



Charbon Colliery Modification 2 and Clarence Colliery Modification 6

Rail transfer of coarse coal reject material from Clarence Colliery to Charbon Colliery and the extension of rail water transfers from Charbon Colliery to Airly Mine.

State Significant Development Modification Assessment (MP 08_0211 MOD 2 and DA 504-00 MOD 6)

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1 Introduction

This report provides the NSW Department of Planning, Industry and Environment's (the Department's) assessment of a joint application submitted by Centennial Coal Company Limited (Centennial) on behalf of its partner SK Networks Resources Australia Pty Ltd, to modify consents for the Charbon Colliery (Charbon) (MP 08_0211) and Clarence Colliery (Clarence) (DA 504-00) located within the Western Coalfield of New South Wales (NSW) (see **Figure 1**).

Centennial proposes to modify these development consents to allow the transfer of coarse coal reject (CCR) from Clarence to Charbon by rail to enhance rehabilitation outcomes at Charbon. The modifications also seek an extension of water transfers by rail from Charbon to Airly Mine (Airly) until 31 January 2037 to align with Airly's approval under SSD-5581.

The applications were lodged on 18 September 2020 by Centennial (the Applicant) pursuant to section 4.55(2) of the *Environmental Planning and Assessment Act 1979* (**EP&A Act**).

1.1 Background

Clarence Colliery

Clarence is an underground coal mine located approximately ten kilometres (km) east of Lithgow in Wiradjuri country, within the Central Tablelands of NSW (see **Figure 1**). It is jointly owned by Centennial and SK Networks Resources Australia Pty Ltd, with Centennial operating the site.

Clarence utilises bord and pillar mining techniques to extract up to three million tonnes of coal per annum (Mtpa) until 2026. Clarence has on-site facilities for washing run-of-mine (ROM) coal, which results in the production of coarse coal reject (CCR). CCR is currently emplaced in reject emplacement areas (REAs) at the Clarence pit top (see **Figure 2**).

Clarence is surrounded by the Blue Mountains National Park to the east, Newnes State Forest to the north and west and the rural residential areas of Newnes Junction and Clarence Village to the south. A number of extractive industries are in close proximity. Six sensitive receivers are located within one kilometre of the Clarence surface facilities (see **Figure 2**).

Clarence operates under three development consents approved under the EP&A Act. An interim development consent (IRM.GE.76) issued in 1976 by Blaxland Shire Council (now Lithgow City Council) for construction of surface facilities, a development consent issued by Lithgow City Council in 1994 (174/93) for underground mining, REAs, water management and ancillary structures, and State significant development consent DA 504-00 granted by the then Minister for Planning in 2005. DA 504-00 provided for the expansion of approved mining operations into Mining Lease (ML) 1583, the processing of coal onsite, and the transport of coal by rail and road to both domestic and export markets 24 hours a day, seven days a week.

The development consent has been modified on five occasions (see **Table 1**).

Table 1 | Summary of Clarence Modifications

Mod No.	Summary of Modifications	Approval Authority	Type	Approval Date
MOD 1	Increase in the road haulage of coal products.	Minister	75W	4 July 2007
MOD 2	Establishment of REA 6 and upgrade and relocation of sewage effluent irrigation system.	IPC	75W	17 June 2014
MOD 3	Changes to road haulage routes.	IPC	75W	17 June 2014
MOD 4	Short term increase in road transport of coal transportation to Mount Piper Power Station.	Minister	4.55(2)	16 August 2019
MOD 5	Increase in personnel from 300 to 400 FTE staff.	Minister	4.55(2)	2 Oct 2019

Charbon Colliery

Charbon is an underground and open cut coal mine located approximately three km south of Kandos, a small township located in Wiradjuri country in the Central Tablelands of NSW (see **Figure 1**). Charbon is owned and operated by Charbon Coal Pty Limited (Charbon Coal), a joint venture between Centennial and SK Networks Resources Australia Pty Ltd.

Charbon is located within a rural environment, with surrounding land uses including rural residences, agriculture, transport, infrastructure and commercial forestry. The village of Charbon is located to the north of the rail loop (see **Figure 3**). The closest non-mine owned residence is Residence H, located approximately 80 metres from the project boundary, while the closest non-mined owned residence to the rail loop is Residence P, approximately 1,500 metres south-west of the rail loop (see **Figure 3**).

Charbon operates under MP 08_0211, issued by the NSW Planning Assessment Commission on 7 September 2010. The approval allows underground and open cut mining, processing, and the transportation of up to 1.5 Mtpa of ROM coal via rail, until 31 August 2025 (see **Figure 3**). The project approval has been modified on one occasion to allow the transfer of up to 170 megalitres of water per year from Charbon's surface water dams to Airly by rail.

Mining ceased at Charbon in August 2015 and no further mining is planned within the project boundary. Activities on site have since been limited to decommissioning and rehabilitation, as well as the ongoing transfer of water from Charbon to Airly by rail.

On 12 June 2019, Charbon was issued a Development Control Order (DCO) by the Department due to the stockpiling of overburden in out-of-pit areas. Rehabilitation works on all existing areas of disturbance are therefore being undertaken to allow for the transfer of out-of-pit stockpiles back into the open cut voids.

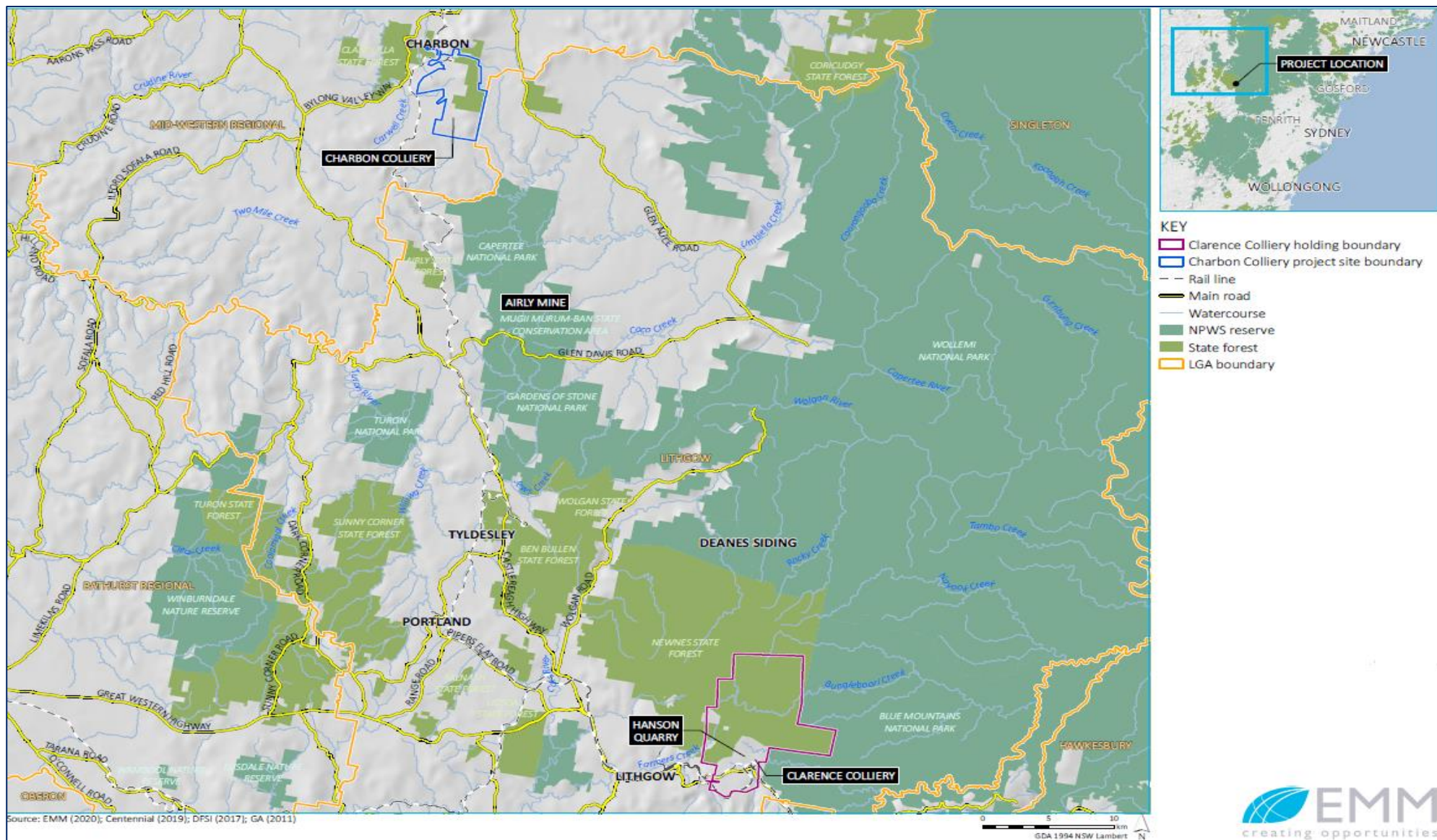


Figure 1 | Clarence, Charbon and Airly Regional Context

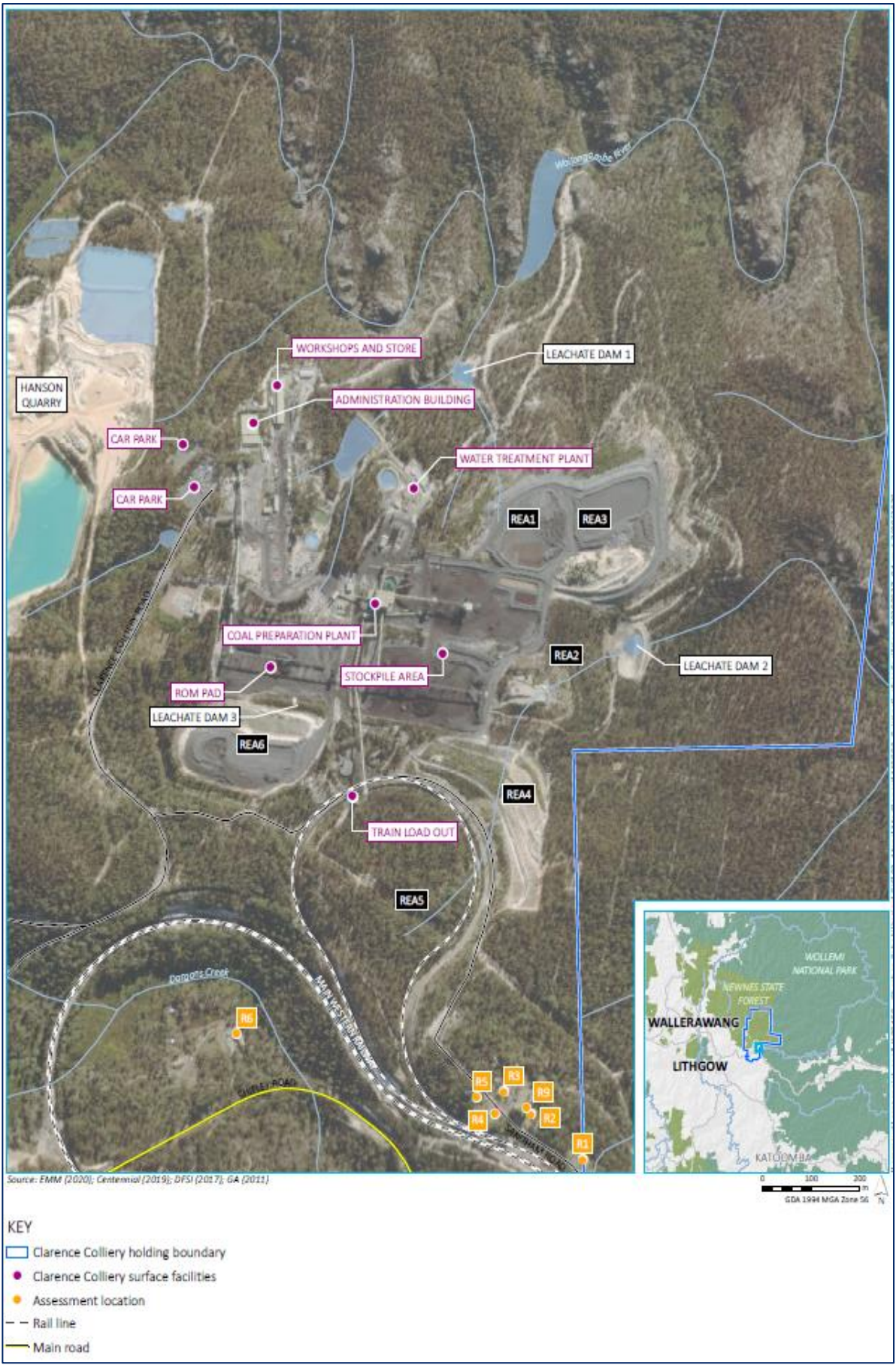


Figure 2 | Clarence mine pit top layout

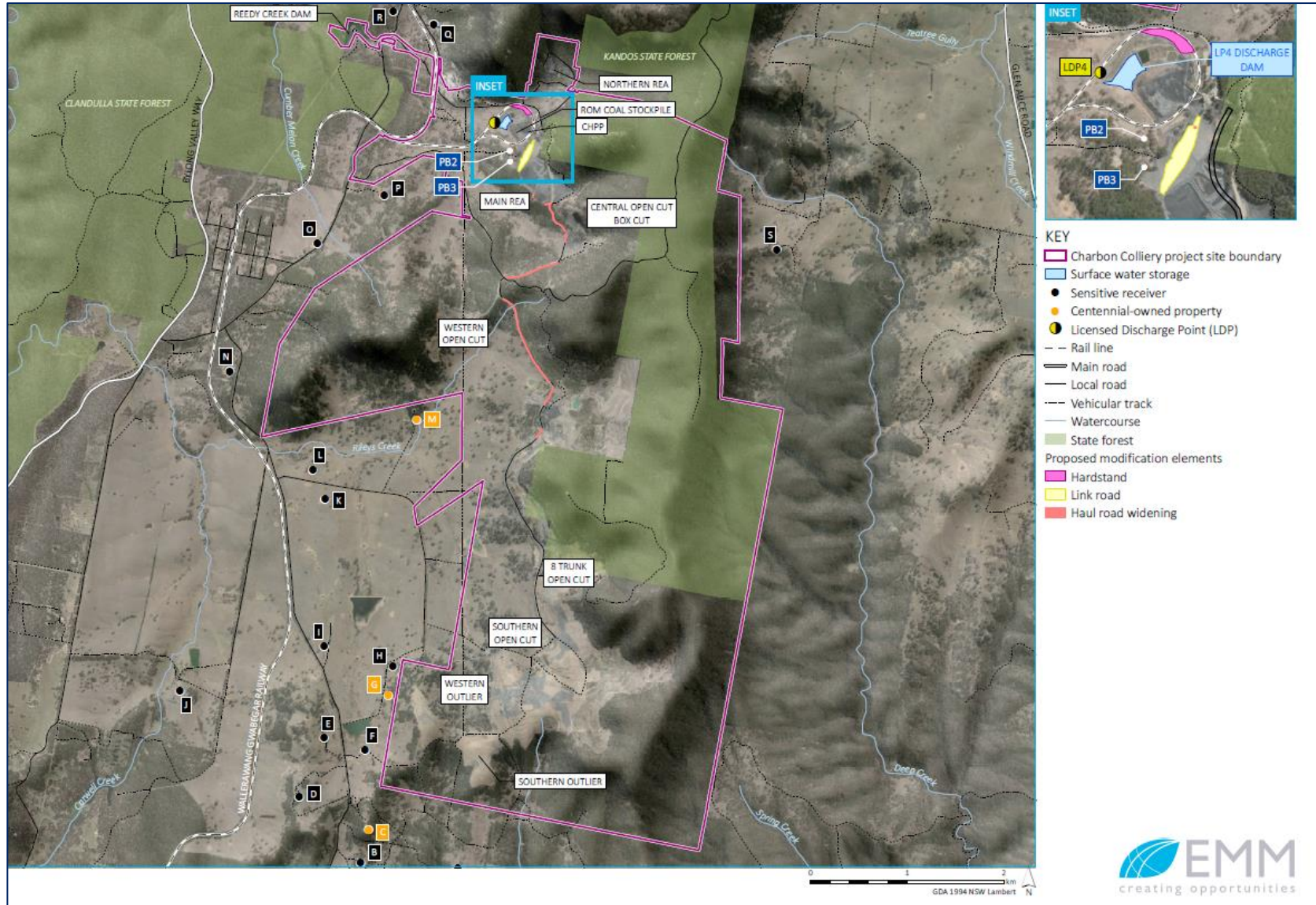


Figure 3 | Charbon Colliery layout

Airly Mine

Airly is an underground coal mine owned and operated by Centennial Airly Pty Limited (Centennial Airly) located approximately five kilometres north-east of the village of Capertee in Wiradjuri country (see **Figure 1**). Airly operates under State significant development consent SSD.5581 issued by the NSW Planning Assessment Commission on 15 December 2016, which permits the extraction of up to 1.8 million tonnes of coal per annum.

Airly is approved to receive up to 170 megalitres of water per annum by rail from Charbon until 31 January 2037. This water is required to meet any water deficits at Airly and enable Airly to mine at approved levels.

No modification to SSD 5581 is required to facilitate the proposed modifications.

2 Proposed modifications

Charbon Coal proposes to import CCR material from Clarence by train to backfill historical mining areas requiring rehabilitation. CCR would be used in combination with overburden material stockpiled at Charbon to enhance rehabilitation outcomes and create a more stable post mining landform consistent with surrounding areas.

Charbon is currently approved to transfer up to 170 megalitres of water per annum by rail to Airly until 31 August 2025. Charbon Coal proposes to extend the time for the transfer of water by rail from Charbon to Airly to 31 January 2037 to align with the expiry of Airly's development consent (SSD 5581).

The proposed modifications seek to authorise:

- the transfer of up to 1.5 million tonnes of CCR from Clarence to Charbon by rail for a period of up to five years;
- use of CCR for ongoing rehabilitation at Charbon; and
- an extension of the time permitted to undertake water transfers from Charbon to Airly.

2.1 Clarence modification

Centennial seeks to modify Clarence's consent (DA 504-00) to allow:

- the extraction of up to 1.5 million tonnes (up to 350,000 tonnes per annum) of CCR from REA6 over a period of five years;
- transfer of CCR from REA6 and Clarence's production stream to the existing transport load out area;
- loading of CCR into train-based containers; and
- one CCR laden train (two train movements) per day to Charbon.

No construction activities or additional plant or equipment is required at Clarence to facilitate these activities.

2.2 Charbon modification

Centennial seeks to modify Charbon's project approval (MP 08_0211) to allow:

- receipt of up to 1.5 million tonnes (up to 350,000 tonnes per annum) of CCR from Clarence using one train (two train movements) per day over a period of five years;
- unloading of CCR containers at Charbon's rail loop;
- transfer of CCR containers to the active rehabilitation areas;
- temporary storage of CCR containers at a hardstand pad;
- use of CCR in rehabilitation activities at Charbon; and
- extension of approved water transfers by rail from Charbon to Airly until 31 January 2037.

The proposed modification will require the following construction works at Charbon (see **Figure 4**):

- construction of a 3,000 square metre (m²) hardstand pad alongside Charbon's existing rail loop;
- widening of existing haul roads to a minimum of 8.8 m;
- construction of a link road between the hardstand pad and Charbon's existing haul roads; and
- construction of an 11-kV transmission line and associated power poles to Charbon's existing pump shed.

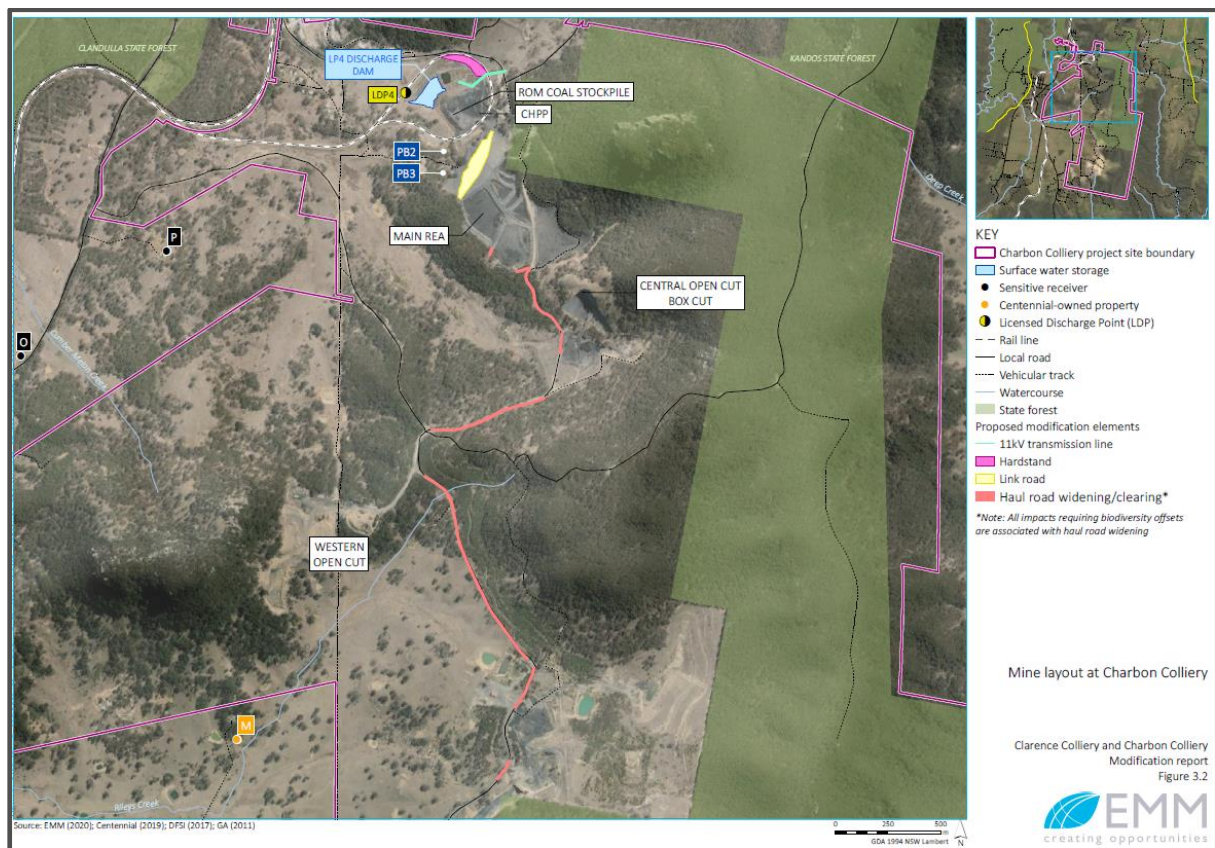


Figure 4 | Charbon Colliery proposed construction works

2.3 Need for modifications

Rehabilitation activities at Charbon currently utilise stockpiled Charbon overburden to fill mine voids and reconstruct hillsides to meet rehabilitation objectives.

Centennial has identified that Clarence CCR has greater structural strength and compaction characteristics than Charbon overburden and is therefore better suited for use as fill material and for landform construction. Charbon overburden is finer-grained material that provides greater water

holding capacity which encourages plant growth and reduces water infiltration. Charbon material is therefore better suited for use in upper fill layers and as capping material. The combined use of Clarence CCR and Charbon overburden is expected to result in improved rehabilitation outcomes and a more stable final landform than one constructed using only Charbon overburden.

Alternative sources of fill material were considered but resulted in extra road haulage. The 'do nothing' approach would forego the opportunity to improve rehabilitation outcomes at Charbon.

The continuation of water transfers between Charbon and Airly is proposed to address potential future water deficits at Airly and to enable Airly to operate at approved production levels.

3 Statutory Context

3.1 Scope of modifications

The modification applications were lodged under Section 4.55(2) of the EP&A Act. Under Section 4.55(2), a development consent can only be modified if the consent authority is satisfied that the proposed development would remain substantially the same as the originally approved project.

The Department has reviewed the scope of the modifications and is satisfied that both projects as modified would be substantially the same development as originally approved, as:

- the proposed modifications do not change the nature of the approved developments and would not result in any changes to approved project areas, extraction areas, hours of operation or waste management;
- the proposed rail movements would be minimal and managed within the existing approved rail movements for Charbon;
- infrastructure upgrades are not significant; and
- the impacts of the development as modified would be similar to the impacts of the approved projects.

3.2 Consent authority

The Minister for Planning and Public Spaces is the consent authority for the application under section 4.5(a) of the EP&A Act. However, under the Minister's delegation dated 26 April 2021, the Director - Resource Assessments, may determine the applications as:

- neither Lithgow City Council nor Mid-Western Regional Council objected to either application;
- Centennial did not report any political donations; and
- less than 15 submissions objected to either application.

3.3 Mandatory matters for consideration

In accordance with sections 4.15(1) and 4.55(3) of the EP&A Act, the following aspects must be considered in determining the modification applications:

- environmental planning instruments or proposed instruments;
- any planning agreements;
- EP&A regulation;
- likely impacts of the modification application, including environmental impacts on both the natural and built environments, and social and economic impacts;

- suitability of the site;
- any submissions;
- the public interest; and
- the reasons for granting approval for the original application.

The consent authority must also consider the objects of the EP&A Act when making decisions under the Act.

The Department has considered these matters carefully and has summarised its findings below and in **Sections 5** and **6** of this report.

Environmental planning instruments or proposed instruments

In undertaking its assessment, the Department has considered the provisions of relevant environmental planning instruments including:

- *Lithgow Local Environmental Plan 2014* (Lithgow LEP 2014);
- *Mid-Western Regional Local Environmental Plan 2012* (Mid-Western LEP 2012);
- *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* (Mining SEPP);
- *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP);
- *State Environmental Planning Policy 55* (SEPP No. 55) – Remediation of Land; and
- *State Environmental Planning Policy 33* (SEPP No. 33) – Hazardous and Offensive Development.

The Department has considered the proposed modifications against the relevant provisions of these instruments. The Department has concluded that the proposed modifications can be carried out in a manner that is generally consistent with the aims, objectives and provisions of these instruments.

The reasons for granting the consent for the original applications

In determining both Charbon MP 08_0211 and Clarence DA 504-00, the NSW Planning Assessment Commission (now the Independent Planning Commission), and Minister for Planning (now the Minister for Planning and Public Spaces), concluded that the benefits of the projects outweighed the impacts and imposed a range of conditions to appropriately manage and mitigate any impacts. The Department considers these modification applications do not result in significant changes that would alter the mandatory matters for consideration under section 4.15 of the EP&A Act and conclusions made as part of the original assessments.

Objects of the EP&A Act

The consent authority has assessed the proposed modifications against the current objects of the EP&A Act. The objects of most relevance to the decision on whether or not to approve the proposed modifications are found in section 1.3 of the EP&A Act; and are:

- 1.3(a) to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources,
- 1.3(b) to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment,
- 1.3(c) to promote the orderly and economic use and development of land,

- 1.3(e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats,
- 1.3(f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage),
- 1.3(h) to promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants,
- 1.3(i) to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State,
- 1.3(j) to provide increased opportunity for community participation in environmental planning and assessment.

The Department is satisfied that the proposed modifications encourage the proper management and development of resources (Object 1.3(a)), and the promotion of the orderly and economic use of land (Object 1.3(c)). The proposal would optimise final rehabilitation landforms and outcomes at Charbon whilst utilising established infrastructure and workforce personnel. The continuation of water transfers to Airly would also allow Airly to continue operations as approved, ensuring job stability.

The Department has considered the principles of ecologically sustainable development (ESD) (Object 1.3(b)) in its assessment of the proposed modifications. The Department considers that the proposed modifications may be carried out in a manner that is consistent with the principles of ESD. The Department's assessment has sought to integrate all significant environmental, social and economic considerations. In particular, the Department considers that the proposed modifications would result in social and economic benefits with minimal incremental environmental impacts.

The Department has carefully considered the environmental impacts of the proposed modifications, including potential impacts on the natural, cultural and built environments (Object 1.3(e) and (f)). The key findings of the Department's assessment are summarised in **Section 5**.

The Department publicly exhibited the modification applications and consulted with key stakeholders, including Mid-Western Regional Council and Lithgow City Council (Object 1.3(i) and (j)). The outcomes of the Department's consultation process are outlined in **Section 4**.

3.4 Impacts on biodiversity values

Under the relevant provisions of the *Biodiversity Conservation (Savings and Transitional) Regulation 2017*, the Department is satisfied that a Biodiversity Development Assessment Report (BDAR) is not required to be submitted for the proposed modification to the Clarence consent as the application would not increase impacts on biodiversity values. A BDAR is however required and has been prepared for the proposed modification to the Charbon project approval and is discussed in further detail under **Section 5.4**.

4 Engagement

4.1 Department's engagement

In accordance with clause 10 of Schedule 1 to the EP&A Act and clause 118 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation), the Department exhibited both

modification applications concurrently for 14 days from 8 to 21 October 2020 on the Department's website and at the offices of Mid-Western Regional Council and Lithgow City Council.

The Department also notified 135 previous submitters of the modification applications.

4.2 Public submissions

No public submissions were received in relation to the Charbon proposal.

Two public submissions were received in relation to the Clarence proposal – one in support and one objection.

The objection to the Clarence modification included the following comments:

- the company has a poor environmental record including contamination of the Sydney Water catchment and Blue Mountains National Park;
- the removal of coal would damage the water table and result in additional subsidence impacts, including to swamps;
- there would be climate change impacts associated with the combustion of coal;
- the number of modifications to the Clarence consent indicates poor planning; and
- the area needs to recover from recent bushfires.

Centennial provided a response to these concerns in its Submissions Report (**Appendix C**). This included clarification that Clarence is not seeking to modify any aspect relating to coal extraction. The proposed modifications would therefore not increase subsidence impacts, the extraction or combustion of coal or impacts to areas affected by bushfires. The environmental performance of the company is regulated by the Department through regular monitoring and reporting, incident reporting and independent audit to inform any necessary regulatory action. There is no limit to the number of allowable modifications under the EP&A Act, provided the development as modified remains substantially the same as the originally approved project. The Department has considered the impacts of the modification application in **Section 5**.

4.3 Government agency advice

Ten government agencies were contacted to provide advice on the applications. A summary of the advice received is provided below, and a full copy of the advice is provided at **Appendix B**.

Centennial provided a response to agency advice in its Submissions Report (**Appendix C**).

The Biodiversity Conservation and Science Directorate (BCS) requested that a BDAR be prepared to accompany the Charbon modification application in accordance with the *Biodiversity Conservation Act 2016* as the proposal would increase impacts on biodiversity values. In response, Centennial submitted a BDAR with the Submissions Report (**Appendix C**). This is further discussed in **Section 5**.

BCS had no residual concerns.

Mid-Western Regional Council supported the modification application, however made note that in times of drought, water transfers from Charbon to Airly may cause community concern, despite being within the allowable limits specified in the Applicant's water licences. Mid-Western Regional Council requested that priority be given to downstream water users in times of drought and that appropriate mechanisms be put in place to monitor and inform downstream water users of planned water transfers. In response, Centennial committed to engage with downstream water users ahead of any

planned water transfers and to keep the Community Consultative Committee informed of planned water transfers.

Mid-Western Regional Council had no residual concerns.

Resources Regulator requested additional information to confirm final land use(s) and rehabilitation strategy associated with the rail loop at Charbon, and advised that a revised Mining Operations Plan would be required for both mines prior to commencing the modification activities.

Lithgow City Council advised that:

- train movements during peak traffic times should be avoided to minimise impacts on local road traffic and level crossings, or otherwise the maximum length of trains should be limited;
- transfer of CCR from Clarence should not reduce filling materials required for the future rehabilitation of Clarence; and
- CCR should be washed, stabilised, contained and covered prior to its transfer to avoid potential discharge of dust and CCR particles during transfer.

In response Centennial noted that:

- the relevant rail authority is responsible for setting rail schedules however given the low volume of rail movements proposed, the modification application is not expected to have a significant impact on peak traffic or the operation or safety of level crossings;
- the proposed modifications would not reduce the amount of fill material available onsite at Clarence for final rehabilitation; and
- the CCR will be washed, compacted and contained prior to transfer from Clarence and due to its size and high moisture content is likely to be less dusty than the coal product currently transported by rail from Clarence.

Lithgow City Council had no residual concerns.

Transport for NSW (TfNSW) requested that Centennial:

- consider whether reversing train movements into the Clarence rail loop would block the Main Western Line;
- advise whether passenger train movements to Broken Hill and Perth have been assessed;
- consult with Sydney Trains and John Holland Rail (JHR) to address any impacts on the rail network;
- confirm whether rail noise on the railway line between Charbon and Clarence would comply with JHR's Environment Protection Licence (EPL) (Licence No. 13421); and
- be conditioned to provide JHR with at least three months' notice prior to commencement of the CCR rail transportation so that any necessary track upgrades or maintenance can be undertaken.

In response, Centennial confirmed that:

- currently, Centennial's rail operators conduct reversing manoeuvres regularly with no issues and would not see the extra rail movements as having a significant impact on current operations;
- passenger train movements to Broken Hill/Perth were considered in the assessment of network capacity;
- Centennial would continue to regularly liaise with TfNSW and JHR in relation to rail schedules and impacts on the rail network; and

- based on previous assessments of cumulative train noise from Charbon, the additional rail movements would comply with JHR's EPL 13421 noise limits.

TfNSW had no residual concerns.

The Department's **Water Group** made recommendations in relation to post approval aspects, including the need for all water taken from groundwater and/or surface water sources to be appropriately licensed prior to the take of water commencing and that the extension of water transfers from Charbon to Airly be conducted in accordance with the existing and any updated water management plan (WMP). In response, Centennial committed to review and update the existing WMP and to undertake any future water transfers to Airly in accordance with the WMP and any licence/development consent conditions.

4.4 Other agency advice

Crown Lands, EPA, Forestry Corporation of NSW (FCNSW), WaterNSW, DPI Agriculture and Mining Exploration and Geoscience did not raise any issues requiring further assessment.

4.5 Response to submissions

On 23 October 2020, the Department requested Centennial to prepare a response to submissions report to address matters raised by agencies and the public during the exhibition period.

A Submissions Report was received on 29 January 2021 and subsequently accepted 2 February 2021 (see **Appendix C**).

4.6 Additional information

Centennial provided additional information (see **Appendix D**) on three occasions (1 March, 15 March and 11 May 2021), including:

- that CCR material would be placed by a truck within the 8 Truck Open Cut area (located within part of the Kandos State Forest) and then reshaped and pushed by a dozer to achieve the final landform;
- that the final landform would provide a low maintenance, geotechnically stable and safe native forest ecosystem landform that is in keeping with the surrounding forested areas and pre-mining landscape.
- that it had consulted with FCNSW and no feedback was received in relation to the proposed modifications;
- a revised BDAR report that included an updated assessment of the clearance of 0.06 hectares (ha) of native vegetation, and associated offset liability; and
- consideration of the environmental, economic and social impacts associated with extending the transfer of water to Airly until 2037 and the current timeline for rehabilitation of Charbon.

5 Assessment

5.1 Key assessment issues

In assessing the merits of the proposal, the Department has considered all the requirements of the EP&A Act and EP&A Regulation, and all relevant information including:

- the Modification Report and accompanying modification applications;

- submissions received from the NSW Government agencies, Mid-Western Regional and Lithgow City Councils;
- submissions received from the community;
- Centennial's Submissions Report, and other information provided in response to the Department's requests; and
- relevant EPIs, policies and guidelines.

The Department has assessed the full range of potential impacts of the proposed modifications, but considers that the key assessment issues relate to:

- noise impacts at sensitive receivers; and
- the risks to water quality associated with the use of Clarence CCR for rehabilitation at Charbon.

These issues are assessed in following sections, with an assessment of the remaining issues and impacts provided in **Section 5.4**.

5.2 Noise

Clarence

Centennial undertook an assessment of potential noise impacts of the proposed modification in accordance with the *Noise Policy for Industry* (NPF I EPA 2017).

The proposed modification would not result in a material change to the noise generating activities undertaken on site. No new noise sources would be introduced, however the proposal would involve activation of reject emplacement area (REA) 6 and the transport of CCR from REA6 to the ROM pad for transfer via the existing reclaim system to the train loading facility. These additional activities would only be undertaken during the day period.

Noise limits have been established for Clarence under DA 504-00. These limits exclude noise from train loading and rail operations on the Clarence rail loop.

Rail noise

Rail related noise on the regional rail network is managed under JHR's EPL13421. Clarence has approval to transport up to 3 Mtpa of coal via rail 24 hours, seven days per week. The addition of two daily rail movements between Clarence and Charbon can be accommodated within the existing capacity of the rail network and would be managed within the previously assessed and approved rail movements for Charbon. The Department considers that the additional rail movements are unlikely to result in significant incremental off-site rail noise impacts.

Operational Noise

The proposed modification would result in negligible changes to existing operational noise at Clarence. Modelling indicates that noise emissions during the day period are predicted to remain the same or increase negligibly at receiver locations surrounding the site. An increase of 1 dB is predicted during the day at residential receivers R2, R4, R6 (no current house on the property), R8 and R9 (see **Figure 2**). As no additional equipment would be operating during the evening or night time periods there would be no change to evening or night-time noise emissions compared to the approved project.

The noise impact assessment indicates that existing operations are likely to already be exceeding both the DA 504-00 consent noise limits, and/or the Project Noise Trigger Levels (PNTLs) established

under the NPFI at a number of the residential receivers surrounding the site (R1 - R6 and R9) during the day, evening and night (see **Figure 2**). The proposed modification would not materially change this situation.

Compliance noise monitoring undertaken since 2013 has identified occasional exceedances of consent noise limits during the evening and night-time period. Noise does not appear to be a significant concern in the local community, with Clarence receiving one noise complaint in the past five years and no submissions relating to noise being received on the proposed modification.

Under the *Voluntary Land Acquisition and Mitigation Policy for State Significant Mining, Petroleum and Extractive Industry Developments* (VLAMP) (DPE 2018), a consent authority can apply voluntary mitigation and land acquisition rights to reduce operational or rail noise impacts of a development on privately owned land. However, such rights cannot be applied where modifications of existing developments with legacy noise issues would result in beneficial or negligible noise impacts, as is the case for this proposed modification. Noise issues under these circumstances may be addressed by the EPA through site-specific pollution reduction programs under the *Protection of the Environment Operations Act 1997*. To date, no pollution reduction programs relating to noise have been issued to Clarence, however DA 504-00 requires Clarence to prepare a Noise Management Plan focusing on reducing rail noise.

Centennial has previously undertaken a review of reasonable and feasible noise mitigation measures to reduce rail noise impacts from Clarence and a number of these measures have been integrated into the existing Noise Management Plan for implementation. A review of additional reasonable and feasible noise mitigation options was undertaken for this modification. As a result, Centennial has committed to limiting excavation and stockpiling of CCR from REA6 to between 7 am and 6 pm.

Centennial currently has negotiated agreements relating to noise with three noise-affected receivers, R2, R3 and R9. Centennial has also committed to pursuing negotiated agreements with the remaining noise-affected residents (R1, R4, R5 and R6).

The Department considers that with proposed modification activities confined to the day period only, reasonable and feasible noise mitigation measures have been applied. The Department has recommended a condition restricting the extraction and haulage of CCR to the daytime period. The Department is satisfied that the proposed modification would not result in a material change to the existing noise environment. Noise at the site would continue to be managed under existing conditions, which includes the implementation of a Noise Management Plan with a specific focus on reducing rail noise.

The EPA, the appropriate regulatory authority (ARA) under the *Protection of the Environment Operations Act 1997* (POEO Act) for regulating noise impacts at the site, considered that any potential environmental impacts would be manageable under Centennial's existing EPL for Clarence and that no changes would be required to the licence, including the noise limits.

Charbon

Potential noise impacts from the proposal include construction noise, rail noise and operational noise associated with rehabilitation activities. Centennial undertook an assessment of these potential noise impacts in accordance with the NPFI.

Project related noise, including rail noise on the Charbon rail loop, is managed under Charbon's project approval, while rail related noise on the regional rail network is managed under JHR's EPL 13421.

Construction Noise

Construction noise impacts were considered as part of the operational noise assessment prepared for the proposed modification, as the proposed construction works would:

- utilise existing plant and equipment currently used for rehabilitation works on site;
- occur concurrently with rehabilitation; and
- only occur during standard daytime construction hours.

Rail noise

Charbon is approved to operate eight train movements between 7am and 10pm, and two train movements in the night period. The cumulative noise impacts of these movements on the regional rail network were assessed as part of the original environmental assessment.

Since the completion of mining in 2015, train movements to and from Charbon have been infrequent, associated with the importation of material for rehabilitation and the transfer of water to Airly.

Centennial has committed to manage the two additional daily train movements associated with the importation of CCR within the previously assessed and approved limit of eight trains per day. On this basis, no further detailed assessment of off-site rail noise impacts was required.

Operational Noise

Operational noise sources at Charbon include earth moving equipment undertaking rehabilitation activities, trains operating on the rail loop and haul trucks operating between emplacement and rehabilitation sites. The proposed modification would not materially change existing operational noise emissions associated with approved rehabilitation activities.

The noise impact assessment prepared for the modification used a highly conservative approach by assuming that the full fleet of equipment available at Charbon were operating simultaneously in each open cut and REA on site. It was also assumed that the equipment was operating under adverse meteorological conditions where noise levels would be higher at receivers due to source to receptor light wind conditions.

Under these conditions, the assessment predicted compliance with the PNTLs – which under the NPM are set at 5dB(A) higher during the day time period compared to the superseded Industrial Noise Policy (INP). However, exceedances of the daytime project approval and EPL noise limit of 35 dB (established under the INP) were predicted at 10 surrounding assessment locations. Noise levels in excess of the project approval noise mitigation criteria of 37 dB were predicted at five of these assessment locations (H, I, K, L and P), with three locations (H, K and P) also predicted to exceed the project approval land acquisition criteria of 40 dB (see **Figure 3**).

Notwithstanding, ongoing noise monitoring indicates that Charbon has been compliant with its project approval noise limits since 2015 when mining ceased and active rehabilitation commenced, and no noise complaints have been received by Charbon since 2015.

Given the highly conservative approach taken by the assessment, monitoring indicating ongoing compliance with project approval noise limits and the proposed modification not materially changing noise emissions on site, the Department is satisfied that the proposed modification would result in a negligible change to the existing noise environment. The EPA considered that any potential

environmental impacts would be manageable under Centennial's existing EPL for Charbon. The Department therefore considers that given the conservative nature of the assessment and that Centennial has demonstrated that it can manage noise from activities on the site to comply with these limits, that the noise limits set in the project approval and in the EPL should remain.

Noise at the site would continue to be managed under existing conditions, which include noise mitigation and land acquisition criteria to manage unacceptable noise impacts and a requirement for implementation of a Noise Management Plan, regular noise monitoring and implementation of reasonable and feasible noise mitigation measures.

The Department has recommended an additional condition limiting the hours of operation of trains on the rail loop and rehabilitation activities to the daytime period only, consistent with the modelling undertaken for the modification. This would avoid the potential for noise impacts on sensitive receivers during the evening and night-time periods.

5.3 Water quality and potential acid mine drainage

Geochemical characterisation

Centennial undertook a geochemical assessment of the Clarence CCR to determine its suitability for use in rehabilitation at Charbon. The assessment considered the potential geochemical risks to the receiving environment at Charbon and whether additional measures would be required to mitigate these risks.

The assessment compared the geochemical characteristics of Clarence CCR with the rock and water quality characteristics of Charbon overburden to determine whether the proposal would change the risk to the receiving environment. The assessment found that:

- both Clarence CCR and Charbon rock material display potentially acid forming (PAF) characteristics with low acid neutralising capacity (ANC), indicating that Clarence CCR may produce acidity unless buffering capacity is provided;
- Clarence CCR has low metal and metalloid content and low sulphur concentrations, while Charbon material generally has higher metal and metalloid content;
- Charbon leachate is neutral to mildly alkaline, while Clarence leachate is mildly acidic to acidic;
- both Clarence CCR and Charbon rock material may present a risk of acid mine drainage (AMD) if emplaced at Charbon, and may require the addition of buffering capacity to prevent AMD; and
- Clarence CCR should be managed as PAF.

Leachate modelling

Modelling estimated that it would take approximately 4 to 10 years for water from the surface to reach the regional groundwater system. Leachate transport within the regional groundwater system was also modelling, indicating that under a potential 'worst-case' scenario that assumed the presence of metals and metalloids in all emplacement areas, transport of leached metals and metalloids from Clarence CCR at Charbon:

- would take between 10 and 120 years to travel 900 m from a CCR emplacement area to the nearest receptor (a groundwater bore), reaching an equilibrium concentration after approximately 25 to 360 years. The shorter transport times were associated with higher modelled hydraulic conductivity and lower effective porosity;

- the estimated concentration of leachate reaching the receptor would be approximately 5.6% of the source concentration; and
- once equilibrium is reached, cobalt, manganese and nickel concentrations would exceed the long-term irrigation value guidelines (ANZECC 2000) at the closest receptor.

A more 'realistic' groundwater model found that it would take at least 400 years for leachate to reach the nearest receptor, with equilibrium being reached after at least 1,300 years.

Given that Clarence CCR geochemistry is comparable to Charbon overburden, the Department considers that the incremental risk of contamination to groundwater receptors associated with the proposed modification is low and can be adequately managed through implementation of the proposed mitigation measures.

Mitigation measures

The key measures proposed to mitigate the risk of AMD from Clarence CCR include:

- the assessment and treatment of Clarence CCR prior to transfer to Charbon; and
- the installation of suitable capping material over Clarence CCR once emplaced at Charbon.

Assessment of CCR

The geochemical properties of Clarence CCR would be assessed on an ongoing basis prior to transfer to Charbon to confirm its suitability for use in Charbon rehabilitation, or the need for additional buffering capacity to reduce AMD risk.

The Department has recommended a condition on the Clarence consent requiring this process to be formalised in a revision to the Clarence Reject Management Strategy. This revision would be prepared in consultation with the EPA and the Resources Regulator.

Rehabilitation design

Clarence CCR material used in rehabilitation at Charbon would be treated as PAF with the capacity to generate AMD if exposed. The rehabilitation design at Charbon has been reviewed to incorporate measures to manage AMD.

A deep multi-layer moderate hydraulic conductivity capping layer would be developed on the sloping landforms with store-and-release characteristics. The capping layer would be designed to allow plant establishment and growth, while minimising deep drainage (potential AMD seepage) and mitigating upward migration of soluble salts. The cover would be 3 m thick and consist of a 2.5 m benign overburden layer (average thickness) followed by approximately 0.5 m of Southern Open Cut resistant overburden capping. This capping layer would be used in all areas at Charbon that receive Clarence CCR. The performance of the capping design would be established by field trials conducted prior to roll-out across the site.

Charbon's Mining Operations Plan (MOP) would be updated to reflect the updated rehabilitation design, however no change to the approved final landform would be required. The Resources Regulator advised that details of the PAF material management strategy including capping design would be required to be submitted in a revised MOP, along with details of the rehabilitation of any residual overburden stockpiles. The Department has recommended that these aspects be incorporated into the Rehabilitation Management Plan condition

Water quality monitoring

Water monitoring at Charbon would include:

- three new groundwater monitoring bores down gradient of each emplacement area and upgradient of receptors to detect any potential changes to groundwater quality during ongoing rehabilitation activities; and
- ongoing monitoring and management of surface water quality consistent with the Charbon WMP, which includes a requirement to monitor for potential acid mine drainage impacts.

Centennial has committed to establishing updated groundwater quality and water level trigger values in consultation with DPIE Water following collection of two years of baseline data from the proposed groundwater monitoring bores. Centennial would update the Charbon WMP to include regular monitoring of groundwater quality to provide for early detection of potential acid mine drainage impacts

Conclusion

Clarence CCR has a similar AMD risk to that of the materials currently used at Charbon for rehabilitation, and the Department considers that this risk can be appropriately managed by assessing the suitability of Clarence CCR prior to transport to Charbon and installation of a suitable capping layer to prevent migration of PAF material. Centennial would be required to update the Charbon WMP to include groundwater and surface water quality monitoring to enable detection of any changes in water quality downstream of the proposed CCR emplacements areas. Updated trigger values would be developed in consultation with DPIE Water.

The Department has recommended conditions requiring:

- the geochemical suitability of Clarence CCR to be confirmed prior to transfer to Charbon;
- all Clarence CCR imported to Charbon be managed as PAF; and
- the design, installation and maintenance of a suitable capping layer across areas subject to emplacement or filling with potentially acid forming material.

The EPA considered that any potential environmental impacts would be manageable under Centennial's existing EPL for Charbon. DPIE Water has provided a range of recommendations in relation to groundwater monitoring and updating groundwater quality triggers as part of a review of the existing Charbon WMP.

5.4 Other assessment issues

Issue	Findings	Recommendations
Biodiversity	<p>The widening and construction of haul roads at Charbon would remove 0.06 ha of native vegetation.</p> <p>A BDAR was prepared that identified the following impacts requiring an offset:</p> <ul style="list-style-type: none">• removal of 0.06 ha of Plant Community Type (PCT) 1088 – Red Box Grey Gum woodland in moderate to poor condition. This PCT is not consistent with any threatened ecological community; and• removal of 0.06 ha of habitat for <i>Chalinolobus dwyeri</i> (Large-eared pied Bat) and <i>Callocephalon fibriatum</i>	<p>The Department has recommended a condition in the Charbon consent requiring retirement of biodiversity credits to offset the biodiversity impacts.</p>

Issue	Findings	Recommendations
	<p>(Gang-gang Cockatoo), both listed as vulnerable under the BC Act.</p> <p>The removal of this vegetation would require offset of 2 ecosystem credits for PCT 1088, 2 species credits for <i>Callocephalon fibriatum</i> (Gang-gang Cockatoo) and 3 species credits for <i>Chalinolobus dwyeri</i> (Large-eared pied Bat).</p> <p>Centennial has committed to a range of mitigation measures to minimise impacts to biodiversity values associated with construction works.</p> <p>BCS is satisfied with the BDAR and offset calculations.</p>	
<p>Traffic and Transport</p>	<p>CCR would be transported from Clarence to Charbon via one loaded train per day (two train movements). Train movements on the Charbon rail loop would occur during the daytime period only.</p> <p>A level crossing assessment found that the highest average number of additional vehicles delayed by a level crossing due to the two additional train movements would be eight vehicles per day, with typical additional delays of approximately 84 to 101 seconds. This additional impact on traffic flow and journey times is considered minor.</p> <p>The existing level of safety of all level crossing was assessed as acceptable and no capacity constraints exist on the local rail network.</p> <p>Centennial has committed to ongoing consultation with TfNSW, JHR and its community consultation committees regarding rail schedules and impacts on the rail network. Consultation would commence prior to the commencement of CCR raiing.</p>	<p>The Department has recommended a condition limiting the hours of train movements on the Charbon rail loop related to CCR and water transfers (currently permitted 24/7) to the daytime period only.</p>
<p>Extension of Airly Mine Water Transfers</p>	<p>Charbon has a surplus of water (holding 336ML/year of water access licences to extract water from Reedy Creek Dam), and minimal water demands during rehabilitation. Airly, however, has insufficient water to meet processing water demands during dry periods. To avoid impacts on production at Airly, modifications to the Charbon (MOD 1) and Airly (MOD 2) consents were approved in 2019 permitting the transfer of up to 170 ML/year of water from Charbon to Airly by rail.</p> <p>The impacts of water transfer from Charbon to Airly were assessed by the Department as part of the 2019 modifications and considered to be negligible.</p> <p>The Department is satisfied that the continued transfer of water until 2037 would have minimal effect on water availability at Charbon, with sufficient water available to continue rehabilitation and closure activities. The volume of water take and associated impacts are already approved and regulated under the water sharing plan and water access licences.</p> <p>The Department is satisfied that the water, noise, transport and air quality impacts of continued water transfers would remain negligible and within the scale of existing and originally approved impacts for Charbon.</p>	<p>The Department has recommended a condition permitting water transfers to Airly to continue until 2037, consistent with the Airly consent. No other changes to existing conditions of consent are required.</p>

Issue	Findings	Recommendations
Aboriginal Cultural Heritage	<p>Additional disturbance from proposed construction activities at Charbon would occur within areas that have been extensively disturbed.</p> <p>Aboriginal cultural heritage would continue to be managed in accordance with both the Clarence and Charbon Aboriginal Cultural Heritage Management Plan.</p>	No changes to existing conditions of consent are required.
Rehabilitation	<p>The transfer of Clarence CCR to Charbon is proposed to enhance rehabilitation outcomes at Charbon. No changes to the approved final landform for Charbon or Clarence are required to support the proposed modifications.</p> <p>The transfer of surplus Clarence CCR to Charbon would not change the reject emplacement strategy and existing rehabilitation commitments for Clarence.</p> <p>Rehabilitation of Clarence would be undertaken in accordance with Clarence's MOP. Charbon's MOP would be updated to reflect the changes proposed by the modification.</p>	No changes to existing conditions of consent are required.
Air Quality	<p>Modelling of air quality impacts indicates that increases in material handling and haulage of CCR would lead to a negligible increase in particulate concentrations and dust deposition rates.</p> <p>No additional cumulative exceedances of air quality criteria are predicted as a result of the proposed modifications.</p> <p>The EPA is satisfied with the assessment of air quality impacts and the Department considers that the air quality impacts of the proposed modifications would be negligible and that Charbon and Clarence would continue to be compliant with air quality criteria under their consents.</p>	No changes to existing conditions of consent are required.
Greenhouse Gas	<p>The proposed modifications would not result in any increase to existing Scope 1 and Scope 2 emissions of Clarence or Charbon. The transfer of CCR by train would result in an increase of Scope 3 emissions of 79 t CO_{2-e} per year compared to existing approved operations due to an increase in diesel use. This represents a negligible increase in greenhouse gas emissions compared to the approved projects.</p> <p>The continued transfer of water from Charbon to Airly by train will also result in additional greenhouse gas emissions associated with increased diesel use. Emissions would be less than those predicted for CCR trains, due to the shorter travel distance between Charbon and Airly. The Department is satisfied that these additional emissions are negligible compared to the approved project emissions.</p>	No changes to existing conditions of consent are required.
Socio-economic	<p>Potential social impacts associated with the proposed modifications are limited and predominantly associated with noise and transport related impacts, which are assessed in Section 5.1. No additional direct employment would be generated by the proposed modifications, however the continued transfer of water to Airly would avoid the need to limit production at Airly during dry periods, thereby avoiding potential job losses.</p>	No changes to existing conditions of consent are required.

6 Evaluation

The Department has assessed the potential environmental, social and economic impacts of the proposed modifications in accordance with the requirements of the EP&A Act, in consultation with relevant Government agencies, Mid-Western Regional Council, Lithgow City Council and with consideration of public submissions.

The Department considers that the use of excess Clarence CCR for fill at Charbon has the potential to enhance rehabilitation outcomes for Charbon by allowing Charbon overburden material to be used more selectively in the upper layers of fill and capping.

The Department's assessment has concluded that the potential impacts of the modifications are similar in nature and scale to those of the existing operations and can be appropriately managed through existing and proposed conditions of consent.

In particular, the Department considers that Clarence CCR has a similar AMD risk to that of the materials currently used at Charbon for rehabilitation, and that this risk can be adequately mitigated and monitored. This would be achieved through the implementation of a CCR screening process at Clarence, establishment of a suitable capping layer over Clarence CCR emplacement areas, additional groundwater monitoring and the establishment of appropriate groundwater trigger levels in the Charbon WMP. To further minimise this risk, the Department has recommended conditions of consent requiring the geochemical suitability of Clarence CCR to be confirmed prior to transfer to Charbon.

The Department is satisfied that the proposed modifications would result in a negligible change in noise emissions at Clarence and Charbon compared to existing operations. While it is acknowledged that existing noise levels at residences surrounding Clarence are likely to be exceeding consent noise limits, the proposed modifications would not materially change this existing situation. In order to mitigate potential noise impacts from the proposed modifications, Centennial has committed to:

- undertaking extraction and stockpiling of Clarence CCR during the daytime period only;
- limiting the hours of rail movements on the Charbon rail loop to the daytime period only;
- undertaking rehabilitation activities at Charbon during the daytime period only; and
- pursuing negotiated agreements with noise affected residents surrounding Clarence.

In response to government agency advice, Centennial has committed to undertaking additional water monitoring, and to review and update existing management plans for each operation.

Overall, the Department's assessment has concluded that there would be minimal increase in the existing approved social, environmental or economic impacts of Clarence and Charbon associated with the transfer of Clarence CCR to Charbon for use in rehabilitation, and continued transfer of water from Charbon to Airly. Clarence and Charbon could continue to be managed under existing and proposed conditions of consent.

Consequently, the Department considers that the proposed modifications are in the public interest and should be approved, subject to the recommended conditions set out in the notices of modification (see **Appendix F**).

7 Determination

It is recommended that the Director – Resource Assessments, as delegate of the Minister for Planning and Public Spaces:

- **considers** the findings and recommendations of this report;
- **determines** that the applications MP 08_0211 MOD 2 and DA 504-00 MOD 6 both fall within the scope of section 4.55(2) of the EP&A Act;
- **accepts and adopts** the findings and recommendations in this report as the reasons for making the decision to approve the modification applications;
- **agrees** with the key reasons for approval listed in the draft notices of decision;
- **modifies** the consents MP 08_0211 and DA 504-00; and
- **signs** the attached approvals of the modifications (**Appendix F**).

Recommended by:



20 August 2021

Gabrielle Allan

Principal Planning Officer

Resource Assessments

The recommendation is **Adopted / ~~Not adopted~~** by:



20 August 2021

Steve O'Donoghue

Director – Resource Assessments

as delegate of the Minister for Planning and Public Spaces

Appendices

Appendix A – Modification report

Appendix B – Submissions

Appendix C – Submissions report

Appendix D – Additional Information

Appendix E – Consolidated Consents

Appendix F – Notices of modification

Regarding Charbon, see the Department's website at: <https://www.planningportal.nsw.gov.au/major-projects/project/32616>

Regarding Clarence, see the Department's website at: <https://www.planningportal.nsw.gov.au/major-projects/project/30996>