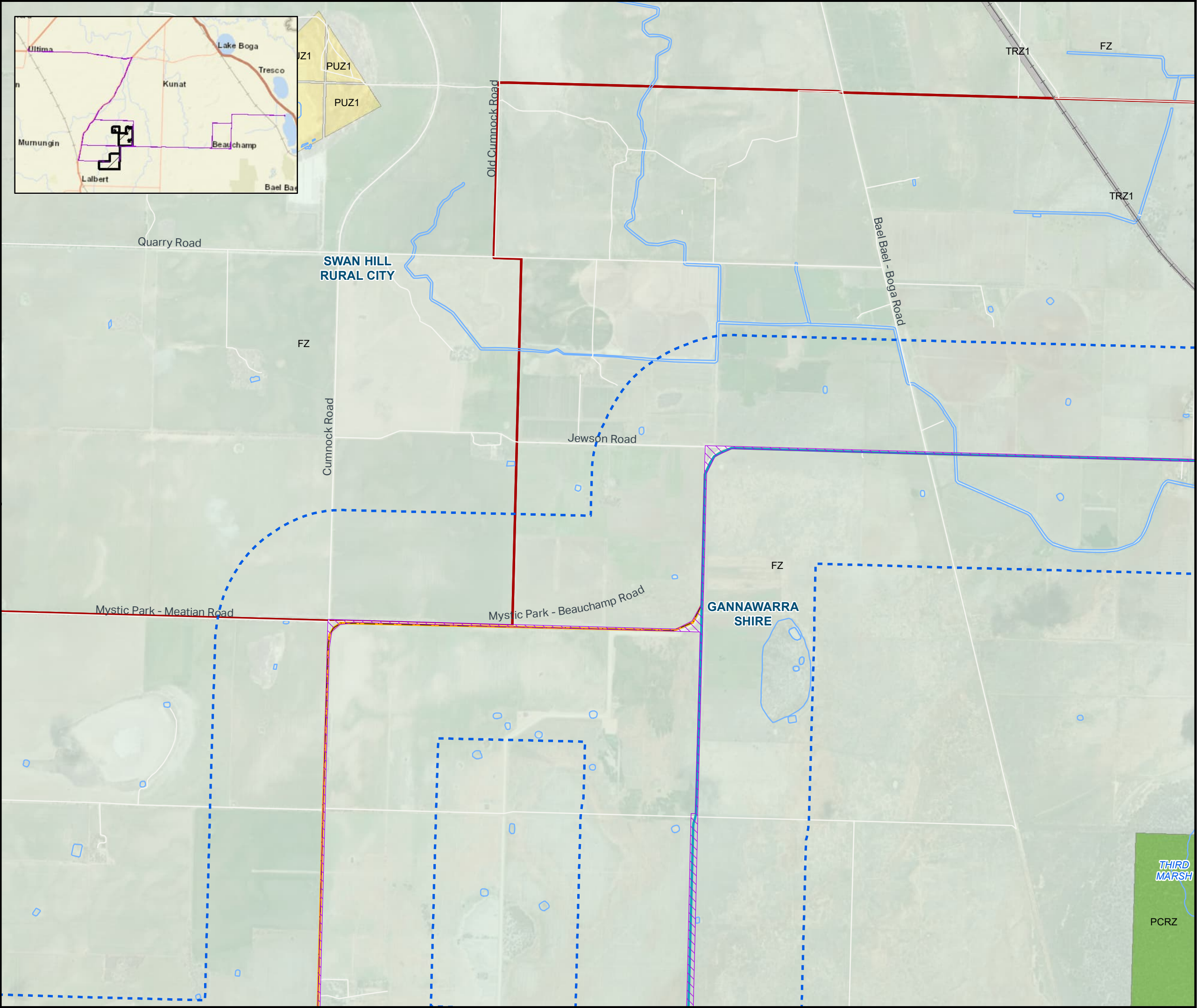
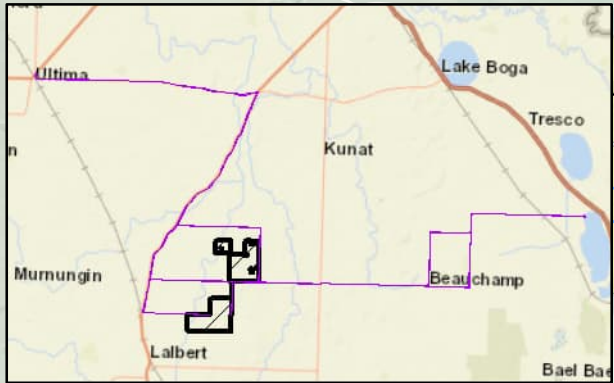


**ZONING MAPSERIES**

VHM GOSCHEN	Figure <b>F2-9</b>
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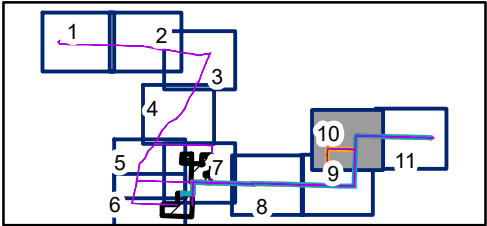


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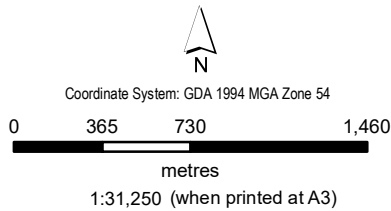
- LEGEND**
- Pipeline route
  - Alternative route
  - Pipeline study area
  - Project Infrastructure Land
  - LGA boundary
  - FZ - Farming Zone
  - PCRZ - Public Conservation and Resource Zone
  - PUZ1 - Public Use Zone-Service and Utility
  - TRZ1 - State Transport Infrastructure

Mapsheet 10 of 6



**ZONING MAPSERIES**





- LEGEND
- Pipeline route

Alternative route

Pipeline study area

Project Infrastructure Land

LGA boundary

FZ - Farming Zone

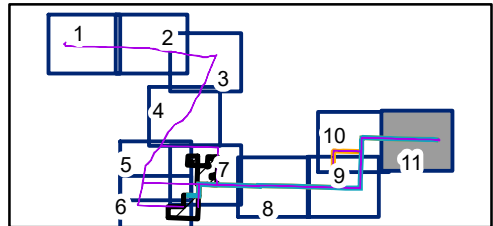
PCRZ - Public Conservation and Resource Zone

TRZ1 - State Transport Infrastructure

TRZ2 - Principal Road Network

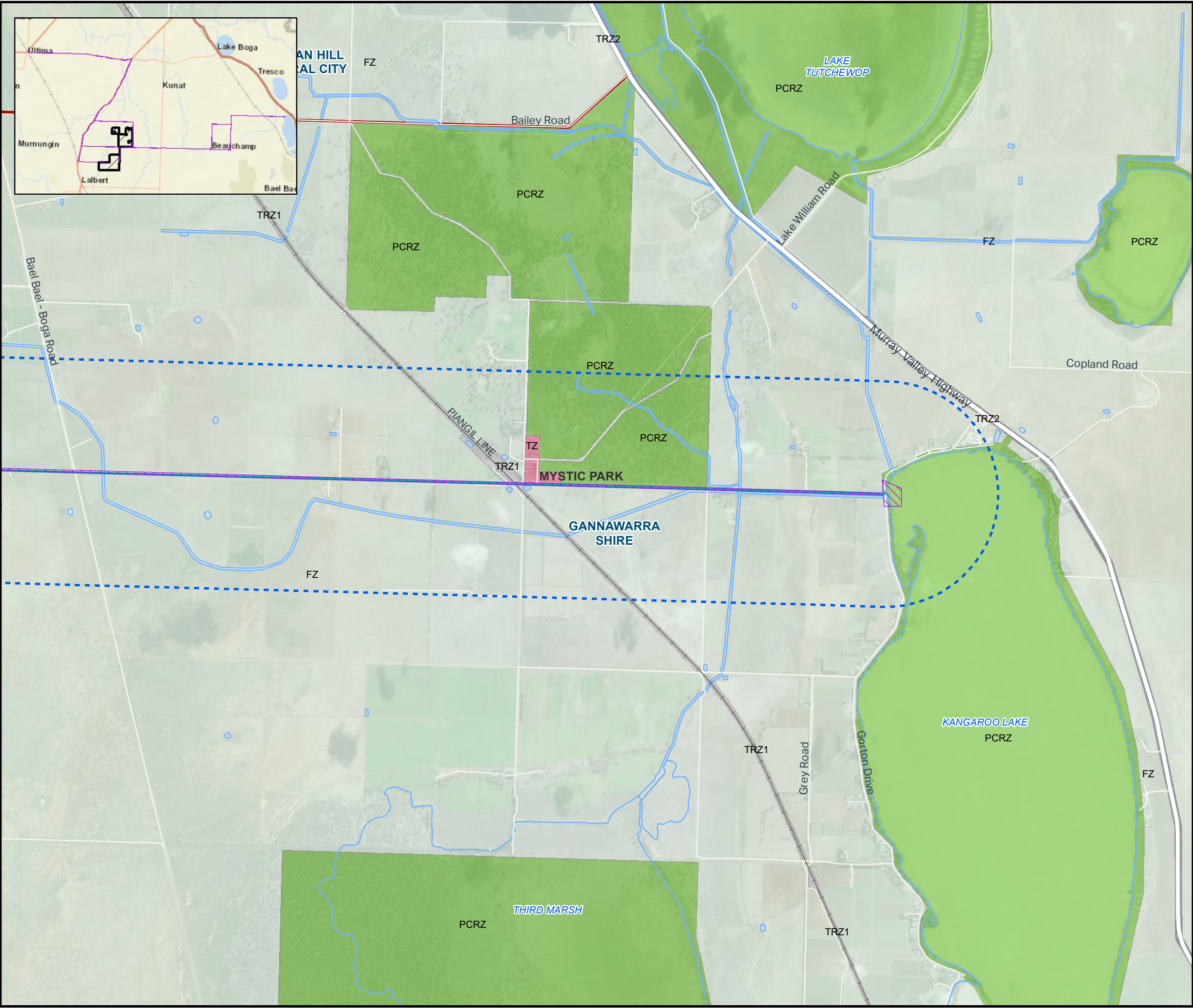
TZ - Township Zone

Mapsheet 11 of 6



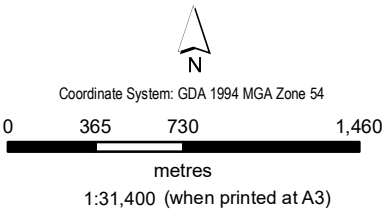
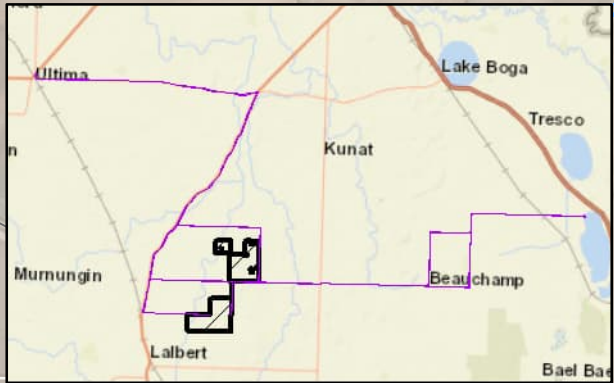
ZONING MAPSERIES

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- LEGEND
- Transport Route

Transport Study Area

Project Infrastructure Land

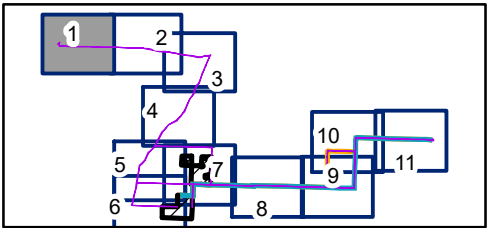
LGA boundary

Vegetation Protection

Bushfire Management Overlay

Heritage Overlay

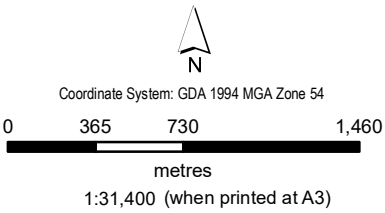
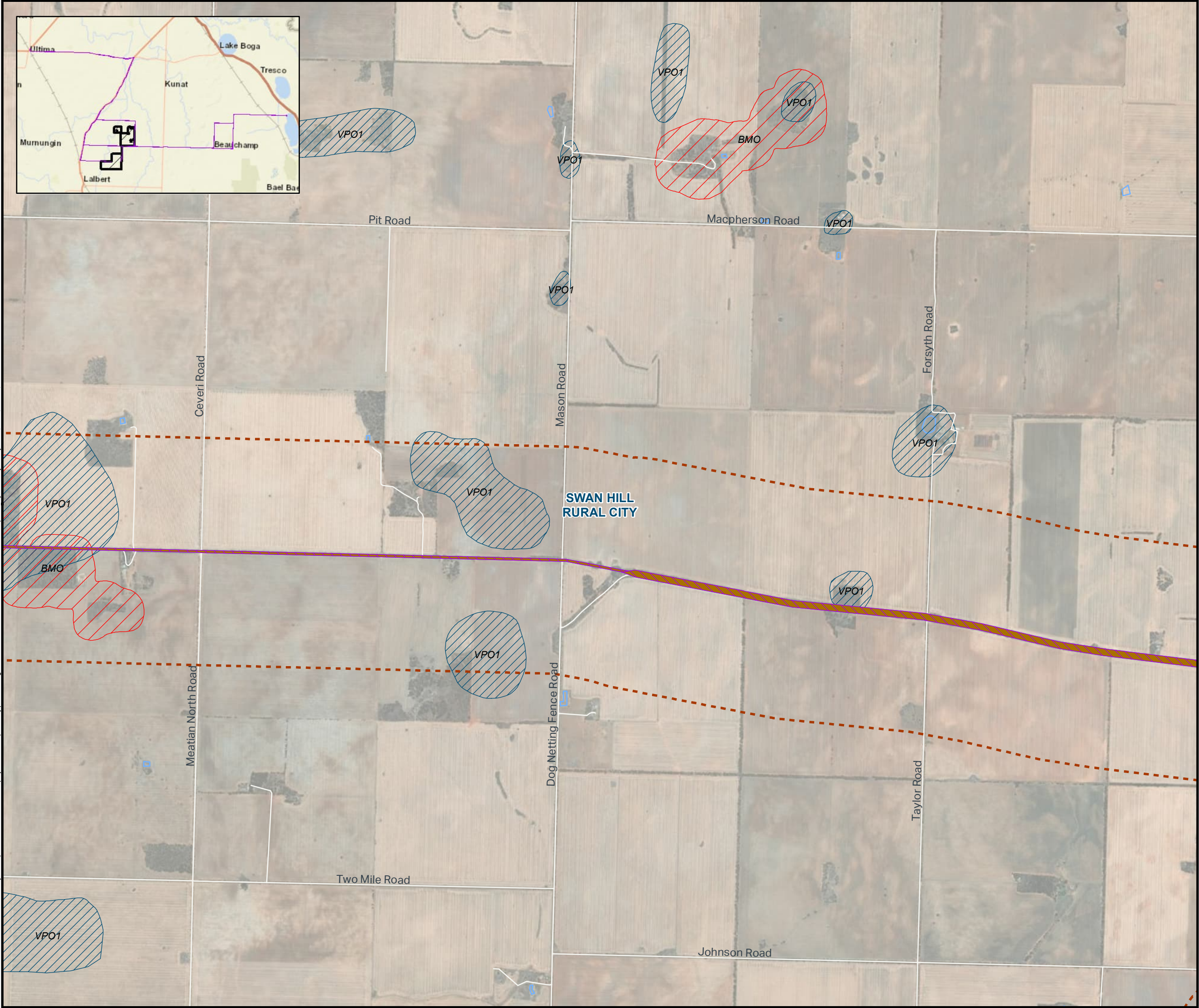
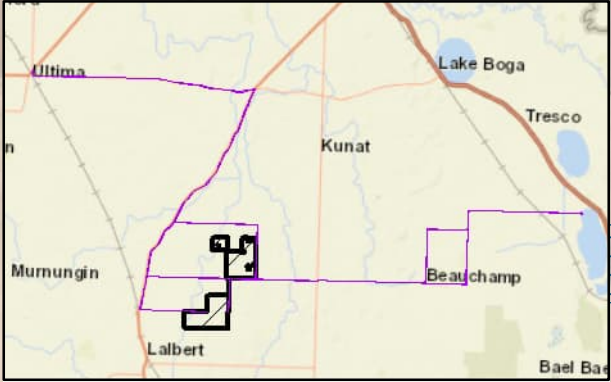
Mapsheet 1 of 6



OVERLAY MAPSERIES

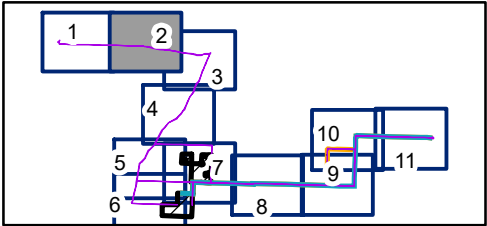


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- LEGEND**
- Transport Route
  - Transport Study Area
  - Project Infrastructure Land
  - LGA boundary
  - Vegetation Protection
  - Bushfire Management Overlay

Mapsheet 2 of 6



**OVERLAY MAPSERIES**

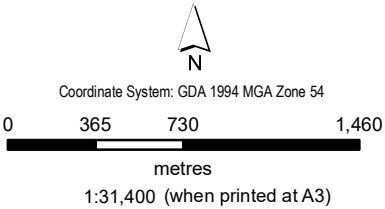
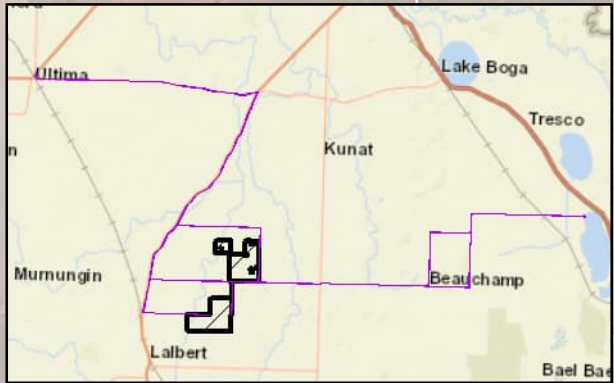
VHM GOSCHEN

Figure

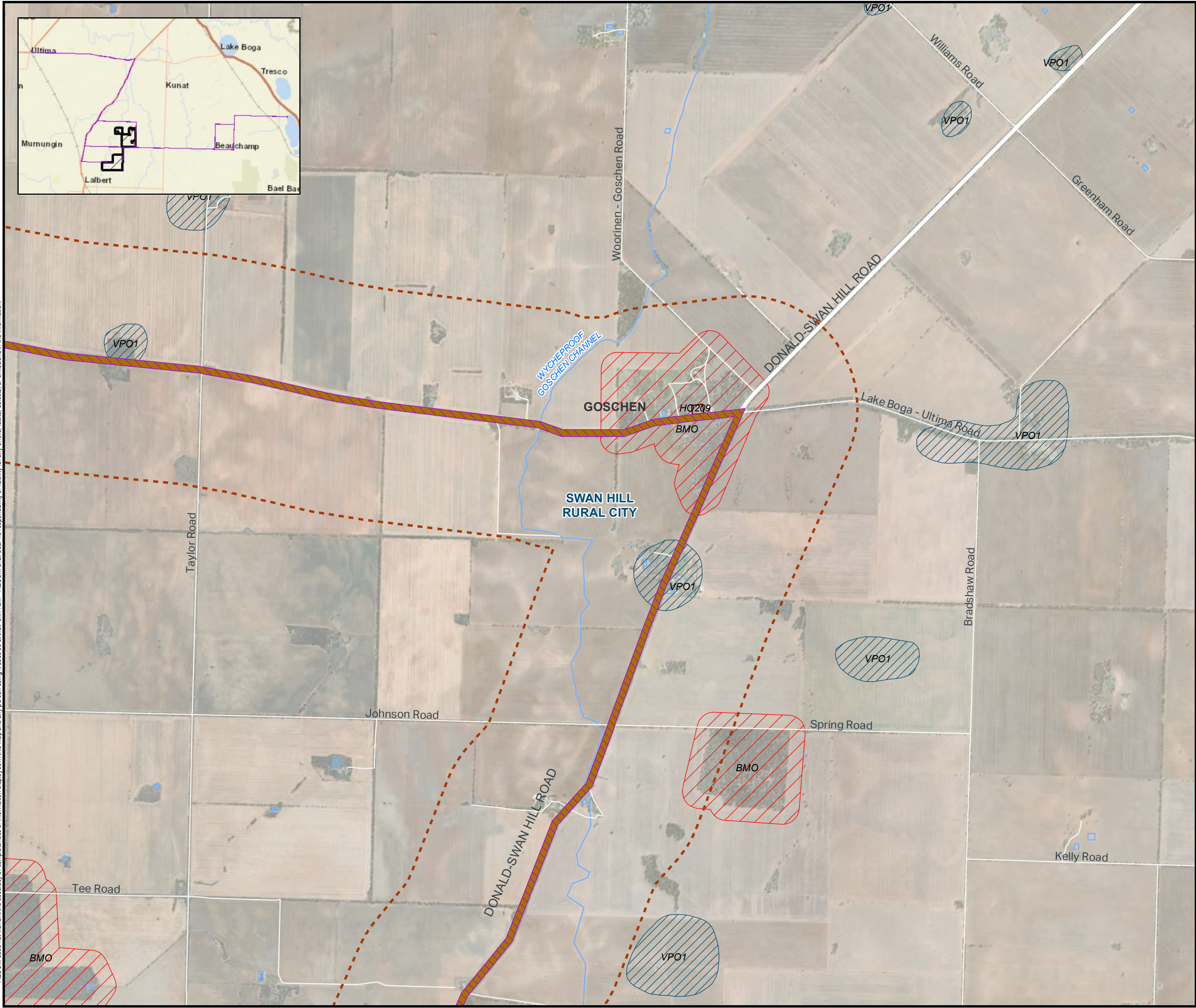
**F2-2**



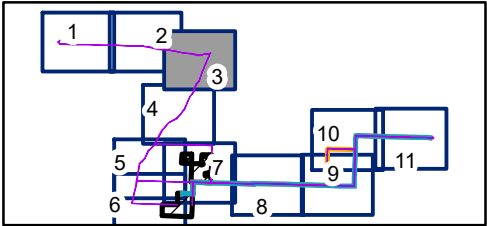
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- LEGEND**
- Transport Route
  - Transport Study Area
  - Project Infrastructure Land
  - LGA boundary
  - Vegetation Protection
  - Bushfire Management Overlay
  - Heritage Overlay



Mapsheet 3 of 6

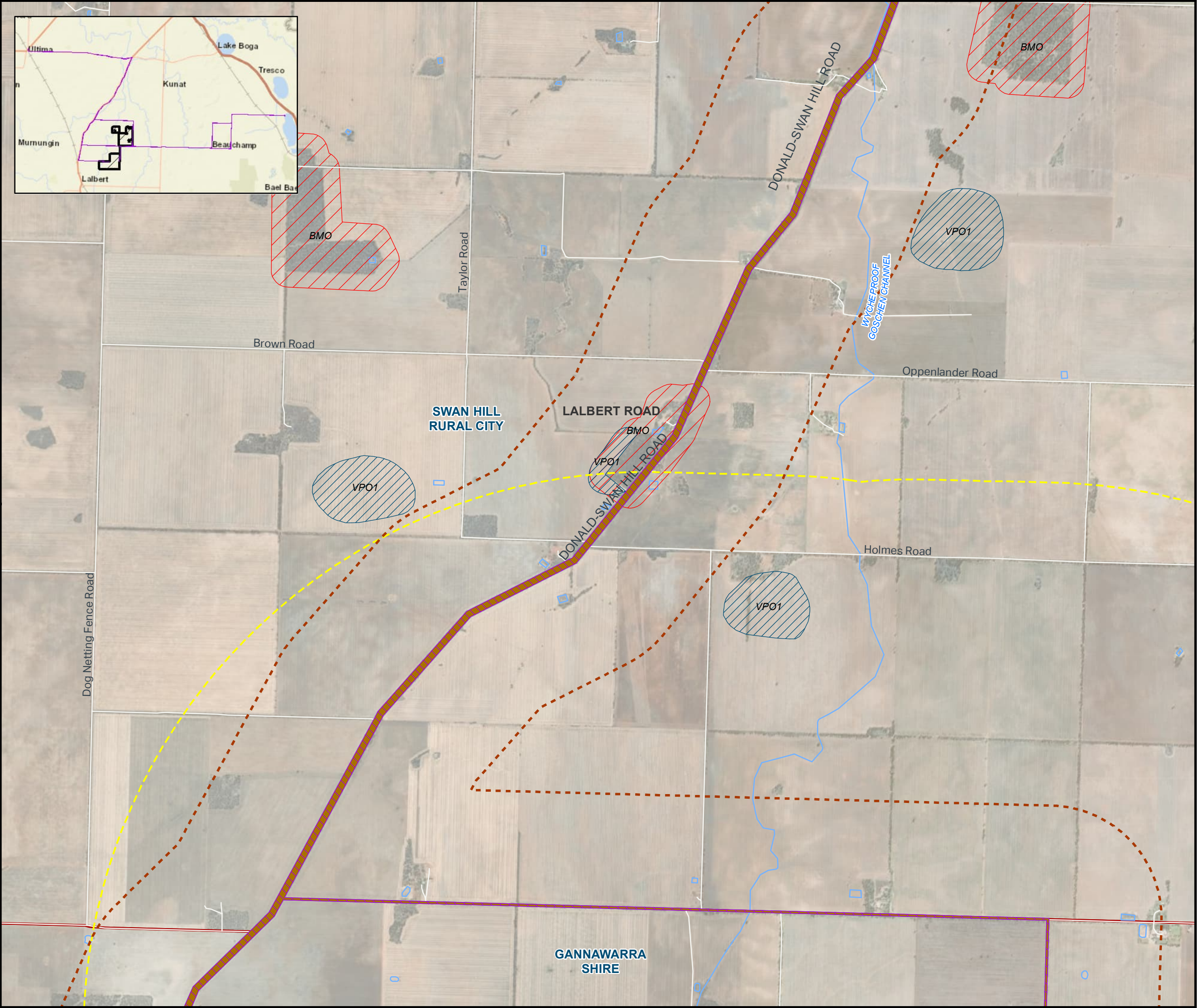
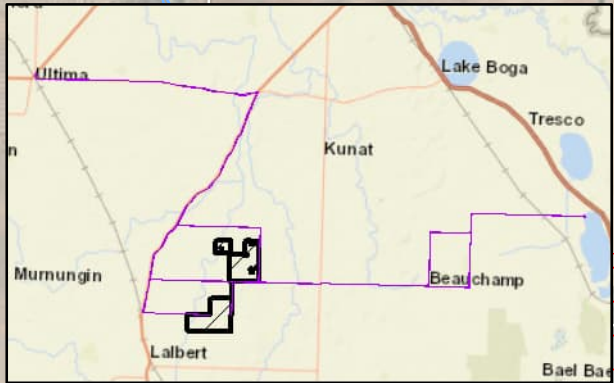


**OVERLAY MAPSERIES**

VHM GOSCHEN	Figure <b>F2-3</b>
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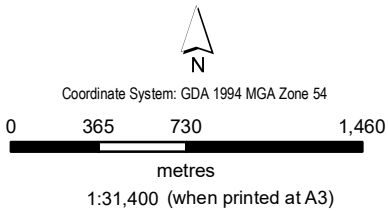


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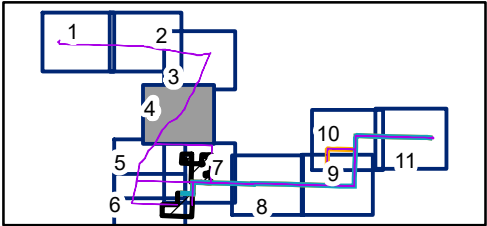
PROJECT ID 60338515  
CREATED BY prachi.kulkarni1  
LAST MODIFIED 11 JAN 2023

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- LEGEND**
- Transport Route
  - Transport Study Area
  - Mining Study Area
  - Project Infrastructure Land
  - LGA boundary
  - Environmental Significance Overlay
  - Vegetation Protection
  - Bushfire Management Overlay

Mapsheets 4 of 6



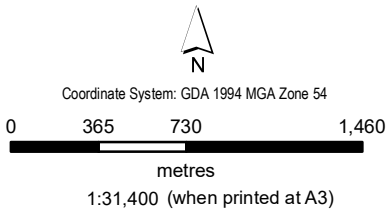
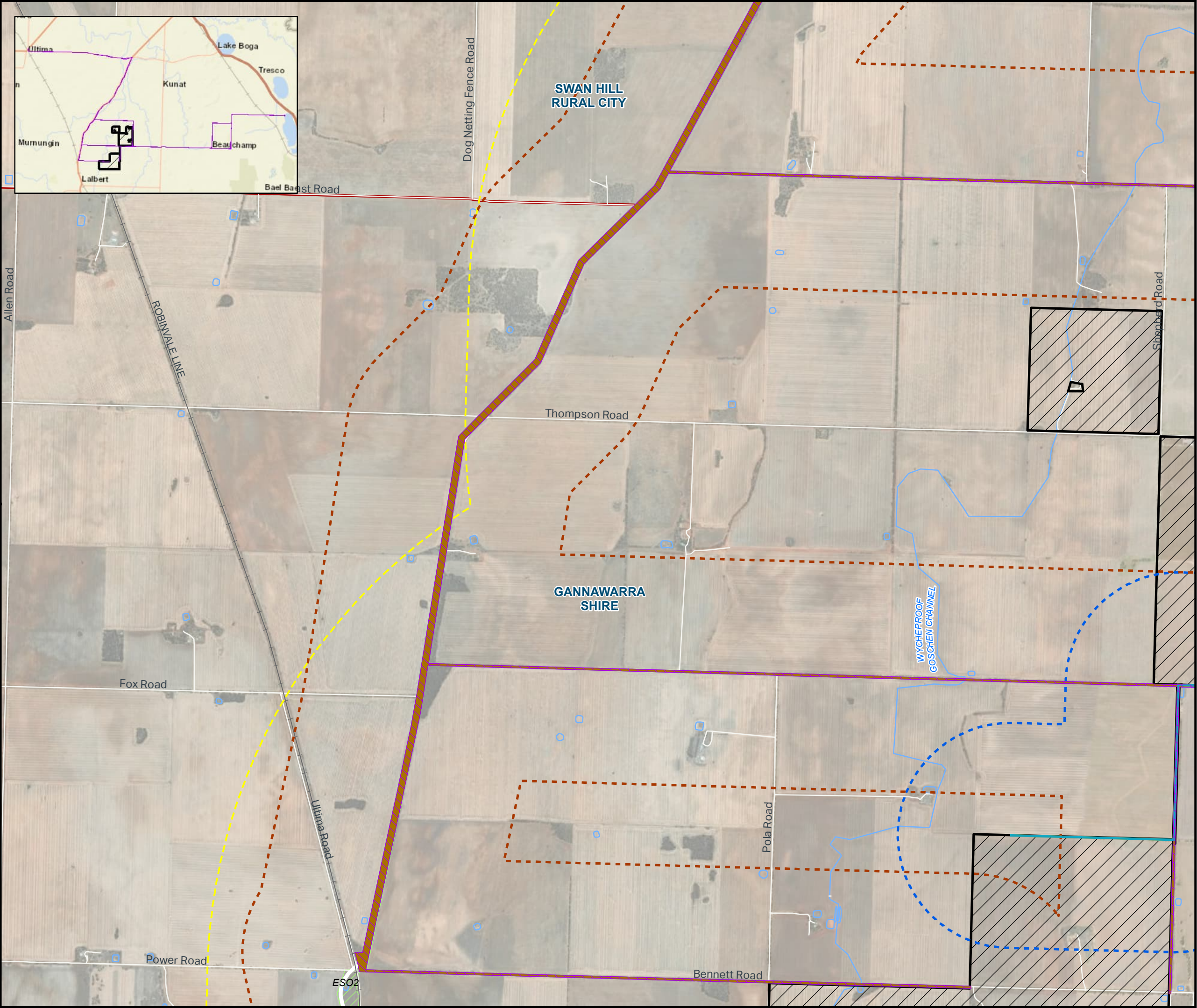
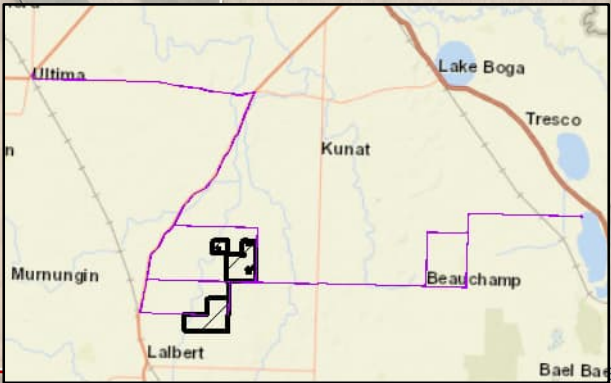
**OVERLAY MAPSERIES**

VHM GOSCHEN

Figure  
**F2-4**

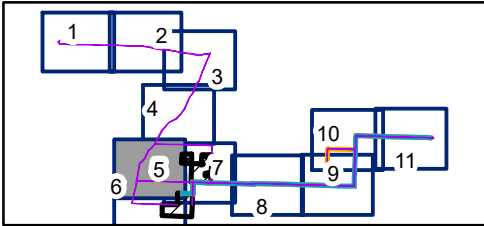


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- LEGEND**
- Pipeline route
  - Alternative route
  - Transport Route
  - Pipeline study area
  - Transport Study Area
  - Mining Study Area
  - Project Infrastructure Land
  - Project Area
  - LGA boundary
  - Environmental Significance Overlay

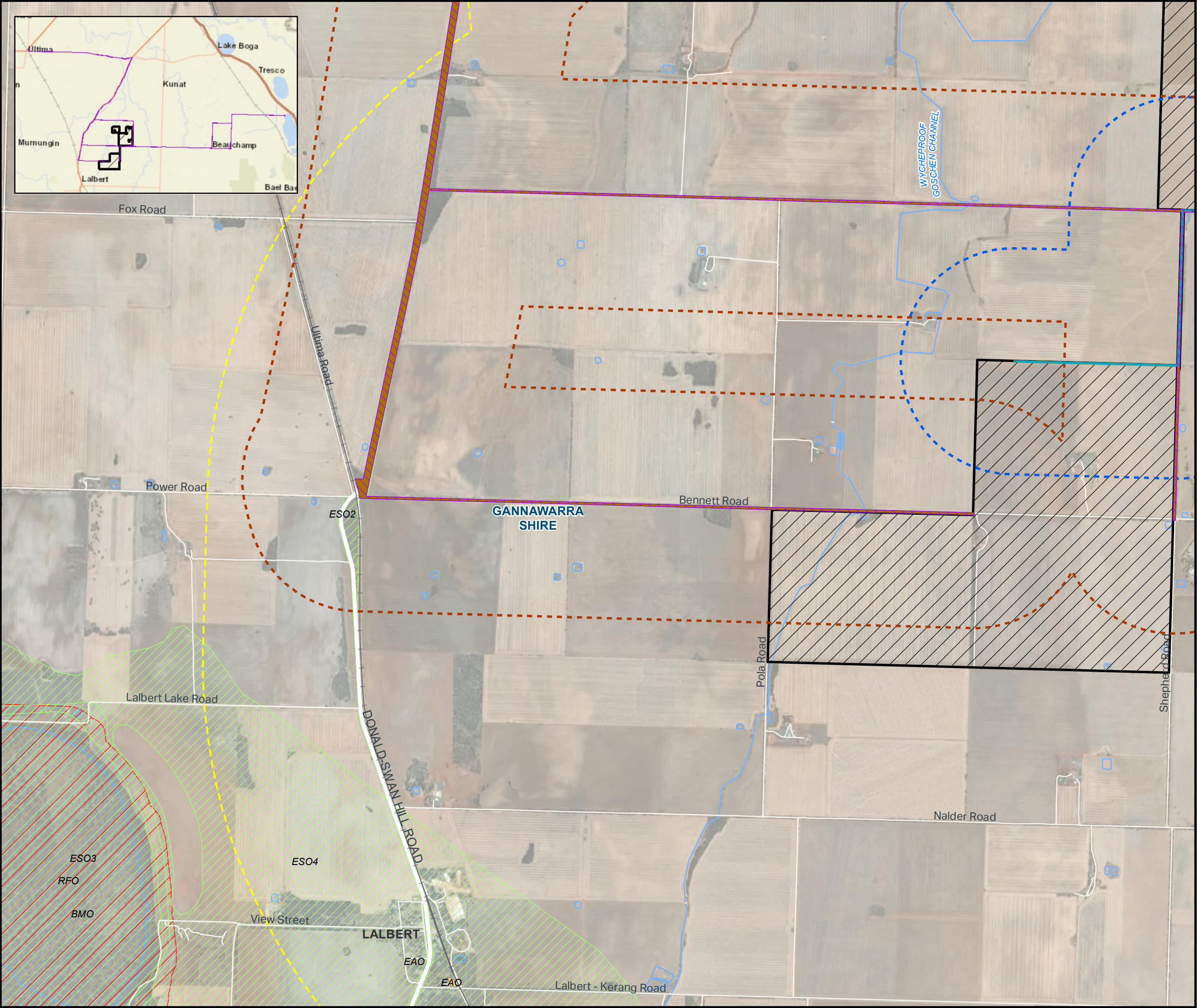
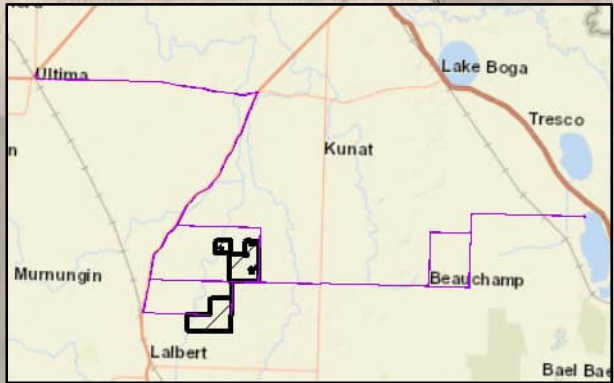
Mapsheet 5 of 6



**OVERLAY MAPSERIES**

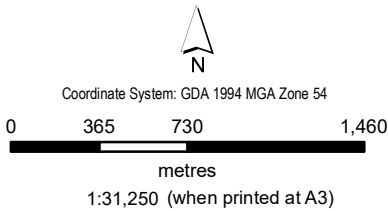


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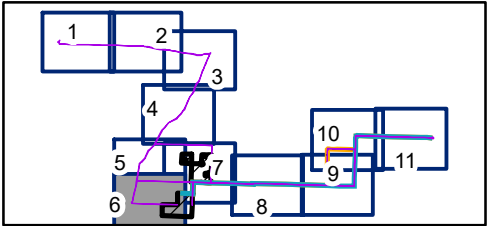
PROJECT ID 60338515  
CREATED BY prachi.kulkarni1  
LAST MODIFIED 11 JAN 2023

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- LEGEND**
- Pipeline route
  - Alternative route
  - Transport Route
  - Pipeline study area
  - Transport Study Area
  - Mining Study Area
  - Project Infrastructure Land
  - Project Area
  - LGA boundary
  - Environmental Significance Overlay
  - Bushfire Management Overlay
  - Environmental Audit Overlay

Mapsheet 6 of 6



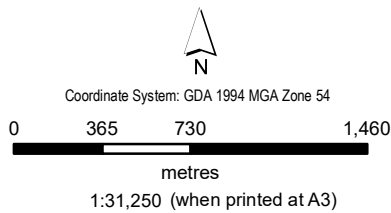
**OVERLAY MAPSERIES**

VHM GOSCHEN

Figure

**F2-6**





- LEGEND
- Pipeline route

Alternative route

Transport Route

Pipeline study area

Transport Study Area

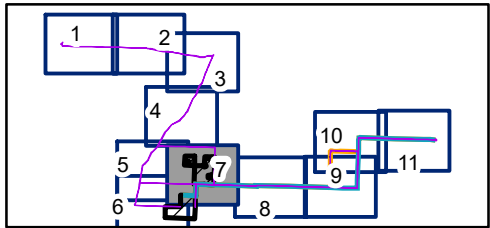
Mining Study Area

Project Infrastructure Land

Project Area

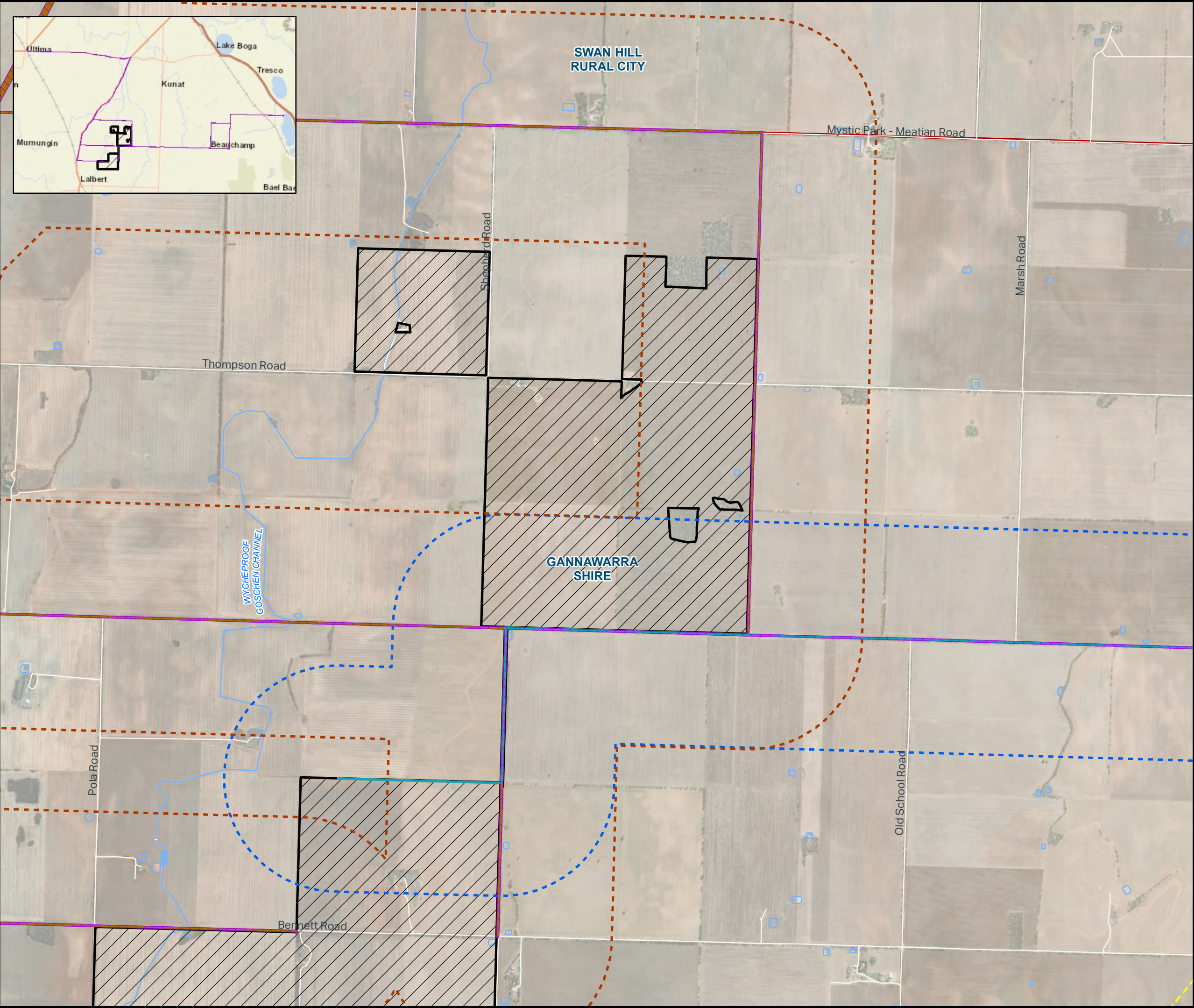
LGA boundary

Mapsheet 7 of 6

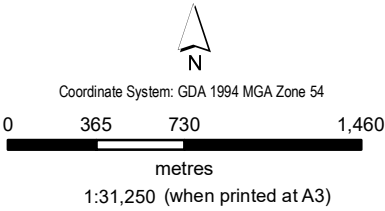


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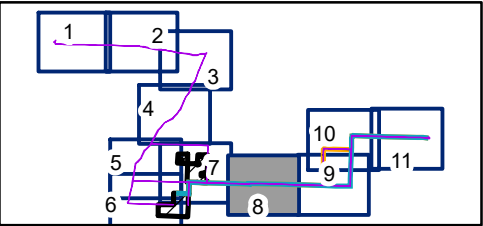




LEGEND

- Pipeline route
- Alternative route
- Pipeline study area
- Mining Study Area
- Project Infrastructure Land
- LGA boundary
- Environmental Significance Overlay
- Vegetation Protection

Mapsheet 8 of 6

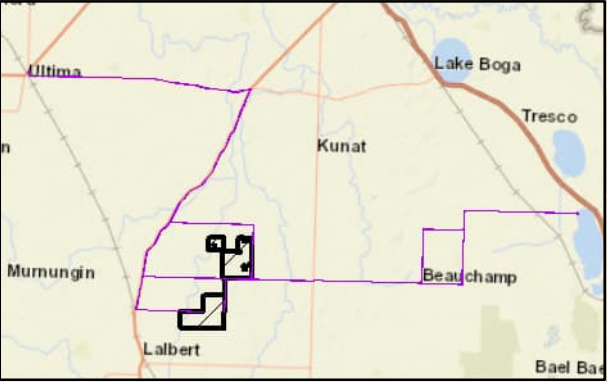


OVERLAY MAPSERIES

VHM GOSCHEN

Figure

**F2-8**



MYALL

Thompson Road

Jampot Road

GANNAWARRA  
SHIRE

BEAUCHAMP

QUAMBATOOK-SWAN HILL ROAD

Bennett Road

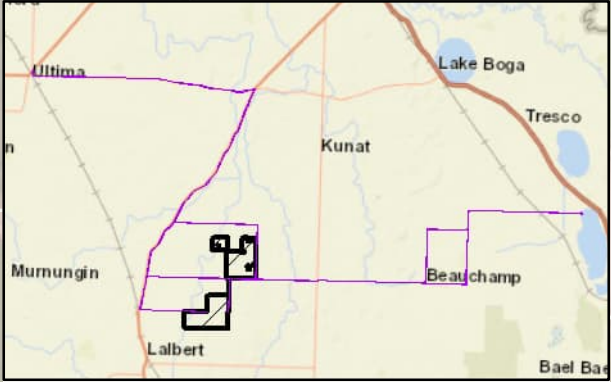
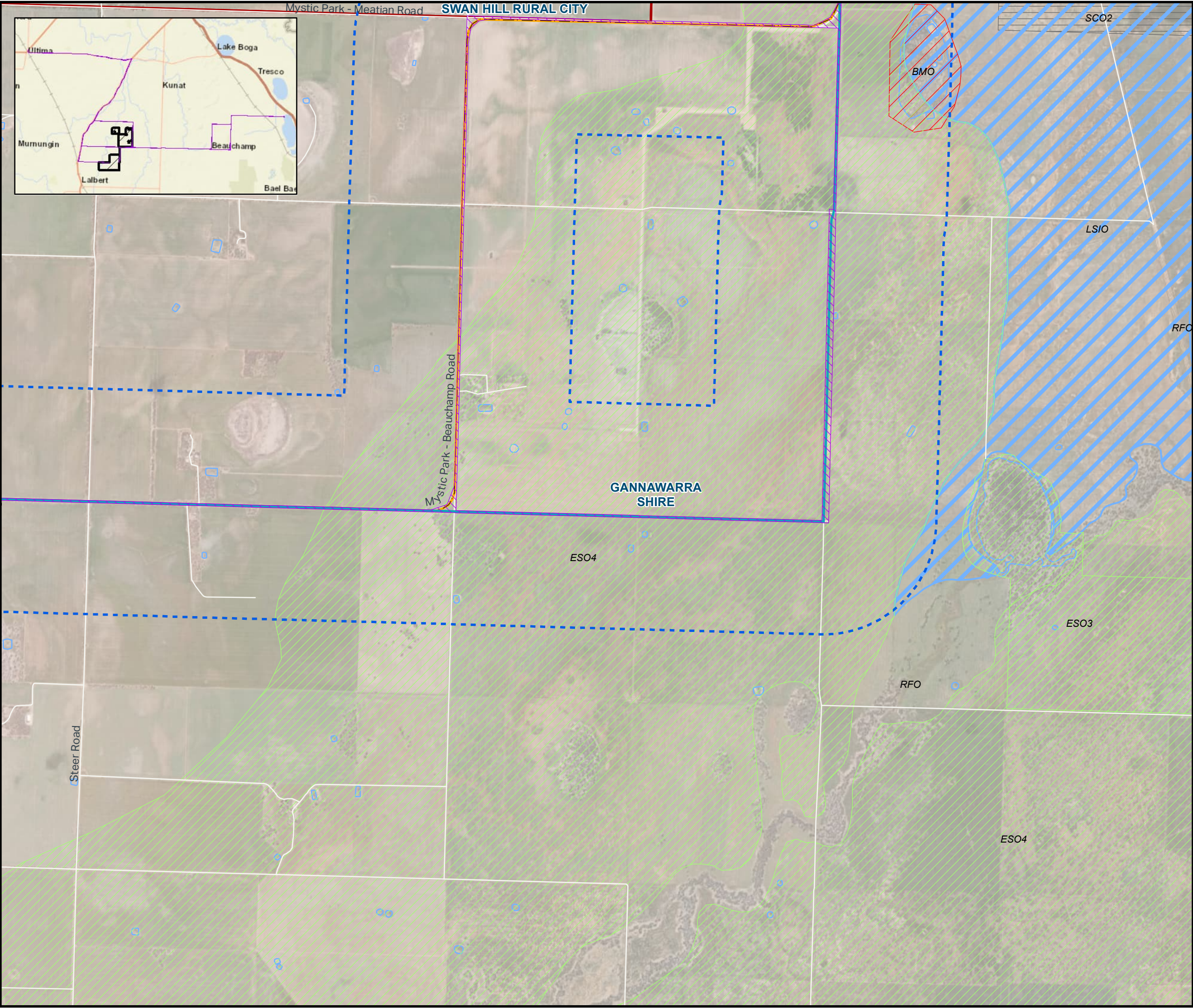
Steer Road

ESO4

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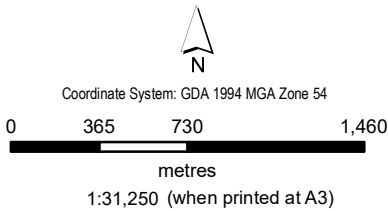


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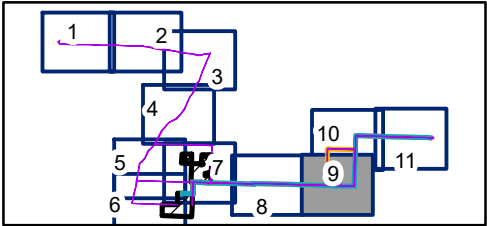
PROJECT ID 60338515  
CREATED BY prachi.kulkarni1  
LAST MODIFIED 11 JAN 2023

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- LEGEND**
- Pipeline route
  - Alternative route
  - Pipeline study area
  - Project Infrastructure Land
  - LGA boundary
  - Environmental Significance Overlay
  - Bushfire Management Overlay
  - Land Subject to Inundation Overlay
  - Specific Controls Overlay

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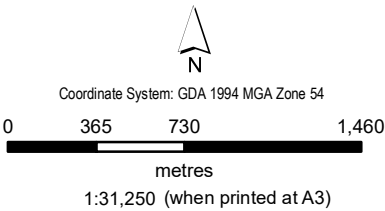
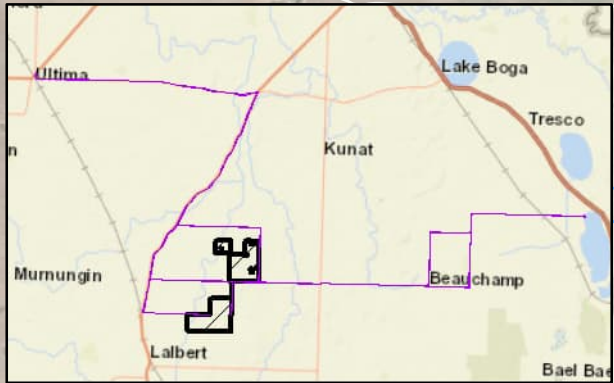
**OVERLAY MAPSERIES**

VHM GOSCHEN

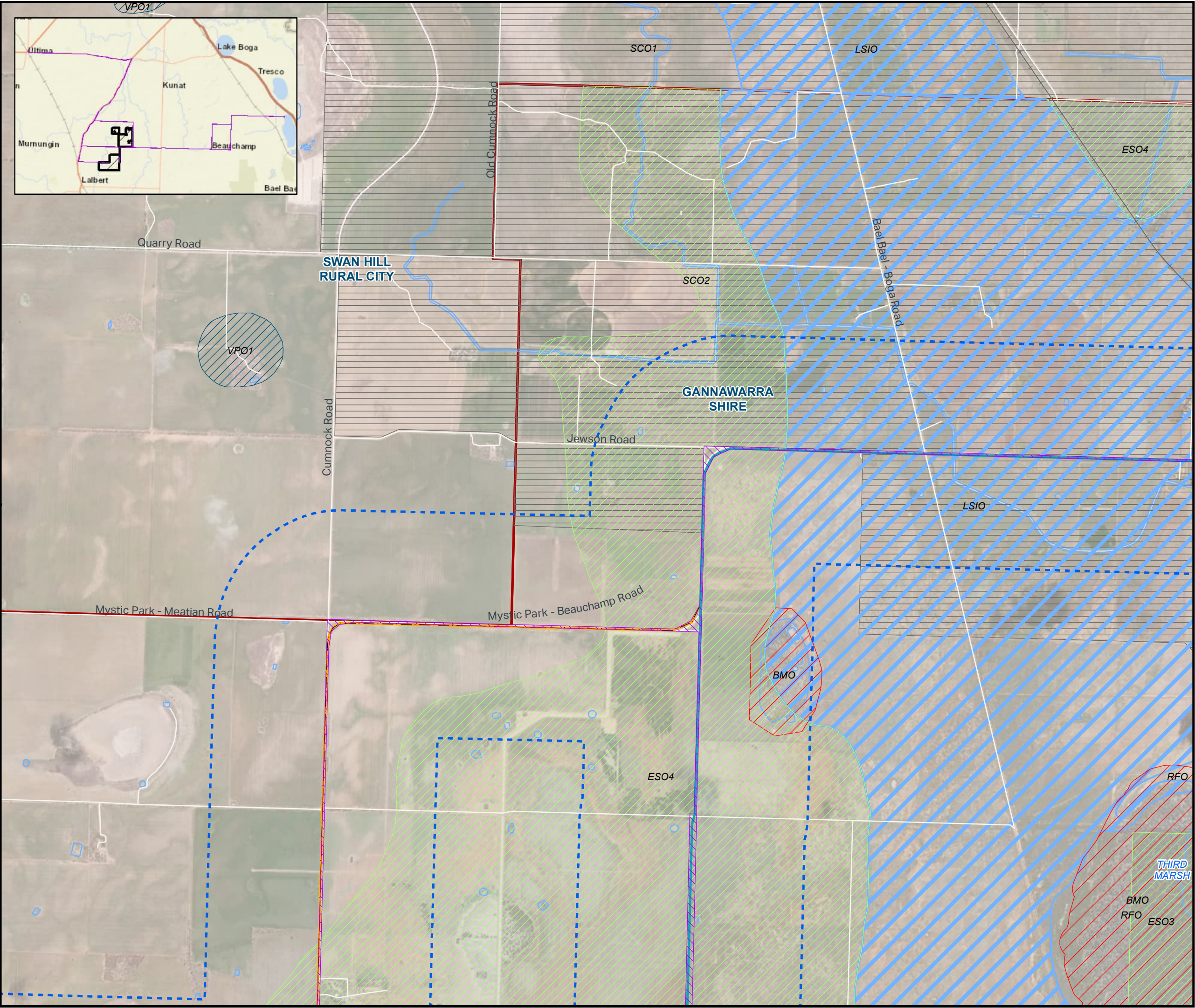
Figure  
**F2-9**



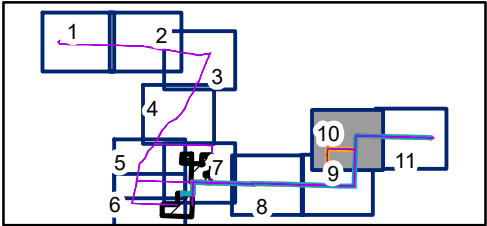
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- LEGEND**
- Pipeline route
  - Alternative route
  - Pipeline study area
  - Project Infrastructure Land
  - LGA boundary
  - Environmental Significance Overlay
  - Vegetation Protection
  - Bushfire Management Overlay
  - Land Subject to Inundation Overlay
  - Specific Controls Overlay



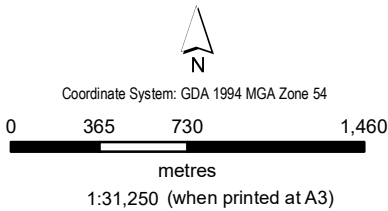
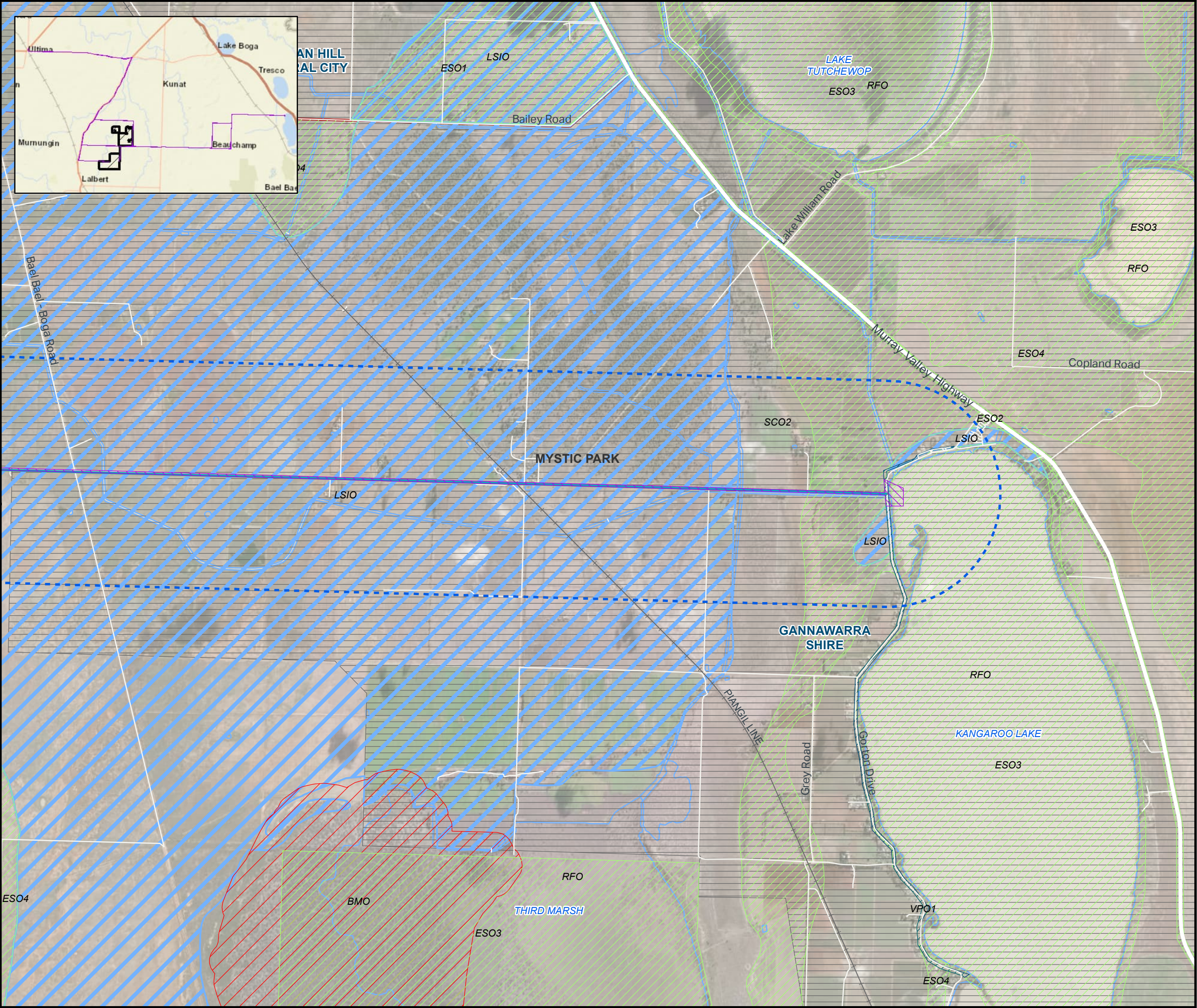
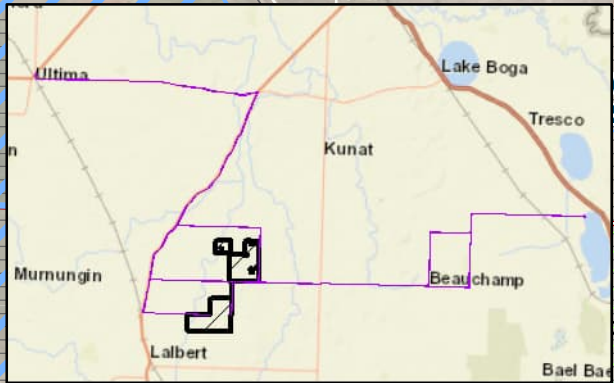
Mapsheet 10 of 6



**OVERLAY MAPSERIES**

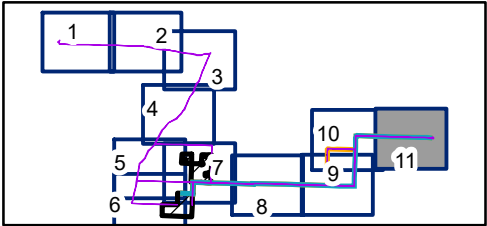


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- LEGEND**
- Pipeline route
  - Alternative route
  - Pipeline study area
  - Project Infrastructure Land
  - LGA boundary
  - Environmental Significance Overlay
  - Vegetation Protection
  - Bushfire Management Overlay
  - Land Subject to Inundation Overlay
  - Specific Controls Overlay

Mapsheet 11 of 6



**OVERLAY MAPSERIES**

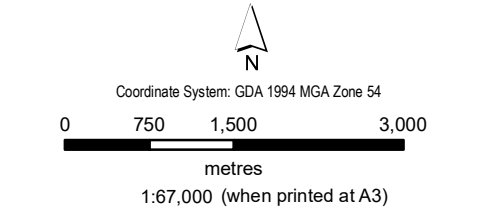
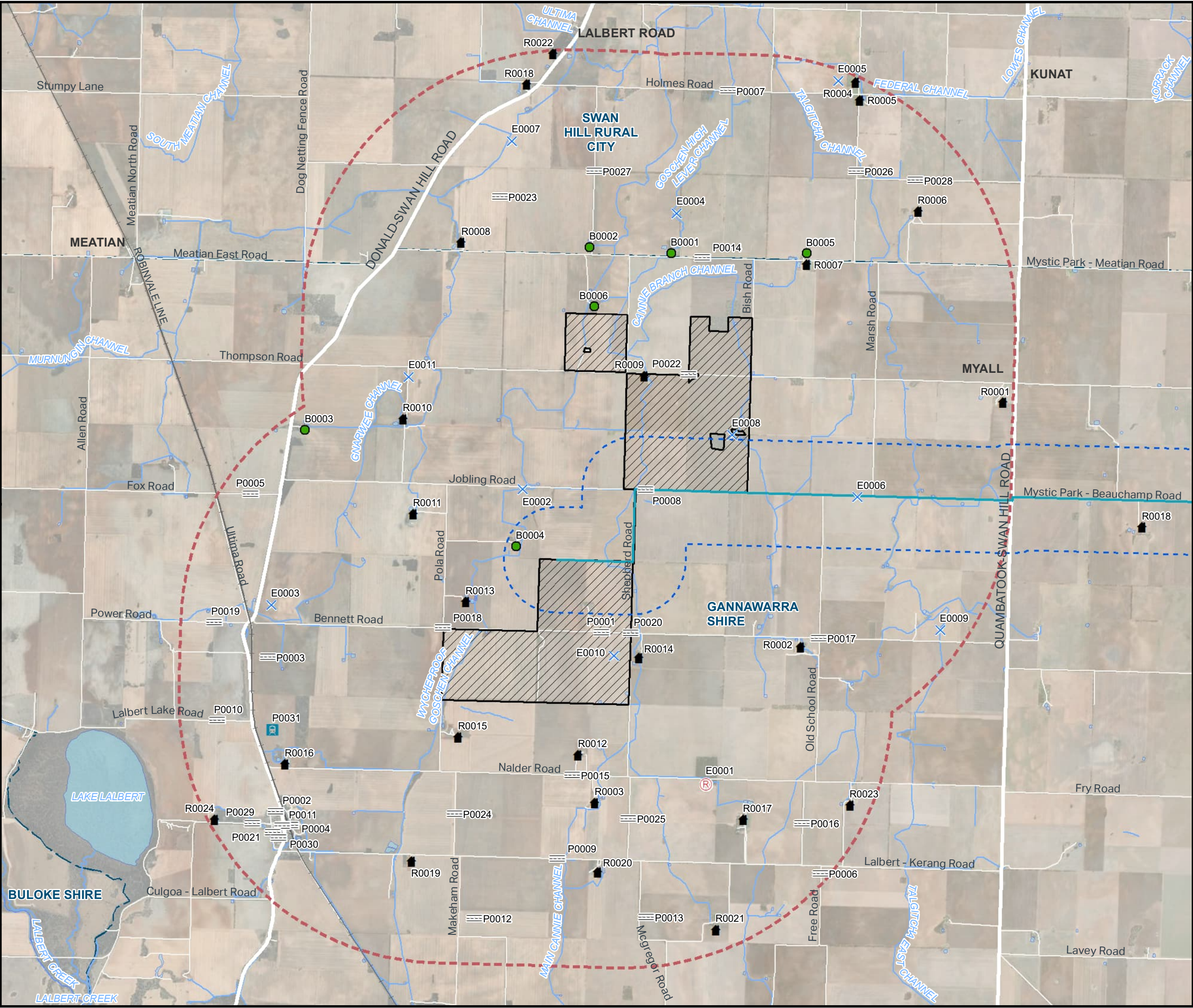


# Appendix B

## Sensitive Receptor Maps



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- LEGEND
- Mining Study Area

Pipeline route

Alternative route

Water Pipeline Study Area

Project Area

LGA boundary

**Sensitive Receptors**

Agricultural - shed

Creeks/streams

Parks/reserves

Rail

Residential

Roads

Watercourse

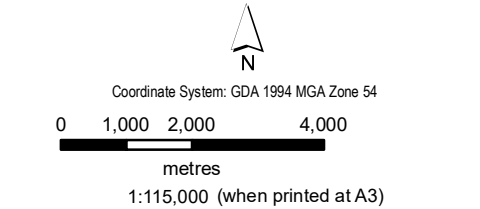
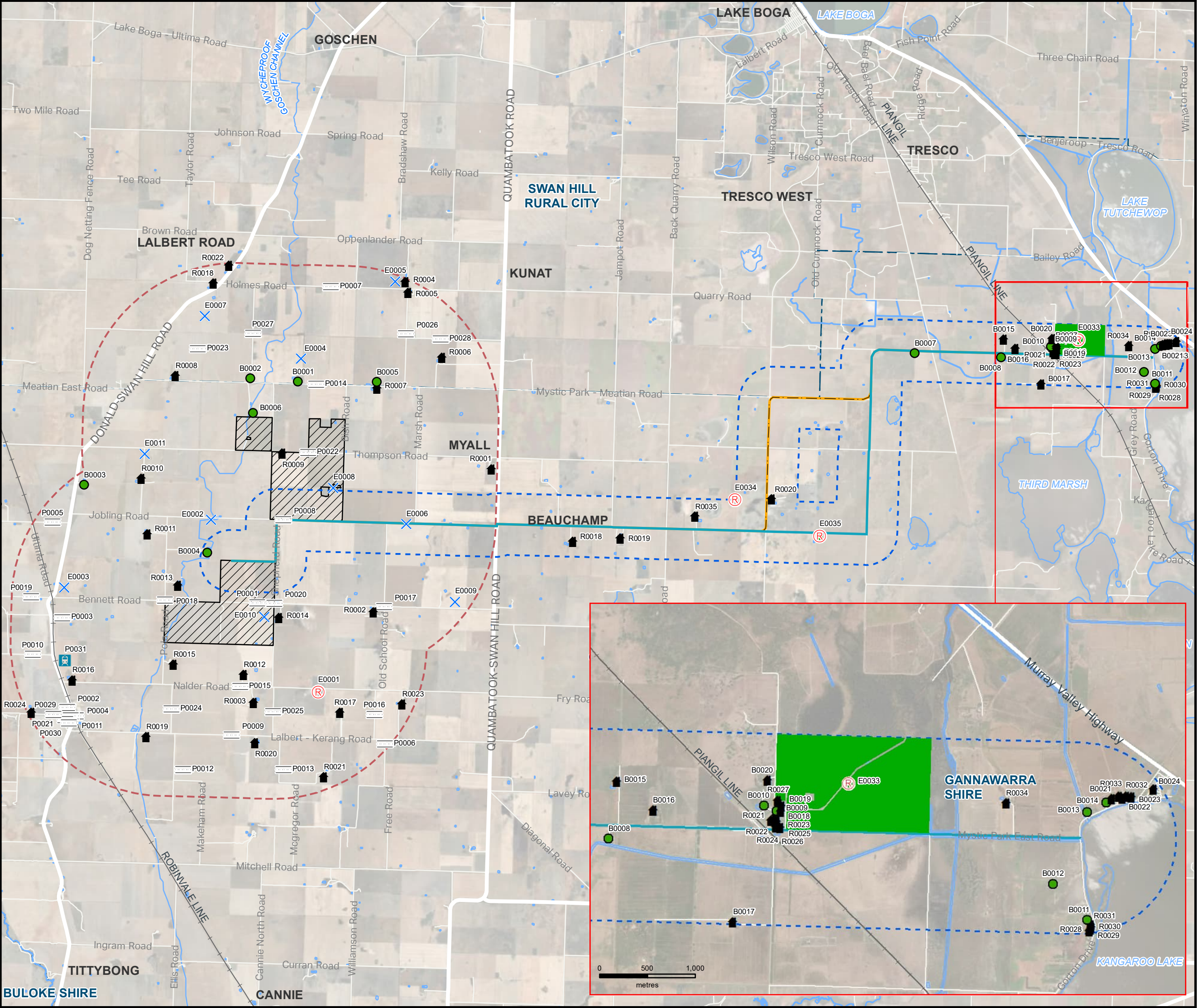
Waterbody

Sensitive Receptors - MSA

VHM GOSCHEN



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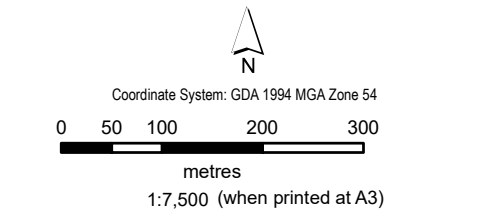


- LEGEND**
- Agricultural - shed
  - Creeks/ivers
  - Parks/reserves
  - Rail
  - Residential
  - Roads
  - Parks/reserves
  - Pipeline route
  - Alternative route
  - Pipeline study area
  - Mining Study Area
  - Project Area
  - LGA boundary
  - Watercourse
  - Waterbody

**Sensitive Receptors - Pipeline Route**

VHM GOSCHEN





LEGEND

PS

Proposed Pump Station

Agricultural - shed

Residential

Pipeline route

Alternative route

Pipeline study area

LGA boundary

Waterbody

Sensitive Receptors - Pump Station	
VHM GOSCHEN	

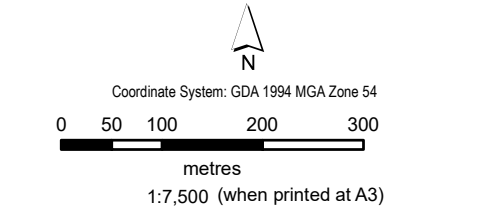
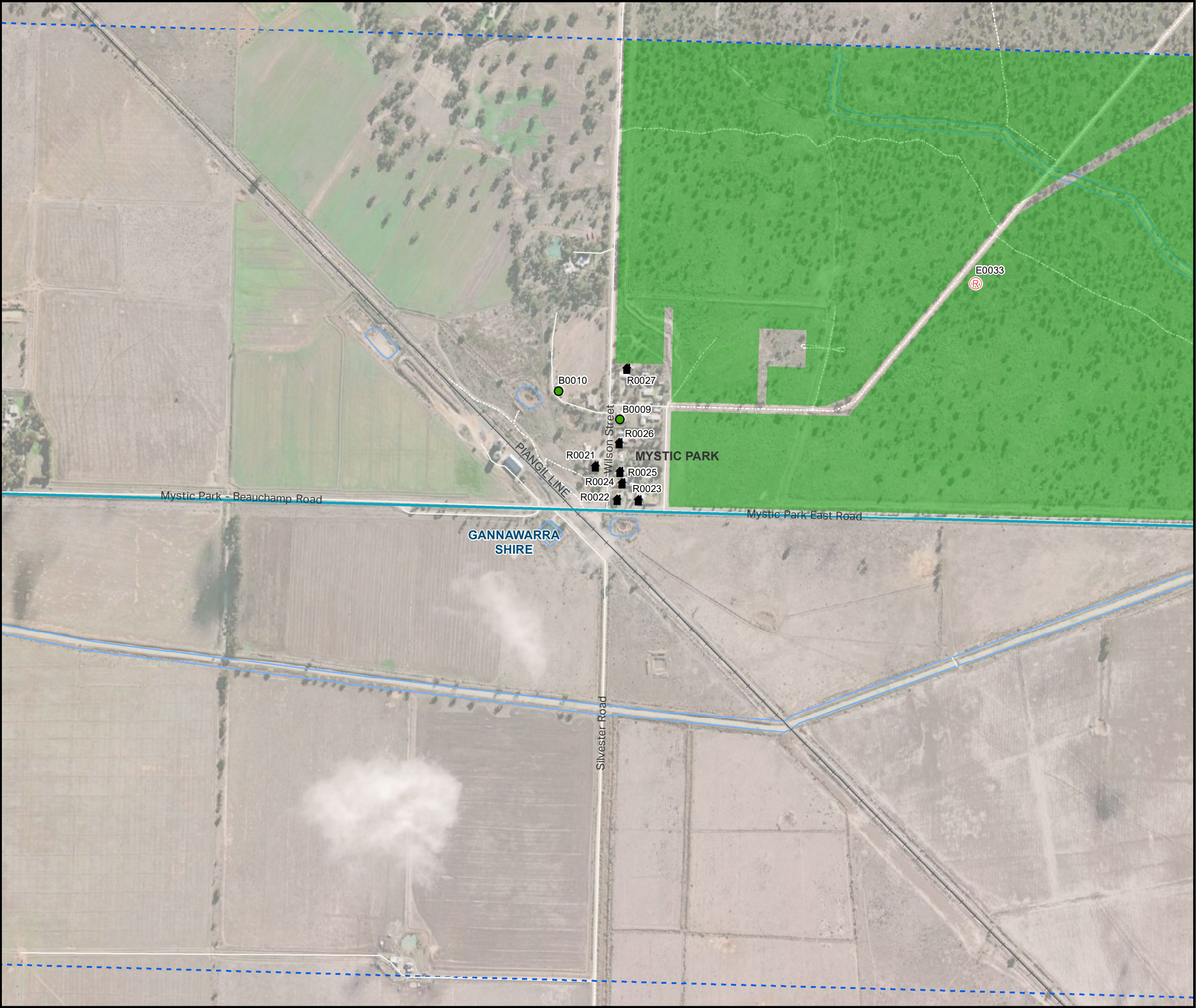
Aerial map showing the proposed pump station location (PS) near Kangaroo Lake, with various sensitive receptors (B0011, B0012, B0013, B0014, R0028, R0029, R0030, R0031, R0032, R0033, R0034) marked. The map includes labels for Gannawarra Shire, Murray Valley Highway, Lake View Road, and Mystic Park East Road. A blue dashed line indicates the pipeline study area, and a blue line shows the pipeline route. A blue dashed line also outlines the LGA boundary. A blue line represents the waterbody (Kangaroo Lake).

Map Document: (\\na.aecomnet.com\lifs\APAC\Melbourne-AUMEL\1\Legacy\Projects\606X\60671345\900\_CAD\_GIS\920\_GIS\02\_Maps\2023\01\F7\_Receptors\_Pump.mxd)

A3 size



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- LEGEND
- Sensitive Receptors**

Agricultural - shed

Parks/reserves

Residential

Parks/reserves

Pipeline route

Alternative route

Pipeline study area

LGA boundary

Waterbody
- Sensitive Receptors - Mystic Park
- VHM GOSCHEN
- Map Document: (\\na.aecomnet.com\lifs\APAC\Melbourne-AUMEL1\Legacy\Projects\606X\60671345\900\_CAD\_GIS\920\_GIS\02\_Maps\2023\01\F8\_Receptors\_Mystic.mxd)
- A3 size



# Appendix C

Relevant policy,  
guidelines and standards

## Appendix C Relevant policy, guidelines and standards

### Gannawarra and Swan Hill Planning Schemes

The GP Scheme and SHPS outline strategies and objectives to be achieved within their respective municipalities, identify planning permit requirements for use and development and apply a range of particular provisions that address specific issues such as native vegetation.

The Planning Policy Framework (PPF) seeks to ensure that land use and development in Victoria meet the objectives of planning as set out in the P&E Act. The PPF is set out in Clauses 10-19 of all planning schemes, is general in nature and informs Municipal Planning Strategy specific to each municipality.

The MPS set out at Clause 2 and municipal specific sub-clauses of the corresponding PPF are set out at Clauses 10-19. The MPS is a statement of key strategic planning, land use and development objectives for the municipality and the strategies and actions for achieving those objectives. The sub-clauses are policy statements of intent explaining the expectation of what the responsible authority would do in specific circumstances.

The GP Scheme and SHPS also apply planning controls to the parts of the Project area and Investigation areas that are within their municipal boundaries.

The GP Scheme applies several planning controls to the Project area and wider investigation area including Transport Zone 1 – State Transport Infrastructure, Transport Zone 2 – Principal Road Network, Farming Zone, Public Conservation and Resource Zone, Township Zone, Public Park and Recreation Zone, Public Use Zone – Service and Utility, Environmental Significance Overlay, Environmental Audit Overlay, Specific Controls Overlay, Bushfire Management Overlay, Land Subject to Inundation Overlay, Floodway Overlay and Vegetation Protection Overlay.

In addition, the SHPS applies a number of planning controls to the Project area and wider investigation area including Transport Zone 2 – Principal Road Network, Farming Zone, Public Park and Recreation Zone, Bushfire Management Overlay, Heritage Overlay, and Vegetation Protection Overlay.

As outlined in Section 4.0, the GP Scheme and SHPS provide context for the land use and planning impact assessment. An overview of relevant provisions within each of the Schemes is set out in Table 21, Table 22, and Table 23.

The GP Scheme and SHPS also set out approvals and approval requirements in accordance with the provisions of the P&E Act for use and development of land within the Project area for mining and mineral exploration and other buildings and works and for the removal of native vegetation. Further information regarding relevant approvals is set out in Section 4.0 of this assessment.

**Table 21 PPF and MPS of the Planning Schemes**

Clause	Overview
Gannawarra Shire Municipal Planning Strategy	
Clause 02 (Municipal Planning Strategy)	<p>The Gannawarra Shire MPS is a statement of key strategic planning, land use and development objectives for the municipality and provides an overview of Gannawarra Shire's regional context.</p> <p><b>Clause 02.01 (Context)</b> of the GP Scheme notes that 'the future of the municipality is largely dependent upon the provision of increased employment and education opportunities to encourage the retention of population, especially those in the 18-30 year age group.</p> <p><b>Clause 02.02 (Vision)</b> of the GP Scheme sets out the Shire's vision for the municipality: <i>building upon our strengths of people, place and pride to inspire a positive future together</i> and notes that the <i>Council Plan 2017-2021</i> identifies two key strategy platforms that are relevant to land use and development:</p> <ul style="list-style-type: none"> <li>• 'Foster economic prosperity through diversity</li> <li>• Embrace environmental sustainability</li> </ul> <p><b>Clause 02.03 (Strategic directions)</b> of the GP Scheme contains the following subclauses that outline key strategic directions of the Gannawarra Shire MPS:</p>

Clause	Overview
	<ul style="list-style-type: none"> <li>• <b>Clause 02.03-2 (Environmental and landscape values)</b> of the GP Scheme provides an overview of the natural landscape within the municipality and identifies key strategic directions for the environment, which seek to: <ul style="list-style-type: none"> <li>- Encourage the planting of additional native vegetation for habitat and landscape enhancement.</li> <li>- Protect rivers, lakes and wetlands of international significance</li> <li>- Protect and enhance native vegetation, especially in and around rivers, lakes and wetlands.</li> <li>- Protect and enhance soil and water quality, which is essential for agriculture and ecological health’.</li> </ul> </li> <li>• <b>Clause 02.03-3 (Environmental risks and amenity)</b> of the GP Scheme identifies environmental risks including bushfire and flooding within the municipality and sets out strategic directions for climate change, floodplains and fire risks, including: <ul style="list-style-type: none"> <li>- ‘Encourage land use and development that supports adjustments to farming practices and the management of the natural environment to adapt to reduced rainfall and water availability.</li> <li>- Plan for the likelihood of additional extreme weather events, including droughts, fire, floods and storms.</li> <li>- Minimise the potential for damage and risks to public safety and property from flooding’.</li> </ul> </li> <li>• <b>Clause 02.03-4 (Natural resource management)</b> of the GP Scheme highlights the diversity of the Shire’s agricultural sector and emphasises that the future of agriculture is dependent on sustainable practices that minimise pollution of waterways, soil salinity and erosion.</li> <li>• <b>Clause 02.03-5 (Built environment and heritage)</b> of the GP Scheme notes that the Shire comprises of rural landscapes and urban townships that are valued for their social, environmental, economic and aesthetic qualities and identifies strategic directions to protect post-contact and aboriginal cultural heritage.</li> <li>• <b>Clause 02.03-7 (Economic Development)</b> of the GP Scheme recognises that township economies are largely dependent on a prosperous agricultural sector and acknowledges that continued economic development is vital to the future of the municipality.</li> <li>• <b>Clause 02.03-8 (Transport)</b> of the GP Scheme provides an overview of transport services across the municipality and seeks to ‘support use and development that maintains and improves existing local transport infrastructure, including local roads, streets and bridges that are essential for local access and economic activity’.</li> <li>• <b>Clause 02.03-9 (Infrastructure)</b> of the GP Scheme acknowledges the critical role that urban and rural infrastructure plays in improving the liveability and amenity of residents within the municipality and provides the following relevant strategic directions: <ul style="list-style-type: none"> <li>- ‘Encourage the use and development of land for solar energy production</li> <li>- Support drainage infrastructure in rural areas</li> <li>- Minimise impacts of development on stormwater’.</li> </ul> </li> </ul>
Swan Hill Rural City Municipal Planning Strategy	
Clause 02 (Municipal Planning Strategy)	<p>The Swan Hill Rural City Council MPS sets out the municipality’s key strategic planning statement, land use and development objectives and provides an overview of the municipality’s context.</p> <p><b>Clause 2.01 (Context)</b> of the SHPS notes that the municipality has an area of over 6,000 square kilometres in the north-west of Victoria and recognises the municipality’s unique environment, consisting of riverine floodplains and Mallee dunefields. In addition, it provides an overview of the local economy, noting that it is driven by agriculture (16 percent of the region’s total economic output) and that</p>



Clause	Overview
	<p>irrigated farming accounts for over 11 percent of economic output, while traditional livestock and broadacre farming accounts for almost four percent.</p> <p><b>Clause 2.02 (Vision)</b> of the SHPS sets out the land use and development vision for the municipality, which seeks to 'encourage new business development, provide support for business expansion and continuously seek to help existing businesses prosper' and implement policies that reduce environmental impacts and protect the environment'.</p> <p><b>Clause 02.03 (Strategic directions)</b> of the SHPS contains the following subclauses that outline key strategic directions of the Gannawarra Shire MPS:</p> <ul style="list-style-type: none"> <li>• <b>Clause 2.03-2 (Environmental and landscape values)</b> of the SHPS describes the municipality's environmental landscape and identifies the need to protect the environmental, visual and landscape values of the Murray River and environs, as well as protect and maintain remnant native vegetation for catchment heath and prevention of erosion.</li> <li>• <b>Clause 2.03-4 (Natural Resource Management)</b> of the SHPS outlines key strategic directions aimed at managing the natural resources of the municipality, including: <ul style="list-style-type: none"> <li>- Discouraging land uses in the Farming Zone that are not directly related to agriculture, or that have an adverse impact on agricultural opportunities.</li> <li>- Direct rural industries to locations where the impact on agricultural land and off-site effects are minimised and where good road access is available.</li> </ul> </li> <li>• <b>Clause 02.03-5 (Built form and heritage)</b> of the SHPS seeks to protect Aboriginal and European heritage and minimise visual, acoustic or other off-site effects of industrial use and development on surrounding land.</li> <li>• <b>Clause 02.03-6 (Economic development)</b> of the SHPS acknowledges emerging mineral sand mining and solar industries in the region and aims to '<i>facilitate the growth of the mineral sands and solar energy generation industries.</i>'</li> <li>• <b>Clause 02.03-7 (Transport)</b> of the SHPS confirms that the local economy is dependent on efficient transport corridors and that the local road network is important transport infrastructure that needs to be maintained and improved. With regard to transport planning, SHRC seeks to '<i>facilitate inter-modal freight facilities within the municipality.</i>'</li> <li>• <b>Clause 02.03-8 (Infrastructure)</b> of the SHPS identifies that the delivery of efficient infrastructure is vital to generating economic growth and notes the following strategic directions: <ul style="list-style-type: none"> <li>- 'Encourage development to be in accordance with the Infrastructure Design Manual (Local Government Infrastructure Design Association 2020)</li> <li>- Protect and consolidate water supply and irrigation infrastructure'.</li> </ul> </li> </ul>
GP Scheme and SHPS Planning Policy Framework and Local Planning Policies	
Clause 11 (Settlement)	<p><b>Clause 11 (Settlement)</b> recognises the need for planning to contribute towards adaptation in response to changing technology, economic viability and the protection of environmentally sensitive areas and natural resources. In addition, it acknowledges that planning is required to prevent adverse environmental and amenity impacts created by siting incompatible land uses close together.</p> <p><b>Clause 11.01-1S (Settlement)</b> seeks to 'promote the sustainable growth and development of Victoria and deliver choice and opportunity for all Victorians through a network of settlements' and identifies a series of strategies that seek to support investment, growth and sustainable development in accordance with relevant regional growth plans. The Clause also requires planning to consider as relevant the Loddon Mallee North regional Growth Plan (Victorian Government, 2014).</p>

Clause	Overview
	<p><b>Clause 11.01-1R (Settlement – Loddon Mallee North)</b> identifies the need to plan for and facilitate the growth of Echuca and Swan Hill as regional centres and important tourism destinations.</p> <p><b>Clause 11.02-1S (Supply of urban land)</b> of the GP Scheme seeks to ‘ensure a sufficient supply of land is available for residential, commercial, retail, industrial, recreational, institutional and other community uses.’</p> <p><b>Clause 11.03-5 (Distinctive areas and landscapes)</b> recognises ‘the importance of distinctive areas and landscapes to the people of Victoria’ and seeks to ‘protect and enhance the valued attributes of identified or declared distinctive areas and landscapes.’ Relevant strategies seek to ‘protect the identified key values and activities of these areas’, ‘avoid use and development that could undermine the long-term natural or non-urban use of land’ and ‘protect areas that are important for food production’.</p>
Clause 12 (Environmental and Landscape Values)	<p><b>Clause 12 (Environmental Landscape Values)</b> identifies that planning must assist to ‘<i>protect the health of ecological systems and the biodiversity they support</i>’ and conserve areas with identified environmental and landscape values. Planning must also implement the environmental principles of ecologically sustainable development and should protect sites and features of nature conservation, biodiversity, geological or landscape value.</p> <p>Further guidance is presented in subclauses, which seek to:</p> <ul style="list-style-type: none"> <li>• ‘Assist the protection and conservation of Victoria’s biodiversity, with particular reference to conservation reserves or national and internationally significant sites.</li> <li>• Ensure no net loss to biodiversity as a result of the removal, destruction or lopping of native vegetation</li> <li>• Protect and enhance river corridors, waterways, lakes and wetlands.</li> <li>• Protect and conserve environmentally sensitive areas.</li> <li>• Protect and enhance significant landscapes and open spaces that contribute to character, identity and sustainable environments.’</li> </ul> <p><b>Clause 12.01-1S (Protection of biodiversity)</b> aims to protect and enhance Victoria’s Biodiversity by ensuring decision making takes into account the impacts of land use and development on Victoria’s biodiversity, including consideration of cumulative impacts, fragmentation of habitat, and the spread of pest plants, animals, and pathogens into natural ecosystems.</p> <p><b>Clause 12.01-2S (Native vegetation management)</b> aims to ensure that there is no net loss to biodiversity as a result of the removal, destruction or lopping of native vegetation, offset in accordance with the <i>Guidelines for the removal, destruction or lopping of native vegetation</i> (DELWP, 2017).</p> <p><b>Clause 12.01-1L (Flora and fauna protection)</b> of the GP Scheme provides local strategies to support the state-wide objectives and strategies and protect and enhance remnant native vegetation and flora and fauna habitat including:</p> <ul style="list-style-type: none"> <li>• ‘Restrict uses and development in native grassland areas to grazing and other farming that is compatible with their preservation and maintenance.</li> <li>• Encourage the maintenance and development of vegetated links between remnant vegetation areas.</li> <li>• Discourage use or development that would result in the loss of riparian flora and fauna habitat and wetland environments in the Murray River corridor.</li> <li>• Encourage development to retain and enhance roadside vegetation as a wildlife corridor and repository for flora species.</li> <li>• Ensure developments are sited to limit adverse impacts on the environmental quality of any abutting Crown land (other than a road)’.</li> </ul> <p>Clause 12.01-1L (Protection of biodiversity) of the SHPS identifies the following key strategies:</p>

Clause	Overview
	<ul style="list-style-type: none"> <li>• ‘Protect and enhance native habitat, particularly where it contains rare and threatened flora and fauna species</li> <li>• Retain and enhance high-value remnant native vegetation</li> <li>• Encourage links between existing remnant vegetation</li> <li>• Discourage works where the removal of native vegetation would be required’.</li> </ul> <p><b>Clause 12.03-1L (River corridors, waterways, lakes and wetlands)</b> of the SHPS seeks to encourage development to be setback from waterways and water bodies to assist the protection of the catchment, natural environment and landscape.</p>
<p>Clause 13 (Environmental Risks and Amenity)</p>	<p><b>Clause 13 (Environmental Risks and Amenity)</b> provides overarching objectives which seek to ‘strengthen the resilience and safety of communities by adopting a best practice environmental management and risk management approach’.</p> <p>Subclauses seek to ensure that climate change impacts are considered, bushfire risk is properly assessed, flood hazard is properly mitigated, and floodplains are appropriately managed.</p> <p>Furthermore, strategies seek to minimise the impact of noise on sensitive land uses, protect and improve air quality and ensure that contaminated land is suitable for its intended use. Land use compatibility is prioritised to protect community amenity, human health and safety while facilitating appropriate commercial, industrial, infrastructure or other uses with potential adverse off-site impacts.</p> <p><b>Clause 13.02-1S (Bushfire planning)</b> applies to all planning and decision making under the P&amp;E Act relating to land that is within a bushfire prone area and seeks to strengthen the resilience of settlements and communities to bushfire through risk-based planning that prioritises the protection of human life.</p> <p><b>Clause 13.03-1S (Floodplain management)</b> aims to assist with the protection of life, property and community infrastructure from flood hazard as well as the natural flood carrying capacity of rivers, streams and floodways.</p> <p><b>Clause 13.04-3L (Salinity)</b> of the GP Scheme supports the state-wide objectives and strategies and seeks to retain and re-establish vegetation as a means of managing salinity risk, repairing salt-damaged land, lowering water tables and reducing erosion.</p> <p><b>Clause 13.05-1s (Noise management)</b> contains the objective to ‘assist the management of noise effects on sensitive land uses.’ Key strategies within the clause seek to ensure that development is not prejudiced, and community and amenity health is not adversely impacted by noise emissions.</p> <p><b>Clause 13.06-1S (Air quality management)</b> seeks to assist the protection and improvement of air quality by ensuring that there is suitable separation between land uses that pose a human health risk or reduce amenity due to air pollutants and sensitive land uses. The Clause references <i>Publication 1518, Environment Protection Authority, March 2013</i> where relevant.</p> <p><b>Clause 13.07-1S (Land use compatibility)</b> aims to protect community amenity, human health and safety, while facilitating appropriate commercial, industrial, infrastructure or other uses with potential adverse off-site impacts. The Clause references <i>Publication 1518, Environment Protection Authority, March 2013</i> and identifies the following strategies to ensure land use compatibility:</p> <ul style="list-style-type: none"> <li>• Ensure that use or development of land is compatible with adjoining and nearby uses</li> <li>• Avoid locating incompatible uses in areas that may be impacted by adverse off-site impacts</li> <li>• Avoid and minimise off-site impacts through land use separation, siting, building design and operational measures.</li> </ul>
<p>Clause 14 (Natural Resource Management)</p>	<p><b>Clause 14 (Natural Resource Management)</b> aims to assist in the conservation of natural resources including energy, water, land, stone and minerals to support both environmental quality and sustainable development. Further strategies to support this Clause include protecting the State’s agricultural base and declared irrigation districts by preserving productive farmland, the protection and restoration of</p>



Clause	Overview
	<p>catchments, water bodies, ground water and the marine environment, protecting water quality, encouraging the exploration and extraction of natural resources in accordance with acceptable environmental standards and putting strategies in place to provide for the long-term protection of natural resources in Victoria.</p> <p><b>Clause 14.01-1S (Protection of agricultural land)</b> aims to protect the state's agricultural base by preserving productive farmland through strategies including avoiding permanent removal of productive agricultural land from the state's agricultural base.</p> <p><b>Clause 14.01-1L (Agriculture)</b> of the SHPS applies to all land within the Farming zone and seeks to avoid land use conflicts between agricultural and non-agricultural land uses and encourages Mineral sands facilities and renewable energy facilities in dryland areas only.</p> <p><b>Clause 14.02-1L (Murray-Darling catchment)</b> of the GP Scheme provides a local context to the state-wide objectives and strategies by identifying the need to protect the environmental values and water quality of land and waters of the Murray-Darling catchment.</p> <p><b>Clause 14.03 (Earth and Energy Resources)</b> seeks to encourage exploration and extraction of natural resources in accordance with acceptable environmental standards and identifies the following relevant strategies:</p> <ul style="list-style-type: none"> <li>• 'Protect the opportunity for exploration and extraction of natural resources where this is consistent with overall planning considerations and acceptable environmental practice'</li> <li>• 'Develop and maintain buffers around mining and extractive industry activities'</li> <li>• 'Identify and protect extractive industry resources within Strategic Extractive Resource Areas, based on their current or potential contribution to state supply, access to supporting transport networks and proximity to demand markets'.</li> </ul>
<p>Clause 15 (Built Environment and Heritage)</p>	<p><b>Clause 15 (Built Environment and Heritage)</b> recognises the role of energy and resource efficiency in delivering liveable and sustainable cities, towns and neighbourhoods. It acknowledges that planning should ensure that all development appropriately responds to its surrounding landscape, character and cultural context, 'protect places and sites with significant aesthetic, scientific and cultural value and minimise detrimental impacts on the built and natural environment. Subclauses further seek to:</p> <ul style="list-style-type: none"> <li>• 'Create urban environments that are safe, healthy, functional and enjoyable and that contribute to a sense of place and cultural identity.</li> <li>• Ensure that 'development respects valued areas of rural character' and specifically 'protect the visual amenity of valued rural landscape and character areas along township approaches and sensitive tourist routes by ensuring new development is sympathetically located.</li> <li>• Encourage land use and development that is energy and resource efficient, supports a cooler environment and minimise greenhouse gas emissions.</li> <li>• Ensure the protection and conservation of places of Aboriginal cultural heritage significance'.</li> </ul> <p><b>Clause 15.01-2L (Building siting – Gannawarra)</b> of the GP Scheme applies to development in rural areas and seeks to encourage building setbacks that are consistent with the character of the streetscape. The clause sets out boundary setback distances for frontages and property boundaries within the Farming Zone.</p>
<p>Clause 17 (Economic Development)</p>	<p><b>Clause 17 (Economic Development)</b> requires that planning provides for a strong and innovative economy, where all sectors are critical to economic prosperity. Sustainable economic growth and diversification of the economy is to be promoted by providing for land, facilitating decisions and resolving land use conflicts.</p> <p><b>Clause 17.01-1R (Diversified economy – Loddon Mallee North)</b> provides regional context by identifying the need to support emerging and potential growth sectors such as mining.</p>

Clause	Overview
Clause 18 (Transport)	<p><b>Clause 18 (Transport)</b> endeavours to ensure that planning provides a safe, integrated and sustainable transport system that provides access to social and economic opportunities, facilitates network-wide efficient, coordinated and reliable movements of people and goods and facilitates economic prosperity.</p> <p><b>Clause 18.02-4S (Roads)</b> aims to facilitate an efficient and safe road network that integrates all movement networks and makes best use of existing infrastructure. Strategies include 'improve road connections for all road users,' and 'accommodate the expansion of the High Productivity Freight Vehicle Network, and oversize and overmass vehicles.'</p> <p><b>Clause 18.02-4L (Roads – Gannawarra)</b> of the GP Scheme provides local context to the PPF by acknowledging the need to encourage the protection of road infrastructure and agricultural areas, whilst <b>Clause 18.02-4L (Road Systems)</b> of the SHPS seeks to discourage use and development that reduces the service, safety and amenity of highways and major roads.</p>
Clause 19 (Infrastructure)	<p><b>Clause 19 (Infrastructure)</b> notes that planning for development of social and physical infrastructure should enable it to be provided in a way that is efficient, equitable, accessible and timely and notes that planning should seek to minimise the impacts of use and development on the operation of national, state and regionally significant infrastructure.</p> <p>Relevant subclauses seek to facilitate the appropriate development of energy supply infrastructure, including renewable energy.</p> <p><b>Clause 19.03-2S (Infrastructure design and provision)</b> aims to provide timely, efficient, and cost-effective development infrastructure that meets the needs of the community.</p> <p><b>Clause 19.03-2L (Infrastructure design and provision)</b> aims to provide a consistent approach to the design and construction of infrastructure across the municipality. The Swan Hill Municipality have adopted the standards identified in the Infrastructure Design Manual, Version 5.30 (Local Government Infrastructure Design Association, 24 March 2020).</p>

Table 22 Zoning and Overlay Provisions

Zone / Overlay Provision	Purpose	Municipality (GP Scheme/ SHPS/ All)	Relevance					
			Proposed Mine Site	Project Infrastructure Land	Mine Study Area	Water Pipeline Study Area	Transport Study Area	Transport Route
Zoning Provisions								
Transport Zone 1 – State Transport Infrastructure (TRZ1)	<ul style="list-style-type: none"><li>• Provide for an integrated and sustainable transport system</li><li>• Identify transport land use and land required for transport services and facilities</li><li>• Ensure the efficient and safe use of transport infrastructure and land comprising the transport system.</li></ul>	GP Scheme		✓	✓	✓	✓	
Transport Zone 2 – Principal Road		All			✓	✓	✓	✓

Zone / Overlay Provision	Purpose	Municipality (GP Scheme/ SHPS/ All)	Relevance					
			Proposed Mine Site	Project Infrastructure Land	Mine Study Area	Water Pipeline Study Area	Transport Study Area	Transport Route
Network (TRZ2)								
Farming Zone (FZ)	<ul style="list-style-type: none"> <li>Provide for the use of land for agriculture,</li> <li>Encourage the retention of productive agricultural land,</li> <li>Ensure that the non-agricultural uses do not adversely affect the use of land for agriculture</li> <li>Encourage the retention of employment and population to support rural communities.</li> <li>Encourage use and development of land based on comprehensive and sustainable land management practices and infrastructure.</li> </ul>	All	✓	✓	✓	✓	✓	✓
Public Conservation and Resource Zone (PCRZ)	<ul style="list-style-type: none"> <li>Protect and conserve the natural environment and natural processes for their historic, scientific, landscape, habitat or cultural values</li> <li>Provide facilities which assist in public education and interpretation of the natural environment with minimal degradation of the natural environment or natural processes.</li> <li>Provide for appropriate resource based uses.</li> </ul>	GP Scheme		✓	✓	✓	✓	
Township Zone (TZ)	<ul style="list-style-type: none"> <li>Provide for residential development and a range of commercial, industrial and other uses in small towns</li> <li>Encourage development that respects neighbourhood character of the area</li> <li>All educational, recreational, religious and community and a limited range of non-residential uses to serve local community needs in appropriate locations.</li> </ul>	GP Scheme		✓	✓	✓	✓	
Public Park and Recreation Zone (PPRZ)	<ul style="list-style-type: none"> <li>Recognise areas for public recreation and open space</li> <li>Protect and conserve areas of significance where appropriate</li> </ul>	All			✓	✓		



Zone / Overlay Provision	Purpose	Municipality (GP Scheme/ SHPS/ All)	Relevance					
			Proposed Mine Site	Project Infrastructure Land	Mine Study Area	Water Pipeline Study Area	Transport Study Area	Transport Route
Public Use Zone (PUZ – Service and Utility)	<ul style="list-style-type: none"> <li>Recognise public land use for public utility and community services and facilities</li> <li>Provide for associated uses that are consistent with the intent of the public land reservation or purpose</li> </ul>	GP Scheme			✓		✓	
Overlay Provisions								
Environmental Significance Overlay	The ESO identifies areas where development of land may be affected by environmental constraints and seeks to ensure that development is compatible with environmental values. Schedules to the overlay recognise environmental values and apply provisions to manage development as summarised below.							
Environmental Significance Overlay – Schedule 2 (ESO2)	ESO2 recognises the environmental significance of the municipality's highways and the influence they have on views of the open rural landscape. The overlay seeks to achieve several objectives and provisions that seek to preserve and enhance the treelined character and amenity of main roads.	GP Scheme			✓		✓	✓
Environmental Significance Overlay – Schedule 3 (ESO3)	ESO3 recognises the significance of the Kerang Wetlands and the impact that European settlement and land development has had on the extent of wetlands. Objectives of ESO3 seek to protect and enhance the biodiversity, ecological values and cultural values of the lake environs and provide for appropriate development on land adjacent to Kangaroo Lake.	GP Scheme		✓		✓		
Environmental Significance Overlay – Schedule 4 (ESO4)	ESO4 acknowledges that flooding is a major issue within the Gannawarra Shire and applies controls to areas of poor drainage and areas that are potentially subject to inundation. Objectives of the overlay seek to ensure that any development maintains the free passage and temporary storage of floodwaters, minimises flood damage, is compatible with the flood hazard and with local drainage	GP Scheme		✓	✓	✓		

Zone / Overlay Provision	Purpose	Municipality (GP Scheme/ SHPS/ All)	Relevance					
			Proposed Mine Site	Project Infrastructure Land	Mine Study Area	Water Pipeline Study Area	Transport Study Area	Transport Route
	conditions and will not cause any significant rise in flood levels or flow velocity.							
Environmental Audit Overlay (EAO)	The purpose of the EAO is to ensure that potentially contaminated land is suitable for a use which could be significantly adversely affected by any contamination.	GP Scheme			✓			
Specific Controls Overlay – Schedule 2 (SCO2)	The purpose of the SCO is to apply specific controls designed to achieve a particular land use and development outcome in extraordinary circumstances. SCO2 applies the <i>Goulburn-Murray Water: Connections Project and Water Efficiency Project Incorporated Document, November 2021</i> , which allows the use and development of land for the purpose of irrigation modernisation works to be undertaken by or on behalf of the Goulburn-Murray Rural Water Corporation.	GP Scheme		✓		✓		
Bushfire Management Overlay (BMO)	The BMO seeks to ensure that development of land prioritises the protection of human life and strengthens community resilience to bushfire. The overlay contains provisions that only permit development where the risk to life and property from bushfire can be reduced to an acceptable level.	All			✓	✓	✓	✓
Land Subject to Inundation Overlay (LSIO)	The LSIO identifies flood prone land in a riverine or coastal area affected by the 1 in 100 year flood or any other area determined by the floodplain management authority. The overlay contains provisions that ensure development maintains or improves river, marine, coastal and wetland health, waterway protection and floodplain health.	GP Scheme		✓		✓		
Floodway Overlay (Shown on maps as RFO)	The FO identifies waterways, major flood paths, drainage depressions and high hazard areas which have the greatest risk and frequency of being affected by flooding and contains provisions that ensure development maintains or improves river	GP Scheme		✓		✓		

Zone / Overlay Provision	Purpose	Municipality (GP Scheme/ SHPS/ All)	Relevance					
			Proposed Mine Site	Project Infrastructure Land	Mine Study Area	Water Pipeline Study Area	Transport Study Area	Transport Route
	and wetland health, waterway protection and flood plain health.							
Vegetation Protection Overlay – Schedule 1	VPO1 applies to remnant vegetation along roadsides and within roadside corridors that is significant for its conservation and recreational values. The objectives of the overlay seek to protect and preserve indigenous vegetation and achieve high landscape quality roadsides through provisions that limit the removal, destruction and lopping of native vegetation.	All		✓		✓	✓	
Heritage Overlay (HO)	The HO seeks to conserve and enhance heritage places of natural or cultural significance and those elements which contribute to the significance of heritage places. It further seeks to ensure that development does not adversely affect the significance of heritage places.	Swan Hill Planning Scheme					✓	



Table 23 Particular Provisions

Provision	Purpose
Clause 52.02 (Easements, Restrictions and Reserves)	Seeks to ensure that easements and restrictions are applied appropriately to facilitate development that is consistent with the provisions and directions of the planning scheme, while balancing the interests of affected parties.
Clause 52.05 (Signs)	Regulates the development of land for signs and associated structures to ensure signs are compatible with the existing or desired amenity and visual appearance of the area.
Clause 52.06 (Car parking)	Ensures the provision of car parking has regard to the demand likely to be generated by a land use and requires the design and location of car parking to be of a high standard so as to create a safe environment for users and efficient use.
Clause 52.08 (Earth and Energy Resources Industry)	Encourages land to be used and developed for exploration and extraction of earth and energy resources in accordance with acceptable environmental standards. The table of exemptions found at <b>Clause 52.01-1 (Permit requirement)</b> provides that no permit is required to use or develop land for Earth and Energy Resources Industry if the mining complies with Section 42(7) or Section 42A of the MRSD Act.
Clause 52.17 (Native Vegetation)	Seeks to ensure that there is no net loss to biodiversity as a result of the removal, destruction or lopping of native vegetation in accordance with the <i>Guidelines for the removal, destruction or lopping of native vegetation (DELWP, 2017)</i> (The Guidelines).

# Appendix D

## Risk Assessment Methodology

## Appendix D Risk Assessment Methodology

To evaluate the risks, the assessment matrix approach presented in the *Preparation of Work Plans and Work Plan Variations; Guideline for Mining Projects (December 2020, version 1.3)* has been adopted. The likelihood of an occurrence and the consequences are assessed, and the combination of the two is used to compute a score for the associated risk.

**Likelihood** criteria in the risk assessment ranges across a scale from ‘almost certain’ where ‘the event is expected to occur in most circumstances’ to ‘rare’ where ‘the event may occur in exceptional circumstances’. A likelihood rating for each identified risk pathway was assigned (refer to Table 24).

**Table 24 Earth Resources Regulations (ERR) Likelihood Descriptions**

Likelihood	Description	Probability of event occurring
Almost certain	The risk event is expected to occur in most circumstances	90-100%
Likely	The risk event will probably occur in most circumstances	70-90%
Possible	The risk event might occur at some time	30-70%
Unlikely	The risk event could occur in some uncommon circumstances	5-30%
Rare	Highly unlikely, but the risk event may occur in exceptional circumstances	0-5%

**Consequence** is the severity of harm the risk event could cause when it occurs. In this risk assessment, the consequences of a risk occurring were assigned using a consequence criteria framework shown in Table 25.

**Table 25 Land Use Consequence Rating Criteria**

Severity	Consequence Criteria	Qualitative Description
Insignificant Impacts are barely recognised and/or quickly recovered from. No specific remediation required.	Minor, temporary disruption to primary production (<days) from <1 ha of land.	Insignificant overall impact on existing and potential future land uses.  Land use changes generally consistent with planning policies and zoning.  Small impact, short-term (less than 3-6 months), recoverable changes affecting a limited number of land uses locally.  Property acquisition/easement arrangements that result in negligible land use restriction or change.
Minor Hazard is perceived but has minor and typically temporary effects. Some remediation may be required.	Minor damage to agricultural land or public land not requiring active rehabilitation. Temporary and small-scale disruption to agricultural production (days, 1-10 ha).	Minor overall impact on existing and potential future land uses.  Land use changes result in minor inconsistency with local or state planning policies and zoning.  Small impact, short-lived (less than 1-2 years) change affecting a limited number of land uses locally.



Severity	Consequence Criteria	Qualitative Description
		Property acquisition/easement arrangements that result in minor land use restriction or change.
<p>Moderate</p> <p>Hazard has moderate, noticeable impact, in terms of severity, duration and/or frequency of occurrence. Moderate treatment or remediation effort may be required.</p> <p>Hazard event would be the subject of limited community concern.</p>	<p>Loss of annual-seasonal primary production from &lt;10 ha of land. Short-term (days-weeks). Disruption to 10-100 ha of primary production land.</p> <p>Reversible damage to &lt;1 ha of National Park or other conservation reserve or to &lt;10 ha of other public land.</p>	<p>Moderate overall impact on existing and potential future land uses.</p> <p>Land use changes result in moderate inconsistency with local or state planning policies and zoning.</p> <p>Moderate impact, reversible (up to 2-5 years) change affecting many land uses locally.</p> <p>Property acquisition/easement arrangements that result in moderate land use restriction or change.</p>
<p>Major</p> <p>Hazard has major impact, in terms of severity, duration and/or frequency of occurrence. Treatment or remediation effort is required. Some effects may be irreversible.</p> <p>Remediation of environmental contamination would require significant private and public resources.</p> <p>Hazard event would be the subject of widespread community concern.</p>	<p>Permanent loss of production from primary production land &lt;10 ha. Loss of annual-seasonal primary production from 10-100 ha of land.</p> <p>Irreversible or long-term environmental damage to &lt;1 ha of National Park or other conservation reserve or to ≥10 ha of other public land. Reversible damage to ≥1 ha of National Park or other conservation reserve or to ≥10 ha of other public land.</p>	<p>Major overall impact on existing and potential future land uses.</p> <p>Land use changes result in a major inconsistency with local or state planning policies and zoning.</p> <p>Large impact, reversible (5-10 years) change affecting land uses across a local or wider area.</p> <p>Property acquisition/easement arrangements that results in major land use restriction or change.</p>
<p>Critical</p> <p>Hazard has critical impact, in terms of severity and/or duration. Treatment or remediation effort is required, although some effects may be irreversible.</p> <p>Remediation of environmental contamination would require significant private and public resources.</p> <p>Hazard event would be the subject of widespread community outrage.</p>	<p>Permanent loss of production from primary production land &gt;10 ha. Loss of annual-seasonal primary production from &gt;100 ha of land.</p> <p>Irreversible or long-term environmental damage (with rehabilitation taking years or longer) to &gt;1 ha of National Park or other conservation reserve.</p>	<p>Catastrophic overall impact on existing and potential future land uses that render those uses untenable.</p> <p>Land use changes result in extensive and significant conflict with local or state planning policies and zoning.</p> <p>Very large, permanent (10+ years) change affecting land uses across a wider area or region.</p> <p>Property acquisition/easement arrangements that result in severe land use restriction or change.</p>

The risk matrix is taken from the ERR Guideline to determine the risk rating for each risk event. The purpose of the rating risk is to guide decision making on risk management to eliminate or otherwise reduce the risk to an acceptable level.

**Table 26 ERR Risk Matrix**

Likelihood	Almost Certain	Medium	High	Very High	Very High	Very High
	Likely	Medium	Medium	High	Very High	Very High
	Possible	Low	Medium	Medium	High	Very High
	Unlikely	Low	Low	Medium	High	High
	Rare	Low	Low	Medium	Medium	High
		Insignificant	Minor	Moderate	Major	Critical
		Consequence				

# Appendix E

## Risk Register



## Appendix E Risk Register

Risk ID	Risk pathway [including ID of relevant receptors]	Causes / Background	Initial risk level			Final mitigation	Residual risk level		
			Likelihood	Consequence	Risk		Likelihood	Consequence	Risk
CONSTRUCTION									
LUR1	<b>Temporary land use and access impacts</b>  The proposed construction activities result in temporary land use and access impacts that are inconsistent with existing or reasonably foreseeable land use and policy	Temporary land use change that is inconsistent with land use policy and/or conflict with established land uses.  An increased risk of fire due to increased use of plant and equipment.  The permanent loss of indigenous vegetation, contrary to established land use policies.  Impacts to land access and access routes of surrounding land uses.	Likely	Moderate	High	Managed through EMF conditions including MM-LU01 that would be implemented through the Work Plan and EMP.	Unlikely	Minor	Low
LUR2	<b>Temporary amenity impacts</b>  The proposed construction activities result in temporary amenity impacts that are inconsistent with	Unacceptable levels of dust, which could impact sensitive land uses and lead to a drop in crop yields, impact farming practices and use of land for agriculture.	Likely	Moderate	High	Managed through EMF conditions that would be implemented through the Work Plan and EMP.	Unlikely	Minor	Low

Risk ID	Risk pathway [including ID of relevant receptors]	Causes / Background	Initial risk level			Final mitigation	Residual risk level		
			Likelihood	Consequence	Risk		Likelihood	Consequence	Risk
	existing or reasonably foreseeable land use and policy.	Noise and vibration impacts, which may have an impact on sensitive receptors.							
OPERATION									
<b>LUR3</b>	<b>Land use and access impacts</b>  The proposed siting and operation of the Project results in land use and access impacts that are inconsistent with existing or reasonably foreseeable land uses and policy	<p>A cumulative loss of agricultural land in the region.</p> <p>Access issues resulting from the closure of parts of Bennett Road and Thompsons Road, increased mining traffic impacting the condition of the local road network and creating congestion and delays to the transportation of agricultural goods.</p> <p>An increased risk of fire associated with operation of the mine and pump station infrastructure.</p> <p>Changes to flood patterns as a result of pump station infrastructure displacing surface</p>	Likely	Moderate	High	<p>Protection of agricultural land is addressed through MM-LU01 which seeks to manage potential impacts of fire.</p> <p>Provisions of the GP Planning Scheme (including Clause 35.07 (Farming Zone), the PPF and MPS) ensure that non-farming uses on agricultural land are limited to uses that are temporary or highly consistent with the region's economic and agricultural policy objectives.</p> <p>Risks and impacts will be further managed through conditions of the EMF which will be implemented through the EMP and Work Plan.</p>	Unlikely	Minor	Low

Risk ID	Risk pathway [including ID of relevant receptors]	Causes / Background	Initial risk level			Final mitigation	Residual risk level		
			Likelihood	Consequence	Risk		Likelihood	Consequence	Risk
		water during episodes of flooding.							
<b>LUR4</b>	<b>Amenity Impacts</b>  The proposed siting and operation of the Project results in amenity impacts that are inconsistent with existing or reasonably foreseeable land use and policy	It is possible that mine operations and associated pipeline infrastructure could result in amenity impacts including visual, noise, social, dust and vibration, that result in impacts to surrounding agricultural operations, recreational use of Kangaroo Lake and sensitive receptors	Possible	Major	High	Managed through EMF conditions that would be implemented through the EMP and Work Plan to address amenity impacts to the satisfaction of the Responsible Authority.	Unlikely	Minor	Low
<b>DECOMMISSIONING AND REHABILITATION</b>									
<b>LUR5</b>	<b>Land Use, Access, or Amenity Impacts</b>  The proposed decommissioning and rehabilitation activities associated with closure of the Project results in land use, access or amenity impacts that are	There is a risk that decommissioning and rehabilitation activities could result in amenity impacts including visual, noise, social, dust and vibration, that have impacts to surrounding agricultural operations and sensitive receptors.	Possible	Critical	Very High	Managed through EMF conditions that would be implemented through the Work Plan and EMP.	Unlikely	Minor	Low



Risk ID	Risk pathway [including ID of relevant receptors]	Causes / Background	Initial risk level			Final mitigation	Residual risk level		
			Likelihood	Consequence	Risk		Likelihood	Consequence	Risk
	inconsistent with existing or reasonably foreseeable land uses and policy	Poor rehabilitation of the mine could result in soil contamination and radiation levels that make the land inappropriate for use in accordance with existing or future land use policy.							

