



DRAYTON SOUTH COAL PROJECT

Gateway Certificate Application

for

ANGLO AMERICAN COAL

January 2015

Hansen Bailey
ENVIRONMENTAL CONSULTANTS

DRAYTON SOUTH COAL PROJECT

GATEWAY CERTIFICATE APPLICATION

SUPPORTING DOCUMENT

Prepared by:

HANSEN BAILEY
PO Box 473
SINGLETON NSW 2330

23 January 2015

for:

ANGLO AMERICAN COAL
201 Charlotte Street
BRISBANE NSW 4000

EXECUTIVE SUMMARY

Anglo American Coal (Anglo American) is seeking approval to extend the life of its existing Drayton Mine through the development of mining operations within Exploration Licence (EL) 5460 (the Project). The Project is located approximately 13 kilometres (km) south of the township of Muswellbrook within the Muswellbrook Local Government Area (LGA).

Preliminary soil assessments undertaken for land proposed to be developed within the Project boundary have identified the soil mapping units that may satisfy the criteria of biophysical strategic agricultural land as provided in the *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007*. As assessed in this Gateway Application the Project activities will directly impact approximately 1,470.9 ha of land through surface disturbance. Of the area to be impacted, approximately 218.2 ha has been initially verified as biophysical strategic agricultural land. This represents a 0.1% impact to the total BSAL mapped within the *Strategic Regional Landuse Plan, Upper Hunter*. Additional assessments will be undertaken to quantify impacts in detail as part of the Environmental Impact Statement, which will be prepared to support a development application that will be lodged for the Project.

As such, Anglo American Coal is lodging this Gateway Certificate Application document, prepared pursuant to clause 17F of *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* for those areas of the Project that require a new mining lease.

The land where the Project is proposed is owned by Anglo American and is primarily used for beef cattle grazing. While areas of Equine and Viticulture Critical Industry Cluster lands are mapped to the south of the Project there are no equine or viticulture enterprises or Critical Industry Cluster land located within the Project Boundary.

Anglo American will further investigate a range of management strategies to minimise potential impacts of the Project on agriculture during preparation of the Environmental Impact Statement for the Project, including:

- Design of the mine plan to minimise impacts to mapped areas of biophysical strategic agricultural land; and
- Implementation of leading practice monitoring and mitigation to minimise direct and indirect impacts to nearby horse stud and viticulture enterprises.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF APPENDICES

DRAYTON SOUTH COAL PROJECT

GATEWAY CERTIFICATE APPLICATION

for

Anglo American Coal

1 INTRODUCTION

1.1 OVERVIEW

Anglo American Coal (Anglo American) is seeking approval to extend the life of its existing Drayton Mine through the development of mining operations within Exploration Licence (EL) 5460 (the Project). The Project is located approximately 13 kilometres (km) south of the township of Muswellbrook within the Muswellbrook Local Government Area (LGA) (see **Figure 1**).

Preliminary soil assessments undertaken for the current application have identified an area of land that satisfies the criteria of biophysical strategic agricultural land (BSAL) as provided in the *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* (Mining SEPP).

This Gateway Certificate Application document has been prepared pursuant to clause 17F of the Mining SEPP. The Gateway Application will be assessed by the Mining and Petroleum Gateway Panel (the Gateway Panel) for potential impacts of the Project on strategic agricultural land (SAL) and its associated water resources.

The Gateway process applies to State Significant mining development that would require a new mining lease. Components of the Project that are outside of the area over which a new mining lease will be sought are not subject to the Gateway Application. These excluded Project components are identified in **Section 2.6** of this document.

1.2 BACKGROUND

Anglo American has successfully operated Drayton Mine for over 30 years, to provide thermal coal to export and domestic markets. The current Project Approval 06_0202 held for Drayton Mine expires in 2017.

Anglo American obtained EL 5460 over the Drayton South area in 1998. All of the land required for the Project within EL 5460 is owned by Anglo American.

During its period of operation, Drayton Mine has been a major employer in the local community with over 500 full time equivalent workers at its peak. The mine has also been an active member and supporter of the local community by hosting regular Community Consultative Committee meetings with key stakeholders and contributing around $750,000 to community organisations and local charities in the past 10 years alone.

The Project will facilitate the continuation of the existing Drayton Mine for a further 15 years, by developing an open cut mining area within EL 5460 (Drayton South). The Project will extract on average 6 Million tonnes per annum (Mtpa) and up to 7 Mtpa in any one year, of export quality thermal coal by utilising existing Drayton Mine assets and infrastructure.

In 2011, Anglo American applied to the NSW Department of Planning and Environment (DP&E) for the Drayton South Coal Project (Drayton South) under Part 3A of the *Environmental Planning and Assessment Act 1979*. As part of this assessment process DP&E issued a request for advice to the Mining & Petroleum Gateway Panel (the Gateway Panel) regarding the Project. DP&E specifically sought the Gateway Panel's advice on:

- The significance of the Project's potential impacts on the nearby Critical Industry Clusters (CICs); and
- Whether any additional reasonable and feasible mitigation measures could be implemented to materially reduce the potential impacts of the Project on these CICs.

Following the issuance of the previous Gateway Panel advice to DP&E on 10 December 2013, the NSW Planning Assessment Commission (PAC) recommended that the previous project application should not proceed, with Anglo American being required to demonstrate that the impacts of Drayton South would not affect the viability of the Coolmore and Woodlands horse studs.

Anglo American has carefully considered the advice provided by the Gateway Panel on the previous project in the design of this new Project. Subsequently, each matter raised by the Gateway Panel in their advice issued 10 December 2013 has been addressed in this new application. To address the recommendations made by both the Gateway Panel and the PAC on the previous application, Anglo American has revised the mine plan to ensure it remains behind the second ridgeline to provide an appropriate buffer between the Project and the horse stud's operations. Anglo American has also accepted the requirement to develop an appropriate monitoring strategy as part of this Project.

At the time of submitting the previous application for Drayton South, the Gateway Process had not come into effect and was not applicable to Projects lodged under Part 3A of the *Environmental Planning and Assessment Act 1979*. As such the Project was not required to go through the Gateway Process and field site verification was not undertaken for the EA. During subsequent revisions of the mine plan as the previous application progressed through the approvals stages, the Gateway Process came into effect. At this point a desktop assessment process using the available government mapping data was completed. The outcome of this assessment process indicated that there was no BSAL mapped within the Project area.

The current Project Application has been prepared to address the reasons provided by the PAC for the refusal of the previous application. The proposed mining area falls entirely within the extent of mining nominated by the Drayton South PAC and as such is consistent with the setback requirements nominated by the previous Gateway Panel. This approach enables an economically viable method for the extraction of a subset of this valuable state coal resource, further minimises impacts on the surrounding environment, increases the buffer to improve the protection of Coolmore and Woodlands horse studs, provides for the continuation of social and economic benefits currently generated by Drayton Mine to the wider community, and delivers a development that is in the public interest.

Following the issuance of a Conditional Gateway Certificate, Anglo American proposes to seek a State Significant Development Consent under Division 4.1 of Part 4 of the Environmental Planning & Assessment Act 1979 (EP&A Act) for the development and operation of the Project, which shall be supported by an Environmental Impact Statement (EIS).

This Gateway Certificate Application has been prepared by Hansen Bailey Environmental Consultants (Hansen Bailey) on behalf of Anglo American. It should be noted that for the purposes of this Gateway Certificate Application, relevant technical studies undertaken for the previous Drayton South Environmental Assessment (EA) have been relied upon to provide an assessment of preliminary impacts. These studies provide an assessment of a larger mine plan footprint located closer to key landholders and agricultural resources and thus impacts from the current application are anticipated to be reduced. Impacts associated with the current application will be quantified in detail and mitigation strategies described within the Project EIS.

1.3 APPLICANT

The applicant of this development is Anglo American, who manages the existing operations of Drayton Mine and is the controlling partner of the Drayton Joint Venture.

The schedule of land to which this Gateway Certificate Application applies is listed in **Appendix A**. Anglo American owns all of the land within EL 5460 over which a new mining lease will be required and hence over the area to which this Gateway Certificate Application applies.

1.4 STAKEHOLDER CONSULTATION

An extensive stakeholder consultation program has been undertaken as part of the Drayton South EA. This commenced in 2010 and to date has included:

- Various meetings with Local, State and Commonwealth government agencies;
- Working group meetings and consultation with both Coolmore and Woodlands horse studs;
- Meetings with all immediate neighbouring land owners and industries; and
- Consultation and meetings with the Aboriginal and wider local community.

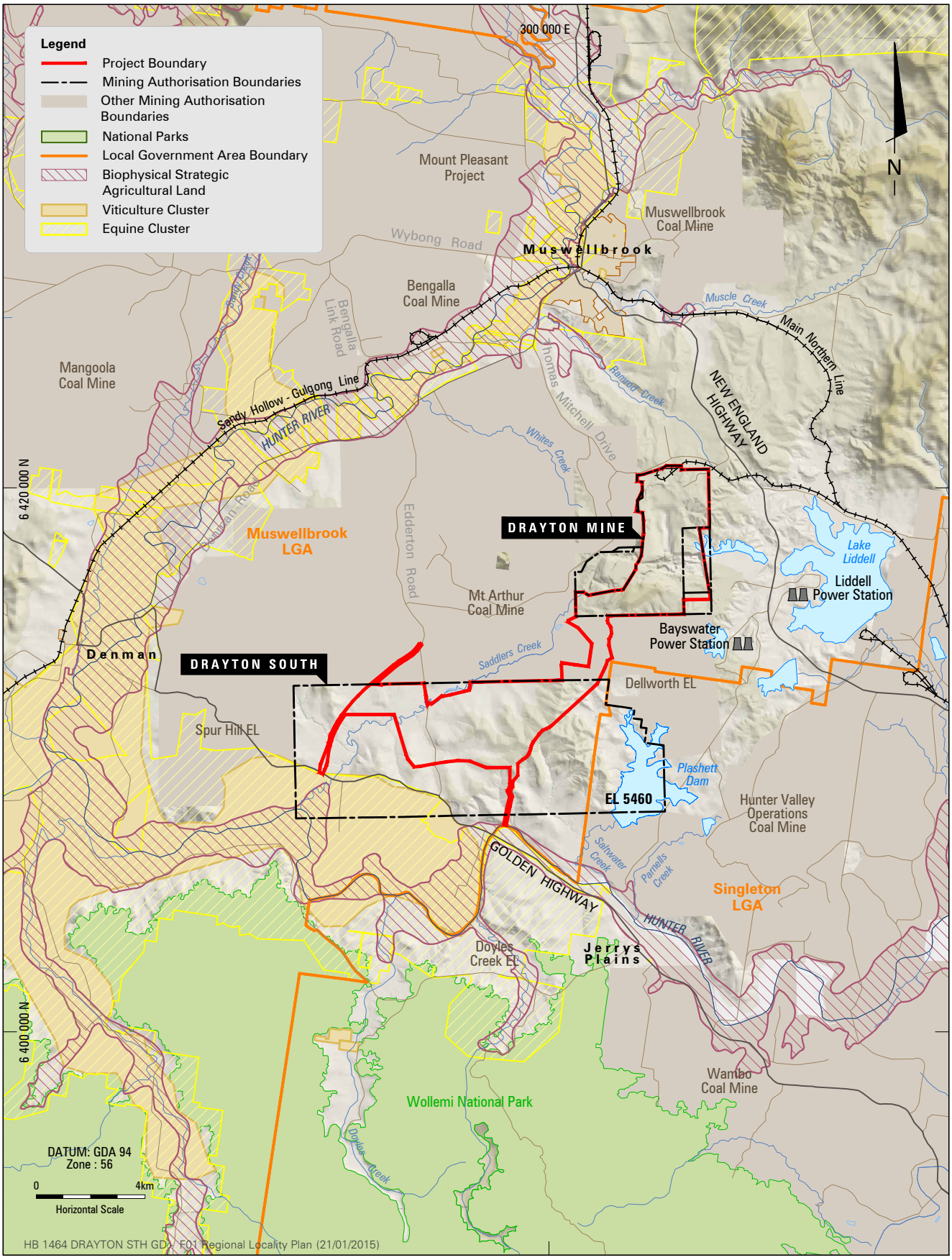
As the Project progresses Anglo American will continue to engage with all of its stakeholders.

1.5 DOCUMENT STRUCTURE

This document is structured as follows:

- **Section 2** provides a description of the Project;
- **Section 3** describes the existing environmental setting;
- **Section 4** provides a consideration of the Gateway Criteria against the Project in accordance with the requirements of the Mining SEPP;
- **Section 5** describes the preliminary measures that are proposed to be implemented to mitigate and manage the Project's impacts on SAL;
- **Section 6** provides a conclusion;
- **Section 7** lists abbreviations used in this document; and
- **Section 8** lists all relevant references used in this document.

Appendix A provides the schedule of the land to which the Gateway Certificate Application applies. **Appendix B** to **Appendix F** provides complete copies of the technical assessments and materials that support this document.



DRAYTON SOUTH COAL PROJECT

Regional Locality Plan

FIGURE 1

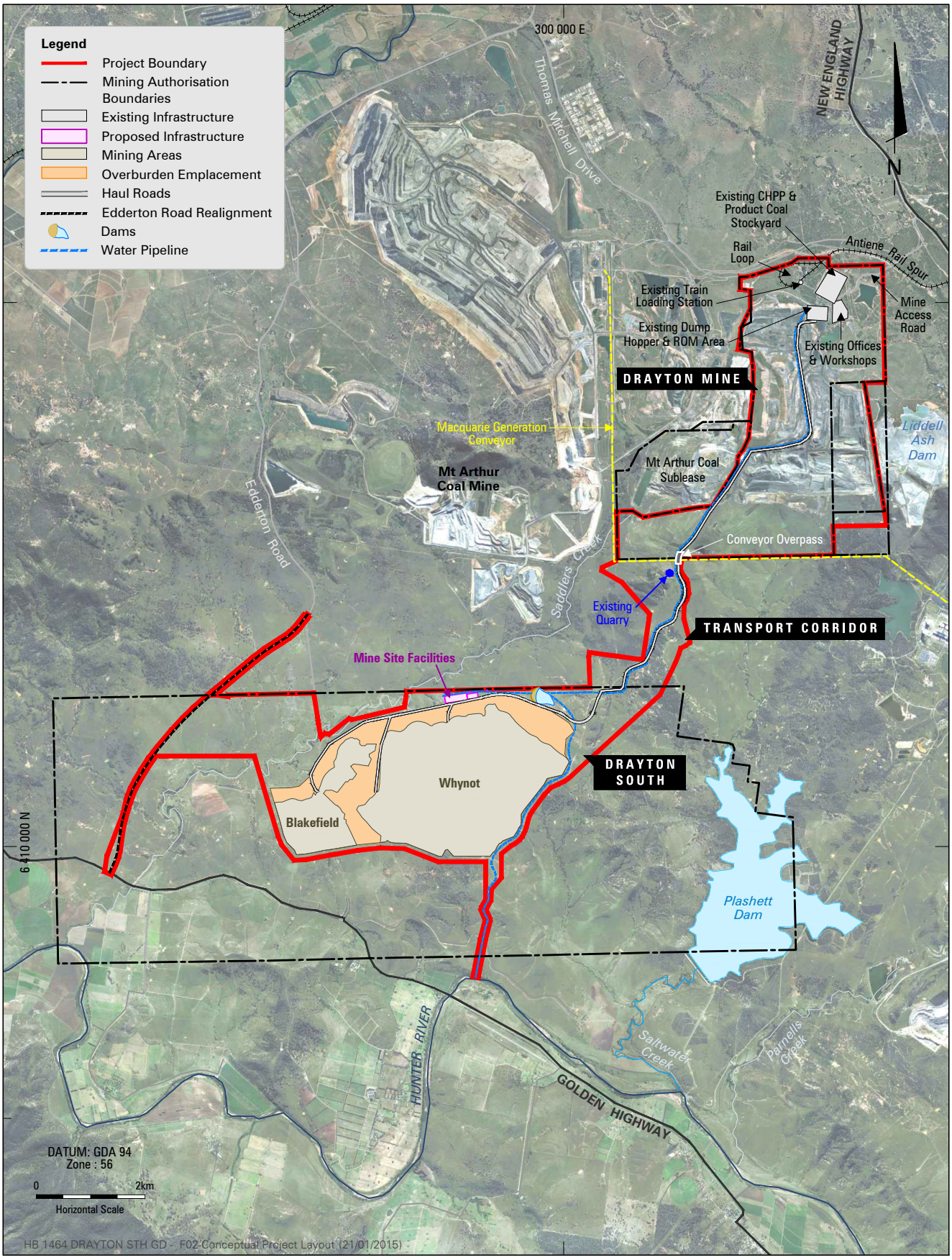
2 CONCEPTUAL PROJECT DESCRIPTION

This section provides a conceptual description of the Project and a brief justification for the mine plan proposed.

2.1 PROJECT OVERVIEW

The conceptual layout of the Project is illustrated on **Figure 2** and includes scope for the following activities:

- Continuation of operations at Drayton Mine as currently approved with minor additional mining within the existing East, North and South Mining Areas for a period of 15 years;
- Development of a new open cut mining area with EL 5460 mining a coal resource of approximately 75 Mt at a rate of up to 7 Mtpa and on average 6 Mtpa;
- Ongoing employment of a workforce of up to 500 full time equivalent employees;
- Utilisation of the existing Drayton Mine equipment fleet;
- Storage of water, and emplacement of tailings and rejects generated by the Project in existing Drayton Mine voids;
- Utilisation of the existing Drayton Mine infrastructure including the CHPP, rail loop and associated infrastructure, workshops, bath houses and administration offices;
- Construction of a transport corridor to the new mining area;
- Continued utilisation of the Antiene Rail Spur off the Main Northern Railway Line to transport product coal to the Port of Newcastle for export;
- Realigning and upgrading a section of Edderton Road;
- Continuation of mutually beneficial arrangements with neighbours Macquarie Generation and Mt Arthur Coal Mine;
- Installation of further water management and power reticulation infrastructure to support the new mining areas; and
- Progressive rehabilitation of disturbed areas as mining operations are completed.



DRAYTON SOUTH COAL PROJECT

AngloAmerican | Hansen Bailey ENVIRONMENTAL CONSULTANTS

Conceptual Project Layout

FIGURE 2

2.2 GEOLOGY & COAL RESOURCE

The Project is located in the northern Hunter Coalfield on the western side of the Muswellbrook Anticline. Strata of the late-Permian Wittingham Coal Measures outcrop through the north-east of the area and generally dip gently to the south-west. The five target seam sequences of the Project are contained within the Jerrys Plains subgroup. A typical stratigraphic column within the Drayton South mining area is shown in **Figure 3**. The Permian stratigraphy is unconformably overlain by Tertiary and Quaternary alluvial and colluvial deposits, visible along parts of Saddlers Creek and Saltwater Creek.

Exploration drilling and pre-feasibility studies have identified an estimated in situ coal resource of 556 Million tonnes within EL 5460, of which approximately 75 Mt is planned to be recovered using open cut methods as part of the Project. Additional coal resources are known to exist within the Project Boundary to allow the continuation of Drayton mining operations outside of this period, however Anglo American has developed the current mine plan within the physical constraints identified by the PAC in their determination of the previous application.

The Project proposes the extraction of a portion of the known coal reserves utilising open cut mining methods, within the Project Boundary for a period of approximately 15 years. **Figure 4** to **Figure 6** illustrates the progression of mining operations within the two open cut mining areas at key stages of the Project.

2.3 MINE INFRASTRUCTURE

2.3.1 Mine Site Facilities

The existing infrastructure at Drayton Mine will continue to be utilised for the Project, with additional mine site facilities proposed to be developed within EL 5460 to provide support to operations in the new mining area (see **Figure 2**). This additional infrastructure area will include:

- Workshop and office buildings;
- Parking facilities for heavy and light vehicles;
- Dragline and equipment laydown areas; and
- Waste and water management infrastructure.

2.3.2 Coal Processing

ROM coal extracted from the Project will be transported by trucks to the existing ROM hopper at Drayton Mine, which feeds into the existing CHPP for processing. All product coal will be loaded to trains using the existing Antiene Rail Spur infrastructure and railed to the Port of Newcastle for export via the Main Northern Railway.

2.3.3 Reject and Tailings Disposal

On completion of coal mining operations at Drayton Mine, voids will remain including the North, East and South Voids. It is proposed that rejects and tailings generated at the CHPP from the processing of coal will be deposited in two of these voids, with the third void being dedicated to water storage.

2.3.4 Site Access

Mine access for the Project will continue to be via the existing Drayton Mine Access Road off Thomas Mitchell Drive, with the exception of construction activities associated with realignment of Edderton Road and other minor civil works in this area. Employees and contractors will travel between the existing Drayton Mine and the Drayton South area via the transport corridor.

2.4 WATER MANAGEMENT

The mine water management system will enable the optimal collection, use, recovery and recycling of water within the Project Boundary.

The Project will require the construction of a new mine water storage dam in addition to those already utilised in existing Drayton Mine operations. The proposed location of this dam is adjacent to the Mine Site Facilities (see **Figure 2**). Other minor water storages, diversion drains, sedimentation dams and culverts will be sized and located as required to capture runoff from mine areas. Detailed requirements for the various mine water structures and erosion and sediment control devices will be developed for the Project and included in the EIS.

The primary demand for water will include dust suppression, use within the surface facilities and make-up water required for the processing of coal in the CHPP.

Anglo American currently holds various water licences as discussed in **Section 4.2** which provide 198 units of water allocation from the Hunter River Water Source.

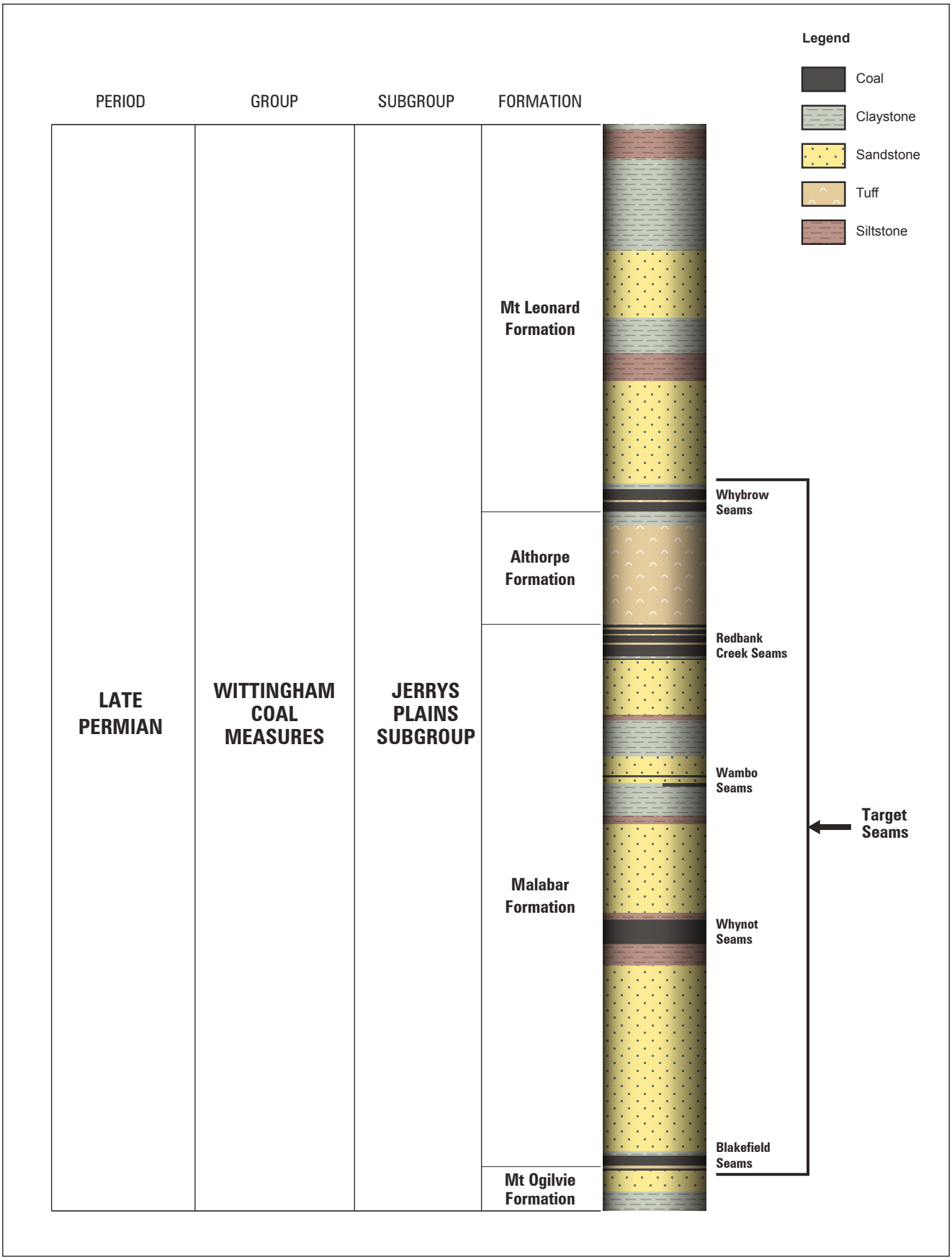
2.5 MINE PLAN JUSTIFICATION

Anglo American is seeking input from the Gateway Panel to the SEARs for the preparation of an EIS for the Project which will extend the life of the existing Drayton Mine for a further 15 years from 2015. The mine planning process has considered environmental, social, geological and technical factors to determine the most economically viable mine plan for the targeted coal seams. Coal resource recovery will be maximised during the life of mine by implementing open cut mining methodology, in comparison to other mining methods which must leave some coal in situ to safely access the resource. Furthermore, the Project mine plan footprint for the current application has been designed specifically to meet the recommendations of both the Gateway Panel and PAC for the previous application.

As such, the proposed mine plan has been developed to allow for the continuity of employment for the majority of the Drayton Mine existing employees whilst at the same time ensuring no impact on the operations of surrounding landholders.

2.6 ACTIVITIES NOT SUBJECT TO THIS APPLICATION

Project activities proposed within the boundary of existing mining authorities held by Anglo American do not require a Gateway Certificate. Further, project activities that do not meet the definition of a “mining or petroleum development” under the Mining SEPP will not require a mining lease and do not require a Gateway Certificate. Activities that don’t require a mining lease are the realignment of Edderton Road, transport corridor and other linear infrastructure such as power supply infrastructure and the water pipeline to the Hunter River. .

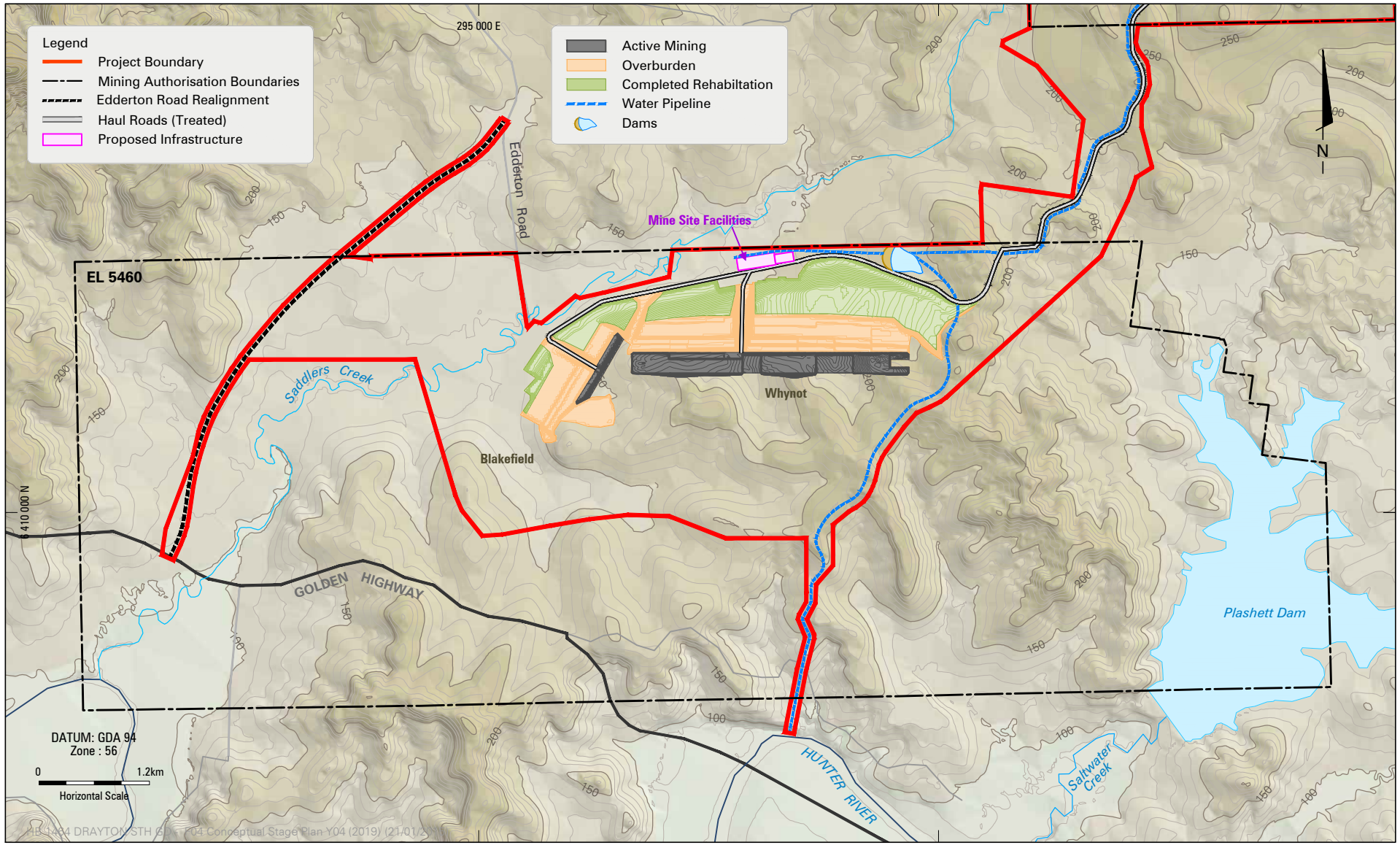


DRAYTON SOUTH COAL PROJECT

AngloAmerican | Hansen Bailey ENVIRONMENTAL CONSULTANTS

Indicative Stratigraphic Column

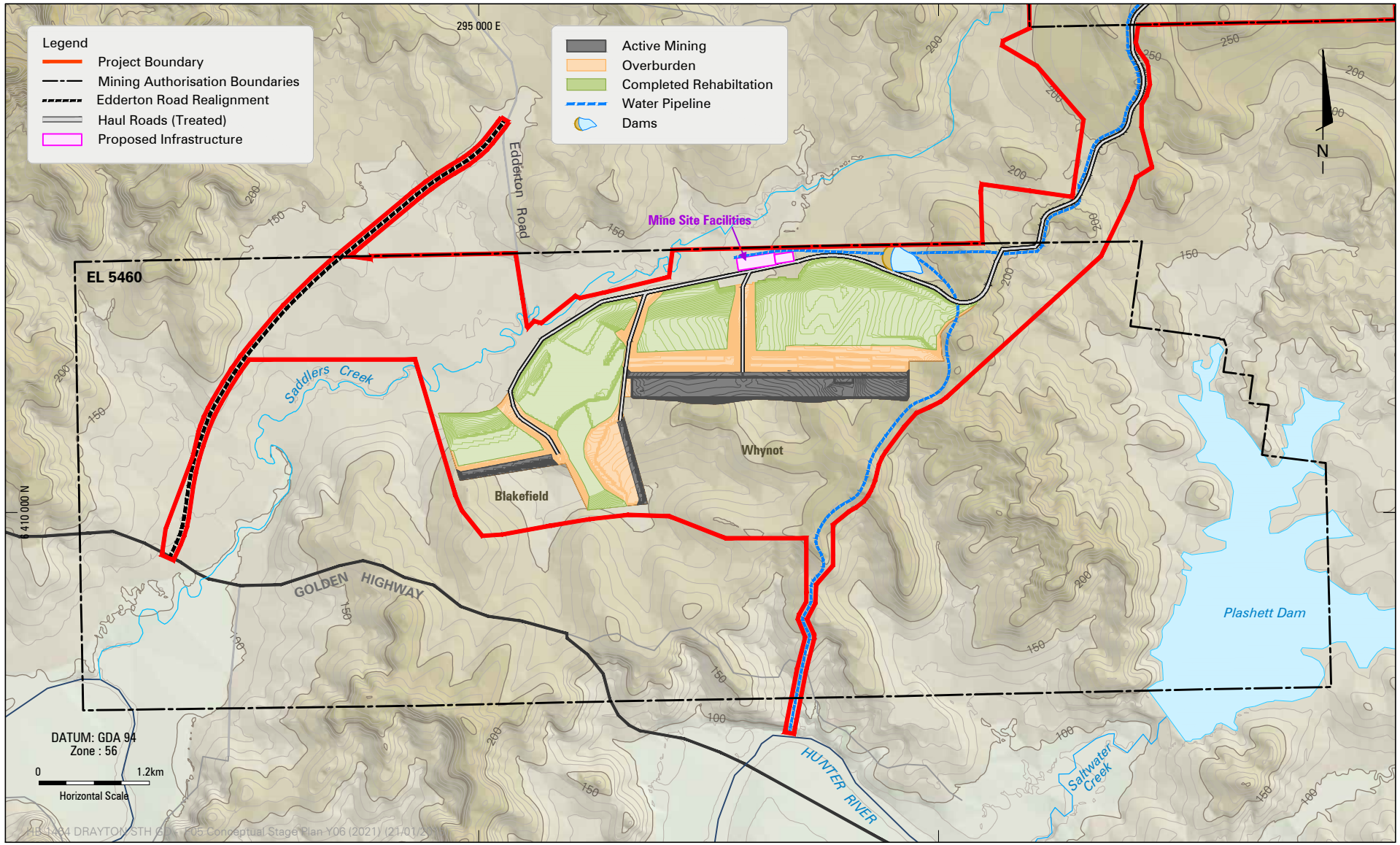
FIGURE 3



DRAYTON SOUTH COAL PROJECT

Conceptual Mine Plan - Year 4

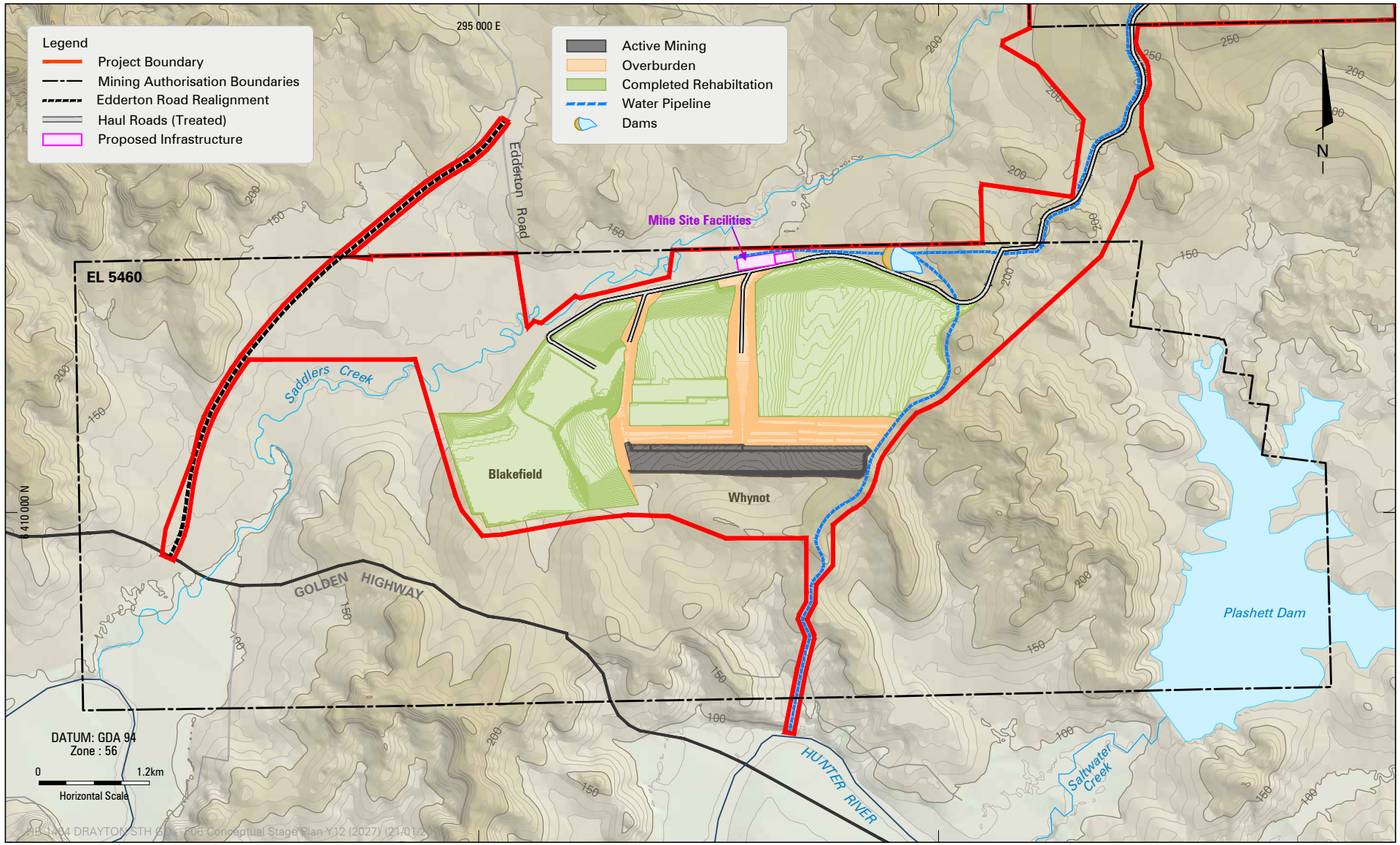
FIGURE 4



DRAYTON SOUTH COAL PROJECT

Conceptual Mine Plan - Year 6

FIGURE 5



DRAYTON SOUTH COAL PROJECT

Conceptual Mine Plan - Year 12

FIGURE 6

3 EXISTING ENVIRONMENT

This section provides relevant information in relation to the existing environment as it relates to agricultural land in the vicinity of the Project.

3.1 LAND USE

3.1.1 Surrounding Land Use

The northern component of the Project Boundary is occupied by the area of operations approved for Drayton Mine. The southern area, where the extension to mining is proposed, is owned by Anglo American, but is currently managed and operated by two licensees as agricultural land. The predominant agricultural land use within EL 5460 is extensive beef cattle grazing, with the major enterprise being beef cattle breeding for the weaner and domestic market. There is also some winter fodder cropping on the flats and lower slopes (around 10% slope) adjacent to Saddlers Creek (outside of the Project Boundary).

As shown on **Figure 1**, there are a number of existing mining authorities and industrial developments in the vicinity of the Project Boundary. Major coal mining and power generation operations landholders in the locality include:

- Mount Arthur Coal Mine;
- Hunter Valley Operations;
- Bengalla Coal Mine;
- Mangoola Coal Mine;
- Muswellbrook Coal Mine;
- Wambo Coal Mine;
- Bayswater Power Station; and
- Liddell Power Station.

The above operations generally run beef cattle grazing enterprises on their non-operational land. These activities are usually managed under licensee or lessee arrangements.

3.1.2 Agriculture

Enterprises within the Locality

The main agricultural activities within the immediate locality (i.e. within 2 km of the Project Boundary) are cattle grazing, horse breeding and viticulture. Of these the major agricultural enterprises consist of Coolmore Stud, Woodlands Stud (which are mapped as part of the Equine CIC) and Holydene Estate (which is mapped as part of the Viticulture CIC) (see **Figure 7**). These are all located to the south of the Project Boundary.

Enterprises within Project Boundary

The predominant agricultural land use within EL 5460 is extensive beef cattle grazing with the major enterprise being beef cattle breeding for the weaner and domestic market. The estimated number of cattle carried in winter 2011 was 1,140 head (Scott Barnett & Associates, 2012). There is also some winter fodder cropping on the flats and lower slopes (around 10% slope) adjacent to Saddlers Creek. This fodder cropping is used for finishing weaner cattle for the domestic market. The current agricultural domains within EL 5460 are identified in the Agriculture Impact Statement (see **Appendix E**). There are no areas of Equine or Viticulture CIC mapped within the Project Boundary.

3.2 GROUNDWATER

3.2.1 Hydrological Regime

AGE (2012) note that the regional groundwater system within the vicinity of the Drayton South area consists broadly of three aquifer systems, including:

- Alluvium along the Hunter River, Saddlers Creek and Saltwater Creek;
- Weathered bedrock (regolith); and
- The coal seams of the Permian Wittingham Coal Measures.

The alluvial deposits of the Hunter River located to the immediate south of the Drayton South area are a significant storage for groundwater, particularly within the basal gravel sequence and overlying sands. The material overlying the basal gravel is typically less permeable and consists predominantly of silt with minor clay. The alluvial aquifer has a maximum thickness of approximately 18 m and yields of up to 21 L/s.

The water quality of the Hunter River alluvial aquifer, as reflected by EC, is quite variable ranging between 644 µS/cm (~412 mg/L TDS) and 6,700 µS/cm (~4288 mg/L TDS). The EC range is influenced by the dominant recharge source at the time, which is typically from the underlying coal measures. This results in very poor water quality however recharge from rainfall or the river itself has the potential to slightly improve water quality conditions.

In contrast, the Saddlers Creek alluvium has a limited capacity to store and transmit water, exhibits low yields and poor water quality, and does not form a single, well-connected aquifer. The water quality of the Saddlers Creek alluvial aquifer is too saline for stock watering with EC in the range of 8000 to 9000 µS/cm and TDS in the range of 3,000 to 7,000 mg/L. The alluvium is dominated by clay and silt, interspersed with isolated sandy lenses that are typically only a few metres thick. Groundwater is able to accumulate within these lenses after the infiltration of

surface water runoff during periods of heavy rainfall. Discharge of this groundwater maintains a base flow in the creeks and gullies, however it is typically short lived with the alluvium expected to drain quickly.

Similarly, the alluvium associated with Saltwater Creek is thin and of limited extent due to a steep bed grade that prevents alluvial sediment being deposited. Very limited occurrence of groundwater is likely to occur within the Saltwater Creek alluvium as a result of this. The fresh unweathered Permian strata is typically characterised by very low yielding, tightly consolidated interburden with very little primary porosity, and low to moderately permeable coal seams. These coal seams typically range in thickness from 1 m to 5 m and is the prime water bearing strata within the Permian sequence. Compared to the Hunter River alluvial aquifer, the coal seams are generally low yielding and contain poorer quality water.

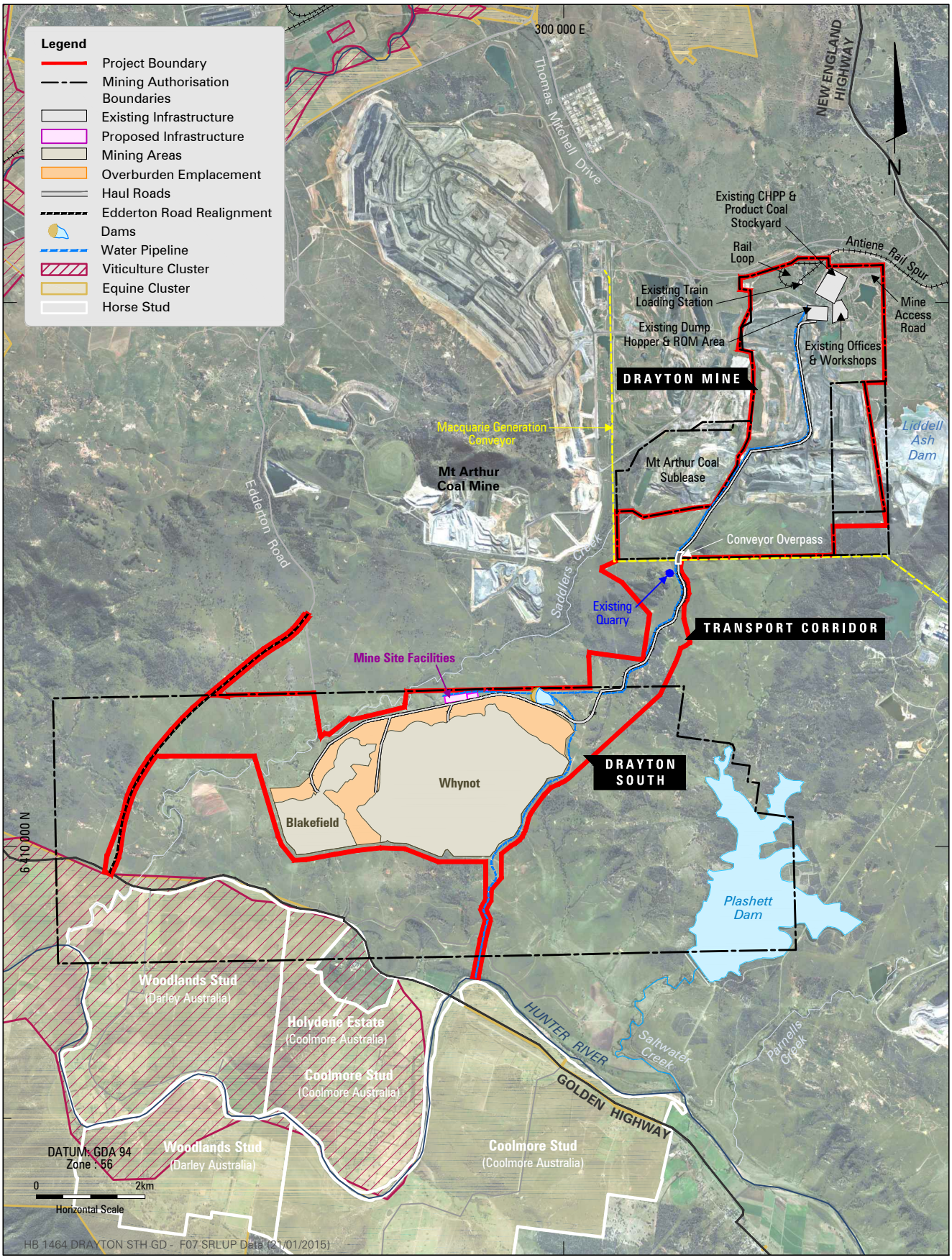
Rainfall recharge to the Permian bedrock percolates downwards from the regolith at a reducing rate, due to increasing confinement and decreasing permeability. This vertical flow regime is predominantly fracture flow, where pathways depend upon fracture and joint connectivity within the rock strata.

3.2.2 Groundwater Users

There are a number of land users that utilise the Hunter River alluvial aquifer for irrigation, stock, domestic and industrial purposes within the vicinity of the Drayton South area (see **Appendix C**).

A large proportion of the agricultural land and associated farming enterprises adjacent to the Drayton South area are situated on the floodplain of the Hunter River and its larger tributaries. The Hunter River also plays an important role in the operation of the region's mining and power generation industries and in irrigating Coolmore Stud, Woodlands Stud and several other agricultural enterprises in the area.

Anglo American currently holds two Water Access Licences (WALs) with a total allocation of 198 units per annum from the Hunter River for irrigation purposes. These WALs may be transferred from use for the purpose of irrigation to use for the purpose of mining. The total share component for the regulated river (general security) access licences in Management Zone 1 is 75,035 units. The predicted average annual impact on the total share component for the regulated river (general security) access licences in Management Zone 1 under the Water Sharing Plan (WSP) for the Hunter Unregulated and Alluvial Water Sources is negligible.



DRAYTON SOUTH COAL PROJECT

AngloAmerican | Hansen Bailey ENVIRONMENTAL CONSULTANTS

SRLUP Critical Industry Clusters

FIGURE 7

3.3 SURFACE WATER

3.3.1 Catchments

The area within EL 5460 on which the Project is proposed is drained by Saddlers Creek and Saltwater Creek, two minor tributaries of the Hunter River.

Saddlers Creek is the main drainage feature in this area, which commences at the existing Drayton Mine and meanders in a south-westerly direction, eventually connecting with the Hunter River. The creek is ephemeral and has a generally well defined channel with a thick covering of long grass across a broad base. Saddlers Creek is in poor condition with erosion evident along several sections of the stream bank. The erosion is caused by loss of vegetation, largely through clearing for agriculture in the highly dispersive soils that are characteristic of the area.

Saltwater Creek commences at the existing Drayton Mine and drains to the south-east into Plashett Dam, which captures approximately 77% of the Saltwater Creek catchment. As a result, the remaining extent of Saltwater Creek downstream of Plashett Dam receives runoff from only 23% of the original catchment, which is then discharged to the Hunter River.

The Hunter River is located south of the Drayton South area and has a catchment area of 13,400 km^2. It flows in a south-easterly direction and is regulated by releases from Glenbawn Dam. The Hunter River has historically exhibited high salt concentrations.

3.3.2 Water Quality

Water quality data for the Hunter River at the Glennies Creek gauging station (Station No. 210127) for the period 26 June 1993 to 1 November 2011 provides an indication of the parameters adjacent to the Drayton South area.

From an interpretation of the water quality data at the Glennies Creek gauging station, there is a strong relationship between flow rate and EC. High flows are typically associated with floods and low EC values. Conversely, higher EC values tend to occur when there are limited releases from Glenbawn Dam and the majority of flow is being generated from the downstream catchments.

Background water quality for Saddlers Creek has been monitored and recorded since 1998. The results indicate the following:

- Catchment runoff is slightly alkaline with pH ranging from 7.6 to 8.6;
- EC and total dissolved solids (TDS) concentrations are very high and substantially exceed the ANZECC Guidelines (ANZECC, 2000);
- EC values for site catchments are much lower, indicating that surface runoff from vegetated areas, not affected by groundwater flows, may produce lower EC; and
- Recorded total suspended solids (TSS) concentrations are low but are significantly higher in site catchments.

3.3.3 Water Users

The Project is located within Management Zone 1 of the Hunter Regulated River Water Source, defined by the WM Act. Anglo American currently holds two general security WALs (WAL 1066 and 491), totalling 198 units from the Hunter River for agricultural and domestic purposes.

4 CONSIDERATION OF GATEWAY CRITERIA

4.1 BIOPHYSICAL STRATEGIC AGRICULTURAL LAND

The potential impacts of the Project on BSAL have been assessed in accordance with the requirements of the Gateway Process as set out in Clause 17H(4)(a) of the Mining SEPP and the Guideline for Gateway Applicants. As noted in **Section 1.1**, with the exception of the BSAL Assessment, studies completed as part of the previous Drayton South application have been relied upon for the Gateway Certificate Application. The previous application sought approval for a larger mine plan. Impacts predicted for the Project activities in the current application are not anticipated to exceed what is reported in those documents. Accordingly the use of these studies is considered to be conservative for the purposes of this Gateway Application.

The technical specialist studies include:

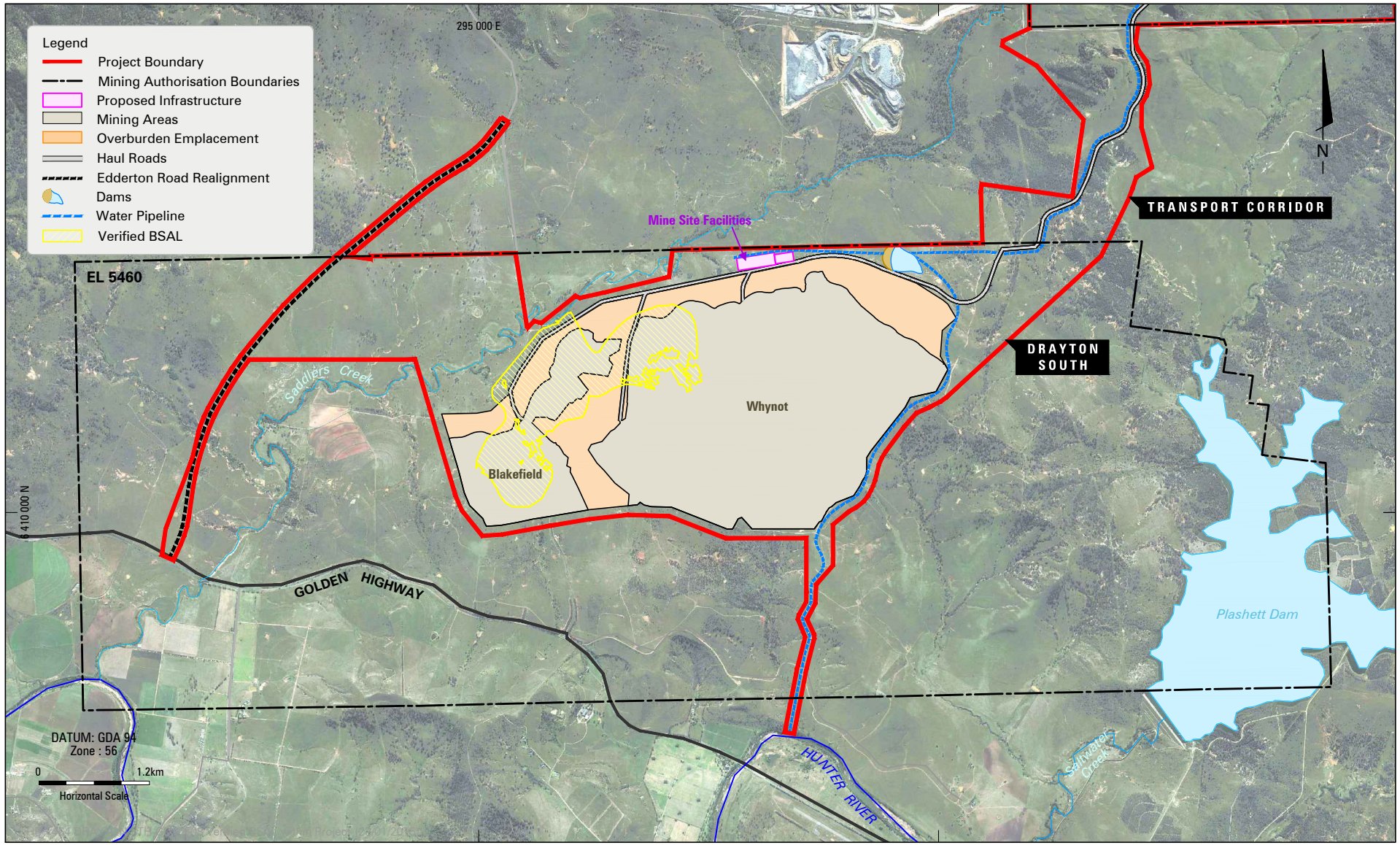
- A BSAL Assessment of soil units undertaken by SLR (see **Appendix B**);
- A Groundwater Assessment undertaken by Australasian Groundwater and Environmental Consultants (see **Appendix C**);
- A Surface Water Assessment undertaken by WRM Water and the Environment (see **Appendix D**); and
- An Agricultural Impact Statement undertaken by Scott Barnett & Associates (see **Appendix E**).

4.1.1 BSAL Verification

Verification of the land within the Project disturbance area was undertaken by SLR (2015) strictly in accordance with the criteria prescribed by the *Interim Protocol for Site Verification and Mapping of Biophysical Strategic Agricultural Land* (Interim Protocol) and is provided in **Appendix B**.

The initial verification process determined that conservatively approximately 218.2 ha or 14.8% of the land within the Project disturbance area constitutes BSAL (see **Figure 8**).

The remaining land within the Project disturbance area (1252.7 ha or 85.2%) does not meet the relevant criteria under the Interim Protocol to be classified as BSAL. Limitations to these areas include a range of chemical and physical limitations as defined under the assessment process under the Interim Protocol. **Appendix B** confirms which limitations apply to the soil units not assessed to be BSAL.



DRAYTON SOUTH COAL PROJECT

AngloAmerican | Hansen Bailey ENVIRONMENTAL CONSULTANTS

Initially Verified BSAL

FIGURE 8

4.1.2 Surface Disturbance

The Project will directly impact approximately 1470.9 ha of land through surface disturbance. Of the area to be impacted, approximately 218.2 ha has been initially verified as BSAL, which represents a 0.1% impact to the total BSAL mapped within the SRLUP. It is noted that the BSAL identified was not previously mapped within the SRLUP.

The area over which the initially verified BSAL is located has previously been subject to multiple independent detailed studies in the past to determine its suitability for various agricultural purposes. These studies have indicated that there are limitations with regards to the suitability of these areas for agriculture. The area has been classified using *The Land and Soil Capability Assessment Scheme: Second Approximation* (OEH, 2012) as ranging from land capability class IV to VII. With regard to agricultural land suitability the area has been assessed using the *Agricultural Land Classification Guideline* (NSW Agriculture, 2002) which identifies it as ranging from class 3 to 4. Accordingly the historic and current use of this land is for extensive cattle grazing.

Based on the preliminary soils assessment BSAL land confirmed to occur within the Project disturbance area is shown on **Figure 8** and includes the following soil units:

- Eutrophic Brown Chromosol; and
- Self-Mulching Brown Vertosol.

As a result of the Project, agricultural productivity (ie. extensive cattle grazing) of the areas of verified BSAL will cease as the area is impacted by open cut mining.

In order to compensate for the direct impact of the Project, Anglo American has committed to progressively stripping and reinstating the soils from the affected BSAL within the rehabilitated final landform. Establishment and rehabilitation of the final landform following the completion of mining will be undertaken in parallel with the scheduling of such operations to achieve a post mining land and soil capability that maintains the existing capability. This approach will afford the best outcome for stakeholders and maintain the integrity of the BSAL soil resources. To further mitigate impacts Anglo American has also proposed a number of management measures for the Project (see **Section 5**).

As part of the Project EIS a comprehensive assessment will be completed in order to meet the SEARs, ensure that the precise extent of impacts on BSAL are quantified in detail and the mitigation strategies developed are suitable.

4.1.3 Aquifer Interference Policy

The *Aquifer Interference Policy* (AIP) (NOW, 2012) requires a consideration of the Project's impacts on Highly Productive Groundwater (HPG). The Hunter River alluvial aquifer is classified as a source of HPG. The alluvial aquifers associated with Saddlers Creek do not comply with the criteria for HPG and are classified as less productive groundwater (LPG) (see **Appendix C**). The Project will comprise open cut mining operations which are classified aquifer interference activities under the AIP.

Accordingly the potential impacts of the Project on the water resources within the vicinity of the Project, including the Hunter River alluvial aquifer have been assessed in accordance with the

requirements of the Gateway Process criteria stipulated in the Mining SEPP and the requirements of the AIP.

The assessment is informed by the Groundwater Assessment undertaken by AGE (see **Appendix C**) which was completed for the previous application for the larger mine plan. Impacts predicted for the Project activities in the current application are not anticipated to exceed what is reported in those documents. As part of AGE's assessment a numerical model was developed using hydrology, hydrogeology and geological structure data. Conservative parameters and values were adopted to represent the worst case scenario for potential groundwater impacts. This model was developed in consultation with the relevant regulatory agencies and included a robust baseline dataset and assumptions. The model was then used to simulate the Project's impacts on the existing groundwater regime over time.

AGE (2012) found that the Project is predicted to meet the 'Level 1' minimal impact considerations for HPG outlined in the AIP. In particular AGE (2012) predicts that the Project would result in:

- No known risks to high priority groundwater dependent ecosystems and high priority cultural sites as no such ecosystems or sites are listed in the relevant Water Sharing Plans;
- No impacts to any privately-owned bores; and
- No measurable impact on the Hunter River alluvial aquifer.

Following determination of the Gateway Application, the groundwater assessment and its supporting numerical model will be revised for the new Project to meet the requirements of the SEARs. This assessment will be presented in the EIS.

4.2 EQUINE & VITICULTURE CRITICAL INDUSTRY CLUSTERS

The potential impacts of the Project on Equine and Viticulture CIC's have been assessed in accordance with the requirements of the Gateway Process as set out in Clause 17H(4)(a) of the Mining SEPP and the Guideline for Gateway Applicants. As noted in **Section 1.1**, studies completed as part of the previous Drayton South application have been relied upon for the Gateway Certificate Application. The previous application sought approval for a larger mine plan. Impacts predicted for the Project activities in the current application are not anticipated to exceed what is reported in those documents. Accordingly the use of these studies is considered to be conservative for the purposes of this Gateway Application.

The technical specialist studies include:

- A Groundwater Assessment undertaken by Australasian Groundwater and Environmental Consultants (see **Appendix C**);
- A Surface Water Assessment undertaken by WRM Water and the Environment (see **Appendix D**); and
- An Agricultural Impact Statement undertaken by Scott Barnett & Associates (see **Appendix E**).

In addition to these studies in order to consider the potential visual impacts of the current application a selection of representative photomontages developed by Greenpond TSG based on the 3D mine plans for the current Project have also been used (see **Appendix F**).

There are no equine or viticulture enterprises within the Project Boundary, however located to the south are Coolmore Stud and Woodlands Stud (which are mapped as part of the Equine CIC) and Holydene Estate (which is mapped as part of the Viticulture CIC) (see **Figure 7**).

4.2.1 SURFACE AREA DISTURBANCE

The land within the Project Boundary does not represent part of the Equine or Viticulture CIC. The mining operations proposed for the Project will therefore not impact any CIC's through surface disturbance.

4.2.2 WATER AND AGRICULTURAL RESOURCES

Water Resources

The land within the Project Boundary does not represent part of the Equine or Viticulture CIC.

Further the technical assessments for the previous application (see **Appendix C** and **Appendix D**) confirmed that the predicted surface and groundwater impacts of the Project will not directly impact the Equine or Viticulture CIC's in the immediate vicinity through reduced access or availability to water resources. Impacts predicted for the Project activities in the current application are not anticipated to exceed what is reported in those documents.

The Groundwater Assessment (see **Appendix C**) predicted only a negligible impact on the alluvium of the Hunter Regulated River Water Source.

Anglo American has secured 198 water allocation units from the Hunter Regulated River Water Source under two WALs and the predicted average annual impact on the total share component for the regulated river (general security) access licences in Management Zone 1 under the WSP for the Hunter Unregulated and Alluvial Water Sources is negligible.

In this regard, the Project is unlikely to impact the Equine or Viticulture CIC downstream through reduced access or availability to water resources.

Agricultural Resources

The land within the Project Boundary does not represent part of the Equine or Viticulture CIC. Furthermore, the Project is not directly situated on land (a key agricultural resource) utilised for the operations of Equine or Viticulture CIC enterprises. In this regard, the Project will not directly impact the local Equine or Viticulture CIC lands through reduced access to agricultural resources.

4.2.3 SUPPORT SERVICES AND INFRASTRUCTURE

There are no Equine or Viticulture related support services operating within the Project Boundary, however these activities are undertaken as components of the Woodlands Stud, Coolmore Stud and Holydene Estate operations located to the south of the Project.

The Project is not predicted to significantly impact on service providers or infrastructure required for operation of the Equine or Viticulture CIC.

4.2.4 TRANSPORT ROUTES

All site access during operations will continue to be via the Drayton Mine Access Road off Thomas Mitchell Drive located over 15 km to the north. The realignment of Edderton Road is the only change to existing traffic network proposed for the Project. If the Project is approved, the portion of Edderton Road proposed to be impacted will not be closed until the realignment works are completed to the approval of relevant regulatory agencies.

It is proposed that the realignment works will result in a higher standard of road which will no longer be subjected to regular flooding.

The Project will therefore not impact on the performance of any transport routes that are required to support Equine or Viticulture CIC operations in the area.

4.2.5 SCENIC AND LANDSCAPE VALUES

Preliminary visual impact modelling for the Project mine plan indicates that there will be no direct views from the primary areas of operations of any horse stud as the new mine plan ensures that the Project remains behind two intervening ridgelines as recommended by the Gateway Panel in their advice of December 2013 (see **Appendix F**). This will be assessed further in a detailed Visual Impact Assessment in the EIS.

The Project mine plan has been developed to minimise the potential for visual and lighting impacts to affect the landscape values of the Coolmore Stud, Woodlands Stud and Holydene Estate.

Anglo American will also propose to implement lighting management measures that reduce indirect impacts to surrounding lands in the Equine and Viticulture CICs, particularly during night time operations.

5 PRELIMINARY MITIGATION AND MANAGEMENT

This section describes the preliminary measures that are proposed to be implemented to mitigate and manage the Project's impacts on BSAL and the Equine and Viticulture CICs as described in ***Section 4****.*

5.1 AVOIDANCE

5.1.1 Equine & Viticulture Critical Industry Cluster

The land within the Project Boundary does not represent part of the Equine or Viticulture CIC and will not directly impact on these areas.

The preliminary visual assessment will be reviewed during the preparation of the Project EIS to ensure that a detailed assessment of sensitive viewing locations within CIC lands is undertaken. This assessment will confirm whether any additional avoidance measures are required to further minimise the potential for direct views of the Project.

5.1.2 Biophysical Strategic Agricultural Land

The conceptual Project design was developed in consideration of soil resources and initially verified BSAL and other safety, environmental and socio-economic issues. A number of alternatives were investigated and the Project (as proposed) provides an economic mine plan that minimises potential environmental and social impacts whilst maximising coal recovery. This adopted design minimises the extent of impacts on soil resources and avoids impacts to BSAL in the locality wherever possible. As part of the Project EIS a comprehensive assessment will be completed in order to meet the SEARs and to ensure the precise extent of impacts on BSAL are quantified in detail.

5.2 MITIGATION

5.2.1 Equine & Viticulture Critical Industry Cluster

There are no equine or viticulture enterprises within the Project Boundary, however located to the immediate south are Coolmore Stud and Woodlands Stud (which are mapped as part of the Equine CIC) and Holydene Estate (which is mapped as part of the Viticulture CIC).

The conceptual mine plan for the Project shown on **Figure 2** has been designed to minimise the potential for any indirect impacts to the lands that are mapped as Equine and Viticulture CIC. This includes ensuring that the Project remains behind two intervening ridgelines as recommended by the Gateway Panel in their advice of December 2013.

Further mitigation that is proposed includes:

- A commitment to use the latest technology and practices to reduce dust emissions;
- Implementation of state of the art blasting technology to ensure that all blasting is effectively managed and potential impacts significantly reduced; and
- A commitment to establish a monitoring and management strategy to confirm that there will be no impacts to the horse studs.

A detailed quantitative assessment of all potential indirect impacts will be undertaken for the Project EIS and additional mitigation measures implemented as required.

5.2.2 Biophysical Strategic Agricultural Land

As outlined in **Section 4**, the Project will result in direct impacts (associated with open cut mining) to approximately 1470.9 ha of soil resources within the Project Disturbance Boundary which includes approximately 218.2 ha of initially verified BSAL.

To mitigate the direct impacts of the Project, Anglo American will develop a strategy designed to utilise soils from the area of BSAL proposed to be impacted by the Project to improve broader rehabilitation outcomes in the post-mining landform. This will be detailed in the rehabilitation assessment to be undertaken as part of the Project EIS.

All land held by Anglo American within the Project Boundary and immediate vicinity not required for mining related activities or ecological offsets has been and will continue to be managed and utilised for agricultural purposes. This will be detailed in the Agricultural assessment to be undertaken as part of the Project EIS.

Water Resources

Anglo American has secured 198 units of water allocation from the Hunter River Water Source under the Hunter Unregulated and Alluvial WSP, which is more than sufficient to licence the predicted take of water from the alluvium.

Anglo American will secure a water licence under Part 5 of the *Water Act 1912* for the maximum water take from the Permian coal seam aquifer. There are presently no embargoes applied to this region for seeking this relevant approval.

6 CONCLUSION

Anglo American proposes to extend the life of the existing Drayton Mine through the development of open cut mining operations within the Drayton South area. This Gateway Certificate Application provides a preliminary assessment of potential impacts of the Project on BSAL, Equine CIC and Viticulture CIC, as well as proposed mitigation measures. Key findings include:

- Preliminary soils assessments confirm that the Project will result in direct impacts to approximately 218.2 ha of initially verified BSAL, which represents a 0.1% impact to the total BSAL mapped within the SRLUP;
- No Equine CIC or Viticulture CIC mapping or associated enterprises are located within the Project Boundary; and
- The Project is predicted to meet the 'Level 1' minimal impact considerations for HPG under the AIP.

The EIS to be prepared to support the development application for the Project will provide a detailed assessment of potential impacts to agricultural resources and comprehensively describe a range of management and mitigation measures that minimise impacts on agricultural enterprises in the local area.

7 ABBREVIATIONS

Abbreviation	Description
A	Authorisation
AIP	*Aquifer Interference Policy* (NOW, 2012)
BSAL	Biophysical Strategic Agricultural Land
CHPP	Coal Handling and Preparation Plant
CIC	Critical Industry Cluster
DP&E	NSW Department of Planning and Environment
EC	Electrical conductivity
EL	Exploration Licence
EIS	Environmental Impact Statement
EPA	Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000*
EPBC Act	*Environment Protection Biodiversity Conservation Act 1999*
ESD	Ecologically Sustainable Development
GDEs	Groundwater Dependant Ecosystems
Guideline for Gateway Applicants	*Strategic Regional Land Use Policy Guideline for Gateway Applicants* (DP&I, 2013)
ha	Hectare
Hansen Bailey	Hansen Bailey Environmental Consultants
IESC	Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development
Interim Protocol	*Interim Protocol for Site Verification and Mapping of Biophysical Strategic Agricultural Land* (OAS&FS and OEH, 2013)
km	Kilometre
LGA	Local Government Area
m	Metre
Mining SEPP	*State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007*
ML	Megalitres
mm	Millimetre
Mt	Million tonnes
Mtpa	Million tonnes per annum
MOP	Mine Operations Plan
MSC	Muswellbrook Shire Council
NOW	NSW Office of Water

Abbreviation	Description
NSW	New South Wales
Project Boundary	Project Application Boundary for the Drayton South Coal Project for which planning approval is being sought
ROM	Run of Mine
SAL	Strategic Agricultural Land
SEARs	Secretaries Environmental Assessment Requirements
SRLUP	*Strategic Regional Land Use Plan – Upper Hunter* (DP&I, 2012a)
t	Tonnes
The Project	Drayton South Coal Project
WAL	Water Access Licence
WM Act	*Water Management Act 2000*
WM Regulation	*Water Management (General) Regulation 2011*
WSP	Water Sharing Plan

8 REFERENCES

- ANZECC (2000), *Australian and New Zealand Guidelines for Fresh and Marine Water Quality.*
- Australasian Groundwater & Environmental Consultants (2012) *Drayton South Coal Project, Groundwater Impact Assessment*.
- Department of Planning and Infrastructure (2013), *Strategic Regional Land Use Policy, Guideline for Gateway Applicants*.
- Department of Planning and Infrastructure (2013), *Strategic Regional Land Use Plan, Upper Hunter*.
- Hansen Bailey (2012), *Drayton South Coal Project Environmental Assessment*.
- NSW Agriculture (2002), *Agricultural Land Classification Guideline*
- OAS&FS and OEH (2013), *Interim Protocol for Site Verification and Mapping of Biophysical Strategic Agricultural Land*.
- Office of Environment & Heritage (2012), *The Land and Soil Capability Assessment Scheme: Second Approximation*.
- Scott Barnett & Associates (2012), *Drayton South Coal Project, Agriculture Impact Statement*.
- SLR (2015) *BSAL Site Verification Assessment, Drayton South Coal Project.*
- WRM Water and Environment (2012), *Surface Water Impact Assessment, Drayton South Coal Project*.