Appendix H

Visual Impact Assessment

Bylong Coal Project

Gateway Certificate Application
Supporting Document

Bylong Coal Project

Gateway Application
Visual Impact Assessment

December 13

Report prepared by

JVP Visual Planning & Design

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GLOSSARY

Areas of Primary Visual Concern	Areas within the Critical Industry Cluster that have potential views to the Project based on a consideration of topography alone as a screening element
Contrast	The degree to which a development component differs visually from its landscape setting
Field of View	This area includes the total view, consisting of the primary view zones above and the secondary or peripheral view zones around the primary view zone, out to about 70° either side of the central view line in both vertical and horizontal plain
Integration	The degree to which a development component can be blended into the existing landscape without necessarily being screened from view
Overburden Emplacement Area	Refers to the placement of waste material (mostly overburden and rock material) excavated as part of the coal mining process into a predefined area
Photomontage	Photomontage is the process and result of making a composite photograph by cutting and joining a number of other photographs or graphic images for illustrative effect. The composite picture or image aims to give a visualisation of a projected visual effect
Primary View Zone	This zone is the central most critical part of a view that is seen with the greatest clarity. It is that part of a view that is within an horizontal arc of 30° either side of the centre line of a view and a vertical arc of 30° above the horizontal
Screen	The degree to which a development element is unseen due to intervening landscape elements such as topography or vegetation
The Project	The Bylong Coal Project
Visual Character Unit	Visual Character Unit. Areas of landscape that have similar topographic, vegetation and land use features that create areas of similar visual character
Visual Effect	A measure of the visual interaction between the Project and the landscape setting within which it is located
Visual Impact	A measure of a joint consideration of both visual sensitivity and visual effect that considered together determine the visual impact of a development
Visual Sensitivity	The degree to which a change to the landscape will be perceived in an adverse way
View Shed	A view shed is an area of land, water, or other environmental element that is visible to the human eye from a fixed vantage point
Primary Visual Catchment	The primary visual catchment includes the most significant parts of the total visual catchment from which the Project Boundary potentially could be seen. This is the area containing the most critical locations with potential views to the Project, which will be the focus of visual impact assessment.

LIST OF ABBREVIATIONS

3D	Three dimensional
A	Authorisation
AHD	Australian Height Datum
BSAL	Biophysical Strategic Agricultural Land
CHPP	Coal Handling and Preparation Plant
CIC	Critical industry cluster
DP&I	The Department of Planning and Infrastructure
EIS	Environmental Impact Statement
EL	Exploration Lease
EP&A Act	Environmental Planning and Assessment Act 1979
Gateway SEPP	State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007
km	Kilometres
kV	Kilovolt
LCU	Landscape character unit
LGA	Local Government Area
m	Metres
MIA	Mine infrastructure area
Mtpa	Million tonnes per annum
MWRC	Mid – Western Regional Council
NSW	New South Wales
NW	North-West
OEA	Overburden emplacement area
PVC	Primary visual catchment
PVZ	Primary View Zone
ROM	Run of mine
SAL	Strategic Agricultural Land
SE	South-East
SEPP	State Environmental Planning Policy
SRLUP	Strategic regional land use plan
The Policy	Strategic Regional Land Use Policy
The Project	Bylong Coal Project
VAC	Visual absorption capacity

1. INTRODUCTION

JVP Visual Planning and Design was commissioned by Hansen Bailey Environmental Consultants (Hansen Bailey) on behalf of Cockatoo Coal Limited (Cockatoo Coal) to prepare a visual impact assessment to support a Gateway Application for the Bylong Coal Project (the Project) which is owned by KEPCO Bylong Australia (KEPCO). Cocakatoo Coal has been engaged by KEPCO to manage the exploration, mine planning, and environmental approvals for the Bylong Coal Project. The purpose of this preliminary assessment is to form part of the application for Gateway Certificate.

This initial assessment is a preliminary report which will form the basis for the broader visual impact assessment which will be completed as part of the Environmental Impact Statement (EIS). The EIS will be prepared in support of an Application for State Significant Development Consent for the Project under Division 4.1 of Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

1.1 Background

In February 2011, KEPCO Bylong Australia (KEPCO) acquired Authorisation (A) 287 and. Cockatoo Coal was appointed by KEPCO as the managers of exploring the feasibility of developing a coal mine within the Authorisations, which was subsequently named the Bylong Coal Project (the Project).

The Project is located wholly within A287 and A342 which both occur within the Mid – Western Regional Council (MWRC) Local Government Area (LGA). The closest regional centre is Mudgee located approximately 55 km south-west from the Project. The small settlement of Bylong Village is located within the central portion of A287.

The Project is approximately 230 km by rail from the Port of Newcastle. Figure 1.1 illustrates the locality of the Project within NSW and in relation to the Port of Newcastle. Figure 1.2 illustrates the location of the Project in relation to the adjacent mining operations, the traffic network and larger townships.

1.2 Project Description

The total Project mine life is anticipated to be approximately 29 years, comprising a two year construction period and a 27 year operational period, with underground mining operations commencing in approximately Year 7. Various rehabilitation and decommissioning activities will be undertaken following the 29 years of the Project. The Project generally comprises:

- The initial development of two open cut mining areas with associated haul roads and Overburden Emplacement Areas (OEAs), utilising a mining fleet of excavators and trucks and supporting ancillary equipment;
- The two open cut mining areas will be developed and operated 24 hours a day, 7 days a week over an approximate 8 year period and will ultimately provide for the storage of coal processing waste products from the longer term underground mining activities;
- Construction and operation of an underground coal mine operating 24 hours a day, 7 days a week for a 22 year period, commencing in around year 7 of the Project;
- An extraction rate of up to 6 Million tonnes per annum (Mtpa) of ROM coal;
- Underground mining operations utilising longwall mining techniques with primary access provided via drifts constructed adjacent to the rail loop and Coal Handling and Preparation Plant (CHPP);
- The construction and operation of a CHPP with a throughput of approximately 6 Mtpa of ROM coal;

- The construction and operation of Surface Facilities to support underground mining operations including (at least) the main personnel access to the mine, main ventilation facilities, workshop, offices and employee amenities, water and gas management facilities;
- A workforce of up to approximately 1,000 full-time equivalent employees during construction and 550 full-time equivalent employees during operation of the Project at full production;
- The dewatering of tailings through belt press filters within the CHPP, and the co-disposal of dewatered tailings and coarse rejects within OEAs and final open cut voids;
- The construction and operation of a rail loop and associated rail loading facility and connection to the Sandy Hollow-Gulgong Railway Line to facilitate the transport of product coal;
- The upgrade of Upper Bylong Road and the construction and operation of a Mine Access Road to provide access to the site facilities;
- Relocation of sections of some existing public roads to enable alternate access routes for landholders surrounding the Project, whilst privately owned;
- The construction and operation of administration, workshop and other mining related facilities;
- The construction and operation of surface and groundwater management and water reticulation infrastructure including pipelines, pumping stations and associated infrastructure for access to water from the neighbouring groundwater aquifers;
- The installation of communications and electricity reticulation infrastructure;
- Construction and operation of a Temporary Workers Accommodation Facility and associated access road from Bylong Valley Way; and
- Progressive rehabilitation of all disturbed areas and the decommissioning of Project infrastructure and rehabilitation of the land at the completion of mining operations.

The project description as it relates to the visual impact assessment is discussed in further detail in Section 4.

1.3 Relevant Legislation

1.3.1 Strategic Regional Land Use Policy

Strategic Regional Land Use Plan – Upper Hunter Region

The Department of Planning & Infrastructure (DP&I) released the *Strategic Regional Land Use Plan* (SRLUP) for the Upper Hunter Valley region in September 2012. The SRLUP represents a component of the NSW Government's broader Policy which comprises initiatives to address land use conflicts in areas such as the Upper Hunter Valley region and with a particular focus on managing coal and coal seam gas issues.

The SRLUP defines areas of Biophysical Strategic Agricultural Land (BSAL) and Critical Industry Clusters (CIC). In accordance with the Policy, coal mining and coal seam gas projects that are located in areas of defined BSAL or CIC must consider the potential for impacts in accordance with the prescribed 'Gateway Criteria' listed within the SRLUP.

The Gateway process (effective from 4 October 2013) adds an additional level of scrutiny to new State significant mining and CSG proposals on BSAL and the Upper Hunter equine and viticulture CICs.

Under the SRLUP released in September 2012, areas of CIC (equine) were identified within areas of the Project Boundary (SRLUP CIC (Equine) mapping). The SRLUP CIC (Equine) mapping within the Project Boundary was based on high level criteria of 5 km from Bylong Valley Way in areas where land slope was less than 18°.

In light of the high level mapping completed for the SRLUP, the NSW Government completed further field validation for areas of CIC and released revised mapping within the Upper Hunter Region on 3 October 2013 for stakeholder review and comment (Revised draft CIC (Equine) mapping). The Revised Draft CIC (Equine) mapping refined areas within the Project Boundary to three properties to the south of Bylong Valley Way.

Since the Project Boundary contains areas of CIC (equine) as mapped under the SRLUP CIC (Equine) and the most recent Revised Draft CIC (Equine) mapping, the Project is subject to the Gateway Process. The relevant assessment of the Gateway Criteria for CIC (Equine) is required to be completed, including the loss of scenic and landscape values from the area. This assessment has been completed in consideration of these criteria.

A review against the SRLUP CIC (Equine) mapping is provided in Section 8 only. All other assessment in this report refers to the Revised draft CIC (Equine) mapping.

1.4 Visual Impact Assessment Objectives and Purpose

This report is a visual impact assessment of the potential impacts of the Project on the existing landscape and visual values of the surrounding areas, specifically in relation to impacts on the scenic and landscape values within the areas of CIC (equine) as mapped within the Project Boundary. This report identifies the visual character of the existing landscape of the CIC (equine) and the broader visual landscape as well as that proposed for the Project.

The visual impacts of the Project, including both short-term and long-term impacts, have been assessed with methodologies developed in accordance with best practice. Such methodologies are not formalised but for the purposes of this Report, include:

- An assessment of the existing visual settings created by various landscapes in and around the Project Boundary;
- Establishing the visual character and visual effect created by the Project;
- A consideration of the visibility of the Project from sensitive receptors with focus on the areas that are mapped as CIC (Equine) by the SRLUP and the latest Revised Draft CIC (Equine) Mapping;
- The likely visual impacts created by the Project giving regard to visual effect and sensitivity; and
- The development of any available preliminary mitigation strategies to ameliorate adverse visual impact.

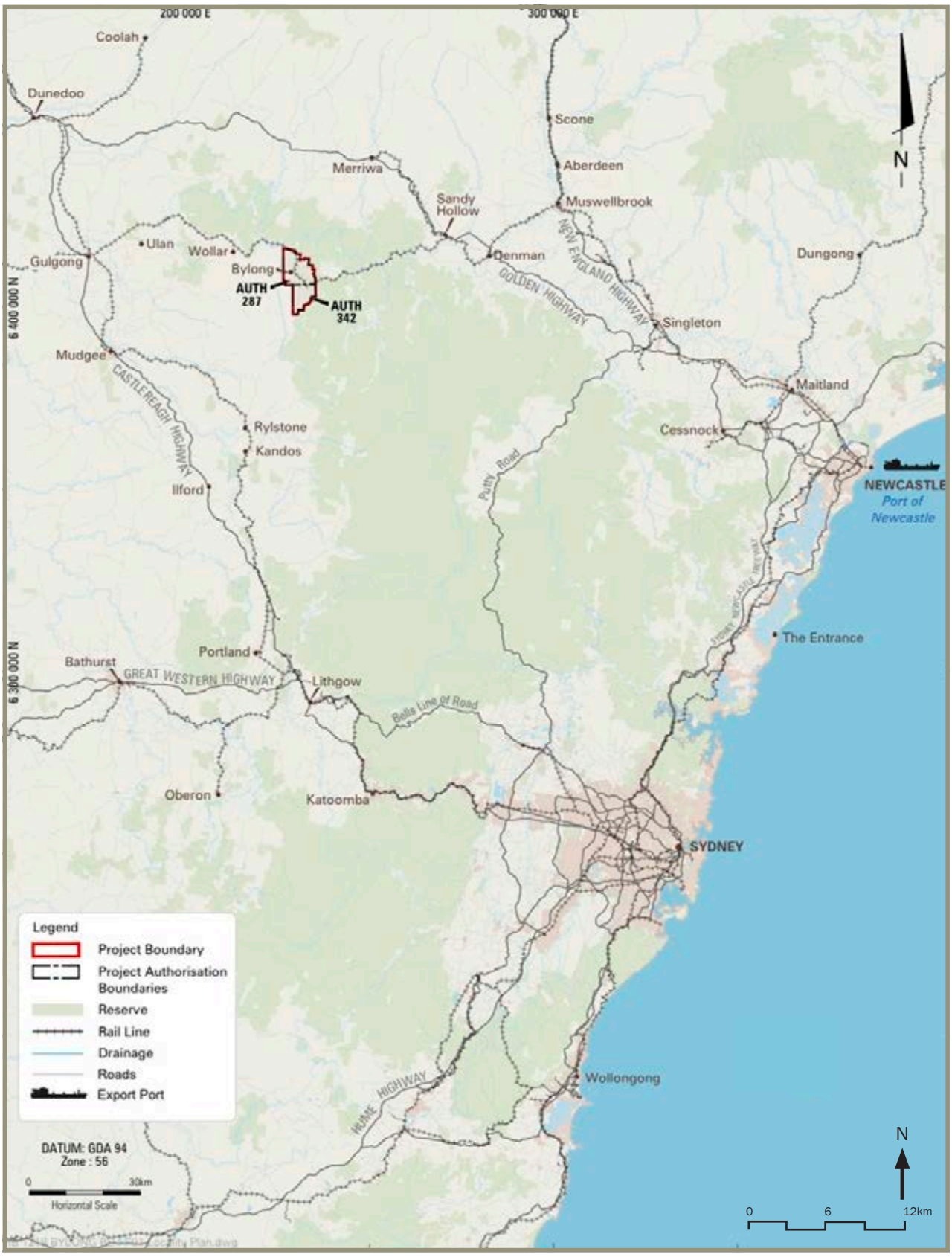


Figure 1.1 | ***Location Plan***

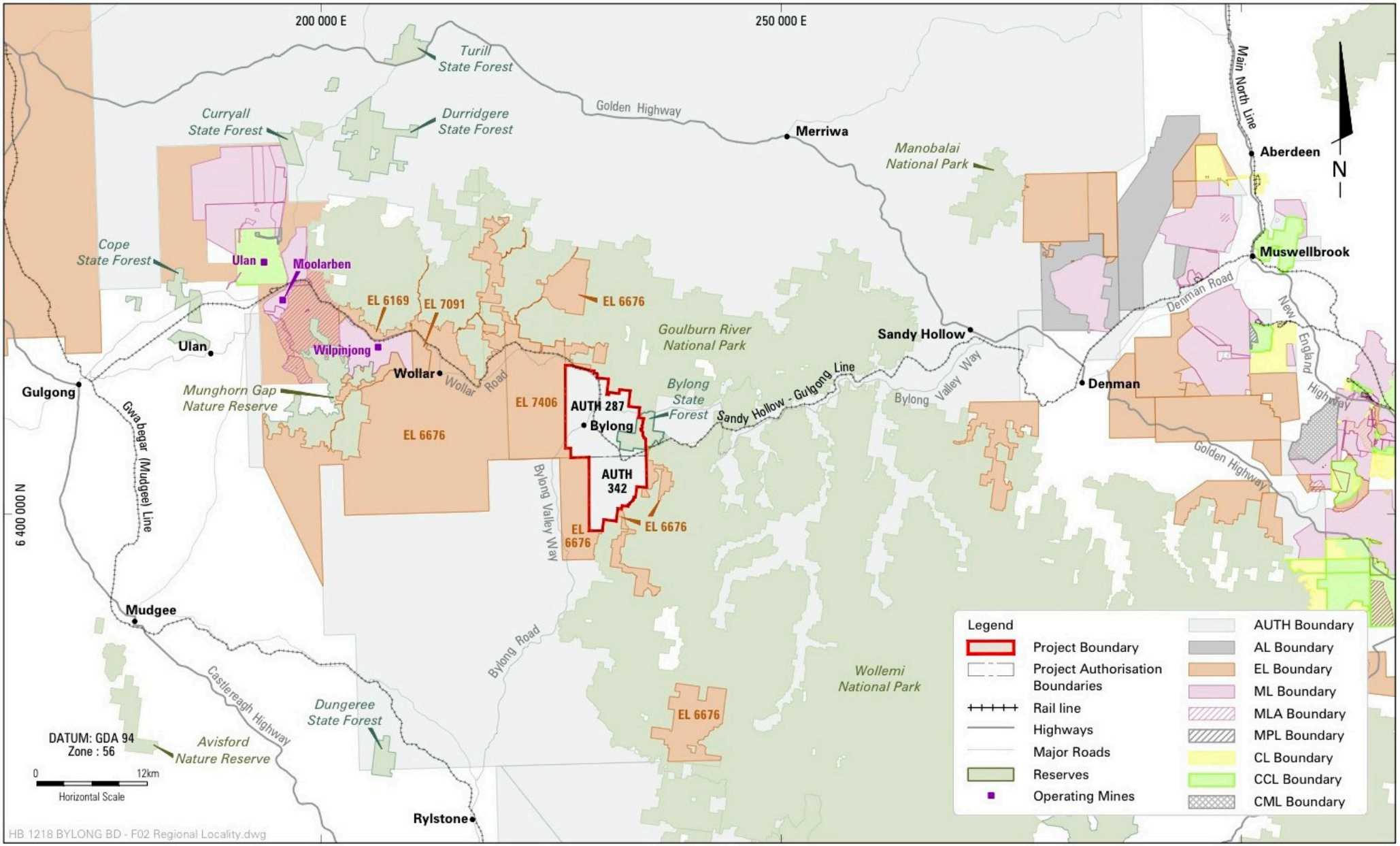


Figure 1.2 | ***Regional Context***

2. ASSESSMENT METHODOLOGY

2.1 Introduction

The methodology has been developed in consideration of the 'Mining and Petroleum Gateway Panel' (Gateway Guideline) to provide information to enable the Gateway Panel to assess the Project against the following criteria in Clause 17H(4bv) of the *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* (as amended 4 November 2013) (Gateway SEPP).

Clause 17H(4bv) states '(b) in relation to critical industry cluster land — that the proposed development will not have a significant impact on the relevant critical industry based on a consideration of the following:

(v) the loss of scenic and landscape values."

The methodology to determine the level of visual impact of the Project on the scenic and landscape values of the CIC (Equine) involves three stages as follows:

1. The consideration of the existing visual environment includes a review of existing landscape settings and how they are seen from various viewing locations. In this way, the visual character of the landscape (as well as visual sensitivity of the various viewing locations) can be determined.
2. The visual effect of the Project is assessed by considering the visual characteristics of the Project in the context of the landscape within which it is seen.
3. A combined consideration of both visual sensitivity and visual effect identifies Project impacts and directs if any mitigation strategies are required. The overall method of visual assessment of the existing landscape and the Project in the context of the landscape is outlined in Figure 2.1.

2.2 Evaluation of the Existing Visual Environment

The evaluation of the existing visual environment consists of the assessment of both the landscape and viewing locations within it that may be impacted by the Project.

Landscape Setting

The landscape setting of the Project is defined in terms of topography, vegetation, hydrology and land use features. These elements define the existing visual character of the landscape that the Project is located within and that it visually interacts with. Within any landscape there are areas of similar visual features that are defined as a Landscape Character Unit (LCU). Characterising the landscape in terms of these units assists in understanding the visual character of the landscape as a whole. The LCUs are defined within the Primary Visual Catchment (PVC) which is the area from which there may be potential views of Project elements.

The scenic amenity of the various LCUs in the landscape is defined as distinctive, common or minimal.

Distinctive landscapes are of regional significance and have unique landscape values in terms of topography, vegetation, geology, hydrology and /or various cultural or heritage features. In addition, these areas would have a high visual integrity with no detracting features. These landscapes will have unique form, shape, line and / or colour, geological, vegetation or hydrological features.

Common landscapes are areas that have visual integrity but are not uncommon or unique. These landscapes will have pleasing pattern, shape, line and or colour (e.g. rural areas).

Minimal landscapes can have a high integrity but often lack visual interest. These landscapes will be common but also lack visual variety of form, shape, line or colour (e.g. open grassland with scattered trees). Disturbed landscapes lack visual integrity with intrinsic values of form, shape, line colour and texture significantly compromised (e.g. OEAs and open cut mining areas).

Disturbed landscapes are those that have been modified and would require some form of management to reinstate scenic amenity and restore integrity to surrounding landscapes, e.g OEAs.

The scenic amenity of each LCU relevant to the project is outlined in Section 3.0.

Viewing Locations

The viewing locations are those areas where people are likely to obtain a view of the Project. These viewing locations have different significance based on numerous factors, collectively evaluated through land use and viewing distance to the Project.

2.3 Impact Analysis

The analysis of the interaction between the existing visual environment and the Project provides the basis for determining impacts and developing mitigation strategies. The impact levels of the Project are determined by the definition of the visual effects of the Project and visual sensitivity at specific viewing locations.

The Project is evaluated to define the visual elements that are most significant from a visual perspective in the context of the existing environment. The key Project elements from a visual context are defined as being major or minor and are considered in terms of how they contrast with the main element of the existing environment.

Visual Effect

Visual effect is a measure of the level of visual contrast and integration of the Project with the existing landscape.

The degree to which the visual characteristics and elements of the Project contrast with the existing landscape will determine the level of visual effect. A new mining development will have a higher visual effect due to strong contrast. Extensions to operations in an existing mine will have a lesser visual effect. The successful completion of rehabilitation would be likely to have a low visual effect due to limited contrast with the existing landscape.

In a similar way, a development is considered to be integrated with the existing landscape based on issues of scale, position in the landscape and contrast with the surrounding environment. High visual integration is achieved if a development is dominated by the existing landscape, is of small scale and or of limited contrast.

The magnitude of the visual effect for a development, outlined in Figure 2.2, is determined by a balanced analysis of the following factors.

Contrast and Integration

The level of contrast and integration of the Project with its surrounding landscape determine visual effect. Project elements as expressed through the visual expression elements (i.e. form, shape, pattern, line and colour with minor consideration in relation to texture) contrast to varying degrees with the surrounding landscape and will also create some level of integration with it.

The Proportion of a View that includes Project Areas

For any given level of contrast and integration, a lower proportion of the view that is occupied by the Project elements, will result in a lower level of visual effect. This is determined by defining the proportion of the total field of view that is occupied by the Project. This is most appropriately determined by defining what percentage of the Primary View Zone (PVZ) it occupies (see Figure 2.3). The PVZ is the area that is occupied by an arc created by sight lines from the eye radiating out vertically and horizontally at angles of 30 degrees around a centre view line from a nominated viewing location.

The PVZ is the most critical and central part of a view. It is not representative of the total view, but is the most important part.

Measuring the percentage of the PVZ occupied by a development will provide a more conservative measure than the consideration of the development in the context of the whole view zone, which would include both primary and

secondary view areas (representing a view arc of 120^0 instead of a view arc of 60^0 represented by the PVZ only).

Generally, a high visual effect will result if a visible element of the Project has a high visual contrast and low integration to the surrounding landscape.

A low or very low visual effect will occur if there is minimal contrast between the visible area of the Project and the existing landscape setting and or the area occupied by the Project represent only small parts of a total view.

Visual Sensitivity

Visual sensitivity is a measure of how critically a change to the existing landscape is viewed by people from different land use areas in the vicinity of a development.

In this regard, residential, tourist and / or recreation areas generally have a higher visual sensitivity than other land use areas including industrial, agricultural or transport corridors. This is because land uses, such as residential, use the scenic amenity values of the surrounding landscape and may be used as part of a leisure experience and often over extended viewing periods such as Bylong Valley Way which is part of a regional designated tourist drive. Figure 2.4 indicates the levels of visual sensitivity associated with the Project.

However, the visual sensitivity of individual residences may range from high to low, depending on the following additional factors:

- Screening effects of any intervening topography, buildings or vegetation. Residences with well screened views of the Project will have a lower visual sensitivity than those with more open views;
- Viewing distance from the residence to visible areas of the Project. The longer the viewing distances, the lower the visual sensitivity; and
- General orientation of residences within the Revised CIC (Equine) to landscape areas affected by the Project. Residences with strong visual orientation towards the Project (i.e. those with areas such as living rooms and/or verandas orientated towards it) will have a higher visual sensitivity than those not orientated towards the Project, and which do not make use of the views toward the Project, e.g. some residences in Bylong.

For any area to be given a sensitivity rank, it must have visibility to the Project. This visibility was determined based on field assessment, evaluation and computer analysis of topographic and vegetation data.

Visual Impact

The visual impact of the Project has been determined by considering both visual effect and visual sensitivity, which when considered together determine impact levels. The way in which the visual parameters of visual sensitivity and visual effect are cross-referenced and resultant impacts is illustrated in Figure 2.5.

2.4 Mitigation

Visual impact mitigation strategies are typically recommended for both within the Project Boundary (on site) and outside of the Project Boundary (off site) as required. This ensures that either visual effects and or visibility/visual sensitivity factors are decreased in appropriate time frames to achieve mitigation of impacts. General strategies to reduce visual impacts that may be recommended are outlined below.

Reduce Visual Effects

Rehabilitation of disturbed areas associated with the Project to decrease the visual contrast created by mining operations to the existing landscape. Rehabilitation strategies that emulate patterns, shapes, line and colour of the existing landscape can reduce the contrast between the Project and the existing landscape, reducing visual effect.

Reduce Visual Sensitivity

Reducing visual sensitivity is achieved by carrying out treatments to minimise the visibility to the Project. Due to the scale of open cut coal mine components, such as the OEAs, screening would best be completed at or close to the point of viewing. Such screening treatments can also be used to redirect views to areas not affected by mining activities as well as generally enhancing the landscape at the viewing point.

Post-mining Visual Setting

On completion of mining operations and following rehabilitation, a post-mining local landscape will be created. This landscape would reflect post-mining landforms and land use.

2.5 Implementation of Study Method

The methodology set out above was implemented through a combination of different evaluation processes and analyses. These are outlined below and included:

- Evaluation of plans, maps, aerial photography and reports;
- Field assessment;
- Photomontage; and
- Computer analysis.

2.5.1 Evaluation of Plans and Reports

Evaluation of the various components of the Project was based on the Project Description and associated figures prepared by Hansen Bailey (2013). The Project has been refined and optimised in consideration of a number of environmental, economic and initial stakeholder constraints, with the preferred mine plan assessed as part of this report.

Topographic mapping and aerial photography provided the basis for the establishment of landscape and visual character. A field assessment undertaken in areas within and surrounding the Project Boundary assisted in establishing LCUs for the Project.

Project plans, such as the conceptual mine plans, zones of visual influence mapping, rehabilitation and final landform maps were used to assist in defining visual effects and where they will occur through the life of the Project.

Aerial photography, along with computer analysis assisted in evaluating the visibility and sensitive receptor location and extent.

Field Assessment

The field assessment involved visitation to locations within the PVC including Bylong Valley Way, Upper Bylong Road, Woolleys Road, Lee Creek Road and Wollar Road.

Views toward the Project Boundary were also evaluated from selected viewing locations.

Such an assessment was made to give an indication of likely visibility conditions of the Project from each area (e.g. foreground screening, vegetation, open views, etc.), the experience of different LCUs and how these are seen together to consider cumulative effects.

Photomontage Analysis

Photomontages are images that bring a computer model of the terrain and the Project together with a photograph of the existing landscape to illustrate what the Project may look like from a given location at various points in time. Photomontages for 2 locations were developed to illustrate likely visual effects as seen from key CIC properties in

the east and north-west of the Project Boundary (refer Section 6).

Photographs of the Project were taken at standing eye level from the 2 viewing locations. The precise location of each of these photograph positions was recorded by a registered surveyor using a GPS. The photography provides a realistic representation of the site landscape and how it is seen from each viewing location in response to light and atmospheric conditions.

Three dimensional computer models of the Project at representative stages of the mine's progression were created from digital surface topography and project mine plans. The models enabled accurate views of the Project to be generated from any specified viewing location and account for screening of views by natural topography. The photographs of the Project and its landscape setting were overlain on the model view from the same viewing location. The locations of future visible components of the Project were determined taking into account any foreground screening from topography or vegetation in the photograph. Realistic colours and textures were applied to the visible project components taking into account viewing distances to the visible components. The end result is an accurate and realistic photomontage of the likely future view of the Project from the selected representative viewing locations.

The photomontages were used to assist in determining the level of visual effect of the Project from each of the representative viewing locations.

Cross Section Analysis

In addition to photomontage development analysis as discussed above, cross sectional illustration analysis was completed. This complemented field assessment and map/aerial photography analysis.

Cross-section analysis enabled the landscape to be considered across relevant elevated features to determine whether or not those topographic features were able to screen Project components. Also it gave a relative scale to project components in relation to the landscape.

Combined Analysis

In completing this assessment, a joint consideration of all the analysis techniques summarised above were used to outline view sheds, sensitive receptors, visual sensitivity and visual effect.

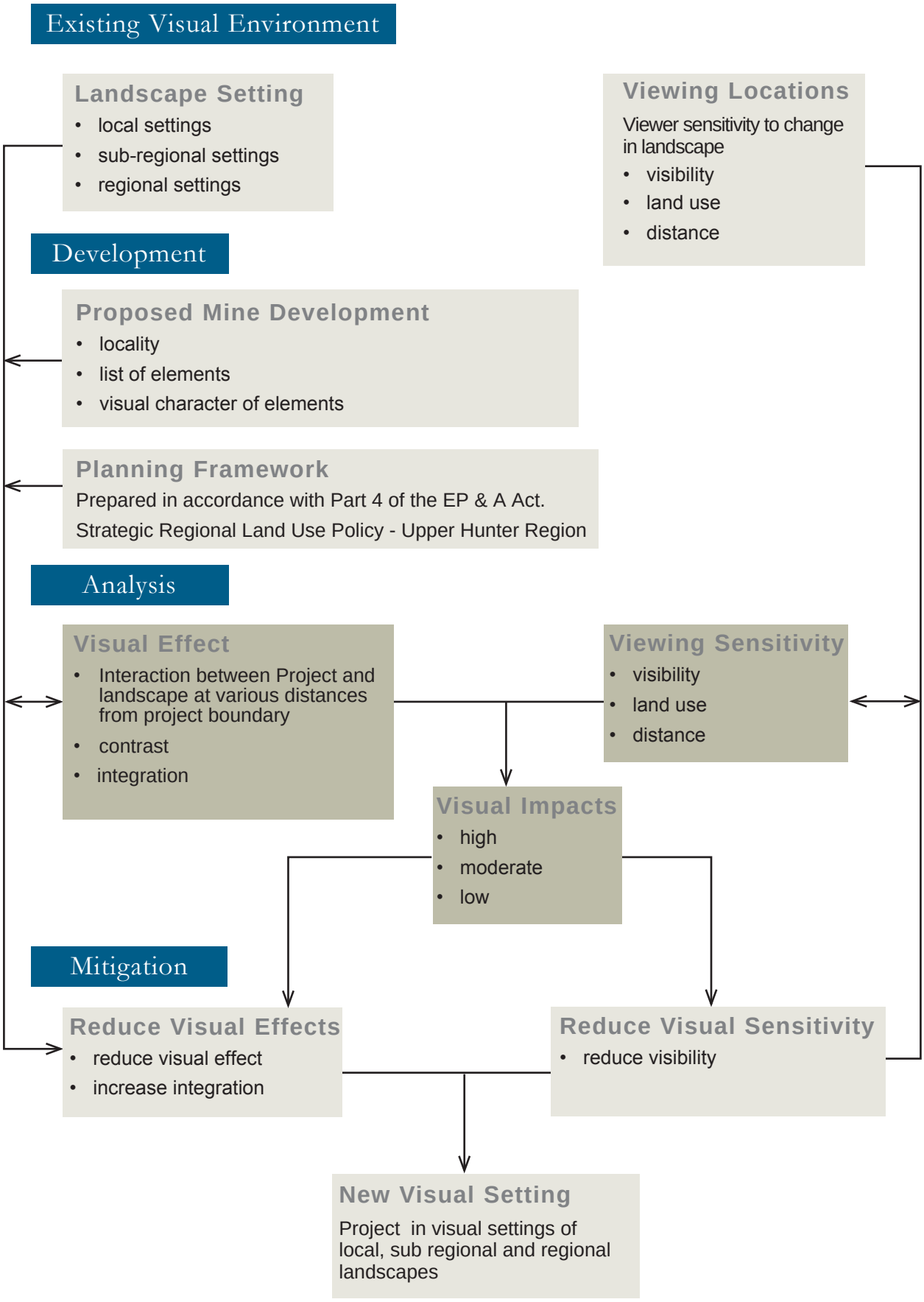


Figure 2.1 | ***Visual Assessment Methodology***

Visual Properties			Visual Effect		
Contrast Levels with elements in primary view zone	Visual Integration with elements in primary view zone		High Visual Effect	Moderate Visual Effect	Low Visual Effect
High Project elements do not borrow, form, shape, line, color or texture or scale from existing features of the visual setting and contrast levels are high with existing landscape	Low The Project lacks integration with visual setting because of scale totally dominating the ability of site or surrounding features, vegetation and or topographic features to integrate the development	CATEGORY 1	Visible element occupies more than 2.5% of the primary view shed	Visible element occupies between 1 - 2.5% of the primary view shed	Visible element occupies less than 1% of the primary view shed
Moderate Project elements borrow from some features of the visual setting in terms of form, shape, line pattern and or color and scale, reducing visual contrast with existing setting	Moderate The Project has some degree of visual integration with setting from other features, vegetation and / or topography achieving some level of integration	CATEGORY 2	Visible element occupies more than 20% of the primary view shed, generally when in a foreground location	Visible element occupies between 20-10% of the primary view shed	Visible element occupies less than 10% of the primary view shed
Low Project elements borrow extensively from features in visual setting in terms of form, shape, line, pattern color and scale minimizing contrast with the existing setting	High Visual integration is high due to other features, vegetation and or topography achieving dominance and screening or filtering	CATEGORY 3	Visible element occupies more than 40% of the primary view shed	Visible element occupies 40-30% of the primary view shed	Visible element occupies less than 30% of the primary view shed

Table 2.1 | ***Visual Effect Levels***

Area of Primary View Zone at various distances from project area

Distance from project area	Area of Primary View Zone
1 km	0.52 km²
2 km	2.09 km²
3 km	4.71 km²
4 km	8.38 km²
5 km	13.07 km²
6 km	18.85 km²
7 km	25.65 km²
8 km	33.51 km²
9 km	42.41 km²
10 km	52.36 km²
11 km	63.35 km²
12 km	75.40 km²
13 km	88.49 km²
14 km	102.62 km²
15 km	117.81 km²

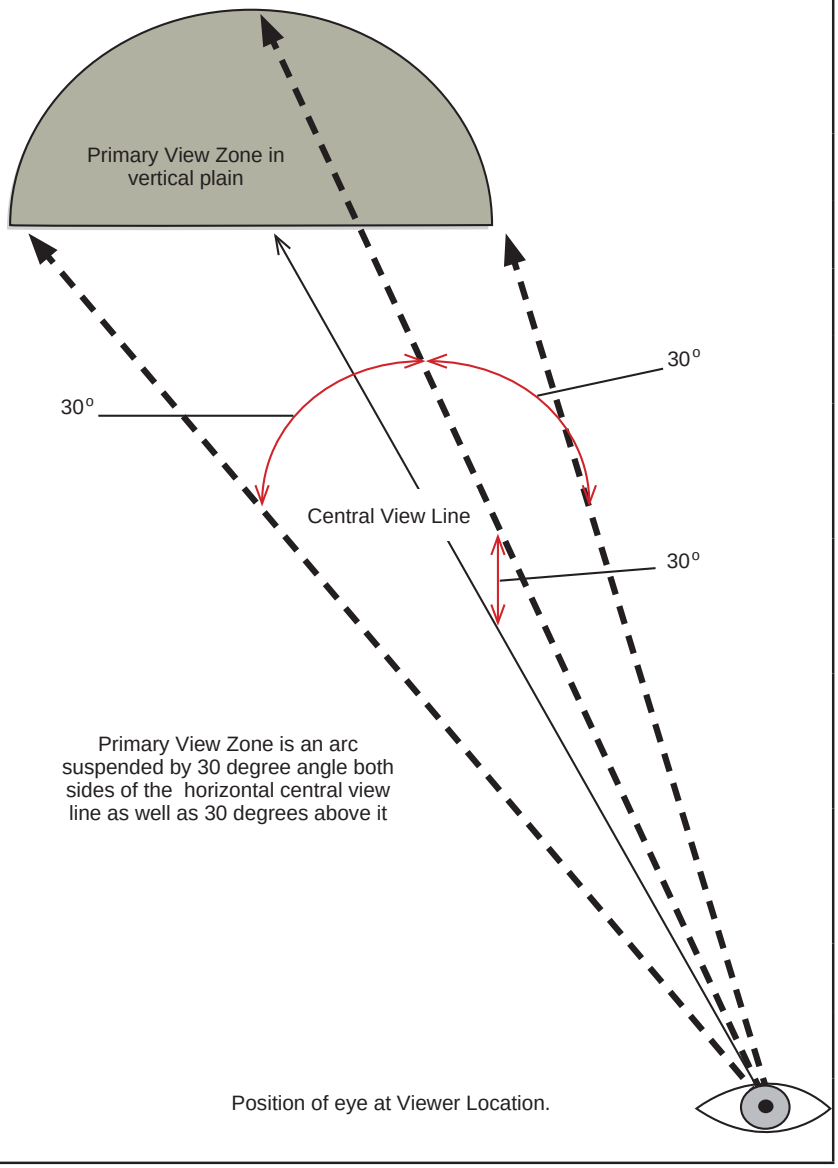


Figure 2.2 | ***Area of Primary View Zone***

Land Use	Visual Sensitivity Levels			
	Nearest visible mine area less than 2.5km away	Nearest visible mine area between 2.5km - 7.5km away	Nearest visible mine area between 7.5 km-12.5km away	Nearest visible area more than 12.5km away
Urban and rural houses	High Sensitivity	High/Moderate Sensitivity	Moderate Sensitivity	Low Sensitivity
Thouroughbred horse studs	High sensitivity	High/Moderate Sensitivity	Moderate Sensitivity	Low Sensitivity
Designated picnic areas, lookouts and walking trails in recreation reserves, eg Gouldburn River National Park, Wollemi National Park, Lee Pinch Lookout, Bylong State Forest	High Sensitivity	Moderate Sensitivity	Low Sensitivity	Low Sensitivity
Designated tourist roads eg Bylong Valley Way	High Sensitivity	Moderate Sensitivity	Low Sensitivity	Low Sensitivity
Railway- SandyHollow to Gulgong Railway	Moderate Sensitivity	Low Sensitivity	Low Sensitivity	Low Sensitivity
Other main roads eg Quirindi Premer Carroll Breeza Road	Moderate Sensitivity	Low Sensitivity	Low Sensitivity	Low Sensitivity
Minor local roads in rural zone eg Upper Bylong Road, Lee Creek Road, Wollar Road	Moderate/Low Sensitivty	Low Sensitivity	Low Sensitivity	Low Sensitivity
Broad acre rural lands	Low Sensitivity	Low Sensitivity	Low Sensitivity	Low Sensitivity

Table 2.2 | ***Visual Sensitivity***

Visual Effect	Visual Sensitivity		
	High	Moderate	Low
High	High visual Impact	High/Moderate Visual Impact	Moderate/Low Visual Impact
Moderate	High /Moderate Visual Impact	Moderate Visual Impact	Moderate/Low Visual Impact
Low	Moderate/Low visual Impact	Moderate/Low Visual Impact	Low Visual Impact

**Visual Impact is dependant on the interaction between visual effect and sensitivity.*

Table 2.3 | ***Visual Impact***

3. EXISTING ENVIRONMENT

3.1 Introduction

This section of this report establishes the visual character of the Project and the surrounding landscapes that make up its visual setting. The existing visual settings of the Project are created by a range of different landscapes. These vary as a result of topography, vegetation cover and land use types. Based on visual differences created by these landscape elements, six LCUs were identified.

Relevant to this assessment for the Gateway Application is a discussion of the CIC that has been mapped within this region. This includes the original SRLUP CIC and the new Draft revised CIC.

The LCUs were analysed in terms of their visual character within the PVZ of the Project.

3.2 Regional Context

The Project is located within the MWRC LGA within the western part of the Hunter River catchment. The village of Bylong occurs within the Project Boundary to the north of the proposed mining areas. Denman is approximately 53 km to the east of the Project Boundary via the Bylong Valley Way. The regional centre of Mudgee is located approximately 55 km to the west-south-west of the Project Boundary.

Topography

The topography of the Project Boundary generally comprises of steep rugged ranges, ridgelines, escarpments and hills which dominate a series of small river valleys and associated flood plains. These ridges and escarpments encircle the Project Boundary and extend into the north-east and east. Tal Tal Mountain forms the maximum elevation within the Project Boundary being approximately 655 m Australian Height Datum (AHD). Mt Penny (570 m AHD) is located the northern part of the Project Boundary and the western edge is bounded by the Growee Ranges.

Rivers

Generally the valleys are interlaced by small meandering creek lines draining north towards the Goulburn River approximately 2.5 km north of the Project Boundary.

Within the Project Boundary, there are a number of small tributaries that flow into the Bylong River that flows east west before flowing north in the vicinity of the village of Bylong (refer Figure 3.1). The Growee River drains to the north-east from south-west entering the Bylong River near Bylong Village. Lee Creek flows north south into the Bylong River and along with the Bylong River is a major creek catchment within the Project Boundary. Other minor creeks also flow into the river systems. The creek valleys are narrow, broadening somewhat into wider flood plains along the rivers,

Land Use

Dense undisturbed vegetation is limited to the steeper slopes, escarpments and ridges within and surrounding the Project Boundary. The balance of vegetation within the valleys has been largely disturbed, with tree clearing and partial clearing for agricultural and pastoral land uses. Some small pockets of open woodland remain on the more elevated and isolated knolls rising above the valleys.

The eastern and northern sections of the Project Boundary are bounded by National Park or State Forest, including Wollemi National Park, Goulburn River National Park and Bylong State Forest.

To the west of the Project Boundary, an exploration lease (EL) exists for another mining company.

Towns

Bylong Village is located within the Project Boundary on Bylong Valley Way, near the junction of the Bylong and Growee Rivers.

Other townships in the locality (including Kandos and Rylstone) are at a significant distance and likely to be screened by elevated topography.

Roads & Rail

Major local roads within the Project Boundary comprises of Bylong Valley Way, Upper Bylong Road, and Wollar Road. Minor roads within the Project Boundary include Growee Road, Lee Creek Road, Woolleys Road, Wallys Road, Killens Road (unsealed) and Budden Gap Roads (unsealed).

There are no existing mining and/or industrial areas located within the Project Boundary, apart from the Bylong Quarry (within the north-eastern part of the Project Boundary).

The Sandy Hollow - Gulgong Railway Line runs generally east to north through the centre of the Project Boundary and connects with the Main Northern Railway Line at Muswellbrook, where it continues down to the Port of Newcastle.

The PVC follows the escarpments that surround the Project Boundary to the south, west and north and falls within the Project Boundary along the eastern and north-eastern edges.

3.3 Critical Industry Cluster (equine)

The Strategic Regional Land Use Policy (the Policy) and Strategic Regional Land Use Plan (SRLUP) (refer Section 1.3.1) provides protection for Strategic Agricultural Land (SAL), which is defined as *"highly productive land that has both unique natural resource characteristics (such as soil and water resources) as well as socio-economic value (such as high productivity, infrastructure availability and access to markets)" (Policy 2012).*

The Policy originally identified areas of SAL within the Project region using CIC mapping criteria, which is called the SRLUP CIC (Equine) Mapping. Refer Figure 3.1.

Equine Critical Industry Cluster

The equine cluster is spatially defined as land (excluding National Park and State Forest) having a slope of equal to or less than 18 degrees and falling within the following buffers:

- In the Mid Western Regional, Muswellbrook and Upper Hunter LGAs - within 5km of the Bylong Valley Way or Martindale Road or the Baerami Creek Road or Widden Valley Road;

This mapping was subsequently updated by the NSW Government in maps released in October 2013, which is referred to as Revised Draft CIC (Equine) Mapping. The areas illustrated in Figure 3.2 have been identified within this Revised Draft CIC (Equine) Mapping by NSW Government.

Equine activities that have been identified across the Upper Hunter Region include:

- Horse breeding;
- Horse husbandry; and
- Horse sales.

These CIC (equine) are defined as *a "localised concentration of interrelated productive industries based on an agricultural product that provides significant employment opportunities and contributes to the identity of the region". (Equine and Viticulture Fact Sheet)*

The relevant CIC value to be addressed for visual impact assessment is:

> "Whether the proposal would lead to significant impacts on the critical industry cluster through:
>
> (f) *loss of scenic and landscape values."*

The areas mapped as CIC under the Revised Draft CIC (Equine) Mapping occur to the south and south-east of Bylong Village on the flatter pastoral lands. The northern margin follows Upper Bylong Road, the cadastral boundary of a one pastoral property ("Tarwyn Park") as illustrated in Figure 3.1.

The mapped CIC under the Revised Draft CIC (Equine) mapping is continuous with an extension outside the Project Boundary to the west/ south-west along the Growee River and onto the northern slopes of the central ridgeline west of the Project Boundary.

Several VCUs have been identified to occur within this area mapped as CIC. The landform is variable with significant topographic features (ridgelines and mountains) bisecting the defined CIC area into smaller visual catchments.

Land use ranges from broad acre grazing of cattle to former thoroughbred horse breeding and training and irrigated cropping lands.

The character is a moderately common scenic rural landscape with attractive scenic amenity due to the combination of significant topographic features and linear pastoral valleys with minimal settlement or visible existing industrial activity.

3.4 Primary Visual Catchment

The PVC includes the most significant parts of the total visual catchment from which the various components of the Project could potentially be seen. The PVC does not enclose all view points, but a consideration of those within the PVC will achieve a robust visual assessment of the Project. The PVC is illustrated in Figure 3.3. The rugged and undulating nature of the PVC limits its extent.

At a regional scale, the forested hills, ridges and escarpments that surround the PVC also define it. Within the PVC, linear north-south ridge lines and mountains limit most broad east-west views.

Vegetation on flat terrain is limited, with few trees associated with rural settlement and road corridors. More scattered trees occupy the lower slopes of the valleys; open woodland and forest occupy the remaining hillsides, ridges and escarpments within the PVC.

The PVC is dominated by the ridgelines and escarpments. The limited areas of broad flat rectilinear patterned cropping lands that occur near Bylong and within Project Boundary provide visual contrast to this rugged setting.

The PVC also contains the small village of Bylong.

3.5 The Project Boundary

The land within the Project Boundary is a mix of elevated ridges and alluvial valleys. The valleys have been affected by disturbances commonly associated with livestock grazing operations. These disturbances include tree clearing, pasture improvement, weed invasion, altered natural drainage line and edge effects. The current vegetation pattern in these valleys is irrigated grazing and agricultural lands within patchy open woodland and grassed slopes. The elevated ridges and hills remain largely undisturbed and retain forest cover.

To the south-east, the Project shares its boundary with the Wollemi National Park and the Goulburn National Park in the north-east. The western boundary rises over two ridgelines and along two valley floors to meet its southern extent where it crosses Lee Creek.

3.6 Landscape Character Units

The landscape features of the locality (topography, vegetation and land use features) combine in various ways to create areas of relative visual uniformity that can be defined as LCUs. The LCUs combine in various vistas that are obtained from viewing locations such as residences and roadways. A range of the LCUs occur in both the SRLUP CIC and the Revised Draft CIC.

Figure 3.3 illustrates the LCUs within the PVC and includes:

- Forested hills and ridgelines LCU;
- Undulating pastoral lands LCU;
- Flat pastoral lands LCU;
- Irrigated grazing/agricultural lands LCU;
- Creeks and rivers LCU; and
- Bylong village LCU.

Each is discussed further in the following sections.

Forested hills and ridgelines LCU

The extensive areas of forested hills and ridgelines within the PVC comprise the escarpments and elevated ranges that surround the Project Boundary. These hills and ridges reach elevations above 550 m AHD in several locations. There also internal ridgelines which divide the PVC into separate view catchments, the most significant being that which runs centrally north-south between the Bylong River/ Lee Creek and Growee River catchments. It also reaches elevations over 550 m AHD. This visually significant ridgeline is predominantly outside the Project Boundary. The side slopes vary from steep and rugged escarpments and knolls to moderate to gentle slopes

Within the Project Boundary there are three broader, elevated forested areas and ridges that also divide the PVC catchment. In the north-west is a northern extension of the Growee Range separating the central and southern portions of the PVC.

Centrally within the Project Boundary is a narrow low east-west ridgeline located north of the Bylong River, known as Mt Penny. It creates visual separation between north and south of this ridge.

Tal Tal Mountain is located within the most southern portion of the Project Boundary with an elevation of approximately 655 m AHD. This, together with the adjacent escarpment to the east encloses the valleys of the Lee Creek and Bylong River within the Project Boundary.

Vegetation cover on all these ridges is open woodland and forest. These hills and ridgelines typically surround areas of undulating grasslands with scattered trees and open flat lands on the lower valley floors that are utilised for grazing. There is visual contrast between the undulating grazing grassland and the steeper forested hills as shown on Figure 3.4.

The Forested Hills and ridgelines LCU dominates the PVC and creates the major visual features in the rural landscape and provides a backdrop to visual elements in the foreground and very significant screening of elements in the adjacent valleys, middle distance and distance.

Undulating pastoral lands LCU

Where the steep terrain of the surrounding forested hills and ridgelines gives way to more undulating topography, the land has been cleared of most trees to develop grassed land for cattle and horse grazing. These undulating slopes lie between flat valley floors and the steeper wooded slopes of the ridgelines and hills and cover the majority of areas not occupied by forest as illustrated in Figure 3.5. The hills that lie around these pastoral lands provide a

sense of enclosure.

This LCU is characterised by dryland grasses with areas of scattered trees. There is significant contrast with the forested hills and ridges and moderate contrast with surrounding LCUs, including flat grazing and irrigated pastoral/ agricultural lands.

The views are constrained by the elevated hills and ridgelines to the local valleys. Views to distant vistas across the grazing lands are also limited by undulating topography, intervening tree cover and middle distance views.

The Undulating Pastoral Lands LCU is a common landscape in the area, but does provide visual variety in the context of other landscape units.

Flat Pastoral Land LCU

This LCU is characterised by flat land within the creek and river valleys that has been cleared of trees and used for broad paddock grazing (refer Figure 3.6). There is no irrigation or tilling of soils evident within the landform. Livestock, generally cattle and horses are stocked on land within this LCU.

The flat pastoral lands support a number of rural residences on varied size holdings. These residences and other farm buildings, along with surrounding landscapes, create minor visual features in this rural locality.

There are longer views available within the valley catchment with very few trees within paddocks to screen extended views.

Roadsides are also contained within this LCU which contain tree corridors which effectively screen foreground views in some locations, as illustrated in Figure 3.6. Other views are limited to the few smaller rural sealed and unsealed roads that occur within this LCU.

The Bylong Valley Way which provides the main vehicle access to the Bylong Valley has been recognised as a tourist route by drive.com.au.

The flat pastoral land LCU is common and most easily accessed as it bounds many roadways that follow valley floors within the river catchments. Vistas can be long and uninterrupted along lengths of valleys. Ridges and hills and some roadside vegetation screen lateral views between valleys.

The LCU has moderate visual significance due to the road accessibility and potential the views available to visitors and residents in the area.

Irrigated pastoral and agricultural land LCU

The irrigated pastoral/agricultural LCU closely follows the creek and river alluvial valley floors in a patterned landscape of textured rectilinear fields. The aerial photography illustrates the contrast in colours, patterns and textures on the land depending on the level of irrigation, the crop and the harvesting season as illustrated in Figure 3.7.

Vistas are linear along the valleys, interrupted only by ridges, hills and knolls at varying distances. There are few trees within this LCU as this land is reserved for cropping or irrigated pastoral uses. The Bylong Valley Way also passes through the centre of the LCU generating the highest level of visual experience for the traveller on this route.

The pastoral/agricultural lands support a number of rural residences on varied size holdings. These residences and other farm buildings, along with surrounding landscapes, create minor visual features in this rural locality.

The pastoral/agricultural lands together with the flat grazing lands and undulating pastoral lands create the rural component of the landscape within the PVC. The areas collectively have a pleasing visual character, however it is not an uncommon landscape setting in the regional or local setting.

Creeks and rivers LCU

The Creeks and Rivers LCU has a narrow linear visual character spreading across the entire PVC along the numerous minor watercourses. The presence of creeks and rivers in this topographically varied landscape is usually evident by a thin linear band of trees and shrubs marking the margins of the watercourse.

Within the Project Boundary, there are a number of small tributaries that flow into the Bylong River (refer Figure 3.1).

The creeks and rivers LCU often creates visual edges to spaces but also that it can create visual screening. It is a common landscape setting with that contributes to the pleasant rural character of the area.

Bylong Village LCU

Bylong is the only village cluster within this PVC.

The small village of Bylong is located centrally within the Project Boundary near the junction of Bylong Valley Way and Upper Bylong Road. The Sandy Hollow to Gulgong Railway Line lies to the east and north of the village.

Bylong village is on level land adjacent to the Bylong River which passes beneath the Bylong Valley Way flowing to the north.

There are several buildings within the village including (see Figure 3.9):

- Bylong General Store and fuel pumps;
- Bylong Community Sports Ground community hall;
- Rest area shelter and;
- Residential properties – (7 private freehold and 3 KEPCO owned).

An old sandstone church (St. Stephen's Anglican Church) and cemetery lie approximately 165 m to the north-west of the village. The ruins of another sandstone "pioneer" home remain adjacent to Bylong Station on the north-eastern outskirts of Bylong village.

Tourist information is posted in a dedicated interpretive shelter on the roadside near a good viewing location with pleasant views to the west and north-west. In addition to this Bylong (Bylong Valley) has been described as a possible destination for scenic road tours within the region.

From Drive.com - *The Bylong and winding road*. Date: February 2011; Comments by Stephen Ottley

> *"Bylong ….*
>
> *It's a tiny hamlet in the middle of nowhere with only a general store to tempt passers-by. ….*
>
> *But Bylong is at the heart of one of NSW's great driving experiences. The Bylong Valley Way links the towns of Ilford and Sandy Hollow, connecting the Castlereagh Highway and Golden Highway to the west of Sydney.*
>
> *… the Bylong Valley Way is one of the state's most engaging mixes of stunning scenery and challenging driving roads, equally enjoyable for driver and passenger alike."*

The LCU contains a small concentration of potentially sensitive residential, commercial and recreational receptors.

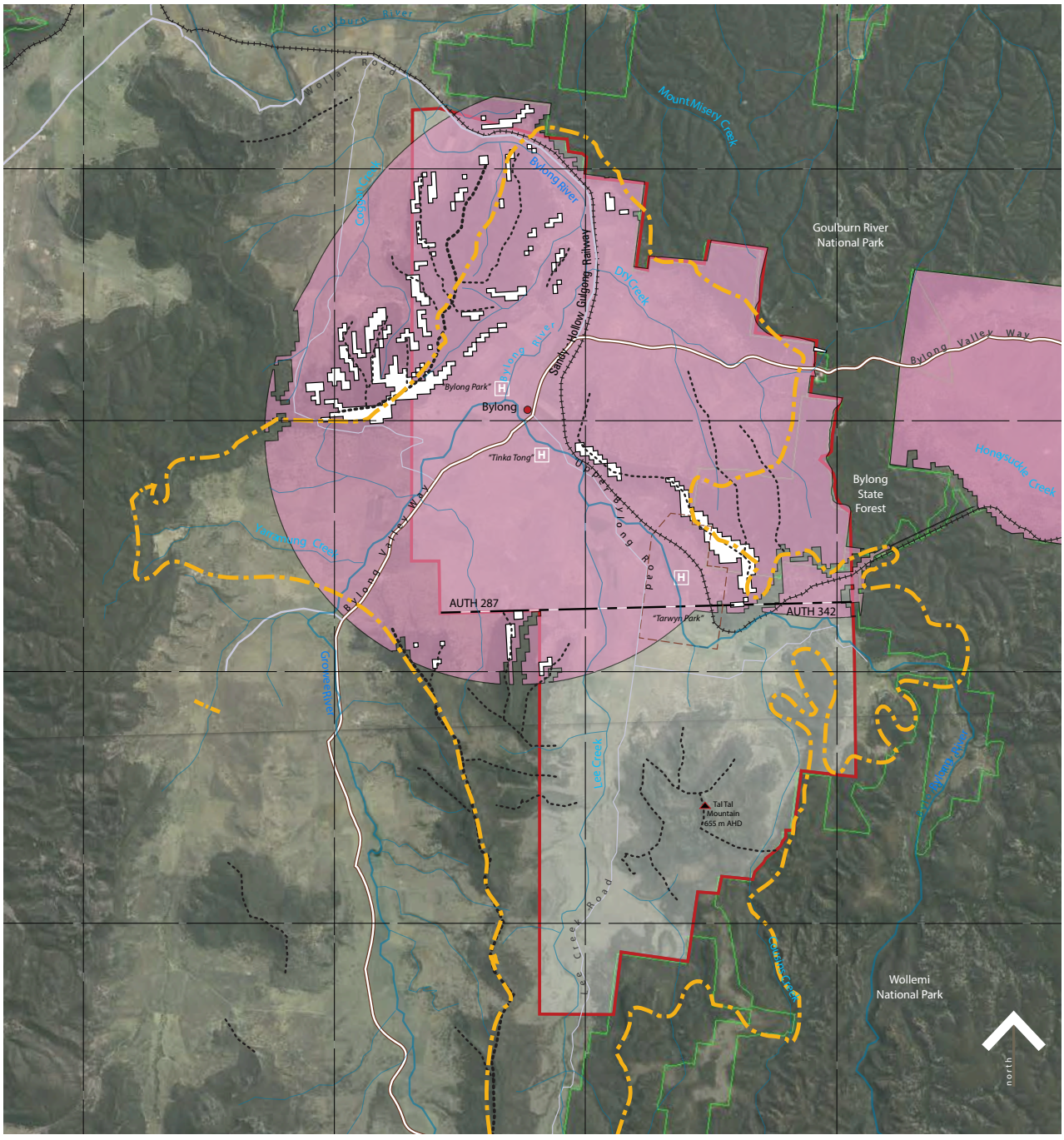


Figure 3.1 | ***SRLUP CIC (Equine)***

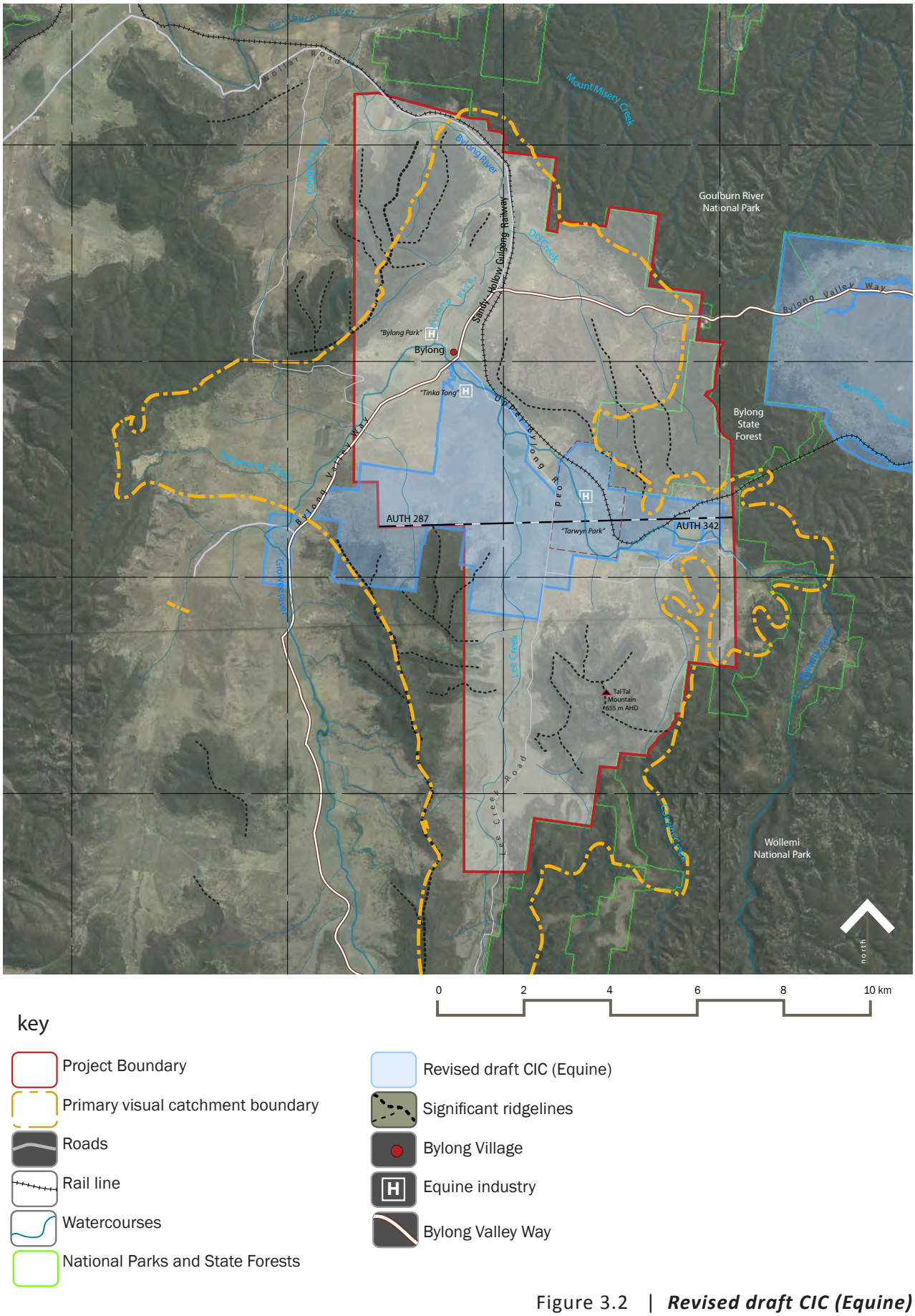
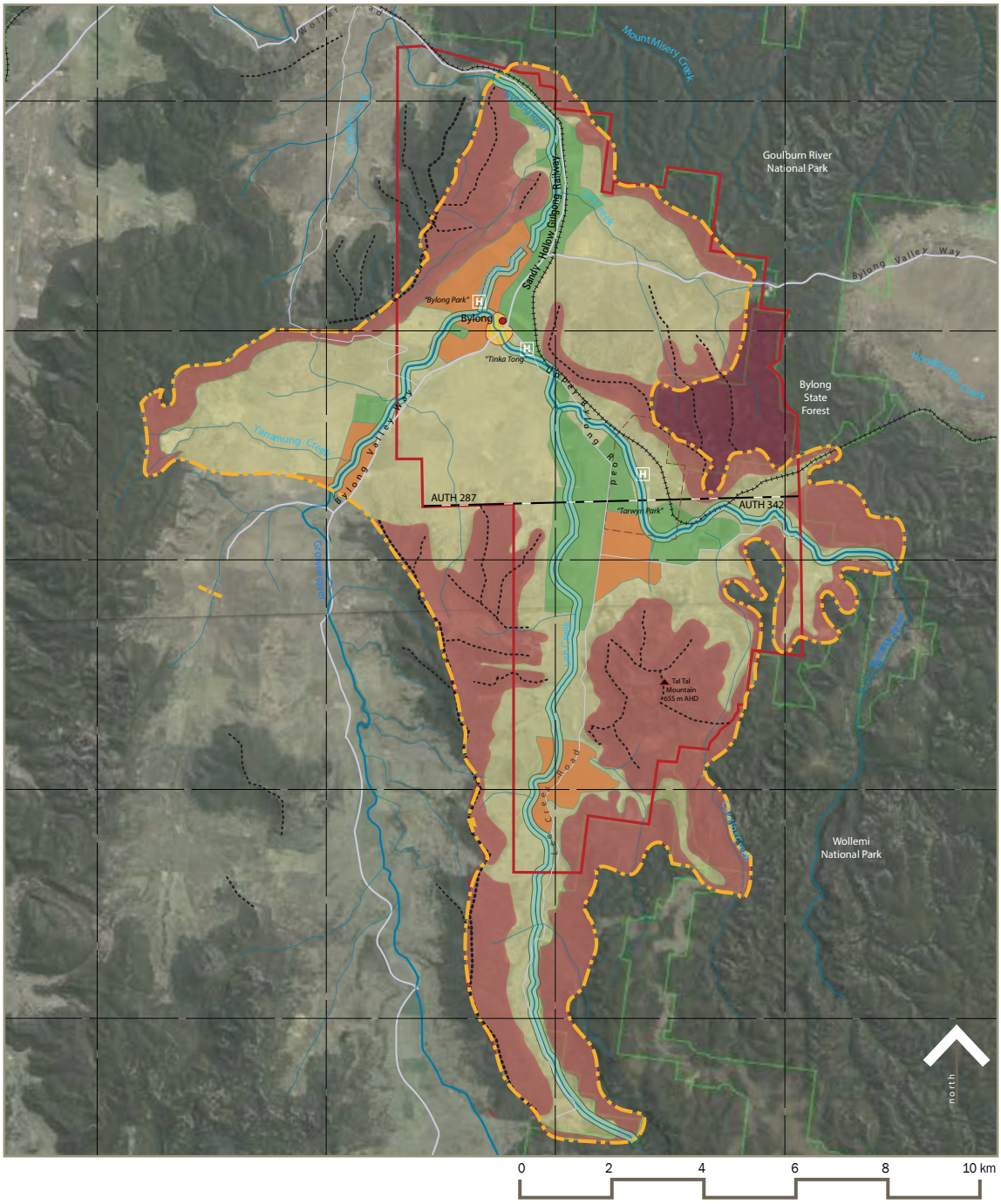


Figure 3.2 | ***Revised draft CIC (Equine)***



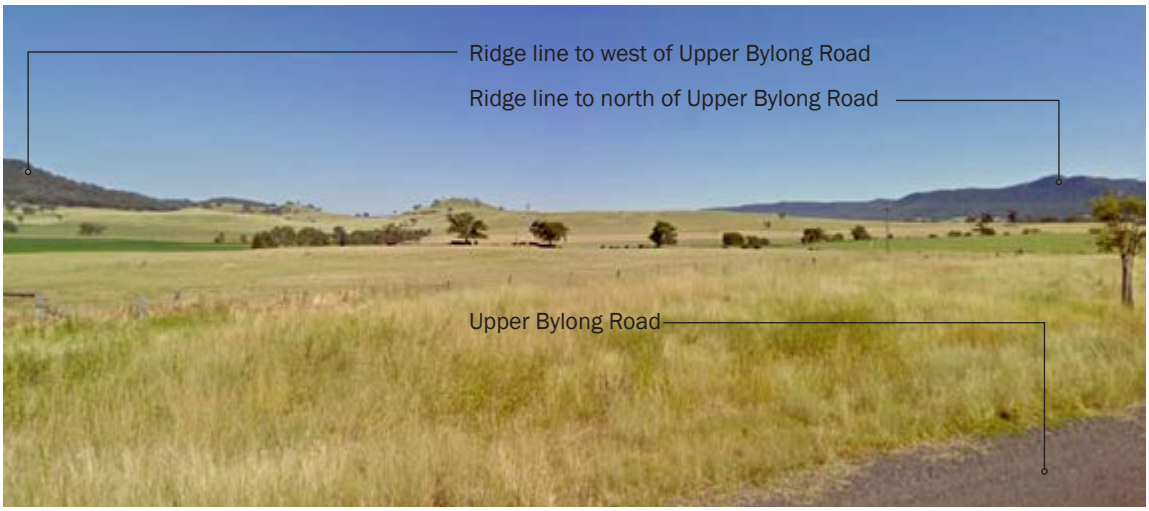
key

- Project Boundary
- Primary visual catchment boundary
- Roads
- Rail line
- Watercourses
- National Parks and State Forests
- Forested hills and ridgelines
- Undulating pastoral lands
- Flat pastoral/ grazing lands
- Irrigated pastoral/ agricultural lands
- Creeks and rivers
- Bylong Village

Figure 3.3 | ***Visual Catchment Units***

Figure 3.4 | ***Forested Hills and Ridgelines VCU***

This VCU includes moderate to rugged slopes, ridgelines and escarpments that delineate the Project Boundary in some places. Such ridgelines limit views from east to west across the PVC.



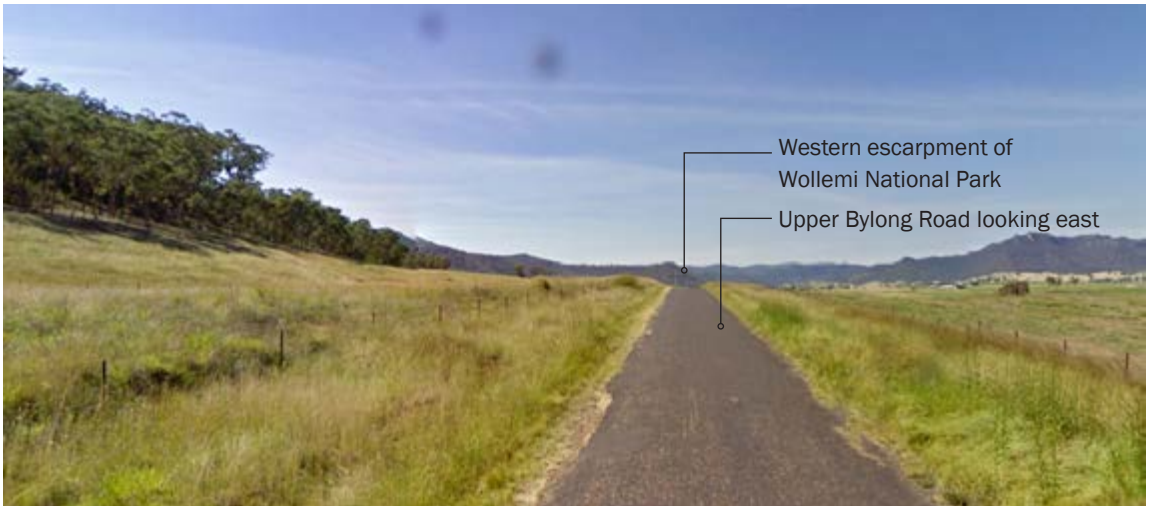


Figure 3.5 | ***Undulating Pastoral Lands VCU***

This undulating country is generally cleared with scattered tree cover. Distant views are limited due to surrounding hills and ridges.

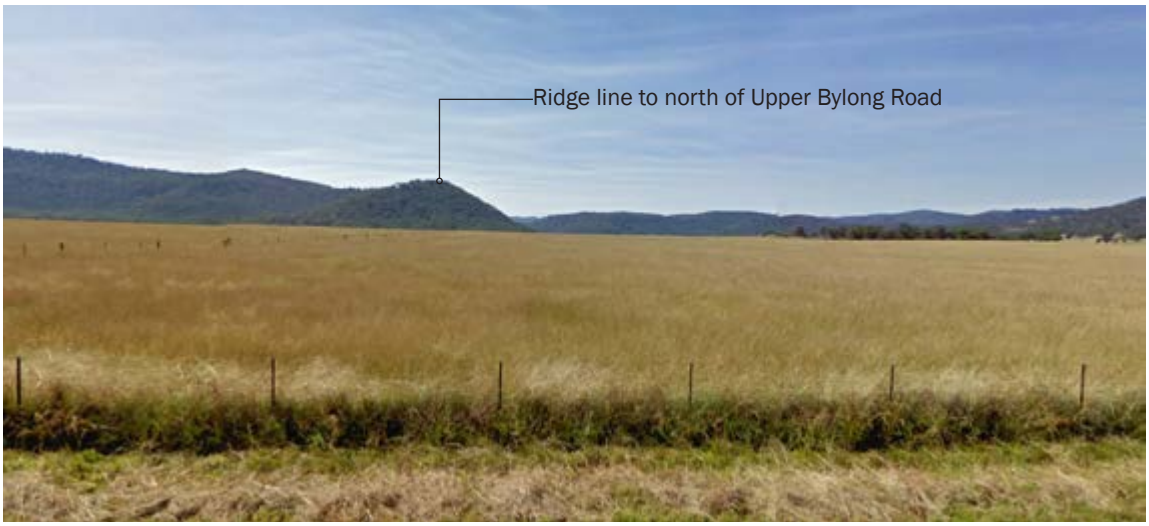
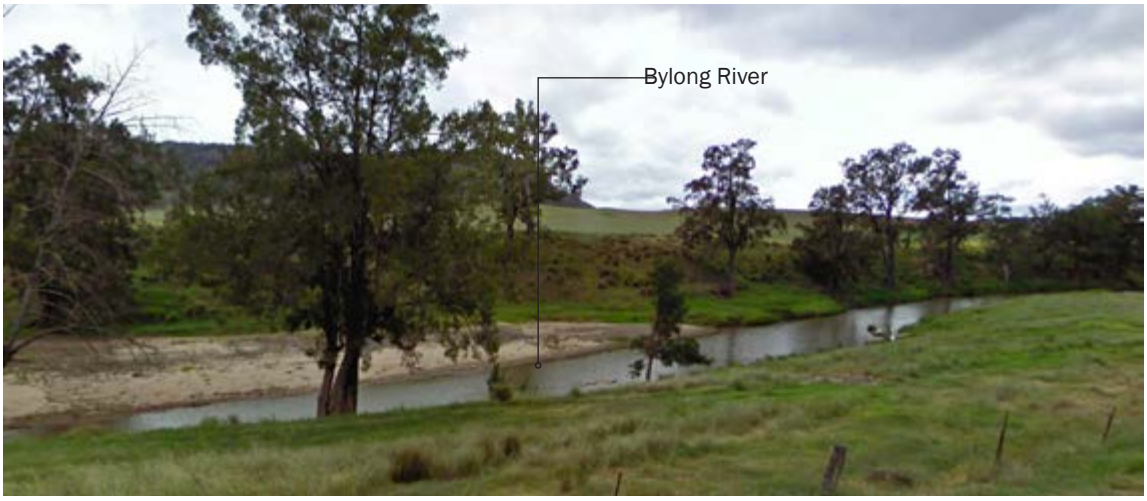


Figure 3.6 | ***Flat pastoral lands VCU***

Generally low flat open grasslands with a few isolated trees characterise this VCU. Distant views are possible but the road side trees may screen lower features within the landscape beyond.

Figure 3.7 | ***Irrigated pastoral/ agricultural lands VCU***

Irrigated pastoral / agricultural lands dominate this VCU, creating open long distant views and small scale rectilinear patterns of great visual contrast due to the deeper greens of irrigated paddocks. The VCU is generally backdropped by the Forested Hills and Ridges VCU.



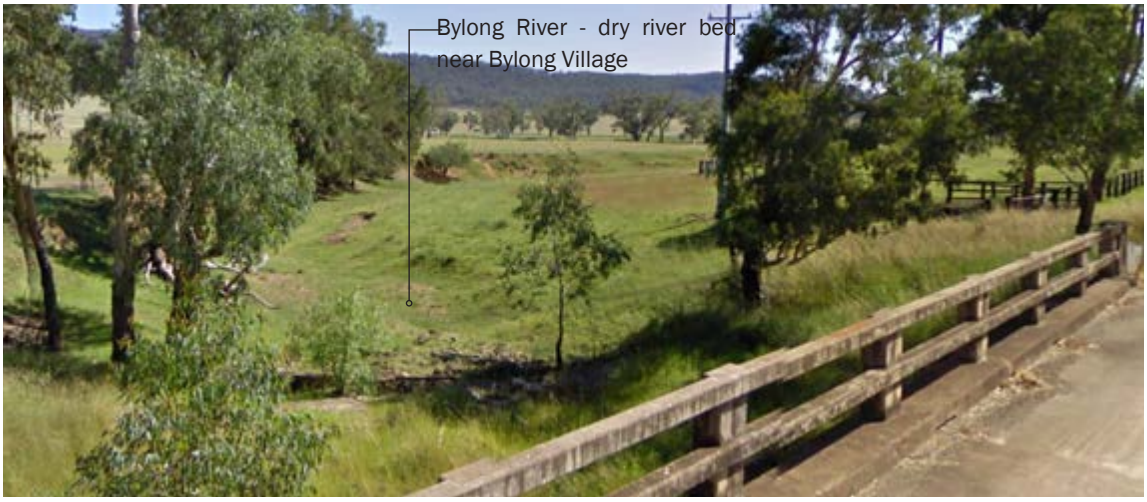


Figure 3.8 | ***Creeks and Rivers VCU***

This VCU defines the watercourses that interlace the PVC in meandering tree lined drainage channels. Visually, the lines of trees mark the presence of creeks and rivers throughout the VCU.

Figure 3.9 | ***Bylong Village VCU***

Towns and villages create focal points in the landscape as well as local settings. They contain built elements contributing to the foreground of a view.

4. THE PROJECT

This section evaluates the various components of the Project and considers the potential visual effects in terms of how these elements contrast with the existing landscapes. Each of the components will have varied visual effects on the surrounding landscapes (Table 2.1) based on their visual character, scale and their interaction with the adjoining landscape and their visibility especially to CIC (Equine) areas.

4.1 Project Components

From a visual perspective, the Project elements outlined in Section 1.2 of this report can be divided into major and minor elements. Major elements have the potential for significant visual effect in relation to external views. Minor elements, although not necessarily insignificant in horizontal scale, have a less significant visual effect due to lack of vertical scale and visual projection beyond the Project. Major Project development components, Figure 4.1, include:

- Two open cut mining areas (Eastern, and Western Open Cut Mining Areas);
- OEAs (North-western, North-eastern, South-western and South-eastern OEAs);
- CHPP and associated infrastructure; and
- Temporary worker's accommodation facility and associated access road.

Minor Project development components include:

- Surface and groundwater management and reticulation infrastructure;
- Surface mine site facilities within the Mine Infrastructure Area (MIA);
- Mine Access Road;
- Relocation of existing public access roads;
- Communications and electricity reticulation infrastructure; and
- Rail loop, associated rail loading facility and connection to the Sandy Hollow-Gulgong Railway Line.

The physical and visual character of these major and minor components is discussed below.

4.2 Open Cut Mining Areas

Physical Character

Coal extraction will be undertaken in both open cut mine operations and more extensive underground mine operations. The coal resource within the western portion of the Project Boundary occurs at relatively shallow depths, which makes this resource most suitable for recovery using open cut mining methods. Underground mining methods are proposed within the more elevated topographic areas where this method is achievable.

Prior to surface disturbance commencing, suitable soil materials will be recovered and stockpiled for use in future rehabilitation activities. The proposed open cut activities will be consistent with conventional open cut mining operations, utilising diesel powered hydraulic excavators matched with suitably sized haul trucks to facilitate the removal of overburden to uncover the coal.

Year 1 to 3

Mining will commence in Year 1 via a box cut situated in the north-west of the Eastern Open Cut Mining Area. Concurrently, mining will be developed in the south-western part of the Eastern Open Cut Mining Area. By

Year 5 the advancing faces of the two mining areas will join to form a continuous east-advancing face over 400 m wide.

Overburden from the Eastern Open Cut Mining Area will initially be placed within the North-Western OEA and South-Western OEA until the mining areas are suitably developed to enable progressive backfilling.

The southern portion of the Eastern Open Cut Mining Area will remain as an open void for the storage of rejects and tailings material for the longer term underground mining operations.

The Western Open Cut Mining Area also commences operations at Year 1 with a box cut in the northern end. Overburden extracted from this area will initially be placed within the North-Western OEA, until mining has been sufficiently developed to enable the overburden to be used to backfill the mining area

Year 5

The two Eastern Open Cut Mining areas will join and progress eastward with overburden being used to develop the South Eastern OEA and further develop the North Western OEA.

The Western Open Cut Mining Area has advanced south with an approximately 700 m face into the northern side slopes of the adjacent ridgeline. The previous void being filled to develop the North Eastern OEA

Year 7

The Eastern Open Cut Mining Area will have advanced to the south-east and south reducing in total area of open cut; the Western Open Cut Mining Area has advanced further south whilst remaining similar in area

Year 10

The Western Open Cut Mining Area has completed operations.

The Eastern Open Cut Mining Area has rotated its eastern face to the south to follow the landform on the northern side slopes of Tal Tal Mountain. The active face wraps around the base of this mountain and is shielded between it and the South Eastern OEA Open cut mining operations are completed during this year, with the void in the southern mining area remaining open for the storage of tailings and rejects materials from the ongoing underground mining operations.

Year 29 – Final Landform

The southern void of the Eastern Open Cut Mining Area will be capped with overburden material that is extracted from the OEAs and progressive rehabilitation of this area and the haul roads will be completed (Figure 4.2).

Visual Effect

The ‘highwall’ of the open cut mining areas is located below natural ground level and therefore only the higher elevations of this component will be visible from certain view locations. Such areas will potentially be visible where the slopes of existing topography to be mined are elevated and the advancing face of the mining areas is visible above the previously mined areas.

From some viewing locations, in particular elevated locations, open cut mining areas create a high visual effect due

to contrast against the surrounding landscape features. This effect cannot be reduced until the associated OEAs are developed, shaped and progressively rehabilitated to meet the final landform design.

Operations in the Eastern and Western Open Cut Mining Areas in the initial years will result in a high visual effect to some view locations.

The Eastern Open Cut Mining Area will be viewed from the north-west including northern parts of Upper Bylong Road and some parts of Bylong village on its narrow northern and western fronts. Users of Lee Creek Road as it approaches the Eastern Open Cut Mining Area will also have views of operations along the broad south-west flank. There may also be distant views to the Western Open Cut Mining Area from here.

The rail line has extensive views of the Eastern Open Cut Mining Area at various times from distances of approximately 1 km at its closest point.

This high level of visual effect will continue until the OEAs are established and rehabilitated. The visual effect will progressively be reduced to moderate or low as OEAs are shaped, rehabilitation advances and the landform is integrated with the surrounding rural settings. Faster lowering of visual effects will occur to the west of Lee Creek with view areas adjacent to Growee River and Bylong Valley Road experiencing lower visual effects once leading faces of the OEAs are rehabilitated.

By Year 7, the active faces of both Open Cut Mining Areas have advanced south and are shielded by the OEAs being developed within the mining areas and existing topographic features. The rail line continues to have views to the Eastern Open Cut Mining Area as it moves east and south.

The visual effect of the Western Open Cut Mining Area is high, but most viewing locations most are generally screened by some of the intervening topography, limiting the visibility of open cut operations for receptors. The constructed North Western OEA contributes to good screening of operations from the north-west, particularly Bylong village.

The final void in the Eastern Open Cut Mining Area will create a high visual effect for those areas that have views towards this feature in the landscape. However the development of the OEAs and existing topography will limit views to these areas reducing this high level of effect.

4.3 Overburden Emplacement Areas

Physical Character

In the initial 3 years of open cut mining, overburden from the eastern open cut mining area will initially be placed within the North-Western OEA and South-Western OEA until this mining area is suitably developed to enable progressive backfilling.

The Project will develop two OEAs outside of the open cut mining areas, including the:

- North-Western OEA located to the north-west of the Western Open Cut Mining Area; and
- South-Western OEA located to the west of the Eastern Open Cut Mining Area across the Upper Bylong Road.

As these two OEAs are developed in conjunction with initial years of open cut mining, there will be initial removal of overburden and topsoils. Mine overburden will be trucked to the OEAs to develop land forms that are higher

than the existing topography. The conceptual design of these OEAs has been developed to minimise surface disturbance and mitigate visual impact to sensitive receptors where possible. They will initially appear as bare earth mounds until progressive rehabilitation is implemented.

By Year 5, the Project will have developed sufficiently to enable the infilling of the mining areas and construct two OEAs, including the:

- North-Eastern OEA which will commence in the northern portion of the Western Open Cut Mining Area where it will fill the voids as mining operations progress southwards; and
- South-Eastern OEA which will initially commence on the western margin of the Eastern Open Cut Mining Area as mining operations progress towards the east.

The North Western OEA will have been developed further to the south and west and the South Western OEA will have been developed to its maximum extent. Progressive rehabilitation will have been completed to reinstate ground cover and revegetation on approximately half the exposed OEA surfaces.

The North Western OEA will assist in screening views towards the open cut mining areas from the north-west and particularly Bylong village and Bylong Valley Way. It will also assist in limiting views to the Western Open Cut Mining Area from Upper Bylong Road to the north.

The South Eastern OEA will limit views into the Western Open Cut Mining Areas from the northern potions of Upper Bylong Road.

By Year 7, the Project will have finalised landforms on two OEAs outside the open cut mining areas, including the:

- North-Western OEA; and
- South-Western OEA.
- Progressive rehabilitation will also be well established across these two OEAs.

The North Eastern OEA will have progressed further south filling the mining void soon after the mine progressing. Its profile is broad and flat, similar to pre-mining profiles. There will be a small active unshaped overburden on the southern margin of the North Eastern OEA consistent with the progression of mining operations.

Rehabilitation of the northern most and western most portions of the South Eastern OEA will have been completed within the Eastern Open Cut Mining Area as mining moves south and eastward.

By Year 10, the Project is in its final year of open cut mining operations. The only exposed open cut void lies on the southern and south-eastern margins of the Eastern Open Cut Mining Area. All other previous voids have been filled and final profiles near completed. Rehabilitation is established across the four areas:

- North Western OEA;
- South Western OEA;
- Western Mining Area; and
- Eastern Mining Area (with exception of the Eastern open cut void).

The landscape appearance will be one of discernibly disturbed landscape of smooth stepped or terraced grassed

hills with a subtly contrasting texture and landform.

Visual Effect

The OEAs for the Project will create strong contrasting form in the landscape and will initially have a strong colour contrast. This contrast and high visual effect will be reduced during rehabilitation as initial grass cover establishes, lowering visual effects to moderate. Following the establishment of tree cover, the visual effect will be reduced to low.

Some high visual effect levels may be experienced for up to 5 years due to visual exposure to the pre-rehabilitated OEAs and filled mining areas. These effects can be minimised by the continued use of progressive rehabilitation and by optimising rehabilitation timetables for each exposed area.

During the initial years of operations within the Western Open Cut Mining Area, the North Western OEA creates moderate visual effects on sections Bylong Valley Way within Bylong Visual Impact Zone until Year 5 when the OEA is grassed and the colour contrast is reduced along the western front.

After Year 2 of mining construction, the nearest active mining area to the village of Bylong is approximately 3.2 km to the east and 2.2km to Bylong Valley Way However intervening vegetation around the village and to varying degrees Bylong Valley Way will minimise the available glimpses onto the mine operations until the North Western OEA is constructed. Then and until the northern and western faces of The OEA are rehabilitated there will be small views to areas that could have high visual effect. The visual effect of the limited views onto the active face of the OEAs will create strong contrast in form, shape, line, colour and texture that will be a major deviation from existing environment

After 2-3 years this OEA will have low visual effects and will then further limit views for the remaining years of the Project. .

The visual effect will progressively be reduced to moderate or low as OEAs are shaped, rehabilitation advances and the landforms are integrated with the surrounding rural settings. The establishment of trees during rehabilitation development will further reduce the visual effects.

High visual effects will be experienced from the OEAs in the Eastern Open Cut Mining Area for several years, when some views of raw cleared excavations and overburden are available from local receptors such as rural residences.

This effect will reduce to the north when initial rehabilitation is complete after Year 5. Further reductions in visual effect from viewing locations at higher elevations can only be achieved when tree cover is established, approximately five years after tree planting or seeding on rehabilitated areas has occurred.

4.4 Underground Mine Operation

4.4.1 Physical Character

Coal extraction will be undertaken in both open cut and underground mining operations. Underground mining methods are proposed within the more elevated topographic areas.

The primary components for the underground mining operations that will be visible from locations outside of the Project area will be the initial box cuts and ventilation infrastructure. This infrastructure is likely to be constructed at the commencement of underground mining operations.

Box cut

The initial development for the underground mining operations will involve the development of two box cuts in the vicinity of the Rail Loop. The box cut will facilitate the construction of decline drifts to provide access to the underground mine for employees, materials, power, ventilation and coal transport.

The two box cuts are proposed to be developed generally below the ground and will also be viewed behind other components of Project infrastructure, including the MIA and the Rail Loop, CHPP and associated infrastructure.

Ventilation

A ventilation shaft will also be constructed on the north eastern side of the Rail Loop to facilitate ventilation of the underground mining areas according to the relevant safety standards. The ventilation shaft is proposed on the north-eastern side of the Rail Loop and due to its size is unlikely to be visible behind this infrastructure.

Visual effect

The visual effect of underground mining will be limited to the initial box cuts that will create localised land form and colour differences. These will not have a high visual effect because of the limited scale

4.5 Mine Infrastructure

4.5.1 CHPP

Major infrastructure for this Project is located within two MIAs. The open cut MIA is located adjacent the northern extent of the eastern open cut mining area. The underground MIA is located at the foothill of the natural escarpment to the north-east of the Sandy Hollow-Gulgong Railway Line (see Figure 4.3) and on the north-western side of the Rail Loop. Within the vicinity to the Underground MIA, the major infrastructure elements include:

- CHPP;
- Raw coal stockpile area;
- ROM Bins;
- Overland conveyor; and
- Product stockpile area.

All the major infrastructure elements have a distinct industrial character. They are large in scale and coupled with the minor additional elements, create an industrial setting. During the construction period, there will be the additional activity associated with the development of the Project, generally associated with vehicle and construction machinery movement.

4.5.2 Visual Effect

The major infrastructure elements would create a high visual effect where they are visible due to strong contrasts with the surrounding rural landscapes. The rectilinear form, shape and line of the CHPP, product bins, coal stockpiles, conveyors, etc. will contrast strongly with the natural form shape and line of the topography and vegetation of the locality.

The product coal stockpiles will generally be linear and will contrast strongly with the existing environment, creating a high visual effect where localised views are available from adjacent Upper Bylong Road and a section of Bylong Valley Way approximately 4 km to the west. The OEAs that will be developed during the initial years of open cut mining operations together with existing topography and vegetation will limit views from the Bylong Valley Way to the infrastructure areas beyond that.

Local topography and vegetation will limit views from Bylong village and on Bylong Valley Way to the east of the

village.

The visual effect of the construction process will add a visually dynamic element in terms of machinery and vehicle movement. These visual effects will be in addition to the creation of visual effect created by the ongoing establishment of the MIAs and major infrastructure elements within it.

Mine Site Facilities

Physical Character

The open cut mine site facilities located in the Open cut MIA are proposed to include:

- Internal mine access roads and light vehicle parking;
- Associated power reticulation and communication infrastructure;
- Administration and bathhouse facilities;
- Sewerage treatment systems;
- Mine workshop, store and laydown facilities;
- Hardstand areas;
- Fuel and lubrication station and refuel facility;
- Compressor facility;
- Associated water management infrastructure;
- Feeders and sizers; and
- ROM and rejects bins and associated conveyors.

The Underground mine site facilities are proposed to include:

- MIAs;
- Internal mine access roads and light vehicle parking;
- A high voltage transmission line and associated power reticulation infrastructure;
- Mine Office, administration and bathhouse facilities;
- Sewerage treatment systems;
- Sufficient lighting facilities;
- Communications lines, towers and other facilities;
- Mine workshop, store and laydown facilities;
- Hardstand areas;
- Fuel and lube station and refuel facility;
- Compressor facility;
- Associated Water Management Infrastructure;
- In pit area and portals;
- Ventilation plant;
- Stockpiles;
- Feeders and sizers;

- Conveyors; and
- Underground Inertisation plant.

These elements relate to the operation of the mine facility and service the on-site workforce.

Visual Effect

Much of the mine site facilities will have light industrial character of sheds, workshops, and service equipment. The facilities contrast in character to rural landscape but have similar scale and form many agricultural sheds and out buildings that currently occur in the valley. They are generally clustered in one location, thereby consolidating the extent of effect on the wider rural landscape. However the infrastructure will only be visible from certain locations surrounding the Project.

4.6 Rail Loop and Associated Load Out Facilities

Physical Character

The Project will transport the coal product after processing to the Port of Newcastle by rail, utilising the existing Sandy Hollow-Gulgong Rail Line. A rail loop with train loading facilities will be constructed to facilitate the loading of coal.

The rail loop will be constructed on the north-east of the existing Sandy Hollow-Gulgong Rail Line. There will be associated operational facilities and equipment constructed.

Visual Effect

The rail loop will comprise of sections with substantial fill and sections with substantial cut into the existing landscape. The rail loop will have little vertical projection, particularly when compared to the existing Sandy Hollow-Gulgong Rail Line which will lie in front of this infrastructure. While earth embankments are being developed, a moderate visual effect will be created to exposed parts of this landform. However, this effect will become low once the exposed areas are rehabilitated and grassed.

There will be significant construction activity associated with the construction of the rail loop. However, the long term visual effects from this activity will be low.

4.7 Mobile Equipment - Mining Fleet

Physical Character

All open cut mining operations are proposed to be completed utilising a large industrial scale mining fleet including excavators, haul trucks, dozers, graders, drill rigs and water carts. This mining fleet consists of large equipment, with an industrial scale and appearance. The equipment will be constantly moving throughout the Project Boundary between open cut and the MIAs and may be visible from time to time from particular view locations.

Visual Effect

The mining fleet forms, colours and lines contrast strongly with the surrounding landscape. However each element is mobile, therefore its visual effect is ephemeral, evident only when the equipment is within a viewing location which may be for short periods of time. On that basis the mining fleet elements have a high but temporary visual effect.

4.8 Water Infrastructure

Physical Character

Water infrastructure includes the construction and operation of surface and groundwater management and reticulation infrastructure including dams, pipelines, diversion drains, sedimentation dams and culverts, pumping stations and associated infrastructure. This infrastructure will be sized and located as required to capture runoff from mining and overburden emplacement areas.

Visual Effect

Infrastructure elements will be long horizontal pipelines that will follow the ground contours. The dams will require vegetation clearance and earthworks to accommodate the dams within suitable catchments. This will initially have high visual effect during construction due to the colour contrast causes by exposed soils and loss of vegetation against the forested backdrop of the footslopes to the Bylong State Forest. This visual effect will reduce after ground cover to disturbed areas is established.

The pipelines generally will have a plain linear form and line. These and the other industrial infrastructure elements will contrast in form, colour and texture to the surrounding landscape but will generally have a low profile modifying the level of visual effect (moderate to low visual effect) and would have very little visual effect outside of the Project Boundary.

4.9 Site Access

Physical Character

Access to the Project would generally be via the existing Upper Bylong Road from the Bylong Valley Way. Access to the Open Cut MIA will be via Upper Bylong Road. An upgrade to the Upper Bylong Road and its intersection with Bylong Valley Way will be necessary to support the additional construction and operational traffic.

The Underground MIA will be accessed from Upper Bylong Road via an access road to be constructed over the Sandy Hollow-Gulgong Railway Line.

Access to the Temporary Workers Accommodation Facility will be from Bylong Valley Way into an existing residential access located on the former Bylong Station property to the north-west of the underground and open cut mining areas as illustrated in Figure 4.2

Internal mine haul roads will be constructed to access open cut mine sites and move overburden to the OEAs. One arm services each of the Western Open Cut Mining Area, North Western OEA and North Eastern OEA. The second arm of haul roads is more extensive extending south along a central spine to service the Eastern Open Cut Mining Area, South Eastern OEA and the South Western OEA.

Operational requirements will result in relocation of parts of Upper Bylong Road. Road realignments along the southern side of the Sandy Hollow-Gulgong Railway Line are proposed. Some of this new access road will be within the revised draft CIC mapped area to the north of the Eastern Open Cut Mining Area and OEA. Refer to Figure 4.1 for conceptual road layouts.

There are two options to maintain access to the southern portion of Upper Bylong Road:

- Upper Bylong Road via Bylong Valley Way and Lee Creek Road; and
- Upper Bylong Road via Bylong Valley Way, Buddens Gap Road and Lee Creek Road (more direct but elevated).

Visual Effect

The visual effect of the site access roads and realigned public road will create a high visual effect during construction, however, most of these roads when established will be reduced to low as they are set low in the landscape and are an existing visual element in the local and regional landscape settings.

Any new bridge crossings that are required will create high visual impact locally during construction, however like the site access roads, are an existing visual element in the local and regional landscape. Once established the visual impact will be reduced to low. Existing vegetation along Upper Bylong Road provides some screening to infrastructure areas as illustrated in Figure 4.3.

There is likely to be a minor increase in traffic volumes introduced by the Project to area within the CIC. These increased traffic volumes may result in a high visual effect, however it is transient and dependent upon receptors adjacent the intersection and travellers along the Bylong Valley Way.

The visual effect of the internal mine haul roads within the context is low as they are flat and follow the topography within the Project Boundary. Many will be screened by local topography, intervening vegetation or by OEAs after the mines are more established. Viewing locations will be limited.

4.10 Power Reticulation

Physical Character

The Project involves the construction of a 66 kV transmission line from the existing sub-station to the east of Bylong Village to the Underground MIA and will provide the power supply for the Project.

The Project will require the relocation and realignment of existing transmission lines that traverse through the Project Boundary. This line is similar in scale to existing lines and would not create a high visual effect, especially if good route selection is implemented.

Visual Effect

There will be more of the same physical elements that are presently experienced within the region. Visual effects of the proposed infrastructure will be low.

4.11 Workers Accommodation Facility

This will be a series of prefabricated structures clustered about service facilities and amenities. The proposed location is with a flat slightly elevated area to the east of Bylong Valley Way as illustrated in Figure 4.2

The facilities will be located in a rural setting with very few structures and no residential building clusters of the proposed configuration or character.

Visual Effect

The visual effect of this facility will be high due to the contrasting forms, colour and character of the development and the location adjacent the main road and few sensitive receptors. Visual effect can be reduced by implementation of on – site visual mitigation measures to screen views to this facility from viewer locations. However its temporary nature may not warrant this. This facility could be seen from areas within the SRLUP CIC (Equine) but not from the Revised draft CIC (Equine).

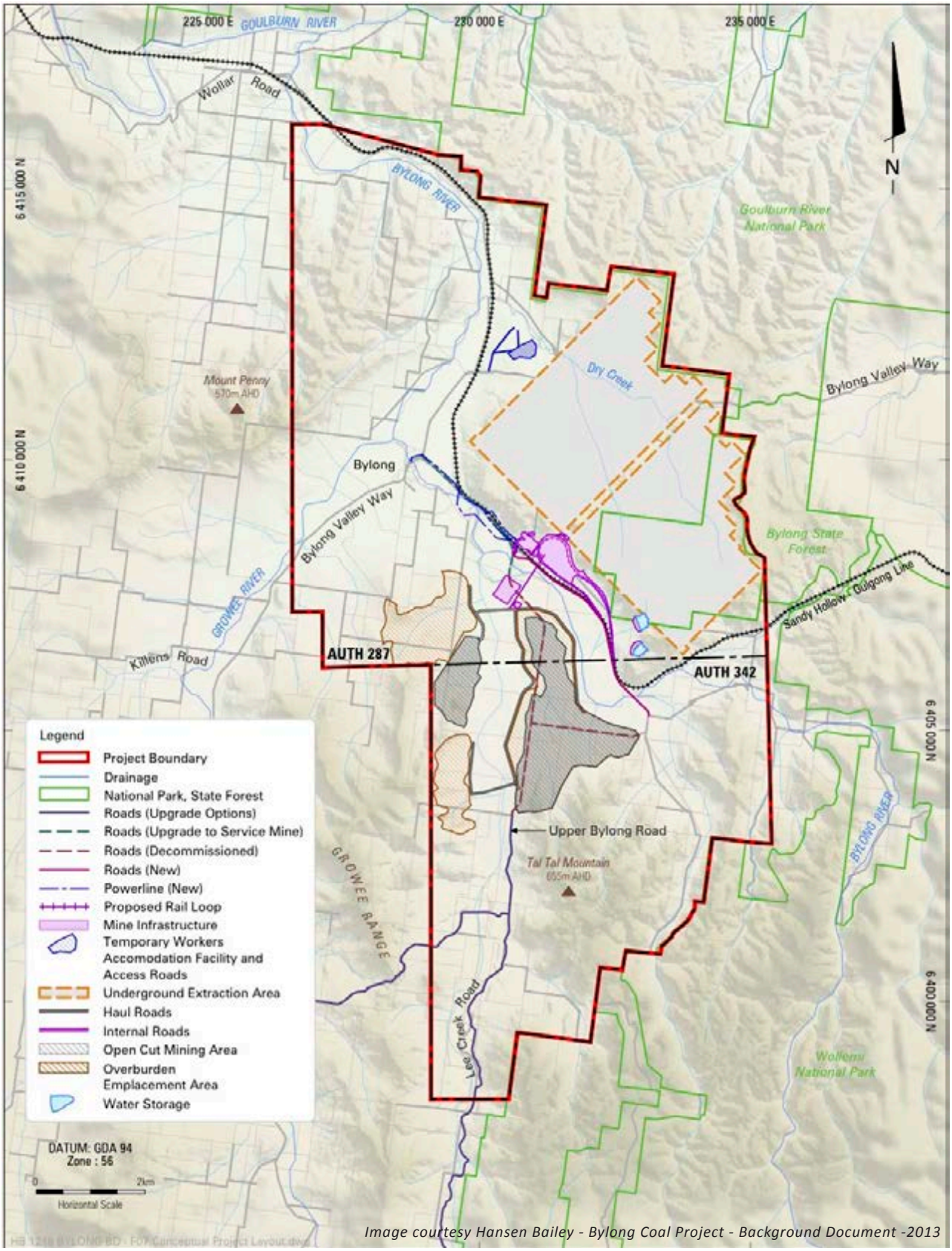


Image courtesy Hansen Bailey - Bylong Coal Project - Background Document -2013

Figure 4.1 | ***Conceptual Project Layout***

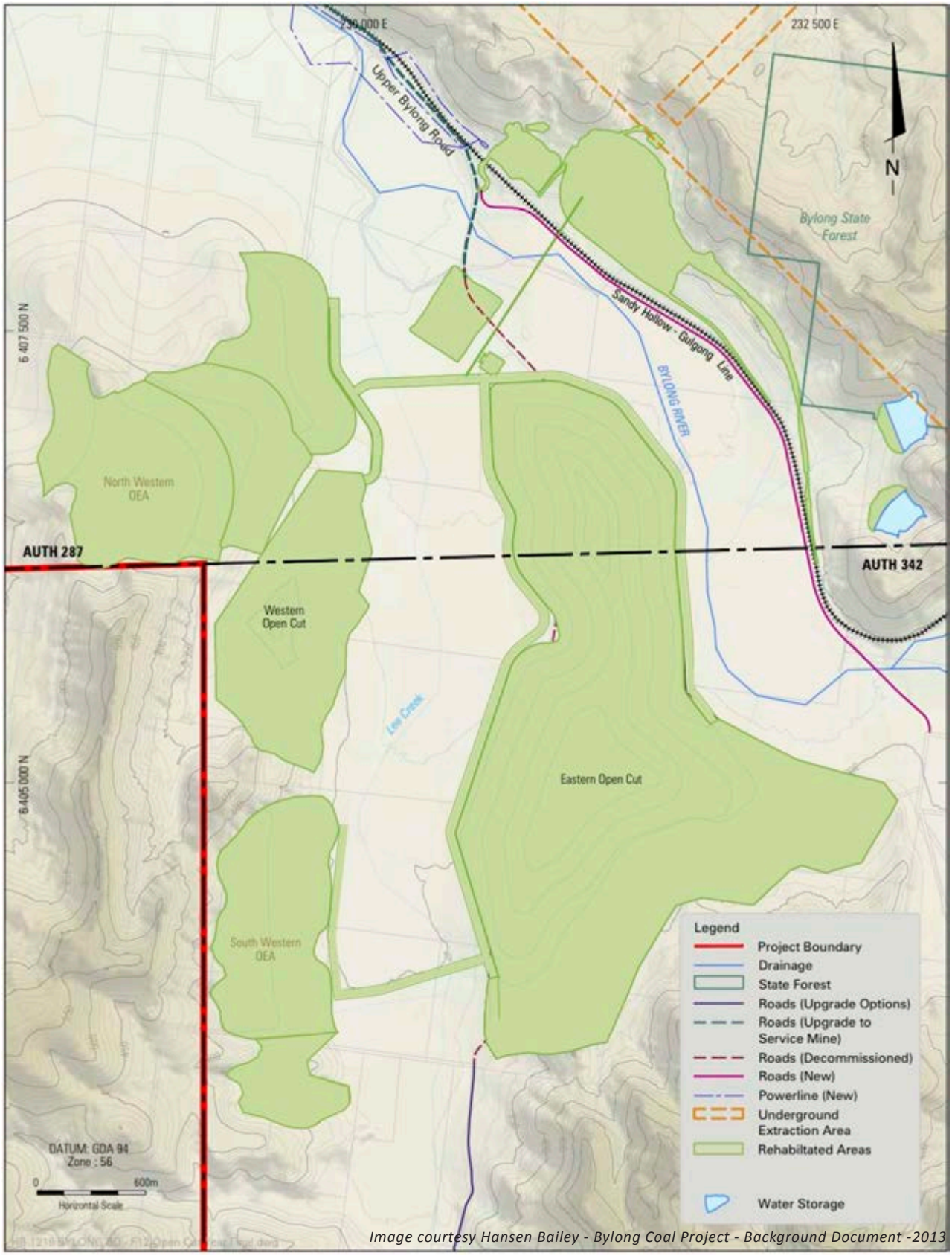


Image courtesy Hansen Bailey - Bylong Coal Project - Background Document -2013

Figure 4.2 | ***Conceptual open cut mine plan - Year 29 (final landform)***

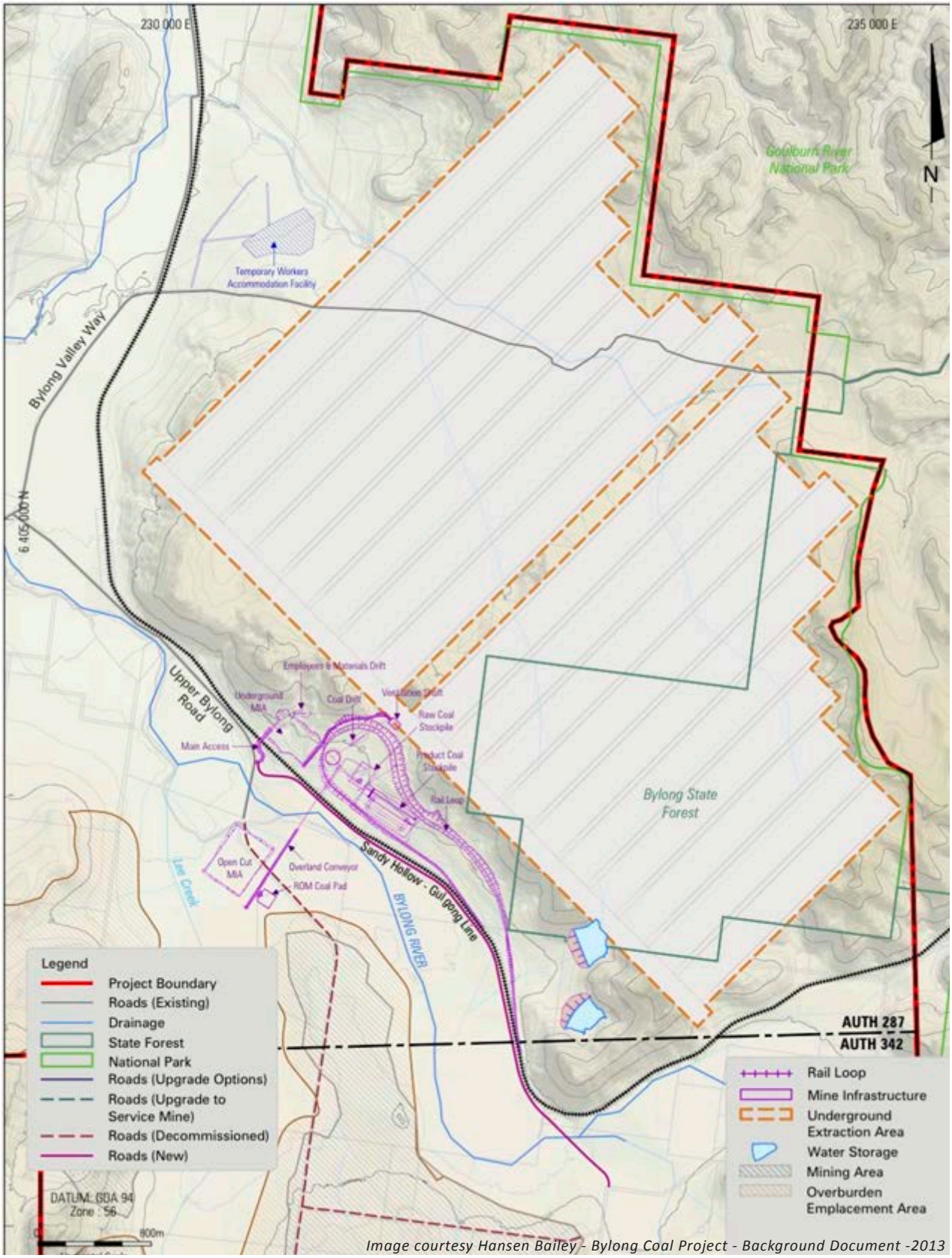


Image courtesy Hansen Bailey - Bylong Coal Project - Background Document -2013

Figure 4.3 | ***Conceptual underground mine plans***

Figure 4.4 | ***Roadside vegetation along Upper Bylong Road***

Roadside trees filter and screen views beyond the road corridor, specifically views to Project infrastructure and activities.

5. VISIBILITY AND VISUAL SENSITIVITY

This section evaluates and analyses the visibility of the Project to external view locations within the SRLUP and Revised draft CIC (Equine) areas. Within these areas there has to be visibility to the various mine components for a viewpoint to have visual sensitivity and potentially experience an impact. Such sensitivity is determined, where visibility exists according to land use and distance from viewer to the Project Boundary (Table 2.2).

5.1 Area of Primary Visual Concern within PVC

Field assessment, evaluation of mapping and aerial photography, as well as computer analysis assisted in defining the area of primary visual concern defined as the Primary Visual Catchment. This area contains the most significant locations with potential views to the Project as well as both the SRLUP and Revised Draft CIC (Equine) areas. Relevant to this Gateway application is a consideration of the visibility of the Project from sensitive receptors within the areas of primary visual concern that are mapped as CIC (Equine) by the SRLUP and the latest Revised Draft CIC (Equine) Mapping.

It is to be noted that visibility to the various Project components is required for a visual sensitivity and a visual impact to be incurred. Areas that do not have a view of the Project will not be visually impacted by the Project.

5.2 Critical Industry Cluster (Equine)

This area of focused assessment has been described in detail in Section 1.3.1 of the Policy. This study aims to determine if there is any loss to scenic amenity or landscape values within this CIC (Equine).

Figures 5.1 and 5.2 illustrate the two mapped versions of CIC (Equine). Figure 5.1 shows the SRLUP CIC mapping (refer to Section 1.3.1: of the Policy).

Figure 5.2 includes the revised draft CIC mapping issued 3 October 2013. Both mapping areas are considered in this assessment.

SRLUP CIC (Equine) mapping

The original parameters defining the Equine CIC are illustrated on Figure 5.1 as follows:

- Land (excluding National Park and State Forest) having a slope of equal to or less than 18 degrees; and
- Occurring within the following buffers:

  "In the Mid Western Regional, Muswellbrook and Upper Hunter LGAs - within 5km of the Bylong Valley Way"

This mapping area covers the northern half of the area within the Project Boundary and the Primary Visual Catchment (PVC) plus additional land to the west of the Project Boundary. There is an additional isolated area of CIC (Equine) mapped to the east, outside the Project Boundary.

This mapping is more general to the relative location, land use and topography. Residential properties and land ownership within this CIC (Equine) mapping are identified, Figure 5.1.

Revised draft CIC (Equine mapping)

The areas defined as Revised draft CIC (Equine) Figure 5.2 is based more on cadastral boundaries relating to several properties in the Bylong area. This area is located along the Bylong River and Lees Creek within the vicinity of the project as well as adjacent to the Growee River to the west.

In summary, the extent of CIC (Equine) land is smaller and more specific than in the SRLUP CIC (Equine) mapping. The area to the north-east outside the Project Boundary is consistent between the two mapping Figures 5.1 & 5.2.

Seen Area

Potential seen areas within the primary visual catchment have been determined on the basis of field assessment, evaluation of mapping and aerial photography and computer modelling. These areas have been evaluated in terms of visually sensitive land uses in terms of the SRLUP CIC (Equine) and Revised draft CIC (Equine) below.

The main seen areas are defined by the water catchments of Bylong River and Lees Creek in the vicinity of the project. To a lesser extent it includes parts of the Growee River water catchment area south of Bylong. However this area only has views to small portions of the north-western OEA that extends beyond the Lees Creek catchment boundary into the eastern edge of the Growee River in this locality as well as the temporary construction camp.

The viewshed of the project includes a number of rural residences as well as Bylong, parts of Bylong Valley Way as well as minor roads such as Lees Creek and Upper Bylong Road. Many of these use areas have potential views based on topography alone. However vegetation especially foreground vegetation such as roadside vegetation, garden landscapes and street plantings will effect potential and extent of views from roads, residences and Bylong.

Significant Topographic Features

Within both the SRLUP and the Draft revised CIC (Equine) areas, the topography of the regional setting consists of a series of small creek and river catchment valleys surrounded by elevated rocky ridgelines, hills and escarpment which define the limits of the seen areas. Views along the valley floors are available but between valleys are limited by the intervening ridgelines and hills.

There are very few viewing opportunities from these significant elevated areas due to lack of access.

Topographically, the eastern part of the Project Boundary follows the escarpment and western edge of the Wollemi National Park.

Tal Tal Mountain is the highest topographic feature within the Project Boundary at 655 m AHD but has no access or lookout points.

To the west, the Growee Range encloses the viewing catchment.

To the south, the Bylong River and Lee Creek are situated in north-south valleys separated by ridgelines. Views extend along these valleys but are limited by internal topography, hills and smaller side ridges.

Significant Vegetation Areas

Tree cover, Figure 5.5, is important in providing potential screening to the Project components. It is especially significant when it is close to the viewing locations. Such vegetation is often found around homesteads to create gardens and to achieve a better living microclimate. Roadside vegetation and tree planting also provides significant screening to broader views and foreground views.

In addition, native woodland (especially that associated with the eucalypts along the creeks and drainage lines) plantings around rural residences and villages also create screening effects. Plantings and residual tree areas in the foreground or near middle ground can be significant in reducing views to the Project Boundary. In the same way, vegetation around residences or village streets can greatly assist in screening views to the Project Boundary or components of the Project.

Sensitive Receptors

There is a range of potentially sensitive viewing locations within the CIC (Equine) areas. These include the village of Bylong, rural residences and rural churches, roads and rail line, limited tourist facilities/recreation areas and agricultural areas.

Villages

Bylong, Figure 5.6, is located just outside the north-west extent of Draft revised CIC area but within the SRLUP CIC area. It has potential for visibility to various components of the Project. However, the visual impact modelling indicates that there is no visibility to Project activities through the existing vegetation and topography that exists between the view location and the components of the Project.

Equine Related Industry

The Upper Hunter region has a long history of rural land use. One of the land uses that has been dominant within the Project Boundary in the past is Equine related enterprises. There has been a move away from this land use within the Bylong Valley within recent times with a push towards cattle grazing and some fodder production.

The NSW Government has mapped areas within the Project Boundary to be part of the CIC (Equine) within the latest draft mapping. NSW Government has considered these areas to be significant, as they believe that they meet some of the following SRLUP CIC criteria:

- There is a concentration of enterprises that provides clear development and marketing advantages;
- Is based on an agricultural product;
- The productive industries are interrelated;
- It consists of a unique combination of factors such as location, infrastructure, heritage and natural resources;
- It is of national and/or international importance;
- It is an iconic industry that contributes to the region's identity; and
- It is potentially substantially impacted by coal seam gas or mining proposals.

There are no Thoroughbred studs operating currently in the Revised draft CIC area. However there are two enterprises within the CIC (Equine) areas. "Tarwyn Park" and "Tinka Tong" "Tarwyn Park" located in close proximity to Project operations, was a thoroughbred horse stud. "Tinka Tong" is an Australian Stockhorse registered stud on the Bylong Valley Way.

Both would have a high sensitivity if there were views to the operations. Tinka Tong is located in woodland that would generally screen it from views to the Project components. Tarwyn Park would have views to Project components.

Rural Residences

There are a limited number of rural residences spread throughout both the SRLUP and Revised draft CIC areas (see Figures 5.1, Figure 5.2 and Figure 5. 9). Residences are associated with the various grazing and cropping farms on the flat areas or with grazing lands on the surrounding undulating hills.

There is a cluster of two residences (Walling) within the Revised Draft CIC to the east of Bylong and to the north-west of Project. There are also a number of residences in Lee Creek and Upper Bylong Road that would have views and high sensitivity if they are not resumed.

These residences would have high to moderate sensitivity being between 2.5 km and 7.5 km from nearest visible component of the Project.

Local Rural Churches

There are two churches located within the Project Boundary, one of which is no longer active. The church building which falls within the CIC area is currently located on private land and is no longer utilised as a church. It is a small timber building with maintained grounds located on the west side of Upper Bylong Road. This building, whilst no longer active as a Church has wide sweeping views to the south, west and north as far as the adjacent ridgelines

and hills. Roadside vegetation to the east limits views in that direction.

The other church (outside the Revised draft CIC but within the SRLUP CIC area) is the sandstone Anglican Church on the south-western outskirts of Bylong village. This church remains active and would have a high visual sensitivity, as it is an important community facility.

Recreation Areas

Bylong village has a rest area and tourist interpretation shelter. Both are located on the western side of Bylong Valley Way adjacent the Bylong Community Sports Grounds. There are good views to the adjacent ranges and hills from both facilities, but not of the Project Boundary which is screened by foreground trees on the eastern side of Bylong Valley Way in this location

The rest area and information shelter adjoining would have a high sensitivity to change in landscape based on existing views to surrounding rural landscapes and distance of between 2.5 and 7.5 km from nearest visible component of the Project, however it is screened from view.

Major Roads

The major road in the locality is the Bylong Valley Way as illustrated in Figure 5.11 travels east to west and then to the south through the Project Boundary.

The Bylong Valley Way is a picturesque, fully sealed link between the Golden Highway (at Sandy Hollow) and the Castlereagh Highway (at Ilford). It is part of the Greater Blue Mountains Touring Route and an extension of the Tablelands Way (Canberra - Bathurst - Hunter Valley).

Much of Bylong Valley Way is nestled between the Wollemi and Goulburn River National Parks. A number of regional activities and attractions are promoted as being accessed via this tourist route.

It also provides access to the local and regional agricultural settlements and villages.

As a tourist route, it has moderate sensitivity being between 2.5 km and 7.5 km from visible components of the Project.

Local Roads

There are a small number of local roads within the Project Boundary. These pass through agricultural and pastoral landscapes within the valleys as illustrated in Figure 5.1. These include:

- Upper Bylong Road – local route south and east from Bylong village following Bylong River and Lee Creek through agricultural pastoral areas.
- Lee Creek Road is continuous with Upper Bylong Road to the south of the Project Boundary.
- Woolleys Road insects Upper Bylong Road and travels in a west to east direction.
- Wollar Road – local road heading north and west of Bylong village, which intersects Bylong Valley Way on the western side of the Sandy Hollow-Gulgong Railway Line.

Upper Bylong Road and Lee Creek Road will have moderate to low sensitivity to open cut mining areas being less than 2.5 km distance. Beyond this these roads have low sensitivity. Wollar Road has low sensitivity being greater than 5 km from visible components of the Project.

Rural Areas

The predominant land use within the visual catchment and the primary visual catchment is pastoral land. There are minor areas of cropping and improved pastures on the flood plains with the slopes and foothills used for grazing

purposes as illustrated in Figure 5.13.

All of these pastoral/ agricultural areas in the CIC (equine) sector have a low visual sensitivity.

5.3 Summary

The latest mapping of CIC (Equine) i.e. Review draft CIC, spans the central part of the Project Boundary. The majority of the proposed open cut mining areas are proposed within this area, as identified in Section 5.0 and Figure 5.2. Some areas will see operations for a period before rehabilitation of screening earth forms, however it does not contains properties currently utilised for equine related activities. The Revised draft CIC area contains topographic features and vegetation that will limit visibility to the mining operations beyond immediate visual/ water catchments. Ridgelines and mountains contain many views into the mining area. Local vegetation screens many foreground views in villages and around rural residences.

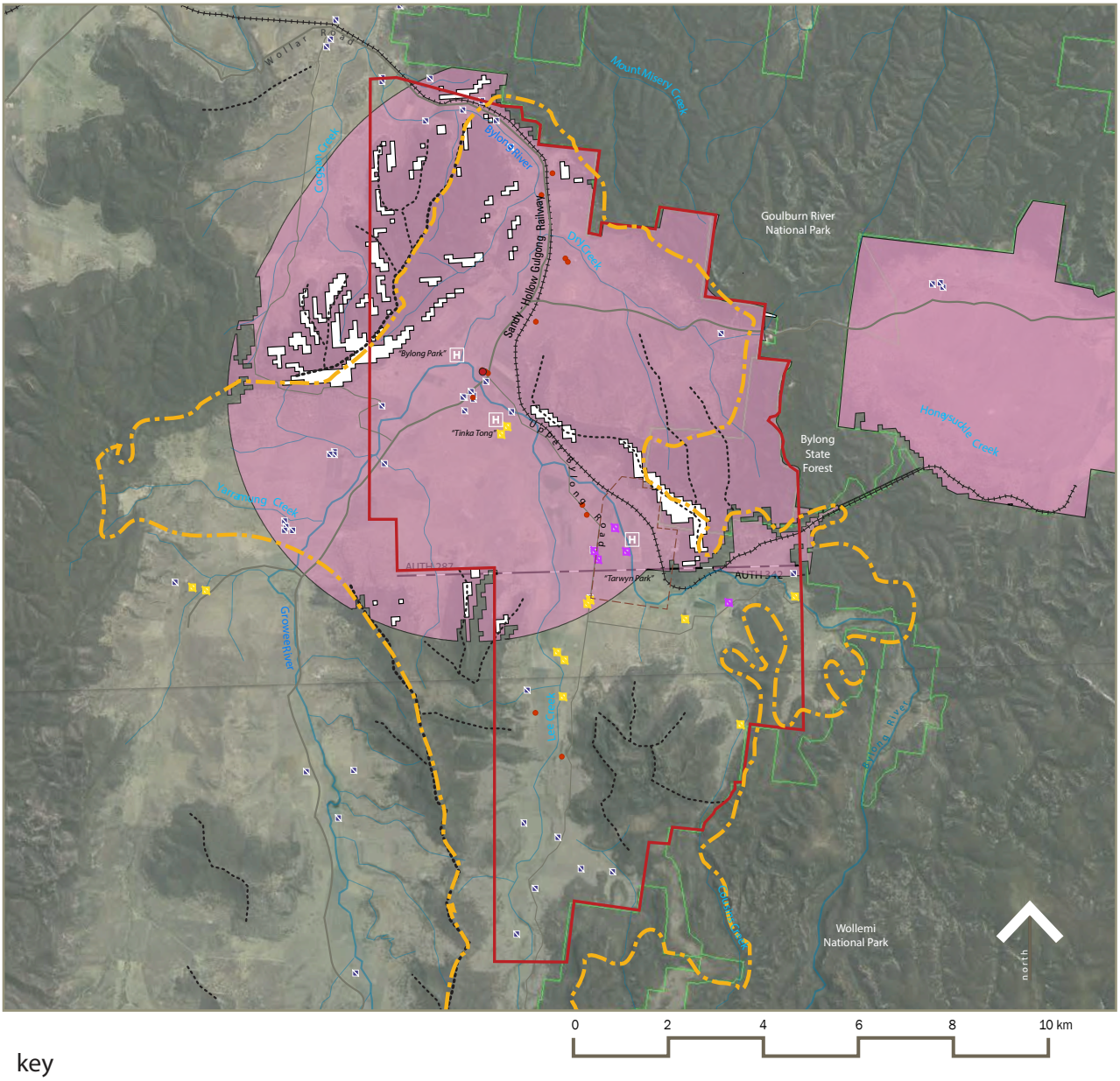
The key receptors relevant to this assessment are the equine related properties; the *Tinka Tong* property is the only equine (but not thoroughbred) stud in the locality. It is beyond 2.5 km from the open cut mining area and is within a wooded area that makes it unlikely to experience significant views of the components of the Project.

In addition to Tarwyn Park, there are a number of residences that are in close proximity and will have a high sensitivity to views of various Project components due to proximity and the openness of the landscape in this locality.

Bylong Valley Way is a designated tourist route; however it occurs on the boundary of the Revised Draft CIC. It may have some glimpses of various components of the Project, however these views will be greater than 2.5 km from the open cut mine areas and are likely to be partially screened by intervening topography and vegetation thereby reducing sensitivity to moderate.

Rail lines, local rural roads, pastoral/ agricultural land and the coal haul rail line all are ascribed low visual sensitivity even though they may be located within close proximity to the mine areas and are within the Revised draft CIC (Equine).

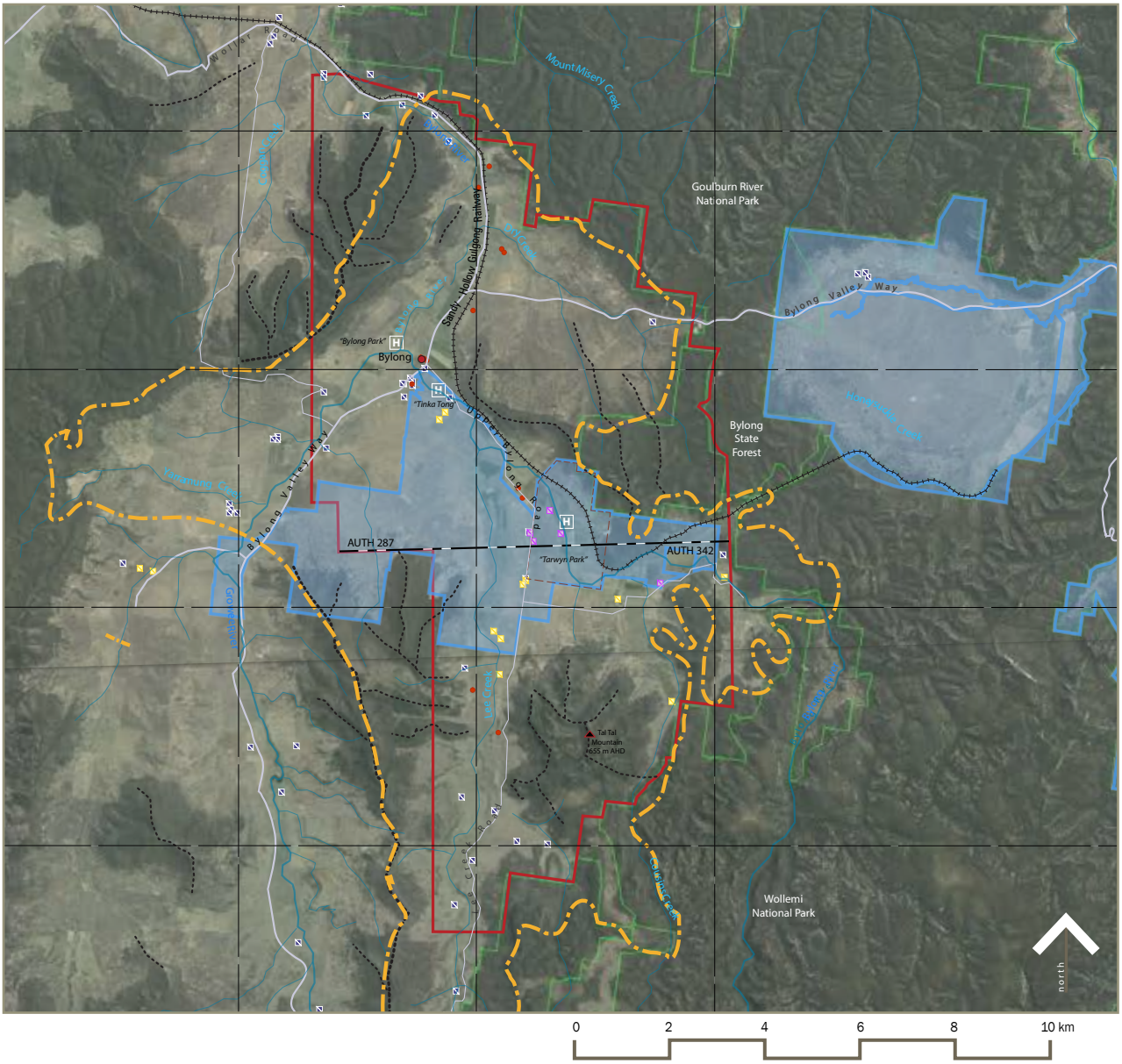
It will be a function of the EIS to more accurately define these views and mitigate resulting sensitivities and visual impacts by landscape treatments including tree plantings.



key

- Project Boundary
- Primary visual catchment boundary
- Roads
- Rail line
- Watercourses
- Bylong Village
- National Parks and State Forests
- SRLUP CIC mapping
- Significant ridge lines
- Equine industry
- Sensitive receptor - Private freehold
- Sensitive receptor - KEPCO ownership
- Sensitive receptor - within land holding - Owner A
- Sensitive receptor within land holding - Owner B

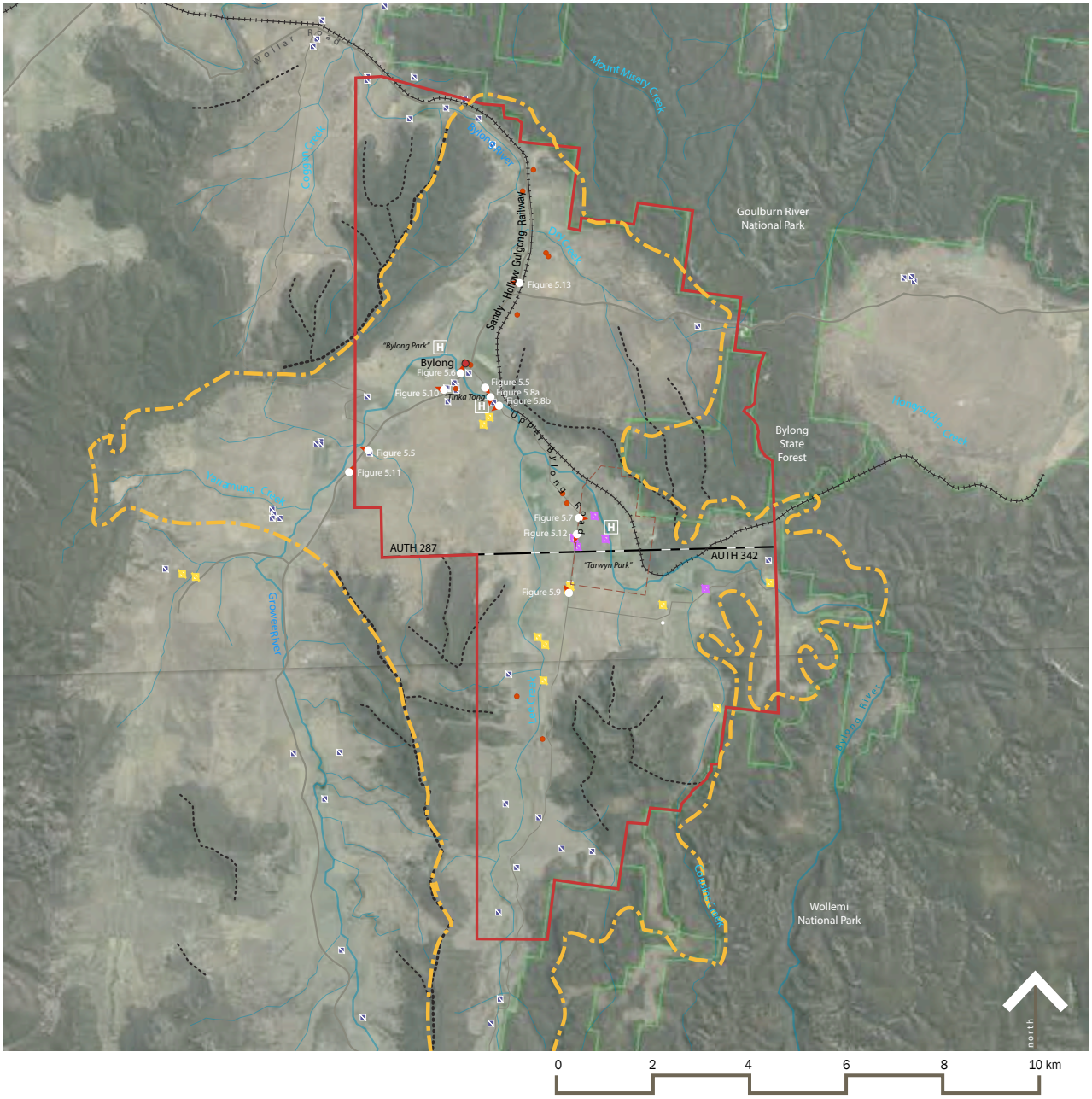
Figure 5.1 | ***SRLUP CIC mapping and Sensitive Receptors***



key

- Project Boundary
- Primary visual catchment boundary
- Roads
- Rail line
- Watercourses
- Bylong Village
- National Parks and State Forests
- Revised draft CIC mapping
- Significant ridge lines
- Equine industry
- Sensitive receptor - Private freehold
- Sensitive receptor - KEPCO ownership
- Sensitive receptor - within land holding - Owner A
- Sensitive receptor within land holding - Owner B

Figure 5.2 | ***Revised draft CIC mapping and Sensitive Receptors***



key

- Project Boundary
- Primary visual catchment Boundary
- Roads
- Rail line
- Watercourses
- Bylong Village
- National Parks and State Forests
- Photo locations with view direction
- Significant ridge lines
- Equine industry
- Sensitive receptor - Private freehold
- Sensitive receptor - KEPCO ownership
- Sensitive receptor - within land holding - Owner A
- Sensitive receptor - within land holding - Owner B

Figure 5.3 | ***Photo locations***

Figure 5.4 | ***Topographic Features***

Includes hills, mountains and knolls. These elements create visual screens to the Project as well as features within the landscape.

Figure 5.5 | ***Vegetation***

Within the revised draft CIC, vegetation is an effective visual screen when it occurs in foreground locations such as roadsides or around rural residences.

Figure 5.6 | ***Villages***

Villages may be significant sensitive receptors depending on visibility. Often foreground vegetation or buildings can create screening to distant views.

Figure 5.7 | ***Tarwyn Park rural property located within both the SRLUP and revised draft CIC (Equine)***

Figure 5.8 | ***Tinka Tong stock horse property***

These are visual receptors that will have a high sensitivity within the both the SRLUP and revised draft CIC. Often tree planting and garden landscapes and/ or view orientation screens the Project from view.

Figure 5.9 | Rural Residences within the both SRLUP and revised draft CIC (Equine)

They are a visual receptor that will have a high sensitivity. Often garden landscapes and/ or view orientation screens the Project from view.

Figure 5.10 | ***Anglican church and cemetery within the SRLUP CIC (Equine)***

This community facility on outskirts of Bylong would have a high sensitivity to changes in the landscape and visual amenity. This location is outside the revised draft CIC .

Figure 5.11 | ***Bylong Valley Way***

This designated tourist route would have a high sensitivity within 2.5 kms of the Project. Sections of the road occur within the revised draft CIC to the west of the Project area.

Figure 5.12 | ***Rural roads - Upper Bylong Road***

Local roads within the both the SRLUP and the revised draft CIC would have moderate to low sensitivity close to the Project area reducing to very low as distance from the Project increases.

Figure 5.13 | ***Rural Production Areas***

These areas which include crop and grazing lands have low visual sensitivity.

6. VISUAL EFFECT

The potential sensitive viewing locations (receptors) in the vicinity of the Project within the CIC (Equine) have been defined in detail in Section 5 of this report.

This section further defines the visual effect of various Project components on external view locations from the Revised draft CIC as discussed in Section 4 above. To assess the visual effects of Project components, views were considered from the north, south-east and west of the Project Boundary.

The visual effects were considered from a number of representative viewing locations within the Revised draft CIC and have also been assessed through photomontage development and cross sectional representation of changes to landform. The representative viewing locations used in this assessment are shown in Figure 6.1.

The photomontage locations were selected to illustrate a range of typical views as seen from the various view sectors within the CIC. The sites were selected from numerous sites where photography was taken along with GPS coordinates.

The cross sections were selected to illustrate the extent of alteration to local landform due to open cut mining operations adjacent existing rural residences within the CIC.

The level of visual impact on receptors is discussed in Section 7 based on the consideration of receptor sensitivity (Section 5) and visual effect (Section 4 & 6).

6.1 Photomontage Illustration of Visual Effect

The visual effect of the mining activity is illustrated in part by photomontage illustration. These photomontages show what can be seen and its character from two selected locations around CIC. The locations of the photomontage views are illustrated on Figure 6.1.

MONTAGE LOCATION VP01:

Views to the south east from Bylong Valley Way (designated tourist route and sensitive receptor) within Bylong Visual Impact Zone - outside of CIC but views across it towards North Western OEA, underground mining areas to the north and northern extent of Eastern Open Cut Mining Area and OEA. There are only limited views of the Project through intervening vegetation and topography between the view location and the components of the Project. This is typical of western view locations within the Growee Valley.

Existing View: is across a gentle slope to a series of hills in the middle ground. Both slopes and hills are covered by grassland with scattered trees with forested hills in the background. The Project Boundary is at the foot of the hills in the middle ground.

2017 Year 3: There is no visible alteration to the existing vegetation or topography landscape character as viewed from this location within the “seen areas” modelling. (Refer Figure 6.2(a)). There are no views to the infrastructure.

2021 - Year 7: Glimpses of the rehabilitated North-Western OEA are available between vegetation in the middle distance and foreground. Intervening topography also limits the area of visible OEA. Rehabilitation of the OEA reduces the visual contrast in colour and texture minimising the visual effect.

2024 - Year 10: No further changes visible from the Year 7 rehabilitated North-Western OEA. There is minimal visual impact from this sensitive viewing location. Project components to the east and north of this OEA are not visible.

MONTAGE LOCATION VP02:

Views north-westwards from Woolley’s Road looking towards Eastern Open Cut Mining Area and more distant

North-Western OEA. The Underground Mining infrastructure area is also in the view shed. While the visual location is inside what will be the Eastern Open Cut Mining Area, it illustrates the character of mining while also giving views to the infrastructure

Four rural residences are located to the east of the Eastern Open Cut Mining Area. Two one of these are located within the CIC.

Existing: The view is one of flat to undulating pastoral (grazing) land with scattered trees with tree covered ridgelines and hills in the mid to far distance. The rural road rises over a slow rise in the existing topography in the mid view. It is a common rural scene with good visual amenity values.

2017 – Year 3: Constructed Project infrastructure is visible in the mid ground to the right of the view at the base of ridgeline. Built elements (MIA ROM and MIA) appear low and generally flat in the landscape, with more vertical solid forms visible in the area of the CHPP and stockpile area. There is moderate colour contrast but overall the elements occupy a small area of the PVZ from this viewing location. Vegetation provides some filtering of views across the pastoral land towards the Project components.

There is a small area of colour contrast on the slope adjacent the MIA ROM (left in image) illustrating the visual effect from early development of the North-Western OEA prior to rehabilitation. The area is minimal and creates low visual effect and visual impact.

2021 – Year 7: MIA ROM is now not visible in view; CHPP and stockpile area remain visible and unchanged.

The North-Western OEA is now in post rehabilitation condition and well integrated with surrounding rural landscape. The Eastern Open Cut Mine face has developed and advanced towards the view location. In elevation its profile reduces views of hills and ridges in the middle and distant views. The exposed terraced face of mine pit occupies a larger percentage of the view increasing the level of visual impact. Vegetation cover has been reduced and landscape character altered to include uncharacteristic elements.

Year 2024 – Year 10: The Eastern Open Cut Mining Void has advanced to overtake the viewing location.

Consideration is given to the views from a rerouted access road a short distance to the north. It will experience comparable views to those from the nominated viewing location. Residents living to the east using this road will experience a high level of visual effect at this stage of open cut mine development as the eastern extent develops to it maximum eastern extent.

The open mine face of exposed earth will result in high level of visual effect to sensitive receptors (residents with views of mine and users of this road). However the face is orientated to the west with most view lines coming from the east, so such effects will be limited and rehabilitated after mining. The previously treed pastures to the south of Wooleys Road have been replaced by rehabilitated OEA of the Eastern Mining Area.

The visual effect of this alteration to the landscape at this stage of the open cut mining activity is significant with new terrain profile continuing to limit views to ranges in distance, grass texture and vegetation density altered to reflect a rehabilitated landscape character different from existing pastoral lands.

Underground mining components remain visible in the middle distance of over 2.5 km but with less visual effect when viewed aside the exposed open cut mine pit.

Note that montage views in post rehabilitation phase will be produced as part of the EIS. This will illustrate the Eastern Mining Area at its final landform and visual contrast and visual effect reduced thereby improving visual integration.

6.2 Cross Sectional Illustration of Visual Effect

The visual effect of the mining activity is illustrated in part by cross sectional illustration. These cross sections show the alteration of topography adjacent existing sensitive receptors from two selected locations around the Project area and CIC. The locations of the cross sections are illustrated on Figure 6.4.

CROSS SECTION A-A:

The Cross Section A-A (Figure 6.5) is a NW to SE from Upper Bylong Road through Eastern Mining Area/ OEA and location of existing rural residences.

Alterations to topography along this cross section will have a high impact on two private freehold residences that lie entirely within the northern part of the Eastern Mining Area. These properties are likely to be resumed. A further two private freehold rural residences are directly adjacent the Eastern Mining Area to the east. They will also experience high effect impact.

There are no residences with overviews into the Project in the east or south on this transect.

More elevated topography at southern extent will limit views into Project area from that margin.

CROSS SECTION B-B:

The Cross Section B-B (Figure 6.6) is a west to east section from South Western OEA through Lee Creek and Upper Bylong Road and local rural residences to South Eastern OEA, mining area and Bylong River flood plain to the east.

Alterations to topography along this cross section will have critical impact on two residences that lie on the western margin of the Eastern Mining Area. They will have direct views of both the South Western OEA and the Eastern Mining Area followed by the South Eastern OEA by Year 5 of the Project.

Two freehold rural residences (one within revised CIC area to the east of the Eastern Mining Area will have close range views of the eastern face of the mine front as it progresses east, followed by development of a broad low rise OEA along the eastern face of Eastern Mining Area.

CROSS SECTION C-C:

The Cross Section C-C (Figure 6.7) is a NW to SE section from Bylong Valley Way crossing North Western OEA and Western Mining Area, Upper Bylong Road, Lee Creek and Eastern Mining Area to higher peak in SE.

There are no residences directly on this section, however alteration to the existing topography associated with the Western Mining Area and Eastern Mining Area and OEAs will have a visual effect on two private freehold residences adjacent to the eastern Mining Area to the south of the section.

From Bylong Valley Way, minimal alteration of topography will be viewed due to intervening ridgelines between the flat agricultural areas and the Western Mining Area. Portions of the western face of the North Western OEA may be visible but at distances of approximately 2 km.

The Lee Creek Valley displays visible alteration to the existing topography. The Project will transform the existing broad flat to gently undulating valley into a narrower valley bounded east and west by low linear OEA mounds. Future views from this valley to the scenic elevated topography to the south east will be partially obstructed by the final landform of the Eastern Mining Area and South Eastern OEA. Views to the existing ridgeline to the west will also be obscured by the South Western OEA.

CROSS SECTION D-D:

This Cross section D-D (Figure 6.8) is a west to east section from Bylong Valley Way just south of Bylong village across northern extent of North Western Mining Area and through Eastern Mining Area.

As with Section A-A this section illustrates a critical visual impact to two private freehold rural residences located entirely within the Eastern Open Cut Mining Area that are likely to be resumed and two immediately to the east of the eastern mining area.

The existing Section D-D profile rises gently from Bylong Valley Way toward the east and the Open Cut Mining Project Area. The higher parts of the Eastern Open Cut Mining Area could be seen after Year 5 OEA development but at a distance of approximately 4 km thereby limiting visual effect.

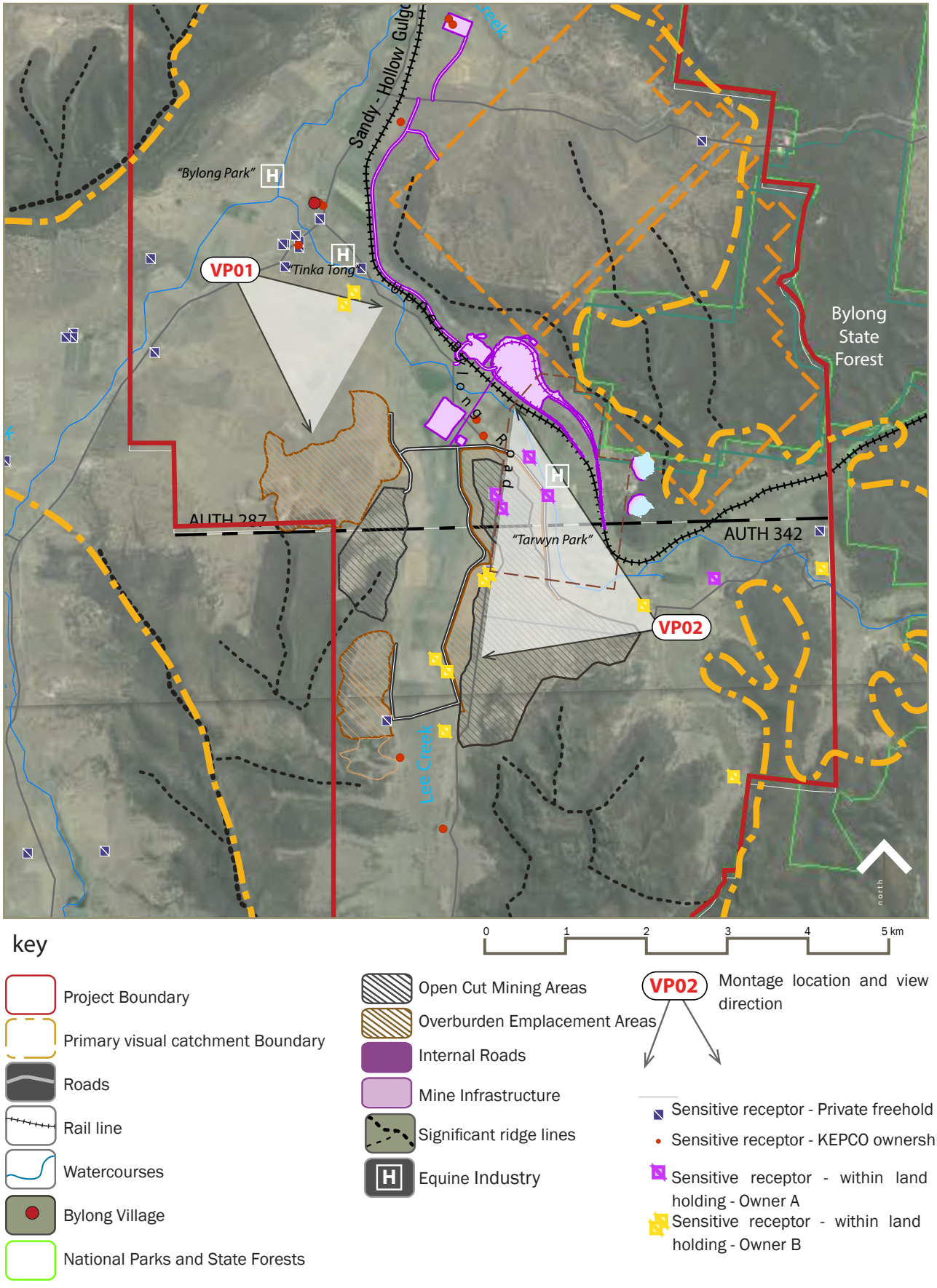


Figure 6.1 | ***Photomontage locations***

VP01 - BYLONG VALLEY WAY

EXISTING AND 2017

Figure 6.2(a) | Photomontage Location 1

VP01 - BYLONG VALLEY WAY

2021 AND 2024

Figure 6.2(b) | Photomontage Location 1

VP01 BYLONG VALLEY WAY

2021 AND 2024 - 80mm lens overlay

Figure 6.2(c) | Photomontage Location 1- 80mm lens overlay

VP01 BYLONG VALLEY WAY

2021 AND 2024 - 80mm lens overlay

Figure 6.2(d) | Photomontage Location 1 - 80mm lens view

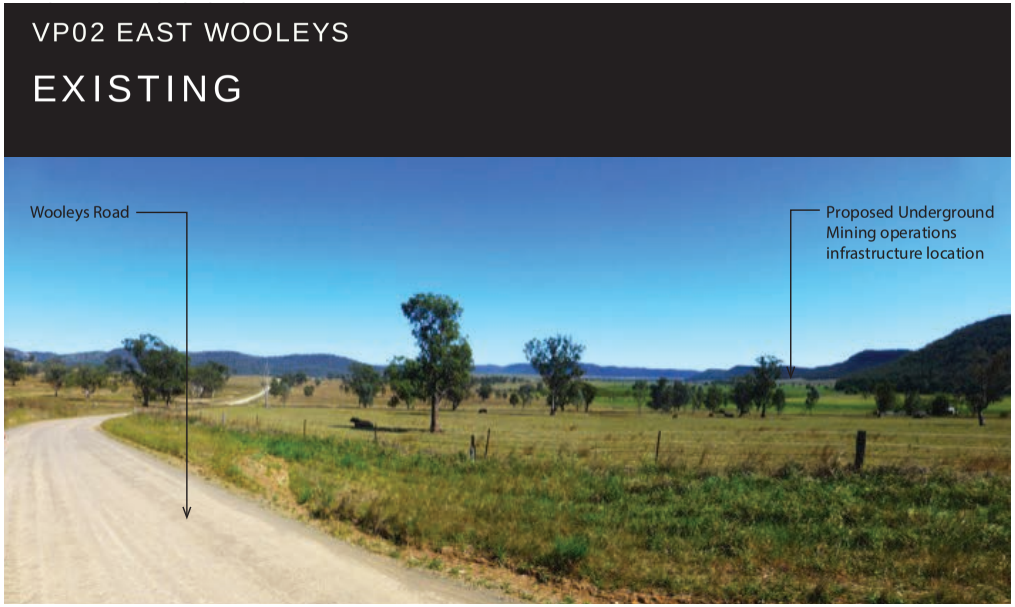


Figure 6.3(a) | Photomontage Location 2 - Existing

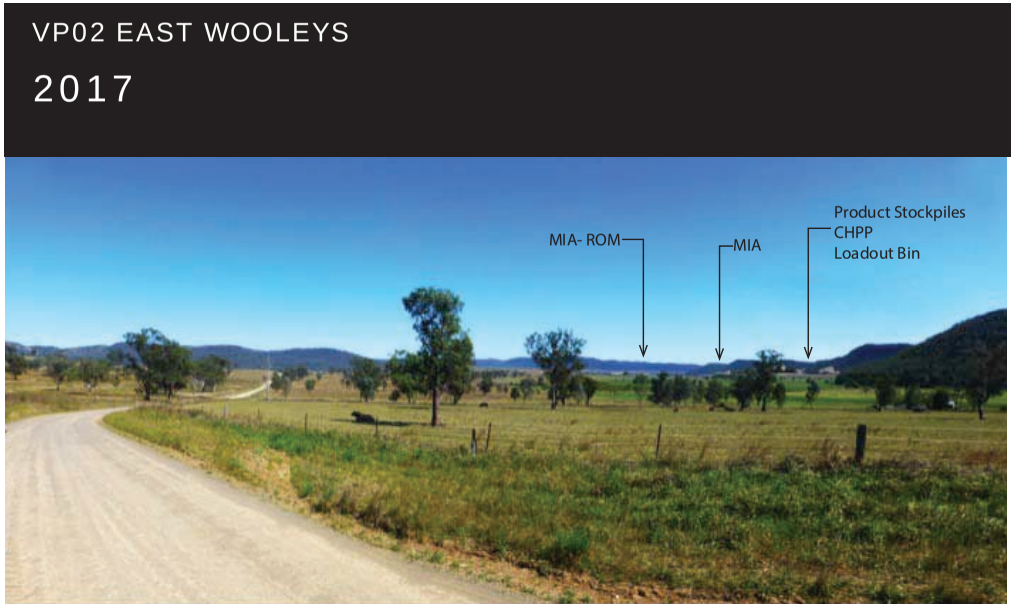


Figure 6.3(b) | Photomontage Location 2 - Year 3

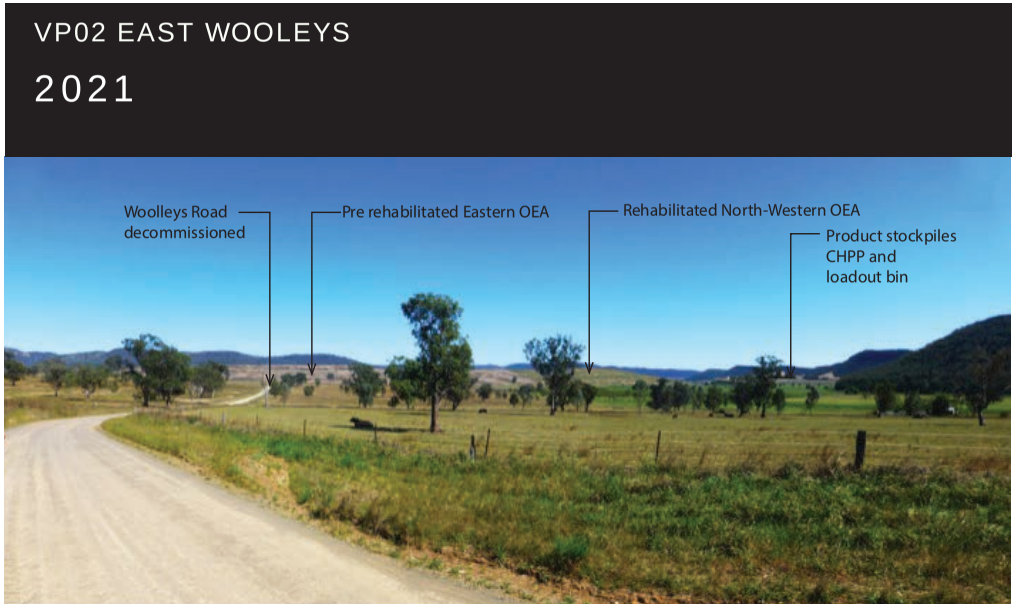


Figure 6.3(c) | Photomontage Location 2 - Year 7

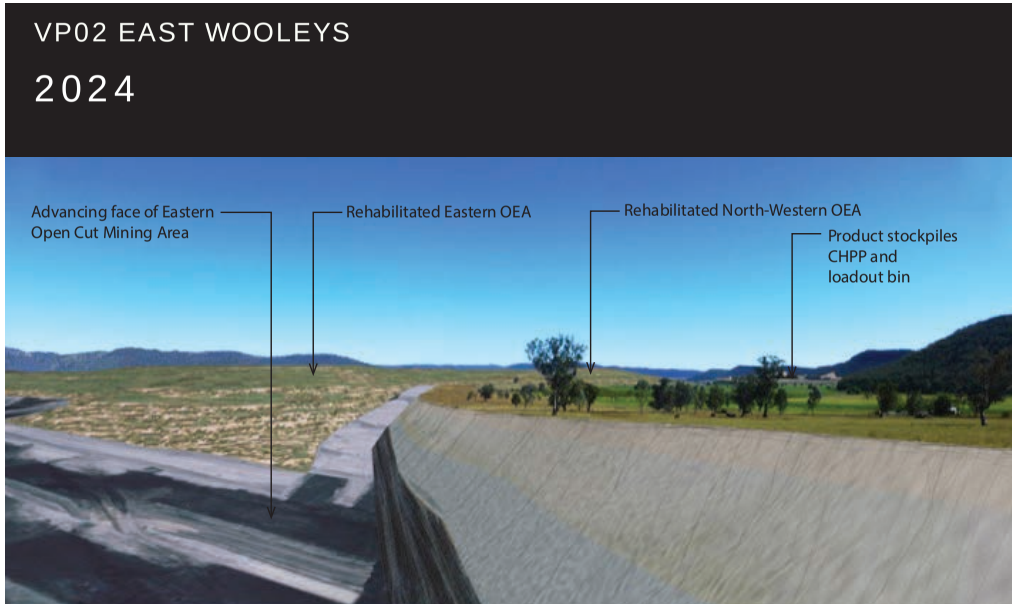


Figure 6.3(d) | Photomontage Location 2 - Year 10

VP02 EAST WOOLEYS ROAD

EXISTING - 80mm lens view

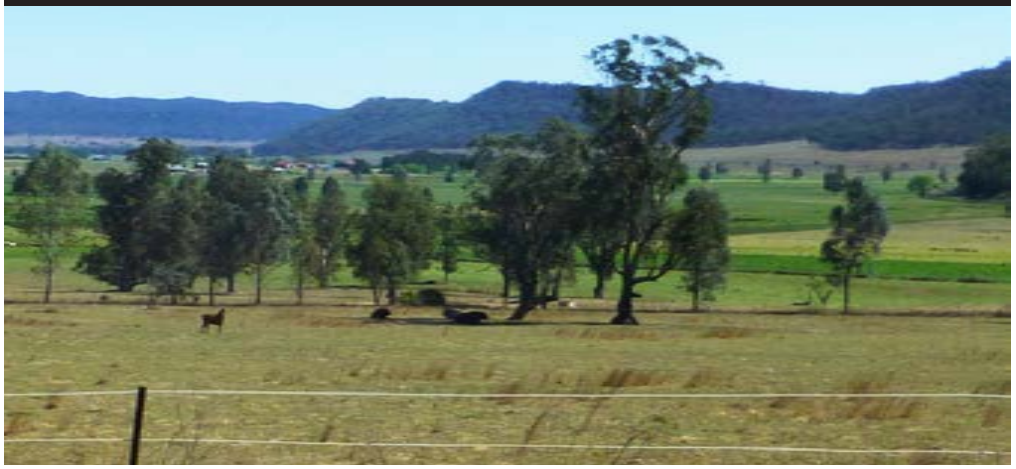


Figure 6.3(e) | Photomontage Location 2 - 80mm lens view - Existing

VP02 EAST WOOLEYS ROAD

2017 - 80mm lens view

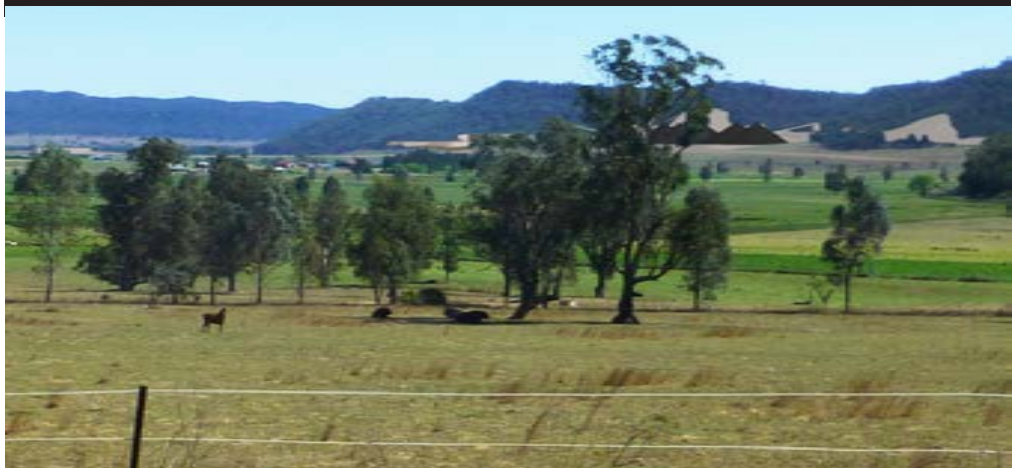


Figure 6.3(f) | Photomontage Location 2 - 80mm lens view - Year 3

VP02 EAST WOOLEYS ROAD

2021 - 80mm lens view

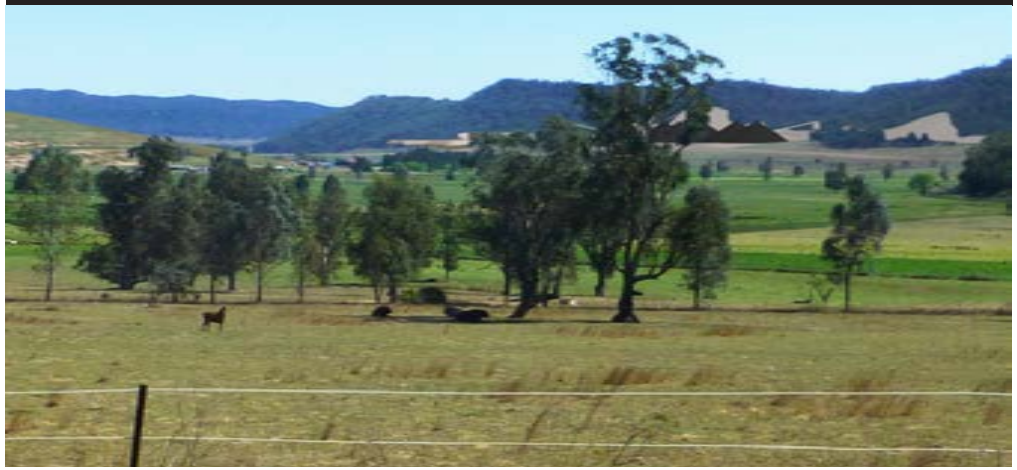


Figure 6.3(g) | Photomontage Location 2 - 80mm lens view - Year 7

VP02 EAST WOOLEYS ROAD

2024 - 80mm lens view

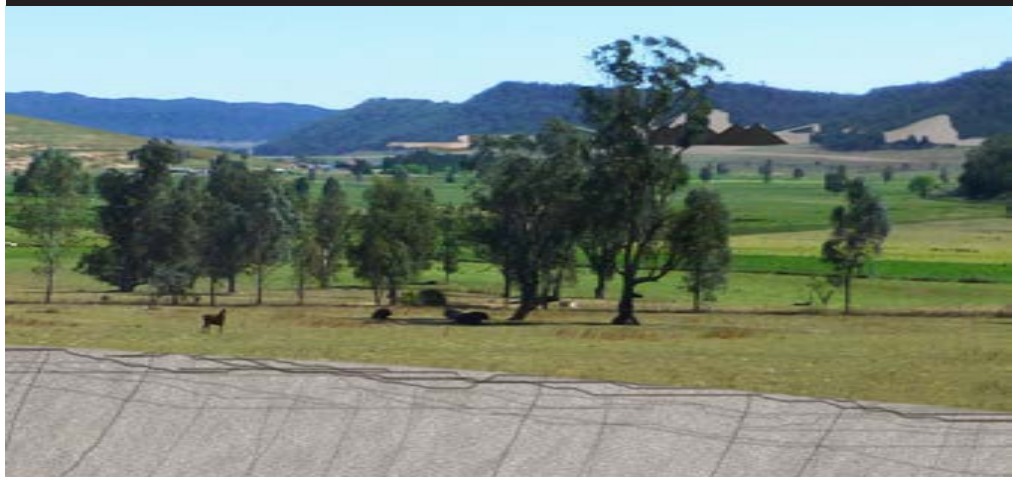


Figure 6.3(h) | Photomontage Location 2- 80mm lens view - Year 10

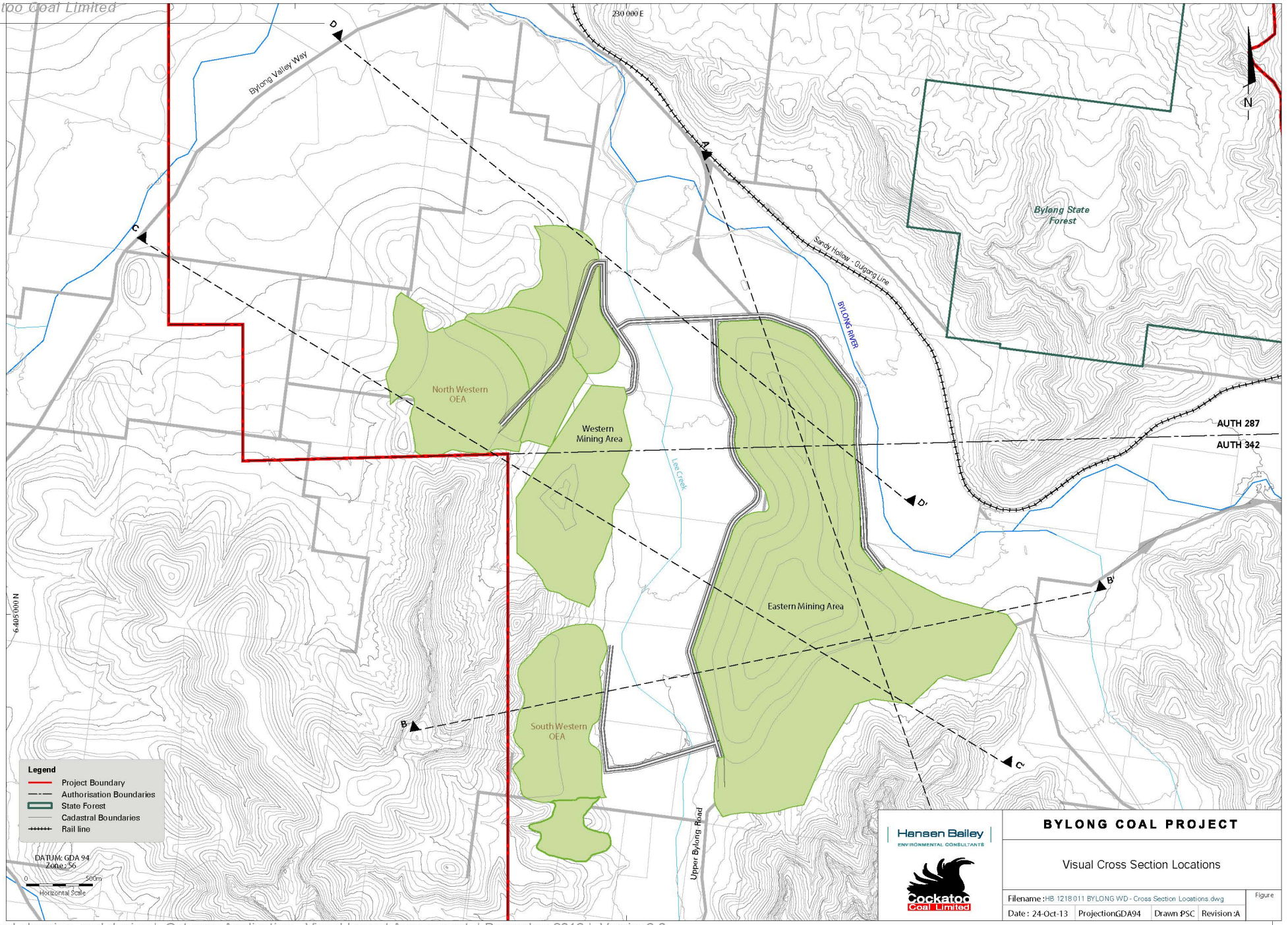


Figure 6.4 | Cross Section Locations

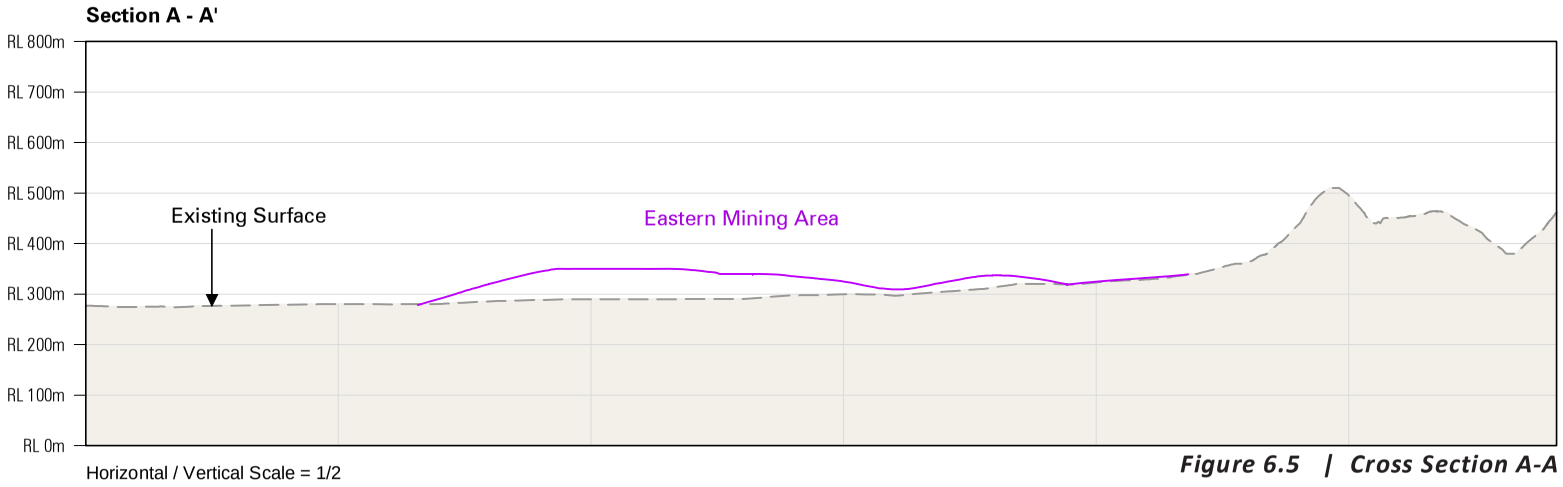


Figure 6.5 | Cross Section A-A

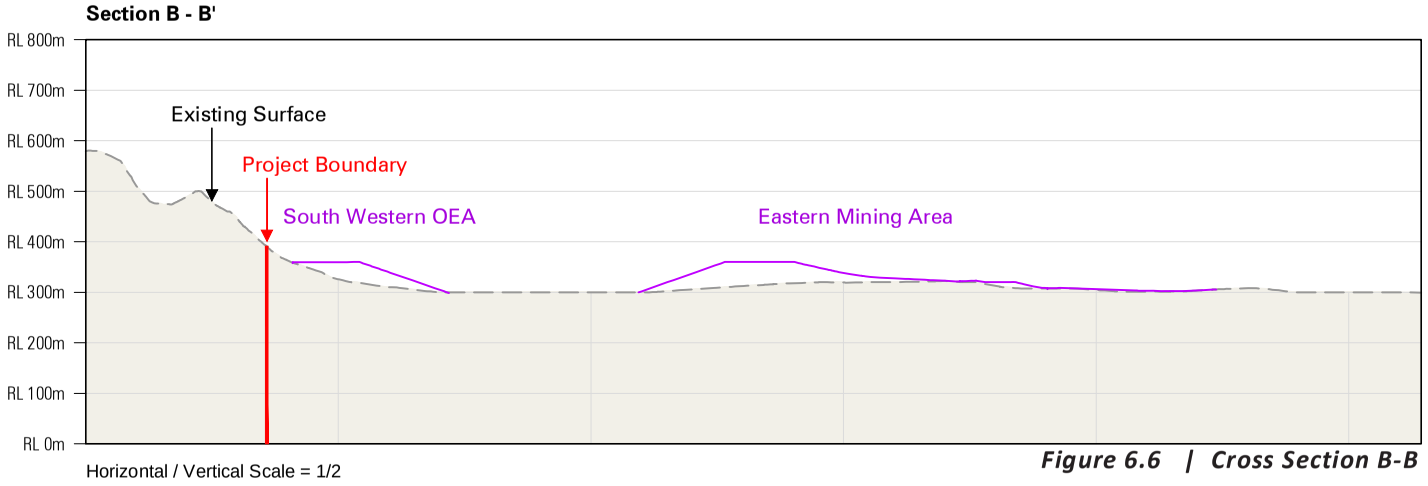


Figure 6.6 | Cross Section B-B

Horizontal / Vertical Scale = 1/2

Section C - C'

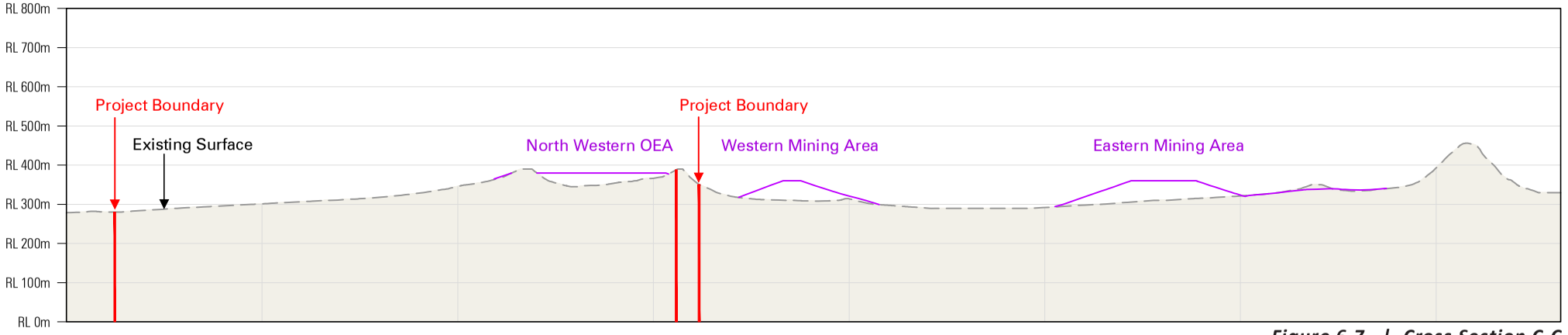
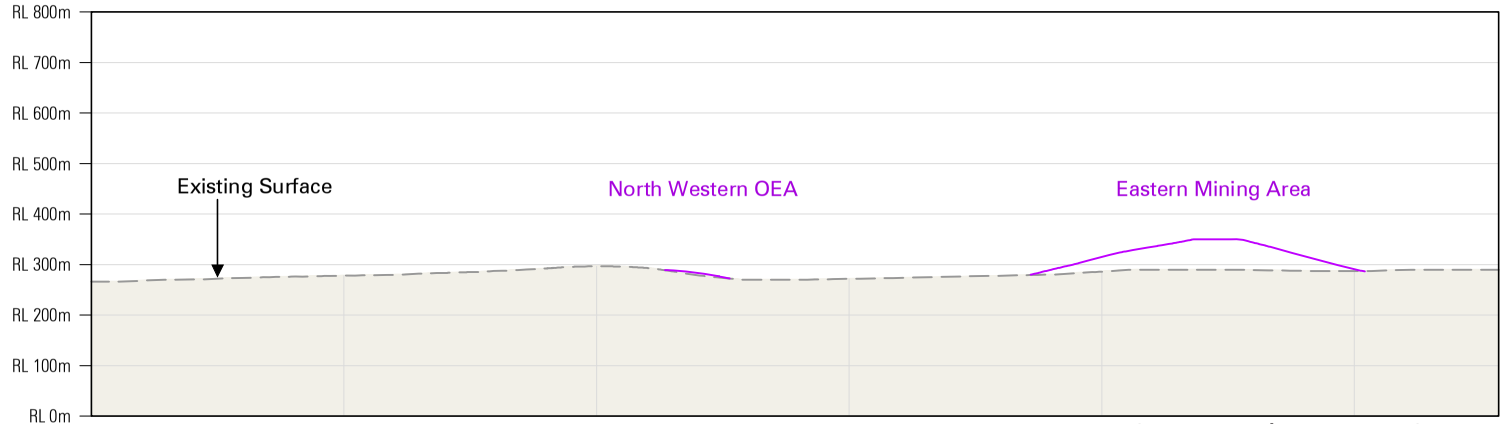


Figure 6.7 | Cross Section C-C

Horizontal / Vertical Scale = 1/2

Section D - D'



Horizontal / Vertical Scale = 1/2

Figure 6.8 | Cross Section D-D

7. VISUAL IMPACT – REVISED DRAFT CIC

The visual effects of the various elements of the Project were discussed in Section 6 of this report. The visual sensitivity levels of the Project were discussed in Section 5 of this report.

This section considers the visual impact of the Project based on visual effect and sensitivity values (Table 2.3). The impact will vary according to the visual effect of the Project, its visibility, and the visual sensitivity of areas from which it is seen. These factors are considered together as indicated in Table 2.3 to determine impact levels. The visual impacts are considered in relation to the various sectors.

Figure 7.1 shows the Revised draft CIC mapping and view sectors. There are various individual blocks and residences, owned by three private landholders within the Revised (Equine) CIC. The impacts from the project on each sector within the Revised draft CIC (Equine) is described below.

7.1 North CIC View Sector

The majority of the Northern CIC view sector contains flat to gently undulating pastoral lands with a northern backdrop of railway line and ridgelines. The Bylong River flows through a portion of this sector.

There are several rural residences (owned by two landholders) and one additional Australian Stock Horse stud (with two residences) located entirely within the Revised (Equine) CIC. They are located in the north-west of this sector. No private residences are located in the other parts of the sector.

Components of both open cut and underground (surface infrastructure) mining operations will be visible from within this sector.

Visual Effects North CIC View Sector

From within this sector, views will be across broad flat landscape onto northern aspects of the North Western OEA, the northern extent of the Eastern Open Cut Mining Area and associated OEA, haul roads, the two MIAs (open cut and underground), overland conveyor, ROM coal pad and newly constructed access roads. There will be limited views into the North Western Open Cut Mining Area and these will be limited to people accessing the mine site and any residents using the realigned Upper Bylong Road to the east.

During the initial years of operations, the North Western OEA will create high visual contrast and some high visual effects from some views where overburden will be seen between the tree vegetation from the west, and through the tree canopies from the east and south. This effect will reduce to moderate or low as in the north when rehabilitation is complete. The development of haul roads for both Open Cut Mining Areas will create high visual contrast but generally have limited visual effects due to their limited scale in any view.

Bylong Valley Way will be approximately 2.3 km away from the nearest component of the Project. Intervening vegetation in the middle distance will limit views to OEAs from this location as illustrated in Figure 7.3 especially from lower elevations.

By Year 5, the visual effect will progressively be reduced to moderate or low as OEAs are shaped, rehabilitation advances and the landform is integrated with the surrounding rural settings. The establishment of trees during rehabilitation development will further reduce the visual effects.

Year 5 will also see the commencement of construction of underground mining elements that can be viewed from some locations within this sector. This will create high visual contrast and potentially high visual effect, especially during the construction period.

Movement of mine fleet will be a constant visual element during construction and development of OEAs. However the visual effect of these activities is likely to be low.

Sensitivity North CIC View Sector

Thoroughbred Horse Enterprises

There are no active thoroughbred horse enterprises in this view sector.

Rural Residences with Horse Facilities

"Tinka Tong" is a stock horse enterprise located between Upper Bylong Road and the Bylong River adjacent to the intersection with Bylong Valley Way. . As shown on Figure 7.1, it is located on the property, approximately 100 m from the Upper Bylong Road. Woodland trees in the paddocks and along Bylong River would generally screen views to the road and to the south-east in the direction of the underground mining infrastructure area. This would reduce visibility and sensitivity.Woodland trees in the paddocks and along Bylong River partially screen views to the road to the south-east in the direction of the underground mining infrastructure area.This would reduce visibility and sensitivity.

There are two additional rural residences within this sector. These are within the Wallings land holdings and are approximately 1.1 km to the north-west of the nearest OEA, 1.6 km to the MIA and approximately 2.4 km to the northern extent of the Eastern Open Cut Mining Area. These residences could have open views.

All residences, with views that are within 2.5km of the mine areas and will have high visual sensitivity.

Bylong Valley Way

A short section of Bylong Valley Way runs through the north CIC view sector just outside of Bylong village (see Figure 7.1.). This road will have a high sensitivity within 2.5 km and moderate sensitivity up to 7.5 km, with the CIC only extending to 5km along this road.

Railway line

The Sandy Hollow-Gulgong rail line skirts the northern edge of this view sector. See views "Rural Residences".

Local Roads

The roads in the location have been ascribed a moderate to low sensitivity due to distance from the Project areas and ascribed visual sensitivity levels (refer Table 2.2). These roads will be used by mine workers and residents living near the east of the Project Boundary.

Rural land

The view sector is predominantly rural land which ascribed low visual sensitivity where nearest visible mine area is less than 2.5 km.

Visual Impacts North CIC View Sector

All residences within views in this CIC view sector will experience high visual impact being less than 2.5 km from nearest seen mine areas depending on visual screening effects of garden and roadside landscapes and view orientation. High impacts will similarly be reduced when rehabilitation of OEA occur.

The impact on Bylong Valley Way will be low due to screening and visual effects.

All impacts experienced by residences and Bylong Valley Way within the CIC will be further reduced to very low when landscape patterns are restored following the early years of operation.

During the initial years, Upper Bylong Road and other local roads within the CIC will experience moderate visual impacts based on distance from the nearest mine areas and infrastructure areas, until rehabilitation/screening is achieved.

For all local rural roads such impacts will be experienced for short periods of time when the visual effect of a pre-rehabilitated OEA is seen from roadway. When rehabilitation is achieved, visual effects will be lowered; following this, impact will be reduced to moderate and low.

All rural production lands will experience moderate to low impacts, rehabilitation will reduce such impacts.

The major infrastructure elements within the MIA will create high impacts on residences with views until screening is achieved. This will potentially impact on two Walling residences.

7.2 Eastern CIC View Sector

The Eastern CIC view sector is divided between flat to gently undulating pastoral lands in the west and elevated ridgelines and hill country to the north and east.

The Bylong River also flows through this sector.

There are four rural residential properties, (two will be resumed) within the CIC in this sector. There is one property with previous equine (Tarwyn Park) activities

Both open cut and underground mining operations will be present within this sector.

Visual Effects Eastern CIC View Sector

From within this CIC sector views will be limited to the broader flat pastoral areas in the centre, east and south-east. Hills and ridgelines limit more distant views and external views from the north and east.

There will be views of the northern and eastern aspects of the Eastern Open Cut Mining Area and OEA, haul roads and newly constructed access roads within the sector. There will be some views to MIAs, overland conveyor and ROM coal pad in the adjacent Northern CIC view sector. There will be limited views to the North Western OEA, but these will be limited to people accessing the mine site, rail operators and the residents using the new access road to the north.

High visual effects will be experienced until Year 7 due to operations of the Eastern Open Cut Mining Area. Before then there will be views of open mine pit, overburden, haul roads and rail loop construction. After Year 7 this effect will reduce to moderate or low when OEAs are shaped, rehabilitation advances and the landform is integrated with the surrounding rural settings. The establishment of trees during rehabilitation development will further reduce the visual effects.

The development of haul roads along the eastern face of Eastern Open Cut Mining Area will create high visual effects. Upper Bylong Road will be realigned to provide access to rural residences in the eastern part of CIC view sector.

Development of the rail loop will have high visual effects during the construction phase due to earth works disturbance and movement of the construction fleet.

The movement of the mine fleet will be a constant visual element during construction and development of OEAs.

Sensitivity Eastern CIC View Sector

Thoroughbred Horse Enterprises

There are no active thoroughbred horse enterprises in this view sector.

Rural Residences

Andrews family owned "Tarwyn Park" is located in the central part of this view sector to the east of Upper Bylong Road. The property spans flat pastoral lands extending into the ridgeline to its north. There is the residential homestead as well as working buildings and sheds within the estate. The Bylong River flows centrally, south-east to north-west; the rail line also passes through this property.

In addition to "Tarwyn Park", there are three rural residences within the CIC eastern sector. Two of these residences are on Andrews land holdings. One is located on Upper Bylong Road adjacent "Tarwyn Park". As this property lies within the proposed mine area, it will be removed. The other is towards the east of the CIC is around 2.5 km from Eastern Open Cut Mining Area.

All residences are within 2.5km of the mine areas and will have high visual sensitivity.

Railway line

The Sandy Hollow-Gulgong rail line traverses this view sector centrally from east to west. See views "Rural Residences". Rail operators and rail staff will have direct views to the Eastern Open Cut Mining Area and OEAs during the 7 year period of high visual effect before progressive rehabilitation.

Local Roads

The local roads in the CIC view sector have been ascribed a moderate to low sensitivity due to distance from the Project areas (refer Table 2.2). These roads will be used by mine workers and residents living near the east of the Project Boundary.

Rural land

The view sector is predominantly rural land which ascribed low visual sensitivity where nearest visible mine area is less than 2.5 km.

Visual Impacts Eastern CIC View Sector

All residences within this CIC view sector will experience high visual impact being less than 2.5 km from nearest seen mine areas depending on visual screening effects of garden and roadside landscapes and view orientation.

All high visual impacts experienced by residences will be for up to 10 years. Impacts will be reduced to moderate to low when landscape patterns are restored after Year 10 of operations.

During the initial years, Upper Bylong Road and other local roads within the CIC will experience high to moderate visual impacts based on distance from the nearest mine areas. For all local roads such impacts will be experienced for up to 5 years when the visual effect of pre-rehabilitated OEA is seen from roadway. After Year 5, progressive rehabilitation reduces the extent of high level visual effect areas. Visual integration advances southward behind the advancing open cut mine face. When rehabilitation and final landform is achieved, visual effects will be lowered; following from this, impact will be reduced to moderate and low.

Railway operators and road user's drivers will receive direct unimpeded views onto the east face of the Eastern Open Cut Mining Area at a distance less than 2.5km. Visual impact will be high to moderate.

All rural production lands will experience moderate to low visual impacts. Rehabilitation will reduce such impacts to very low.

7.3 Southern CIC View Sector

The Southern CIC view sector is divided between elevated ridgelines and hill country to the east and west divided by flat to gently undulating pastoral lands and river valley. Lee Creek flows south to north through this sector.

There are no horse enterprises within this sector. There are two rural residential properties within the CIC on the Walling's property in this sector.

Lee Creek Road approaches the mining areas from the south centrally within the valley.

Open cut mining operations will be present within this sector.

Visual Effects Southern CIC View Sector

From within this CIC sector, views will be limited to the longer flat pastoral areas of the valley floor on the Lee Creek Road southern approach. Hills and ridgelines limit more distant views beyond the valley and external views from the east and west.

From the south there will be views of both South Western OEA, North Western and Eastern Open Cut Mining Areas, South Eastern OEA and haul roads where views are less than 2.5 km away.

There will be views towards the Open Cut MIA, ROM coal pad and overland conveyor to the north less than 2.5 km away. Views to the Underground MIA will be screened by the activities that are proposed to occur within the Eastern Open Cut Mining Area.

High visual effects will be experienced until Year 7 due to operations of the North Western and Eastern Open Cut Mining Areas. Before then there will be views of open mine pits, raw overburden, haul roads and possible construction of underground mining facilities in the middle distance. The raw overburden in the South Western OEA will significantly contribute to this before Year 5.

After Year 7 this effect will reduce to moderate or low when OEAs are shaped, rehabilitation advances and the landform is integrated with the surrounding rural settings. The establishment of trees during rehabilitation development will further reduce the visual effects.

The development of haul roads along the western face of Eastern Open Cut Mining Area and eastern face of South Western OEA will create high visual effects. Movement of mine fleet will be a constant visual element during construction and development of OEAs.

Lee Creek Road will have restricted access, limited to mining operations only.

Sensitivity Southern CIC View Sector

Equine Related Enterprises

There are no equine related enterprises in this CIC view sector.

Rural Residences

Within this CIC sector there are two Wallings land holdings residences. One is situated within the footprint of the Eastern Open Cut Mining Area. The other is also directly adjacent this mine area.

All residences are within 2.5 km of the mine areas and will have high visual sensitivity.

Local Roads

The local roads in this CIC view sector have been ascribed a moderate to low sensitivity due to distance from the components of the Project (refer Table 2.2). These roads will be used by mine workers and residents living to the south of the mining areas within the Project Boundary.

Rural land

The view sector is predominantly rural land which ascribed low visual sensitivity where nearest visible mine area is less than 2.5 km.

Visual Impacts Southern CIC View Sector

All residences within this CIC view sector will experience high visual impact being less than 2.5 km from nearest seen mine areas depending on visual screening effects of garden, roadside landscapes and view orientation.

All high visual impacts experienced by residences will be for up to 7 years. Impacts will be reduced to moderate to low when landscape patterns are restored after Year 7 of operations.

During the initial years, Upper Bylong Road and other local roads within the CIC will experience high to moderate visual impacts based on distance from the nearest mine areas. For all local roads such impacts will be experienced for up to 7 years when the visual effect of pre-rehabilitated OEA is seen from roadway. When rehabilitation is achieved, visual effects will be lowered. Following this, impacts will be reduced to moderate and low.

All rural production lands will experience moderate to low impacts. Rehabilitation will reduce such impacts to very low.

7.4 Western CIC View Sector

- The majority of the Western CIC View Sector is comprised of broad flat pastoral lands that straddle the Bylong Valley Way which passes through the west of this sector. The PVC boundary forms part of its south-western margin. A second low north-south ridgeline lies more centrally and is contiguous with the proposed North Western OEA. This ridge and OEA limit views into the central area and open cut mining pits to the east and south.
- There are few local roads in this CIC view sector, however the Bylong Valley Way predominantly passes through this area.
- There are no private residences in the Western Sector within the Revised draft CIC (Equine) Mapping area.

Visual Effects Western CIC View Sector

The main visual effects in the Western CIC View Sector are due to the North Western OEA. There will be potentially a high visual effects up to year 3 is less than 2.5 km from the north and western face of this OEA. However this effect could be lessened due to the limited area of visibility through trees and intervening topography.

During the initial years of operations, high visual effects will be experienced from parts of Bylong Valley Way when some views of overburden are available. Intervening topography and vegetation may limit these views to the east and south-east. This high visual effect will reduce to moderate or low after Year 3 when OEAs are shaped, rehabilitation advances and the landform is integrated with the surrounding rural settings. The establishment of trees during rehabilitation development will further reduce the visual effects.

Sensitivity Western CIC View Sector

Visibility in the sector is limited by the north south ridgeline and hills within this views sector to the west of the Western Open Cut Mining Area and South Western OEA.

Equine Related Enterprises

There are no Equine Related Enterprises in this CIC view sector.

Rural Residences

There are no houses within the CIC (Equine) in this view sector.

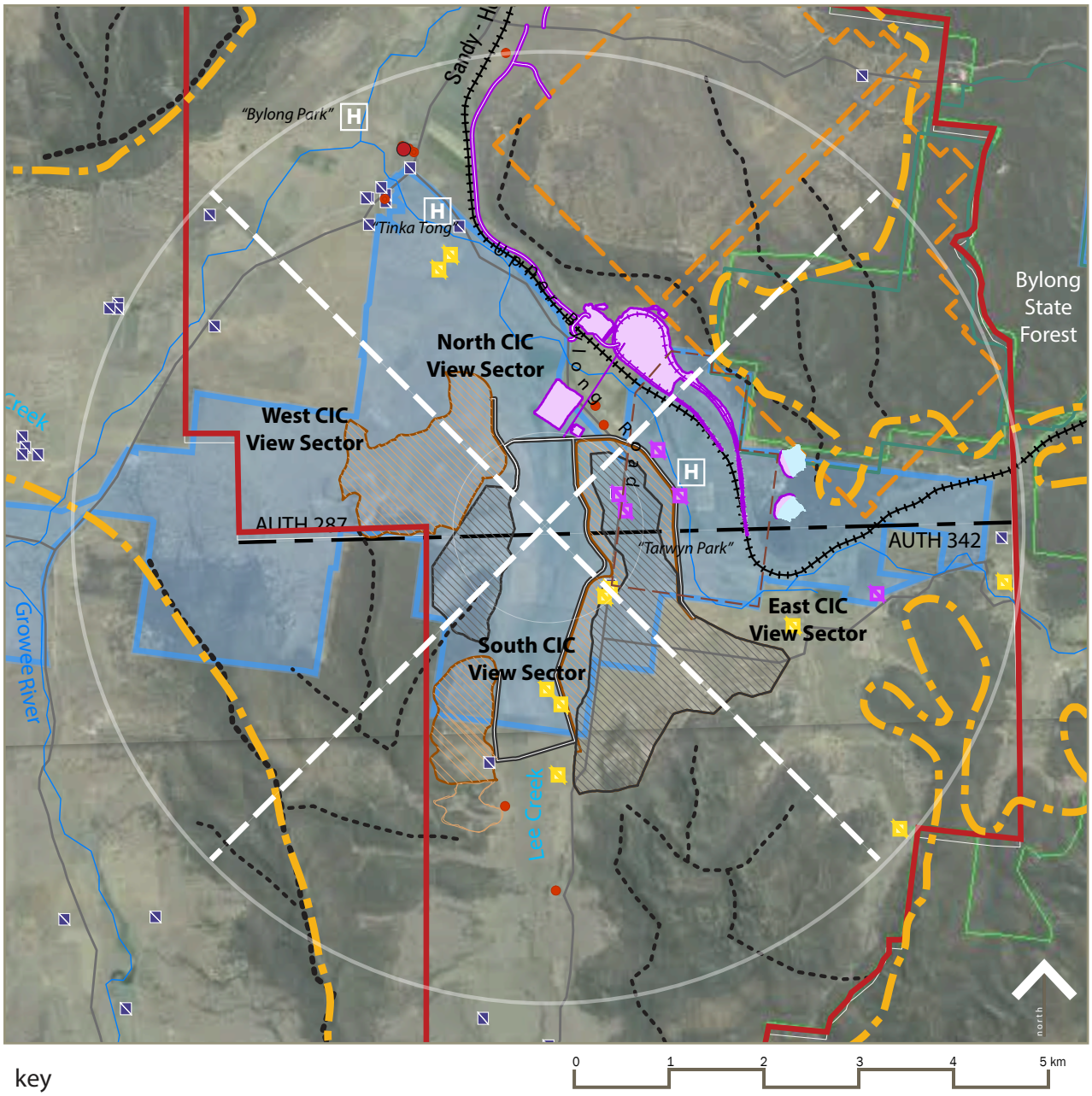
Bylong Valley Way

A section of Bylong Valley Way runs through the south-west of the CIC in this view sector (see Figure 7.1). There is a short stretch of this route where it is less than 2.5 km from the nearest OEA. This road will have a high sensitivity for this section.

Visul impact Western CIC View Sector

Bylong Valley Way

Visual impact will be high to moderate for that high sensitivity zone and moderate to low outside that zone up to Year 5 while visual effect is potentially high it is likely to be limited due to tree cover and topography. This will lower visual impact levels. After rehabilitation visual effect further reduces visual impact to low.



key

- Project Boundary
- Primary visual catchment boundary
- Roads
- Rail line
- Watercourses
- Bylong Village
- National Parks and State Forests
- View Sector Boundaries
- Open Cut Mining Areas
- Overburden Emplacement Areas
- Internal Roads
- Mine Infrastructure
- Revised draft CIC mapping
- Significant ridge lines
- Equine industry
- Sensitive receptor - Private freehold
- Sensitive receptor - KEPCO ownership
- Sensitive receptor - within land holding - Owner A
- Sensitive receptor - within land holding - Owner B

Figure 7.1 | Revised draft CIC mapping and View Sectors

8. VISUAL IMPACT – SRLUP CIC

The visual impact on the areas of the original SRLUP CIC is limited. The area of this CIC not contained in the Revised draft CIC contains few sensitive receptors. Within the area not contained within the revised CIC, there are three residences and parts of the Bylong Valley Way and Wollar Road. The roads would have moderate to high sensitivity while the residences would have high sensitivity.

The Project Boundary and the Project components are screened from these areas by the forested ridges of the Bylong State Forest. The exception is the temporary construction camp that is located in open grassland at the intersection of the Bylong Valley Way and Wollar Rd. This project component will create a high visual effect during the first 2 years of the project.

The construction camp will not be visible from residences within the CIC area but will be visible from small sections of the Bylong Valley Way (high sensitivity) and Wollar Road (moderate sensitivity).

The small section of Bylong Valley Way (0.8km) will experience a moderate to high visual impact with Wollar Road experiencing a moderate to low impact.

9. MITIGATION – REVISED CIC

There are numerous mitigation measures incorporated in the design and operating plans for the Project that will reduce the visual effect and mitigate the visual impact of the Project on sensitive Revised CIC (Equine) viewing locations. These include:

- The existing sitingt of the MIA between existing topographic features to screen from many sensitive external view locations;
- Timely construction and implementation of progressive OEA rehabilitation during mining operations to reduce visual effect levels;
- Retention of iconic high points in local landscape setting.
- Mitigation measures in relation to reducing visual impact relevant to the Project include;
- On-site treatments to reduce visual effects; and
- At viewer location treatments to reduce visual sensitivity.

On-site treatments involve rehabilitation of landforms and land cover, while viewer location treatments could involve a range of treatments to screen views, filter views and or reorientate primary views should this be needed. It should be noted that on-site treatments are already being carried out as part of the Project and relate to OEA establishment and rehabilitation.

The need for off-site treatments at Revised CIC (Equine) locations is not required.

On-site treatments recommended for implementation for the Project include:

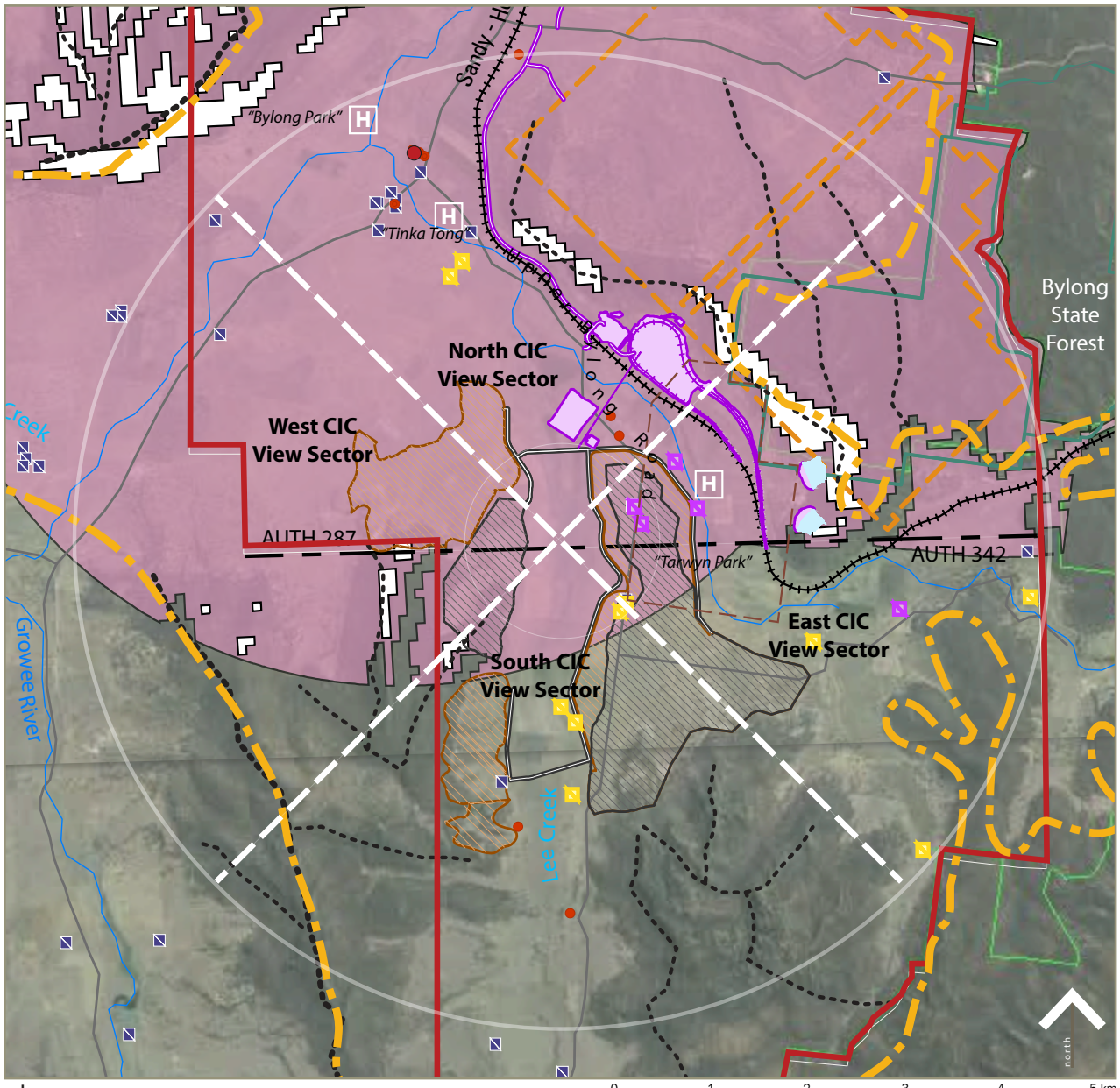
- Seek to limit pre-rehabilitated OEA areas to less than 2.5% of potential primary view zones of sensitive receptors for as short a time as possible limiting times that high visual effects are experienced;
- Create landscape plans to establish visual and ecological forest planting patterns to achieve landscape patterns that emulate existing forest, woodland and grassland patterns that have colour and texture continuums in the existing landscape for external rehabilitation areas;
- Manipulate the tops of the OEAs consistent with storage and noise abatement requirements to achieve a more natural fit with surrounding hills and avoid extensive ‘flat top’ development within the landscape.

Design drainage structures to fit in with more natural landforms;

- Infrastructure constructed in forest tones (i.e. green, grey, cream) to blend with the surrounding natural environment as far as practical. Such strategies should be considered in terms of actual backgrounds and need not necessarily be olive green.

Off-site treatments recommended for implementation for the Project, where deemed necessary through consultation within relevant stakeholders as illustrated in Figure 9.1, include:

- Develop and implement a landscape plan for the Bylong Valley Way in long term impact areas;
- Implement tree planting along rerouted access road to the east of CIC to provide screening of mine elements from high impact receptors; and
- Establish tree screens along Upper Bylong and Lee Creek Roads.



key

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Figure 8.1 | SRLUP CIC mapping and View Sectors

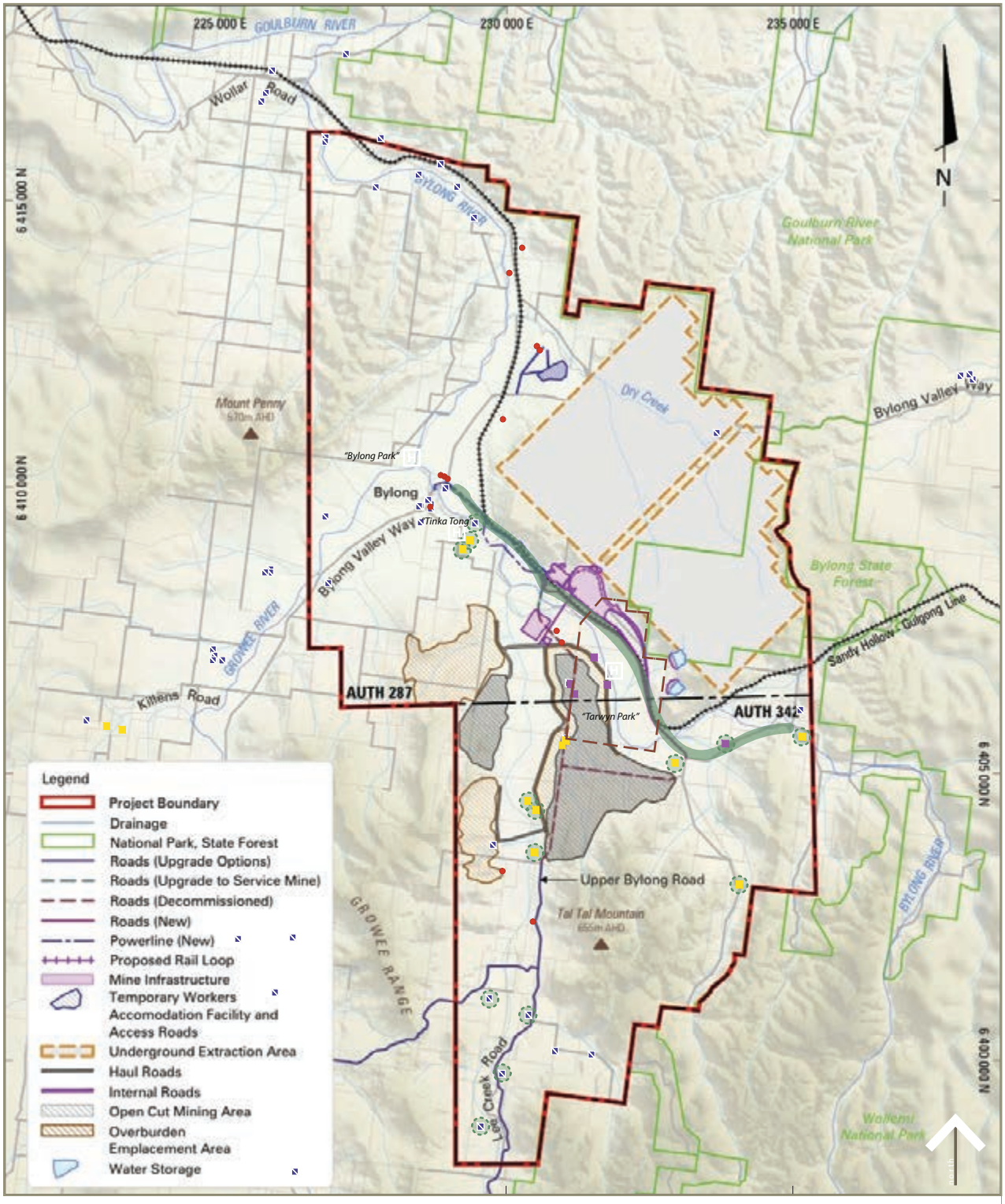

Figure 9.1 | Offsite visual mitigation recommendations