

Response to Recommendations of the Planning Assessment Commission Review Incorporating a Revised Preferred Project Report

Cobbora Coal Project

Prepared for Cobbora Holding Company Pty Limited | 13 August 2013



Response to Recommendations of the Planning Assessment Commission Review Incorporating a Revised Preferred Project Report

Final

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Prepared by Philip Towler

Approved by Paul Mitchell

Position Associate Director

Position Director

Signature



Signature



Date 13 August 2013

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Version	Date	Prepared by	Reviewed by
V1	17/5/13	P.Towler	B. McLennan
V2	13/8/13	P.Towler	P. Mitchell



T +61 (0)2 9493 9500 | F +61 (0)2 9493 9599

Ground Floor | Suite 01 | 20 Chandos Street | St Leonards | New South Wales | 2065 | Australia

emgamm.com

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1 Introduction

1.1 Background

The Cobbora Coal Project (the Project) is being developed by Cobbora Holding Company Pty Limited (CHC) to construct and operate a coal mine near Cobbora in Central Western NSW. The mine will extract 20 million tonnes per annum (Mtpa) of coal, which, after processing, will provide about 12 Mtpa of product coal for the domestic and export markets. The mine will operate for 21 years and will be rehabilitated during and beyond this period. CHC is owned by the State of NSW and is the proponent for the Project. On 1 July 2013, the NSW Government announced that it will not be constructing or operating the Project but that it will be leased or sold.

Approvals are sought to construct and operate the Project in accordance with the *Cobbora Coal Project Environmental Assessment* (EA) (EMM 2012), the *Preferred Project Report and Response to Submissions* (PPR&RTS) (EMM 2013) and the revised Project described in this report (*Response to Recommendations of the Planning Assessment Commission Review Incorporating a Revised Preferred Project Report*, referred to as the 'Responses to PAC review report').

Any Project Approval will attach to the affected land. Therefore, a different developer or operator will have exactly the same obligations as CHC and will be obliged to adhere to all conditions of approval. Project Approval conditions will require that the future owner or operator carries out the Project generally in accordance with the:

- EA, PPR&RTS and this report;
- statement of commitments; and
- Project Approval conditions.

1.2 Project determination process

Approval for the Project is being sought under the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The Project is being assessed under transitional arrangements for a Part 3A Major Project application under the EP&A Act. The application was lodged with the then Department of Planning on 5 January 2010.

On 27 September 2012, an EA for the Project was submitted to the now Department of Planning and Infrastructure (DP&I).

On 29 November 2011, the Commonwealth Department of Sustainability, Environment, Water, Communities and Population (SEWPaC) determined that the Project will require approval as a 'controlled action' under the EPBC Act. On 29 November 2011, SEWPaC accredited the Part 3A assessment process as its pathway for the Project.

The EA was prepared by EMGA Mitchell McLennan Pty Limited (EMM), with input from external specialists. It was prepared in accordance with the requirements of SEWPaC, the DP&I and other government agencies, as given in the Director-General's Environmental Assessment Requirements (DGRs) issued on 4 March 2010 and modified on 14 October 2011 and 23 December 2011.

The EA was placed on public exhibition for six weeks between 5 October 2012 and 16 November 2012. Hard copies were displayed at the DP&I in Sydney, Warrumbungle Council's offices in Coolah and Dunedoo, Mid-Western Regional Council Offices in Mudgee and Gulgong, the offices of Dubbo and Wellington Councils, and at the Nature Conservation Council in Newtown. Electronic copies of the EA are available from the DP&I and CHC websites. A total of 232 submissions were received from government agencies, councils, groups and individuals.

A Preferred Project Report and Response to Submissions (PPR&RTS) was subsequently publically exhibited in March 2013, and was also available from the DP&I and CHC websites.

The Minister for Planning and Infrastructure requested that the NSW Planning Assessment Commission (PAC) review the merits of the Project and conduct hearings during the review. The PAC was constituted by Gabrielle Kibble AO, Paul Forward and Brian Gilligan. Public hearings were held in Dunedoo on 10 December 2012. The PAC Review report was provided to CHC on 19 April 2013.

The PAC Review report considers the merits of the Project as a whole. The report concluded that "[t]he Commission has also made a number of recommendations to ensure the mine is appropriately designed and managed, and finds that the project could be approved, subject to conditions". The PAC Review report is supported by advice from the following experts:

- Emeritus Professor Jim Galvin – merits of the mine plan;
- Dr Steve Perrens – water issues; and
- Dr Mark Burns – rehabilitation options.

The DP&I will prepare the Director-General's Environmental Assessment Report and draft Project Approval conditions. These will be provided to the PAC, which will determine whether to approve the Project, and if so, the conditions of the Project Approval.

Following approval under State legislation, the Commonwealth Minister for Sustainability, Environment, Water, Population and Communities will determine the Project under the EPBC Act.

1.3 Objectives of this report

This report provides CHC's responses to the PAC's recommendations and describes changes to the Project arising from these recommendations. It also provides comments and clarifications to issues raised in the PAC Review report, including the attached expert reports.

1.4 Changes to the Project

As described in the EA (Section 3.21) and the PPR&RTS (Section 1.3), the Project's design has evolved since planning began in 2009, with changes and refinements progressively occurring as the coal resource and environmental features become better understood and as a result of ongoing consultation with stakeholders. The PPR&RTS describes changes to:

- the disturbance area and mining area;
- tailings management, including emplacements size and locations;
- dimensions of the eastern out-of-pit waste rock emplacement (B-OOP E);

- final land use arrangement;
- water management, including dams, pipelines and the water balance;
- rail spur alignment;
- coal handling and preparation plant (CHPP) arrangement;
- the locations of some buildings and structures;
- road realignments;
- construction fleet;
- out-of-hours construction; and
- construction accommodation village footprint.

The following further changes to the Project that result from the PAC recommendations are described in Chapter 3:

- development schedule;
- reducing the disturbance footprint and mining area;
- maintaining the biodiversity corridor north and east of mining areas A and C;
- regeneration (including assisted regeneration) of low quality agricultural land north and east of mining areas A and C;
- mining sequence to reduce the number of areas mined simultaneously;
- substantially reducing the mine fleet as a consequence of less mining areas operating concurrently;
- reduced tailings emplacement areas reflecting the refined understanding of tailings volumes;
- reduced out-of-pit waste rock emplacements footprints (particularly B-OOP E) to minimise impacts to vegetation;
- location of the mine infrastructure area (MIA) to reduce the disturbance footprint;
- coal handling and preparation plant — a mechanical stacker and reclaimer replacing dozers reducing noise emissions;
- roads:
 - mine access road — based on the repositioned MIA;
 - haul roads — based on the revised mine plan;
 - intersection of Spring Ridge Diversion road with Dapper Road — improving road safety;
- water management:

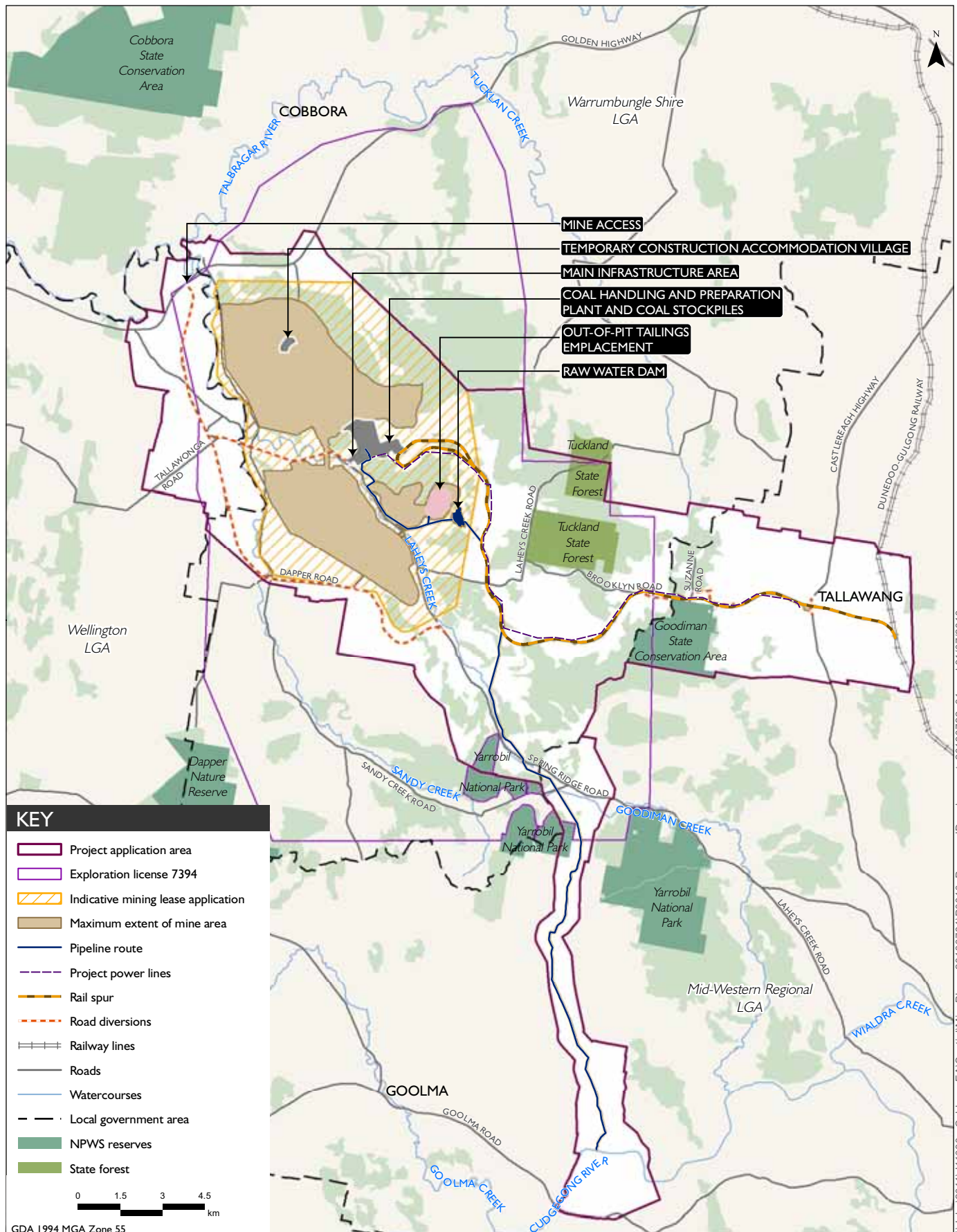
- decreased water demand — based on revised mine plan and reflecting the refined understanding of tailings;
- additional diversion and catch drains — to better manage runoff;
- effluent disposal method — to allow onsite treatment and reuse;
- minor realignment of water supply pipeline — marginally reducing its length by improved alignment of some bends;
- amended transmission line route close to the rail balloon loop to avoid native vegetation;
- mine closure — final land use arrangement including a smaller final void; and
- construction hours — previously described in the PPR&RTS but not in Chapter 3 of the report.

The development proposal is shown in Figure 1.1.

This report forms a PPR under s75H(6) of the EP&A Act and includes the following information to meet DP&I requirements:

- an outline the proposed changes to the Project;
- revised maps for the Project;
- assessment of the impacts of the proposed changes;
- a revised statement of commitments for the Project; and
- an updated justification for the revised Project.

The changes to the Project have been considered by appropriate technical specialists and assessments revised where required. The suitability of the management and monitoring measures has also been reviewed. The environmental assessment of these changes is provided in Chapters 4 to 15. An updated statement of commitments is presented in Chapter 16 and an updated Project justification in Chapter 17.



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2 Responses

2.1 PAC responses summary

A summary of CHC's responses to each of the Commission's recommendations is provided in Table 2.1. Further detailed information in response to recommendations is presented in the remainder of the chapter.

Table 2.1 Responses to PAC's recommendations

No.	Recommendation	CHC response	Additional information
1	<i>Integrated land management plan</i>		
	An integrated land management plan for the Proponent's full suite of landholdings (including mining and offset areas) is a matter of some urgency and should be prepared and implemented immediately rather than being tied to the commencement of mining operations. The plan should include:	Accepted. As highlighted in the PAC Review report, much of the land surrounding the Project has been degraded by past agricultural practises. It is proposed to prepare a draft integrated land management plan for review by the Director-General of the DP&I within 6 months of receiving NSW Project approval. The plan will be prioritised and parts will be implemented prior to finalisation of the plan to the satisfaction of the Director-General, eg land improvements. CHC will engage a Land Care Specialist (see response to Recommendation 3) and other external specialists to scope, develop and implement the plan. A suggested model for the implementation of the plan is provided in Section 2.2.1. Preparation of the integrated land management plan started in July 2013 including fieldwork to assess the land capability and its current condition.	Section 2.2.1
1a)	Mapping of the agricultural capability and biodiversity regeneration potential of the landholdings and a strategic land use study to identify the best land use for each area, aiming to:	See below.	
	Regenerate biodiversity offset areas to the maximum extent possible prior to commencement of mining;	Accepted. Regeneration of proposed biodiversity offset areas purchased by CHC has started by removing livestock from some properties and erecting fencing to prevent entry of livestock. Details of biodiversity offset areas regeneration will be provided in the biodiversity offset management plan that will be prepared following agreement of the biodiversity offset package (Appendix G) with DP&I, OEH and SEWPaC. The biodiversity offset calculations do not include any credits for regeneration and therefore any regeneration will be in addition to the agreed compensation value of the offsets. The biodiversity offset management plan will commence prior to Project construction. Un-impacted CHC-owned land that is not part of the biodiversity offsets package will be managed to improve its agricultural and/or conservation value as described in the integrated land management plan.	-

Table 2.1 Responses to PAC's recommendations

No.	Recommendation	CHC response	Additional information
	Maximise sustainable agricultural production on the remainder of the land, including through the rehabilitation and repair of eroding areas of the site;	The mine will be progressively rehabilitated. The results of regeneration and rehabilitation monitoring will be reported to the Director-General. Accepted. Sustainable agricultural production will be maximised through the land tenure and management program (see below). Licence agreements will require that land is managed so as to prevent the exacerbation of existing land degradation. Maps showing degraded areas on CHC-managed and licensed land that will be targeted by repair programs will be provided in the integrated land management plan. The plan will prioritise areas for repair and provide a schedule for completing the works. Funding for these works has been included in CHC's 2013/14 and 2014/15 budget.	-
b)	A land tenure and management program, considering the existing land tenure arrangements, and suitable arrangements at each stage, (including prior to the commencement of mining, during mining operations and post mining) detailing the mechanisms and timetable for transitioning to active land management in accordance with the strategic land uses identified in a);	Accepted. As part of the integrated land management plan, CHC has already commenced a review of current land tenure and management strategies. As advised to the DP&I and the PAC by memo dated 21 March 2013 (<i>Supplementary information — February to May 2013</i> report, Appendix H), it is intended that properties will be aggregated into larger parcels which will be tendered for long term licences through an open advertised process. Tenderers will be required to demonstrate their understanding and experience of sustainable land management. Licence agreements will require land managers to implement good land management practises. The first property was advertised in late May 2013 with 58 respondents. All agricultural properties will eventually be licensed out by CHC under this program with tenders sought as current licence arrangements expire on each property. A probity auditor has been engaged to oversee the tender process.	Section 2.2
c)	An employment, training and skills development program aimed at improving local land management techniques, resources and knowledge. This should include adaptive land management, informed by a system of trials of various agricultural and biodiversity rehabilitation and endemic vegetation reestablishment techniques, supported by a local seed bank of endemic species;	Accepted. See response to Recommendation 2.	-

Table 2.1 Responses to PAC's recommendations

No.	Recommendation	CHC response	Additional information
d)	An integrated bushfire management plan;	Accepted. A bushfire management plan, which will form part of CHC's integrated land management plan, is currently being prepared. This involves two stages. Stage 1 (complete) — mapping to meet Rural Fire Service (RFS) and National Parks and Wildlife Services (NPWS) requirements. Preliminary fire management plans were completed in February 2013 and have been provided to the local and regional RFS and NPWS. Stage 2 (current) — Detailed mapping is continuing and an action plan will be prepared. Engagement with RFS, NPWS, councils and landholders to finalise the plan will be undertaken following completion of the detailed mapping. The bushfire management plan will be extended to incorporate offsets managed by CHC once the offset package is agreed with the NSW and Commonwealth governments.	-
e)	A program to fast track work to regenerate biodiversity offset areas, this work should commence immediately and be managed adaptively, with the aim of delivering the projected biodiversity outcomes, and demonstrating success by year eight of the mine plan (see recommendation 17 c) and d)).	Accepted in part. As stated above, details of biodiversity offset areas regeneration will be provided in the biodiversity offset management plan.	-
2	<i>Funding for land management</i>		
	The creation of a fund to provide for the preparation and implementation of the Integrated Land Management Plan will have multiple benefits and, in particular, should be used to rehabilitate parts of the site not impacted by future mine activities and to trial future rehabilitation techniques. In delivering these functions, creation of local training opportunities and provision of local economic stimulus should also be prioritised.	Accepted. CHC has included funds for the preparation of an integrated land management plan in its 2013/14 budget. Fieldwork associated with the plan commenced in July 2013. CHC's existing land management budget has been expanded to include the implementation of the integrated land management plan. A total of \$1.4m has been allocated for land management activities between July 2013 and June 2015, including: • soil erosion remediation; • fencing; • weed management; • pest animal control; • establishment of a biodiversity corridor (see response to Recommendation 4); and	-

Table 2.1 Responses to PAC's recommendations

No.	Recommendation	CHC response	Additional information
		local land management training opportunities. CHC will work collaboratively with farm tenants to improve agricultural outcomes. The expectation is that tenants under long term licences will at least maintain farm productivity but will also aim to improve the sustainable management of the farm. As the landowner, CHC will contribute to some capital improvements on farms, including new fencing and some weed and feral animal control. The budget allocation also includes erosion control, rehabilitation and assisted regeneration in the biodiversity corridor which will be established north and east of mining areas A and C. This commitment is new work which would not necessarily be undertaken as part of agricultural activities in a different land ownership scenario. Expenditure has been budgeted in advance of the preparation of the integrated land management plan. It will be reviewed and increased as necessary pending the recommendations and priorities determined in the plan. CHC is also currently finalising the appointment of a Land Care Specialist to oversee implementation activities (see response to Recommendation 3). Employment costs of the Property Manager and Land Care Specialist are in addition to the budget for the activities listed above.	
3.	<i>Appointment of an experienced land manager</i>	Any approval granted should include a condition requiring the Proponent to engage a land manager with expertise and experience in the adaptive implementation of a comprehensive land management and rehabilitation plan for both mine areas and other landholdings. Accepted. A Property Manager has been permanently based at the Cobbora site office on Spring Ridge Road since August 2011. He provides a principal point of contact for the local community and is responsible for leasing and management CHC-owned land. He has managed the programs described in Section 2.2.2iii. The Property Manager has earth science, property development and business qualifications and more than 20 years of experience managing large rural property portfolios. Land management activities undertaken to date include fencing, weed management, erosion control works and feral animal management. CHC is currently finalising the recruitment of a Land Care Specialist with particular expertise in land rehabilitation and regeneration of native vegetation. This position will support the Property Manager, along with other external specialists, in the development and implementation of the integrated land management plan.	-

Table 2.1 Responses to PAC's recommendations

No.	Recommendation	CHC response	Additional information
4.	Mine plan refinements		
	The mine plan should be revised and optimised considering the following objectives:	See below.	-
	Reducing the impacts on threatened species and endangered ecological communities, particularly by: relocating the B-OOP E overburden dump and tailings emplacement areas, and avoiding or minimising intrusion of mining into the main remnant vegetation corridor (on the north eastern portion of the site); [The PAC recommends that the mine plan is revised to:	Accepted in part. The mine plan has been revised so that only two or one mining areas will operate at once (except for a transition period of around one year). Mining areas A and C will be opened up initially and then one closed and replaced by mining area B. In addition, CHC has relocated the mine infrastructure area (MIA) to be adjacent to the coal handling and preparation plant (CHPP). The revised mine plan is presented in Appendix A. The mine plan revision considered:	Appendix A
	- Relocate B-OOP E waste rock emplacement (overburden dump) and tailings emplacement areas; - minimise intrusion of mining in areas A and C into the main remnant vegetation corridor (on the north-eastern portion of the site); - offset or avoid impacts to <i>Tylophora linearis</i> in mining area B (see response to Recommendation 17); - minimise the extent of any final void (see below); - reduce the number of simultaneously active mining areas; and - minimise the area exposed at each mine stage (see below).]	- the PAC's recommendations; - optimisation of the pit shells and limits of the mining areas; - the mining methods; - yields and coal quality; - coal size distributions; - groundwater inflows; - geotechnical aspects; and - reducing the final voids. Alternatives to the proposed location of B-OOP E waste rock emplacement, the extent of clearing required in the remnant vegetation corridor east and north of mining areas A and C, and areas to replace coal lost by avoiding areas to the north were examined in detailed. The revised mine plan: - reduces disturbance of the remnant vegetation corridor north and north-east of mining areas A and C (see response to Recommendation 17d); - reduces the impacts on threatened species and endangered ecological communities by reducing the size of the B-OOP E waste rock emplacement; - reduces the area of the land that would be exposed at each stage of mining; - reduces the final voids to one location only and reduces the final void area that	

Table 2.1 Responses to PAC's recommendations

No.	Recommendation	CHC response	Additional information
		that will not be suitable for any agricultural enterprise (Class VIII); - reduces the length of operational haul roads and hence water requirements for dust suppression (see response to Recommendation 19); - reduces the land area requirements for mine support infrastructure and CHPP; and - reduces the noise impacts associated with the mine support infrastructure maintenance activities (short and sharp sounds) as the new location is further away from and shielded from the nearest receptors. A revised Project description is provided in Chapter 3. As explained in Appendix A, the revised mine plan still includes mining area C but reduces the northern extent of mining area A. While it is possible to maintain two active mining areas as opposed to three, CHC has made significant optimisation concessions to address the PAC review recommendation to reduce the number of simultaneous active mining areas. The revised mine plan reduces flexibility if the geological model is inaccurate. This will increase coal blending and stockpiling activities, and hence costs, to ensure that projected coal quality specifications are satisfied. CHC believes that the concessions and additional commitments associated with the revised mine plan are an acceptable compromise to meet the PAC recommendations.	
	Minimising dust, particularly by reducing the land area that would be exposed at each stage of mining;	Accepted. The area of land that will be exposed during mining has been reduced with the revised mine plan. In addition, further reductions in dust emissions will result from the reduced length of operational haul roads (see Section 3.10.2).	Appendix H
	Maximising the land capability and productivity of the rehabilitated final landform; and	Accepted. The final landform and land use has been updated based on the revised mine plan (see Appendix H). The land capability and productivity of the rehabilitated final landform will be further detailed in the mine rehabilitation management plan.	Appendix F

Table 2.1 Responses to PAC's recommendations

No.	Recommendation	CHC response	Additional information
	Minimising the extent of any final void.	Accepted. The revised mine plan removes the requirement for final voids in mining areas A and C. The final lake void in mining area B remains part of the proposal.	Appendix A
	The Proponent must demonstrate how exposed areas would be minimised and managed, including the effective use of interim cover and the effective and timely establishment of permanent cover.	Accepted. The revised mine plan reduces the number of simultaneously operating mining areas from three to two or one in most years, minimising the exposed area. The use of effective and timely establishment of interim and permanent cover will be described in the mine rehabilitation management plan.	Section 2.2.5
5.	<i>Best practice standards</i>		
	The Project should be required to meet best practice standards in all areas, during both construction and operational stages.	Accepted.	-
6.	<i>Air quality control measures</i>		
	All measures for control of air pollution should deliver air quality outcomes that are equal to or better than the air quality outcomes identified in the Environmental Assessment and that correspond to best practice and the application of best available technology. This must include:	Accepted.	-
	best practice coal loading and profiling, to minimise dust emissions from coal transportation; and	Accepted. CHC will install a bin-based weighing and loading system that minimises dust emissions from coal transport.	-
	a real time predictive and reactive air quality management system informed by a state of the art air quality monitoring network.	Accepted. The EA and PPR&RTS statement of commitments includes implementation of a real time predictive and reactive air quality management system.	-

Table 2.1 Responses to PAC's recommendations

No.	Recommendation	CHC response	Additional information
7.	<i>Air emissions limits</i>		
	Air emission limits should be applied to the project to ensure the air emissions are equal to or better than the predictions in the Environmental Assessment.	Accepted. Given the discussion in Section 6.1.1 of the PAC Review Report, it is understood that '[a]ir emission limits' refers to air quality criteria measured at receivers rather than measuring the total emissions from the site. A range of measures including dust control, a real time predictive and reactive air quality management system and measurement of airborne dust levels (including compliance monitoring) will be implemented to minimise dust emissions and to monitor dust levels. In May 2013, CHC installed three tapered element oscillating microbalance (TEOM) air quality monitors. The levels of PM₁₀ and PM_{2.5} will be measured at these stations to build on the PM₁₀ baseline used in the EA.	Section 2.2.3
8.	<i>Provisions for landholders affected by air emissions</i>		
	Where air quality criteria are predicted to be exceeded the Proponent should be required to give the landholder the option of: acquisition of the residence and associated property; or mitigation measures including air conditioners and first flush separation devices on rainwater tanks; or an agreement negotiated between the two parties.	Accepted.	-
9.	<i>Mine owned residences where air quality criteria are exceeded</i>		
	The Proponent's commitment not to lease residences affected by air quality exceeding the criteria should be formalised in the conditions of any consent issued.	Accepted.	-

Table 2.1 Responses to PAC's recommendations

No.	Recommendation	CHC response	Additional information
10.	<i>Minimise blasting</i>		
	The Proponent should be required to reduce the number of blasts to minimise amenity impacts on the surrounding community.	Accepted. The EA proposes that up to 600 blasts per year will be required. However, this has been reduced to less than 400 blasts per year based on the reduced number of active mining areas and increased understanding of the coal resource. The proposed blasting regime will meet all of the blasting guidelines listed in the PAC review report.	Section 2.2.4
11.	<i>New roads constructed outside blast buffer zones</i>		
	The Proponent should be required to ensure that the realigned Spring Ridge Road is adequately buffered from mining activities and built to an adequate Austroads standard. The buffer should be sufficient, so that the road is not affected by blasting activities on site (ideally the road should be able to remain open during periods of blasting on the mine site).	Accepted in part. Accepted: The Spring Ridge Road diversion will be constructed to the Austroads <i>Guide to Road Design</i> 2010 standard as described in the EA. Accepted in part: The Spring Ridge Road diversion will be the only public road within 500 m of mining. There will be a 500 m buffer between blasting and this road up until Year 21 when it will be reduced to 410 m. The PAC's recommendation 'that ideally the road should be able to remain open during periods of blasting on the mine site' will therefore be met for the majority of the mine life. However, the buffer will gradually decrease in the final year. The Spring Ridge Road diversion will need to be temporarily closed (10 to 20 minutes) during blasting as the buffer distance decreases in these final years. It is currently anticipated that there will be six blasts in total within 500 m of the road. The Spring Ridge Road diversion was aligned to use existing road easements north of the privately owned properties containing residences 1198 and 1199. These residences are 2 km south of the section of Dapper Road that will form part of the Spring Ridge Road diversion (Figure 2.1). These properties have not been purchased because the owners accept that they will be near the mine (about 3.5 km). The Spring Ridge Road diversion will be built during Project construction and will continue to replace the existing northern section of Spring Ridge Road after the mine has closed. Allowing for possible changes to blasting practises over the next 20 years, CHC commits to ensuring there are no more than a total of 12 blasts within 500 m of the diversion over the life of the Project. If each requires the diversion road to be closed	-

Table 2.1 Responses to PAC's recommendations

No.	Recommendation	CHC response	Additional information
		for 15 minutes, the total time the road will be closed over the life of the mine will be three hours. These short road closures will occur over a much shorter period than the small but permanent increases in road noise at residences 1198 and 1199 if the road was moved outside of this buffer zone.	
12. Noise control measures			
	The Proponent should be required to apply best practice noise control and management measures, including best available technology (including locomotives), engineering controls and predictive and reactive real time management practices.	Accepted. Feasible and reasonable measures will be applied where required to meet noise criteria at private residences (excluding those adjacent to the existing rail lines). These will include predictive and reactive real time management practices. Rail hauliers will be required to meet the conditions of Environment Protection Licence (EPL) 3142, including locomotive noise emission limits, to use the ARTC managed rail lines used to deliver coal to customers or to Newcastle for export. Engineering controls and predictive and reactive real time management practices will be in accordance with the conditions of this EPL.	-
13. Provisions for landholders affected by noise emissions			
	Any residence that is predicted to be impacted by a noise level of more than 35 dB(A) should be given the option of either: acquisition of the residence and associated property; or mitigation measures including double glazing, air-conditioning, insulation and acoustic barriers; or a negotiated agreement.	Accepted. Although it is noted that this deviates from the less stringent conditions that have been part of long standing government policy and applied to the majority of approved coal projects over the last decade.	-
14. Noise limits			
	Noise limits should be applied to ensure the project's noise emissions are equal to, or better than, the predictions in the Environmental Assessment and Preferred Project Report and Response to Submissions.	Accepted.	-

Table 2.1 Responses to PAC's recommendations

No.	Recommendation	CHC response	Additional information
15.	<i>Heavy vehicle movement restrictions</i>		
	Heavy vehicle movements on public roads must be restricted to the hours of 7 am to 6 pm Monday to Friday, 8 am to 1 pm Saturday and at no time on Sundays or public holidays, except as directed by the Police, or Roads and Maritime Services, or other emergency services for safety or emergency reasons.	Accepted. This restriction needs to be defined to allow it to be applied. CHC commits to the following: heavy vehicles (greater than a tare weight of 30 tonnes) will not be permitted to deliver goods or materials to the mine outside of the following hours: - Monday to Friday: 7 am to 6 pm; - Saturday: 8 am to 1 pm; and - no deliveries will be permitted on Sundays or public holidays. Vehicles with a tare weight greater than 30 tonnes will generally be received on site ensuring that these hours are adhered to. Oversize trucks (usually float movements, eg excavators, dump trucks, cranes, large equipment) need to adhere to times stipulated by the Roads and Maritime Services (RMS) permits. Generally these permits would require movement outside of peak times which could include overnight movements. Therefore, the restrictions above may be varied as directed by the Police, or Roads and Maritime Services, or other emergency services for safety or emergency reasons. Further, heavy vehicles (greater than a tare weight of 30 tonnes) will not be permitted to wait beside local roads around the mine outside of these hours prior to making a delivery. This will allow heavy vehicles to use the state road network appropriately particularly when travelling long distances, eg from Brisbane.	-
16.	<i>Lighting</i>		
	When detailed design is available and prior to the commencement of any mining, a comprehensive lighting assessment should be undertaken, in consultation with the Siding Springs Observatory, to ensure mitigation measures are developed and implemented to minimise night lighting impacts, particularly from night time train movements	Accepted. Preparation and implementation of a comprehensive lighting assessment, in consultation with the Siding Springs Observatory, is part of the previous statement of commitments in the EA and PPR&RTS.	

Table 2.1 Responses to PAC's recommendations

No.	Recommendation	CHC response	Additional information
17.	<i>Biodiversity conservation</i>		
a)	The Proponent must work with the OEH and DSEWPC to resolve the issues that have been raised by the agencies.	Accepted. CHC has been discussing biodiversity management, including the offsets package, with OEH and SEWPC over the last 18 months and will continue to do so. The most recent meeting with the OEH, SEWPaC, the DP&I and CHC was on the 24 April 2013. A report describing the proposed biodiversity offset package (Appendix G) was provided to these agencies on 16 July 2013 and discussions are continuing.	-
b)	Additional offsets, for the impact on <i>Tylophora linearis</i> , should be identified prior to the commencement of mining in area B, or mining in this pit should be set back to avoid the population identified and provide a sufficient buffer zone.	Accepted. The nine individual <i>Tylophora linearis</i> plants will be impacted by mining in Year 10. Targeted surveys to identify <i>T. linearis</i> in the proposed offsets were undertaken between 6 and 9 May 2013. A total of 45 individual <i>T. linearis</i> plants were located in two separate patches within the biodiversity offset areas and will be protected. This will provide an offset ratio (impacted:protected) of 1:5 and is believed to be sufficient. These offset areas are part of the biodiversity offsets package (Appendix G) that is currently being discussed with the DP&I, the OEH and the SEWPaC.	-
c)	Early results from adaptive management of possible offset lands should inform finalisation of the overall offset strategy in order to protect or enhance biodiversity values while minimising impacts on the agricultural and pastoral activities which are so significant for the local community and economy.	Accepted in part. Offsets have been selected to compensate for biodiversity impacts that cannot be avoided or minimised. The biodiversity offset package is provided in Appendix G. CHC-owned offset lands will be managed by CHC. Initial management will include repairing fencing, stock removal, completion of biodiversity surveys and high priority remedial works. This will be included in the integrated land management plan. The ongoing management of these lands will be detailed in the biodiversity offset management plan that will be prepared following agreement on the biodiversity offset package. There will be detailed monitoring of restoration and rehabilitation performance within the offset lands. This monitoring will be based on the mine rehabilitation monitoring program provided in the Mine Rehabilitation Strategy (Appendix G of the PPR&RTS) and the recommendations of Dr Mark Burns provided in the PAC Review report (Table 2.5).	-

Table 2.1 Responses to PAC's recommendations

No.	Recommendation	CHC response	Additional information
d)	The biodiversity conservation value of regenerated areas proposed as offsets must be demonstrated to the satisfaction of the Director-General prior to clearing and mining operations proceeding beyond year 8 of the mine plan.	Not accepted (recommendation no longer relevant due to revised mine plan). Regeneration will occur in three areas: - the biodiversity offsets; - CHC-owned land; and - the biodiversity corridor north of mining areas A and C. Biodiversity offsets The total biodiversity offset area is 9,254 ha (Appendix G). Of this, 7,674 ha contains vegetation meeting the descriptions of the biometric vegetation types database (woodland, regrowth and derived native grassland). The remaining 1,580 ha contains a mixture of exotic/improved pasture (298 ha), cleared/disturbed areas (dams, tracks and roads etc) (389 ha) and native pasture (893 ha). The biodiversity offset calculations are based on the protection of woodland, regrowth and derived native grassland. Regeneration of the remaining areas will be determined as part of the preparation of the biodiversity offsets management plan. CHC-owned land The integrated land management plan will describe the regeneration of CHC-owned land as described in the response to Recommendation 1a. Biodiversity corridor north of mining areas A and C The revision of the mine plan to address a range of the PAC recommendations has meant that vegetation clearing will occur in the remnant vegetation corridor east and north of mining areas A and C before Year 8. It will not be possible to demonstrate the success of rehabilitation/restoration prior to this clearing occurring. The alternative approach to ensuring the ongoing viability of the remnant vegetation corridor is presented in detail in the Revised Mine Plan report (Appendix A). This will be achieved through: - regeneration of native vegetation (including assisted regeneration) on low quality agricultural land north of mining areas A and C to enhance the existing remnant vegetation corridor; and - revision of the mine plan to avoid clearing the narrowest sections of the existing remnant vegetation corridor. The regeneration (passive and assisted in a 185 ha area) in combination with the	Appendix A

Table 2.1 Responses to PAC's recommendations

No.	Recommendation	CHC response	Additional information
		revised mine plan will create a biodiversity corridor between 900 m and 1,350 m wide north of mining areas A and C. This will be detailed in the integrated land management plan and regeneration progress will be monitored and reported to the Director-General.	
18.	<i>Rehabilitation of mining areas</i>		
	In formulating and implementing the Integrated Land Management Plan, the Commission recommends that detailed consideration be given to the specialist advice received by the Commission, relating to the rehabilitation of the areas disturbed by mining.	Accepted. Responses to the recommendations on the rehabilitation advice are provided in Section 2.2.5.	Section 2.2.5
19.	<i>Water management</i>		
	A water management plan, that satisfactorily addresses the issues raised in Dr Perrens' review report (and the submission by the NSW Office of Water), will need to be provided prior to the commencement of any works on site, applying the following principles:	Accepted in part. CHC will prepare: - a construction surface water management plan and a construction groundwater water management plan in consultation with Environment Protection Authority (EPA) and NSW Office for Water (NOW) and to the satisfaction of the Director-General of the DP&I prior to the start of construction; and - an operations surface water management plan and an operations groundwater water management plan in consultation with EPA and NOW and to the satisfaction of the Director-General of the DP&I prior to the start of the initial box-cut. Detailed responses to Dr Perrens comments are provided in Appendix D.	Appendix D
a)	Tailings should be treated mechanically in order to minimise water requirements for the project unless the Proponent can demonstrate that an alternative would satisfy best practice standards;	Accepted in part. The <i>Tailings Management Review</i> (Appendix B) considers the PAC's recommendations regarding mechanical dewatering of tailings. It is not proposed to use mechanical dewatering initially as best practice standards can be achieved through the use of optimised conventional tailings management. CHC commits to monitoring the development of dewatering technologies including undertaking testwork and piloting if a technology appears to be environmentally and economically promising. As a minimum, a feasibility study will be undertaken to determine the preferred dewatering option before in-pit tailings placement is required. Further details are provided in Section 2.2.6 and Appendix B.	Section 2.2.6 Appendix B

Table 2.1 Responses to PAC's recommendations

No.	Recommendation	CHC response	Additional information
b)	Mine water management facilities must be designed and managed to retain runoff from pits and all active mine areas;	Accepted. CHC commits to the following: all contaminated water (runoff from pit, plant and all mine active areas) will be captured and retained on site within the mine water dams and recycled for use in the CHPP.	-
c)	Facilities must be in place to transfer water from sediment dams to the mine water dams, in the event that the water does not comply with the discharge criteria.	Accepted. CHC commits to the following: where water from sediment dams does not comply with discharge criteria then it will be transferred to the mine water dams and recycled for use in the CHPP.	-
20.	<i>Employment and training</i>		
	Opportunities and provision for training and employment for Aboriginal people in the region should be developed in consultation with Warrumbungle and Wellington Shire Councils and the local TAFE colleges.	Accepted. As described in the PPR&RTS (Section 20.2.2), programs to meet this PAC Recommendation have been underway since 2012. CHC has been working with Aboriginal groups and training providers for more than 12 months to develop a comprehensive Aboriginal employment and business strategy. The development of a Cobbora Coal Project TAFE mine training package with specific modules for Aboriginal students is completed. Training is customised to meet industry and participant needs. The TAFE modules will provide various pathways and different entry and exit points for those undertaking training. These modules are ready for implementation prior to Project construction. As of July 2013, the Central West Aboriginal Mining Steering Committee (comprising the key Aboriginal stakeholders in the region) supported this package. This will be implemented prior to Project construction. Alternatively, a new arrangement will be agreed with Aboriginal stakeholders to meet the commitment to "work closely with the Aboriginal community to promote ongoing employment" (See Section 16).	-
21.	<i>Voluntary Planning Agreements and economic stimulus through local infrastructure projects</i>		
a)	Warrumbungle and Wellington Shire Council's lists of infrastructure projects should be considered by the Proponent in its negotiations for the Voluntary Planning Agreements and contributions should be reasonable and equitable, reflecting the actual impact on Councils' infrastructure.	Accepted.	-

Table 2.1 Responses to PAC's recommendations

No.	Recommendation	CHC response	Additional information
b)	These infrastructure projects should also be considered by Government, to provide economic stimulus to the local economies while the future timing of the project is being considered.	This is a wider recommendation that will need to be considered by the NSW Government. The Member for Dubbo, Troy Grant MP, will lead a group of Parliamentarians to prepare a local transition plan with the CHC. This group will include the Member for Barwon, Kevin Humphries MP, and the Member for Orange, Andrew Gee MP.	-
22.	<i>Program of infrastructure works</i>		
	A program of road and other infrastructure works and the timing for these works should be included in any final approval of the project.	Accepted. The EA and PPR&RTS describe the program of works to be completed as part of construction and operations. This describes the required timing of these works in relation to other components of the Project, eg the Spring Ridge Road diversion needs to be completed before the existing northern section of Spring Ridge Road is closed. The works to minimise construction impacts, eg intersection upgrades, will be completed as soon as possible after the start of construction to minimise any impacts.	-
23.	<i>Traffic management plan</i>		
	The TMP should include a work place travel plan for the project.	Accepted. A work place travel plan for the operations workforce will be prepared prior to operations commencing. A work place travel plan is not required for the construction workforce given that the majority of the workforce will be housed in the temporary accommodation village.	-
24.	<i>Requirements of the Rural Fire Service and support to the local brigade</i>		
	In addition to standard bushfire management conditions and the requirements prescribed by the NSW Rural Fire Service in its submissions dated 8 November 2012 and 12 December 2012 — the Proponent should be required to relocate the Dapper Brigades Shed in consultation with the NSW Rural Fire Service and provide sufficient personnel and resources to maintain the Dapper Rural Fire Service Brigade, for the life of the mine.	Accepted. CHC will relocate the Dapper Brigade Shed in consultation with NSW Rural Fire Service. Given that the Dapper Brigades Shed will not be owned or operated by CHC, it is anticipated that local planning approval will be sought for the new shed location. CHC is advised that the Dapper Rural Fire Service Brigade may be merging with the Cobbora Rural Fire Service Brigade. During construction and operations, CHC will contribute to resourcing the brigade servicing the area surrounding the Project and providing mine personnel to support the brigade for the life of the Project.	-

Table 2.1 **Responses to PAC's recommendations**

No.	Recommendation	CHC response	Additional information
25.	<i>Consultation on Aboriginal heritage management plan</i>		
	In addition to standard conditions for the protection and management of Aboriginal cultural heritage items, registered Aboriginal parties should be consulted before the Aboriginal Heritage Management Plan is finalised.	Accepted. A draft Aboriginal heritage management plan was sent to the Registered Aboriginal Parties on 22 February 2013 with a request to provide comments on the plan. Comments were received from Murong Gialinga Aboriginal & Torres Strait Islander Corporation, and Mingaan Wiradjuri Aboriginal Corporation. These comments have been addressed. It its review of the PPR&RTS in March 2013, the OEH found that '[t]he Aboriginal Heritage Management Plan (the 'Plan') (provided separately by the Proponent) has also been reviewed by OEH and is considered adequate. Finer details of the Plan will be discussed with the Proponent during the consultation with OEH as required by the Department of Planning and Infrastructure'. The plan will be revised to address Project changes prior to the start of construction. The updated plan will be provided to Registered Aboriginal Parties for comment.	-
26.	<i>Minimise, monitor and report on greenhouse gas emissions</i>		
a)	Appropriate conditions should be imposed to ensure best management practices for minimising greenhouse gas emissions are adopted, and mine buildings and equipment are energy efficient.	Accepted.	-
b)	A greenhouse gas monitoring and reporting regime should be included in the mine management plan to review and assess mitigation measures and to - identify and implement improvements, where they can be made.	Accepted.	-

2.2 Detailed responses

2.2.1 Recommendation 2: integrated land management plan

i CHC acquisitions

Since 2009, CHC has acquired more than 348 km² of land in and surrounding the Project application area (PAA). These properties have generally been acquired where there will be mining or infrastructure, where noise and/or air quality impacts will exceed assessment criteria or where they will form part of the biodiversity offset package. The residences purchased by CHC as of July 2013 are summarised in Table 2.2 and shown in Figure 2.1. The acquisition program is nearing completion with current purchases focusing upon land requirements for the rail line, pipeline easements and biodiversity offsets.

Table 2.2 Ownership of residences in and around PAA (13 June 2013)

	Privately owned	CHC owned	TOTAL
Inside PAA	22	68	90
Outside PAA*	73	27	100
Total	95	95	190

Note: * Residences assessed as potential sensitive receivers in the EA.

All acquisitions have relied on private treaty negotiations. The agreed treaties have given every vendor a nominal license to allow them to remain on the property for a minimum 12 month following settlement. The owners of properties acquired earlier in the acquisition program were offered extensions to this period of 18 months, up to 30 June 2013. Interim arrangements are currently being put in place to facilitate either relocations or ongoing occupation until the implementation of longer term leasing arrangements under the integrated land management plan.

Owners properties acquired more recently have typically taken licenses to remain on their former properties for two to three years. As a result, the vast majority of CHC-owned properties remain occupied, generally by their former owners.

The majority (93%) of commercially productive farmland acquired by CHC remains occupied. Of the 63 commercial farms acquired by CHC, only seven have been vacated by their former owners, with all but one of these being reoccupied by new farming tenants. In every case, these new tenants have improved agricultural production involving cultivation, cropping and increased stocking.

Improved land management is also addressing land degradation on these farms. Farms which are now being opportunistically cropped that had no recent history of cropping include St Edwards, Glenroy, Ellismayne, Goolaringa, Mt Dapper and Medway. Other properties which continue to be cropped include The Heights, Brooklyn, Dapper, Willow Park and Medway. The single exception is where a property is vacant while land restoration is undertaken by CHC.

CHC has also acquired a number of “lifestyle properties” (about 80 ha or less) which have limited agricultural capability. Of these, approximately half remain as residential tenancies.

ii Land tenure and management program

CHC has prepared land tenure and management strategies, and is finalising a framework for holistic long-term land management based on aggregation of land parcels and flexible licence tenure agreements. The objective will be to maximise the sustainable commercial return to the licensees of CHC-owned agricultural land and to improve land management practices.

The land management program will be further informed by the land capability assessment undertaken for the integrated land management plan. Fieldwork to provide a more comprehensive understanding of land capability commenced in July 2013.

The strategy will aggregate land having similar characteristics and potential uses. Land not required for mine operations will be licenced for a term of five years with an option exercisable by the licensee to extend the term for a further five years. Lands that may experience disruption due to construction or operations will have a more flexible short term licence (generally two to three years).

Experienced farmers will be selected by open public tender and will need to agree to a commercially acceptable licence agreement that will require that the property continues to be operated as an agricultural enterprise. As previously stated, the licence agreement will also require that the land be managed so as to prevent exacerbation of existing land degradation and the ongoing restoration of these areas.

The tender process will be as follows:

- tenders will be advertised in The Land newspaper and the local print media for a minimum of four weeks;
- prospective tenderers will be provided with a general information package, including licence term, tendering timetable, evaluation methodology, map, invitation to tender form and example licence agreement;
- property inspection days will be held for prospective tenderers;
- tenders will be evaluated using the selection criteria, with weight given to tenderers who have a proven track record of adoption and implementation of the NSW Department of Agriculture PROfarm principles; and
- successful tenderers will be announced.

The first property, “Avondale” (about 800 ha) was advertised in late May 2013 with 58 respondents. Site visits and proposals for a five year licence, plus an option for a further five years, will be completed in early September 2013. All agricultural properties will eventually be licenced out by CHC under this program with tenders sought as current licence arrangements expire on each property.

A probity auditor has been engaged by CHC to oversee the tender process.

Licence agreements will include a range of good farm management practices including that:

- the property is run as an ongoing agricultural enterprise commensurate with equivalent properties in the region;

- all boundary fences are maintained in stock proof condition. On those properties where boundary fences need to be upgraded, a program will be agreed with the licensee. Generally, this will be on the basis that the materials will be supplied by CHC and the fence will be erected to the required standard at the licensee's expense;
- internal fences are maintained by the licensee in a stock proof condition; and
- a weed management plan is prepared and implemented. Guidance on effective weed management and the weed management plans principles will be included in the tender documentation.

These revisions to CHC's land tenure and management program will be incorporated into the integrated land management plan.

iii Integrated land management plan scope

The PAC Review report recommends that an integrated land management plan is prepared with the following objectives:

- to minimise the total area of land taken out of productive agricultural and pastoral activities;
- to minimise the further rural property acquisitions needed for biodiversity offsets;
- to provide early demonstration of effective rehabilitation of degraded woodlands and derived grass lands;
- to minimise the impact on the local community and economy; and
- to achieve best practice dust suppression.

It goes on to state:

The scope of the land management plan should include the lease terms and conditions applying to any land owned by the Proponent. The plan should be formulated with local input as well as specialist advice and must include provisions for:

- immediate, medium term and long term targets and strategies;
- integrated management of properties to achieve, optimum agricultural, pastoral or biodiversity outputs;
- monitoring and adaptive management strategies to ensure that practical lessons from onsite experience are recognised and applied.

In the immediate-term, and prior to the preparation and finalisation of an integrated land management plan, CHC will continue with a range of land management activities as described in Section 2.2.1(ii) and 2.2.2(i).

The integrated land management plan will provide medium and long-term targets and strategies to balance, at times competing, agricultural, pastoral and biodiversity outcomes.

It is proposed that the integrated land management plan is developed as follows:

- a framework is developed based on the PAC recommendations;
- each commercial farm property is mapped (farm boundaries, land capability, condition, assets and bushfire risks) and a farm resource plan is prepared;

- farm boundaries and operational characteristics are determined based on licence conditions, economic and commercial considerations;
- the natural resources on offsets and other CHC-owned land (eg lifestyle properties) are mapped;
- areas for restoration or rehabilitation are identified and prioritised based on the farm resource plans and mapping of other areas;
- property specific restoration or rehabilitation plans are developed;
- commercial agricultural metrics, key performance indicators, and a monitoring and reporting program are developed;
- employment and skills training projects are developed based on the required restoration or rehabilitation; and
- the integrated land management plan is prepared that describes an adaptive management program and that it is periodically reviewed and updated.

The agricultural metrics and reporting obligations in commercial farm licences will enable regular reports of individual and aggregated properties to determine the agricultural and rehabilitation success of the plan.

The first phase of the preparation of the preparation of this plan has started. This includes developing:

- the integrated land management plan structure;
- a conceptual erosion control strategy that identifies areas of gully erosion for a pilot remediation program;
- a land aggregation plan identifying land packages optimised for agricultural enterprises and sustainable land use; and
- a budget for ongoing land management.

Site visits to assess land capability and current condition commenced in July 2013.

2.2.2 Recommendation 3: funding for land management

i Past and current land management funding

CHC owns and, in conjunction with licence holders, manages approximately 348 km² (3.7 km² is actually under perpetual lease).

CHC has undertaken a range of land management activities under the direction of the Property Manager. These activities include:

- installation of over 25 km of new rural fencing across the PAA (cost in excess of \$250,000);
- weed management (more than \$90,000 to date):
 - weed identification and distribution mapping across 10,000 ha;

- spraying of about 1,000 ha during the 2012/13 summer;
- targeting and eradication of three Weeds of National Significance;
- erosion control initiatives focusing on the repair of existing dams and the installation of new dams over several properties; and
- feral animal management involving the survey and eradication of feral pigs and contributions to annual fox baiting programs.

ii Future land management funding

CHC has included funds for the preparation of an integrated land management plan in the 2013/14 budget. Fieldwork associated with the plan commenced in July 2013.

CHC's existing land management budget has been expanded to include the implementation of the integrated land management plan. A total of \$1.4m has been allocated for land management activities between July 2013 and June 2015, including:

- soil erosion remediation;
- fencing;
- weed management;
- pest animal control;
- establishment of a biodiversity corridor (see response to Recommendation 4); and
- local land management training opportunities.

Expenditure has been budgeted in advance of the preparation of the integrated land management plan. It will be reviewed and increased as necessary based on the recommendations and priorities determined in the plan.

CHC is also currently finalising the appointment of a Land Care Specialist with particular expertise in land rehabilitation and regeneration of native vegetation. This position will support the Property Manager, along with other external specialists, in the development and implementation of the integrated land management plan. Employment costs of the Land Care Specialist, Property Manager and other specialists are in addition to the budget for the activities listed above.

2.2.3 Recommendation 7: air emissions limits

A range of measures including dust control, a real time predictive and reactive air quality management system and measurement of airborne dust levels (as part of compliance monitoring) will be implemented to minimise dust emissions and to monitor dust levels.

The PPR&RTS (Section 13.2.11) summarises the proposed control measures for the four top-ranked sources of particulate matter emissions. As stated in this section, these are from Section 6.4.2 of EA Appendix M. They are also replicated in Table 14.4 'Management measures for top four dust emission sources' in the EA. These are measures to be implemented:

- water application (75% control efficiency);
- restricting the average vehicle travel speed on haul roads of 40 km/hr as modelled (not restricting the maximum speed to 40 km/hr as suggested in the PAC Review report);
- routine maintenance of haul roads to ensure low silt content within road surface material;
- watering of travel route;
- ceasing/modifying operations during dry, windy conditions;
- drop height minimisation;
- cease/modify operations during dry, windy conditions; and
- progressive rehabilitation of emplacements.

The air quality model and the resulting predictions are based on the implementation of these management measures. It is accepted that the Project will need to implement these measures and that they should be part of the approval conditions.

The real time predictive and reactive air quality management system will be used to modify site activities to reduce dust emissions if compliance criteria are predicted to be exceeded.

In May 2013, three tapered element oscillating microbalance (TEOM) air quality monitors were installed in the PAA (Table 2.3). The PM₁₀ and PM_{2.5} levels will be measured at these stations to extend the PM₁₀ baseline used in the environmental assessment and to allow the site-specific relationship between PM_{2.5} and PM₁₀ levels to be established. Meteorological station, MET02, will continue to operate.

These new monitoring stations are in optimal positions to monitor the mine. The air quality and meteorological station installed in 2009 at MET01 has been decommissioned.

Table 2.3 **Air quality monitoring stations**

Location	Coordinates (approximate)	Comments
A	704108E, 6440269N	West of the mine. Downwind during prevailing east winds
B	713116E, 6449609N	North of the mine. Immediately south of Cobbora Village
C	719298E, 6443038N	East of the mine. Upwind during prevailing east winds

2.2.4 Recommendation 10: minimise blasting

i Blasting guidelines

The *Technical Basis for Guidelines to Minimise Annoyance due to Blasting Overpressure and Ground Vibration* (ANZEC 1990) specifies recommended comfort criteria for:

- airblast overpressure level;
- ground vibration peak particle velocity;
- time of blasting; and

- frequency of blasting.

The intent of these criteria is to minimise annoyance and discomfort to persons at sensitive sites (eg residences, hospitals and schools) caused by blasting.

The guidelines also state, “[t]he recommended criteria apply only to the minimisation of annoyance and discomfort arising from blasting”. This is the same objective as the PAC’s recommendation to “minimise amenity impacts on the surrounding community”.

The guidelines recognise, “[t]he recommended criteria are for guidance only and may be varied if necessary to suit local site conditions”.

With regard to times and frequency of blasting, the guidelines state:

2.3.1 Blasting should generally only be permitted during the hours of 9:00am – 5:00pm Monday to Saturday. Blasting should not take place on Sundays or Public Holidays.

2.3.2 Blasting should generally take place no more than once per day. (This requirement would not apply to minor blasts such as for clearing crushers, feed chutes, etc.).

2.3.3 The restrictions on times and frequency of blasting referred to in 2.3.1 and 2.3.2 do not apply to:

- Those premises where the effects of the blasting are not perceived at noise sensitive sites.

2.4. Acceptable Variations

It is recognised that under some circumstances or at certain mines blasting that cannot comply with the criteria referred to in 2.1 [Airblast Overpressure], 2.2 [Ground Vibration] and 2.3 [reproduced above] will have to be carried out. Environmental authorities should apply controls for such blasting with appropriate consideration to the circumstances applying.

Blasting will be conducted to current best practice standards including those in the listed in the PAC Review report:

- *Technical Basis for Guidelines to Minimise Annoyance due to Blasting Overpressure and Ground Vibration* (ANZEC 1990);
- Australian Standard AS2187.2-2006: Explosives – Storage and Use, Part 2: Use of Explosives;
- *Code of Practice: Prevention and Management of Blast Generated NOx Gases in Surface Blasting* (Australian Explosives Industry and Safety Group Inc 2011); and
- *Queensland Guidance Note QGN 20, Management of Oxides of Nitrogen in Open Cut Blasting* (Queensland Department of Employment, Economic Development and Innovation 2011).

Compliance with the ANZEC (1990) blast frequency guideline is discussed below.

ii Planned blasting

The EA states that up to 600 blasts per year will be required. However, this has been reduced to less than 400 blasts per year based on the reduced number of active mining areas and increased understanding of the coal resource.

The total number of blasts will be a combination of generally larger waste rock blasts, up to 3,500 kg maximum instantaneous charge (MIC), and smaller coal blasts up to 300 kg MIC (Table 2.4).

Table 2.4 **Indicative annual blasts**

Type	Number of blasts							Maximum all years
	Year 1	Year 2	Year 4	Year 8	Year 12	Year 16	Year 20	
Waste¹	100	69	115	129	127	188	216	216 (Year 20)
Coal²	111	130	188	200	200	200	176	200 (multiple years)
Total	211	199	303	329	327	388	392	397 (Year 18)

Notes: 1. Maximum MIC: 3,500 kg.

 2. Maximum MIC: 300 kg.

The ANZEC (1990) guidelines recommend that blasting (excluding minor blasting) does not occur on Sundays or a public holidays and that blasting should generally take place no more than once per day. This guideline is met when there are about 300 blasts a year carried out on separate days or where there are no noise sensitive sites where the effects of blasting are perceived.

There will be less than 300 waste rock blasts annually that will be heard at local residences. The EA found that the proposed blasting regime will meet the airblast overpressure and ground vibration criteria (EA Section 16.5.9) at all but one private residence (3177) for a 3,500 kg MIC blast. This residence has been purchased by CHC. Airblast overpressure and ground vibration criteria will be met at the nearest private residence (3108) which is 2.3 km from the edge of the mining area.

While there will be up to an additional 200 coal blasts annually, these will be small, at the base of the pit (in the coal seam), face away from the closest edge of the pit and will be more than 2.3 km from the closest residence. A 300 kg MIC blast at this residence will result in a peak particle velocity (ground vibration) of 0.2 mm/s. It is unlikely that these blasts will be perceived at noise sensitive sites and, based on the ANZEC (1990) guidelines, do not need to be considered with regard to frequency of blasting.

The proposed blasting regime will therefore meet all of the guidelines listed in the PAC review report. Reducing the total number of blasts to 300 annually would require larger blasts that would potentially have greater impacts than the proposed blasting regime.

The design of each blast will consider weather conditions, ground conditions, location in the pit, distance to sensitive features (eg residences, and Aboriginal and non-aboriginal heritage items). Ongoing monitoring and review of blasting will assist to determine the most appropriate practices (eg optimising blasting size and patterns) to minimise the amenity impacts on the local community.

2.2.5 Recommendation 18: rehabilitation of mining areas

Responses to recommendations provided in the PAC Review report Appendix 6, Advice on Rehabilitation, are provided in Table 2.5.

Table 2.5 Responses to Dr M. Burns advice on rehabilitation

No.	Recommendation*	CHC response
1	<i>Expand the mine rehabilitation strategy (MRS) into a mine rehabilitation management plan (MRMP)</i>	
	It is recommended that the existing Mine Rehabilitation Strategy (MRS) be expanded to include the suggested improvements in the GSS Advice on Rehabilitation Report (and any other feedback) and thus be considered as the final guiding Management Plan (MRMP) for the Mine. The suggested title of this enhanced document should be 'Cobbora Holding Company Pty Limited — Mine Rehabilitation Strategy and Management Plan'. This expansion capitalized on the existing good and comprehensive format of the current MRS, as well as keeping all rehabilitation guidance in one single document (rather than spread over two or three separate documents).	Accepted. The mine rehabilitation strategy will be expanded to form a mine rehabilitation management plan.
2	<i>Recommended alternative soil organic enhancement strategy</i>	
	A two stage strategy is proposed to address the short fall in soil organics. The strategy is based on growing a dense, sterile, cereal cover crop which will be ploughed (incorporated) into the topsoil layer at maturity. The stages are as follows: Stage 1 — following bulk shaping, surface drainage construction and topsoil re-spreading, the site will be deep ripped the and sowed with a heavy cover crop of either Japanese Millet (warm season) or Oats (cool season) at 40 kg/ha + 200 kg/ha of DAP fertiliser. Stage 2 — as the crop matures (4 to 6 months), the standing sward will be deep ripped (parallel to the contour) and incorporated into the topsoil layer. Immediately after ripping, the preferred final crop (tree or pasture seed) will be sowed.	Accepted.
3	<i>Reuse of sodic sub-soil</i>	
	Reconsider the widespread reuse of sodic sub-soil. A more limited application for reinstated Class III land only is recommended.	Accepted. Sodic sub-soil will only be applied to reinstated Class III land.
4	<i>Optimize the potential for natural regeneration</i>	
	Optimize the potential for natural regeneration by undertaking a more detailed assessment of natural regeneration potential in key areas and overlay this result with re-vegetation offset (and other relevant maps) in the MRS. This may result in adjustment of proposed ecological boundaries and may help maximize the benefit of natural regeneration.	Accepted.

Table 2.5 Responses to Dr M. Burns advice on rehabilitation

No.	Recommendation*	CHC response
5	<i>Construct stock proof fencing</i>	
	Construct stock proof fencing (with access gates) around the proposed areas of natural regeneration. Stock must also be excluded from all rehabilitated and artificially revegetated areas across the lease holding. Past experience has shown that limited/controlled grazing of these areas is rarely successful and total stock exclusion over long periods of time is strongly recommended.	Accepted. Details of proposed long-term grazing of offset properties will be described in the biodiversity offset management plan.
6	<i>Fire Management Strategy</i>	
	Incorporate all areas into the Fire Management Strategy	Accepted. See Table 2.1 PAC Review Recommendation 1d
7	<i>Erosion repair</i>	
	Prepare a strategy to identify and repair currently eroding areas. This should be incorporated into the integrated land management strategy.	Accepted. See Table 2.1 PAC Review Recommendation 1a
	<i>Re-use of felled timber</i>	
8	Identify timbered areas to be cleared	Accepted. Maps showing the timbered areas to be cleared will be provided in the biodiversity management plan. The maps will be used to ensure that plans are in place to effectively re-use timber before it is felled.
9	Mulch approximately 70% of felled timber volume — compost and spread as additional organic amendment on steeper rehabilitated slopes (mainly peripheral slopes). Assuming a total area of 1,901ha of woodland is felled, and that composting will significantly reduce volume, it is estimated that sufficient composted material should be available to treat at least 300–400 ha of steeper slopes. Composted mulch should be spread and incorporated (ripped in) prior to sowing of the cover crop.	Accepted. Where possible, mulched vegetation will be immediately re-spread onto reshaped, topsoiled areas. Mulch will be stockpiled for subsequent spreading on areas that are unavailable for immediate application. This will be detailed in the Vegetation Clearance Strategy that will be part of the biodiversity management plan.
10	Haul and spread remaining coarse felled timber (30%) on selected rehabilitated and offset areas to enhance habitat.	Accepted. Where available, large hollow trees will not be mulched and will be hauled back onto specific areas for habitat reinstatement. All coarse woody debris will be re-spread in accordance with the benchmark values for the communities to be re-established from the Bio-banking tools. This will be detailed in the Vegetation Clearance Strategy.

Table 2.5 Responses to Dr M. Burns advice on rehabilitation

No.	Recommendation*	CHC response
11.	<i>Re-use of bush rock</i>	
	There are significant surface bush rock formations in some proposed clearing areas. This resource has the potential to be used in both erosion control structures (rock lining of drains) and in habitat enhancement areas similar to the concept proposed for felled timber. Consider the potential to reuse bush rock in selected habitat enhancement areas.	Accepted. Bush rock will be reused as far as practical. This will be detailed in the mine rehabilitation management plan.
12.	<i>Seed Collection</i>	
	Initiate a native tree and shrub seed collection program as soon as possible.	Accepted. CHC has commenced collecting seed and will follow up with cuttings from two of the threatened plants in the Project Area. The propagation and care of seedlings is being completed by a local commercial nursery until CHC has OEH approval of the translocation plan (as an appendix to the biodiversity offset management plan) to incorporate these into offset areas. CHC will also be salvaging plants for translocation during clearing works. The biodiversity management plan will include a list of the main eucalypt species that has been stated for inclusion in the rehabilitation areas to ensure that seed is collected at suitable times prior to construction. Initial seed collection will target endangered ecological communities which are rare in the area and where seed collection opportunities are limited. Direct seed application will be used to bolster seed contained naturally in re-spread topsoil. This will greatly assist the re-establishment of local species and genetic strains. As many native species flower and seed irregularly, advanced collection will ensure as much seed as possible will be collected prior to vegetation clearing. A high priority will be given to seed collection from areas of imminent disturbance. Seed will be collected from undisturbed sites throughout the life of the mine and will be collected by qualified and experienced seed collectors. Wherever practicable, tree felling will be timed to coincide with maximum seed harvest. The collection strategy will necessitate careful monitoring of plant flowering and seeding cycles.

Table 2.5 **Responses to Dr M. Burns advice on rehabilitation**

No.	Recommendation*	CHC response
13	<i>Weed control</i>	
	One minor suggestion for improvement of weed control is to construct topsoil dumps with very shallow slopes so that the surface, weed and infested layer can be easily scalped off and disposed of prior to recovery of the underlying, clean material.	Accepted. This will be detailed in the mine rehabilitation management plan.
14	<i>Expand re-vegetation specifications</i>	
	If the proposal to progress the existing MRS to MRMP status is acceptable, more detailed revegetation strategies need to be developed.	Accepted. The revegetation specification will be expanded in the mine rehabilitation management plan.

* Dr M. Burns, *Cobbora Coal Project Advice on Rehabilitation, Appendix 6 of PAC Review Report (April 2013)*.

2.2.6 Recommendation 19: water management - dewatering

The *Tailings Management Review* (Appendix B) considers the PAC's recommendations regarding mechanical dewatering of tailings. A summary is provided below.

The PAC Review report suggests that Dr Perrens has made a 'compelling case' for the introduction of mechanical dewatering based on:

- an apparent high risk of water shortage during dry climate conditions attributed to uncertainties in individual components of the water balance; and
- the assertion that base costs are 'in line' with mechanical dewatering options costs.

Revisions to the mine plan (see PAC Review Recommendation 4), additional testwork and the planned increase of operational thickener underflow density to 40% by mass, have significant impacts on water demand for pumping of tailings. Life of mine water demand will decrease from 36.2 GL reported in the PPR&RTS to 29.6 GL. Figure 3.1 in Appendix B shows that water savings occur in 11 of the 21 years of mine life, with a peak saving of 1.1 GL/y in year 21. The peak increase in demand is 0.23 GL/y in Year 8.

Further, seepage from all storage types has been demonstrated to be negligible or minor, and with the introduction of a mine dewatering borefield (see Section 3.11.2), the uncertainty around water sources is also reduced.

It is believed that potential for water shortages resulting from water balance uncertainty has been resolved even in 'dry' years within the constraints of the licensed water entitlements for the Project, and as such mechanical dewatering is not required.

Based on the Cobbora Coal Project's site specific parameters, the economic assessment indicates that the lower risk mechanical dewatering alternatives are at least 15% more expensive in net present value (NPV) terms than tailings emplacement. Thus mechanical dewatering costs on this Project are not 'in line' with tailings emplacement, but significantly more expensive (Appendix B).

In the assessment (based on the revised mine plan) to determine "best practice standards" as applied to dewatering, CHC has reviewed:

- water conservation;
- greenhouse gas emissions;
- disturbance footprints;
- economic; and
- technology risks.

The assessment is location specific. While tailings emplacement is the least preferred in terms of water recovery, it generates the lowest amount of greenhouse gases (eg 40% less than belt press filters), is the most economic and offers the least technology risk. The tailings emplacements for the Project (one out-of-pit in a waste rock emplacement and three in-pit) minimise the disturbance area. This is in contrast to many older mines that have developed tailings emplacements remote from the mining areas in otherwise undisturbed land.

It is believed that the use of tailings emplacement meets the requirement of “best practice standards” for tailings management for the Project.

Despite securing Water Access Licences from the water market, CHC is committed to minimising and recycling water usage on site, to limit the necessity to draw on these licenced entitlements. This commitment is supported by the extraction strategy agreement with State Water Corporation which will maximise the amount of water taken from operational surplus flows rather than releases from Windamere Dam.

As the Project is developed, knowledge of the resource will increase, as will the understanding of the suitability of alternative tailings management technologies. CHC is committed to monitoring the development of dewatering technologies. This includes undertaking testwork and piloting if a technology appears to be environmentally and economically promising. As a minimum, a feasibility study will be undertaken to determine the preferred dewatering option before in-pit tailings placement is required.

3 Project revisions

3.1 Project summary

The Project summary is presented in Table 3.1 of the PPR&RTS (February 2013) is replicated in Table 3.1 below with significant Project changes from the PPR&RTS underlined.

Table 3.1 Project summary

Aspect	Description
Proponent	Cobbora Holding Company (CHC) Pty Limited.
Project life	The mine life is 21 years.
Project schedule	Project construction will take about 2.5 years.
Mine	Mining will occur in three areas covering some <u>3,765 ha</u> (4,130 ha proposed in the PPR&RTS). <u>Generally, only two or one mining area will operate concurrently.</u> (It was proposed to operate three concurrently in the PPR&RTS). Waste rock emplacements, sedimentation dams and out-of-pit tailings emplacements will be developed progressively.
Resource and ROM coal production	The JORC-compliant coal resource to be mined is 441 Mt (measured), 306 Mt (indicated) and 745 Mt (inferred), as at 30 April 2012. Run-of-mine (ROM) coal will be extracted at a rate of up to some 20 Mtpa.
Mine waste	Maximum waste rock thickness is 75 m, minimum 0.3 m.
Waste rock	So the mining pits can be established, excavated waste rock will be initially placed in out-of-pit emplacements, which will also form environmental bunds. Once the pits are established, material will primarily be placed in open cut mine voids so as to minimise out-of-pit emplacement.
Coal handling and preparation plant	Saleable product will be coal that has been beneficiated (cleaned) via dense medium separation and possibly some unprocessed bypass coal. ROM coal will be processed to produce up to 12 Mtpa of product coal.
Coarse rejects and tailings	Coarse rejects will be emplaced with waste rock; very fine rejects (tailings) will be initially pumped to <u>one</u> out-of-pit tailings emplacement (two proposed in the PPR&RTS) and then to a series of in-pit emplacements within the open cut mine voids so as to minimise out-of-pit impacts.
Rail spur and balloon loop	Coal will be loaded onto trains at a dedicated rail spur and balloon loop. A rail spur and balloon loop (28 km in total) will link the coal loading facility to the Dunedoo–Gulgong Railway at Tallawang.
Locomotive provisioning facility	A locomotive provisioning facility, owned and operated by a third party, will be built subject to coal hauliers' requirements, along the rail spur on land CHC owns.

Table 3.1 **Project summary**

Aspect	Description
Water demand, supply and disposal	Based on the mine stages assessed (see Section 5.3), water demand will be up to 3,930 ML per year (4,340 ML in the PPR&RTS) largely for process water in the CHPP and dust suppression. The main water sources will be harvested surface water and water collected in the mine. Where required, the Project will use up to 3,311 ML of water per year from the Cudgegong River, as allocated under the Project's high security Water Access Licences. Water from the Cudgegong River will be delivered by a pipeline 26 km long from a pumping station 5 km south of Mebul to the site's raw water dam. Water management will focus on separating clean water, overburden water (sediment laden runoff from disturbed mining areas), infrastructure water (runoff from infrastructure areas), pit water (water from the base of the pit) and process water. Clean water will be diverted around disturbed areas and returned to the environment; overburden water will be harvested and used on site or displaced from sedimentation dams into creeks if water quality criteria are met; infrastructure water will be harvested and pumped to the process water circuit. Pit water and process water will be re-used and will not be discharged off-site.
Mine access	Access will be via a road that will intersect with a diversion of Spring Ridge Road off the Golden Highway. All Project-related heavy vehicles and the majority of Project-related light vehicles will use this route.
Employment	The average construction workforce is projected to be about 350 people, peaking at about 550. The operations workforce is projected to be about 300 in mining Year 1, increasing to peak at about 590 people between Year 11 and 14.
Operations hours	Mining operations will occur 24 hours a day, seven days a week.
Rehabilitation	Mine rehabilitation will be progressive.
Decommissioning and closure	The final landform will be developed to be consistent with the surrounding topography and land use (ie a mix of agricultural land and woodland). <u>In the PPR&RTS, it was proposed that two of the three mining areas would be back-filled to above the final water table with a void lake left in the third mining area. It is now proposed that the voids in mining areas A and C will be further backfilled to blend with the topography, as opposed to leaving depressions, and that there will be a final void in mining area B that will contain a void lake.</u> Mine infrastructure generally will be removed and the areas rehabilitated at the end of mining operations, although some infrastructure (eg the water supply pipeline) may, in agreement with landholders and regulatory agencies, be left to provide additional water to local users.

3.2 Development schedule

The development schedule will remain as described in the EA other than the start of Project construction will not be mid-2013 but will be determined when the Project is sold or leased.

3.3 Disturbance footprint and mining area

The Project's disturbance footprint will be about 4,230 ha (4,540 ha in the PPR&RTS) of which the mining areas (including haul roads) will be 3,765 ha (4,130 ha in RTS&PPR). The disturbance footprint continues to allow for small variations to the final alignment and siting mine components based on detailed engineering investigations.

The disturbance corridors remain as described in the PPR&RTS:

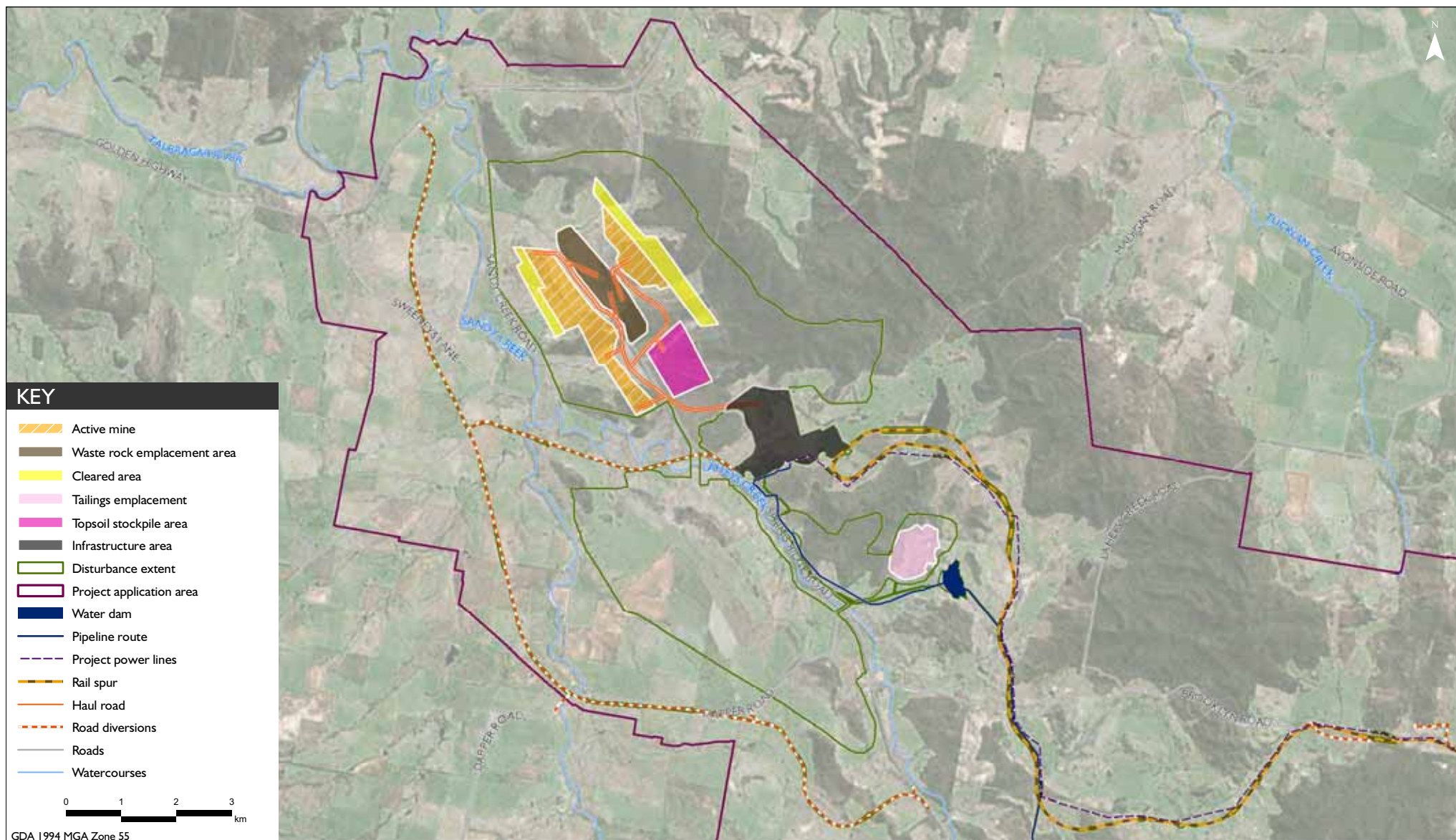
- the water pipelines will disturb an area up to 20 m wide;
- the rail spur will disturb an area about 20 to 100 m wide;
- powerlines will generally be located across agricultural land and a small area will be disturbed when each pole is erected; an allowance has been made to clear a corridor 40 m wide where powerlines traverse areas containing trees; and
- road realignments will disturb an area about 10 m wide.

Some areas outside of the above corridors may be temporarily disturbed during construction. These will be on agricultural land generally owned by CHC. They will not be in areas containing threatened flora species, endangered ecological communities and woodland. Areas of archaeological sensitivity will be avoided where possible. Where areas of archaeological sensitivity cannot be avoided, they will be collected or salvaged in accordance with the Aboriginal heritage management plan. These temporary construction areas will be rehabilitated to an agricultural land use as soon as they are no longer required for construction.

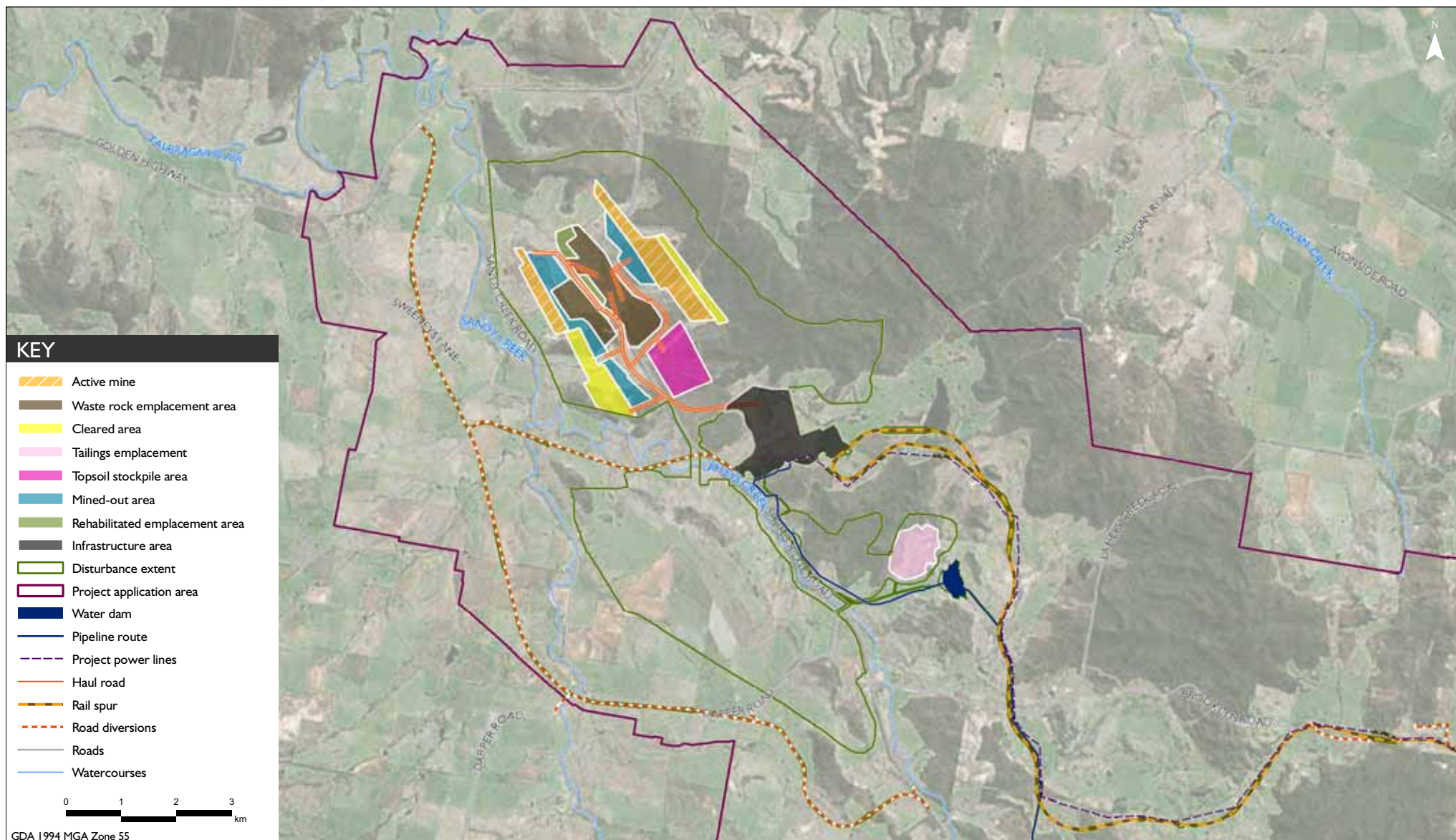
The revised mine layout is presented in Figure 3.1.

3.4 Mining

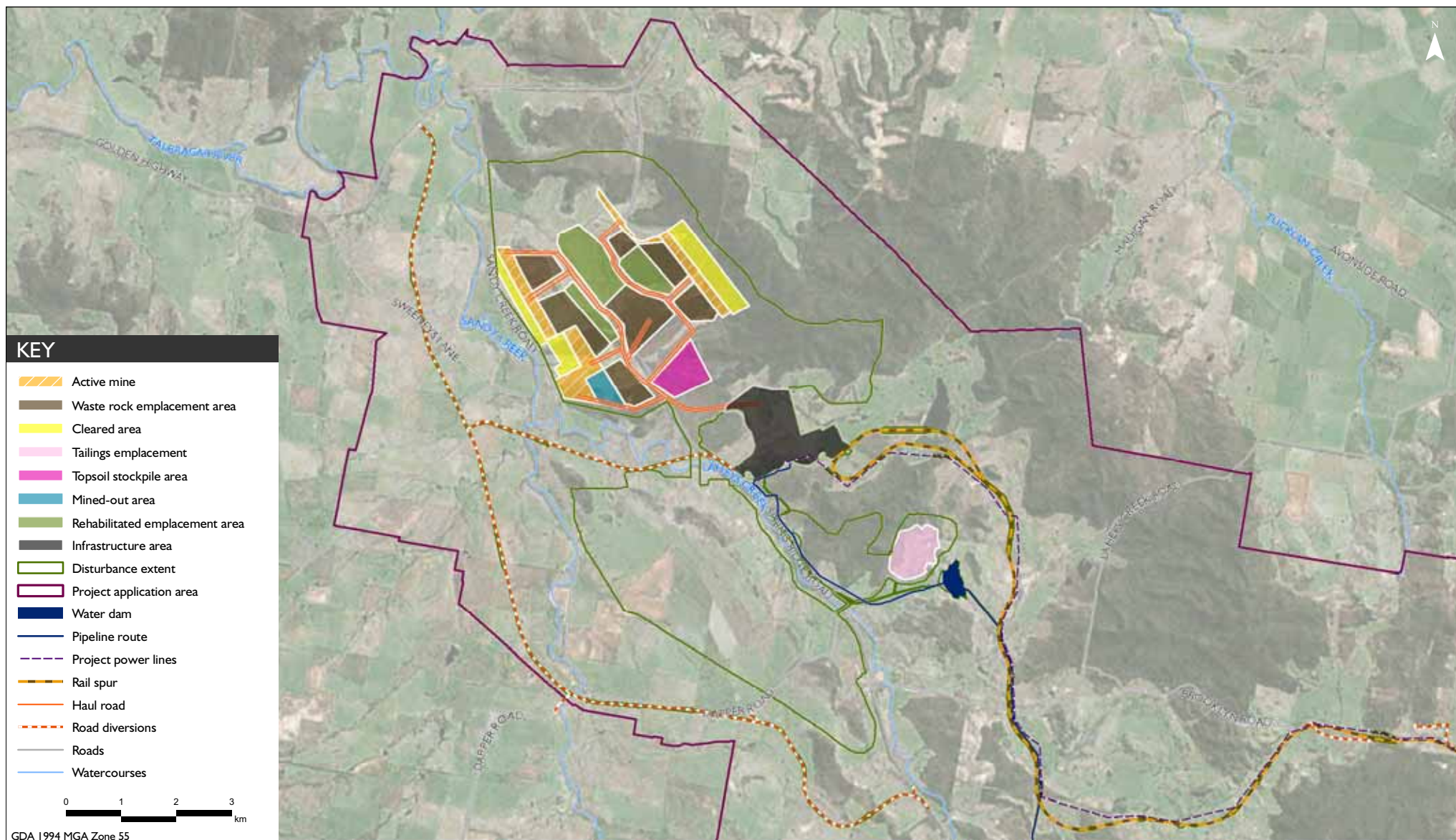
The mine plan has been revised to reduce the number of mining areas open simultaneously (Figures 3.2 to 3.9). As opposed to operating in all mining areas simultaneously, mining will start in mining areas A and C and then move to mining area B in Year 10 (Figures 3.2 to 3.9). This will reduce the length of haul roads open and the areas of exposed waste rock emplacement prior to rehabilitation.



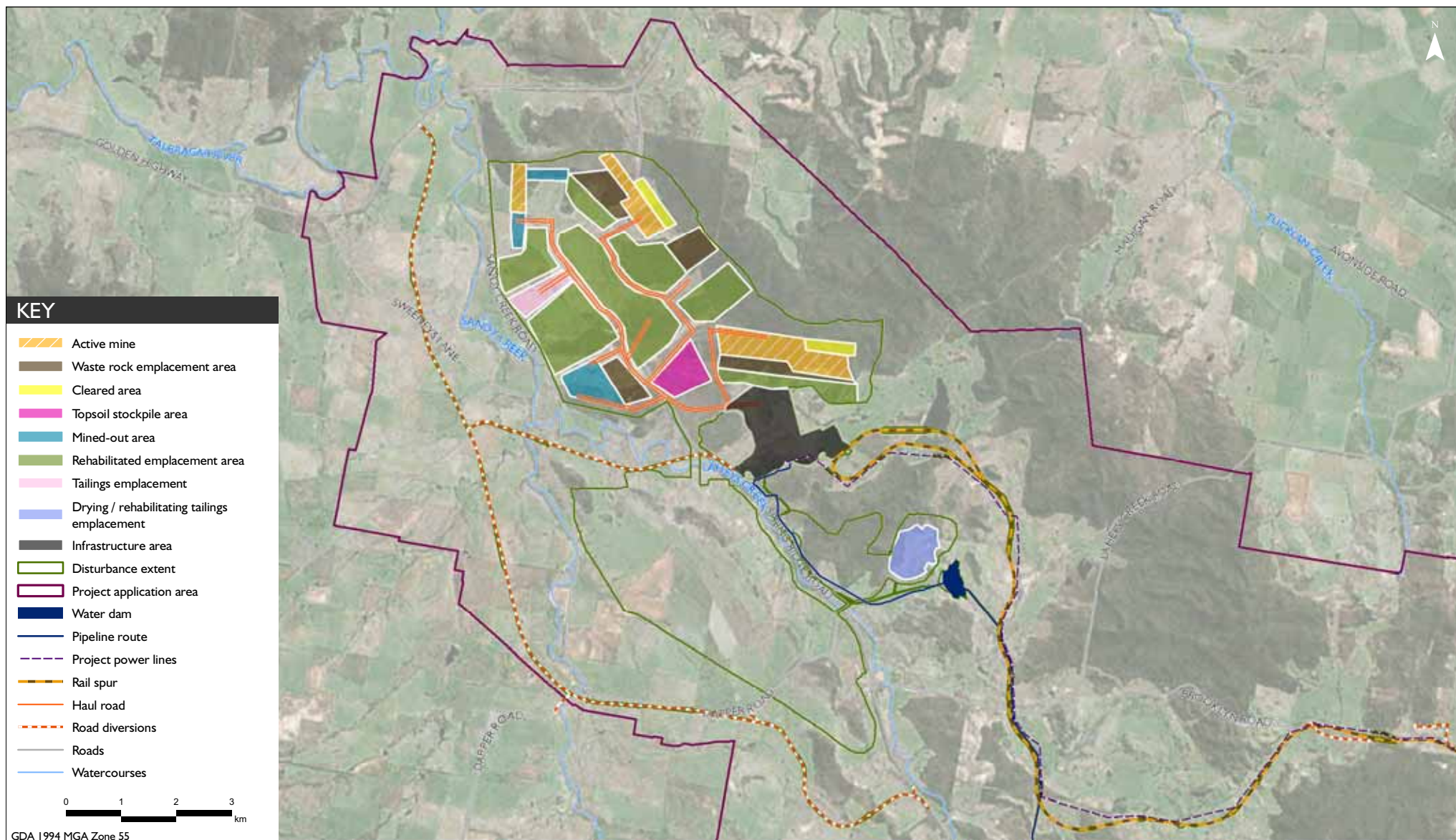
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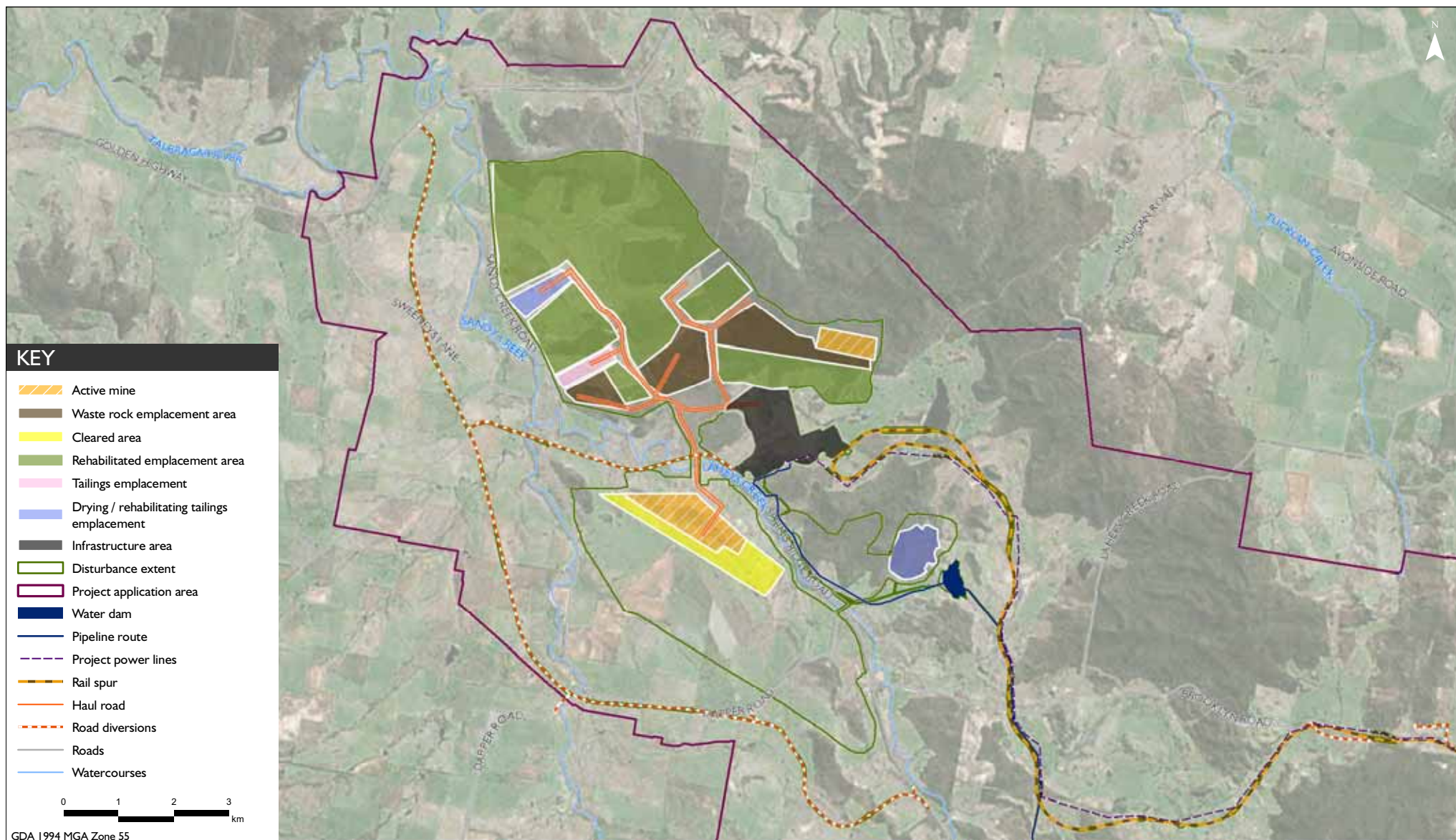
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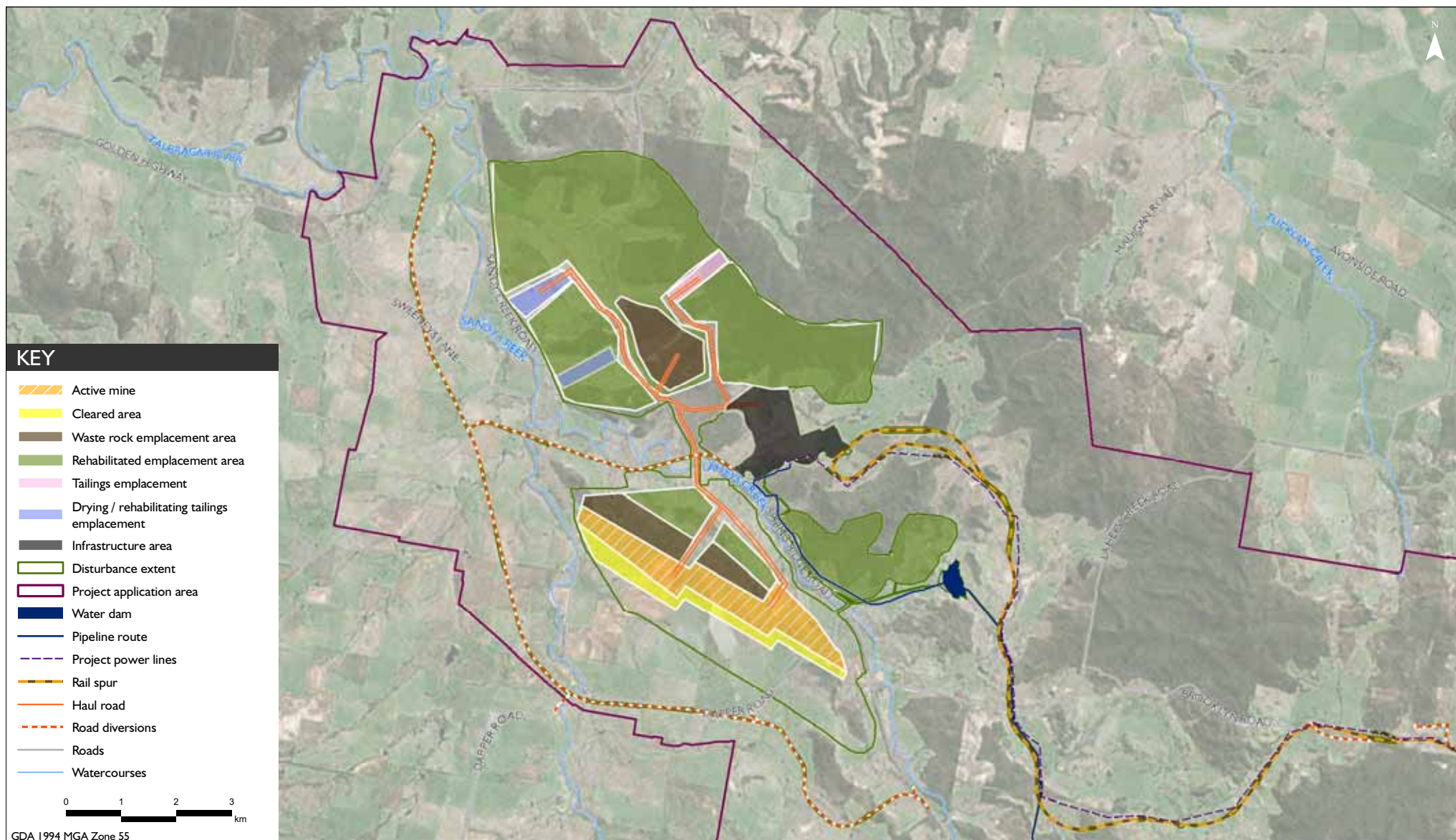
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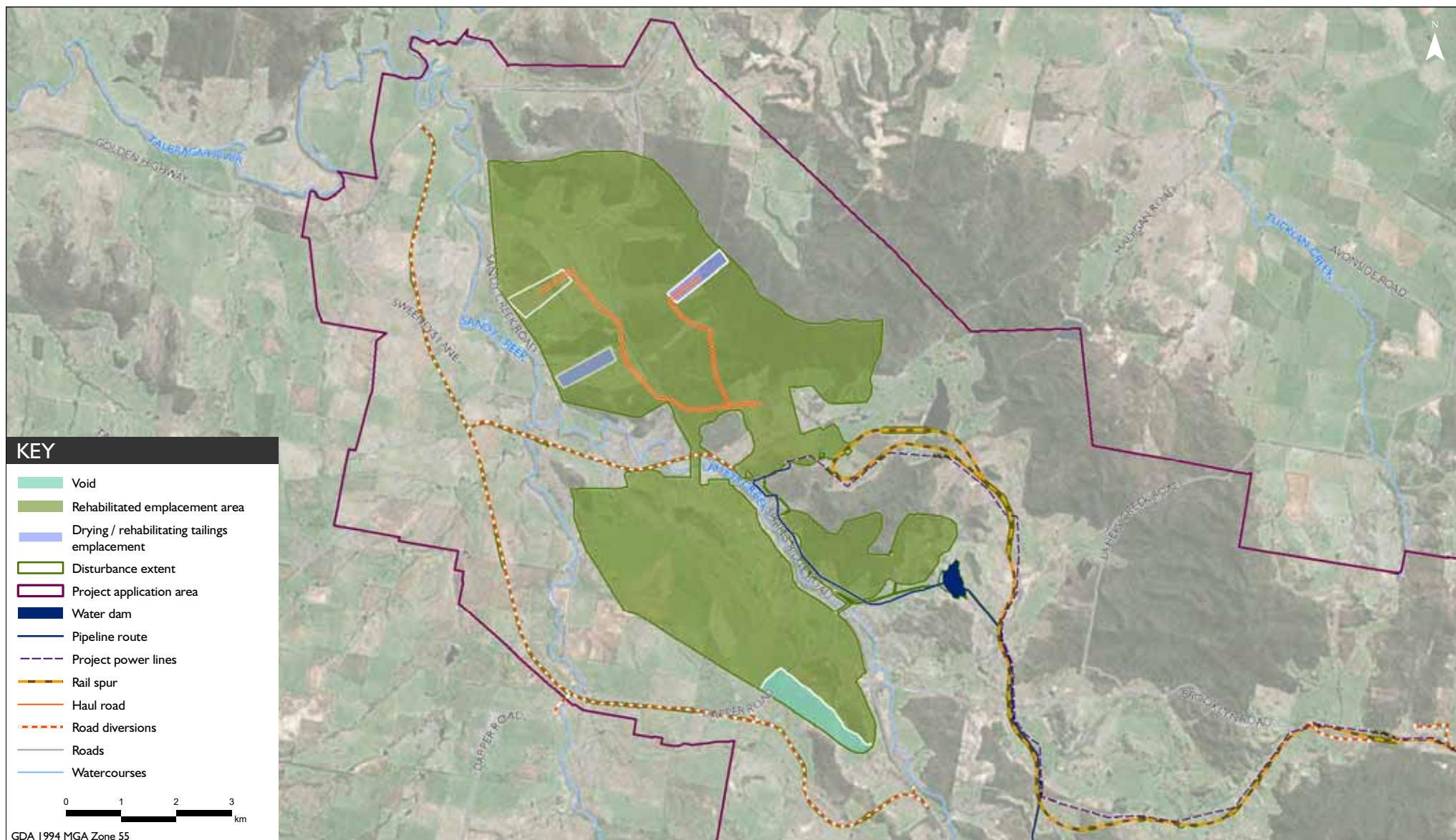
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3.4.1 Mine fleet

The mine fleet, particularly the number of dozers and excavators has been substantially reduced from that proposed in the PPR&RTS, largely as a result of decreasing the number of mining areas operating simultaneously and replacing dozers at the product coal stockpiles with a stacker and reclaimers. As described in Section 3.5.8 of the EA, the required mining plant will vary according to the mining requirements, strip ratio, timing of scheduled and non-scheduled maintenance, and other operating requirements. Indicative mine fleets for Years 8 and 20 are presented in Table 3.2 and have been used in noise and air quality calculations. The actual fleet specifications and numbers may vary from those shown in Table 3.2 during the life of the Project but CHC will ensure that relevant noise and air quality criteria are met. Additional supporting plant will include light vehicles, generators, pumps, cranes, fuel trucks and service vehicles.

Table 3.2 Indicative mine fleet (including ancillary equipment)

Indicative equipment	Task	EA		Revised mine plan	
		Year 8	Year 20	Year 8	Year 20
Excavator (600 t)	Waste rock removal	4	5	5	8
Excavator (400 t)	Coal and partings mining	7 ¹	6 ¹	3	3
Haul truck	Haul and dump waste rock, coal and partings	46	52	32	44
Drilling rigs	Blast hole drilling	4	4	4	5
Front end loader	Coal re-handle	1	1	2	2
Bulldozers	Mining bench preparation and emplacement maintenance/rehabilitation	22	23	11	13
Grader	Road maintenance	5	5	3	3
Water cart	Dust suppression	6	6	4	4
Total		95	102	64	82

Note: 1. Excavator (250 t)

3.5 Tailings management

Tailings management is described in Section 3.3 of the PPR&RTS. The tailings management strategy has been revised as follows:

- one of the two out-of-pit tailings emplacements, out-of-pit west, has been removed from the mine plan. It is now proposed to build and operate only the out-of-pit east tailings emplacement. The size of out-of-pit east tailings emplacement is unchanged; and
- three of the six in-pit tailings emplacements have been removed from the mine plan.

The locations of the tailings emplacements are shown in Figures 3.2 to 3.9. An updated tailings management plan is presented in Appendix C.

As described in the response to Recommendation 19a (Table 2.1), it is not proposed to use mechanical dewatering initially. CHC is committed to monitoring the development of dewatering technologies including undertaking testwork and piloting if a technology appears to be environmentally and economically promising. As a minimum, a feasibility study will be undertaken to determine the preferred dewatering option before in-pit tailings placement is required.

3.6 Out-of-pit waste rock emplacements

Out-of-pit waste rock emplacements have been modified as follows as part of the revised mine plan (see Appendix A):

- the maximum height of the northern end of AC-OOP waste rock emplacement will be increased from RL 430 m to RL 450 m and the footprint has been modified while the maximum height of the southern end of the emplacement is unchanged;
- the maximum height of B-OOP W waste rock emplacements will be increased from RL 430 m to RL 450 m and a greater buffer has been allowed between the western edge of the emplacement and Laheys Creek; and
- the maximum height of waste rock emplacement B-OOP E (RL 450 m) will not increase but the footprint has been reduced to minimise impacts to threaten species and communities.

The footprint and alternatives to waste rock emplacement B-OOP E are discussed in Table 2.1 and in the revised mine plan (Appendix A) in response to Recommendation 4.

3.7 Mine infrastructure area

The MIA has been moved from the west side of the existing Spring Ridge Road to the east side of the road to be adjacent to the CHPP (see Figure 3.10). This assists to reduce the Project's overall footprint and allows for more efficient management of the site.

CHC have minimised the width of the maximum disturbance area south of the MIA and CHPP by reducing the buffer to 10 m. The vegetation outside the buffer area will be fenced prior to the start of construction and sign-posted as 'no-go' areas. In addition, two areas of Inland Grey Box Grassy Tall Woodland (0.95 ha and 0.53 ha) within the MIA and CHPP area will be fenced and avoided.

3.8 Coal handling and preparation plant

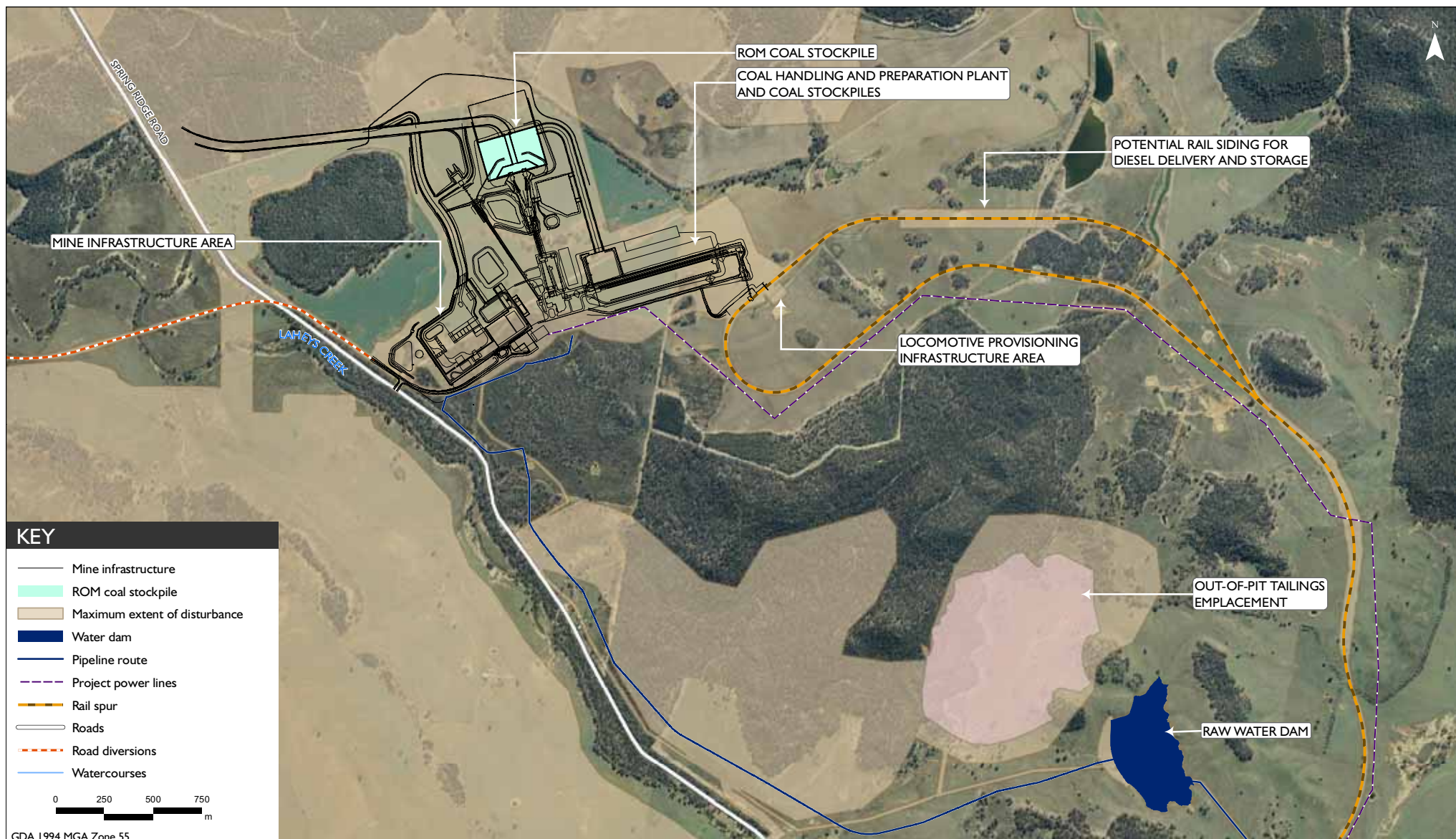
There will be less mobile plant at the CHPP as a mechanical stacker and reclaimer will replace dozers at the product coal stockpile. The infrastructure surrounding the CHPP has been revised to include a road crossing of Blackheath Creek (see Figure 3.10).

The footprint has been revised to minimise impacts on native vegetation, including threatened ecological communities (see Section 3.7).

3.9 Rail spur

Realignment of the rail spur is described in Section 3.6 of the PPR&RTS. Along the 28 km long rail spur, the maximum lateral change is 250 m. The alignment was refined to reduce the cuttings depth and embankment heights (reducing the footprint). The refined alignment allows the efficient operation of trains reducing fuel use and hence greenhouse emissions. Further explanation on the efficiency of train operations is provided below.

One section of the realigned rail spur still climbs 98 m over 9,850 m of track, ie a 1% gradient, of which 1,780 m has a gradient of 1.05% (ie the 'ruling grade' is 1.05%) after the PPR&RTS route realignment to minimise the gradient. Loaded trains will need to ascend these gradients between Laheys Creek Road and Suzanne Road.



Gradients of 1.25% occur over shorter sections in the Hunter Valley. Trains ascend these steeper sections in the Hunter Valley quickly so that time ratings of the locomotive electrical equipment are not exceeded. However, the longer sections of steep grades along the rail spur have been designed to allow loaded train speeds to be maintained.

Train speeds on 1% grades need to be more than 20 km/h or locomotives may exceed their electrical equipment time ratings. This can lead to the trains stalling if the locomotive's automatic protection systems reduce engine power output as rating limits are approached.

Normally trains on ARTC tracks are limited to 60 km/h due to track constraints. However, ARTC allow trains to travel at 80 km/h at certain locations such as when approaching a ruling grade so as to gain maximum momentum before the long uphill grade. The realigned rail spur allows higher train speeds to allow the steepest grades south of Laheys Creek Road to be ascended.

The alternative to these measures is to couple an additional locomotive to the train to assist the train to climb the ruling grade. Trains would have to stop to allow an additional locomotive to be added and removed. As well as decreasing the efficiency of train movements, there would be increased noise emissions due to the train stopping and starting and from the additional locomotive while climbing the ruling grade.

3.10 Roads

3.10.1 Mine access road

The eastern end of the mine access road has been extended to the relocated MIA. The maximum extent of disturbance has been revised accordingly.

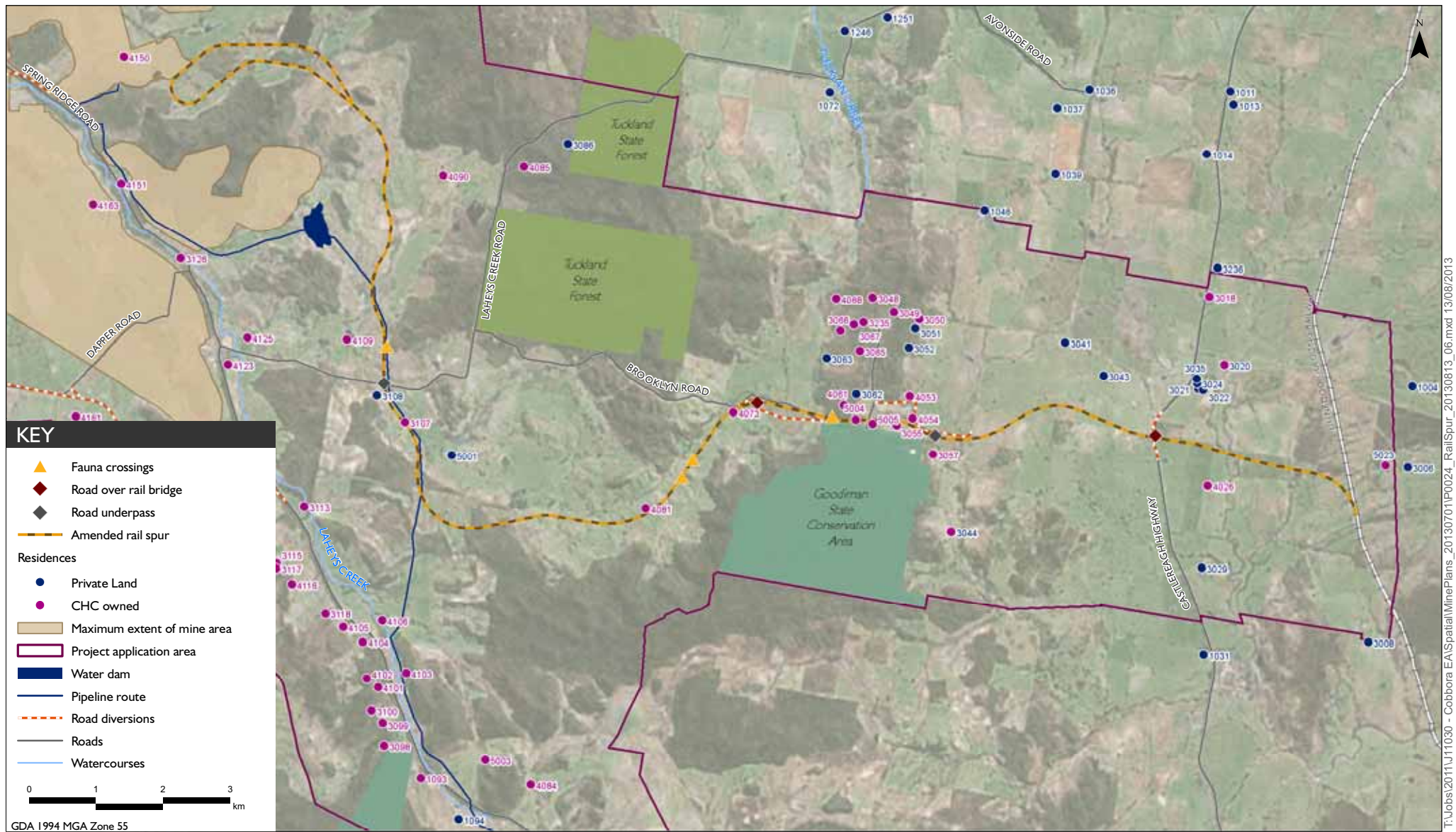
3.10.2 Haul roads

Haul roads have been rearranged in accordance with the revised mine plan (see Appendix A). Given that there will be less simultaneously active mining areas, there will be less haul roads open at each stage.

The haul road from the northern end of mining area C is realigned and will join at the southern end of mining area A (see Figure 3.10).

3.10.3 Dapper Road

An existing track will be upgraded to improve the connection of Dapper Road to the Spring Ridge Road Diversion (Figure 3.1). The upgrade will be approximately 450 m long and will not require the clearing of any woodland or trees.



3.11 Water management

Water management measures are described in Section 3.13 of the EA. Revisions to the water dam locations, the water supply pipeline route and the water balance are described in Section 3.4 of the PPR&RTS. The water balance has changed as a result of the revised mine plan (eg less active haul roads require less water for dust suppression) and due to increased understanding of the mine's water demand.

An assessment to determine whether the groundwater and surface water assessments remain valid given to these changes is presented in Appendix E and summarised in Chapter 5.

The surface water management plan (operations) will provide updated detailed water management layouts that will supersede those in the PPR&RTS while the groundwater management plan (operations) will update detailed groundwater modelling results and provide a program for the periodic update of groundwater modelling through the life of the mine.

3.11.1 Water balance

An assessment of the project changes on the water balance are described in Appendix E. The changed water demands are summarised in Chapter 5.

Table 3.3 Water demand summary

Year	Maximum total site demand (ML/a)		
	Revised mine plan (July 2013) ¹	PPR&RTS (February 2013) ²	EA (September 2012) ³
1	1,953	524	223
4	3,126	3,210	3,421
12	3,930	4,340	3,656
16	3,337	4,292	3,656
20	3,558	4,055	223

Notes: 1. Source: Appendix E.

2. Source: Table 5-14, Water Balance and Surface Water Management System (Appendix E of Surface Water Assessment - Appendix F of PPR&RTS).

3. Source: Table 5-12, Water Balance and Surface Water Management System (Appendix E of Surface Water Assessment - Appendix E of EA).

The Year 1 water demand will be higher for the revised mine plan than for the mine plans presented in the PPR&RTS and the EA because a larger area will be developed in the first year (see Figure 3.2 of this report compared to Figure 3.3 of the PPR&RTS). After Year 1, the decreased water demands from those presented in the PPR&RTS are generally due to decreased dust suppression demands (see Appendix E). Dust suppression demands are based on the updated mine plan which requires a shorter haul road network to service mining areas. A more sophisticated understanding of coal and waste haulage routes has also been applied to refine truck passes per road length. A minimum 80% particulate control efficiency has been applied to determine watering rates.

As described in the PPR&RTS Surface Water Assessment (PPR&RTS Appendix F), an additional 750 unit shares (ML) of aquifer access licence is required from the Gunndah Oxley Basin MDB Groundwater Source to account for groundwater in-flows to the mining areas.

Under the *Water Management Act 2000*, licences for water may only be obtained by trading licence shares or via a controlled allocation under Section 65 of the Act. Controlled allocation is the method by which unassigned water within a water source can be made available. In May 2013, the Minister for Primary Industries announced a controlled allocation order that included 8,878 share components within the Gunnedah Oxley Basin water source, which equates to approximately 5% of the unassigned water within that groundwater source. The licence shares are being made available via a tender process that will remain open until 31 December 2013. CHC have applied for 750 ML of share components from the Gunnedah Oxley Basin under this controlled allocation order. If the bid is successful, CHC will not need to secure an entitlement from water market.

As described in Section 7.2 of the *Water Balance and Surface Water Management System* report (Appendix E of the *Surface Water Assessment*, PPR&RTS Appendix F), the pit dewatering rate could exceed water reuse rate during extended wet periods and in-pit water storage may be required. Mining is not expected to be restricted by in-pit water storage when two or more mining areas are operating. It is possible that extreme wet climate conditions may cause disruption to coal production when only mining area B is operating. In particular, extraction from the lowest coal seam (Lower Ulan) may not be possible for extended periods. If this occurs, it is expected that daily operations would be modified to focus on the Flyblowers coal seam that is 20 m higher than the Lower Ulan coal seam. It is accepted that disruptions may occur during extreme wet conditions during the final years of operations in mining area B.

3.11.2 Dewatering borefield

CHC will use a mine de-watering borefield to intercept groundwater before it flows into the mining areas to prevent its loss to evaporative processes. A secondary benefit of the mine dewatering borefield will be to reduce the occurrence and extent of fugitive blast fumes (including nitric oxide and nitrogen dioxide) during blasting.

3.11.3 Clean water diversion drains

Detailed design of the MIA and CHPP areas has identified the need for clean water diversion drains to the south of these areas. These diversion drains have been placed as close as possible to these infrastructure areas but the locations of the drains are also dictated by the existing topography. One of the drains will intersect a 1.35 ha patch of Inland Grey Box Grassy Tall Woodland. It is proposed to protect the northern section and southern sections of this patch so that 0.89 ha will be retained.

There will a clean water diversion and catch drains constructed either side of the rail spur but outside of the maximum disturbance area. These drains will disturb areas less than 2 m wide and will be sited during detail rail spur design to minimise any required clearing of native vegetation.

3.11.4 Effluent disposal

The EA (Section 3.18.7) states that for the lifetime of the construction camp, effluent will be pumped from storage tanks by a licensed contractor and disposed of in an existing town sewage treatment facility. It is now proposed that for the lifetime of the construction accommodation village, effluent will be treated to a standard suitable for application to land in accordance with *Environmental guidelines: use of effluent by irrigation* (DEC 2004). Effluent will be applied by spray irrigation at an irrigation zone adjacent to the village. This will reduce the requirement for bio-solids (sludge) disposal at existing treatment plants, and subsequently the number of truck movements required for transport.

3.11.5 Water supply pipeline

The water supply pipeline route has been refined to reduce the radius of a number of curves or to take into account topography or land uses (Figure 3.13). Between the Cudgegong River pump station and the raw water dam, there is no change to the areas containing native vegetation or Aboriginal archaeological sensitivity that will be impacted. The pipeline route south of B-OOP E waste rock emplacement between the raw water dam and the MIA has been refined to avoid vegetation south of the MIA that will no longer need to be cleared due to the reduced footprint of the waste rock emplacement.

3.12 Electricity supply

The electricity supply will remain as described in the EA, however, the 66 kV line that was to be constructed along the water supply pipeline north of the rail loop is now proposed to be constructed south of the rail loop along an alignment that minimises vegetation any clearance (see Figure 3.1).

3.13 Mine closure

Mine closure is described in Section 3.20 of the EA. This includes, timing, closure planning, the rehabilitation strategy, closure objectives, the final landform, final land uses, decommissioning and rehabilitation success criteria. These generally remain unchanged. However, the final landform and final land uses have been updated to reflect the revised mine plans. These are presented in Appendix F and summarised in Table 3.4.

Table 3.4 Final land use of mining areas

Final land use	Rural land capability class	Landform	Area (EA Table 3.10)		Area (PPR&RTS Table 3.4)		Area (revised mine plan)	
			ha	%	ha	%	ha	%
Cropping	III	Flat to gently sloping land	1,000	25	418	10.1	427	11.4
Grazing	IV	Flat to gently sloping land	585	15	1,634	39.6	1,278	34.3
Woodland	V and VI	Flat to steeply inclined land	2,200	56	1,901	46.1	1,916	51.1
Pre-mining	Various	-	-	-	27	<1	-	-
Final void and high walls	VIII	Steeply inclined or inundated	165	5	143	3.4	118	3.2
Total			3,950	100	4,123	100	3,739	100

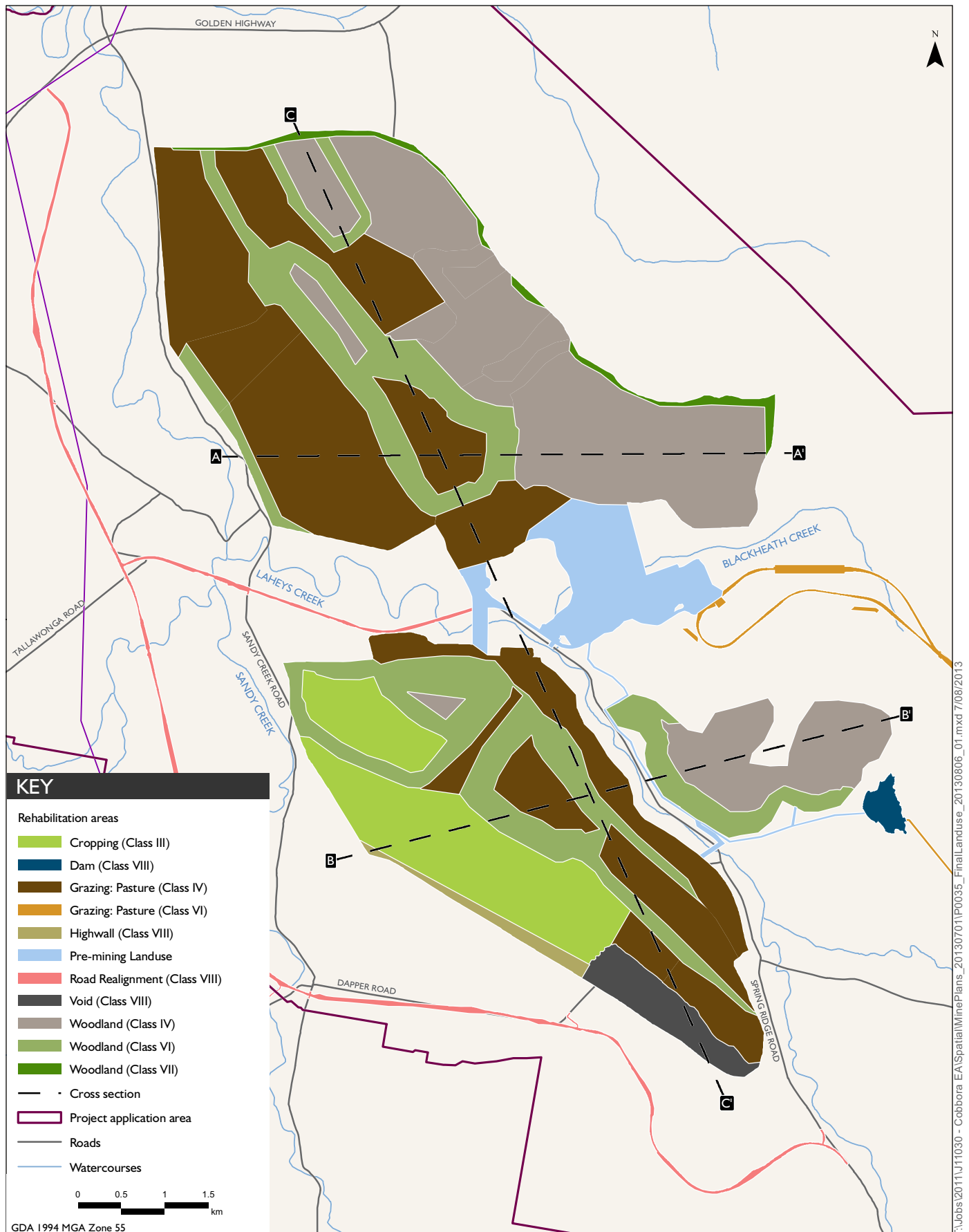
Notes: Sediment basins returned to pre-mining land use — not delineated in the EA.

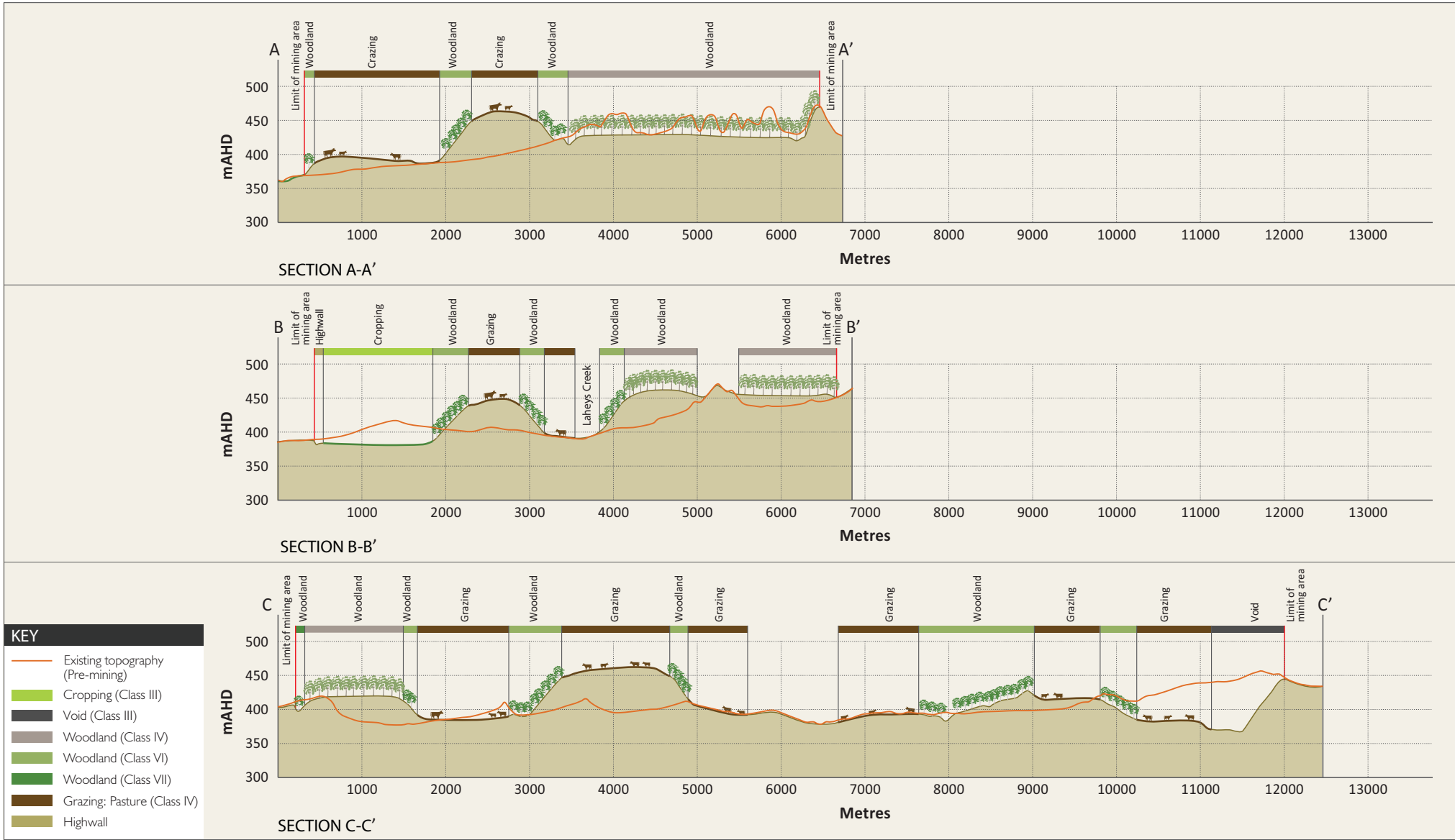
3.13.1 Final voids

In the PPR&RTS, it was proposed that two of the three mining areas would be back-filled to above the final water table with a void lake left in the third mining area. The revised mine plan eliminates the voids and the remaining depressions in mining areas A and C. While high walls are currently shown in mining areas A and C (Figure 3.14), methods will be examined to reduce the angles of these walls as part of detailed closure planning.

There will be a final void in mining area B. Numerous configurations of the final void have been examined to further reduce the size of the final void from that presented in the PPR&RTS while ensuring that the void lake remains a groundwater sink and does not spill into Laheys Creek. The revised mine plan has reduced the areas of the final void and high walls to 118 ha from 143 ha as proposed in the PPR&RTS.

As described in Appendix E, the final void will contain a saline lake with an equilibrium lake level of RL 378 m that will have 6.5 m of free board (based on a conservative scenario).





Final landform cross-sections

Cobbora Coal Project
Responses to PAC Review

Figure 3.15

3.14 Construction hours

The construction program is proposed for seven days per week and up to 12 hours per day allowing for works to be expedited. Additionally, several out of hours activities are critical to the delivery and integrity of the infrastructure for the Project.

A Noise and Vibration Assessment for out of Hours Construction was presented in Appendix I of the PPR&RTS. CHC are seeking approval for both the standard and out of hours construction programs.

4 Environmental assessment of revised mine plan

The mine plan has been revised to address the PAC recommendations and to reduce environmental impacts from the Project. There are no changes to impacts for the following environmental aspects as a result of these revisions:

- geochemistry;
- bushfire;
- road transport; and
- historic heritage.

Changes to the rehabilitation of the final landform are described in Section 3.13. Potential changes to other aspects previously assessed are discussed in Chapters 5 to 15.

5 Groundwater

5.1 Relevant Project changes

The revised mine plan will change the sequence of mining area development.

5.2 Assessment method

A high-level groundwater assessment compared the groundwater drawdown and pit inflow for five stages of the two mine plans — December 2012 (as presented in the PPR&RTS) and the revised mine plan (Appendix A). The basic premise for the analysis is that, to a first order approximation, the magnitude of groundwater impacts and groundwater inflow at a particular site is proportional to the area and depth of a mine pit below the water table. These parameters therefore can be considered as a broad proxy for groundwater impacts related to contrasting mine plans at the site (assuming the overall mining rate and pit locations are broadly similar). Details are presented in Appendix E.

5.3 Environmental management

The groundwater management measures in the EA and PPR&RTS remain applicable. The groundwater model will continue to be updated during the development of the mine and will inform mining operations and ongoing management strategies.

5.4 Impacts

The assessment of the revised mine plan, including changes to the mine sequence (Appendix E) found:

- overall the mine plans are broadly comparable in terms of mine pit area below the water table, and therefore likely impact footprint;
- impacts to groundwater will likely occur earlier in mine schedule compared to the PPR&RTS mine plan; and
- the geometry of the final void is similar in both mine plans, as is the equilibrium water level of the final void lake, as determined by surface water modelling. As for the PPR&RTS mine plan, the final void lake for the revised mine plan will act as a groundwater sink.

6 Surface water

6.1 Relevant Project changes

The revised mine plan includes an updated sequence of sub-catchment disturbance, decreased water demands (due to shorter haul roads and hence dust suppression water demand) and the introduction of a mine borefield.

6.2 Assessment method

A high level surface water assessment compared the groundwater drawdown and pit inflow for the two mine plans – December 2012 (as presented in the PPR&RTS) and the revised mine plan (Appendix A). The surface water assessment compared the PPR&RTS and revised mine plans using three methods:

- comparison of land use areas for the indicative mine years of the two mine plans;
- comparison of Project water demands for the indicative mine years of the two mine plans; and
- comparison of the final void lake water and salt balance for the two mine plans.

Details are presented in Appendix E.

6.3 Environmental management

The surface water management measures in the EA and PPR&RTS remain applicable. The surface water balance will continue to be updated during the development of the mine and will inform mining operations and ongoing management strategies.

6.4 Impacts

The assessment of the revised mine plan, including changes to the mine sequence (Appendix E) found:

- there will be more rapid development of mining in the early years in the revised mine plan compared to the PPR&RTS mine plan, with higher areas of active mine, haul road/infrastructure, tailings emplacement and topsoil stockpiling;
- during peak mine years (year 4 onwards), the disturbed areas (active mine, active overburden emplacement and active tailings emplacement) will be less extensive in the revised mine plan;
- during the peak mining years (year 4 onwards), the disturbed areas (active mine, active overburden emplacement, active tailings emplacement) will be smaller and the rehabilitated areas (rehabilitated and established rehabilitated emplacement) will be larger in the revised mine plan compared to the PPR&RTS mine plan;
- the reduced disturbance area and increased rehabilitated area during the peak mining years indicates that the surface water runoff from contaminated/disturbed areas of revised new mine plan will not be greater than the PPR&RTS mine plan;

- water demands will be increased for the early years of the revised mine plan reflecting the more rapid development, but will be significantly reduced for the peak mining years by up to 22%. Therefore, the new mine plan will place significantly less demand on imported water from the Project's Water Access Licences, and will allow greater flexibility in trading unused water allocation back into the market for agricultural use; and
- the final void analysis demonstrates that the new mine plan will produce a similar final void lake in terms of peak lake water level, wetted surface area and salinity. As previously, this will act as a groundwater sink and will not produce a groundwater flow towards Sandy Creek.

The management of excess water during extreme wet conditions is described in Section 3.11.1.

7 Ecology

7.1 Relevant Project changes

Project changes relevant to the assessment of terrestrial ecology are:

- reducing the disturbance footprint and mining area;
- maintaining a biodiversity corridor north and east of mining areas A and C;
- regeneration (including assisted regeneration) of 185 ha of low quality agricultural land to form a biodiversity corridor north and east of mining areas A and C;
- mining sequence changes to reduce the number of areas mined simultaneously;
- out-of-pit waste rock emplacements footprint reduced (particularly B-OOP E) to minimise impacts to remnant vegetation;
- re-location of the MIA to reduce the disturbance footprint; and
- amended transmission line route close to the rail balloon loop to avoid native vegetation.

7.2 Assessment method

The new disturbance footprint was superimposed on the sensitive ecological features map in the Project geographic information system (GIS), allowing identification of potential impacts to vegetation types, habitats, threatened species and threatened ecological communities. Changes to habitat connectivity, indirect impacts and the location of proposed offset areas were also determined.

Where it was considered that the Project changes will result in a potentially significant increase or decrease in the impacts on threatened species and ecological communities, impacts were reassessed. Outcomes from this assessment and other proposed amendments to the vegetation and threatened species impacted were then incorporated into the biodiversity offset package (Appendix G).

7.3 Environmental management

The ecological management measures provided in the EA and PPR&RTS remain applicable. Additional environmental management measures discussed in the PPR&RTS included improved measures for fauna crossing along the rail spur.

Since submission of the PPR&RTS, the biodiversity offset package has been completed (Appendix G). The package provides further information on the condition and type of vegetation and habitat in the offset areas, as requested by SEWPaC and the OEH. An overview of the offset package is provided in the following section.

7.3.1 Offsets

The proposed offset areas are located adjacent to existing NPWS estate or in areas with important biodiversity values surrounding the Project area (Figure 7.1). The OEH has been consulted to ensure that offsets accord with regional conservation priorities. High priority areas have been identified close to the Project area to the south of Goodiman SCA, and to the north of the Project area adjacent to Goonoo SCA, Cobbora SCA and Adelyne SCA. Significant wildlife corridors will be created in such areas by the permanent dedication to conservation of land currently used for agriculture. These areas contain known habitat for a number of threatened species and ecological communities and create links between and expand existing conservation areas.

The offset sites provide similar vegetation types and habitat to the Project areas. More than four times the woodland area to be impacted by the Project will be protected and managed for conservation in the offsets. This includes significant areas of Box Gum Woodland EEC (994 ha), Fuzzy Box Woodland EEC (37 ha) and Inland Grey Box Woodland EEC (196 ha).

Sub-populations of Ingram's *Zieria*, *Homoranthus darwinioides*, *Tylophora linearis* and Ausfeld's Wattle have been identified in the offset areas. Other populations occurring outside the offset areas on CHC-owned land that will not be impacted by the Project will be monitored for indirect impacts and managed over the life of the Project. With the recommended management strategies in these areas in addition to the offsets, the long-term viability of these populations will be improved as a result of the Project.

Numerous threatened fauna species that were identified in the Project area have also been identified in the offset sites. Habitat for fauna in the offset sites includes significant areas of cliff line habitat for microbat species, including potential roost and breeding sites where microbat scats were recorded, hollow-bearing trees and fallen timber, creeks and dams, and large tracts of remnant vegetation providing fauna corridors.

The biodiversity offset package meets both Commonwealth and NSW policy requirements. Under the EPBC Act Environmental Offset Policy, the 90% threshold has been reached for all matters of National Environmental Significance. The offset package will also result in an overall Tier 3 outcome under the OEH Interim Offset Policy. Higher Tier 2 outcomes are achieved for five of the vegetation types, two of the threatened flora species and 12 of the threatened fauna species values.

7.4 Impacts

The Project changes will impact the amount and location of vegetation and habitat affected.

i Vegetation

The changes will result in a decrease in 187 ha of woodland (and regrowth) impacted by the Project (from the PPR&RTS), to a total of 1,773 ha woodland (and regrowth) impacted (Table 7.1 and Table 7.2). There is also a reduction of 116 ha of woodland (and regrowth) from the original EA.

The largest reductions comprise Blue-leaved Ironbark Woodland, Regrowth, Cypress Pine Woodland and Inland Grey Box Woodland. The impact on some vegetation types has increased as a result of the changes including Slaty Gum Woodland, Red Stringybark Woodland and Box Gum Woodland. However, impacts to Box Gum Woodland are still less than those proposed in the original EA disturbance area. The Project revisions will result in the protection of 116 ha of woodland and regrowth vegetation in moderate to good condition, and 187 ha less than the PPR&RTS footprint.

Table 7.1 Vegetation impacts from Project changes

Vegetation type	Biometric vegetation type	TEC	Area within PAA (ha) ¹	Area to be removed (ha)	Percent of vegetation type in the PAA to be removed	Comparison with PPR&RTS footprint (ha)	Comparison with EA footprint (ha)
Cypress Pine Woodland	CW107 Black Cypress Pine – Narrow-leaved Stringybark heathy woodland of the southern Brigalow Belt South Bioregion		488	171	35%	-17	-20
Narrow-leaved Stringybark Woodland	CW107 Black Cypress Pine – Narrow-leaved Stringybark heathy woodland of the southern Brigalow Belt South Bioregion		22	0	0%	0	-22
Blakely's Red Gum Woodland	CW111 Blakely's Red Gum Rough-barked Apple Flats Woodland	Box Gum Woodland	62	0	0%	0	0
Rough-barked Apple Woodland	CW111 Blakely's Red Gum Rough-barked Apple Flats Woodland	Box Gum Woodland	226	12	5%	3	7
Box Gum Grassy Woodland	CW112 Blakely's Red Gum – Yellow Box grassy woodland of the NSW South Western Slopes Bioregion	Box Gum Woodland	815	16	2%	3	9
Blue-leaved Ironbark Woodland	CW115 Blue-leaved Ironbark woodland on sandy uplands and slopes of the Darling Riverine Plains Bioregion		5,230	919	18%	-124	-99
Regrowth	CW115 Blue-leaved Ironbark woodland on sandy uplands and slopes of the Darling Riverine Plains Bioregion		813	405	50%	-45	40
Dwyer's Red Gum Woodland	CW133 Dwyer's Red Gum – Currawang grassy mid-high woodland of central NSW		129	65	50%	-2	-18

Table 7.1 Vegetation impacts from Project changes

Vegetation type	Biometric vegetation type	TEC	Area within PAA (ha) ¹	Area to be removed (ha)	Percent of vegetation type in the PAA to be removed	Comparison with PPR&RTS footprint (ha)	Comparison with EA footprint (ha)
Fuzzy Box Woodland	CW138 Fuzzy Box on loams in the Nandewar Bioregion and northern Brigalow Belt South Bioregion	Fuzzy Box Woodland	129	9	7%	-5	-4
Grey Box Woodland	CW145 Inland Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions	Grey Box Woodland	660	41	6%	-8	-13
Mugga Ironbark Grey Box Woodland	CW155 Mugga Ironbark – Inland Grey Box – pine tall woodland of the NSW South Western Slopes Bioregion		55	0	0%	-1	-1
Mugga Ironbark Woodland	CW156 Mugga Ironbark - Inland Grey Box shrubby woodland of the Brigalow Belt South Bioregion		81	0	0%	0	0
Scribbly Gum Open Forest	CW176 Red Stringybark – Scribbly Gum - Red Box – Long-leaved Box shrub – tussock grass open forest the NSW South Western Slopes Bioregion		5	5	100%	0	0
Red Stringybark Woodland	CW177 Red Stringybark woodland of the dry slopes of the South Western Slopes Bioregion		888	23	3%	3	1
Slaty Gum Woodland	CW191 Slaty Gum woodland of the slopes of the southern Brigalow Belt South Bioregion		874	107	12%	6	4
Tumbledown Gum Woodland	CW202 Tumbledown Red Gum – Black Cypress Pine – Red Box low woodland of hills of the South Western Slopes		123	0	0%	0	0
White Box Woodland	CW213 White Box – White Cypress Pine – Inland Grey Box woodland on the western slopes of NSW	Box Gum Woodland	206	0	0%	0	0
Total woodland and regrowth in moderate–good condition			10,804	1,773	16%	-187	-116
Box Gum Woodland DNG (TSC Act only) ²		Box Gum Woodland	-	91	-	-14	See note 2
Grey Box Woodland DNG (TSC Act only) ²		Grey Box Woodland	-	38	-	4	See note 2
Fuzzy Box DNG ²		Fuzzy Box Woodland	-	9	-	-5	See note 2
Native Pasture in low condition			3,000	1,128	38%	80	See note 2
Total native vegetation			13,804	3,039	21%	-122	See note 2
Total disturbance area			20,804	4,232	20%	-305	-468

Notes: 1. Based on available mapping and limited ground-truthing outside the impact area.
2. The classification of some Native Pasture in low condition was changed to DNG in the PPR&RTS.
TEC – threatened ecological community, PAA – Project application area.

ii Threatened ecological communities

The mine revision reduces impacts on TECs by 22 ha compared to the PPR&RTS. The area of TECs to be impacted by the Project is now 9 ha for Fuzzy Box Woodland, 28 ha for Box Gum Woodland and 41 ha for Grey Box Woodland (Table 7.2 and Figure 7.2). In addition, 138 ha of native pasture, considered to have been derived from Box Gum Woodland (91 ha), Grey Box Woodland (38 ha) and Fuzzy Box Woodland (9 ha), have been identified in the revised Project area (see Figure 7.2).

Table 7.2 Summary of impacts to threatened species and communities from Project changes

Species or community	Status		Recorded?	Revised disturbance area (ha)	Difference to PPR&RTS disturbance area (ha)	Outcome
	TSC Act	EPBC Act				
Box Gum Woodland EEC (includes DNG)	E	CE	Yes	119 ha (28 ha woodland and 91 ha DNG)	Reduction of 8 ha	Significant impact still likely
Inland Grey Box Woodland EEC (includes DNG)	E	-1 ⁴	Yes	79 ha (41 ha woodland and 38 ha DNG)	Reduction of 4 ha	Significant impact still likely
Fuzzy Box Woodland EEC (includes DNG)	E	-	Yes	18 ha (9 ha woodland and 9 ha DNG)	Reduction of 10 ha	Significant impact still likely

Notes: 1. The derived grasslands are not considered to meet the EPBC Act definition of Box Gum Woodland or Grey Box Woodland.

As significant impacts are still expected for all TECs identified in the Project area, the assessments of significance have not been updated. But the proposed offsets for TECs have been adjusted to reflect changes in impact areas.

While the Project is still considered likely to have a significant impact on TECs, this is unlikely to result in the loss of these communities in the locality. When finalised and implemented, the offset strategy will increase the amount and condition of Box Gum Woodland, Grey Box Woodland and Fuzzy Box Woodland conserved in the locality in the long term.

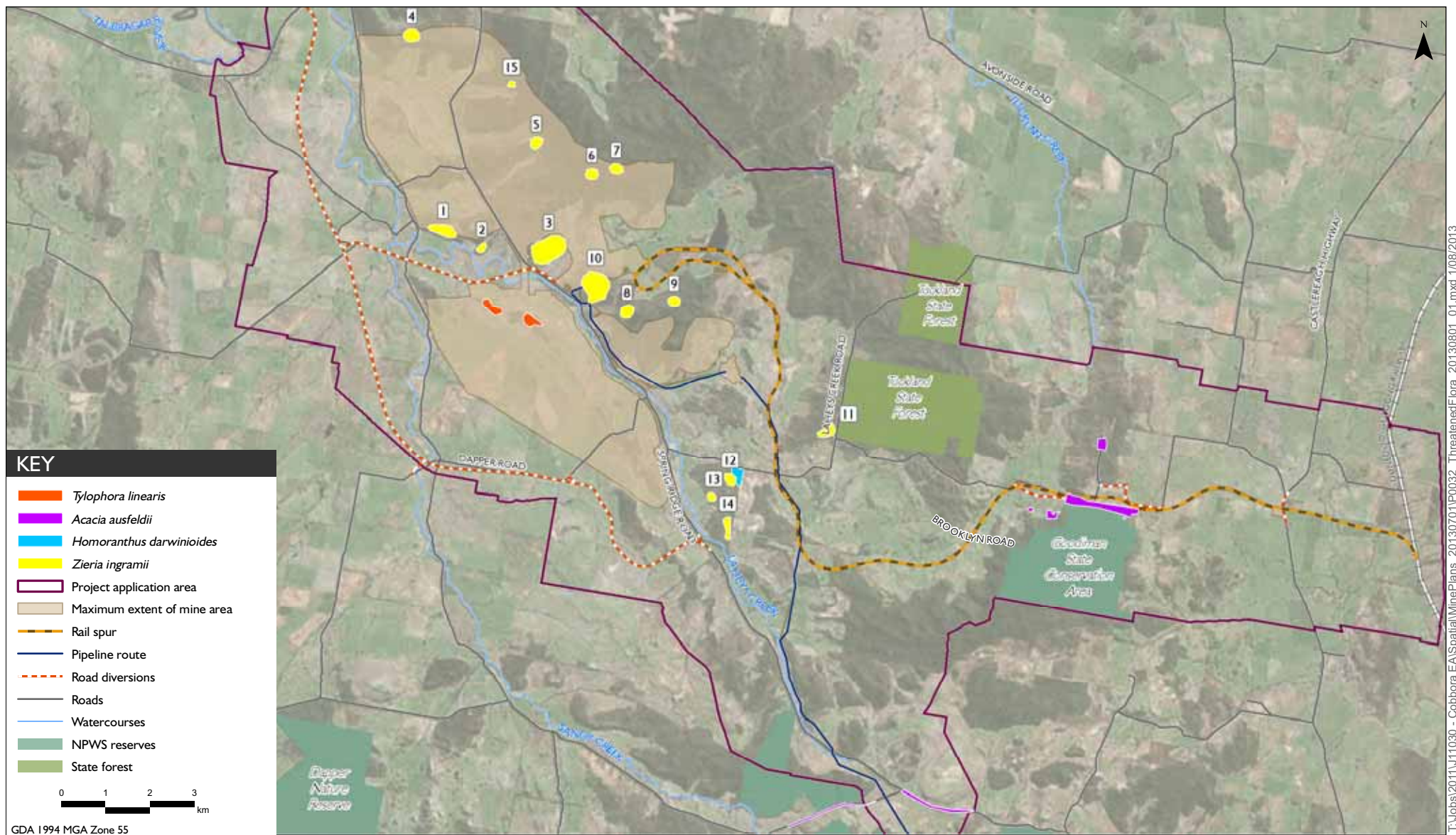
iii Threatened flora

The Project revisions will reduce impacts on two of the threatened flora species recorded in the Project area: Ingram's Zieria (*Zieria ingramii*) and *Homoranthus darwinoides*. This has been accomplished by modifying the footprint of one of the out-of-pit tailings emplacements (B-OOP E), principally to avoid an area which contains both species, and the creation of a biodiversity corridor to the north of mining areas A and C. This has reduced the number of Ingram's Zieria that would be cleared by 248 (34%) and the number of *H. darwinoides* that would be cleared by approximately 100 (40%).

The total number of threatened flora species impacted by the revised Project is now 480 Ingram's Zieria, 227 *H. darwinoides*, 9 *Tylophora linearis* and approximately 200 *Acacia ausfeldii*. Despite a reduction in impacts for two of the species, the Project is still considered likely to have a significant impact on *H. darwinoides*, *Tylophora linearis* and Ingram's Zieria. All species to be impacted have been identified in the proposed offset areas and the Project is not likely to result in the loss of these species from the locality with the management of these areas for conservation.

Table 7.3 **Effects of Project changes on threatened flora**

Species or community	Status		Recorded?	Revised disturbance area impacts (individuals)	Difference to PPR&RTS disturbance area impacts (individuals)	Outcome
	TSC Act	EPBC Act				
Ausfeld's wattle	V		Yes	200	No difference	Not significant
<i>Homoranthus darwinoides</i>	V	V	Yes	127	-100	Significant impact still likely
Ingram's zieria	E	E	Yes	480	-247	Significant impact still likely
<i>Philotheca ericifolia</i>	-	V	No	0	No difference	Not significant
Pine donkey orchid	V	-	No	0	No difference	Not significant
<i>Rulingia procumbens</i>	V	V	No	0	No difference	Not significant
Scant pomaderris	E	-	No	0	No difference	Not significant
<i>Tylophora linearis</i>	V	E	Yes	9	No difference	Significant impact still likely



iv **Threatened fauna**

The Project changes decrease the amount of woodland impacted by 187 ha compared with the Project presented in the PPR&RTS and 116 ha compared with the Project presented in the EA. This has reduced the impact on foraging and breeding habitat for species recorded or with a high likelihood of occurring in the Project area. The revisions also reduce the area of cliff line habitat to be impacted from 16 km to 14 km.

The significance of impacts from the revised Project was assessed for each of the threatened fauna species recorded or considered likely to occur in the Project area (Table 7.4 and Figure 7.2). Despite the reductions to the areas of habitat impacted, the Project revisions do not reduce the significance of any impacts identified.

Table 7.4 Effect of Project changes on threatened fauna

Species or community	Status		Recorded?	Change in impact from PPR&RTS	Outcome
	TSC Act	EPBC Act			
Australasian bittern	E	-	Yes	No change	Not significant
Barking owl	V	-	Yes	Reduction in removal of foraging and breeding habitat (187 ha)	Significant impact still likely
Black-breasted buzzard	V	-	No	Reduction in removal of potential habitat (187 ha)	Not significant
Black-chinned honeyeater	V	-	No	Reduction in removal of potential habitat (187 ha)	Not significant
Blue-billed duck	V	-	Yes	No change	Not significant
Brolga	V	-	No	Reduction in removal of potential habitat	Not significant
Brown treecreeper	V	-	Yes	Reduction in removal of foraging and breeding habitat (187 ha)	Significant impact still likely
Bush stone-curlew	E	-	No	Removal of potential habitat	Not significant
Diamond firetail	V	-	Yes	Reduction in removal of foraging and breeding habitat (187 ha)	Significant impact still likely
Eastern bent-wing Bat	V	-	Yes	Reduction in removal of foraging habitat (187 ha) and reduction in impacts to cliff line (2 km)	Not significant
Eastern cave bat	V	-	No (recorded in offsets area)	Reduction in removal of foraging habitat (187 ha) and reduction in impacts to cliff line (2 km)	Not significant
Eastern pygmy possum	V	-	No	Reduction in removal of potential habitat (187 ha)	Not significant
Flame robin	V	-	No	Reduction in removal of potential habitat (187 ha)	Not significant
Freckled duck	V	-	No	Reduction in removal of potential habitat (187 ha)	Not significant
Gilbert's whistler	V	-	No	Reduction in removal of potential habitat (187 ha)	Not significant
Glossy black-cockatoo	V	-	Yes	Reduction in removal of foraging and breeding habitat (187 ha)	Significant impact still likely

Table 7.4 Effect of Project changes on threatened fauna

Species or community	Status		Recorded?	Change in impact from PPR&RTS	Outcome
	TSC Act	EPBC Act			
Grey-crowned babbler	V	-	Yes	Reduction in removal of foraging and breeding habitat (187 ha)	Significant impact still likely
Hooded robin	V	-	Yes	Reduction in removal of foraging and breeding habitat (187 ha)	Significant impact still likely
Koala	V	V	No	Reduction in removal of potential habitat	Not significant
Large-eared pied bat	V	V	Yes	Reduction in removal of foraging habitat (187 ha) and reduction in impacts to cliff line (2 km)	Significant impact still likely
Little eagle	V	-	No	Reduction in removal of potential habitat (187 ha)	Not significant
Little lorikeet	V	-	Yes	Reduction in removal of foraging and breeding habitat (187 ha)	Not significant
Little pied bat	V	-	Yes	Reduction in removal of foraging habitat (187 ha) and reduction in impacts to cliff line (2 km)	Not significant
Malleefowl	E	E	No (abandoned mounds)	Reduction in removal of potential habitat (187 ha)	Not significant
Masked owl	V	-	Yes	Reduction in removal of foraging and breeding habitat (187 ha)	Significant impact still likely
Painted honeyeater	V	-	No	Reduction in removal of potential habitat	Not significant
Pale-headed snake	V	-	No	Reduction in removal of potential habitat (187 ha)	Not significant
Powerful owl	V	-	Yes	Reduction in removal of potential habitat (187 ha)	Significant impact still likely
Regent honeyeater	CE	E, Mi	No	Reduction in removal of potential habitat (187 ha)	Not significant
Scarlet robin	V	-	No	Reduction in removal of potential habitat (187 ha)	Not significant
Southern long-eared bat	V	V	Yes	Reduction in removal of foraging and breeding habitat (187 ha)	Significant impact still likely
Sloane's froglet	V	-	No	No change	Not significant
Speckled warbler	V	-	Yes	Reduction in removal of foraging and breeding habitat (187 ha)	Significant impact still likely
Spotted harrier	V	-	No	Reduction in removal of foraging and breeding habitat (187 ha)	Not significant
Spotted-tail quoll	V	V	No	Reduction in removal of potential habitat (187 ha)	Not significant
Square-tailed kite	V	-	No	Reduction in removal of potential habitat (187 ha)	Not significant
Squirrel glider	V	-	No	Reduction in removal of potential habitat (187 ha)	Not significant
Superb parrot	V	V	Yes	Reduction in removal of potential habitat (187 ha)	Not significant

Table 7.4 Effect of Project changes on threatened fauna

Species or community	Status		Recorded?	Change in impact from PPR&RTS	Outcome
	TSC Act	EPBC Act			
Swift parrot	E	E	No	Reduction in removal of potential habitat (187 ha)	Not significant
Turquoise parrot	V	-	Yes	Reduction in removal of foraging and breeding habitat (187 ha)	Not significant
Varied sittella	V	-	Yes	Reduction in removal of foraging and breeding habitat (187 ha)	Significant impact still likely
White-fronted chat	V	-	Yes	No change	Not significant
Yellow-bellied sheath-tail bat	V	-	Yes	Reduction in removal of foraging and breeding habitat (187 ha)	Significant impact still likely

v Indirect impacts

The Project changes all occur in the impact area assessed in the EA. The reduction of the impact area only results in minor changes to indirect impacts. Indirect impacts have been calculated and will account for the reduction in woodland and regrowth habitat available to fauna by 167 ha. As the mine will be progressively worked and rehabilitated, only small parts of the areas subject to indirect impacts will be disturbed at any one time.

The Project includes the progressive rehabilitation and revegetation of over 1,900 ha of woodland vegetation surrounding the mining areas. Rehabilitated areas will be available for fauna progressively throughout the mine life, and provide buffers from active mining areas to retained habitat. Further, a 185 ha biodiversity corridor will be established to the north of mining areas A and C. This is in addition to the offset package and mine rehabilitation proposed.

The proposed mine rehabilitation, additional 185 ha biodiversity corridor, and additional 1,766 ha of grassland that will regenerate to woodland in the offset areas (not included in the offset calculations), will be more than sufficient to compensate for the likely temporary indirect impacts on 167 ha of woodland and regrowth habitat.

vi Cumulative impacts

The Project will reduce the impacts on native woodland and regrowth by 10% to that assessed in the PPR&RTS. The Project changes will not significantly increase cumulative impacts.

vii Matters of national environmental significance

Matters of national environmental significance (NES) in the PAA are threatened ecological communities, plants, birds, bats, and migratory species. The Project changes (from the PPR&RTS) will affect the following EPBC Act-listed matters:

- a decrease of 8 ha from clearing Grey Box Grassy woodlands (total of 41 ha now in the disturbance area); and
- an additional 6 ha of White Box-Yellow Box-Blakely's Red Gum Grassy Woodland will be cleared (total of 28 ha now in the disturbance area).

The proposed additional impacts to Box Gum Woodland have been considered in and will be compensated through the biodiversity offset package.

Project changes will decrease impacts to EPBC Act-listed Ingram's Zieria and *H. darwinioides*. The amount of habitat and cliff line impacted by the Project has also been reduced, which reduces impacts on threatened fauna including the Large-eared pied bat and Southern long-eared bat. Impacts on threatened species are still considered to be significant and will be compensated by the offset package.

8 Rail transport

8.1 Project changes

The EA considered the delivery of 9.5 Mtpa of coal to four power stations with a further 2.5 Mtpa delivered to domestic customers (including these four power stations) or to Newcastle (Port Waratah or Kooragang) for export. Following the NSW Government announcement that it intends to sell or lease the Project, it is likely that the coal will continue to be supplied domestically (most likely for power generation) with some exported. A further assessment of rail transport has been completed that considers the impact on the rail system if all of the coal is exported as the balance between the domestic and international sales will be determined by the Project owner/operator. While export of all of the coal is unlikely, its the assessment of this scenario allows a range of coal sale options to be considered between the predominantly domestic sales described in the EA and the export of all coal.

8.2 Assessment method

The rail transport impacts would differ '100 percent export scenario' compared the EA scenario as follows:

- there would be no trains travelling to the Central Coast power stations;
- there would be no impact on the level crossings in the Newcastle area (Clyde Street and St James Road);
- the requirement for two new passing loops at Awaba discussed in the EA scenario would no longer be relevant; and
- the requirement to monitor Project coal trains on the Central Coast section of the network would no longer be relevant.

The 2012 Australian Rail Track Corporation (ARTC) *Hunter Valley Corridor Capacity Strategy* which was applied in previous assessments has been applied to the 100 percent export scenario. There has been no change to the assessment method used in the rail transport assessment used in Appendix L of the EA.

8.3 Environmental management

There are generally no changes to the environmental management measures described in the rail transport assessment presented in the EA. However, monitoring of Project coal trains on the Central Coast section of the network as described in the EA would not be required for the 100 percent export scenario.

8.4 Impacts

The potential customers and delivery locations for coal are summarised in Table 8.1.

Table 8.1 Potential destinations of product coal

Scenario	Destination	Location	Distance to rail from Tallawang (km)	Typical number of loaded coal trains each day at full production
EA	Bayswater and Liddell	Upper Hunter Valley	205	1
	Eraring Power Station	Central Coast	346	2 to 3
	Vales Point	Central Coast	360	0 to 1
	For export or other domestic sales	Either Port Waratah or Kooragang Island	313 (to Waratah junction)	1
100 percent export	For export	Either Port Waratah or Kooragang Island	313 (to Waratah junction)	5

Predicted future coal train movements to Newcastle Ports for year 3 (assuming this to be 2017) are detailed in Table 8.2 and for year 7 (assuming this to be 2021) are detailed in Table 8.3. Changes to the train movements in Table 13.6 and 13.7 of the EA are highlighted in bold.

Table 8.2 Predicted future line coal train movements per day in year 3

Line Section	Average tonnage per train	Contracted volume (Mtpa)	Contracted plus prospective volume (Mtpa)	Loaded coal trains per day for contracted volume	Loaded coal trains per day for contracted plus prospective volume	Daily coal train path capacity each way	Daily coal train path capacity utilised for contracted plus prospective volume (%)
Bylong to Mangoola	7,730	47.5	56.5	19.3	22.9	26	88%
Bengalla to Muswellbrook	7,911	71	81	28.1	32.1	66	49%
Werris Creek to Scone	5,825	33.5	48.5	18	26.1	32	82%
Muswellbrook to Antiene	7,240	107	133	46.3	57.6	118	49%
Newcastle Ports	7,187	237	273	103.3	120	160	75%

Table 8.3 Predicted future line coal train movements per day in year 7

Line Section	Average tonnage per train	Contracted volume (Mtpa)	Contracted plus prospective volume (Mtpa)	Loaded coal trains per day for contracted volume	Loaded coal trains per day for contracted plus prospective volume	Daily coal train path capacity each way	Daily coal train path capacity utilised for contracted plus prospective volume (%)
Bylong to Mangoola	7,730	48.5	59.5	19.7	24.1	26	93%
Bengalla to Muswellbrook	7,911	72	84	28.5	33.2	66	50%
Werris Creek to Scone	5,825	33.5	53.5	18	28.8	32	90%
Muswellbrook to Antiene	7,240	108	144	46.8	62.3	118	53%
Newcastle Ports	7,189	239	293	104.2	129	160	81%

8.4.1 Impact on RailCorp line

There will be no trains travelling to the Central Coast power stations in the 100 percent export scenario. The requirement for two new passing loops at Awaba discussed in Section 13.6.5 of the EA would not be relevant, as trains would not travel south of Newcastle.

8.4.2 Level crossings

In the 100 percent scenario, level crossings along the Ulan line would continue to be affected as described in the EA, however the Clyde Street and St James Road crossings in Newcastle and crossings south of Newcastle would no longer be impacted. Collision risks for the remaining seventeen crossings in Denman, Sandy Hollow, Bylong, Ulan, Gulgong and Tallawang are described in Table 8.4.

Table 8.4 Summary of change in collision risks at level crossings

Level crossing location	Type of control	Existing daily train traffic	Proposed daily train traffic	Existing risk of collision per year	Effect of additional trains
Clyde Street	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
St James Road	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Golden Highway at Denman	Active - lights and bells	24	34	0.040 ^[2]	0.080 ^[2]
Rosemount Road at Denman	Active - lights and bells	24	34	0.020	0.030
Bylong Valley Way near Sandy Hollow	Active - lights and bells	24	34	0.020	0.030
Bylong Valley Way at Bylong	Active - lights and bells	24	34	0.040 ^[2]	0.060 ^[2]

Table 8.4 Summary of change in collision risks at level crossings

Level crossing location	Type of control	Existing daily train traffic	Proposed daily train traffic	Existing risk of collision per year	Effect of additional trains
Ulan-Wollar Road near Cumbo	Active - lights and bells and boom gate barriers	24	34	0.005	No change
Ulan-Wollar Road near Wilpinjong	Passive - stop signs	24	34	0.050 ^[2]	No change ^[2]
Ulan mine entrance road	Active - lights and bells	2	12	0.010	0.020
Ulan village main street	Active - lights and bells	2	12	0.010	0.020
Springwood Park Road	Passive - stop signs	2	12	0.040 ^[2]	0.080 ^[2]
White Horse Road	Passive - stop signs	2	12	0.040 ^[2]	0.080 ^[2]
Spring Creek Road	Passive - stop signs	2	12	0.020	0.040
Station Street MR 598	Active - lights and bells	2	12	0.020	No change
Tallawang Street	Passive - stop signs	2	12	0.020	0.040
Black Lead Road	Passive - stop signs	2	12	0.040 ^[2]	0.080 ^[2]
Barneys Reef Road	Passive - stop signs	2	12	0.040 ^[2]	0.080 ^[2]
Jacksons Lane	Passive - stop signs	2	12	0.040 ^[2]	0.080 ^[2]
Puggoon Road	Passive - stop signs	2	12	0.040 ^[2]	0.080 ^[2]

Notes: 1. Collision risk is reduced by about 40% by the road median barrier.

2. Collision risk is increased significantly due to additional road or rail geometry or surface condition defects at the crossing location.

Level crossing safety as described in the EA continues to be applicable for both the EA and the 100 percent export scenario.

Project-related train movements will remain the same between the mine and Bayswater and Liddell power stations as described in the EA and impacts along this rail section will be unchanged. There will be additional trains between these power stations and Newcastle if coal is exported. However, Project-related train movements will be less than 10% of the movements along this rail section and incremental impacts will be small. The impacts on the level crossings in Newcastle and along the Sydney–Newcastle rail line will not occur in the 100 percent export scenario.

It is expected that the impacts of the Project on the rail system will be between the EA scenario and the 100 percent export scenario.

9 Air quality

9.1 Relevant project changes

The EA air quality assessment (EA Appendix M) determined the impacts associated with the Project. In the EA mine plan, mining areas A, B and C were operated concurrently. The revised mine plan, mining areas A and C are operated before progressing to mining area B. The revised mine plan reduces:

- the number of simultaneous active mining areas;
- the size of the active mining areas;
- haul road lengths;
- the distance that material has to be moved; and
- the area of exposed emplaced waste rock prior to rehabilitation.

9.2 Assessment method

The EA air quality assessment (EA Appendix M) estimated emission to air from the Project and undertook dispersion modelling for Years 1, 2, 4, 8, 12, 16 and 20. An air quality assessment for the revised mine plan is presented in Appendix H. This assessment considered estimated emissions to air from the Project and undertook dispersion modelling for Years 8 and 20 when mining operations are concentrated in the north of mining areas A and C and in the south of mining areas B respectively.

Year 8 is representative of the likely 'worst-case' air quality impacts during operations in mining areas A and C because mining is occurring in both the north-west and south-west corners of mining area A and there are receivers to the west of this area (ie downwind during prevailing east winds). Year 20 is representative of the likely worst-case air quality impacts during operations in mining area B because the waste rock is thicker, and correspondingly the waste extraction rate is highest, and there are the greatest haul distances to the CHPP.

The same methods were used as for the EA air quality assessment.

9.3 Environmental management

There are no changes to the environmental management measures described in the air quality assessment presented in the EA and PPR&RTS. As described in the response to PAC Recommendation 7 (Table 2.1 and Section 2.2.3), a range of measures including dust control, a real time predictive and reactive air quality management system and measurement of airborne dust levels will be implemented to minimise dust emissions and to monitor dust levels.

9.4 Impacts

Detailed updated air quality assessment results are presented in Appendix H, including air quality predictions at each residence and air quality contours.

As for the EA, the air quality assessment determined that EPA annual average total suspended particulates (TSP) concentration, PM₁₀ concentration and dust deposition level will be met at all privately owned residences for the representative years 8 and 20. Further, the 24-hour PM₁₀ concentration; and the National Environment Protection Measure 24-hour and annual average PM_{2.5} concentration criteria (cumulative) will be met at all privately owned residences during Year 8. The equivalent incremental (project only) concentrations and dust deposition level will be less than the criteria for years 8 and 16.

The 24-hour PM₁₀, and the 24-hour and annual average PM_{2.5} criteria are predicted to be exceeded in Year 20 at between two and four residences (Table 9.1). These residences are the closest private residences to the south-east, south and south-west of the southern end of mining area B and are predicted to experience higher concentrations than those presented in the EA. For the majority of private residences to the west, north and east of the mining areas, the maximum dust concentrations are likely to be similar to or lower than those presented in the EA.

Table 9.1 Predicted air quality criteria exceedences at privately owned residences (Year 20)

Residence	Number of predicted exceedences in Year 20 (maximum cumulative concentration)		
	PM ₁₀ concentration (µg/m ³) 24-hour average	PM _{2.5} concentration (µg/m ³) 24-hour average	PM _{2.5} concentration (µg/m ³) annual average
Criterion	50	25	8
1178	1 (51.0)	-	-
1198	1 (54.0)	1 (25.5)	(8.6)
1199	1 (52.2)	1 (25.2)	(8.4)
3108	1 (54.2)	-	-

The maximum 24-hour cumulative PM₁₀ concentration is predicted to exceed the criterion over more than 25% of one property consisting of lot/DP: 16/754305, 51/754305, 52/754305, 109/754305 and 1/1136261.

10 Greenhouse gas

10.1 Relevant Project changes

Diesel use (and Scope 1 greenhouse gas emissions) in the mining areas is expected to remain similar to that reported in the EA. The diesel use in the MIA and CHPP is expected to decrease due to the lower mobile plant numbers but this will be offset by higher electricity use (and Scope 2 greenhouse gas emissions) by the stacker and reclaimer.

Scope 3 greenhouse gas emissions will be changed if a greater proportion of the coal is exported (see Section 8.1).

10.2 Assessment method

Section 10.6.5 of the EA air quality and greenhouse gas assessment (Appendix M of the EA) provides two scenarios for the calculation of Scope 3 greenhouse gas emissions:

- Scenario A: 9.5 Mtpa domestic consumption and 2.5 Mtpa export of product coal; and
- Scenario B: 12 Mtpa domestic consumption of product coal.

Scenario C, export of 12 Mtpa product coal is considered in Appendix H. The three scenarios therefore address the potential range of scope 3 greenhouse gas emissions from the Project.

10.3 Environmental management

The greenhouse gas environmental management measures presented in the EA remain current. Greenhouse gas emissions will be recalculated and presented in the greenhouse gas management plan based on detailed design.

10.4 Impacts

Scope 1 and 2 greenhouse gas emissions will be the same for scenarios A, B and C. There are greater Scope 3 emissions for coal that is exported than for that used domestically because of the GHG emissions associated with ship transport and because it is assumed that the GHG emissions for exported coal used internationally are higher than for coal used domestically.

Peak annual Scope 3 GHG emissions for each scenario are (see Appendix H):

- Scenario A: 23.5 Mt CO₂-e
- Scenario B: 23.4 Mt CO₂-e
- Scenario C: 27.3 Mt CO₂-e

The total (Scope 1, 2 and 3) GHG emissions will be about 16% higher if all of the coal is exported compared to if all of the coal is used domestically. However, it is likely that there will be a mix of domestic and export sales so peak annual total GHG emissions will be between 23.8 and 27.7 Mt CO₂-e. In scenarios A and B, the majority of the total of GHG emissions will occur in Australia. In Scenario C, the majority of the total emissions will occur outside of Australia.

11 Noise and vibration

11.1 Relevant Project changes

The EA noise assessment (EA Appendix N) determined the impacts associated with the Project. In the EA mine plan, mining areas A, B and C were operated concurrently. In the revised mine plan, mining areas A and C are operated before progressing to mining area B. Compared to the mine plan presented in the EA, the revised mine plan:

- reduces the number of mobile plant, including replacing the mobile plant (primarily dozers) at the CHPP and coal load-out area with a stacker and reclaimer;
- reduces the number of mining areas open simultaneously; and
- increases waste rock emplacements heights, resulting in an improved attenuation of noise from haul roads due to shielding.

11.2 Assessment method

The EA noise assessment (EA Appendix N) estimated noise levels at sensitive receptors for Years 1, 2, 4, 8, 12, 16 and 20.

A noise assessment for the revised mine plan is presented in Appendix I. This updated the EA noise model to predict noise levels at sensitive receptors for Year 8 and Year 20 of the revised mine plan. These years were selected as being representative of the worst-case mine years on the same basis as for the air quality assessment (see Section 9.2).

The same methods were used as for the EA noise assessment. However, the assessment of the rail noise for realigned rail spur presented in the PPR&RTS was updated based on the recently released *Rail Infrastructure Noise Guideline* (RING) (EPA 2013). This included more detailed consideration of train speeds and mitigation measures. The RING specifies that the noise levels from the rail spur should be assessed separately from the noise levels for the rail loop and mine. The noise levels from the rail spur are compared to noise criteria in the RING while noise levels from the rail loop and mine are compared to noise criteria in the *Industrial Noise Policy* (EPA 2000).

11.3 Environmental management

There are generally no changes to the environmental management measures described in the noise assessment A. However to ensure that RING criteria are met, train speeds along the rail spur will be restricted with speed limit signs installed, and earth bunds will be installed along sections of the rail spur.

11.4 Impacts

Detailed updated noise assessment results are presented in Appendix I, including the noise levels at residences and noise contours.

Based on the Year 8 and Year 20 noise modelling, noise levels will generally be the same or lower at private residences compared to those presented in the EA. The reduced noise levels are due to the removal of several dozers in the CHPP, the reduced number of mining areas and the increase in emplacement heights improving attenuation of noise from haul roads. Noise criteria will be met at all private residences.

At private residences 3062 and 3108, the rail spur realignment will result in an increase in noise levels compared to the EA as the realigned rail spur will be closer to these residences. The affect of train speed on these noise levels was modelled but compliance with the RING criteria was not achieved at these residences. Therefore, the following earth mounds are proposed:

- residence 3108, 1.8 m in height from ground height of the track and 250 m long; and
- residence 3062, 3.5 m in height from ground height of the track and 200 m long.

With the use of the earth mounds in combination of train speed limits, the RING criteria will be satisfied at these private residences (see Appendix I).

12 Visual and lighting

12.1 Project changes and assessment

12.1.1 Relevant Project changes

The Project changes that relate to visual impacts are:

- revised mine sequencing — mining will commence in mining areas A and C and then move to mining area B in Year 10 as opposed to operating in all mining areas simultaneously. This will reduce the time that visual receptors will be exposed to active mining and waste rock emplacement prior to rehabilitation;
- reduced mining fleet — the reduction in the number of dozers, excavators and haul trucks as a result of decreasing the number of mining areas operating simultaneously will reduce the potential for light spill and views of mobile mine machinery operating in active mine areas;
- modifications to out-of-pit waste rock emplacements as described in the PPR&RTS, including:
 - the maximum height of AC-OOP waste rock emplacement increasing from RL 430 m to RL 450 m;
 - the maximum height of B-OOP W waste rock emplacements increasing from RL 430 m to RL 450 m;
 - the maximum height of waste rock emplacement B-OOP E (RL 450 m) remains unchanged but the footprint has been reduced;
- the rail spur alignment will be refined as described in the PPR&RTS; the maximum lateral change will be 250 m along the 28-km long rail spur, which has decreased the distance to the nearest private residences by less than 130 m; and
- the Spring Ridge Road diversion will be modified so that it does not pass between the B-OOP W and B-OOP E waste rock emplacements as described in the PPR&RTS. The diversion proposed in the EA would have provided motorists views of the MIA and brought them within several hundred metres of the large waste rock emplacement areas. The proposed diversion will now link up with the Golden Highway to the existing Spring Ridge Road to the south of mining area B, taking traffic around as opposed to through the mine.

12.1.2 Assessment method

The assessment of the impacts at each of the viewpoints and private receptors in EA has been updated using the methods described in the EA (Section 17.2). The assessment considered whether the level of visual impact will change at each location and whether the original mitigation measures proposed remain relevant or require change.

12.1.3 Environmental management

The EA states a lighting management plan detailing the installation and operation of fixed and mobile lighting sources will be prepared. The plan will also describe design features for particular buildings, permanent lighting structures or operating equipment. It will be prepared to ensure the Project's compliance with AS 4282 – Control of Obtrusive Effects of Outdoor Lighting and AS/NZS 1158 – Lighting for Roads and Public Spaces. The plan will also contain protocols to ensure compliance with Warrumbungle Development Control Plan No.1 – Shire Lighting Control to protect Siding Spring Observatory (SSO).

A landscape management plan will also be prepared (EA Section 17.4) that will detail planting and earth mounding measures to reduce the exposure of various viewpoints to the mine operation and infrastructure. Vegetative screens will be based on species common to the immediate area.

In December 2012, CHC commissioned a detailed site assessment of all public roadways and private residences recommended in the EA for vegetative screening. This assessment quantified the amount of screening, location and species selection.

12.1.4 Impacts

The height of the northern end of the AC-OOP waste rock emplacement will increase from RL 430 m to RL 450 m (as described in the PPR&RTS). The elevation of the existing ridgeline that defines the northern extent of the mining area (mining area C) varies from 430 to 480 m (above sea level). Consequently, some of the waste rock emplacement area and the final landform will protrude above the ridge and potentially will be seen from the north-west. However, there are bands of vegetation between the ridgeline and Cobbora village which will act as a natural screen for mining operations.

This foreground vegetation combined with the distance of over 4 km to the nearest privately owned residence (residence 1172), will mean that views of the waste rock emplacements will be practically imperceptible. There will be some minor skyglow from mine plant and machinery at night particularly when there is low cloud.

The height of the B-OOP W waste rock emplacement will increase from RL 430 m to RL 450 m (as described in the PPR&RTS). This is over 5 km from the nearest private residences (1178, 1198 and 1199) and the 20 m height increase will not significantly change the visual impacts at these locations.

The visual impacts from each of the viewpoints and private residences incorporating the Project changes are provided in Table 12.1.

Table 12.1 Visual impacts and mitigation commitments

Area impacted	Detail of visual impacts described in the EA	Impact of Project change
VP1 – Golden Highway	Visual impact of Mining Area A active emplacement from Years 4 to 20	Changes in mine sequencing will result in views to active mining from Year 1, however, the northern end of Mining Area A will now be rehabilitated by Year 12, reducing the time viewers at VP1 will be exposed to mining operations
	Visual impact of mobile mine equipment working on active emplacements and batters	As above
	Visual impact of active mining operations at the northern tip of Mining Area A between Years 16 and 20	As above
	Distraction to motorists from light spill from mobile mine machinery and mobile lighting towers	As above
VP2 – Sweeneys Lane	Visual impact of mining areas A and C active emplacements from Years 1 to 20	Temporary views of the increased height of AC-OOP until Year 8 from a distance of more than 2 km. From this viewpoint, the increased height of B-OOP W will become largely imperceptible
	Visual impact of mobile mine machinery working on active emplacements and batters to mining areas A and C	Potential increased light spill from machinery operating at higher level. However, the mitigation measures will remain the same. Reduced period of exposure due to changes to mine sequencing
	Visual impacts to active mine operation associated with mining area A	As above
	Distraction to motorists from light spill from mobile mine machinery and mobile lighting towers	As above
VP3/ VP4 – Sweeneys Lane at Willow Park	Visual impact of mining area A and C active emplacements from Years 1 to 20	Changes in mine sequencing will result in views to active mining from Year 1. However, the northern end of Mining Area A will now be rehabilitated by Year 12, reducing the time viewers at VP1 will be exposed to views of mining operations
	Distraction to motorists from light spill from mobile mine machinery and mobile lighting towers	Potential increased light spill from machinery operating at higher level. However, the mitigation measures will remain the same. Reduced period of exposure due to changes to mine sequencing
Residence 1222	Visual impacts associated with active emplacements and night lighting to mining area A from Year 1 to 20. Impact reduces from Year 8 with progressive rehabilitation of active emplacements	- This residence has been acquired by CHC - Vegetative screening will be provided for the benefit of current and future tenants of the property, as per the site assessment

Table 12.1 Visual impacts and mitigation commitments

Area impacted	Detail of visual impacts described in the EA	Impact of Project change
Residence 1223	Potential visual impacts associated with active emplacements and night lighting to mining area A from Years 1 to 20. Impact would reduce from Year 8 with progressive rehabilitation of active emplacements	- CHC has acquired this residence - Vegetative screening will be provided for the benefit of current and future tenants of the property, as per the site assessment
Residence 3224	- Visual impact of mining areas A and B active emplacements from Years 1 to 20. Impact from Mining Area A reduces from Year 8 with progressive rehabilitation of active emplacements. Some rehabilitation of emplacements will start in Year 12; however, most rehabilitation does not occur until Year 21 - Impacts of views to B – OOP E until Year 4 when rehabilitation is complete - Impacts of views to CHPP area, which will remain for life of the Project - Night light impacts from above operations	- Residence 3224 remains privately owned - Vegetative screening will be provided for the benefit of current and future tenants of the property, as per the site assessment
Residence 3218	Visual impact of mining areas A and B active emplacements from Years 1 to 20. Impact from mining area A reduces from Year 8 with progressive rehabilitation of active emplacements. Some rehabilitation of emplacements will start in Year 12; however, most rehabilitation does not occur until Year 21	- CHC has acquired this residence - Vegetative screening will be provided for the benefit of current and future tenants of the property, as per the site assessment
Residence 1213	Visual impact of Mining Areas A and B active emplacements from Years 1 to 20. Impact from Mining Area A reduces from Year 8 with progressive rehabilitation of active emplacements. Some rehabilitation of emplacements will start in Year 12; however, most rehabilitation does not occur until Year 21	- CHC has acquired this residence - Vegetative screening will be provided for the benefit of current and future tenants of the property, as per the site assessment
VP5 – Spring Ridge Road/mine access road	Visual impacts from mining areas A and B active emplacements, AC-OOP, B-OOP W and B-OOP	The amended Spring Ridge Road diversion is no longer between B-OOP W and B-OOP E waste rock emplacements. There will be no foreground views of these emplacements
	Potential distraction to motorists from views to CHPP area and ROM coal stockpile	The mine access road off the Spring Ridge Road diversion will only be used by traffic travelling to the mine. Only mine-related traffic will have foreground views of the CHPP and ROM coal stockpile
	Light spill and sky glow impacts from mine operations and infrastructure	The amended Spring Ridge Road diversion will result in motorists being further from lighting sources associated with the Project

Table 12.1 Visual impacts and mitigation commitments

Area impacted	Detail of visual impacts described in the EA	Impact of Project change
VP6 – Dapper Road/Spring Ridge Road diversion	- Visual impact of mining area B active emplacements from Years 1 to 20 - Visual impacts to active mine operation associated with Mining Area B from Years 1 to 20 - Light spill and sky glow associated with active mine and active emplacement operations in mining area B and B-OOP W.	- The Spring Ridge Road diversion is now to be built before operations begin, rather than in Year 12, as assessed in the EA. Realignment before mining begins, combined with targeted vegetative screening along this alignment, will result in better visual amenity from this viewpoint - As above - As above
VP7 – Spring Ridge Road and Laheys Creek Road intersection	- Visual impact of mining area B active emplacements from Years 12 to Year 20 and B-OOP W from Years 8 to Year 16 - Light spill and sky glow associated with active mine and active emplacement operations in Mine Area B and B-OOP W	- Due to intervening topography and distance (more than 1 km), views of B-OOP E will not be possible. Therefore the increased height of the waste rock emplacement will have no impact - No change
VP8 – Laheys Creek Road (rail crossing)	The rail crossing embankment will create a new dominant/permanent visual element in the landscape	No change
Residence 3108	Visual and lighting impact of train movements close to receptor	Minimal change in the alignment of the rail line close to this private residence. No change in the level of visual impact from this element of the Project. Proposed targeted vegetative plantings between the rail spur and this residence will assist in reducing the visual impacts of the rail spur on this property over the life of the Project
Residence 5001	Visual and lighting impact of train movements close to receptor	Minimal change in the alignment of the rail line close to this private residence. No change in the level of visual impact from this element of the Project. Proposed targeted vegetative plantings between the rail spur and this residence will assist in reducing the visual impacts of the rail spur on this property over the life of the Project
VP9 – Brooklyn Road	Visual and lighting impact of train movements close to roadway	No change

Table 12.1 **Visual impacts and mitigation commitments**

Area impacted	Detail of visual impacts described in the EA	Impact of Project change
Residences: 3062, 3052, 3057, 3041, 3043	- Visual and lighting impact of train movements close to receptor - Visual impact of railway embankments creating a dominant visual element in the landscape	- Residence 3057 has been acquired by CHC - Subdivisions have occurred and CHC own the land through which the rail line traverses on 3041 and 3043 - CHC has a purchase agreement in place with 3052 if the owner decides to sell - Vegetative screening will be provided for the benefit of current and future tenants of the properties, as per the site assessment. Residence 3062 remains privately owned. Vegetative screening will be provided to obscure the property's views to the rail line, as per the site assessment
VP10 and VP11 – Castlereagh Highway	Potential lighting impacts of train movements approaching highway	No change

13 Aboriginal heritage

13.1 Project changes

The disturbance footprint of the Project has been reduced. This will result in minor changes to the predicted impacts to Aboriginal heritage. Most of the disturbance footprint reductions occur away from major water courses and other archaeologically sensitive areas so will not change the predicted impacts. However, some areas of archaeological significance or sensitivity will now be avoided, particularly four Aboriginal sites in the previous MIA footprint and areas of archaeological sensitivity adjacent to Laheys Creek. Approximately 11 ha of archaeologically sensitive land will now be avoided compared to the PPR&RTS design.

Changes to the haul road adjacent to the MIA and the B-OOP E area will impact one previously avoided Aboriginal site. Changes to the MIA and mining area C adjacent the MIA will now impact two previously avoided Aboriginal Sites.

13.1.1 Assessment method

The Project changes were considered against the location of Aboriginal heritage sites and the archaeologically sensitivity model to determine the impacts of the revised Project.

13.1.2 Environmental management

A draft Aboriginal cultural heritage management plan (ACHMP) has been prepared to manage Aboriginal heritage values within the PAA. This has been prepared in consultation with registered Aboriginal parties (RAPs) for the Project and the OEH. The OEH found that the plan was considered adequate (see response to PAC Recommendation 25 in Table 2.1).

Management of Aboriginal cultural heritage will include a salvage program for those Aboriginal sites and archaeologically sensitive areas disturbed by the Project, as well as protection of Aboriginal sites occurring close to mine activities. Changes to the management measures for Aboriginal sites are shown in Table 13.1.

Table 13.1 Management measures at Aboriginal sites

Management	Number of Aboriginal sites
Passive management: avoid	109
Active management: fence and avoid	48
Collect and set aside	11
Collect	53
Salvage and relocate	1
Salvage excavation	7
Total	229

13.1.3 Impacts

There are 1,830 ha of archaeologically sensitive areas within the PAA. Of this, 243 ha (13%) will be impacted by the Project, 11 ha less than proposed in the PPR&RTS (254 ha). The revised Project will also impact less Aboriginal heritage sites than the Project presented in the PPR&RTS (Table 13.2).

Table 13.2 Number of Aboriginal heritage sites impacted

Impact type	Revised Project
Removed ¹	46
Partially removed ²	14
Disturbed ³	0
Partially disturbed ⁴	9
Undisturbed	160
Total	229

Notes: 1. Removed is defined as total removal of a site's elements and the information they contain.

2. Partially removed entails the removal of a part of a site.

3. Disturbed means Aboriginal sites and objects will be disrupted and moved a short distance through displacement of ground and results in removal of some site context and spatial patterning.

4. Partially disturbed involves disturbance to a part of the site and the partial removal of site elements.

The sites where the predicted impacts to Aboriginal heritage sites have changed due to the Project revisions are presented in Table 13.3. All Aboriginal heritage sites recorded in the PAA and the management measures that will be implemented at the sites impacted by the Project are listed in Appendix J.

Table 13.3 Impacts to Aboriginal sites

Site name	Site type	Project impact	Management	Scientific significance
CBR-OS-18	Open stone artefact	None	Avoidance	Moderate
CBR-OS-18b	Open stone artefact	None	Avoidance	Low
CBR-OS-29b	Open stone artefact	None	Fence and avoid	Moderate
CBR-OS-29c	Open stone artefact	Haul Road	Collection	Moderate
CBR-OS-29g	Open stone artefact	Mining Area C	Collection	Moderate
CBR-OS-29h	Open stone artefact	Mining Area C	Collection	Moderate
CBR-OS-34a	Open stone artefact	Haul Road	Collection	Moderate
CBR-OS-36	Open stone artefact	Emplacement	Collection	Low
CBR-OS-38a	Open stone artefact	Haul Road	Collection	Low
SAC 24	Open Stone Artefact	None	Fence and avoid	Moderate
SAC 25	Open Stone Artefact	None	Fence and avoid	Moderate
SAC 29	Open Stone Artefact	Haul Road	Collection	Moderate

Overall, the Project changes will result in fewer impacts to Aboriginal objects and sensitive areas. Fewer Aboriginal sites will be completely removed and more Aboriginal sites will be avoided.

14 Economic impacts

14.1 Relevant Project changes

On 1 July 2013, the NSW Government announced that it intends to sell or lease the Cobbora Coal Project and that the agreements with Origin Energy, Macquarie Generation and Delta Electricity to supply coal to four large coal-fired power stations in NSW will be terminated. Coal from the Project will be supplied both to the domestic (most likely for power generation) and international markets.

14.2 Assessment method

The EA economic assessment (Appendix R of the EA) provided:

- a benefit-cost analysis (BCA) of the Project; and
- a regional economic impact assessment of the Project.

The implications of ownership changes for these two components are considered in Appendix K.

14.3 Impacts

14.3.1 Benefit-cost analysis

The BCA used the economic value of the coal produced rather than its negotiated financial value. Therefore a change in ownership will not change the estimate of the total net production benefits of the Project. However, it will change the distribution of net production benefits and potentially the level of net production benefit that accrues to Australia and NSW.

The EA economic assessment found that the net production benefits of the Project will mainly accrue to:

- the NSW Government via royalties (estimated at \$407m or \$158m present value at 7% discount rate) which are subsequently used to fund provision of government infrastructure and services across the State, including the local region; and
- coal-fired power generators in NSW through the provision of lower cost coal and subsequently NSW electricity consumers (and to a lesser extent Australian electricity consumers) through the provision of lower cost electricity (estimated at \$1,856m).

Net profit accruing to CHC and its shareholder and company tax accruing to the Commonwealth Government would most likely be minimal given the cost recovery nature of the Project.

If the Project is purchased or leased at its full economic value, the purchase/lease price will reflect the discounted after tax and after royalties net profit over the life of the Project. Net profit from the commercial Project will therefore be captured by the NSW Government. Company tax and royalties will also accrue from the Project as mining occurs.

Under this scenario, the total net production benefit to Australia would still be the same as previously estimated, however the distribution of the net production benefits would change. A broad comparison of the distribution of the net production benefits of the Project under CHC ownership and if sold or leased is provided in Table 14.1.

Table 14.1 **Distribution of net production benefits of the Project with different ownership**

Component of net production benefit	Project as presented in the EA	Sale/lease of Project
Net profit	Zero as a cost recovery project	Positive net profit but captured by NSW Government in sale price/lease price
Company tax	Zero as a cost recovery project	Positive as now a commercial project
Royalties	Positive (\$158m present value)	Positive and greater than original project estimate due to the greater level of revenue
Cheap coal to NSW generators	Positive (\$1,856m present value)	Zero
Community contributions	Positive (unquantified)	Positive (unquantified)

While the net production benefit to Australia will not change under the new scenario, the net production benefit that accrues to NSW will be reduced as the Project will no longer deliver low cost coal to NSW coal-fired power generators and some of the net production benefit would accrue to the Commonwealth Government via company tax, rather than NSW.

If the sale or lease price of the Project does not reflect the full economic value of the mine then some of the net profit will be shared between the NSW Government and the new purchaser – this may reduce the total net production benefit to Australia if the purchaser has overseas shareholders.

14.3.2 Regional economic impact assessment

Using input-output analysis, the Economic Assessment of the Project estimated that it would make up to the following contribution to the regional economy:

- \$714m in annual direct and indirect regional output or business turnover;
- \$184m in annual direct and indirect regional value-added;
- \$102m in annual direct and indirect household income; and
- 1,170 direct and indirect jobs.

For the NSW economy, the operation of the Project was estimated to make up to the following contributions:

- \$1,307m in annual direct and indirect output or business turnover;
- \$472m in annual direct and indirect value-added;
- \$267m in annual direct and indirect household income; and
- 3,150 direct and indirect jobs.

These estimates were based on the revenue, expenditure and employment profile associated with Project. Selling the coal at a market price rather than a lower negotiated price would increase the estimated value for direct output and direct value-added but would not change household income and employment.

15 Social impacts

15.1 Relevant Project changes

The PAC Review provides a number of recommendations to address the socio-economic impacts of the Project (see Chapter 2).

While Project commencement will be delayed as a result of the decision to sell or lease the Project, it is not expected that there will be any change to the Project construction and operations workforce, the source of these workers or the predicted residential distribution.

15.2 Assessment method

The social assessment presented in EA Appendix S (September 2012) has been reviewed to determine the impacts of a Project delay of up to five years.

15.3 Management measures

The EA (Section 21.4) presents a range of management measures to minimise social impacts. These are discussed below along with additional measures in response to the PAC recommendations.

15.3.1 Land management

The integrated land management plan (see response to PAC Recommendation 1 in Table 2.1) will provide a framework for holistic long-term land management based on aggregation of land parcels and flexible licence tenure agreements. Its objective will be to maximise the sustainable commercial return to the licensees of CHC-owned agricultural land.

The strategy will aggregate land having similar characteristics and potential uses. Land not required for mine operations will be licenced for a term of five years with an option exercisable by the licensee to extend the term for a further five years. Lands that may experience disruption due to construction or operations will have a more flexible short term licence (generally two to three years).

Experienced farmers will be selected by open public tender and will need to agree to a commercially acceptable licence agreement that will require that the property continues to be operated as an agricultural enterprise (see responses to PAC recommendations 1 and 2 (Table 2.1) and Section 2.2.1).

15.3.2 Workforce training

CHC will maximise local employment and provide training and education opportunities by:

- offering apprenticeships, traineeships and scholarships for young people through partnerships with local tertiary and educational providers;
- preparing labour force recruitment strategies that initially focus on in-house training for less skilled operator positions;
- actively pursuing equal employment opportunity in hiring the workforce; and
- working closely with the Aboriginal community to promote ongoing employment.

The existing eight apprentices will continue to be sponsored until their apprenticeships are complete.

Implementation of the remaining commitments will be continued once the Project is sold or leased.

15.3.3 Economic development

CHC will maximise local business opportunities by:

- giving preference (where cost-effective) to local suppliers for the Project's requirements;
- developing a register of local businesses that will be used to notify them of upcoming tenders; and
- assisting in the development of systems that will be required for businesses that will service the mine operations.

Local suppliers will be given preference during land management activities.

15.3.4 Local employment and training partnerships

Partnership structures and mechanisms have been established with agencies, councils and education providers and businesses. Mechanisms to promote local employment and training will be provided by the future mine operator, although the partnership structures and mechanisms are likely to be reviewed before they are implemented.

15.3.5 Community sponsorship

CHC will continue community sponsorship of existing local groups and institutions. Future sponsorship will be reviewed once the Project is sold or leased.

15.3.6 Consultation and communication

CHC will continue to provide updates on the status of the Project to the local and regional community.

Once the Project is sold or leased, regular updates will be provided to councils and service providers regarding Project timing and the rate that the workforce will be built up to enable them to respond to any increase in demand for community facilities and services. Emphasis will be placed on the needs of a younger population, including childcare, young children and youth facilities and services where the analysis identified a potential shortfall.

15.3.7 Voluntary Planning Agreements

The Voluntary Planning Agreements (VPAs) continue to be discussed with the four councils with intension of completing the agreements as soon as possible. As a minimum and in accordance with recent Project Approvals conditions for other mines in NSW, it is proposed that CHC will enter into planning agreements with the councils within six months Project Approval unless the Director-General agrees otherwise.

15.3.8 Local transition plan

A local transition plan will be developed by a committee including the parliamentarians Hon. Troy Grant (Member for Dubbo, Chair), Hon. Kevin Humphries (Member for Barwon) and Hon. Andrew Gee (Member for Orange) with CHC.

15.4 Impacts

The social assessment presented in EA Appendix S (September 2012) considered the social impacts during construction and operations.

The construction impact assessment assumed that Project construction would occur in the economic conditions experienced in 2012. These conditions were characterised by low levels of labour and accommodation availability, particularly in Mid-Western Regional local government area. Economic activity associated with mining has slowed since the original assessment was completed.

The economic conditions that will occur at the time of Project construction are uncertain. Although these conditions may be different, it is unlikely that labour and accommodation availability will be higher than in 2012. Therefore, the mitigation measures presented in the EA and PPR&RTS to minimise social impacts during construction, including the construction of the temporary construction accommodation village, will ensure that social impacts during construction will be less than or similar to the impacts predicted in the EA social assessment.

The operations impact assessment considered the life of the mine over 21 years. A range of economic conditions can be expected over this period and a delay of up to five years will not change the overall social impact assessment conclusions.

16 Statement of commitments

The commitments made by CHC to manage potential environmental and social impacts are provided in Chapter 21 of the PPR&RTS. These have been updated to address the recommendations in the PAC Review report.

16.1 Health, safety, environment and community management system

CHC's health, safety, environment and community (HSEC) management system will include a construction environmental management plan (CEMP), and an operations environmental management plan (OEMP).

16.1.1 Construction environmental management

The CEMP will detail the site-specific management measures to be implemented during construction, including timeframes and responsibilities. It will describe the management of all potential material construction impacts identified in this EA, being:

- Aboriginal heritage;
- air quality;
- biodiversity;
- groundwater;
- historic heritage;
- noise and vibration;
- surface water (including erosion and sediment control);
- traffic; and
- waste.

An integrated land management plan will be prepared that will describe the management of CHC owned land, including offsets.

Rehabilitation will be undertaken based on the rehabilitation strategy.

The CEMP will be prepared by appropriate specialists in consultation with relevant government agencies. It will be approved by DP&I and be consistent with the conditions of Project approval.

16.1.2 Operations environmental management plan

The OEMP will detail the site-specific management measures to be implemented during operations, including timeframes and responsibilities. The OEMP will contain the following sub-plans:

- Aboriginal heritage;
- air quality;

- biodiversity (including bushfire);
- flood emergency;
- groundwater;
- historic heritage;
- land management;
- landscape;
- lighting;
- noise and vibration;
- rehabilitation (including soil management);
- spontaneous combustion;
- surface water (including erosion and sediment control);
- traffic; and
- waste.

A mine closure plan will be prepared in Year 15.

The OEMP will be prepared by appropriate specialists in consultation with relevant government agencies. It will be approved by DP&I and will be consistent with the conditions of Project approval.

16.2 Commitments summary

A summary of key commitments is provided in Table 16.1. Commitments added since the preparation of the PPR&RTS are underlined.

Table 16.1 Summary of key commitments

Item	Commitment	Section
Ongoing		
1	CHC will continue to work closely with local, State and Commonwealth authorities, service providers, community groups and affected landowners so that the Project meets community expectations to the greatest extent practical.	EA Chapter 5
2	<u>The Project will apply best practice management measures where the application of these measures will reduce risks or impacts to be as low as reasonably possible.</u>	Table 2.1
3	<u>The mine plan will initially focus on mining area A and C before opening up area B subject to the mine plan's ability to meet coal quality requirements.</u>	Table 2.1
Geochemistry		
4	An additional geochemistry assessment report will be provided to DP&I and published on CHC's website <u>[See Supplementary Information Report (May 2013) Appendix C].</u>	PPR&RTS Section 5.2.1
5	<u>A draft waste rock management plan will be submitted to DP&I three months prior to the start of the initial mine box cut and that this plan will be finalised to the satisfaction of the Director-General of DP&I as soon as possible based on the comments received from DP&I, EPA and NOW.</u>	Supp. report Appendix A
6	<u>Surface water monitoring programs will be provided in the groundwater and surface water plans to detect any AMD.</u>	
Groundwater (and groundwater/surface water)		
7	If water levels in a private bore potentially impacted by the Project decrease more than 2 m (ie more than natural variability), the reason will be investigated. CHC will take corrective action if the decrease is a result of the Project.	EA sections 7.4 and 7.6
8	Groundwater licences will be bought to match the quantity of water that enters the pits over the life of the mine.	PPR&RTS Section 6.2.6
9	Groundwater will be monitored during and after the life of the mine.	
10	<u>The following contaminated water storages will be lined with clay to achieve a permeability of 1×10^{-9} m/s or less with a recompacted clay liner at least 90 cm thick (or an equivalent geosynthetic liner):</u> <u>the out-of-pit tailings storage facility; and</u> <u>mine water dams.</u>	Supp. report Appendix A
11	<u>An assessment of the clay and its suitability for the contaminated water storages liners (ie to achieve the permeability criteria) will be prepared by a suitably qualified expert based on the results of the test work underway. If there is not suitable clay available, the assessment will assess alternative liners and will provide an alternative liner proposal.</u>	
12	<u>A further assessment of the potential for seepage from contaminated water storages and from in-pit tailings storage facilities to contaminate groundwater will be undertaken by a suitably qualified expert based on the results of the water storages liners assessment.</u>	
13	<u>Additional information regarding the dam liners and potential contamination assessment will be completed in consultation with the EPA and to the satisfaction of the Director-General of the DP&I prior to the start of construction of the contaminated water storages and TSFs.</u>	
14	<u>Contaminated site assessments will be completed for the previous piggeries at "Yallambee" and "Danabar" prior to disturbing the sites or within 2 years of the start of operations (defined by product coal leaving the site), whichever is sooner.</u>	
15	<u>CHC will prepare a groundwater management plan in consultation with EPA and NOW and to the satisfaction of the Director-General of DP&I.</u> <u>The construction plan will be finalised prior to the start of construction and the operations plan will be finalised prior to the start of the initial box-cut.</u>	

Table 16.1 Summary of key commitments

Item	Commitment	Section
Surface water		
16	As much water as practical will be recycled on site.	
17	Water will be managed to ensure sufficient is available for operations and that any excess water does not increase flooding or cause material downstream quality impacts.	
18	CHC will enter into an extraction strategy agreement with State Water Corporation to help minimise transmission losses from the Cudgegong River and maximise the use of excess flows in the lower reaches of the river.	EA sections 8.4 and 8.6
19	Excess water access licence entitlements will be sold back into the market wherever practical.	
20	Surface water will be monitored upstream and downstream of the mine.	
21	<u>All contaminated water (runoff from pit, plant and all mine active areas) will be captured and retained on site within the mine water dams.</u>	Table 2.1
22	<u>Where water from sediment dams does not comply with discharge criteria then it will be transferred to the mine water dams.</u>	
23	<u>CHC will monitor the development of dewatering technologies including undertaking testwork and piloting if a technology appears to be environmentally and economically promising. As a minimum, a feasibility study will be undertaken to determine the preferred dewatering option before in-pit tailings placement is required.</u>	
24	<u>Flocculants will be used in sedimentation dams that have low ecotoxicity and records will be maintained of the flocculants used on the site, product ecotoxicity information and application rates.</u>	
25	<u>Sedimentation basins will be designed, constructed and operated in accordance with only the following guidelines:</u> • <u>Managing Urban Stormwater: Soils and Construction Volume 1 (Landcom 2004); and</u> • <u>Managing Urban Stormwater: Soil and Construction: Volume 2E Mines and Quarries (DECC 2008).</u>	Supp. report Appendix A
26	<u>CHC will prepare surface water management plans (SWMPs) in consultation with EPA and NOW and to the satisfaction of the Director-General of the DP&I.</u> <u>The construction SWMP will be finalised prior to the start of construction and the operations SWMP will be finalised prior to the start of the initial box-cut.</u>	
Soils and agriculture		
27	Disturbed areas will be progressively rehabilitated and will include agricultural land to replace impacted areas.	
28	No Rural Land Capability Class I land will be disturbed in the PAA and only about 3 ha of Class II land will be disturbed.	EA sections 9.4 and 9.6
29	The same area of Class III land will be reinstated following mining as currently occurs in the disturbance footprint.	PPR&RTS Section 8.1.3
30	Disruption to agricultural activities outside the disturbance footprint will be minimised by offering long-term licences to affected farmers.	
31	Rehabilitation will be regularly monitored and adapted as required to meet the final landform and landuse objectives.	

Table 16.1 Summary of key commitments

Item	Commitment	Section
32	<u>A draft integrated land management plan will be prepared for review by the Director-General of the DP&I within six months of receiving NSW Project approval.</u>	Table 2.1
33	<u>The integrated land management plan will be prioritised and parts will be implemented prior to finalisation of the plan to the satisfaction of the Director-General, eg land improvements.</u>	
34	<u>The land tenure and management program will be implemented that aggregates properties into larger parcels for tender for long term licences through an open advertised process.</u> <u>Tenderers will be required to demonstrate their understanding and experience of sustainable land management. Licence agreements will require land managers to implement good land management practises.</u>	
35	<u>A bushfire management plan will be part of the integrated land management plan.</u>	
36	<u>CHC’s land management budget will include funds for the implementation of the integrated land management plan.</u>	
37	<u>Local land management training opportunities will be developed as part of the integrated land management plan development.</u>	
38	<u>A Land Care Specialist will be appointed by CHC with particular expertise in land rehabilitation and regeneration of native vegetation.</u>	Table 2.2
39	<u>A mine rehabilitation management plan that incorporates the PAC Review recommendations on rehabilitation will be prepared based on the mine rehabilitation strategy.</u>	
40	<u>Soil structure related parameters will be incorporated into the soil monitoring program. Monitored parameters will include organic carbon, Emerson Aggregate Test, available water capacity and bulk density.</u>	
41	<u>A two stage strategy will be implemented to address the short fall in soil organics. This will be based on growing a dense, sterile, cereal cover crop which will be ploughed into the topsoil layer at maturity.</u>	
42	<u>Sodic sub-soil will only be applied to reinstated Class III land.</u>	
Ecology		
43	Impacts on terrestrial and aquatic biodiversity will be avoided or minimised as far as practical.	EA sections 10.4, 10.6 and 10.7 PPR&RTS Section 9.5.3
44	Native vegetation will be progressively cleared and rehabilitated, with only a proportion removed at any one time.	
45	Progressive rehabilitation will re-establish ecological communities.	
46	A biodiversity offset package will initially maintain and ultimately improve the ecological values of the region through the permanent conservation of lands that have no potential for coal mining.	
47	The biodiversity offset package will create or enhance vegetation corridors between remnant vegetation to the north, east and south of the mining area.	
48	Ecological monitoring will allow management to be progressively refined during the life of the Project and beyond.	
49	An aquatic monitoring strategy will be developed to detect changes to the quality and quantity of water in the semi-permanent pools in Laheys and Sandy creeks. A River Monitoring Committee (including Fisheries NSW, NSW Office of Water and other appropriate agencies) will be formed to review the results from this strategy and to assist formulate adaptive management measures.	Table 2.1
50	<u>Once the offset package is agreed, a biodiversity offset management plan will be prepared that will detail the regeneration of biodiversity offset areas.</u>	
Bushfire		
51	Asset protection zones will be provided around all buildings on bushfire-prone land.	EA sections 11.4
52	CHC will maintain resources (water, equipment and personnel) for bushfire control.	
53	CHC will relocate the Dapper Brigade Shed in consultation with NSW Rural Fire Service.	Table 2.1

Table 16.1 Summary of key commitments

Item	Commitment	Section
54	CHC is advised that the Dapper Rural Fire Service Brigade may be merging with the Cobbara Rural Fire Service Brigade. Once resolved, CHC will contribute to resourcing the brigade servicing the area surrounding the Project and providing mine personnel to support the brigade for the life of the Project.	
Road transport		
55	Road capacity improvements, traffic management controls and road safety measures will minimise impacts to the road network and ensure that road and intersection services are maintained.	EA sections 12.4 and 12.6
56	Roads that need to be closed will be replaced with new roads that will accommodate the predicted vehicle sizes and traffic frequencies.	PPR&RTS Section 11.2.3
57	The Spring Ridge Road realignment will carry all of the heavy vehicle traffic and most of the light vehicle traffic to and from the mine via the Golden Highway.	
58	CHC will commit the necessary resources to set up and support a workplace travel plan to maximise car pooling for the shift and mine management workforce.	
59	<u>The Spring Ridge Road diversion will be constructed to the meet the relevant standards given in the Austroads Guide to Road Design 2010.</u>	
60	<u>Heavy vehicles (greater than a tare weight of 30 tonnes) will not be permitted to deliver goods or materials to the mine outside of the following hours:</u> <u>Monday to Friday: 7 am to 6 pm</u> <u>Saturday: 8 am to 1 pm</u> <u>no deliveries will be permitted on Sundays or public holidays.</u> <u>These restrictions may be varied as directed by the Police, or Roads and Maritime Services, or other emergency services for safety or emergency reasons.</u>	Table 2.1
61	<u>Heavy vehicles (greater than a tare weight of 30 tonnes) will not be permitted to wait beside local roads around the mine outside of these hours prior to making a delivery.</u>	
Rail transport		
62	CHC will work with ARTC, RailCorp and affected residents to mitigate any significant impacts along relevant sections of the rail system.	EA sections 13.5 and 13.7
63	The rail spur will have no public level crossings.	
Air quality		
64	CHC will offer to purchase privately owned residences where air quality criteria are predicted to be exceeded.	
65	CHC-owned houses will not be leased if health-based criteria are likely to be exceeded.	EA sections 14.4 and 14.6
66	A predictive air quality management system using real-time continuous air quality monitoring and meteorological forecasts will be used to proactively manage short-term particulates emissions from the Project.	
67	<u>CHC will install a bin-based weighing and loading system that minimises dust emissions from coal transport.</u>	Table 2.1
68	<u>The following management measures will be implemented to limit dust emissions:</u> <u>watering of travel route (75% control efficiency);</u> <u>average vehicle travel speed on haul roads of 40 km/hr;</u> <u>routine maintenance of haul roads to ensure low silt content within road surface material;</u> <u>drop height minimisation;</u> <u>cease/modify operations during excessively dry and windy conditions; and</u> <u>progressive rehabilitation of emplacements.</u>	Section 2.2.3
69	<u>The water balance will be monitored such that during “dry climate” years chemical dust suppressants will be used as required to reduce water use.</u>	Supp. report Appendix K

Table 16.1 Summary of key commitments

Item	Commitment	Section
70	<u>The Best Management Practice Review provided in Section 6.4.2 of the <i>Air quality and greenhouse gas assessment</i> (EA Appendix M) will be expanded to form a Best Management Practice (BMP) plan for the Project. The Best Management Practice will be prepared three months prior to the start of operations (defined by product coal leaving the site).</u>	Supp. report Appendix A
71	<u>A construction air quality management plan will be prepared in consultation with EPA and to the satisfaction of the Director-General of DP&I prior to the start of construction.</u>	
72	<u>An operations air quality management plan will be prepared in consultation with EPA and to the satisfaction of the Director-General of DP&I prior to the start of the initial box-cut.</u>	
Greenhouse gases		
73	Most mining equipment will be new and designed to meet the latest emission standards.	EA sections 15.4 and 45.6
74	Buildings will be designed to achieve high energy efficiencies.	
75	Greenhouse gas emissions will be monitored to ensure that emissions per tonne of product coal are minimised.	
Noise and vibration		
76	Equipment will be fitted with contemporary noise suppression measures.	EA sections 16.4 and 16.6
77	CHC will offer to purchase privately owned residences in the PAA where noise criteria are predicted to be exceeded.	
78	Where EPA noise criteria are predicted to be exceeded and owners do not want to sell or enter into amenity agreements, noise levels will be mitigated with acoustic barriers (eg along the rail spur) or acoustic treatments at the residence.	
79	Regular attended and unattended noise monitoring, including permanent real-time noise monitoring, will be undertaken.	
Visual		
80	CHC will reach amenity agreements with private landholders and will use targeted planting or bunds to screen views of mine operations and train movements.	EA sections 17.4 and 17.6 PPR&RTS Section 16.2.3 and 16.2.5
81	Views of the mine from public roads will be screened, generally by planted vegetation.	
82	Lighting will be installed mine that minimises spillage.	
83	Lighting will be designed in accordance with Australian Standards and Warrumbungle Development Control Plan No. 1 – Shire Lighting Control to Protect Siding Spring Observatory.	
84	Following discussions with representatives of AAO and Siding Springs Observatory, an experienced and suitably qualified expert organisation will be engaged to prepare a detailed light management plan which will be provided to AAO and ANU for comment.	
85	CHC will regularly report on its performance against the requirements of the lighting management plan.	
86	Bunding will be used to minimise light spillage from mobile plant operating on emplacement areas.	
Aboriginal heritage		
87	All known Aboriginal objects in the disturbance area will be managed in accordance with the Aboriginal heritage management plan to be developed in consultation with the RAPs and OEH.	EA sections 18.4 and 18.6
Historic heritage		
88	Potentially impacted historic items will be conserved and/or managed appropriately so that their contribution to the historical record is preserved.	EA sections 19.4 and 19.6

Table 16.1 **Summary of key commitments**

Item	Commitment	Section
Social		
	See 'soils and agriculture' for commitments regarding the integrated land management plan	-
89	Local industries and suppliers will be used where cost-effective.	
90	Recruitment strategies will foster a local labour force.	
91	CHC will work closely with the Aboriginal community to promote ongoing employment.	
92	A temporary construction accommodation village will be built to minimise impacts to the local housing market.	
93	CHC will continue to work with agencies, councils, education providers and businesses to provide training and education places to create self-sustainable employment without compromising the labour pool available to existing local businesses.	EA sections 21.4 and 21.6
94	CHC will negotiate Voluntary Planning Agreements with the four councils (Warrumbungle, Mid-Western Regional, Wellington and Dubbo) to provide in kind and monetary contributions to mitigate potential social effects of the Project.	
95	CHC will be accountable for implementing these commitments and will regularly report its performance against them.	

17 Justification and conclusion

On 1 July 2013, the NSW Government announced that it intends to sell or lease the Cobbora Coal Project and that the agreements with Origin Energy, Macquarie Generation and Delta Electricity to supply coal to four large coal-fired power stations in NSW have been terminated. Coal from the Project will be supplied domestically (most likely for power generation) and/or exported.

As described in Section 1.1, any Project Approval will attach to the affected land and a different developer or operator will have exactly the same obligations as CHC and will be obliged to adhere to all conditions of approval.

The economic, social and environmental justification for the Project is presented in Chapter 24 of the EA. An updated Project justification that considers the implications of the changed owner or operator of the Project is provided below.

17.1 Economic justification

As described below, the economic benefits and costs and regional economic impact assessment for the Project will remain largely the same although the distribution of benefits will change.

i Benefits and costs

A detailed comparison of the Project's benefits and costs is presented in the EA.

Including values for the environmental, cultural and social costs and the value of the benefits of the Project to Australia that were not already incorporated in the estimate of net production benefits, the Project was estimated to have net benefits to Australia of between \$1,946m and \$2,138m. As explained in Section 19.2.1 of the PPR&RTS, the estimated closure cost increased from \$69m to \$340m due to additional work to back-fill the mine voids. This is a net present value difference of \$65m (based on a discount rate of 7%) and therefore the adjusted net benefits to Australia would be between \$1,872m and \$2,073m.

This estimate includes the costs of significant environmental adverse impacts but not those for which dollar values are not readily available. However, monetary estimates of each of these intangible impacts were made using the results of choice modelling studies for coal projects in NSW and their total cost was \$70 m. There are also intangible benefits from more employment opportunities, particularly in this case where there is substantial local unemployment and low risk of disruption to existing enterprises in the locality. The extra job opportunities have been valued at \$192 m.

The Project is therefore desirable and justified from an economic efficiency perspective.

ii Economic stimulus

As described in the EA, the capital investment and operational expenditure required for the Project will stimulate the local and NSW economies. Such stimulus is normally measured by its effects on the size of the economy (gross output), value adding by local production or provision of services, and changes in household income and employment. This will not be affected by changed owner or operator.

Different levels of stimulus will occur during construction and operations.

Project construction will require an average workforce of 440 people, requiring an annual expenditure of around \$123m. The stimulus effects of this expenditure and employment on the region and NSW in each year will be:

- \$218m and \$365m in additional gross output for the region and NSW;
- \$91m and \$162m in extra value added regionally and for NSW;
- \$66m and \$112m in extra household income regionally and for NSW; and
- 851 and 1,351 extra jobs created in the region and NSW.

The stimulus at a state level is greater than at the local level due to the larger size of the economy and, therefore, the greater capture of activity that occurs across NSW.

Stimulus effects will be much greater during the 21 years of operations when the expenditure and employment created will be more substantial. The representative increased annual stimulus provided to the region and NSW is estimated as follows:

- \$714m and \$1,307m in extra total output regionally and for NSW;
- \$184m and \$472m in extra value added regionally and for NSW;
- \$102m and \$267m extra to household income regionally and for NSW; and
- 1,170 and 3,150 extra jobs created regionally and for NSW.

The Project is clearly justified economically whether it is operated by CHC, or leased or sold. Its economic benefits to society far outweigh its costs and it will provide substantial economic stimulus, particularly in the region to the north, west and south of the Project where there are no alternative economic opportunities of this scale.

17.2 Social justification

The Project is justified on social grounds for four principal reasons:

- providing coal for the generation of electricity in NSW;
- providing a financial return to the State of NSW on investment in the Project;
- a stronger regional economy; and
- arresting local population decline.

i Coal for electricity generation

As a commercial operation, the coal may be used domestically for electricity generation, as the current market for domestic thermal coal is not fully serviced, or may be blended with other coal for export. Given NSW's reliance on coal-fired electricity generation (see EA Section 2.1), the Project will contribute to the generation of affordable electricity in NSW, which is essential for maintaining NSW's standard of living.

ii Financial return to the State of NSW

The Project will be sold or leased on the following basis:

- the Project will provide access to up to 12 Mtpa of product coal over the 21 year mine life;
- that Project design is well advanced;
- project approvals are well advanced or have been received – project sale is less likely if approvals are not received;
- there is a total JORC-compliant coal resource (measured and indicated) of 745 Mt (as of 30 April 2012) — some of which will require additional approvals to extract;
- the product coal will be of suitable quality for sale to and use in NSW power stations;
- some product coal will be suitable for higher ash export shipments where markets can be found;
- the remaining coal may be blended with other coals either in NSW or overseas to produce typical export quality thermal coals; and
- the Project's rail spur and existing rail infrastructure (allowing for planned upgrades) will allow delivery to power station customers or the Port of Newcastle for export.

The sale or lease of the Project will provide a financial return to the State of NSW on the investment in development of the Project since 2009. This investment has included:

- exploration drilling and geological modelling to understand the coal resource;
- mine planning to allow efficient extraction of the coal resource;
- design and engineering work to allow the Project to be constructed;
- environmental investigations, monitoring and assessment to understand the existing environment to allow Project design to minimise potential impacts; and
- participation in stakeholder consultation and detailed consideration of the environmental assessment and acceptability of the Project by government agencies, councils and the community.

iii Stronger regional economy

As described in the EA, the Project's host region has a relatively narrow economic base with high dependence on the agriculture and forestry sector. Also, three of the four LGAs in the region have relatively high unemployment.

The Project will diversify and strengthen the region's economic base. It will substantially increase the size (output and value added) of a number of industry sectors — particularly mining, but also mining services, mining and construction machinery, mechanical repairs, utilities, wholesale and retail trade, accommodation and entertainment.

The skills base of the local workforce will be strengthened considerably. The EA and subsequent documents commit the Project owner to employing local people and supporting them with appropriate

training, while protecting the labour pool available to existing local businesses. These commitments will be adopted by the new operator or owner of the Project.

Businesses in the region will benefit through direct mine expenditure and the extra money injected into the area through mine employment and services catering to the Project. Infrastructure in and around the PAA will be upgraded. In particular, the regional rail system, local roads, water supply, electricity and communications networks will all increase in capacity.

In combination these factors mean the economy of the Central West region will be more resilient in the short and long term. During operations there will be substantially greater economic activity and employment opportunities than now exist. In the longer term, after the completion of mining, the region will be more attractive to investors because of its strengthened infrastructure and skills base. A more resilient regional economy will be socially beneficial.

iv Arresting population decline

As described in the EA, populations are declining in many parts of rural Australia because of a range of factors, including amalgamation of farms, greater mechanisation, declining competitiveness of smaller rural enterprises like abattoirs and timber mills, and improved transport infrastructure, which is encouraging activity to concentrate in regional centres. As rural populations decline, local retail, community services and employment opportunities are reduced. This combination has a compounding effect resulting in an overall loss of productive capacity, especially youth and working age people, and declining asset values, such as of private residences.

Much of the Project's host region is at risk of these adverse social impacts. All four LGAs are expected to have slower growth than NSW as a whole and two (Wellington and Warrumbungle) could have falling populations. Jobs created through the Project will provide the opportunity for more young people to remain in the region.

The Project will substantially reduce the likelihood of decline by providing economic stimulus, jobs, training and investment in community infrastructure and services.

17.3 Environmental justification

The Project will disturb about 4,230 ha of land over its full life. Nevertheless, after the coal is extracted, rehabilitation will occur progressively and the majority of the land (around 97%) will be returned to agricultural and bushland uses. In other words, environmental disturbance will be temporary and, during operations, there will be a number of environmental benefits — enhanced biodiversity conservation and improved local environmental management.

i Enhanced biodiversity conservation

The Project will clear 1,911 ha of woodland and regenerating native vegetation. About 216 ha (11.3%) of this comprises TECs (including 138 ha of derived native grassland that has been included as TEC based on OEH advice since preparation of the EA). Three threatened plant species, threatened bird and bat species will also be affected by the removal of habitat.

Despite these losses, the ecological outcome of the Project over its full life will be a net biodiversity gain. This will be achieved through rehabilitation and establishment of ecological offsets. Progressive rehabilitation will reinstate more than 1,900 ha of woodland representative of the existing vegetation types, and 1,700 ha of pasture grasslands, compensating for the loss of vegetation as a result of the Project. The biodiversity offset package (Appendix G) compensates for any remaining significant impacts

to threatened species and their habitat after mitigation. This will provide further compensation for the loss of vegetation, the direct loss of threatened ecological communities, threatened flora and threatened fauna habitat.

The connectivity of remnant habitat within the locality will be improved by the offsets and maintenance of the biodiversity corridor. This will improve the connectivity between the biodiversity conservation areas generally south-east of the mine (Yarrobil National Park (NP), Goodiman State Conservation Area (SCA), Tuckland State Forest (SF), the Southern NPWS addition offset, and the Eastern link areas offset) and the biodiversity conservation areas generally north-west of the mine (Goonoo SCA, Cobbora SCA, Goonoo SCA addition offset and Cobbora SCA offset).

The biodiversity offset package meets both Commonwealth and NSW policy requirements. Under the EPBC Act Environmental Offset Policy, the 90% threshold has been reached for all matters of National Environmental Significance. The offset package will also result in an overall Tier 3 outcome under the OEH Interim Offset Policy.

Key outcomes of the biodiversity offset package are:

- protection and enhancement of the ecological values (vegetation types and habitat values) that are impacted, within the same catchment management authority (CMA) region as the Project;
- conservation of areas which complement and add to the existing reserve system;
- conservation management to improve the habitat values of the offsets including invasive animal and weed control, assisted regeneration and rehabilitation of woodland and habitat creation;
- provision of equivalent habitat with most threatened species recorded in the Project area also recorded in the offsets including significant populations of threatened flora; and
- protection and enhancement of substantial areas of TECs.

The Project will result in a net improvement to the quality, quantity and protection of biodiversity values within the region in the medium to long term.

17.4 Improved environmental management

The actions associated with the preparation and implementation of the integrated land management plan, including resourcing and funding, are described in Table 2.1 and Section 2.2.1. These actions will improve environmental management of CHC-owned land not directly impacted by mining.

Further, unlike the diffuse emissions for agricultural land, emissions to the environment from the Project will be managed in a co-ordinated way to meet the criteria specified in the Project approval and an environmental protection licence regulated by the EPA. These emissions will be monitored as part of the groundwater, surface water and air quality environmental management plans. Impacts to the environment will also be measured through ecology monitoring programs. The environmental management plans will be reviewed and improved using the monitoring data.

Annual environmental reports will be prepared, outlining how commitments are being addressed and providing results of environmental monitoring programs, thus improving transparency and public knowledge about environmental issues.

Continuous implementation and improvement of the integrated land management plan and environmental management plans will improve the environmental value of CHC-owned land.

17.5 Conclusions

There is a sound and broadly based justification for the Cobbora Coal Project. It is expected to provide coal for the generation of electricity in NSW and a sound financial return to the State of NSW on its investment in the Project.

It will provide substantial stimulus to a region in need and with few equivalent economic opportunities.

At the same time, the Project will displace some agricultural activities and residents for its 21 year duration and will result in local environmental impacts. However, these impacts will be temporary and the land will be rehabilitated to enable future use for agriculture and conservation. In the long term, the biodiversity offset package will increase overall biodiversity values in the region.

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