TARRAWONGA COAL MINE

OPEN CUT AUGMENTATION MODIFICATION

ENVIRONMENTAL ASSESSMENT

PREPARED FOR
TARRAWONGA COAL PTY LTD

JUNE 2017

TABLE OF CONTENTS

LIST OF FIGURES

1 INTRODUCTION

This document is an Environmental Assessment (EA) for a proposed modification to the Tarrawonga Coal Mine, an open cut coal mining operation which operates in accordance with Project Approval 11_0047.

The Tarrawonga Coal Mine is located approximately 42 kilometres (km) north-northwest of Gunnedah in New South Wales (NSW) (Figure 1). The Tarrawonga Coal Mine is owned and operated by Tarrawonga Coal Pty Ltd (TCPL), which is a joint venture between Whitehaven Coal Mining Pty Ltd (a wholly owned subsidiary of Whitehaven Coal Limited [Whitehaven]) (70 percent [%] interest) and Boggabri Coal Pty Ltd (30% interest).

The Tarrawonga Coal Mine Open Cut Augmentation Modification (the Modification) is sought under section 75W of the NSW *Environmental Planning and Assessment Act, 1979* (EP&A Act).

The Modification seeks to augment the open cut layout described within Project Approval 11_0047 (Figure 2, Appendix 2). The change in the extent of the open cut is minor (i.e. extending approximately 300 metres [m] north, an increase in area of approximately 2% over the approved Tarrawonga Coal Project extension footprint) and would be entirely within:

- existing mining leases, including an area proposed for a lease transfer with Boggabri Coal Mine; and
- the Tarrawonga Coal Mine approved surface development extent and the Boggabri Coal Mine approved surface development extent (i.e. it is within an area already approved for surface development).

The Tarrawonga Coal Mine approved surface development extent is described in the *Tarrawonga Coal Project Environmental Assessment* (the Project EA) (TCPL, 2012) and is shown on Figure 2, Appendix 2 of Project Approval 11_0047. The Boggabri Coal Mine approved surface development extent is described in the *Continuation of Boggabri Coal Mine Environmental Assessment* (Boggabri Coal Pty Limited, 2010).

The Modification proposes amendment of Figure 2, Appendix 2 of Project Approval 11_0047 to revise the open cut extent by approximately 300 m to the north.

1.1 CONSULTATION

TCPL consults with NSW Government agencies on a regular basis in relation to the current Tarrawonga Coal Mine operations.

TCPL met with the NSW Department of Planning and Environment (DP&E) in June 2017 regarding the Modification. The minor nature of the open cut augmentation extent was discussed.

2 EXISTING/APPROVED TARRAWONGA COAL MINE

A summary description of the existing/approved Tarrawonga Coal Mine is provided below.

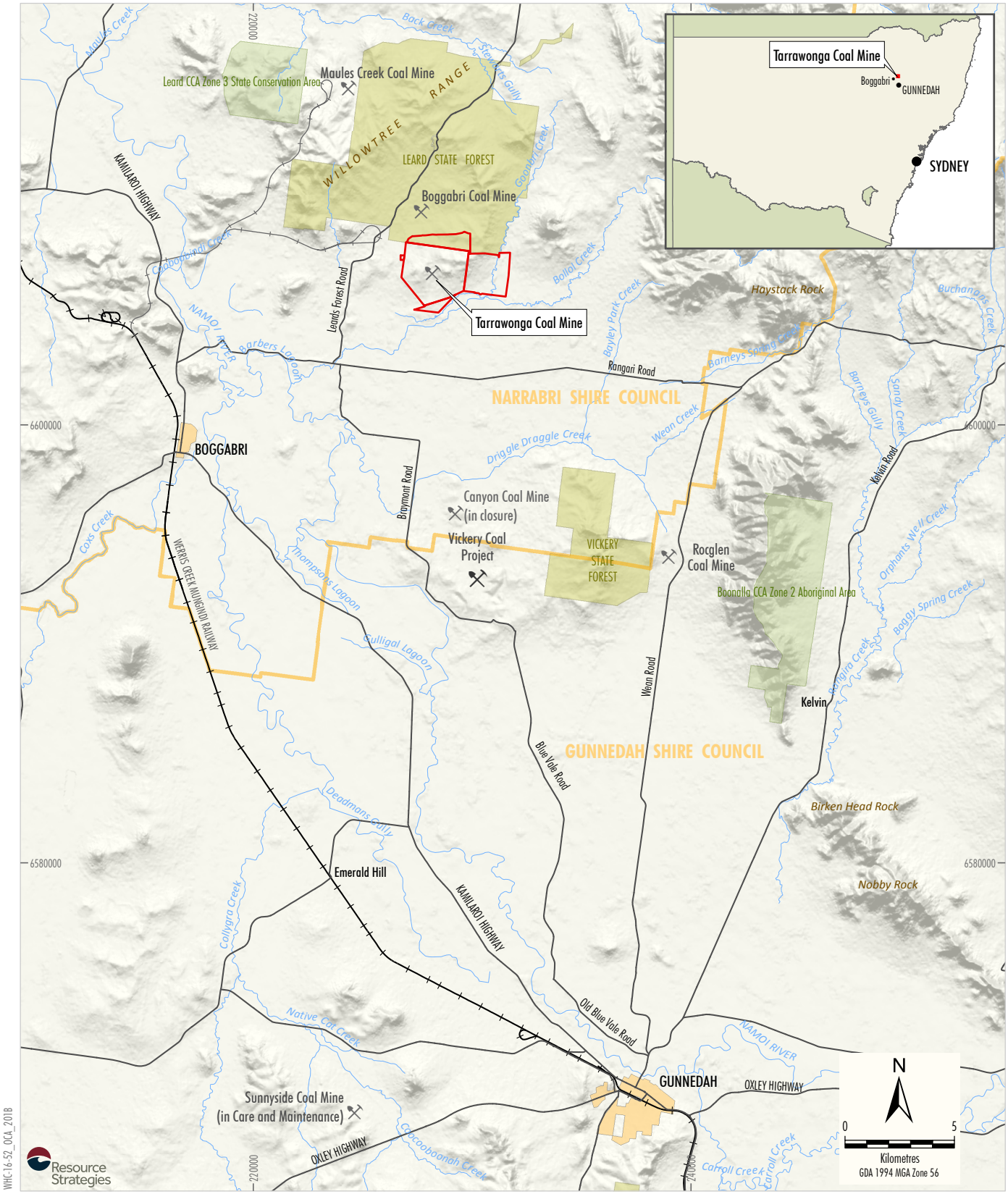
2.1 APPROVALS HISTORY

The Tarrawonga Coal Project (the Project) was approved (Project Approval 11_0047) by the NSW Planning Assessment Commission under delegation of the NSW Minister for Planning and Infrastructure pursuant to section 75J of the EP&A Act on 22 January 2013.

Additionally, the Tarrawonga Coal Mine was granted approval under the Commonwealth *Environment Protection and Biodiversity Act, 1999* on 11 March 2013 (Approval Decision 2011/5923).

Project Approval 11_0047 has been modified on four occasions:

- in November 2014, to allow an increase in the road haulage of run-of-mine (ROM) coal to the Whitehaven Coal Handling and Preparation Plant (CHPP) near Gunnedah;
- in November 2016, to allow the disposal of different types of coal reject material at the Tarrawonga Coal Mine;
- in February 2017, to allow a temporary increase in ROM coal haulage to the Whitehaven CHPP; and
- in May 2017, to revise the wording of a single condition in Project Approval 11_0047 relating to the sound power level of mobile fleet.



LEGEND

- Mining Lease Boundary
- NSW State Forest
- State Conservation Area, Aboriginal Area
- Major Roads
- Railway
- Local Government Boundary

Source: LPMA - Topographic Base (2010); NSW Department of Industry (2015)

WHITEHAVEN COAL

TARRAWONGA COAL MINE

Regional Location

Figure 1

2.2 MINING OPERATIONS

Project Approval 11_0047 allows for:

- continued development of open cut mining operations to facilitate a ROM coal production of up to 3 million tonnes per annum (Mtpa) of ROM coal until the end of December 2030;
- exploration activities;
- construction and use of a new mine facilities area;
- use of a mobile crusher to produce domestic specification coal and gravel materials for collection by customers at the mine site;
- progressive development of water management structures;
- construction and use of a services corridor (including haul road link) directly to the upgraded Boggabri Coal Mine Infrastructure Facilities (and use of the facilities for the handling and processing of coal from the Tarrawonga Coal Mine, and the loading of product coal to trains for transport to the Werris Creek Mungindi Railway);
- progressive backfilling of the mine void behind the advancing open cut mining operation with waste rock and minor quantities of coarse reject material;
- realignment of sections of Goonbri Road and construction of new intersections;
- removal of a section of Goonbri Creek within the open cut and establishment of a permanent Goonbri Creek alignment and associated flood bund to the east and south-east of the open cut;
- ROM coal haulage along the northern section of the Approved Road Transport Route of up to 3 Mtpa;
- disposal of all types of coal reject material; and
- other associated minor infrastructure, plant, equipment and activities.

3 MODIFICATION DESCRIPTION

3.1 OPEN CUT AUGMENTATION

Initial mine planning for the approved Tarrawonga Coal Mine was conducted during the Project EA to inform the environmental studies which support the Project EA.

Subsequent mine planning has identified the opportunity to access in the order of 0.5 million tonnes of additional ROM coal with a minor increase to the extent of the approved open cut entirely within:

- existing mining leases, including an area proposed for a mining lease transfer with Boggabri Coal Mine; and
- the Tarrawonga Coal Mine approved surface development extent and the Boggabri Coal Mine approved surface development extent (i.e. it is within an area already approved for surface development).

The open cut augmentation would extend the extent of the open cut approximately 300 m to the north. The area of the open cut augmentation is approximately 9.3 hectares (ha). Given the open cut extension assessed and approved via the Project EA was 423 ha, the open cut augmentation represents an increase of approximately 2% compared with the approved open cut extension.

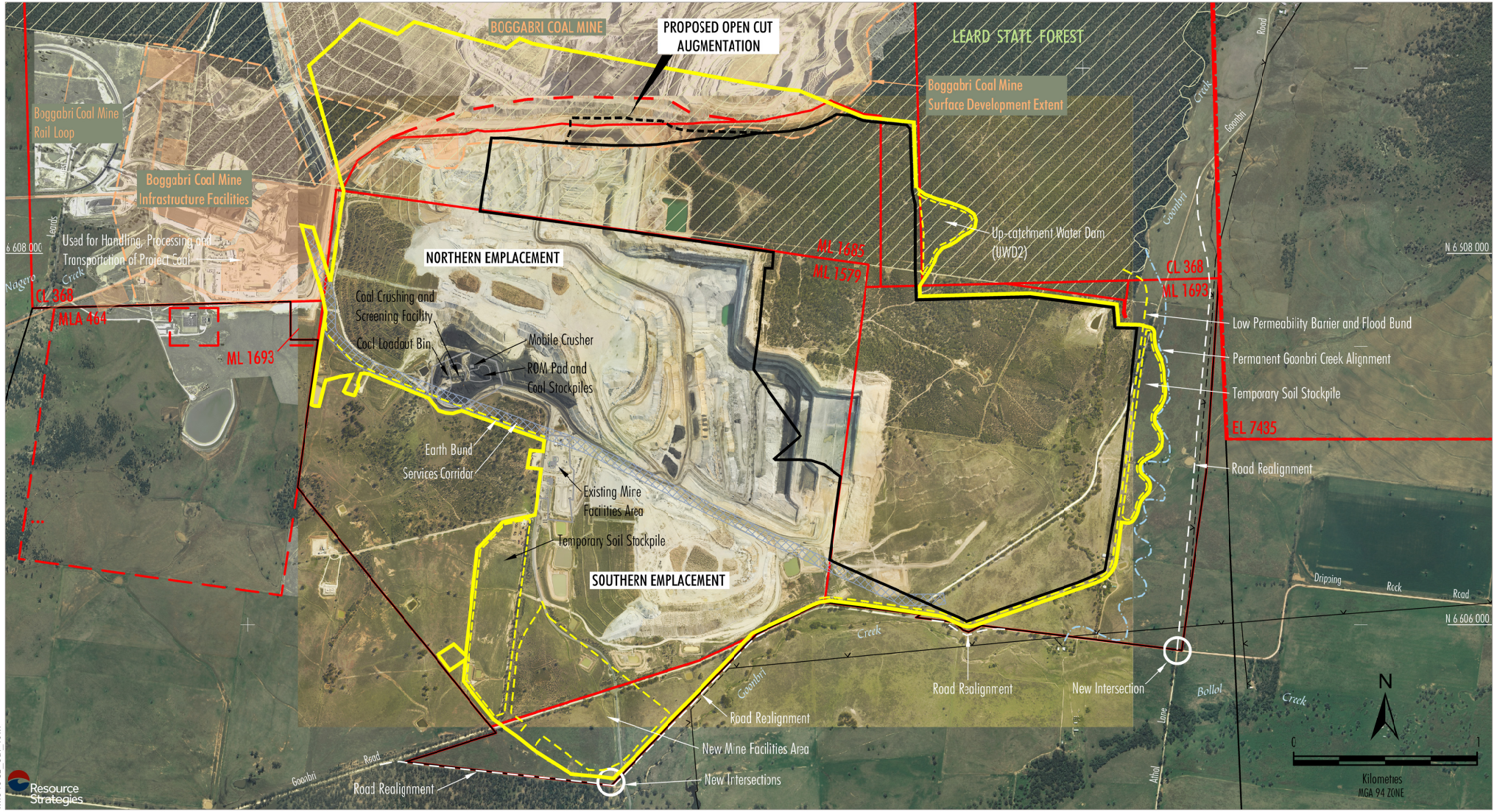
Open cut mining would continue to be conducted in the same coal seams using the same mining methodology and fleet (including the same number of fleet items).

The proposed open cut augmentation is shown on Figure 2.

3.2 OTHER MINE COMPONENTS

There would be **no change** to the following key components of the existing/approved Tarrawonga Coal Mine due to the Modification:

- mine life and hours of operation;
- surface development extent;
- Project boundary;
- mining method (i.e. open cut mining);
- mine fleet;
- maximum annual ROM coal production rate;
- ROM coal, product coal and coal rejects transport;
- heavy vehicle site deliveries;
- water demand and supply;
- workforce;
- general noise and air quality management;
- final landform and rehabilitation strategy; and
- biodiversity offset.



LEGEND

- Mining Lease Boundary (ML & CL)
- Proposed Mining Lease Transfer
- Mining Lease Application Boundary (MLA)
- Exploration Licence Boundary (EL)
- 11kV Electricity Transmission Line
- 11kV Electricity Transmission Line Realignment
- Leard State Forest
- Approximate Extent of Approved Project Surface Development
- Approximate Extent of Approved Open Cut Extension
- Open Cut Augmentation

Source: Orthophoto - Whitehaven Coal Limited (Flown Sept 2015 - Mar 2017)

WHITEHAVEN COAL

TARRAWONGA COAL MINE

Modification General Arrangement

Figure 2

4 ENVIRONMENTAL ASSESSMENT

The potential environmental effects of the open cut augmentation have been considered and are summarised in the following sections.

4.1 BIODIVERSITY

As described in Section 3.1, the open cut augmentation would be located wholly within the Tarrawonga Coal Mine approved surface disturbance extent and the Boggabri Coal Mine surface development extent. Therefore the vegetation clearance has already been assessed.

The native vegetation in the proposed open cut augmentation footprint has already been accounted for as part of the:

- Project EA (TCPL, 2012) and Project Approval 11_0047; and
- Boggabri Coal Mine Project Approval (09_0182).

As per Condition 47, Schedule 3 of Project Approval 11_0047, vegetation clearance required for the open cut augmentation would be undertaken in accordance with the existing Biodiversity Management Plan including conducting pre-clearance surveys and the implementation of practices to maximise the salvage of resources.

4.2 ABORIGINAL HERITAGE

As described in Section 3.1, the open cut augmentation would be located wholly within the Tarrawonga Coal Mine approved surface development extent and the Boggabri Coal Mine approved surface development extent. Therefore, the area has been subject to previous Aboriginal Cultural Heritage Assessment (Kayandel Archaeological Services, 2011; Insite Heritage, 2010).

No sites were recorded within the proposed open cut augmentation area during previous Aboriginal Cultural Heritage surveys.

Notwithstanding, as per Condition 52, Schedule 3 of Project Approval 11_0047, the clearance required for the open cut augmentation would be undertaken in accordance with the approved Heritage Management Plan (TCPL, 2015a), including pre-soil strip inspections by invited representatives of the Registered Aboriginal Parties.

4.3 NON-ABORIGINAL HERITAGE

Previous historic heritage assessments prepared by Heritage Management Consultants (2011) and Archaeology Australia (2009) have confirmed that there are no known historic heritage items relevant to the proposed open cut augmentation.

4.4 NOISE

It is considered unlikely there would be any increase in noise impacts at sensitive receptors as:

- the proposed open cut augmentation extends further away from noise sensitive receptors (landholders) than the “Approximate Extent of Open Cut Extension” shown in the Project EA (the closest privately owned receiver is approximately 5.5 km to the west);
- there would be no change to the open cut mining fleet;
- the area is approved as a waste rock emplacement; and
- noise management at the Tarrawonga Coal Mine would continue to be conducted in accordance with Conditions 9, 10, 11 and 12, Schedule 3 of Project Approval 11_0047 and the approved Noise Management Plan (TCPL, 2014).

On this basis, noise impacts for the proposed open cut augmentation have not been modelled.

4.5 AIR QUALITY

It is considered unlikely there would be any increase in air quality impacts at sensitive receptors as:

- the proposed open cut augmentation extends further away from air quality sensitive receptors (landholders);
- there would be no increase to the approved maximum annual ROM coal or waste rock production rates; and
- air quality management at the Tarrawonga Coal Mine would continue to be conducted in accordance with Conditions 28 and 29, Schedule 3 of Project Approval 11_0047 and the approved Air Quality and Greenhouse Gas Management Plan (TCPL, 2015b), including the implementation of general dust mitigation measures (e.g. use of water carts) and the continued implementation of the existing real-time air quality management system.

On this basis, modelling has not been undertaken to assess potential air quality impacts against the air quality criteria at private receivers.

4.6 SURFACE WATER

The proposed open cut augmentation is considered to have limited potential to impact surface water drainage and downstream water quality at the Tarrawonga Coal Mine as it is located within the existing site water management system at the Tarrawonga Coal Mine and Boggabri Coal Mine interface.

As the proposed open cut augmentation would be backfilled with waste rock and integrated into the approved Tarrawonga Coal Mine and Boggabri Coal Mine final landform, no change to the ultimate drainage diversion/collection drain system shown in Gilbert & Associates (2011) would be required.

There would, however, be some changes to the timing of implementation of elements of the approved collection drain system (i.e. the overall disturbance area requiring water management would remain the same, however it is expected that sub-catchment drainage and water management would require some minor changes).

Surface water management at the Tarrawonga Coal Mine would continue to be conducted in accordance with Conditions 31, 33 and 39, Schedule 3 of Project Approval 11_0047 and the approved Water Management Plan (TCPL, 2015c), including the use of clean water diversion systems and erosion and sediment controls.

4.7 GROUNDWATER

The proposed open cut augmentation would result in a slightly larger area of excavation relative to the approved Tarrawonga Coal Mine.

Mining would continue to occur within the coal measures of the Maules Creek Formation in an area between the approved open cuts of the Tarrawonga Coal Mine and Boggabri Coal Mine. The Maules Creek Formation is a component of the Porous Rock groundwater system. No alluvial groundwater systems occur within the proposed open cut augmentation, nor are any privately-owned bores located in proximity to the area.

The open cut pits of the Tarrawonga Coal Mine and Boggabri Coal Mine act as groundwater sinks and the area surrounding the proposed open cut augmentation has already been affected by existing open cut dewatering activities.

As described in Section 3.1, the approved open cut extension assessed and approved via the Project EA was 423 ha, whereas the proposed open cut augmentation is approximately 9.3 ha. The proposed open cut augmentation therefore represents a minor change (i.e. approximately 2%) to the approved open cut extension.

The Project EA groundwater assessment (Heritage Computing, 2011) predicted groundwater inflows to the Tarrawonga Coal Mine open cut from the porous rock groundwater system of approximately 0.5 megalitres per day (ranging from 0.4 to 0.7 megalitres per day).

TCPL holds 250 units of NSW Murray Darling Basin Porous Rock Groundwater Sources Gunnedah – Oxley Basin MDB Groundwater Source Gunnedah – Oxley Basin MDB (Other) Management Zone (Water Access Licence 31084). This licence is sufficient to cover the inflows predicted in the Project EA groundwater assessment (Heritage Computing, 2011).

As described in the 2015/16 Annual Review (TCPL, 2016), actual inflows are less than those predicted in the Project EA:

> *Water extracted from the voids indicates that the inflows from the porous rock groundwater system to be less than the predicted 0.5ML per day average identified in the EA.*

Therefore the existing licences held by TCPL are anticipated to be sufficient for the Tarrawonga Coal Mine incorporating the Modification.

Groundwater management at the Tarrawonga Coal Mine would continue to be conducted in accordance with Conditions 32 and 39, Schedule 3 of Project Approval 11_0047 and the approved Water Management Plan (TCPL, 2015c), including monitoring and assessment of impacts on potentially affected landowners and the provision of compensatory water supply, if required.

4.8 VISUAL CHARACTER AND MINE REHABILITATION

Approximately 0.65 million bank cubic metres of net additional waste rock would be excavated and placed within the approved Tarrawonga Coal Mine waste rock emplacement based on a material swell factor of 22%. This is negligible relative to the approved Tarrawonga Extension Project waste rock production of 497 million bank cubic metres.

Accordingly, the additional waste rock excavated would not result in any change to the waste rock emplacement or overall final landform.

Given the temporary nature of changes to progressive rehabilitation, negligible change to the quantity of waste rock to be emplaced and distance to receivers, no changes to the potential visual impacts previously described/assessed, including night-lighting, are expected.

TCPL would continue to operate in accordance with Condition 57, Schedule 3 of Project Approval 11_0047, which includes implementation of all reasonable and feasible measures to minimise the visual and off-site lighting impacts.

Rehabilitation of the final landform would occur generally in accordance with the methods shown and described in the Project EA (TCPL, 2012) (i.e. the waste rock emplacement in this area would be integrated with Boggabri Coal Mine's landform).

TCPL would continue to undertake mine rehabilitation in accordance with Conditions 61, 62, 63 and 64, Schedule 3 of Project Approval 11_0047, and an approved Mining Operations Plan (as approved by the Division of Resources and Geosciences within the NSW Department of Planning and Environment).

4.9 TRAFFIC

This aspect is not relevant to the proposed open cut augmentation as there would be no increase to employment levels or traffic requirements.

5 APPROVALS PATHWAY

Project Approval 11_0047 was granted under Part 3A of the EP&A Act. The Tarrawonga Coal Mine therefore constitutes a "transitional Part 3A project" pursuant to the savings and transitional provisions in Schedule 6A of the EP&A Act.

Clause 3 of Schedule 6A provides that Part 3A of the EP&A Act continues to apply to and in respect of "transitional Part 3A project" following its repeal. That is, Part 3A of the EP&A Act continues to apply, notwithstanding its repeal[1].

Approval for the proposed change to Figure 2, Appendix 2 of Project Approval 11_0047 is sought as a modification under section 75W of the EP&A Act.

[1] Part 3A of the EP&A Act (as in force immediately before its repeal) continues to apply for the Tarrawonga Coal Mine. The references to clauses of Part 3A in this document are, therefore, as if Part 3A of the EP&A Act is still in force.

Section 75W of the EP&A Act relevantly provides:

> ***75W Modification of Minister's approval***
>
> *(1) In this section:*
>
> ***Minister's approval** means an approval to carry out a project under this Part, and includes an approval of a concept plan.*
>
> ***modification of approval** means changing the terms of a Minister's approval, including:*
>
> *a) revoking or varying a condition of the approval or imposing an additional condition of the approval, and*
>
> *b) changing the terms of any determination made by the Minister under Division 3 in connection with the approval.*
>
> *(2) The proponent may request the Minister to modify the Minister's approval for a project. The Minister's approval for a modification is not required if the project as modified will be consistent with the existing approval under this Part.*
>
> *(3) The request for the Minister's approval is to be lodged with the Director-General. The Director-General may notify the proponent of environmental assessment requirements with respect to the proposed modification that the proponent must comply with before the matter will be considered by the Minister.*
>
> *(4) The Minister may modify the approval (with or without conditions) or disapprove of the modification.*
>
> *…*

6 CONCLUSIONS

The conclusions of this Modification are as follows:

- The proposed open cut augmentation represents a minor (approximately 2%) increase in the extent of the approved open cut extension.
- The proposed open cut augmentation is considered to have negligible potential for any material environmental impacts in addition to those already approved for the Tarrawonga Coal Mine and Boggabri Coal Mine.
- Consequently, the general layout of the Tarrawonga Coal Mine in Figure 2, Appendix 2 of Project Approval 11_0047 is proposed to be updated to include the proposed open cut augmentation (i.e. to reflect Figure 2 of this EA).
- The Modification does not include any other changes to the existing/approved Tarrawonga Coal Mine.

7 REFERENCES

Archaeology Australia (2009) *Continuation of Boggabri Coal Mine Non-Aboriginal Cultural Heritage Assessment*.

Gilbert & Associates (2011) *Tarrawonga Coal Project Surface Water Assessment*.

Heritage Computing (2011) *Tarrawonga Coal Project Groundwater Assessment*.

Heritage Management Consultants (2011) *Tarrawonga Coal Project Non-Aboriginal Heritage Assessment*.

Insite Heritage (2010) *Aboriginal Cultural Heritage Impact Assessment Report for the Continuation of Boggabri Coal Mine*.

Kayandel Archaeological Services (2011) *Tarrawonga Coal Project Aboriginal Cultural Heritage Assessment*.

Tarrawonga Coal Pty Ltd (2012) *Tarrawonga Coal Project Environmental Assessment*.

Tarrawonga Coal Pty Ltd (2014) *Tarrawonga Coal Mine Noise Management Plan*.

Tarrawonga Coal Pty Ltd (2015a) *Tarrawonga Coal Mine Heritage Management Plan*.

Tarrawonga Coal Pty Ltd (2015b) *Tarrawonga Coal Mine Air Quality and Greenhouse Gas Management Plan*.

Tarrawonga Coal Pty Ltd (2015c) *Tarrawonga Coal Water Management Plan*.

Tarrawonga Coal Pty Ltd (2015d) *Tarrawonga Coal Rehabilitation Management Plan*.

Tarrawonga Coal Pty Ltd (2016) Tarrawonga Coal Mine 2015/2016 Annual Review.