

Airly Mine Extension Project



VISUAL IMPACT ASSESSMENT

Prepared for:



Centennial Coal

Centennial Airly Pty Limited

Prepared by:

GREEN BEAN DESIGN

landscape architects

August 2014

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Author:	Andrew Homewood, Registered Landscape Architect, AILA, MEIANZ Grad. Dip. Landscape Management, BSc.Dual Hons (Landscape Architecture & Archaeology), Nat. Dip. Horticulture
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Green Bean Design – Capability Statement

Green Bean Design (GBD) was established as a landscape architectural consultancy in 1999 and has specialised in landscape and visual impact assessment over the past 10 years. As an independent consultancy, GBD provide professional advice to a wide range of commercial and government clients involved in large infrastructure project development.

GBD owner, and principal landscape architect Andrew Homewood, is a registered landscape architect and member of the Australian Institute of Landscape Architects and the Environmental Institute of Australia and New Zealand. Andrew has over 21 years continuous employment in landscape consultancy and has completed numerous landscape and visual impact assessments for a variety of large scale and state significant infrastructure, including mines, transmission lines/substations, wind farms and solar power developments.

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Executive Summary

Green Bean Design (GBD) was commissioned by Centennial Airly Pty Limited (the Applicant) a wholly owned subsidiary of Centennial Coal Company Limited (Centennial Coal), to prepare a Visual Impact Assessment (VIA) for the Airly Mine Extension Project (the Project).

This VIA involved an evaluation of the visual character of the landscape in which the Project will be located and an assessment of the potential visual impact that could result from the construction and operation of various components associated with the Project including options for the location of a life-of-mine Reject Emplacement Area (REA).

The magnitude of potential landscape effect associated with the Project has been determined as negligible to very low. This magnitude of landscape effect is largely due to the location and extent of contemporary mining operations within, and beyond, the Project Application Area (PAA), as well as existing landscape characteristics within and surrounding the PAA which are generally robust and have the ability to absorb significant change without any significant alteration to the existing landscape character.

The Project will have an overall negligible to very low visual significance on residential dwellings within and beyond the PAA. The negligible to very low visual significance results from the screening influence of sloping and ridgeline landforms, together with moderate to dense tree cover that occur across large portions of the PAA.

The negligible to very low visual significance is largely limited and mitigated by the fact that mining is restricted to underground operations. Visual effects are also limited as no additional infrastructure, with the exception of the proposed REA, is proposed outside the existing mine footprint.

The Project has limited potential to increase the significance of cumulative visual impact due to the extent of existing visual screening within and beyond the PAA and the location of proposed constructed elements relative to existing infrastructure.

Introduction

Section 1

1.1 Introduction

The Applicant proposes to continue underground mining at Airly Mine within the existing mining lease 1331 (ML1331) and extend mining operations within its Authorisation No. 232 (A232) located to the east of ML1331 boundary. The Project will extend mining at Airly Mine for an additional 25 years (including a 5 year rehabilitation period) from the date of consent and beyond the approved Development Consent DA 162/91 which expires in October 2014.

The Airly Mine is an underground coal operation located approximately 40 kilometres (km) north-northwest of Lithgow and approximately 4.7 km north-east of Capertee Village in the Central West of New South Wales. The mine is situated within the Lithgow City Council Local Government Area. The location of the Airly Mine site is illustrated in **Figure 1**.

1.2 Project objectives

The Applicant is seeking approval under the provisions of Part 4, Division 4.1 of the Environmental Planning & Assessment Act 1979 for the Project. The Project will:

- in general, include all currently approved operations, facilities and infrastructure of Airly Mine,
- continue to extract up to 1.8 Mtpa of ROM coal from the Lithgow seam underlying the PAA using underground mining techniques.
- extend the life of mine by 25 years from the date of consent including the rehabilitation period.
- extract coal using partial extraction methods within the ML1331 boundary and extend the mining area to the east of the existing workings into the A232 area.
- develop underground access roadways from the current mining area to the east to allow access to the proposed mining areas.
- use various partial extraction mining methods that will manage subsidence nominally to a maximum of 100 mm, but not exceeding 125 mm in previously un-mined areas and minimise further potential subsidence impacts in areas where the historical New Hartley Shale Mine has already impacted the environment.
- continue to operate and maintain the existing ancillary surface infrastructure for mine access, underground ventilation, electricity, water, materials supply, and communications at the pit top, and upgrade the infrastructure as required for mining operations.
- continue to manage the handling of ROM coal through a crusher and screening plant at the pit top for transfer to the existing and proposed stockpile areas as required to meet market demands.
- construct a coal handling and preparation plant (CHPP) to process ROM coal.



Regional location

Not to scale



State location

Not to scale



Figure 1
Location Plan



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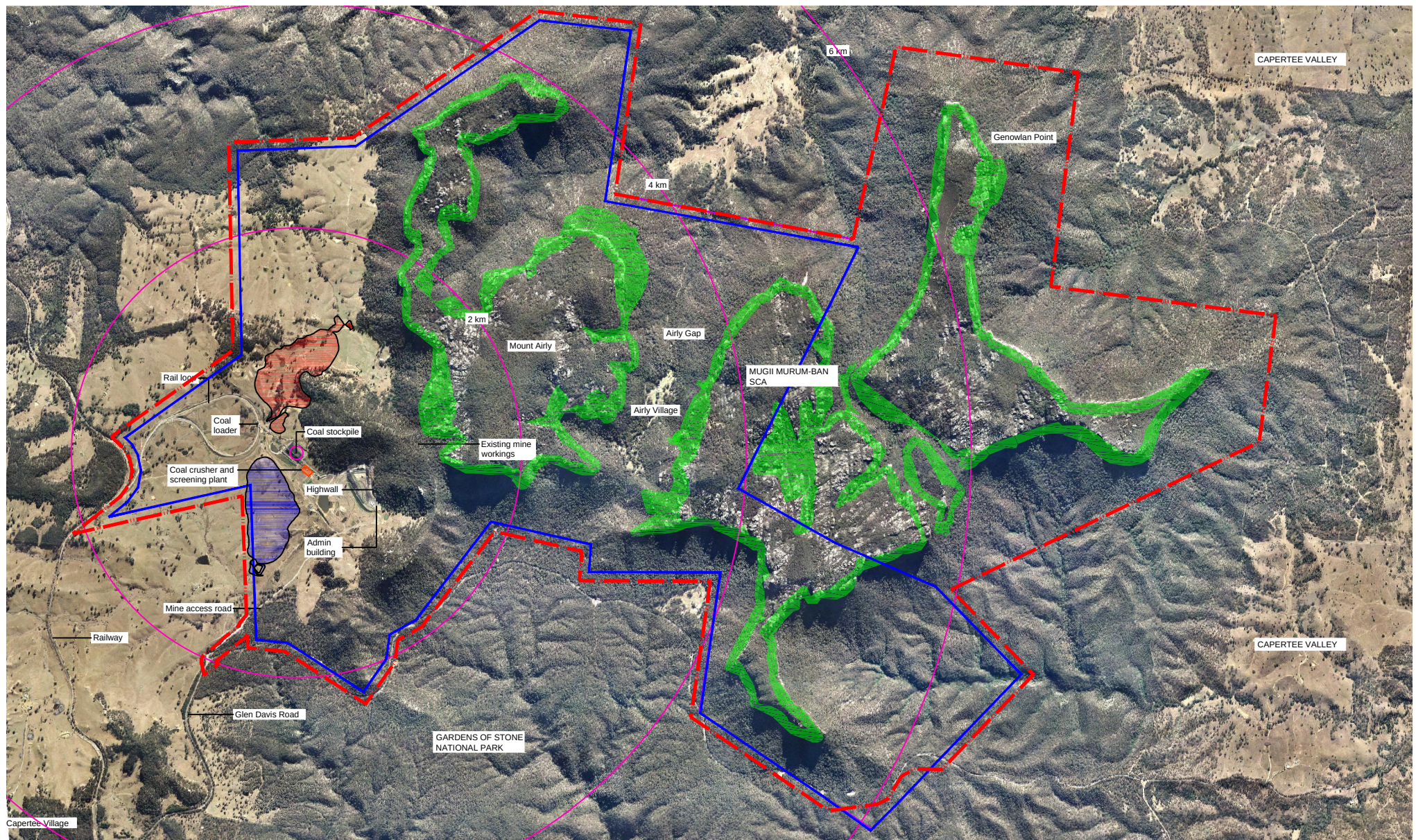
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- transfer processed coal from the CHPP, using the existing and new overland conveyor systems, to the product stockpile area for temporary storage prior to despatch to offsite locations.
- construct a life of mine reject emplacement area (REA) for the emplacement of reject materials from the CHPP and the underground mine.
- continue to use the existing water storage dams at the pit top for the separation of clean and dirty water.
- construct appropriately sized new management storage dams for the proposed life of mine REA.
- continue to manage non-production waste in accordance with the site's Mining Operations Plan.
- despatch ROM and product coal off site using the existing rail load out facilities for the export and domestic markets.
- continue exploration activities, predominantly borehole drilling, to further refine the existing geological model.
- continue to undertake existing and initiate new environmental monitoring and geological exploration programs as appropriate.
- review and update existing environmental management plans as required.
- operate 24 hours per day and seven days per week for 52 weeks per year.
- provide employment to a full time workforce of up to 135 persons and 20 contractors.
- progressively rehabilitate disturbed areas at the pit top no longer required for mining operations and exploration boreholes.
- undertake life-of-mine rehabilitation at the pit top infrastructure disturbance areas to create final landforms commensurate with the surrounding areas.

1.3 Project Application Area

The PAA includes historical, contemporary and proposed mining operations. The PAA is illustrated in **Figure 2** and includes:

- the existing ML1331 and A232 boundaries;
- the extent of contemporary mined areas (including historical mining activities, namely the New Hartley Shale Mine);
- the existing Surface Facilities Area which includes:
 - workforce and materials access;
 - water management structures;
 - coal conveyor system, coal stockpile and coal loading facilities; and
 - the rail siding and the rail load out facility and mine access.



Legend

ML 1331 Lease Boundary

Extension Project Application Area

(Lines offset for clarity)



REA Option 1



REA Option 2



Cliff line zone
(Subsidence Predictions
and Impact Assessment for
Airly Mine - Golders 2013)

Figure 2
Project Application Area

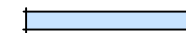


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0km 1km



Airly Mine Extension Project

VIA objectives and methodology

Section 2

2.1 Legislative framework

There are no Federal, New South Wales State Government or Local Government Authority planning policies, guidelines or standards that apply to the visual impact assessment prepared for this Project. Notwithstanding the lack of policies, guidelines or standards, this VIA has been prepared with regard to industry standards including those such as:

- Visual Landscape Planning in Western Australia (Western Australian Planning Commission, November 2007); and
- Guidelines for Landscape and Visual Impact Assessment 3rd Ed. (Landscape Institute and Institute of Environmental Management and Assessment, 2013).

2.2 VIA objectives

The primary objective of this VIA is to determine the likely visual significance of the Project on people living and working in, or travelling through the landscape within and surrounding the PAA. This VIA has also been undertaken to:

- assess the existing visual character of the PAA as well as the surrounding landscape;
- determine the extent and nature of the potential visual significance of the Project on surrounding areas; and
- identify measures to mitigate and minimise any potential visual impacts.

The VIA methodology has been applied to a number of similar VIA for large scale infrastructure developments prepared by GBD, which have been assessed and approved by the New South Wales Department of Planning and Infrastructure (DoP&I).

This VIA addresses and responds to the Director General's Requirements (DGRs) dated 4 February 2014 for the assessment of potential visual impacts of the Project. The DGR's are identified in **Table 1** together with the relevant sections of this VIA which address the DGR's.

Table 1 – Director General's Requirements

Director Generals Requirements	VIA response
• a detailed assessment of the potential visual impacts of the development on private landowners in the surrounding area as well as from key vantage points in the public domain in particular those available to recreational users from State Forests, State	A detailed assessment of potential visual impacts on private landowners has been undertaken. The location of private landowners in the surrounding area are identified in Figure 19 and assessed in Table 3. This VIA has not identified any key vantage points in the public domain (within the PAA) from which significant

Table 1 – Director General's Requirements

Director Generals Requirements	VIA response
Conservation Areas and National Parks	views exist toward key Project elements.
A detailed description of the measures that would be implemented to minimise the visual impacts of the development.	Potential mitigation measures have been described in Section 9 .

2.3 Methodology

This VIA methodology included the following activities:

- desktop study addressing visual character and identification of view locations within the surrounding area;
- fieldwork and photography;
- assessment and determination of landscape effects;
- assessment and determination of visual significance; and
- determination of potential mitigation measures.

2.4 Desktop study

A desktop study was carried out to identify an indicative viewshed for the Project. This was carried out by reference to 1:25,000 scale topographic maps as well as aerial photographs and satellite images of the PAA and surrounding landscape.

Topographic maps and aerial photographs were also used to identify the locations and categories of potential view locations that could be verified during the fieldwork component of the assessment. The desktop study also outlined the visual character of the surrounding landscape including features such as landform, elevation, landcover and the distribution of residential dwellings.

2.5 Fieldwork and photography

The fieldwork involved:

- a site inspections to determine and confirm the potential extent of visibility of the Project and ancillary structures; and
- determination and confirmation of the various view location categories and locations from which the Project structures could potentially be visible.

2.6 Assessment of visual significance

The visual significance of the Project on surrounding residential view locations will result primarily from a combination of the potential visibility of the Project infrastructure and the characteristics of the landscape

between, and surrounding, the view locations and the Project. The potential degree of visibility and resultant visual significance will be partly determined by a combination of factors including:

- distance between view location and various proposed elements within the PAA ;
- duration of view from receptor locations toward various constructed elements within the PAA;
- predicted impact of the Project on existing visual amenity;
- nature of predicted visual impacts; and
- visual sensitivity of locations from which views toward the PAA exist.

The determination of a visual significance is also subject to a number of other factors which are considered in more detail in this VIA (refer Section 8).

2.7 Mitigation measures

Mitigation measures have been determined to assist in the reduction and, where possible, remediation of any significant adverse effects on surrounding view locations that may arise from the Project.

Mining operations and surface facilities

Section 3

3.1 Introduction

Development Consent (DA162/91) for the Airly Coal Project was granted in April 1993. Centennial Coal purchased Airly Mine in 1997 and commenced construction in 1998. A Consent modification was approved in 1999 to transport up to 500,000 tonnes per annum (tpa) by road for a period of 2 years. Following this period the mine was placed into care and maintenance. Detailed planning for the re-opening of the mine commenced in mid 2008. This included the construction and commissioning of the rail loop and coal handling infrastructure by 2010; however, not all approved construction activities were completed prior to the mine being placed back into care and maintenance commencing January 2013.

3.2 Existing surface infrastructure

The majority of approved infrastructure items have been constructed or commencement has been made in their establishment. Key surface and visible infrastructure items include:

- mine access road;
- rail loop and train loader;
- coal stockpile;
- coal crusher and screening plant;
- surface conveyors;
- 66kV transmission lines and substations;
- ventilation infrastructure;
- water management structures;
- workforce and materials portals;
- administration building, workshop and bath house; and
- car park.

The approved coal preparation plant (CPP) and REA area have not been constructed. The life of mine store and workshop have also not been constructed.

The following images (Plates 1 to 10) illustrate a number of existing key infrastructure items within the PAA and Airly Mine surface facility. The location of the Airly Mine surface facilities are illustrated in **Figure 3**.

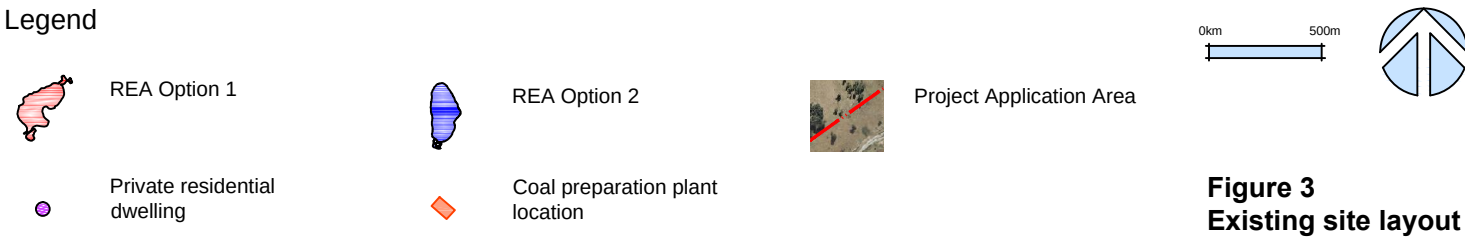
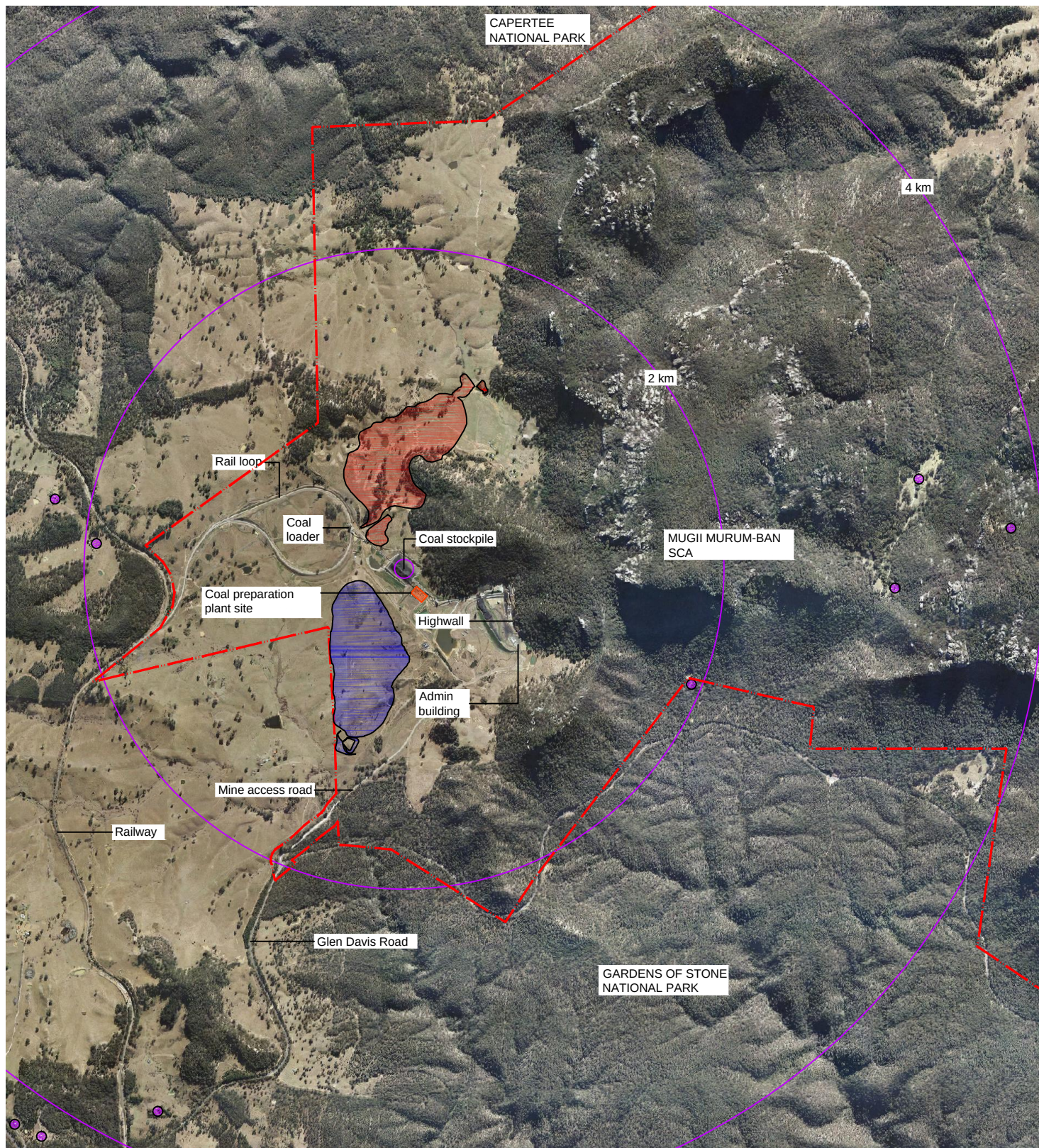




Plate 1 Airly Mine Access Road



Plate 2 Train loader



Plate 3 Coal stockpile location and gantry



Plate 4 Coal crusher and screening plant



Plate 5 Surface conveyors



Plate 6 Substation 1



Plate 7 Ventilation and mine access portals



Plate 8 Sediment Control dams



Plate 9 Administration building



Plate 10 Workshop

3.3 Existing surface infrastructure and operations visibility

The location of existing surface infrastructure has resulted in limited visual impacts upon surrounding view locations and receptors. Key components of existing surface infrastructure such as the train loader, coal crusher and screening plant, surface conveyors and substations are effectively screened from view locations beyond the existing mine footprint. Screening is achieved through a combination of distance between potentially sensitive view locations and existing surface infrastructure as well as the undulating nature of landform and distribution of tree cover beyond the existing mine footprint.

Views toward the location of the existing coal stockpile and gantry from Glen Davis Road are partial and very short in duration and have a limited visual effect on motorists travelling along Glen Davis Road. Views toward existing surface infrastructure from elevated view locations, such as residential dwellings off Camerons Road are very long distant. Whilst some glint from the workshop roof was visible during the site inspection, this was not considered to result in any significant level of visual impact due to both distance and the field of view occupied by the workshop roof in relation to the overall available field of view.

Visual mitigation measures such as the selection of materials and finishes to existing surface infrastructure and placement of light shields, has also mitigated and minimised the potential for visual contrast between key infrastructure and their immediate surrounds. Infrequent issues of operational light spill from existing surface infrastructure have been previously addressed and resolved by redirecting or removing lighting. Existing operations have had a limited visual effect on surrounding view locations including residential dwellings.

Project description

Section 4

4.1 Introduction

The Project will include works or modifications to existing surface facilities located within the PAA. These works include:

- construction of site access and road infrastructure;
- site preparation and vegetation clearing;
- construction of infrastructure and services; and
- exploration drilling.

4.1.1 Site access and road infrastructure

Access to the mine site will continue to be via Glen Davis Road. There will be some small sections of road construction associated with the CHPP and REA and a need to rehabilitate some existing roads within the Mugii Murum-ban State Conservation Area (Mugii Murum-ban SCA) for access for exploration drilling. Works associated with the construction or rehabilitation of road infrastructure will not have a visual impact on surrounding view locations.

4.1.2 Site preparation and vegetation clearing

Site preparation and vegetation clearing will be largely limited to the preferred Project REA location. Both Project REA option locations have had some previously clearing for agricultural pastoral purposes. There are some remnant trees representing a critically endangered ecological community in the Project REA Option 1. Some additional small areas of clearing (around 20 m x 20 m) will also be required for exploration drilling sites within the Mugii Murum-ban SCA.

4.1.3 Infrastructure and services

The following new facilities will be constructed and operated:

- permanent workshop;
- stores building and bulk storage yard;
- service building including hydrocarbon storage area;
- cable store;
- compressor building;
- fire station;
- water management structures;
- access gate and security fencing;

- electricity distribution network and communications infrastructure required to serve new developments;
- internal travel roads;
- coal preparation plant (CPP) with associated conveyors, stockpile and reclaim system;
- rejects bin, internal haul road and additional conveyors for REA (as required); and
- train refueling facilities.

4.1.4 Coal handling and transportation

Coal will continue to be conveyed from the underground workings to the coal crusher using the existing surface conveyor system. From the crusher the coal will either be sent direct to the existing product stockpile or be diverted into the CPP for further processing. Coal to be processed within the CPP will be initially stockpiled on the ROM stockpile adjacent to the CPP and then reclaimed and fed into the CPP. Beneficiated coal would then be transferred by the conveyor system to the product stockpile. Coal will be transported off site by rail via the train loader and rail loop.

4.1.5 Water management

Existing dams will continue operate and supply operational water for mine processes. On site water management will not have a visual impact on surrounding view locations.

4.1.6 Exploration drilling

Surface exploration drilling will continue throughout the life of the Project within the ML1331 and the A232 boundaries. Whilst the location of future exploration drilling sites is not known at this stage the Applicant will undertake additional visual assessment if drilling rigs are proposed to be located within 500 m of a private residential dwelling.

Ongoing exploration drilling is unlikely to result in significant visual impact where drill areas are visually contained by landform and tree cover. Potential visual impact associated with exploration drilling will also be minimised where possible by implementing measures such as using track mounted rigs and above ground sumps. Exploration drill sites will also be rehabilitated and vegetated once drilling is complete.

4.2 Reject Emplacement Area Options 1 and 2

The development consent is seeking to locate a REA in proximity to the existing Airly Mine surface facilities. The Applicant is investigating two potential locations from which a preferred option will be selected subject to development consent. Both locations (REA Option 1 and REA Option 2) have been assessed in this VIA.

The Development Application (DA162/91) permits the construction of a tailings dam and an REA with associated settling ponds. The locality of the approved tailings dam is generally consistent with the proposed location of REA Option 1. The location of the proposed Project REA Option 1 and 2 are illustrated in **Figure 3**.

The preferred REA will co-dispose coarse and fine rejects to minimise potential visual impact by allowing progressive restoration. The reject materials consist of a mixture of coarse (+2 mm) and fine (-2 mm) non-

product material that can be transported by truck direct from the CPP to the REA. The preferred REA will accommodate around 6.5 million tonnes of rejects and will be designed and constructed to ensure long term stability of emplaced material.

The construction of the proposed REA Options will both incorporate water management structures to manage both clean and dirty water. Progressive rehabilitation will be undertaken at the surface of the REA site such that by the end of the mine life the rehabilitation of the REA will have been substantially completed.

The overall potential visibility of the REA 1 and REA 2 locations is illustrated in the ZVI Diagrams 2 through to 6 in **Figures 14** through to **18**.

Panoramic photographs

Section 5

5.1 Panoramic Photographs

A series of digital photographs were taken during the course of the fieldwork to illustrate existing views in the vicinity of a number of view locations inspected and assessed as part of this VIA. Individual photographs were digitally stitched together to form a segmented panorama image to provide a visual illustration of the existing view from each photo location.

The panoramic photographs presented in this VIA have been annotated to identify key features or structures located within the existing view. The panoramic photograph locations are illustrated in **Figure 4**, and the panoramic photographs illustrated in **Figures 5 to 10**.

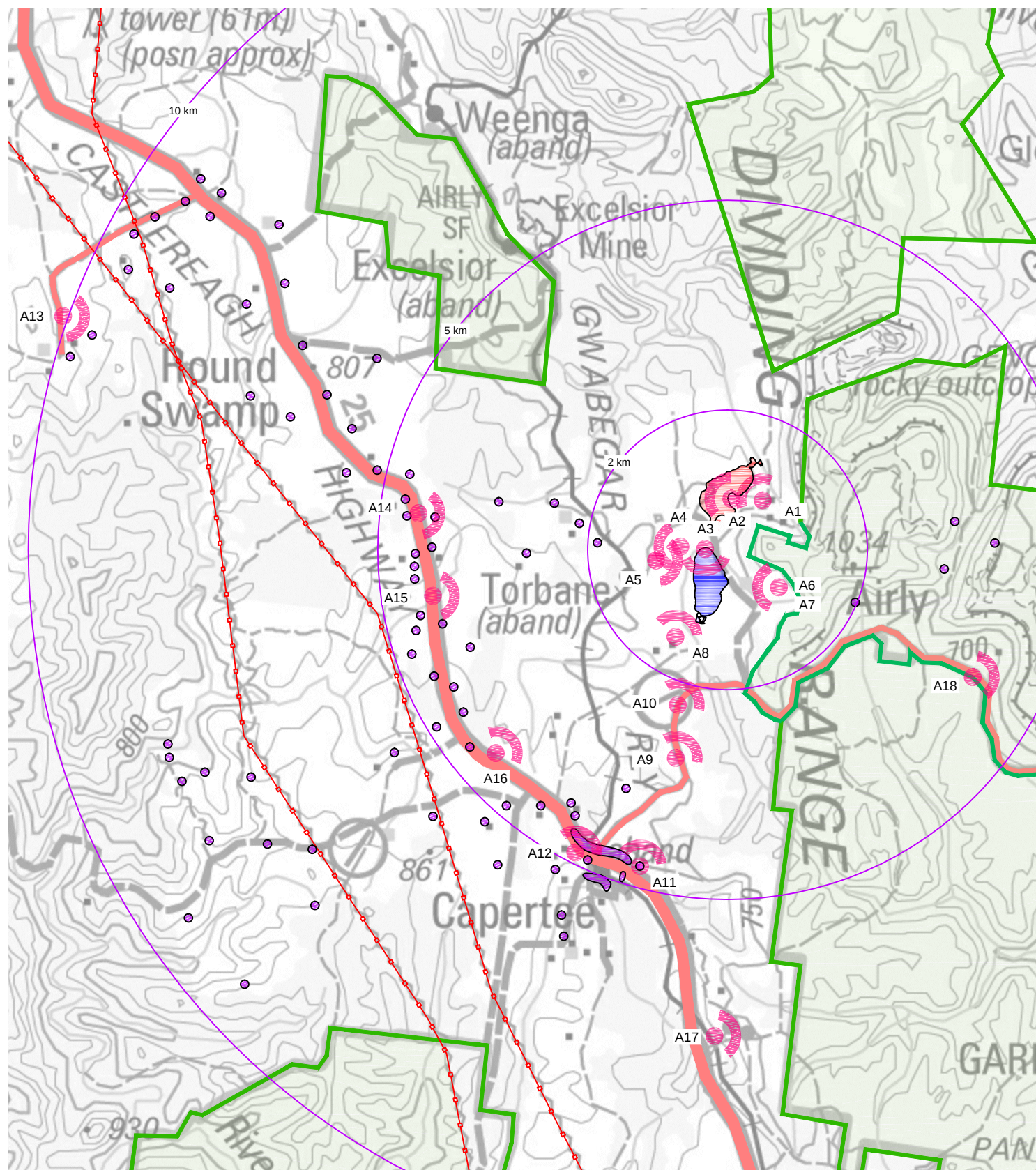


Photo locations

Legend



REA Option 1



Private residential dwelling



REA Option 2



National Park, State Conservation Area (SCA) or State Forest as noted



Photo position (indicative location)



Existing transmission line



Figure 4
Photo locations



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Photo Location A1 - View toward general locality of REA Option 1 (eastern extent)



Photo Location A2 - View toward general locality of REA Option 1 (central and west extent)

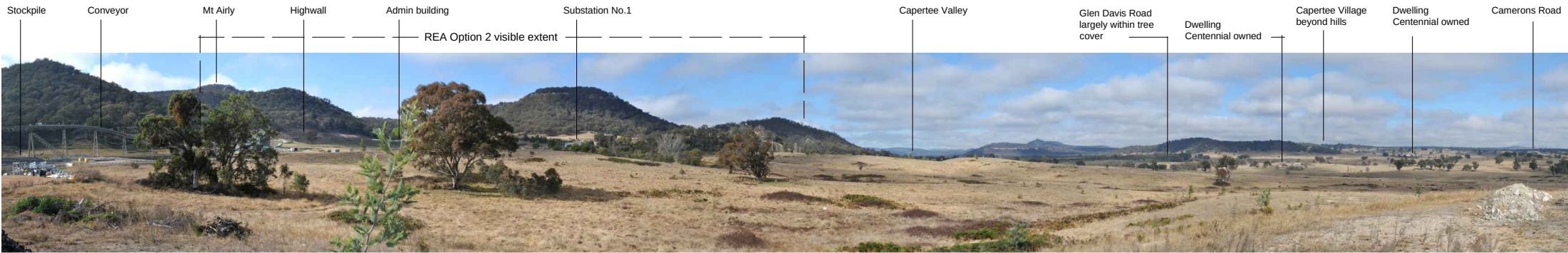


Photo Location A3 - View toward REA Option 2 (southern extent)

Figure 5
Photo Sheet 1



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Photo Location A4 - View west from rail loop

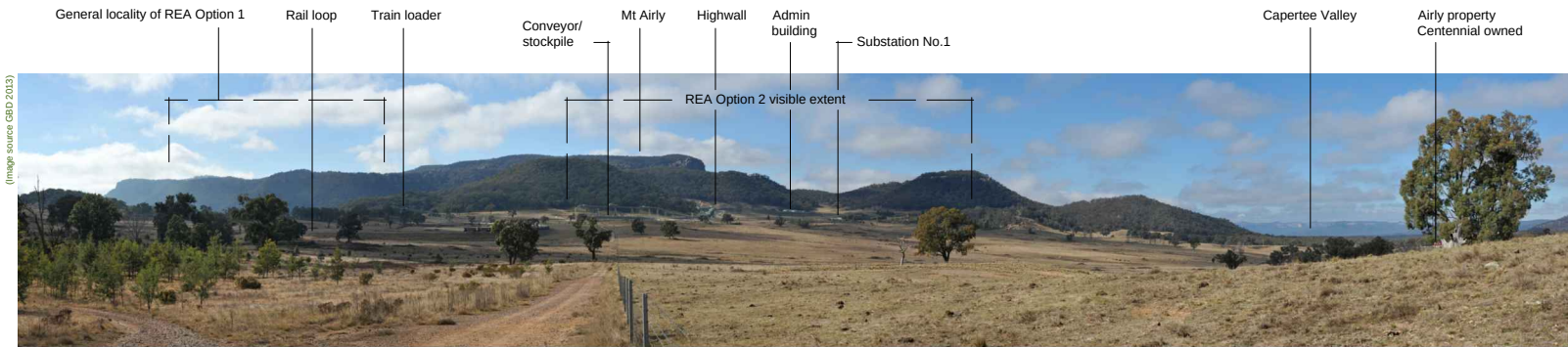


Photo Location A5 - View east toward the Airly Mine surface facility and REA Option 1 and Option 2 localities

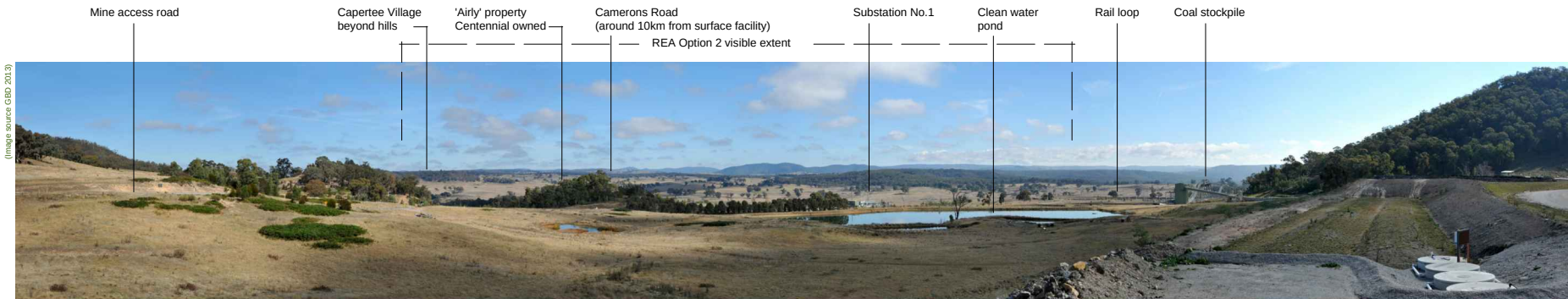


Photo Location A6 - View west from Airly Mine Administration Building curtilage

Figure 6
Photo Sheet 2



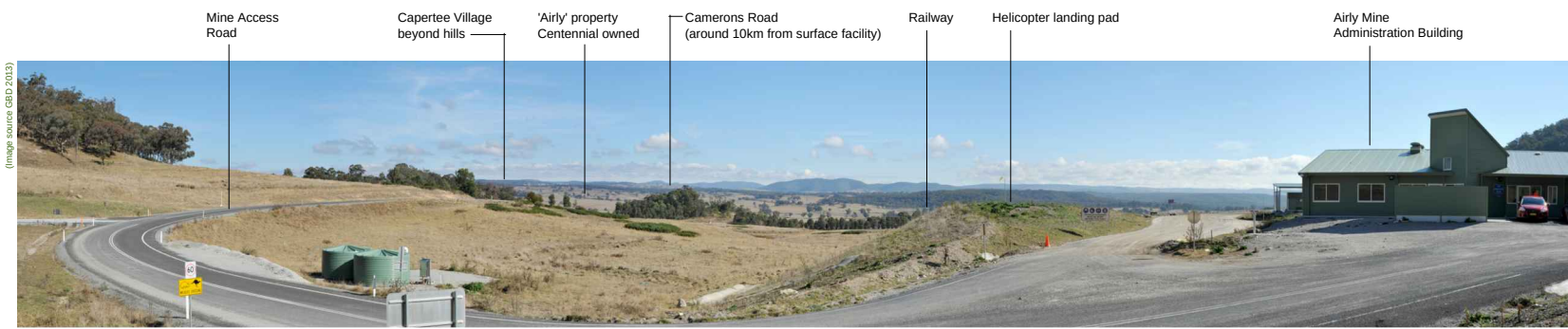


Photo Location A7 - View west to north west from Airly Mine Administration Building car park

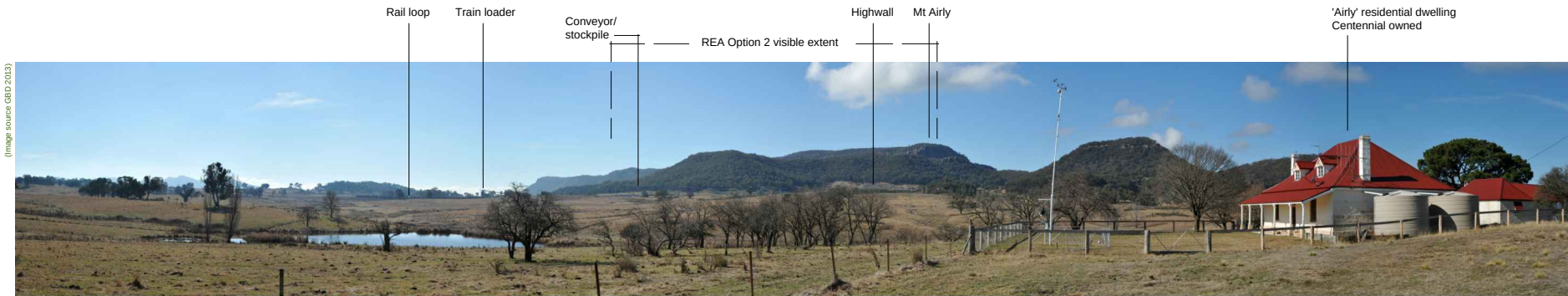


Photo Location A8 - View north to east from 'Airly' property toward the Airly Mine surface facility

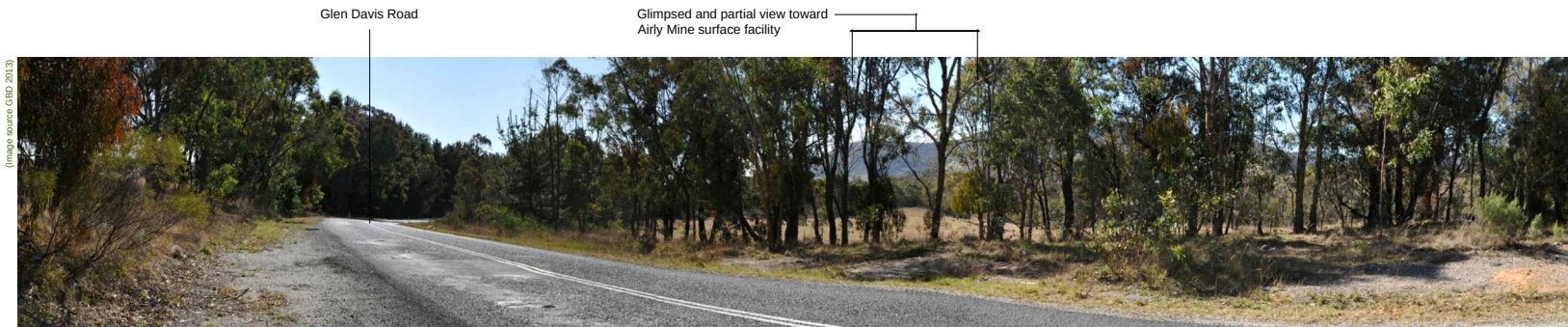


Photo Location A9 - View north east from Glen Davis Road

Figure 7
Photo Sheet 3



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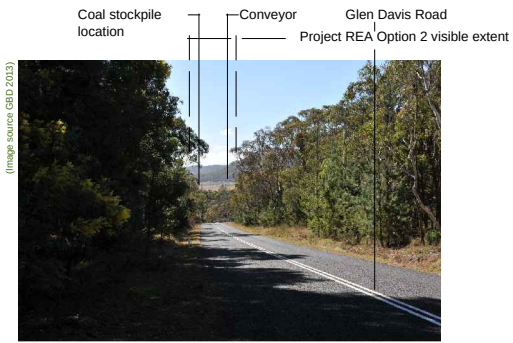


Photo Location A10 - View toward Airly Mine surface facility from Glen Davis Road

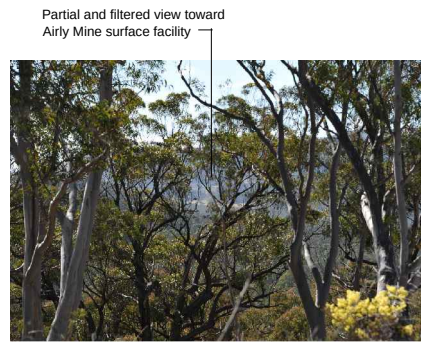


Photo Location A11 - View toward mine from bush block adjacent and above Castlereagh Highway



Photo Location A12 - View north north east to south east from Capertee Village

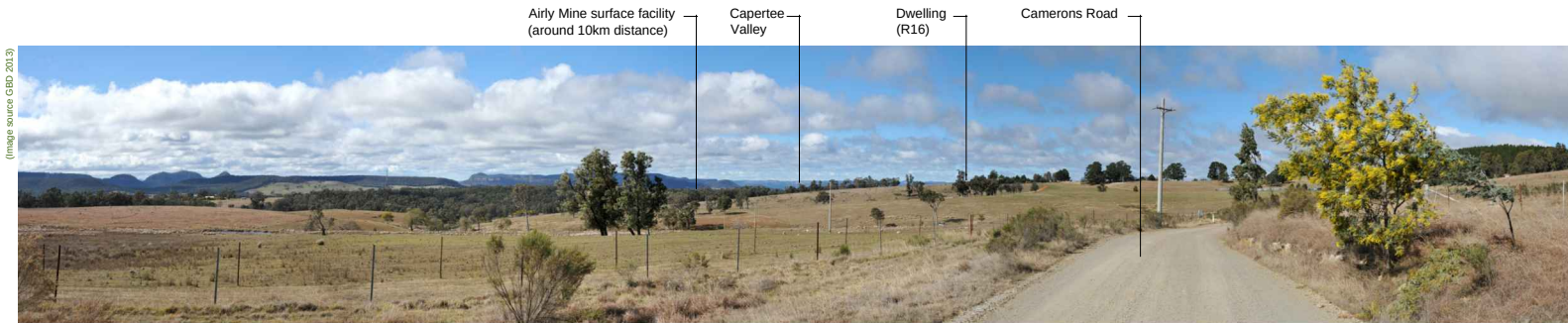


Photo Location A13 - View north east to south from Camerons Road

Figure 8
Photo Sheet 4



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Photo Location A14 - View east to south toward mine location from Castlereagh Highway



Photo Location A15 - View east to south toward mine location from Castlereagh Highway

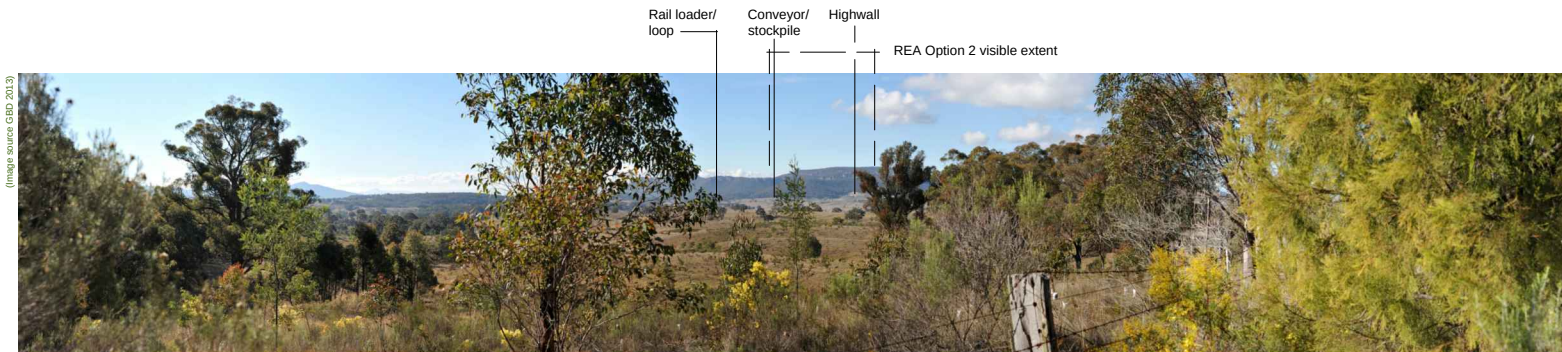


Photo Location A16 - View east toward existing Airly Mine surface facilities from Castlereagh Highway verge

Figure 9
Photo Sheet 5



Airly Mine Extension Project

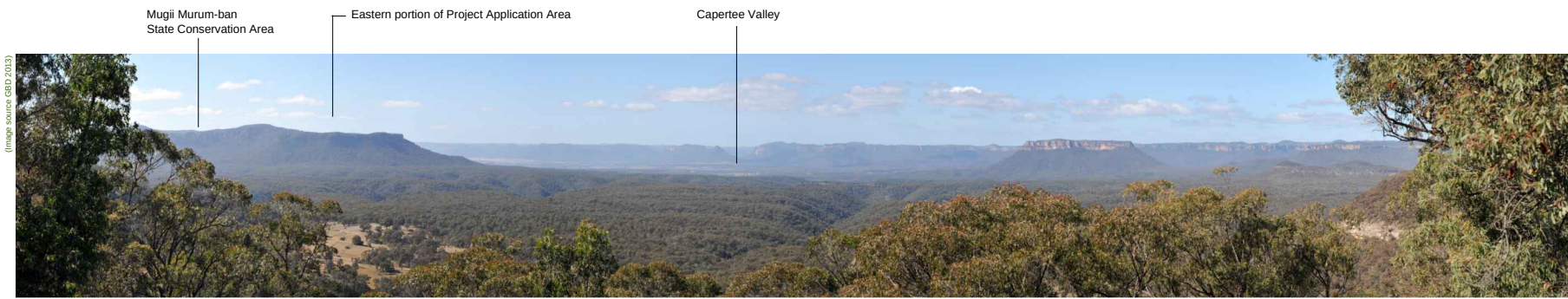


Photo Location A17 - View north east to south from Pearsons Lookout (above Castlereagh Highway)



Photo Location A18 - View east from Glen Davis Road

Figure 10
Photo Sheet 6



Landscape effects

Section 6

6.1 Introduction

Landscape effects describe the likely nature and scale of changes to individual landscape elements and characteristics, and the consequential effect on the landscape character, resulting from the proposed development. The significance of landscape effects have been determined by considering the sensitivity of the existing landscape resource and the potential magnitude of landscape effects.

The degree to which a particular landscape area can accommodate change arising from the Project, without detrimental effects on its character will vary with:

- existing land use;
- the pattern and scale of the landscape; and
- visual enclosure/openness of views.

6.2 Existing land use

The Project will be located within a local landscape context of contemporary mining operations within the PAA, and will in part, seek a continuation of activities associated with underground mining within the local and regional area.

Landuse within and surrounding the PAA is associated with conservation and passive recreational activities, rural pursuits (such as game hunting) and agricultural land practices. Agricultural areas occur to the east and west of the PAA and consist of open grassland for sheep and cattle grazing.

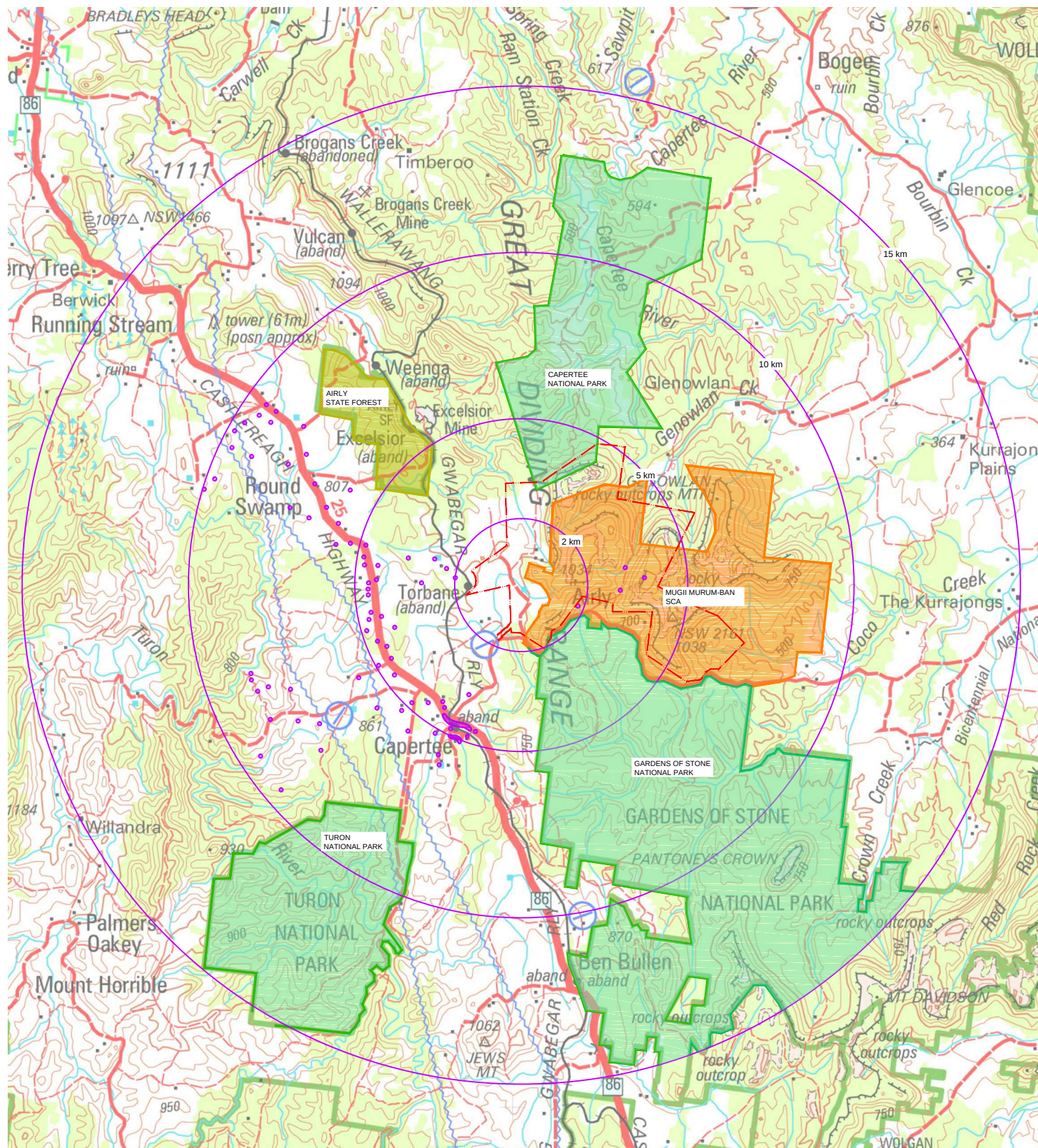
The Gwabegar railway line extends north to south on the western edge of the PAA and connects to the Airly Mine rail loop. There are currently no passenger services between Lithgow and Mudgee.

6.3 National Parks, State Conservation Areas and State Forests

The landscape within and surrounding the PAA contains National Parks, a State Conservation Area and State Forest. These include the:

- Capertee National Park, located to the north of the PAA;
- Gardens of Stone National Park, located to the south of the PAA;
- Turon National Park, located to the south west of the PAA;
- Muggi Murum-ban SCA, located within the PAA; and
- Airly State Forest, located to the north west of the PAA.

These areas are illustrated in **Figure 11**.



National Parks, State Conservation Area and State Forest locations

Legend

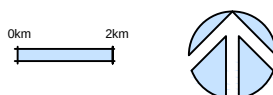
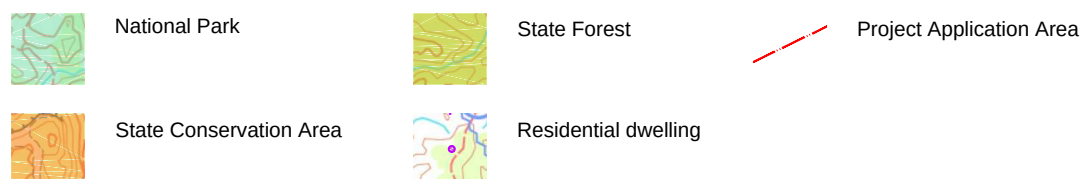


Figure 11
National Parks
State Conservation
Area and State Forest
locations



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The National Parks and Mugii Murum-ban SCA provide recreational opportunities such as canyoning, mountain biking, bushwalking, hiking and camping activities, within a varied landscape of rock pagodas, sandstone cliffs and canyons.

The Mugii Murum-ban SCA provides specific opportunities to explore the prominent mesas of Mount Airly and Genowlan Mountain from a number of trails within the Mugii Murum-ban SCA. These include the:

- Tramway Trail around the contour of Mount Airly and through the ruins of Airly Village;
- Mount Airly Trail from Airly Gap up to the top of Mount Airly from which views extend south toward the Gardens of Stone National Park;
- Genowlan Point Track, which follows a ridge north to Genowlan Point;
- The Grotto Track, a short section of trail leading to a small canyon at the head of Genowlan Creek; and
- Genowlan Trig Track leading to the disused trig station with various opportunities for views toward the Capertee Valley.

6.4 Pattern and scale

The landscape pattern within and surrounding the PAA is characterised by existing land use and inherent natural features. The visible pattern is relatively simple and regular and comprises a mix of large and medium scale landforms with the presence of strong topographical variety. Topographical variety is presented through elements of visual significance including sandstone rock outcrops and cliffs.

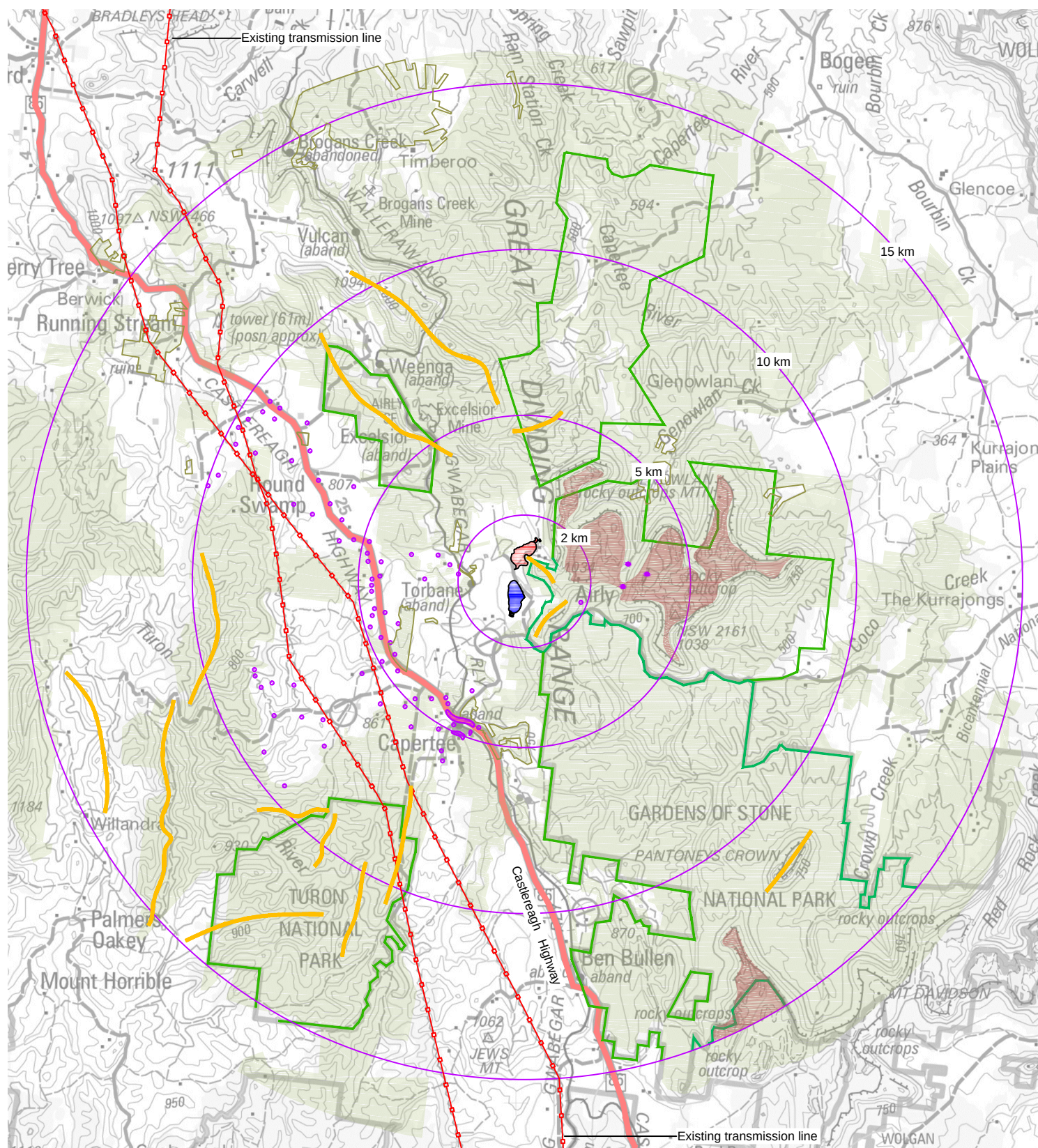
Pattern and scale beyond the PAA presents more visible and human scale indicators, including those that extend across rural built form, transport corridors and broader areas of rural occupation. Elevated and distant views from Mount Airly and Genowlan Mountain extend toward existing industrial developments such as Mount Piper power station and the Excelsior quarry.

6.5 Visual enclosure and openness of views

Elevated localities have the potential to offer views across the local and regional landscape. Views from the summit of Mount Airly and Genowlan Mountain, within the PAA, extend toward and across adjoining areas of National Park as well as the Capertee Valley. Elevated and clear ridgeline or hillside areas also provide an opportunity for wider district views, with more localised views extending across cleared and gently undulating agricultural land to the east and west of the Castlereagh Highway.

A significant portion of the landscape within the PAA, as well as surrounding designated landscape areas, contains extensive stands of moderate to dense tree cover. Tree cover also extends along local road corridors (including Glen Davis Road) and some rural residential areas and gives an enclosed visual character.

Areas of tree cover and ridgeline areas within and surrounding the PAA are illustrated in **Figure 12**.



Vegetation and topography

Legend



REA Option 1

REA Option 2



National Park, State Forest, or State Conservation Area



Existing prominent ridgeline



Rocky outcrop



Residential dwelling

Figure 12
Vegetation and topography



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6.6 Visual Absorption Capability

Visual Absorption Capability (VAC) is a classification system used to describe the relative ability of the landscape to accept modifications and alterations without the loss of landscape character or deterioration of visual amenity. VAC relates to physical characteristics of the landscape that are often inherent and often quite static in the long term.

Low undulating areas with a combination of open views interrupted by groups of trees will tend to have a high capability to visually absorb the Project without significantly changing its amenity. On the other hand, areas of cleared vegetation on level ground with limited screening will have a lower capacity to visually absorb the Project without changing the visual character and potentially reducing visual amenity.

Given the extent and combination of existing tree cover and undulating landform within and surrounding the PAA, the capability of the landscape to absorb the key components of the Project is considered to be high. The high VAC of the surrounding landscape is likely to reduce the potential magnitude of visual significance.

6.7 Magnitude of landscape effects

The magnitude of landscape effects is generally based on the scale or degree of change to the landscape resource, the nature of the effect and its duration including whether the effect is permanent or temporary. The magnitude of potential landscape effect associated with the Project is considered to be low given the extent and purpose of contemporary mining operations. Existing landscape characteristics within and surrounding the PAA are generally robust and will have the ability to absorb any significant change without altering the existing landscape character.

Zone of visual influence

Section 7

7.1 Introduction

Zone of visual influence diagrams (ZVI) have been prepared to assess and determine the potential visibility of contemporary surface infrastructure (using the Airly Mine Administration Building as a reference point) as well as the REA Options 1 and 2 locations.

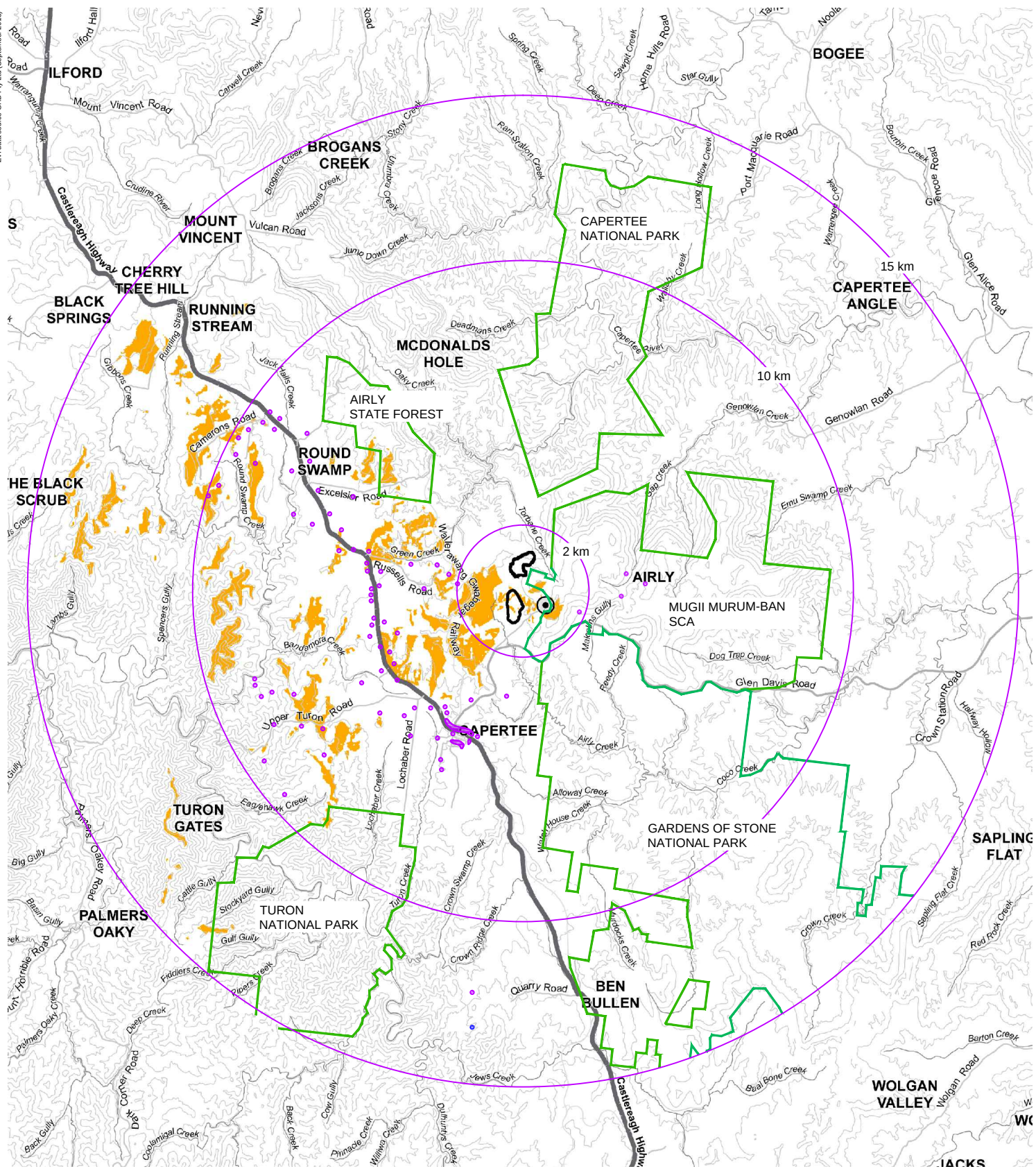
The ZVI diagrams are used to identify theoretical areas of the landscape from which the Administration Building or either REA could be visible within the study viewshed. For the purpose of this VIA the study viewshed has been set at a distance of 15km, and is likely to exceed the distance at which key Projects components will be visible with a direct line of sight. The ZVI diagrams are useful for providing an overview as to the extent to which the project could be visible from surrounding areas.

ZVI diagrams have been prepared to include:

- ZVI Diagram 1 (**Figure 13**) which illustrates the potential visibility of the Airly Mine Administration Building without the screening influence of surrounding tree cover;
- ZVI Diagram 2 (**Figure 14**) which illustrates the potential visibility of the REA Option 1 without the screening influence of surrounding tree cover;
- ZVI Diagram 3 (**Figure 15**) which illustrates the potential visibility of the REA Option 2 without the screening influence of tree cover;
- ZVI Diagram 4 (**Figure 16**) which illustrates the comparative visibility of REA Option 1 and 2 without the screening influence of tree cover;
- ZVI Diagram 5 (**Figure 17**) which illustrates the potential visibility of the REA Option 1 including the screening influence of tree cover; and
- ZVI Diagram 6 (**Figure 18**) which illustrates the potential visibility of the REA Option 2 including the screening influence of tree cover.

The methodology adopted for the ZVI is a purely geometric assessment where the visibility of the Project is determined from carrying out calculations based on a digital terrain model of the site and the surrounding terrain. The calculations also take into account the terrain relief and earth curvature.

This assessment methodology is conservative for ZVI Diagrams 1, 2, 3 and 4 as the screening effects of any structures and vegetation above ground level are not considered in any way. The methodology adopted for ZVI Diagrams 5 and 6 has included the potential screening influence of tree cover which has been determined and modeled at an average height of 12m. ZVI Diagrams 5 and 6 illustrate the significant screening influence of tree cover and forested areas within and surrounding the PAA.



Airly Mine Administration Building - ZVI (without tree screening influence)

Legend

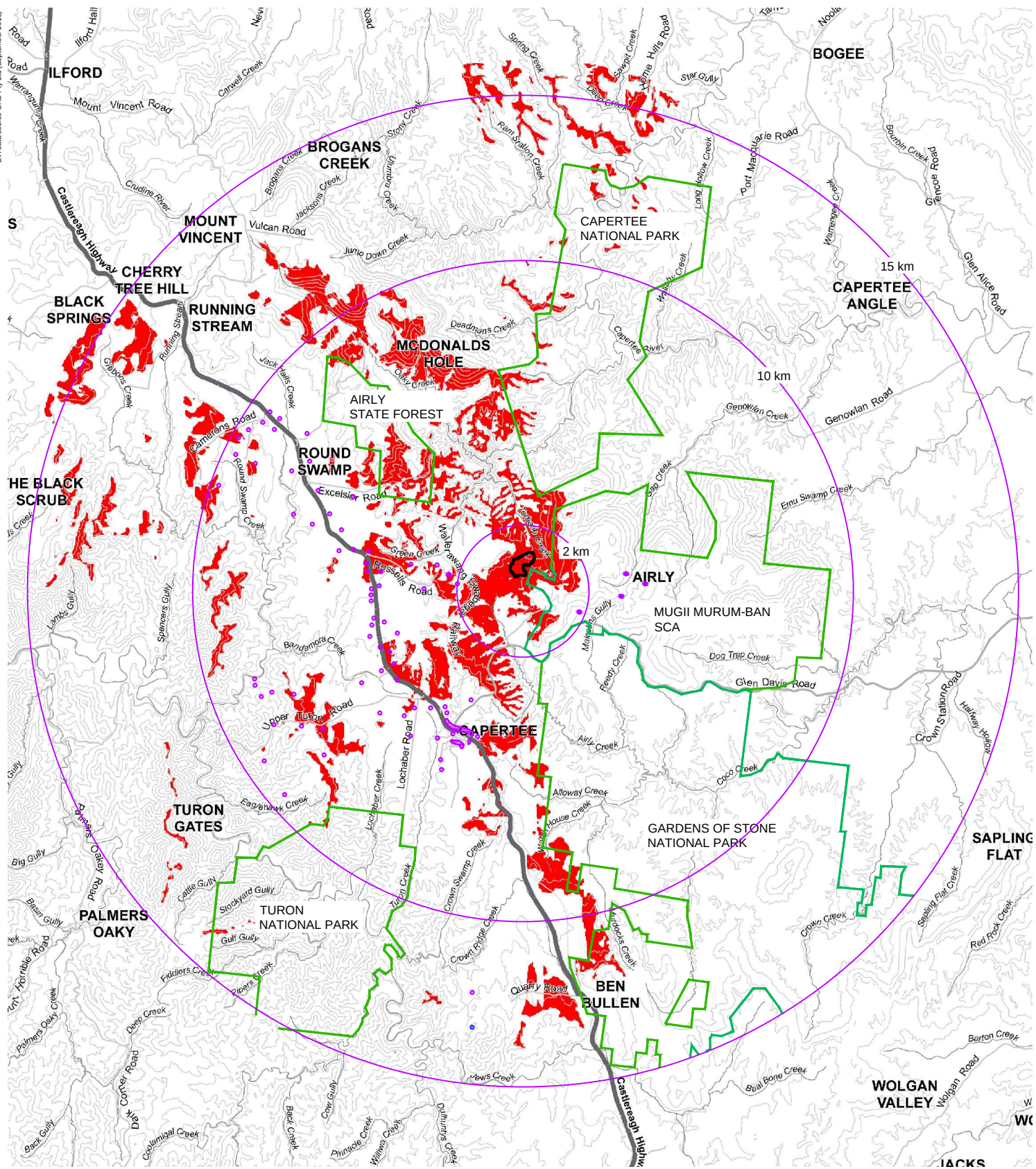
-  Airly Mine Administration Building location
-  REA Option 1 and Option 2 footprint
-  Private residential dwelling (indicative location)
-  Administration Building visibility (orange)
-  National Park, State Conservation Area (SCA) or State Forest as noted

Figure 13
ZVI Diagram 1



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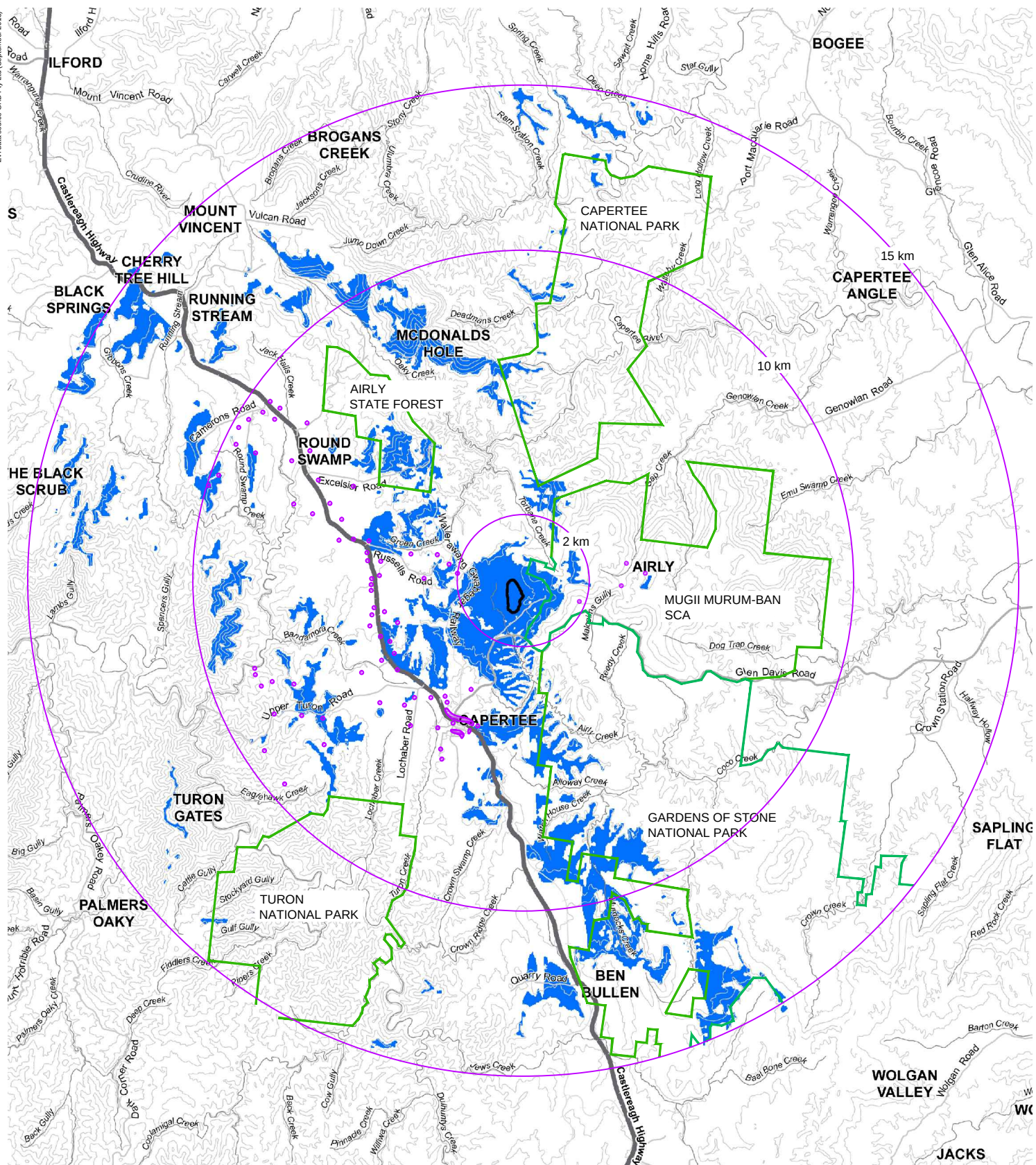


Reject Emplacement Area Option 1 - ZVI without tree screening influence

Legend

- REA Option 1
- National Park, State Conservation Area (SCA) or State Forest as noted
- Residential dwelling (indicative location)
- Potential visible extent (red)

Figure 14
ZVI Diagram 2



Reject Emplacement Area Option 2 - ZVI without tree screening influence

Legend

-  REA Option 2
-  National Park, State Conservation Area (SCA) or State Forest as noted
-  Residential dwelling (indicative location)
-  Potential visible extent (blue)

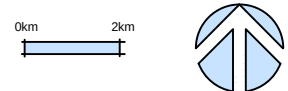
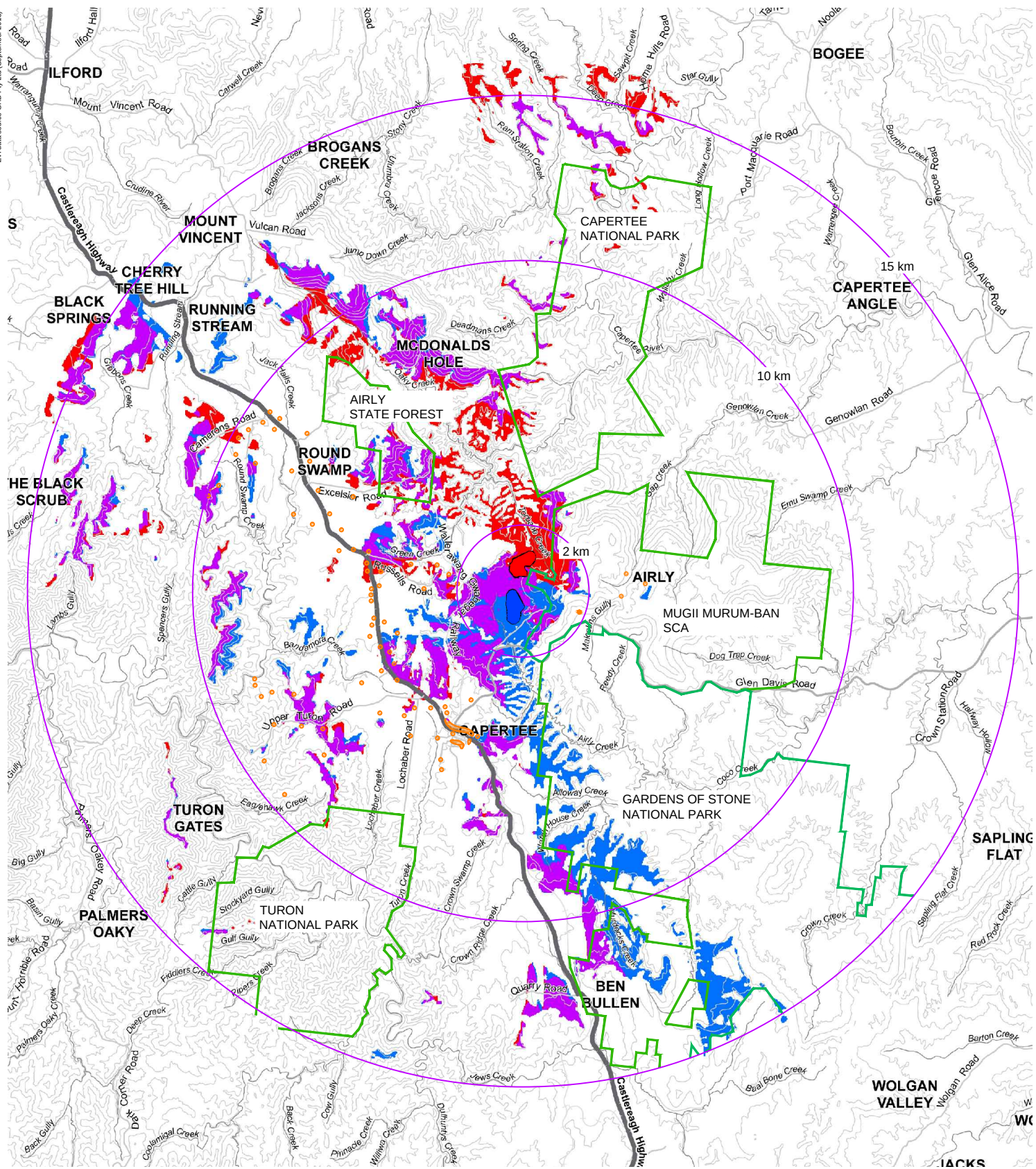
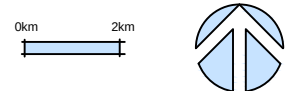


Figure 15
ZVI Diagram 3



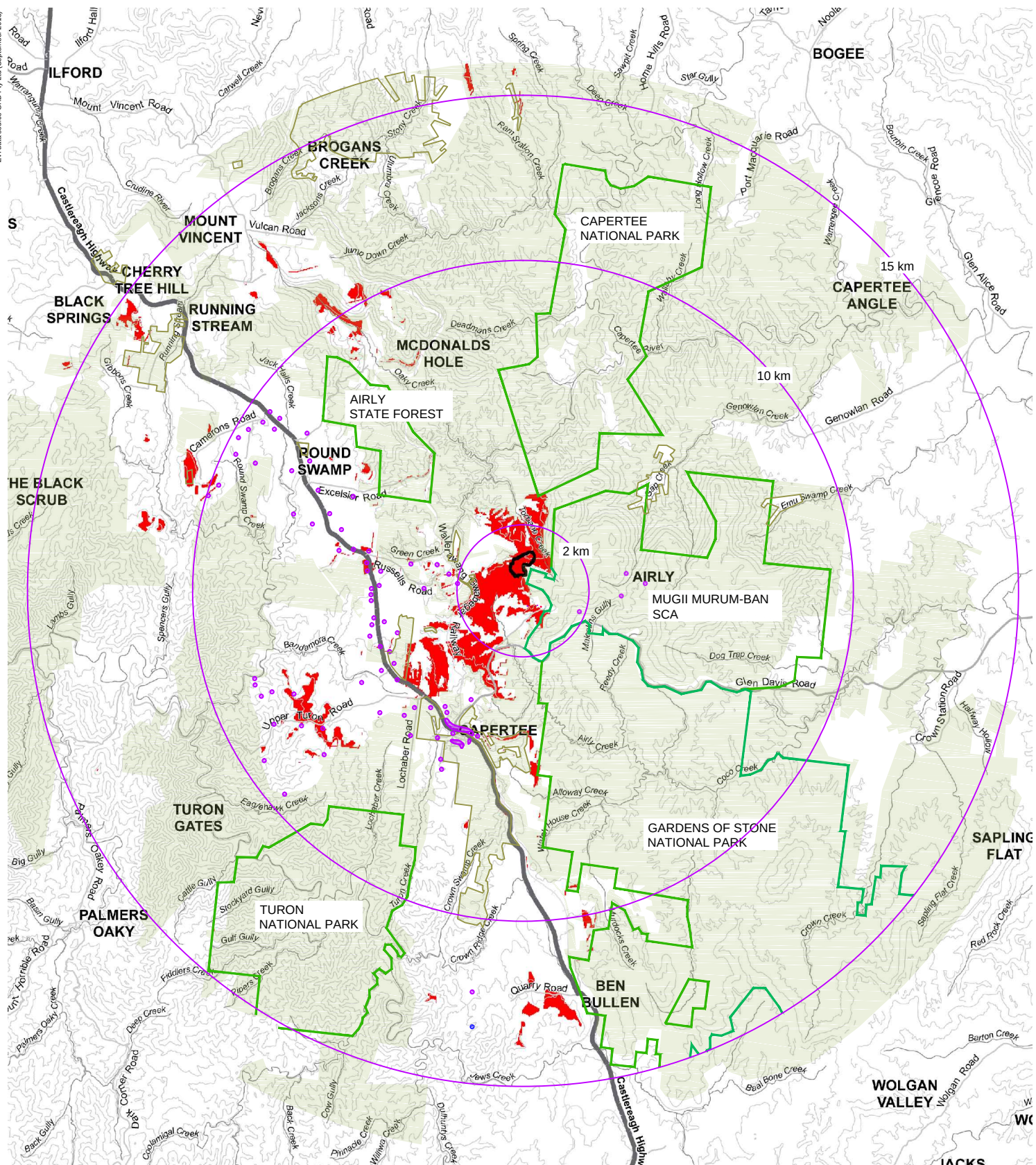
Reject Embankment Area Options 1 and 2 - ZVI without tree screening influence



Legend

- REA Option 1
- REA Option 2
- Potential visible extent (Option 1 red) (Option 2 blue) (Intervisible purple)
- National Park, State Conservation Area (SCA) or State Forest as noted
- Residential dwelling (indicative location)

Figure 16
ZVI Diagram 4



Reject Emplacement Area Option 1 - ZVI (illustrating influence of tree cover)

Legend

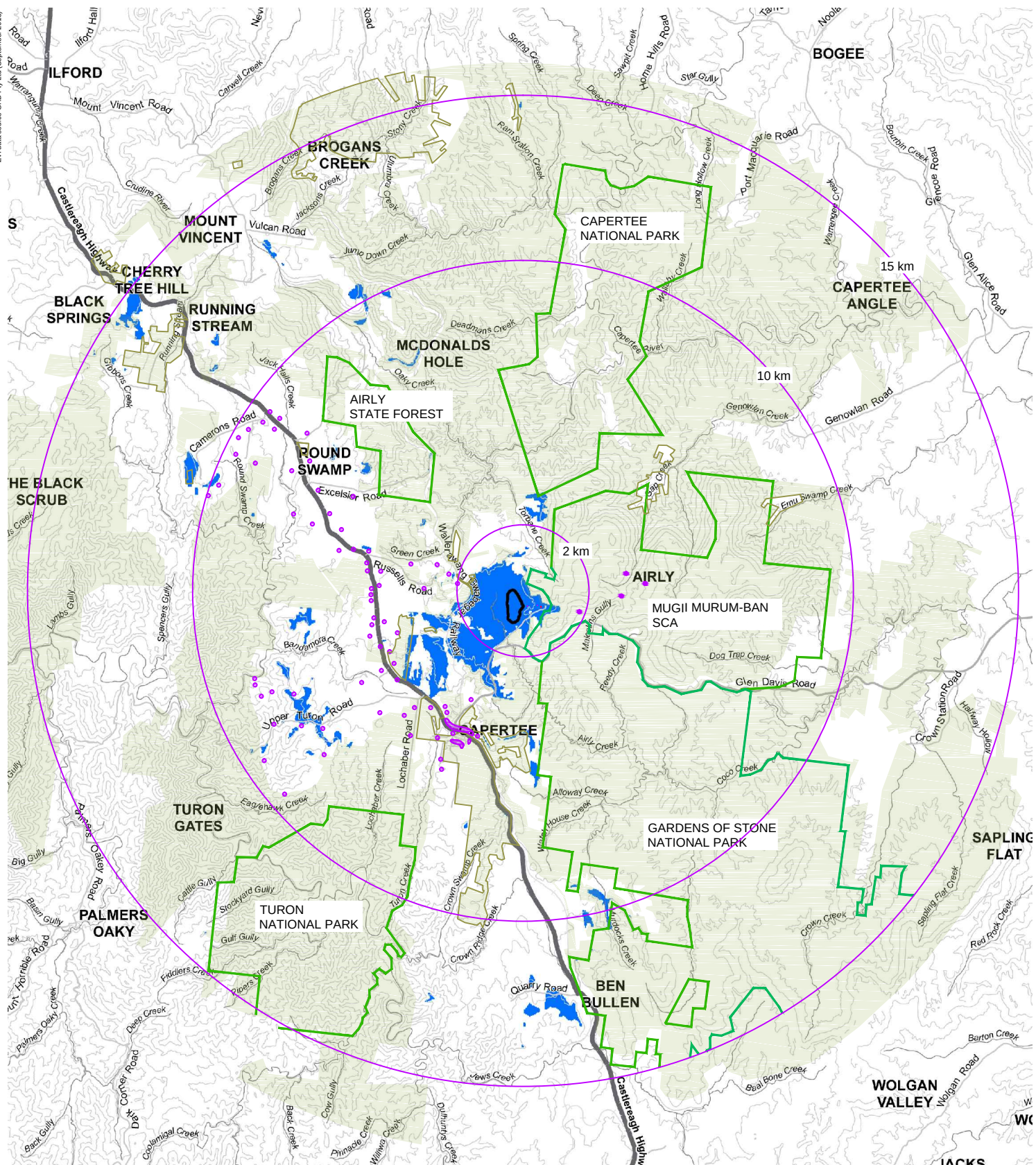
-  REA Option 1
-  Potential visible extent (red)
-  Existing tree cover (indicative extent)
-  National Park, State Conservation Area (SCA) or State Forest as noted
-  Residential dwelling (indicative location)

Figure 17
ZVI Diagram 5



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Reject Emplacement Area Option 2 - ZVI (illustrating influence of tree cover)

Legend

-  REA Option 2
-  Existing tree cover (indicative extent)
-  Residential dwelling (indicative location)
-  Potential visible extent (blue)
-  National Park, State Conservation Area (SCA) or State Forest as noted

Figure 18
ZVI Diagram 6



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Visual effects

Section 8

8.1 Introduction

The assessment of visual effects describes:

- the changes in the character of the available views resulting from the Project; and
- the changes in the visual amenity of the visual receptors.

The magnitude and significance of visual impact resulting from the construction and operation of the Project will primarily result from a combination of the following factors:

- distance between the view location and elements within the Project;
- duration of the view from view location toward elements within the Project;
- predicted impact of the Project on existing visual amenity;
- nature of predicted impacts; and
- receptor sensitivity of locations from which views toward elements within the Project exist.

8.2 View distance

The criteria for the view distance are set out in the VIA Table 2. The period of view parameters include:

- Long views for distances beyond 3 km of the surface facility;
- Medium views for distances between 1 km and 3 km of the surface facility; and
- Short views for distances within 1 km of the surface facility.

These distances have been determined against the likely visibility and visual scale of constructed elements associated with the Project. From short distances the Project will be a significant and dominant feature within the surrounding landscape and may be at complete variance with the landform, scale and pattern of the landscape. From medium distances the Project will be a recognisable feature, but not dominate views within the surrounding landscape. From long distances the Project will form a visible element within the surrounding landscape but is unlikely to constitute a marked effect on existing views.

8.3 View duration

The criteria for the period of view are set out in the VIA Table 2. The period of view parameters include:

- Long term for a view period of over 2 hours;
- Moderate term for a view of 30 minutes to 2 hours; and
- Short term for 10 minutes up to 30 minutes.

These periods of time have been determined against the overall period of view that may be available during daylight hours (assumed to be a period of around 12 hours, discounting seasonal variation). Therefore, as a percentage of the maximum viewing time available during daylight hours:

- a period of 2 hours represents approximately 17% of daylight hours;
- a period of 30 minutes represents approximately 4.5% of daylight hours; and
- 10 minutes represents approximately 1.5% of daylight hours.

8.4 Receptor sensitivity

The following indicators have been adopted to define the sensitivity of individual receptors at specific viewpoints:

- High sensitivity - people with proprietary interest and prolonged viewing opportunities such as residents and users or visitors to attractive and/or well-used recreational facilities. Views from a regionally important location whose interest is specifically focussed on the landscape;
- Medium sensitivity - people with an interest in their environment e.g. visitors to environmental areas, such as bush walkers and horse riders, or a larger numbers of travellers with an interest in their surroundings; and
- Low sensitivity - people with a passing interest in their surroundings e.g. those travelling along principal roads. Viewers whose interest is not specifically focussed on the landscape e.g. farm workers or commuters.

An overall determination of the visual impact significance at each view location has also been assessed and determined against the criteria outlined in **Table 2** below:

Table 2 - View Location Assessment Criteria

Criteria	Definition
View Distance: Long (L) Medium (M) Short (S)	> 3 km 1km – 3 km < 1km
View Duration: Long term (LT) Moderate term (MT) Short term (ST)	> 2 hours 30 - 120 minutes 10 – 30 minutes
Predicted Impact: Adverse (A) Neutral (N) Beneficial (B)	Predicted impact of the Project on existing view is likely to be negative. Predicted impact of the Project on existing view is likely to be neutral. Predicted impact of the Project on existing view is likely to be positive.
Nature of Impact: Temporary (T) Permanent (P) Reversible (R) Irreversible (IR)	Visual impact will be temporary in nature Visual impact will be permanent in nature Visual impact will be considered reversible (for example constructed elements may be removed at the decommissioning and rehabilitation stage) Visual impact will be considered irreversible (for example proposed

Table 2 - View Location Assessment Criteria

Criteria	Definition
	alteration to landforms associated with the REA will be both permanent and irreversible)
Magnitude:	
High (H)	Total loss or major change to pre-development view or introduction of elements which are uncharacteristic to the existing landscape features.
Medium (M)	Partial loss or alteration to pre-development view or introduction of elements that may be prominent but not necessarily uncharacteristic with the existing landscape features.
Low (L)	Minor loss or alteration to pre-development view or introduction of elements that may not be necessarily uncharacteristic with the existing landscape features.
Negligible (N)	Very minor loss or alteration to pre-development view or introduction of elements which are not uncharacteristic with the existing landscape features (resulting in a no change situation).
Receptor Sensitivity:	
High (H)	Residential locations, National Park or State Conservation Area
Medium (M)	Public open space or State Forest
Low (L)	Highway and local access roads
Visual Significance:	
High (HS)	The Project will be a significant and dominant feature within the surrounding landscape and at complete variance with the landform, scale and pattern of the landscape. The Project will have the capacity to cause a significant deterioration in the existing view. The Project's visual effects may not be minimised by mitigation measures and cumulative impacts may result in an increased level of impact.
Moderate (MS)	The Project will be a recognisable feature, but not dominate views within the surrounding landscape. The Project will be out of scale and discordant with the landform, scale and pattern of the landscape and have the capacity to cause a noticeable deterioration in the existing view. The Project's visual effects may be partially mitigated through appropriate measures.

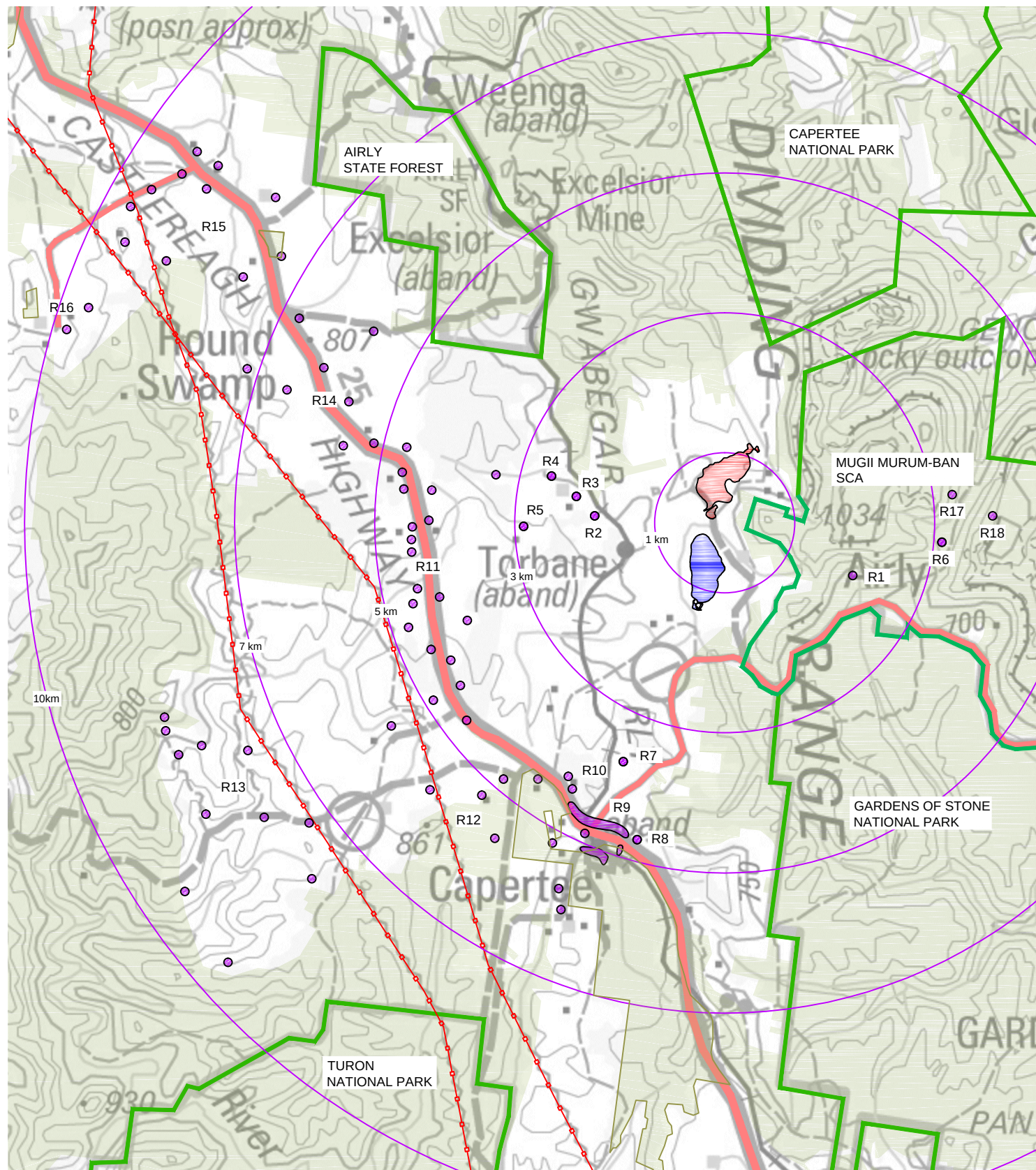
Table 2 - View Location Assessment Criteria

Criteria	Definition
Low (LS)	The Project will form a visible element within the surrounding landscape but is unlikely to constitute a marked effect on existing views. The Project will complement the scale, landform and pattern of the surrounding landscape and will not create a noticeable deterioration in the existing view. The Project's visual effects will be positively mitigated through appropriate measures.
Negligible (NS)	The Project will result in no discernible deterioration in the existing view.

The visual significance criteria outlined in **Table 2** is used **as a guide** to determine significance of visual impact. The significance of visual impact for each view location is also considered against other factors, which include the overall visibility of the Project from surrounding view locations. The general relationship between view category and its potential level of sensitivity is outlined in **Table 2**.

8.5 Visual Significance Matrix

The matrices presented in **Tables 3, 4** and **5** present the assessment and determination of visual impact significance for selected receptor view locations within and beyond the PAA. The receptor locations are illustrated in **Figure 19**.



Receptor locations

0km 1km



Legend



REA Option 1



REA Option 2



Existing transmission line



Private residential dwelling



National Park, State Conservation Area (SCA) or State Forest as noted

Figure 19
Receptor locations



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8.6 Visual significance matrix – Residential locations

Table 3 - Visual Significance Matrix

Receptor viewpoint:	View direction	Description	Distance			Duration			Predicted Impact			Nature of Impact				Magnitude	Receptor sensitivity	Significance
			L	M	S	LT	MT	ST	A	N	B	T	P	R	IR			
R1 Residential dwelling	North to north west	Views from the residential dwelling toward the existing Airly Mine surface facility and the locality of REA Option 1 and 2 are blocked by landform and tree cover.														N	H	NS
R2 Residential dwelling	North west to south east	Views from the residential dwelling toward the existing Airly Mine surface facility and locality of REA Option 1 and 2 are blocked by landform and tree cover between the residential dwelling and the railway line.														N	H	NS
R3 Residential dwelling	North west to south east	Views from the residential dwelling toward the existing Airly Mine surface facility and the locality of REA Option 1 and 2 are blocked by landform and tree cover between the residential dwelling and the railway line.														N	H	NS
R4 Residential dwelling	North west to south east	Views from the residential dwelling toward the existing Airly Mine surface facility and the locality of REA Option 1 and 2 are blocked by landform and tree cover between the residential dwelling and the railway line.														N	H	NS
R5 Residential dwelling	North west to south east	Views from the residential dwelling toward the existing Airly Mine surface facility and the locality of REA Option 1 and 2 are blocked by landform and tree cover between the residential dwelling and the railway line.														N	H	NS

Table 3 - Visual Significance Matrix

Receptor viewpoint:	View direction	Description	Distance			Duration			Predicted Impact			Nature of Impact				Magnitude	Receptor sensitivity	Significance
			L	M	S	LT	MT	ST	A	N	B	T	P	R	IR			
R6 Residential dwelling Stone Cottage Airly Gap	North west to west	Views toward the existing Airly Mine surface facility and locality of REA Option 1 and 2 are blocked by landform and tree cover. The ZVI diagrams indicate that views toward the surface facility will be screened by landform.														N	H	NS
R7 Residential dwelling	North east	Views toward the existing Airly Mine surface facility and locality of REA Option 1 and 2 are blocked by landform and tree cover. The ZVI diagrams indicate that views toward the surface facility will be screened by landform.														N	H	NS
R8 Residential dwelling	North to north east	Residential dwelling R8 was under construction at the time of the VIA site inspection. The dwelling is located on a bush block at the southern end of Capertee Village. Partial and glimpsed views extend toward the existing surface facility; however, the majority of the surface facility including localities for REA Option 1 and 2 are significantly screened.														N	H	LS

Table 3 - Visual Significance Matrix

Receptor viewpoint:	View direction	Description	Distance			Duration			Predicted Impact			Nature of Impact				Magnitude	Receptor sensitivity	Significance
			L	M	S	LT	MT	ST	A	N	B	T	P	R	IR			
R9 Residential dwellings in Capertee Village	North to north east	Views toward the existing Airly Mine surface facility and locality of REA Option 1 and 2 are blocked by landform and tree cover. The ZVI diagrams indicate that views toward the surface facility will be screened by landform.														N	H	NS
R10 Residential dwellings north of Capertee Village	North east	Views toward the existing Airly Mine surface facility and locality of REA Option 1 and 2 are blocked by landform and tree cover. The ZVI diagrams indicate that views toward the surface facility will be screened by landform.														N	H	NS
R11 Residential dwellings	North east to east	Views from residential dwellings to the east and west of the Castlereagh Highway toward the existing Airly Mine surface facility (between 3km and 5km), and the locality of the REA Option 1 and 2 are blocked by landform and tree cover.														N	H	NS
R12 Residential dwellings	North east to east	Views from residential dwellings west of Capertee Village toward the existing Airly Mine surface facility and locality of REA Option 1 and 2 are blocked by landform and tree cover. The ZVI diagrams indicate that views toward the mine would be screened by landform.														N	H	NS

Table 3 - Visual Significance Matrix

Receptor viewpoint:	View direction	Description	Distance			Duration			Predicted Impact			Nature of Impact				Magnitude	Receptor sensitivity	Significance
			L	M	S	LT	MT	ST	A	N	B	T	P	R	IR			
R13 Residential dwellings	North to north east	Long distance views (between 7km and 10km) will extend toward the existing Airly Mine surface facility as well as REA Options 1 and 2 locations. Views will be restricted to discrete areas north and south of the Upper Turon Road. Localised tree planting around rural residential properties and dwellings will provide a degree of screening toward the Airly Mine site.														N	H	NS
R14 Residential dwellings	South east	Views from residential dwellings to the east and west of the Castlereagh Highway toward the existing Airly Mine surface facility (between 5km and 7km) and the locality of REA Option 1 and 2 are blocked by landform and tree cover. The ZVI diagrams indicate that views toward the mine would be screened by landform.														N	H	NS
R15 Residential dwellings	South east	Views from residential dwellings to the east and west of the Castlereagh Highway toward the Airly Mine surface facility (between 7km and 10km), and the general locality of REA Option 1 and 2 are blocked by landform and tree cover. The ZVI diagrams indicate that views toward the mine would be screened by landform.														N	H	NS
R16 Residential dwellings	South east	Elevated and distant views toward the Airly Mine surface facility (around 10km) will extend toward a small portion of the mine, including the general locality of REA Option 1 and 2. The Applicant has previously responded to, and addressed resident concerns over light spill from the surface facility.														N	H	LS

Table 3 - Visual Significance Matrix

Receptor viewpoint:	View direction	Description	Distance			Duration			Predicted Impact			Nature of Impact				Magnitude	Receptor sensitivity	Significance
			L	M	S	LT	MT	ST	A	N	B	T	P	R	IR			
R17 Camp ground Airly Gap	West	Long distance views toward the Airly Mine surface facility and the locality of REA Option 1 and 2 from the Airly Gap camp ground will be blocked by steeply rising landform and dense tree cover.														N	H	NS
R18 Nissan Hut Genowlan Mountain	West	Long distance views toward the Airly Mine surface facility and the locality of REA Option 1 and 2 from the Nissan Hut will be blocked by steeply rising landform and dense tree cover.														N	H	NS

8.7 Visual significance matrix – Road corridors and Pearson's lookout

Table 4 - Visual Significance Matrix

Receptor viewpoint:	View direction	Description	Distance			Duration			Predicted Impact			Nature of Impact				Magnitude	Receptor sensitivity	Significance
			L	M	S	LT	MT	ST	A	N	B	T	P	R	IR			
Castlereagh Highway	-	Views toward the Airly Mine surface facility and the general locality of the REA Option 1 and 2 are blocked by landform and tree cover. The ZVI illustrate the overall lack of view opportunities from the Castlereagh Highway toward the Airly Mine surface facility and REA Option locations. Indirect views toward the surface facility from short sections of the highway to the north of Capertee Village are partially filtered by tree and shrub cover alongside the highway corridor. Views toward the surface facility from motor vehicles are very short in duration and indirect to the direction of travel.														N	L	NS
Glen Davis Road	-	The Glen Davis Road corridor is predominantly delineated and visually confined by tree cover. Glimpses and partial views extend toward the Airly Mine surface facility (at around 4km); however, views from moving vehicles will be of a very short duration (less than 5 seconds). Views also extend (northbound) along a short section of Glen Davis Road (around 500m) toward the existing coal stockpile location and conveyor gantry (refer photo location A10 Figure 10). Partial views toward the Airly Mine surface facility from moving vehicles will be of a very short duration (around 20 seconds).														N	L	NS

Table 4 - Visual Significance Matrix

Receptor viewpoint:	View direction	Description	Distance			Duration			Predicted Impact			Nature of Impact				Magnitude	Receptor sensitivity	Significance
			L	M	S	LT	MT	ST	A	N	B	T	P	R	IR			
Pearson's lookout	-	Views toward the Airly Mine surface facility and the general locality of REA Option 1 and Option 2 are blocked by landform and tree cover Views extend toward the east portion of the PAA (across the Mugii Murum-ban SCA; however views toward mining activities will be screened by dense tree cover.														N	H	NS

8.8 Visual significance matrix – National Parks, State Conservation Area and State Forest

Table 5 - Visual Significance Matrix

Receptor viewpoint:	View direction	Description	Distance			Duration			Predicted Impact			Nature of Impact				Magnitude	Receptor sensitivity	Significance
			L	M	S	LT	MT	ST	A	N	B	T	P	R	IR			
National Parks	-	Capertee, Gardens of Stone and Turon National Parks Views toward the Airly Mine surface facility and general locality of REA Option 1 and 2 are predominantly blocked by landform and tree cover. The ZVI diagrams indicate that views toward the mine would be screened by both landform and tree cover.														N	H	NS
State Conservation Area	-	Mugii Murum-ban SCA Views toward the Airly Mine surface facility and general locality of REA Option 1 and 2 are predominantly blocked by landform and tree cover. The ZVI diagrams indicate that views toward the mine would be largely screened by both landform and tree cover.														N	H	NS
State Forest		Airly State Forest Views toward the Airly Mine surface facility and general locality of REA Option 1 and 2 are predominantly blocked by landform and tree cover. The ZVI diagrams indicate that views toward the mine would be largely screened by both landform and tree cover.														N	H	NS

8.9 Summary of visual significance

The majority of receptor locations, including private residential dwellings, road corridors, National Parks, State Conservation Area and State Forests, within and beyond the PAA have been determined to have an overall negligible to low visual significance with regard to the Project and its associated infrastructure.

The negligible to low visual significance results from a combination of sloping and ridgeline landforms that surround the PAA, together with moderate to dense tree cover within and surrounding the PAA and residential dwellings.

8.10 Construction activities

Whilst construction activities would tend to be more visible than the operational stage of the Project, the construction activities would be temporary and transient in nature. Views toward construction activities would be largely restricted by existing tree cover within and surrounding the PAA.

8.11 Night time lighting

Key components associated with the Project will include some additional low level intensity night lighting around some constructed elements. Night lighting will include individual and direction spot lighting and will avoid broad area or floodlighting where possible. The majority of infrastructure areas associated with the Project will be unlikely to require additional lighting, or lighting that will be directly visible from surrounding view locations.

8.12 Subsidence

The Applicant commissioned a report to provide estimates of subsidence above proposed future mining areas at Airly Mine and an assessment of likely impacts on surface and sub-surface features. The report, 'Subsidence Predications and Impact Assessment for Airly Mine' (Golder Associates 2013), identifies a series of mining zones which include the 'Cliff Line Zone and Zone of First workings'. This zone, illustrated in **Figure 2**, forms the highly aesthetic visible extent of cliffs and rock faces of the Mount Airly and Genowlan Mountain escarpments.

The report identifies cliffs which vary in height across the PAA from typically 40 to 50m in the west at Mount Airly, to an average of 100m at Genowlan Point. Proposed mining methodologies and setback or offset distances outlined in the subsidence report are expected to reduce the potential impact of subsidence between 'low' and 'insignificant', with an estimate of subsidence between 10 to 65 mm in the Cliff Line Zone and Zone of First workings.

Whilst areas of rock fall and accelerated cliff erosion (including naturally occurring events), have the potential to create conspicuous medium term visual effects, including colour, form and textural contrasts, these changes are temporary and subject to effects of ongoing weathering.

Cumulative Impact Assessment

Section 9

9.1 Cumulative Impact Assessment

A cumulative visual impact could result from elements of the Project being constructed in conjunction with other existing or proposed extractive developments which could be either associated or separate to it.

Separate developments could occur or be located within a regional context where visibility is dependent on a journey between each site or an individual Project viewshed.

The Project is considered to have a very limited potential to increase the significance of cumulative visual impact with regard to existing extractive projects located beyond the Airly Mine PAA such as the Excelsior Quarry to the north of Airly Mine. This is largely due to the extent of visual screening surrounding the PAA and the location of proposed constructed elements relative to existing infrastructure.

Mitigation measures

Section 10

10.1 Mitigation measures

While the overall significance of the Project's visual impact has been determined as negligible to low, the following mitigation measures will potentially help to minimise the level of residual visual impacts. The mitigation measures generally involve reducing the extent of visual contrast between the visible portions of the Project structures and the surrounding landscape.

10.2 Structures

The colour and texture of any new structures in the PAA should be dark in tone and utilise non-reflective materials where possible. This will potentially minimise the visual contrast between the structures and surrounding background to a small number of receptor locations surrounding the PAA. Colour selections should incorporate a palette similar to those selected for existing infrastructure at the surface facility and, where possible, consideration should be given to the application of darker tones such as those applied to the train loader structure (refer Plate 11). The darker colour tones will tend to exhibit less contrast with tree cover across hillside areas to the east of the surface facility.



Plate 11 – Train loader colour finish

10.3 Lighting

Light sources at the Airly Mine surface facility include those to areas such as the administration building complex, workshop, pit top areas, conveyors, rock crusher and train loader. Whilst lighting requirements differ between operational and care and maintenance periods, the Airly Mine has operated under both. Previous issues with light spill and direct line of sight to light sources within the surface facility have been investigated and resolved by proactive engagement with the community.



Plate 12 – Light shield on administration building



Plate 13 – Lighting on overhead conveyor

Whilst lighting will tend to be contained by both landform and tree cover for the majority of receptor locations, it is noted that:

- any additional lighting requirements for the Project will be designed and installed to avoid direct line of sight from areas surrounding the site where possible;
- the Project will not require aviation obstacle lighting;
- large floodlights will typically not be used. It is possible that some lights may be required for emergency lighting or to allow for emergency maintenance;
- low intensity security lighting will be designed to minimise light spill.

10.4 Landscape works

Whilst the overall significance of the Project's visual impact has been determined as negligible to very low, soft landscape treatments including the establishment of tree, shrub and groundcover are likely to provide an effective form of mitigation to address residual visual issues.

Vegetative cover, including tree planting and grass seeding where appropriate, will help to minimise potential visual issues associated with areas of disturbed ground or temporary soil stockpiles. Tree planting at the basal area of the Project REA, together with progressive and ongoing restoration and rehabilitation of the preferred Project REA will also help to minimise visual contrast between deposited rejects and surrounding landcover.

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Conclusion

Section 11

11.1 Summary

This VIA concludes that overall the key Project activities and operations will have a negligible to very low visual impact on people living in or travelling through the landscape within and surrounding the PAA.

The overall negligible to very low visual impact will be due to a combination of the following factors:

- The majority of the above ground Project activities and operations will be partially visible during construction stages including the use of cranes and drill rigs. These impacts will be temporary in nature (around 6 months).
- Most Project activities and operations will be located underground and will not be visible from surrounding view locations.
- The PAA is located within a landscape context of steeply sloping,ridgeline and cliff line landforms with moderate to dense tree cover These physical characteristics combine and result in an overall low level of visibility and a negligible to very low magnitude of visual significance.
- Landform and tree cover will result in a high visual absorption capability for the existing landscape to accommodate the majority of the Projects key elements and associated development infrastructure.
- The key Project activities within the PAA will not be directly discernible from private residential dwellings within or close to the PAA, Capertee Village or those located along the Castlereagh Highway road corridor.
- There are no key views toward the Airly Mine surface facility or proposed REA Option 1 or 2 locations from Pearson's public lookout. Distant pubic vantage points will not be significantly visually impacted by the Project.
- Significant views from the Mugii Murum-ban State Conservation Area (including views from Mount Airly and Genowlan Point) toward the Gardens of Stone National Park and Capertee Valley will not be impacted by the Project.
- There are no views toward the Airly Mine surface facility or proposed REA Option 1 or 2 locations from within National Parks to the north, south and south west of the PAA.
- There is no significant difference between the Project REA Option 1 and 2 locations with regard to overall visibility or potential for visual impact. Neither location will be directly visible from private residential dwellings within or surrounding the PAA.
- The extent and condition of existing tree cover surrounding and within the PAA will also limit the potential for direct, indirect or sequential cumulative visual impacts in association with existing industrial infrastructure or other mining or extractive activities beyond the PAA.

- The use of appropriate finished colours and non-reflective materials for proposed infrastructure will help to minimise the potential for visual contrast against the surrounding landscape when viewed from some view locations within and beyond the PAA.
- Implementing progressive landscape works, including shrub and tree planting for all rehabilitated areas, will assist to minimise potential visual impacts associated with the Project.