



**NSW
Resources
Regulator**

ARR0001344

AUSTAR COAL MINE ANNUAL REHABILITATION REPORT

Saturday 1 July 2023 to Sunday 30 June 2024

Summary table

DETAIL	
Mine	Austar Coal Mine
Reference	ARR0001344
Annual report period commencement date	Saturday 1 July 2023
Annual report period end date	Sunday 30 June 2024
Forward program	FWP0001242
Mining leases	ML 1345 (1992), ML 1677 (1992), ML 1283 (1906), ML 1157 (1906), ML 1666 (1992), MPL 23 (1906), MPL 204 (1906), DSL 89 (1901), MPL 233 (1906), MPL 1364 (1906), ML 1851 (1992), ML 1661 (1992), MPL 269 (1906), CCL 752 (1973), ML 1550 (1992), MPL 217 (1906), CML 2 (1992), CCL 728 (1973), ML 1388 (1992)
Lease holder(s)	Austar Coal Mine Pty Limited
Contact	Carly McCormack
Date of submission	Wednesday 25 September 2024

Important

The department may make the information in your report and any supporting information available for inspection by members of the public, including by publication on its website or by displaying the information at any of its offices. If you consider any part of your report to be confidential, please communicate this to the department via the message function on this submission within the NSW Resources Regulator Portal.

Mine details

Project description

Austar Coal Mine (ACM) is a closed underground coal mine located approximately 10 km southwest of Cessnock in the Lower Hunter Valley in NSW. ACM incorporates the former Pelton, Ellalong, Cessnock No. 1 (Kalingo) and Bellbird South Collieries and includes coal extraction, handling, processing and rail and road transport facilities. Pit top facilities are located on Middle Road, Paxton, and the CHPP is located at Wollombi Road, Pelton. Mining operations are approved under two State Significant Development Consents: Bellbird South (DA 29/95) and Stage 3 (PA 08_0111), along with development approvals from Cessnock City Council. DA 29/95 lapsed on 14 February 2022 whilst PA 08_0111 approves mining operations until 31 December 2030. ACM is currently in the closure planning stage with investigations and studies being undertaken to inform the closure process. Early works' closure activities are being undertaken including mine sealing, decommissioning and demolition.

Life of mine

0 years

Current development consents, leases and licences

Development consents granted under the *Environmental Planning and Assessment Act 1979*

DA29/95
DA29/95
DA29/95
DA29/95
PA 08_0111
PA 08_0111
DA29/95
DA29/95
DA29/95
DA29/95
PA 08_0111
DA29/95
DA29/95
DA29/95
PA 08_0111
PA 08_0111
DA29/95
DA29/95

DA29/95
PA 08_0111
PA 08_0111
DA29/95

Authorisations covering the mining area granted under the *Mining Act 1992*

ML 1345 (1992), ML 1677 (1992), ML 1283 (1906), ML 1157 (1906), ML 1666 (1992), MPL 23 (1906), MPL 204 (1906), DSL 89 (1901), MPL 233 (1906), MPL 1364 (1906), ML 1851 (1992), ML 1661 (1992), MPL 269 (1906), CCL 752 (1973), ML 1550 (1992), MPL 217 (1906), CML 2 (1992), CCL 728 (1973), ML 1388 (1992)

Any other approvals, licences, or authorities issued by government agencies that are relevant to the progress of mining operation and rehabilitation activities

WAL 19181
Numerous Cessnock City Council DA's
Environment Protection Licence (EPL) 416
WAL 41504

Summary of the scope and/or purpose of the new applications or modifications to existing approvals (if applicable)

There were no changes to approvals during the reporting period.

Changes to land ownership and land use

There were no changes to land ownership during the reporting period.

Surface disturbance and rehabilitation activities during the reporting period

Surface disturbance and rehabilitation activities that were conducted and an analysis of the progress against the rehabilitation schedule

Rehabilitation activities conducted this period are generally consistent with the RMP and previous FP which states that Austar is at the Feasibility Study (FS) stage of mine closure, undertaking technical studies and site investigations to address closure knowledge gaps, as described below. In accordance with the previous FP, intrusive site investigations for FS commenced in March 2024 to fill knowledge gaps in geotechnical, geochemical, contamination and water studies, which will in turn inform landform and historic mine sealing detailed design. As planned, these assessments will continue into Year 1 of the FP, with fieldwork expected to conclude in Q4 2024. Permanent shaft sealing designs for the modern shafts have been completed. Infrastructure decommissioning and equipment recovery activities continued during the reporting period in preparation for demolition, in particular at CMA's 1, 4 and 5. Desilting of Kalingo Dam commenced in September 2023 in preparation for dam breaking and rehabilitation works. Silt is transported to the East Pit Reject Emplacement Area for disposal. General site maintenance activities including weed control, environmental monitoring and waste and water management have been ongoing as required.

Rehabilitation planning activities that were conducted, including any specialist studies

Technical studies outlined in the previous FP that formed part of Austar's PFS stage of mine closure were completed during 2023-24 in the following areas: • hydrology and water • contamination • geochemical and materials assessment • geotechnical assessment • waste management strategy • historic heritage assessment • subsidence and land stability • capping strategy • revegetation strategy • final land use options assessment study • landform design trade-off study • surface infrastructure study • decommissioning plan • hazardous materials study and • demolition study. The outcomes of the studies will inform the detailed mine closure plan and RMP as the site progresses to the feasibility stage of closure. Future site investigations studies are planned in most of these study areas to close remaining knowledge gaps in FS. The site investigations have progressed (as detailed above) during 2023-24.

Overview of subsidence repair and/or remediation works undertaken

Subsidence has been deemed complete in approved mining areas and no maintenance activities have been required. Subsidence repairs may be required from time to time in historic mining areas, however no repairs were required during this reporting period.

Overview of rehabilitation management and maintenance activities

The primary rehabilitation maintenance activities undertaken during the reporting period were:

- Ongoing weed management of rehabilitation areas at Aberdare Extended Emplacement Area (EEA) and Bellbird Areas 12 and 13.
- General weed management across the Mining Lease areas, as identified in the site Weed Action Plan and annual weed report. In addition to the rehabilitation areas, weed management activities focused on areas in riparian zones. During the reporting period approximately 33 hectares of weeds were treated including:
 - o Green Cestrum (*Cestrum parquai*)
 - o Lantana (*Lantana sp.*)
 - o Mother of Millions (*Bryophyllum sp.*)
 - o Thistle (*Cersium*)
 - o Tobacco Bush (*Solanum Mauritianum*); and
 - o General seasonal weeds
- Ongoing installation of concrete barriers to prevent trespasser access to the Bellbird Areas 12 and 13, Aberdare EEA, and multiple track entry points across the Mining Lease.
- Slashing of grassland rehabilitation areas
- Clean-up and removal of rubbish dumped on site
- Annual rehabilitation ecological monitoring
- Desilting of sedimentation dams in clean water catchment areas.

Details of any rehabilitation actions taken as required by any letters, notices or directions issued by government agencies, including the NSW Resources Regulator

On 10 April 2024, a comment was added to Austar's RCE on the RR Portal, the main points as follows: The RCE assumes capping material will be sourced on site subject to development consent, however the status of development consent (that is, permissibility) and suitability of capping material sourced on site is not provided. Should material not be able to be sourced on site, provisioning associated with sourcing alternative capping, such as importation of material to site is to be included in the next RCE. Additionally, should material be approved to be sourced from site, supporting information is to be provided. During a regular quarterly update with the RR this matter was discussed and it was noted that Austar do not have approval for all activities required to execute closure, including sourcing capping material for emplacement areas and stockpiles. Development consent approval will be required to either construct soil borrows on-site or alternatively import capping material. The RR advised that the next RCE submission must include provisions for capping material for the Aberdare East Rejects Emplacement Area (REA), the CHPP stockpile areas and the coarse reject emplacement within the East Pit and that Yancoal may nominate whether the provisions are based on an on-site soil borrow or alternatively the importation of capping material.

Details of any rehabilitation areas that have achieved the final land use

In January 2024, 14 exploration boreholes were approved as completed by the RR following submission of ESF2 forms in 2021. These holes were all within EL6598 and located on private properties in Quorrobolong.

Key production milestones

MATERIAL	UNIT	FWP0001242 YEAR 1	THIS REPORT
Stripped topsoil <small>(if applicable)</small>	(m ³)	0	0
Rock/overburden	(m ³)	0	0
Ore	(Mt)	0	0
Reject material¹	(Mt)	0	0
Product	(Mt)	0	0

¹ This includes coarse rejects, tailings and any other wastes resulting from beneficiation.

Disturbance and rehabilitation statistics

Current disturbance and rehabilitation progression

ELEMENT	UNIT	THIS REPORT
A Total surface disturbance footprint	(ha)	211.08
B Total active disturbance	(ha)	149.77
C Land prepared for rehabilitation	(ha)	23.56
D Ecosystem and land use establishment	(ha)	37.76
E Ecosystem and land use development	(ha)	0
F Rehabilitation completion	(ha)	0

Rehabilitation key performance indicators (KPIs)

ELEMENT	UNIT	THIS REPORT
G Total new active disturbance area	(ha)	NA - this value will display after 2nd year ARR submission as calculation relies on comparison between sequential yearly ARR data
H New rehabilitation commenced during annual reporting period	(ha)	NA - this value will display after 2nd year ARR submission as calculation relies on comparison between sequential yearly ARR data
I Established rehabilitation	(ha)	0
J Annual rehabilitation to disturbance ratio	%	NA - this value will display after 2nd year ARR submission as calculation relies on comparison between sequential yearly ARR data
K Rehabilitated land to total mine footprint	%	0

Progressive achievement of established rehabilitation

ELEMENT	UNIT	THIS REPORT
L Established rehabilitation - agricultural final land uses	%	0
M Established rehabilitation - native ecosystem final land uses	%	0
N Established rehabilitation - other/non-vegetated final land uses	%	0

Variation to the rehabilitation schedule

Identify the components of the most recent forward program that were not achieved

Not applicable. Activities undertaken during the reporting period were consistent with the most recent FP.

Key factors that delayed progressive rehabilitation

Not applicable.

Outline actions that will be included in the forward program and carried out to minimise disturbance and undertake progressive rehabilitation as far as reasonably practical

Future disturbance and rehabilitation will be undertaken in accordance with the FY 2024 FP and the Rehabilitation Management Plan.

Rehabilitation monitoring and research findings

Rehabilitation monitoring

The rehabilitation monitoring carried out in the annual reporting period

Annual Rehabilitation Monitoring was undertaken across key rehabilitation areas and associated reference sites during April 2024. Monitoring included both visual inspections and photo monitoring with the following focus:

- o Soil condition and erosion.
- o Drainage and sediment control structures.
- o Germination rates/groundcover rates (5 m by 5 m monitoring area).
- o Weed and feral pest infestation.
- o General condition.

The report noted that previous weed control works appear to have been undertaken with high levels of success, and weed works should continue. Consistent with the current Weed Action Plan, several weed species were identified for priority control. All sites had signs of human access and/or interference such as rubbish, star picket removal and motor bike tracks. These have potential to be damaging to rehabilitating vegetation due to crushing of regenerating plants, potential for ignition/spread of bushfire, and potential to spread or introduce further weed species. It was noted that due to ongoing preferable weather conditions the diversity and vegetative cover have generally increased since baseline monitoring commenced.

Status of performance against rehabilitation objectives and rehabilitation completion criteria

The monitoring program that has been implemented

Tabulated results of the monitoring for each rehabilitation area have been provided by the monitoring consultant and compared to Performance Criteria for the Ecosystem and Land use Establishment and Sustainability phases and the trigger action response plan (TARP) from the RMP. Based on the monitoring results, all areas of rehabilitation are still considered to be in the Ecosystem and Land Use Establishment Phase. The major findings are lack of appropriate species for the targeted vegetation community and the current level of weed presence. Performance criteria and monitoring requirements and final land use vegetation types for the site are being reviewed and refined as part of the detailed mine closure planning work currently being undertaken.

Are all rehabilitation areas in Landform Establishment phase or higher represented in the monitoring program to assess performance against the rehabilitation objectives and approved or, if not yet approved rehabilitation completion criteria and final landform and rehabilitation plan?

0

Year rehabilitation areas will be included as part of the monitoring program

2027

An appraisal of whether rehabilitation is moving towards achieving the proposed rehabilitation objectives, approved or, if not yet approved, rehabilitation completion criteria and final landform and rehabilitation plan as soon as reasonably practicable.

Based on the comparison against current performance criteria, rehabilitation areas are progressing towards the Ecosystem and Land Use Sustainability Phase. Based on the comparison of monitoring results against the RMP TARP, recommended actions with respect to remediation of dirt bike paths and weed management were provided in the most recent monitoring report. Rehabilitation Objectives for the site have been approved by the RR. The site is moving towards the approved rehabilitation objectives in current rehabilitation maintenance and planning. The current completion criteria will be further refined during FS, with proposed final completion criteria and an updated final landform and rehabilitation plan submitted to the RR for consultation and approval following completion of the detailed mine closure plan.

Appraisal description

Rehabilitation is moving towards achieving the final land use as soon as reasonably practicable.

Rehabilitation monitoring program findings

Annual rehabilitation monitoring was undertaken across all existing Austar rehabilitation areas and associated reference sites during April 2024. Methodologies were consistent with those outlined in the Austar RMP and included: Walkover inspections comprising a traverse of the rehabilitated areas with the following documented:

- General assessment of the health of the rehabilitated vegetation
- Visual assessment of vegetation cover, species diversity and stage of growth
- Identification of weeds and pests including density of infestation and observable impacts on rehabilitation
- Evidence of erosion (rill, gully and tunnel)
- Stability and functioning of any erosion and sediment control and water management structures
- Evidence of unauthorised access to the rehabilitated areas and
- Evidence of use of rehabilitation area by native fauna species.

Grassland monitoring comprised 5m x 5m plots assessing percentages of vegetation, weeds, canopy vegetation, documentation of flora species, their cover and abundance, and photo monitoring.

Performance issues and their causes including identification of any knowledge gaps that must be addressed

nil

Outcomes of rehabilitation research and trials

RRT NUMBER	PROJECT/TRIAL NAME	OBJECTIVE OF TRIAL/PROJECT	METHODOLOGY	EXPECTED DATE OF COMPLETION	STATUS	ON TRACK?
RRT000111 1	Growth medium trial	Evaluation of composted municipal green waste material as a growth medium, as an alternative to topsoil.	Three rehabilitation trial plots to be established. One plot to have no compost, second plot to have 50mm of composted growth medium and the third plot to have 100mm of composted growth medium. Soil testing will be used to inform amelioration requirements. All three plots will be seeded with key canopy, shrub and groundcover species of the Lower Hunter Spotted Gum Ironbark Forest vegetation community. Ongoing monitoring will inform suitability of compost use as a growth medium.	31 Dec 2025	Ongoing	Yes
RRT000113 0	Growth Medium Trial	Evaluation of composted municipal green waste material as a growth medium, as an alternative to topsoil.	Three rehabilitation trial plots have been established. Plot 1 has no compost, Plot 2 has 50mm of composted growth medium Plot 3 has 100mm of composted growth medium. Soil testing will be used to inform amelioration requirements. All three plots will be seeded with key canopy, shrub and groundcover species of the Lower Hunter Spotted Gum Ironbark Forest vegetation community and a cover crop. Ongoing monitoring will inform suitability of compost use as a growth medium.	31 Dec 2025	Ongoing	Yes

Outcomes of completed trials and research

N/A

Attachment 1 – Reporting Definitions

REPORTING CATEGORY		DEFINITION
A1	Total disturbance footprint – surface disturbance	<p>All areas within a mining lease that either have at some point in time or continue to pose a rehabilitation liability due to surface disturbance activities.</p> <p>The total disturbance footprint is the sum of the total active disturbance, decommissioning, landform establishment, growth medium development, ecosystem and land use establishment, ecosystem and land use development and rehabilitation completion (see definitions below).</p> <p>Underground mining operations should not include the footprint of underground mining areas/subsidence management areas in the total disturbance footprint.</p>
A2	Underground Mining Area	Underground mining operations areas/subsidence management areas.
B	Total active disturbance	Includes on-lease exploration areas, stripped areas ahead of mining, infrastructure areas, water management infrastructure, sewage treatment facilities, topsoil stockpile areas, access tracks and haul roads, active mining areas, waste rock emplacements (active/unshaped/in or out-of-pit), tailings dams (active/unshaped/uncapped) and temporary stabilised areas (e.g. areas sown with temporary cover crops for dust mitigation and temporary rehabilitation).
C	Rehabilitation – land preparation	<p>Includes the sum of all disturbed land within a mining lease that have commenced any, or all, of the following phases of rehabilitation – decommissioning, landform establishment and growth medium development.</p> <p>Refer to the glossary of terms in this document for the definition of these phases of rehabilitation.</p>

REPORTING CATEGORY	DEFINITION
<p>D Ecosystem and land use establishment</p>	<p>Includes the area which has been seeded/planted with the target vegetation species for the intended final land use. However, vegetation has not matured to a stage where it can be demonstrated that it will be sustainable for the long term and or require only a maintenance regime consistent with target reference/analogue sites.</p> <p>Typically, rehabilitation areas would be in this phase for at least two years (and usually more) before rehabilitation can be classified as being in the ecosystem and land use development phase. This phase does not apply to infrastructure areas that are being retained as part of final land use for the site.</p>
<p>E Ecosystem and Land Use Development</p>	<p>Rehabilitation has matured to a level where target revegetation outcomes are on a trajectory towards meeting the final rehabilitation objectives and rehabilitation completion criteria (as verified by monitoring).</p> <p>This phase includes infrastructure areas that are to be retained for an approved post mining land use, following completion of all necessary measures to render the infrastructure fit for this purpose (for example structural integrity).</p>
<p>F Rehabilitation Completion</p>	<p>The NSW Resources Regulator has determined in writing that the mining area has achieved the approved rehabilitation objectives and approved rehabilitation completion criteria and final landform and rehabilitation plan following the submission of <i>Form: ESF2 Rehabilitation completion and/or review of rehabilitation cost estimate and/or notification of mine or petroleum site closure</i>.</p>
<p>G New active disturbance area</p>	<p>The area of any new active disturbance that has been created during the annual reporting period (definition A1 in Table 5).</p>
<p>H New rehabilitation commenced during annual reporting period</p>	<p>The sum of any new rehabilitation commenced in the annual reporting period. These areas may be in the rehabilitation land preparation phase or the ecosystem & land use establishment phase (definitions C and D in Table 5).</p>
<p>I Established rehabilitation (hectares)</p>	<p>The total area of land that is verified to be within either the ecosystem and land use development phase or the rehabilitation completion phase (definitions E & F in Table 5).</p>

REPORTING CATEGORY		DEFINITION
J	Annual rehabilitation to disturbance ratio	The rehabilitation to disturbance ratio (H/G) indicates how many hectares of new rehabilitation are undertaken for each hectare of land disturbed during the year. A ratio of 1/1 indicates that the area of new rehabilitation and disturbance in that year are the same.
K	% Rehabilitated land to total mine footprint	The proportion of the total mine footprint (area of land that has been disturbed by past or present surface disturbance activities) that has established rehabilitation ($I/A1 \times 100$). For open cut mining, the proportion of the total mine footprint verified to be “established rehabilitation” should substantially increase as an operation progresses towards mine closure.
L	Established rehabilitation for agricultural final land uses (hectares)	The percentage of total area of land that is verified to be within either the ecosystem and land use development phase or the rehabilitation completion phase (definitions E & F in Table 5) that have been returned to an agricultural final land use.
M	Established rehabilitation for native ecosystem final land uses (hectares)	The percentage of total area of land that is verified to be within either the ecosystem and land use development phase or rehabilitation completion phase (definitions E & F in Table 5) that have been returned to native ecosystem final land use.
N	Established rehabilitation for other/non-vegetated final land uses (hectares)	The percentage of total area of land that is verified to be within either the ecosystem and land use development phase or the rehabilitation completion phase (definitions E & F in Table 5) that have been returned to other/non-vegetated final land use.

Attachment 2 – Definitions

WORD	DEFINITION
Active	In the context of rehabilitation, land associated with mining domains is considered ‘active’ for the period following disturbance until the commencement of rehabilitation.
Active mining phase of rehabilitation	In the context of rehabilitation, the active mining phase of rehabilitation constitutes the rehabilitation activities undertaken during mining operations such as salvaging and managing soil resources, salvaging habitat resources, and native seed collection. This phase also includes management actions taken during operations to manage risks to rehabilitation and enhance rehabilitation outcomes such as selective handling of waste rock and management of tailings emplacements.
Analogue site	In the context of rehabilitation, an analogue site is a ‘reference site’ that represents an example of the defining characteristics (such as vegetation composition and structure or agricultural productivity) of the final land use. Characteristics of analogue sites can be assessed to develop the rehabilitation objectives and completion criteria for final land use domains.
Annual rehabilitation report and forward program	As described in the Mining Regulation 2016.
Annual reporting period	As defined in the Mining Regulation 2016.
Closure	A whole-of-mine-life process, which typically culminates in the relinquishment of the mining lease. It includes decommissioning and rehabilitation to achieve the approved final land use(s).
Decommissioning	The process of removing mining infrastructure and removing contaminants and hazardous materials.
Decommissioning Phase of Rehabilitation	Activities associated with the removal of mining infrastructure and removal and/or remediation of contaminants and hazardous materials. In the context of the rehabilitation management plan this phase of rehabilitation may also include studies and assessments associated with decommissioning and demolition of infrastructure or works carried out to make safe or ‘fit for purpose’ built infrastructure to be retained for future use(s) following lease relinquishment.

WORD	DEFINITION
Department	The Department of Regional NSW.
Disturbance	See Surface Disturbance.
Disturbance area	<p>An area that has been disturbed and that requires rehabilitation.</p> <p>This may include areas such as on-licence exploration areas, stripped areas ahead of mining, infrastructure areas, water management infrastructure, sewage treatment facilities, topsoil stockpile areas, access tracks and haul roads, active mining areas, waste emplacements (active/unshaped/in or out-of-pit), tailings dams (active/unshaped/uncapped), and areas requiring rehabilitation that are temporarily stabilised (i.e. managed to minimise dust generation and/or erosion).</p>
Domain	<p>An area (or areas) of the land that has been disturbed by mining and has a specific operational use (mining domain) or specific final land use (final land use domain). Land within a domain typically has similar geochemical and/or geophysical characteristics and therefore requires specific rehabilitation activities to achieve the associated final land use.</p>
Ecosystem and Land Use Development	<p>This phase of rehabilitation consists of the activities to manage maturing rehabilitation areas on a trajectory to achieving the approved rehabilitation objectives and completion criteria.</p> <p>For vegetated land uses this phase may include processes to develop characteristics of functional self-sustaining ecosystems, such as nutrient recycling, vegetation flowering and reproduction, and increasing habitat complexity, and development of a productive, self-sustaining soil profile.</p> <p>This phase of rehabilitation may include specific vegetation management strategies and maintenance such as tree thinning, supplementary plantings and weed management.</p>
Ecosystem and Land Use Establishment	<p>This phase of rehabilitation consists of the processes to establish the approved final land use following construction of the final landform.</p> <p>For vegetated land uses this rehabilitation phase includes establishing the desired vegetation community and implementing land management activities such as weed control. This phase of rehabilitation may also include habitat augmentation such as installation of nest boxes.</p>
Exploration	Has the same meaning as that term under the State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.

WORD	DEFINITION
Final landform and rehabilitation plan	As defined in the Mining Regulation 2016.
Final land use	As defined in the Mining Regulation 2016.
Form and way	Means the form and way approved by the Secretary. Approved form and way documents are available on the Department’s website.
Growth Medium Development	<p>This phase of rehabilitation consists of activities required to establish the physical, chemical and biological components of the substrate required to establish the desired vegetation community (including short lived pioneer species).</p> <p>This phase may include spreading the prepared landform with topsoil and/or subsoil and/or soil substitutes, applying soil ameliorants to enhance the physical, chemical and biological characteristics of the growth media, and actions to minimise loss of growth media due to erosion.</p>
Habitat	Has the same meaning as that term under the <i>Biodiversity Conservation Act 2016</i> and the <i>Fisheries Management Act 1994</i> (as relevant).
Indicator	An attribute of the biophysical environment (e.g. pH, topsoil depth, biomass) that can be used to approximate the progression of a biophysical process. It can be measured and audited to demonstrate (and track) the progress of an aspect of rehabilitation towards a desired completion criterion (i.e. defined end point). It may be aligned to an established protocol and used to evaluate changes in a system.
Land	As defined in the <i>Mining Act 1992</i> .
Landform Establishment	<p>This phase of rehabilitation consists of the processes and activities required to construct the final landform.</p> <p>In addition to profiling the surface of rehabilitation areas to the approved final landform profile this phase may include works to construct surface water drainage features, encapsulate problematic materials such as tailings, and prepare a substrate with the desired physical and chemical characteristics (e.g. rock raking or ameliorating sodic materials).</p>
Large mine	As defined in the Mining Regulation 2016.
Lease holder	The holder of a mining lease.

WORD	DEFINITION
Life of mine	The timeframe of how long a mine is approved to mine, from commencement to closure.
Mine rehabilitation portal	<p>Means the NSW Resources Regulator’s online portal that lease holders must use (via a registered account) to:</p> <ul style="list-style-type: none"> ■ upload rehabilitation geographical information system (GIS) spatial data ■ develop rehabilitation GIS spatial data (using online tracing functions) ■ generate rehabilitation plans and rehabilitation statistics using the map viewer and Rehabilitation Key Performance Indicator functionalities. <p>Data submitted to the mine rehabilitation portal is collated in a centralised geodatabase for use by the NSW Resources Regulator to regulate rehabilitation performance of lease holders.</p>
Mining area	As defined in the <i>Mining Act 1992</i> .
Mining domain	A land management unit with a discrete operational function (e.g. overburden emplacement), and therefore similar geophysical characteristics, that will require specific rehabilitation treatments to achieve the final land use(s).
Mining land	As defined in the <i>Mining Act 1992</i> .
Native vegetation	Has the same meaning as that term under section 60B of the <i>Local Land Services Act 2013</i> .
Overburden	Material overlying coal or a mineral deposit.
Performance indicator	An attribute of the biophysical environment (for example pH, slope, topsoil depth, biomass) that can be used to demonstrate achievement of a rehabilitation objective. It can be measured and audited to demonstrate (and track) the progress of an aspect of rehabilitation towards a desired completion criterion, that is, a defined end point. It may be aligned to an established protocol and used to evaluate changes in a system.

WORD	DEFINITION
Phases of rehabilitation	<p>The stages and sequences of actions required to rehabilitate disturbed land to achieve the final land use. The phases of rehabilitation are:</p> <ul style="list-style-type: none"> ■ active mining ■ decommissioning ■ landform Establishment ■ growth medium development ■ ecosystem and land use establishment ■ ecosystem and land use development.
Progressive rehabilitation	<p>The progress of rehabilitation towards achieving the approved rehabilitation completion criteria. This may be described in terms of domains, phases, performance indicators and rehabilitation completion criteria.</p>
Rehabilitation Completion	<p>The final phase of rehabilitation when a rehabilitation area has achieved the approved rehabilitation objectives and rehabilitation completion criteria for the final land use. Rehabilitation areas may be classified as complete when the NSW Resources Regulator has determined in writing that the relevant rehabilitation obligations have been fulfilled following submission of <i>Form ESF2 Rehabilitation completion and/or review of rehabilitation cost estimate</i> application by the lease holder.</p>
Rehabilitation Completion criteria	<p>As defined in the Mining Regulation 2016.</p>
Rehabilitation cost estimate	<p>As defined in the Mining Regulation 2016.</p>
Rehabilitation management plan	<p>As defined in the Mining Regulation 2016.</p>
Rehabilitation objectives	<p>As defined in the Mining Regulation 2016.</p>
Rehabilitation risk assessment	<p>As defined in the Mining Regulation 2016.</p>
Rehabilitation schedule	<p>The defined timeframes for progressive rehabilitation set out in the forward program.</p>

WORD	DEFINITION
Relevant stakeholders	<p>Means any persons or bodies who may be affected by the mining operations, including rehabilitation, carried out on the lease land, and includes:</p> <ul style="list-style-type: none"> ■ the relevant development consent authority ■ the local council ■ the relevant landholder(s) ■ community consultative committee (if required under the development consent) or equivalent consultative group ■ affected land holder(s) ■ government agencies relevant to the final land use ■ affected infrastructure authorities (electricity, telecommunications, water, pipeline, road, rail authorities) ■ local Aboriginal communities, and ■ any other person or body determined by the Minister to be a relevant stakeholder in relation to a mining lease.
Risk	The effect of uncertainty on objectives. It is measured in terms of consequences and likelihood (AS/NZS ISO 31000:2009).
Secretary	The Secretary of the Department.
Security deposit	An amount that a mining lease holder is required to provide and maintain under a mining lease condition, to secure funding for the fulfilment of obligations under the lease (including obligations that may arise in the future).
Surface disturbance	Includes activities that disturb the surface of the mining area, including mining operations, ancillary mining activities and exploration.
Tailings	A combination of the fine-grained solid material remaining after the recoverable metals and minerals have been extracted from the mined ore, and any process water ² .
Waste	Has the same meaning as that term under the <i>Protection of the Environment Operations Act 1997</i> .

² Commonwealth of Australia (DITR), 2007. *Tailings Management*.

Attachment 3 – Rehabilitation Complaints

DATE	COMPLAINANT	COMPLAINT DETAILS	RESPONSE DETAILS	STATUS OF RESPONSE	DATE RESPONSE COMPLETED (IF APPLICABLE)
------	-------------	-------------------	------------------	--------------------	--

Attachment 4 – Stakeholder consultation

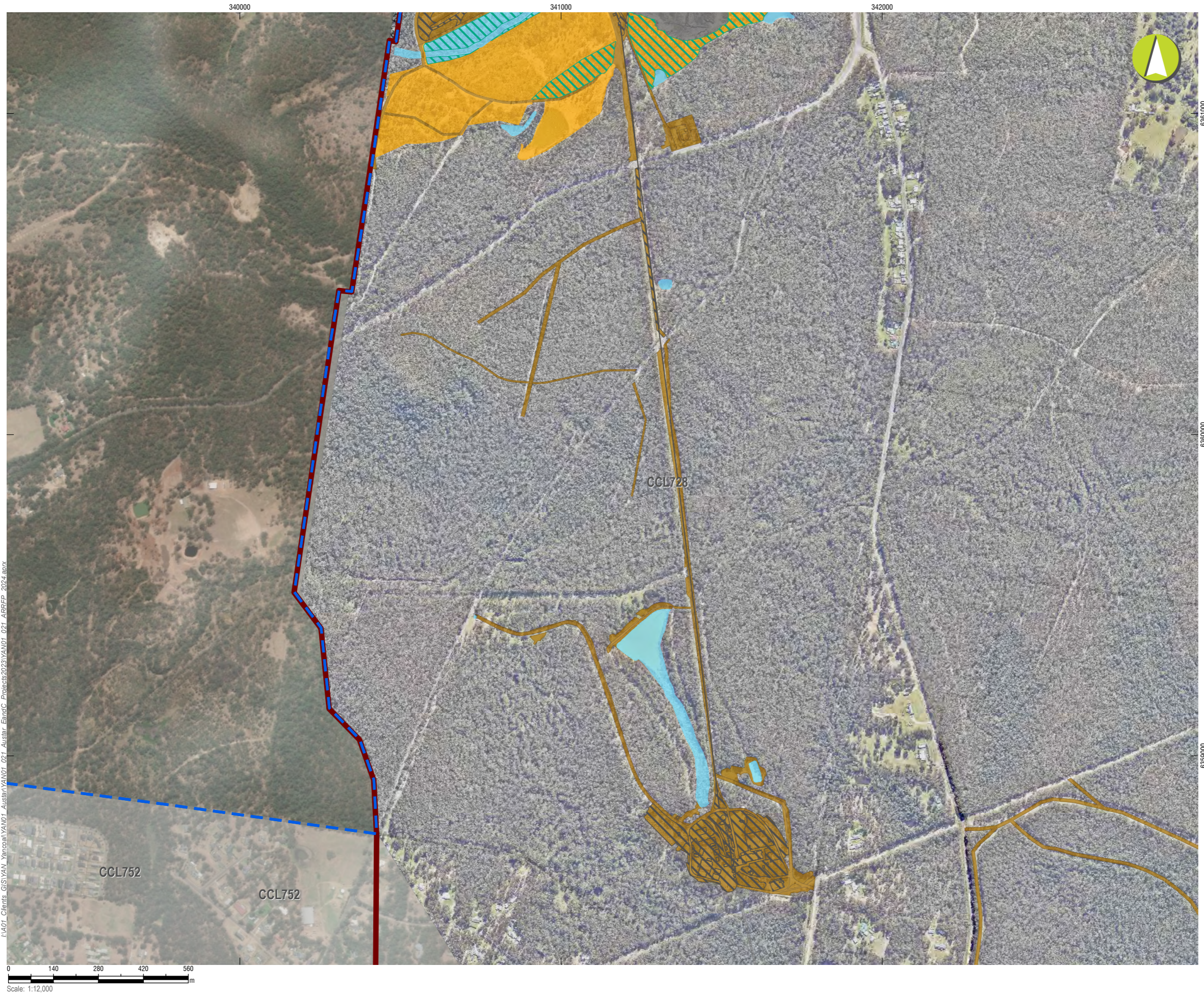
DATE	STAKEHOLDER	CONSULTATION ACTIVITIES AND FORMS	MATTERS SUBJECT TO CONSULTATION	ACTIONS TAKEN
13 Sep 2023	Resources Regulator	Q 3 2023 Update	Closure Project, go-forward case, stakeholder engagement, Rehabilitation Management Plan and Forward Program updates.	Meeting minutes distributed.

Attachment 5 – Plans

YAN01_021_ARRFP_Plan1A_CurrentStatusMining.pdf

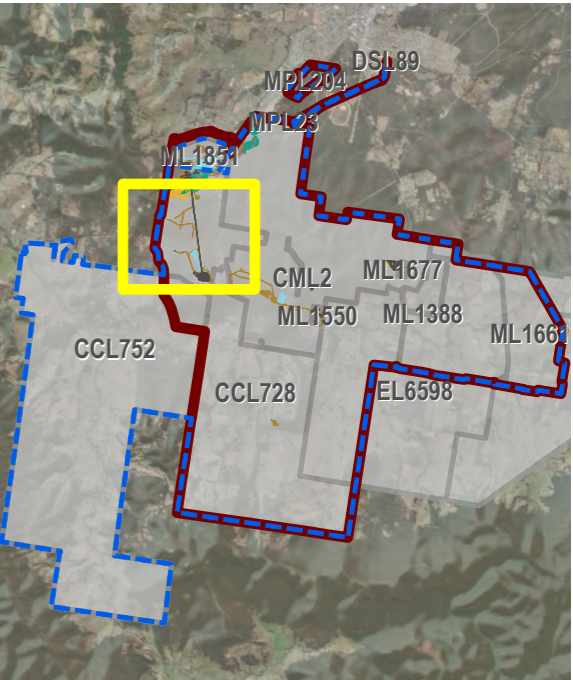
Plan 1B attachment not provided.

Annual Report (LARGE MINE) v1.6



LEGEND

- Project Approval Boundary
- Colliery Holding Boundary
- Austar Mine Plan
- Current Authorisations**
- Coal - Current Titles
- Rehabilitation Phase**
- Decommissioning
- Ecosystem and Land Use Establishment
- Mining Domain Type**
- Domain 1: Infrastructure Area
- Domain 2: Tailings Storage Facility
- Domain 3: Water Management Area
- Domain 4: Overburden Emplacement Area



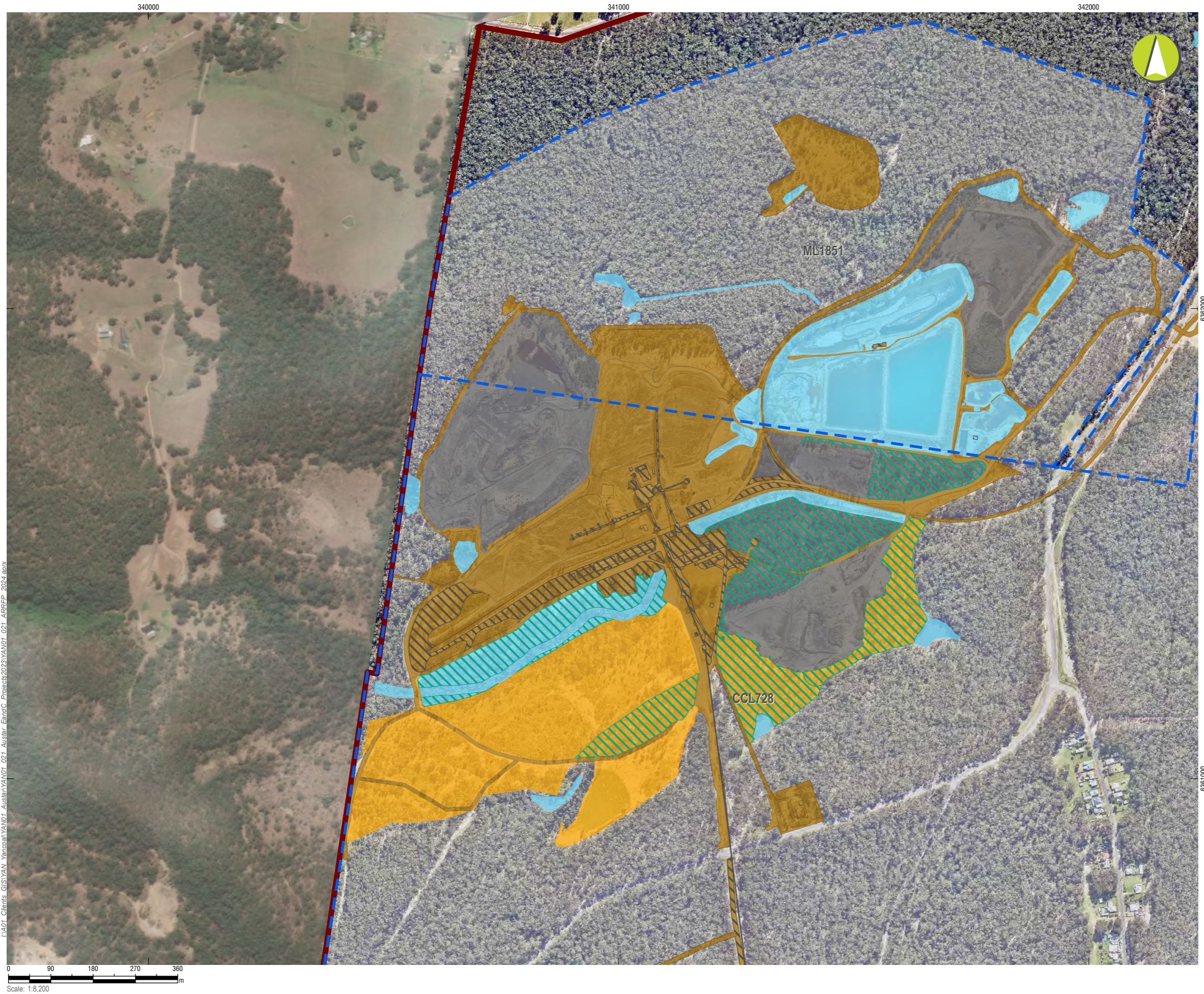
Austar Coal ARRF 2024

CMA 1 - Austar Pit Top Facilities

Current Status of Mining and Rehabilitation

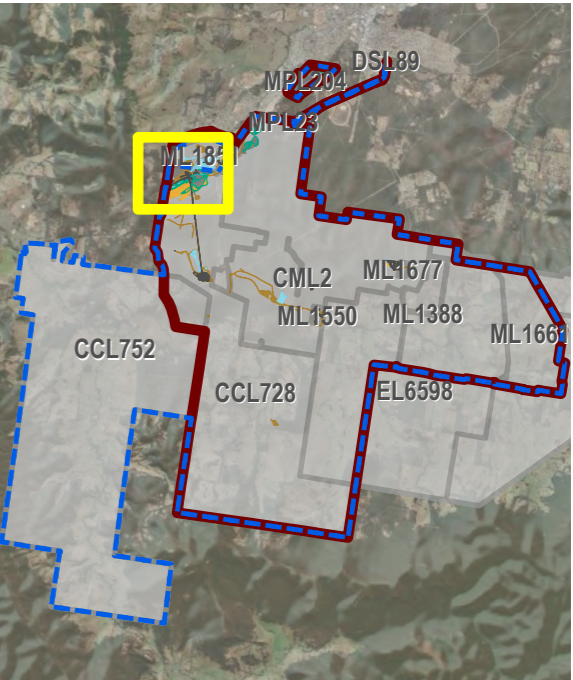
PLAN 1A

Mine name	Austar Coal Mine
Plan name	Austar Coal Mine ARRF
Year of anticipated relinquishment	TBA on final submission
Data theme submission ID No.	xxxx xxxx
Spatial Reference	GDA2020 MGA Zone 56
Plan date (date created)	11/09/2024



LEGEND

- Project Approval Boundary
- Colliery Holding Boundary
- Current Authorisations**
- Coal - Current Titles
- Rehabilitation Phase**
- Decommissioning
- Ecosystem and Land Use Establishment
- Mining Domain Type**
- Domain 1: Infrastructure Area
- Domain 2: Tailings Storage Facility
- Domain 3: Water Management Area
- Domain 4: Overburden Emplacement Area



Austar Coal ARRF 2024

CMA 2 - Pelton CHPP - Inset 1

Current Status of Mining and Rehabilitation

PLAN 1A

Mine name	Austar Coal Mine
Plan name	Austar Coal Mine ARRF
Year of anticipated relinquishment	TBA on final submission
Data theme submission ID No.	xxxx xxxx
Spatial Reference	GDA2020 MGA Zone 56
Plan date (date created)	11/09/2024

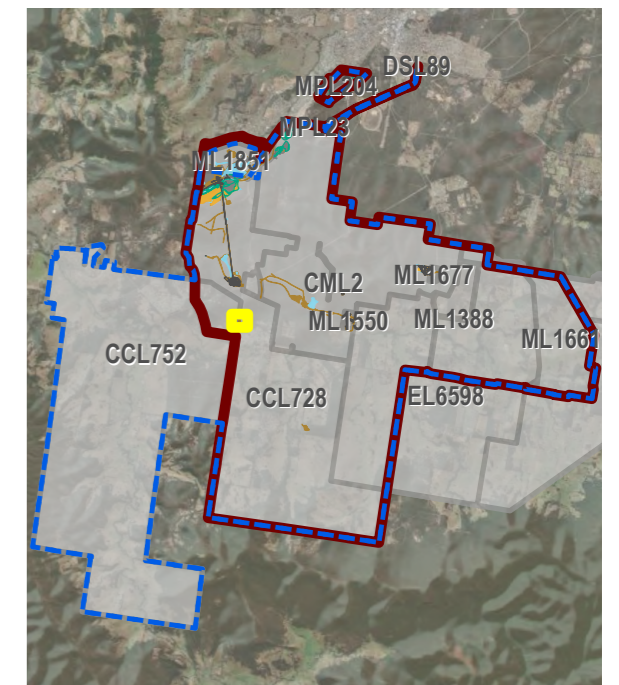
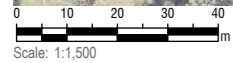
I:\A01_Clients_GIS\YAM\YAM01_Austar\YAM01_021_Austar_EintDC_Projects\2023\YAM01_021_ARRFP_2024.aprx



LEGEND

- Project Approval Boundary
- Colliery Holding Boundary
- Austar Mine Plan
- Current Authorisations**
- Coal - Current Titles
- Mining Domain Type**
- Domain 1: Infrastructure Area

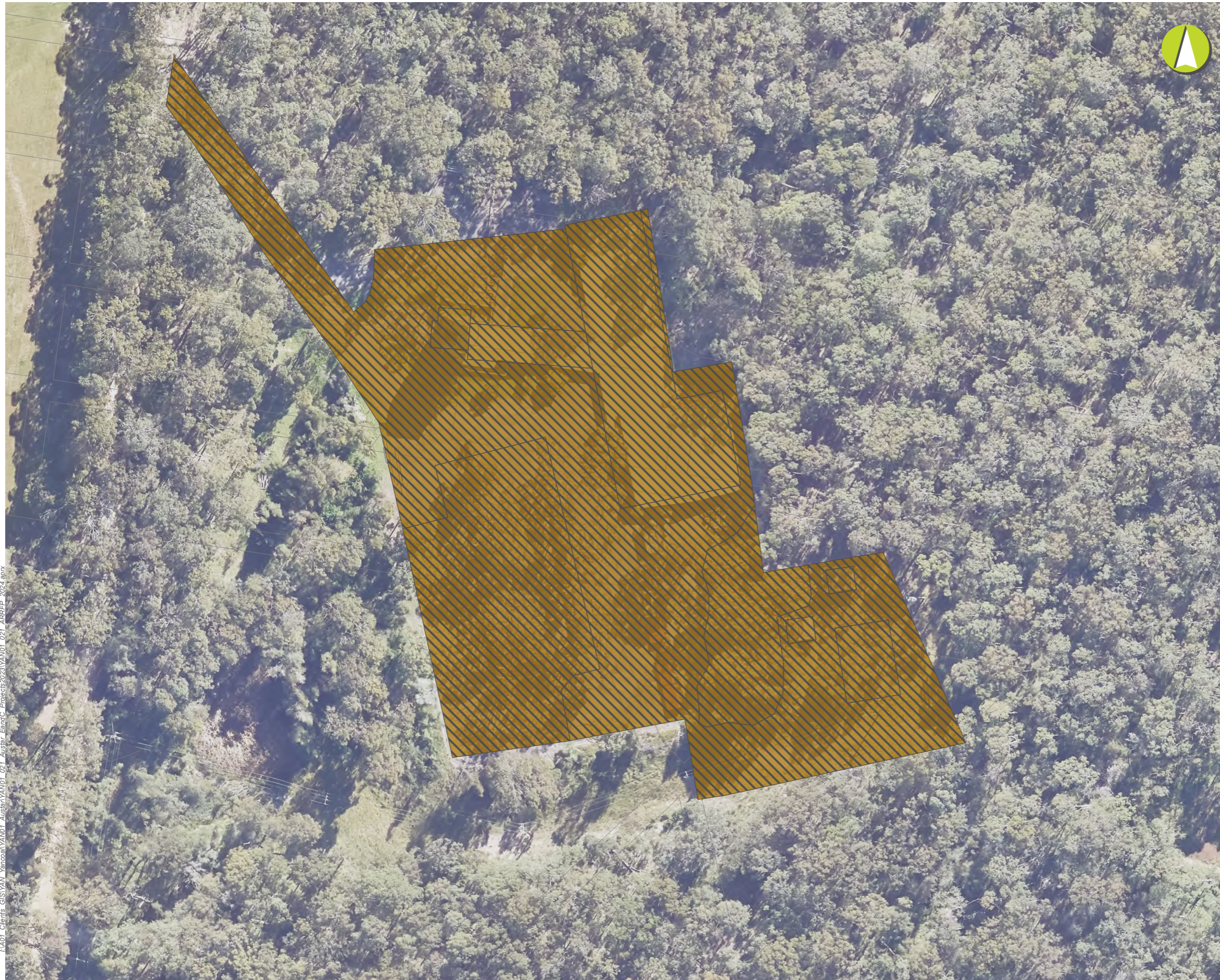
LA01_Clients_GIS\YAM_Yamco\YAM01_Austar\YAM01_021_Austar_EmitC_Projects\2023\YAM01_021_ARRFP_2024.gpx









Austar Coal ARRFP 2024
CMA 3 - No.1 Shaft - Inset

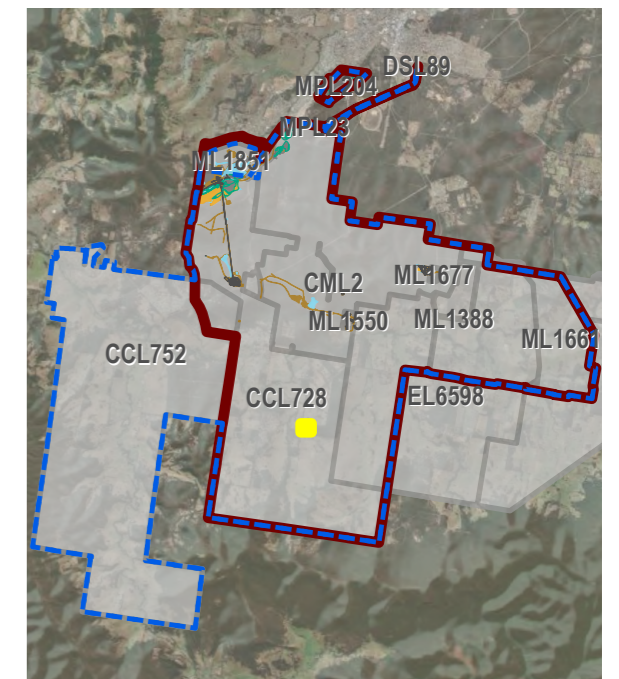
Current Status of Mining and Rehabilitation

PLAN 1A	
Mine name	Austar Coal Mine
Plan name	Austar Coal Mine ARRFP
Year of anticipated relinquishment	TBA on final submission
Data theme submission ID No.	xxxx xxxx
Spatial Reference	GDA2020 MGA Zone 56
Plan date (date created)	11/09/2024



LEGEND

-  Project Approval Boundary
-  Colliery Holding Boundary
-  Austar Mine Plan
- Current Authorisations**
-  Coal - Current Titles
- Rehabilitation Phase**
-  Decommissioning
- Mining Domain Type**
-  Domain 1: Infrastructure Area

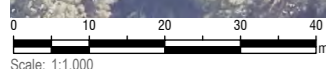


Austar Coal ARRF 2024
CMA 4 - No.2 Shaft - Inset

Current Status of Mining and Rehabilitation








PLAN 1A	
Mine name	Austar Coal Mine
Plan name	Austar Coal Mine ARRF
Year of anticipated relinquishment	TBA on final submission
Data theme submission ID No.	xxxx xxxx
Spatial Reference	GDA2020 MGA Zone 56
Plan date (date created)	11/09/2024

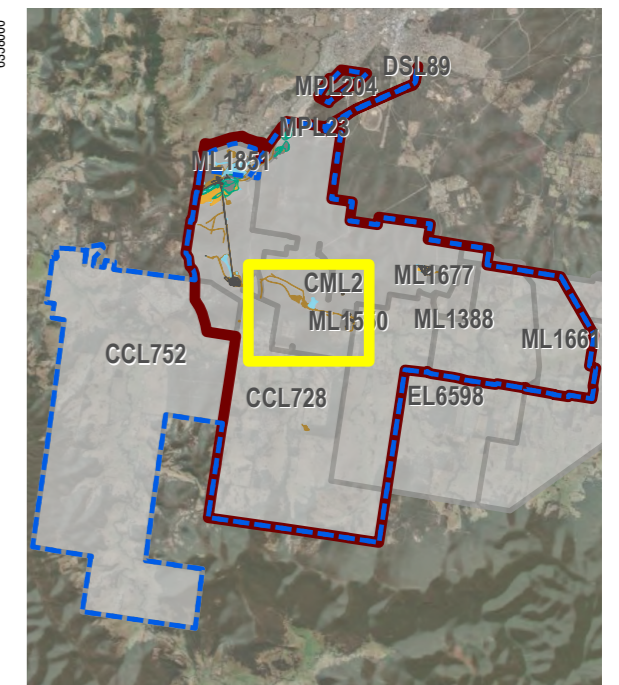
I:\A01_Clients_GIS\YAM_Yamoxall\YAM01_021_Austar_EmitOC_Projects\2023\YAM01_021_ARRFP_2024.aprx





LEGEND

-  Project Approval Boundary
-  Colliery Holding Boundary
-  Austar Mine Plan
-  Completed workings
- Current Authorisations**
-  Coal - Current Titles
- Rehabilitation Phase**
-  Decommissioning
- Mining Domain Type**
-  Domain 3: Water Management Area



Austar Coal ARRF 2024
CMA 5 - Cessnock No.1 Colliery / Kalingo Infrastructure Area

Current Status of Mining and Rehabilitation

PLAN 1A

Mine name	Austar Coal Mine
Plan name	Austar Coal Mine ARRF
Year of anticipated relinquishment	TBA on final submission
Data theme submission ID No.	xxxx xxxx
Spatial Reference	GDA2020 MGA Zone 56
Plan date (date created)	11/09/2024

I:\A01_Clients_GIS\YAN01_YAN01_Austar_Eng_C_Planets\2023\YAN01_021_ARRFP_2024.aprx

347000

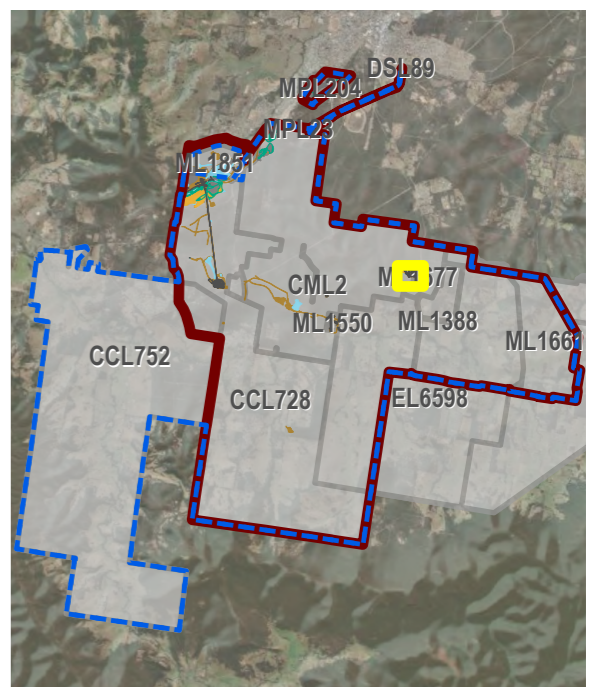


- LEGEND**
- Project Approval Boundary
 - Colliery Holding Boundary
 - Austar Mine Plan
 - Completed workings
 - Current Authorisations**
 - Coal - Current Titles
 - Rehabilitation Phase**
 - Decommissioning
 - Mining Domain Type**
 - Domain 1: Infrastructure Area
 - Domain 3: Water Management Area
 - Domain 4: Overburden Emplacement Area

635600

LA01_Clients_GIS\SWAN_Venocall\YANDU1_Austar\YANDU1_021_Austar_EmpC_Proj\2023\YANDU1_021_ARRFP_2024.mxd

Scale: 1:2,400








Austar Coal ARRF 2024
CMA 6 - Kitchener Surface Infrastructure Site

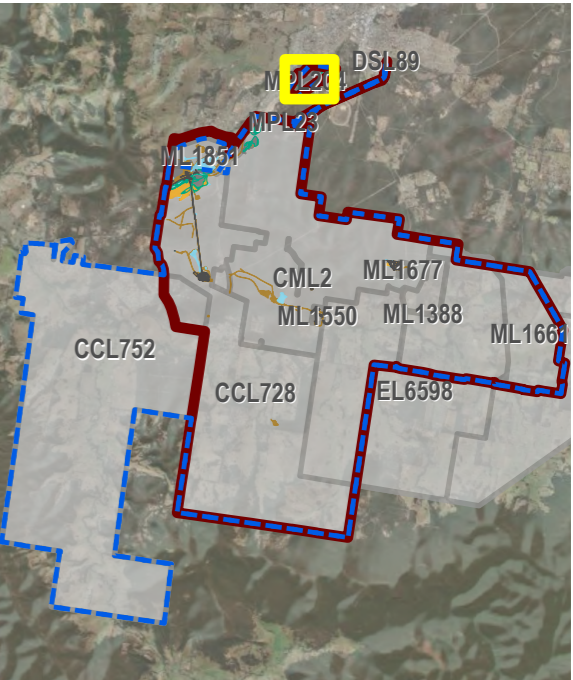
Current Status of Mining and Rehabilitation

PLAN 1A	
Mine name	Austar Coal Mine
Plan name	Austar Coal Mine ARRF
Year of anticipated relinquishment	TBA on final submission
Data theme submission ID No.	xxxx xxxx
Spatial Reference	GDA2020 MGA Zone 56
Plan date (date created)	11/09/2024



LEGEND

-  Project Approval Boundary
-  Colliery Holding Boundary
- Current Authorisations**
-  Coal - Current Titles
- Rehabilitation Phase**
-  Ecosystem and Land Use Establishment
- Mining Domain Type**
-  Domain 2: Tailings Storage Facility

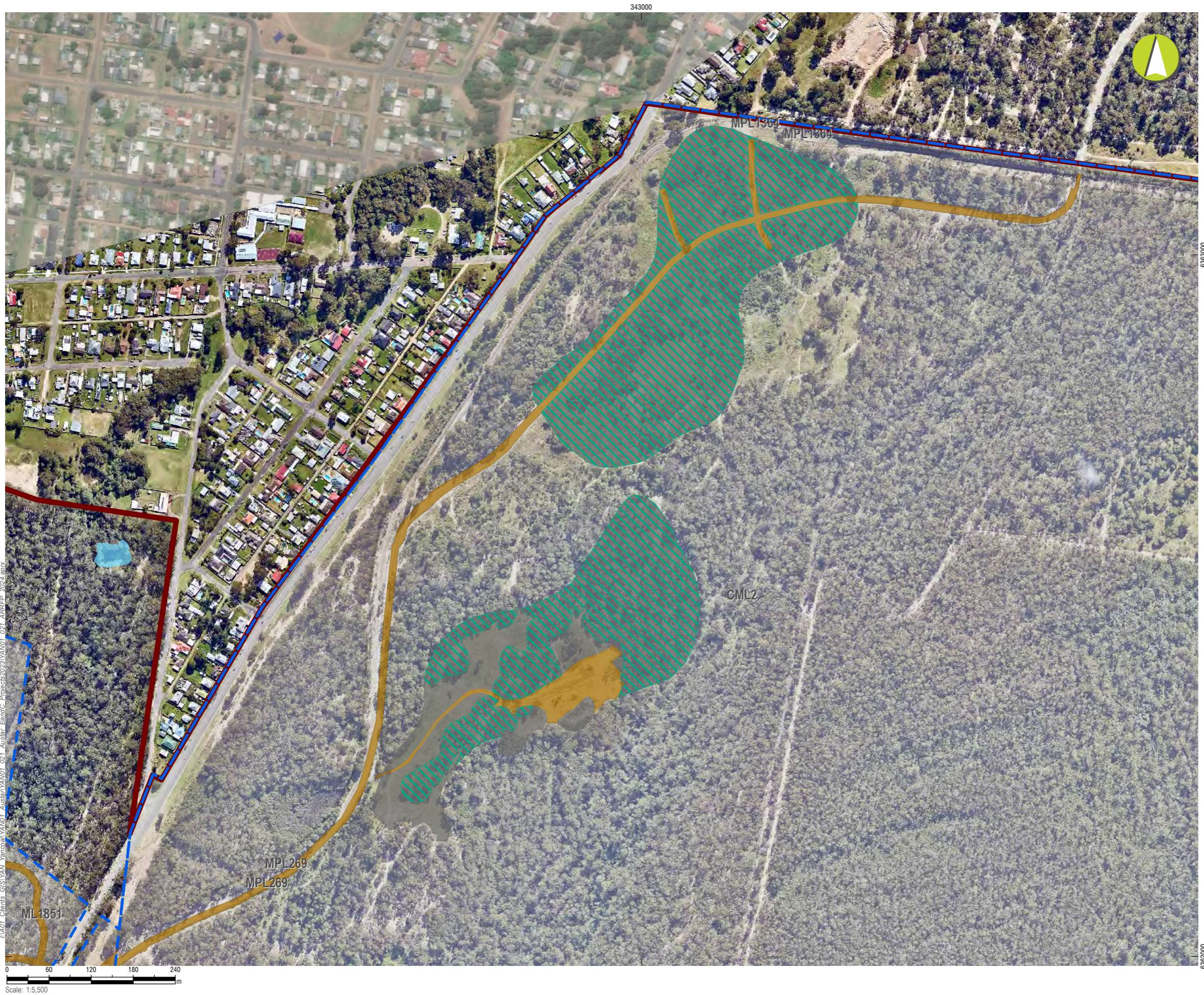


Austar Coal ARRF 2024
CMA 7 - Aberdare Extended Emplacement Area








Current Status of Mining and Rehabilitation

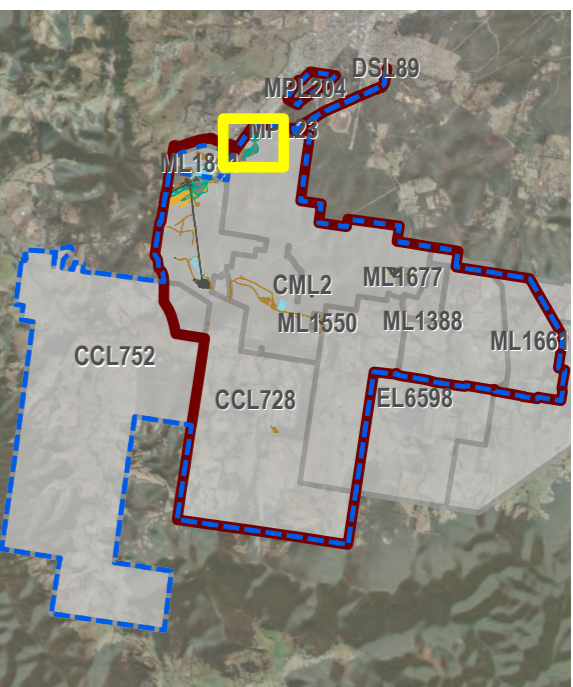
PLAN 1A	
Mine name	Austar Coal Mine
Plan name	Austar Coal Mine ARRF
Year of anticipated relinquishment	TBA on final submission
Data theme submission ID No.	xxxx xxxx
Spatial Reference	GDA2020 MGA Zone 56
Plan date (date created)	11/09/2024

I:\AD1_Clients_GIS\ANU_Yemen\ANU_Austar\ANU_Austar_EnvMgt_Plan\ANU_Austar_ARRF_2024.aprx



LEGEND

-  Project Approval Boundary
-  Colliery Holding Boundary
- Current Authorisations**
-  Coal - Current Titles
- Rehabilitation Phase**
-  Ecosystem and Land Use Establishment
- Mining Domain Type**
-  Domain 1: Infrastructure Area
-  Domain 2: Tailings Storage Facility
-  Domain 3: Water Management Area



Austar Coal ARRF 2024
CMA 8 - Bellbird Areas 12 and 13 - Inset

Current Status of Mining and Rehabilitation

PLAN 1A	
Mine name	Austar Coal Mine
Plan name	Austar Coal Mine ARRF
Year of anticipated relinquishment	TBA on final submission
Data theme submission ID No.	xxxx xxxx
Spatial Reference	GDA2020 MGA Zone 56
Plan date (date created)	11/09/2024

333000 334000 335000 336000 337000 338000 339000 340000 341000 342000 343000 344000 345000 346000 347000 348000 349000 350000 351000 352000 353000 354000

I:\01_Clients_GIS\YAN - Yancoon\YAN01 - Auster\ARRFP (2023)\YAN01_019_AusterARRFP_2023_01.aprx

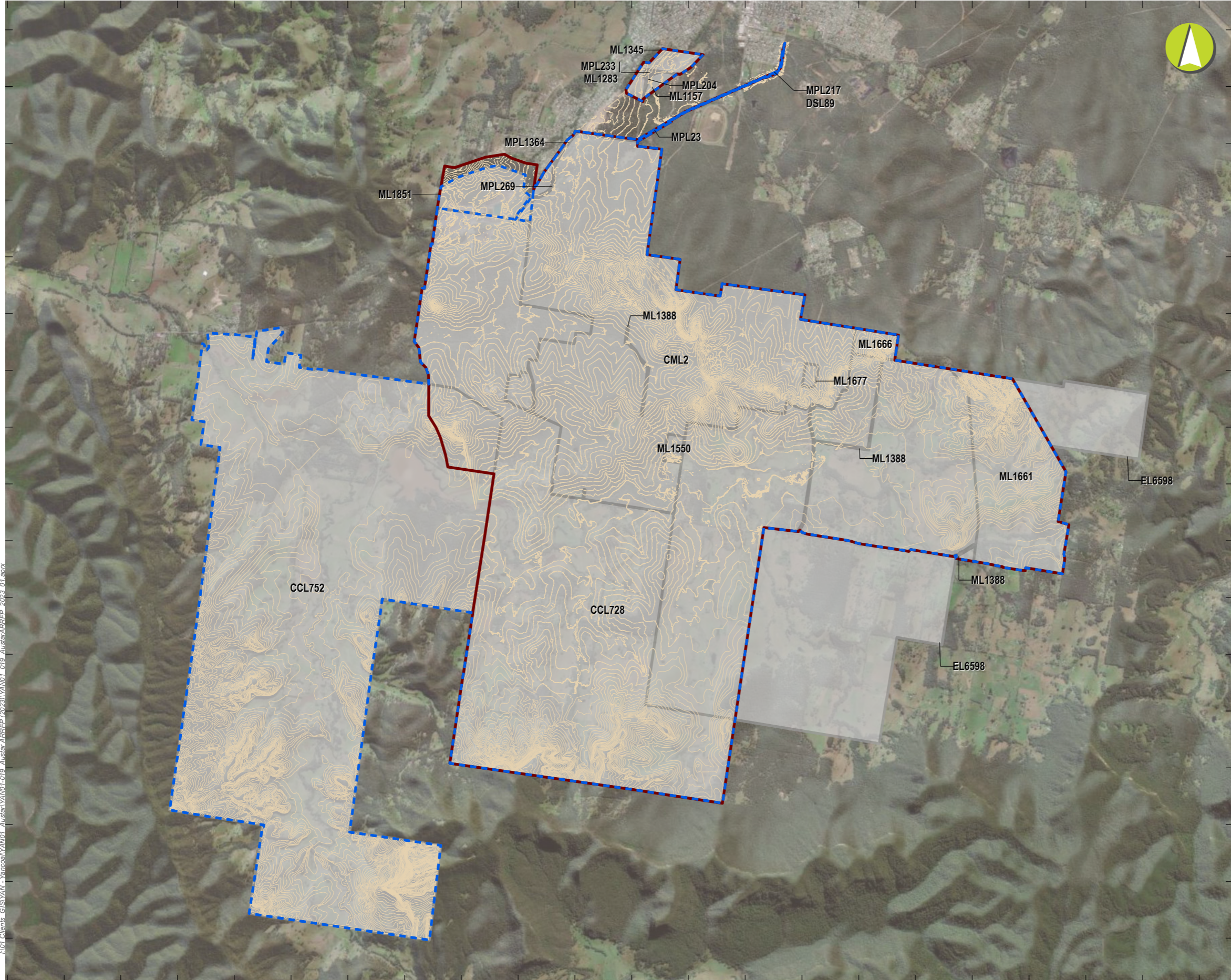
0 840 1,680 2,520 3,360
Scale: 1:70,000



LEGEND

- Project Approval Boundary
- Colliery Holding Boundary
- Current Landform Contours (5m)
- Current Authorisations**
- Coal - Current Titles

6365000
6364000
6363000
6362000
6361000
6360000
6359000
6358000
6357000
6356000
6355000
6354000
6353000
6352000
6351000
6350000



Austar Coal ARRFP 2023

Current Landform Contours

Plan 1B	
Mine name	Austar Coal Mine
Plan name	YAN01_019_ARRFP_Plan1B_CurrentLandformContours_01
Year of anticipated relinquishment	TBA on final submission
Data theme submission ID No.	2486
Spatial Reference	GDA2020 MGA Zone 56
Plan date (date created)	25/09/2023