Rio Tinto

Hunter Valley Operations North Modification 5

HVLP Sediment Basin and HVO North Communication Towers

Environmental Assessment

November 2016

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1. Introduction

1.1 Modification Overview

Coal and Allied Operations Pty Limited (Coal & Allied) owns the Hunter Valley Operations (HVO) mining complex located approximately 24 kilometres (km) north-west of Singleton, New South Wales. The activities at HVO are geographically divided by the Hunter River into HVO North and HVO South (Figure 1.1 and Figure 1.2). While HVO is managed as one operation, HVO North and HVO South have separate planning approvals.

HVO North operates under Development Consent DA 450-10-2003, which was issued by the then Minister for Infrastructure, Planning and Natural Resources in 2004, under Part 4 of the NSW *Environmental Planning and Assessment Act 1979*. The original development consent has since been modified a number of times, the most recent being Modification 4 in 2014 following the assessment of the Fine Reject Emplacement project.

This application seeks to modify the HVO North development consent to approve the following elements:

- the upgrade of a sediment basin at the Hunter Valley Load Point. This will necessitate the removal of a small area (0.14 ha) of overstorey native Swamp Oak vegetation to accommodate infrastructure, and
- the approval of communication towers to remove the administrative burden associated with the need to recertify the towers every five years as complying development under the Mining SEPP.

Figure 1.2 shows the location of the proposed activities in the context of the mining operations at HVO and surrounds.

The identified activities have been assessed as having minimal environmental impacts and it is proposed that all potential impacts can be mitigated through appropriate controls and environmental management strategies. An area close to the proposed vegetation removal corridor has been proposed to be planted with overstorey species representative of the Swamp Oak community. Mitigation measures identified in this document will be incorporated into the management, monitoring and reporting procedures for HVO.

The following sections evaluate the environmental considerations associated with these proposals, discuss alternatives where possible, and demonstrate that the potential impacts will be minimal.

1.2 The Proponent

Coal & Allied Operations Pty Limited and HVO Resources Pty Limited own the HVO mining complex, which is managed by HV Operations Pty Ltd (Coal & Allied). Coal & Allied operates HVO with management services provided by Rio Tinto Coal Australia. Further information on Rio Tinto Coal Australia can be found at:

http://www.riotintocoalaustralia.com.au/

1.3 Site and Surrounds

The majority of HVO North is located within the Singleton local government area (LGA) with the exception of the northern most areas that contain the rail loading facilities and the proposed sediment basin. These areas are within the Muswellbrook LGA.

Dominant features of the HVO North landscape comprise the existing open cut pits, mine related infrastructure and rehabilitated former mining areas, to the north, east and south.

Mining operations and related infrastructure run by Coal & Allied and other entities in the surrounding area include HVO South, Mount Thorley Warkworth Mine, Ravensworth Operations, Wambo Mine and United Colliery.

1.4 Need for the Modification

This modification application has been prepared to assist Hunter Valley Operations to upgrade water management structures to contemporary standards and reduce unnecessary costs associated with standard procedures.

The proposed modification is being sought for the construction of a larger sediment basin at the Hunter Valley Load Point (HVLP) (Figure 1.2). The increased size will enable the operation to improve the management of surface water flows from the adjacent infrastructure area.

The approval of the communication towers anywhere within the HVO North mining complex will reduce the need for recertification of the towers at HVO North every five years if they have not been relocated.

1.5 Purpose of this Report

This Environmental Assessment has been prepared to support a Section 75W Application under the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) to modify the current development consent (DA 450-10-2003) for the HVO North mine.

This document provides a description of the existing environment, an assessment of the considerations arising from the proposed modifications and, where applicable, outlines measures to avoid, mitigate or compensate for the proposal.

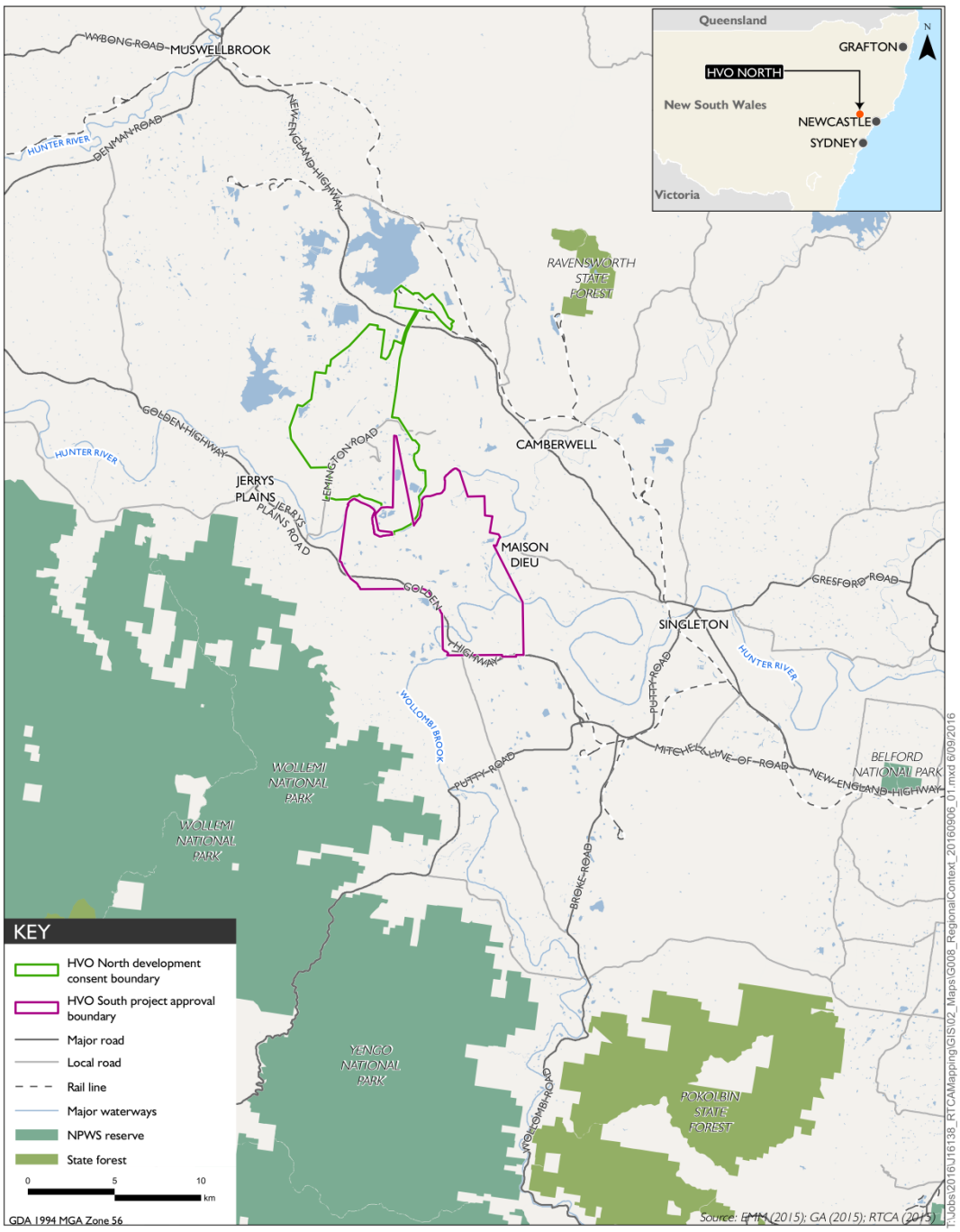


Figure 1.1 Regional setting of Hunter Valley Operations.

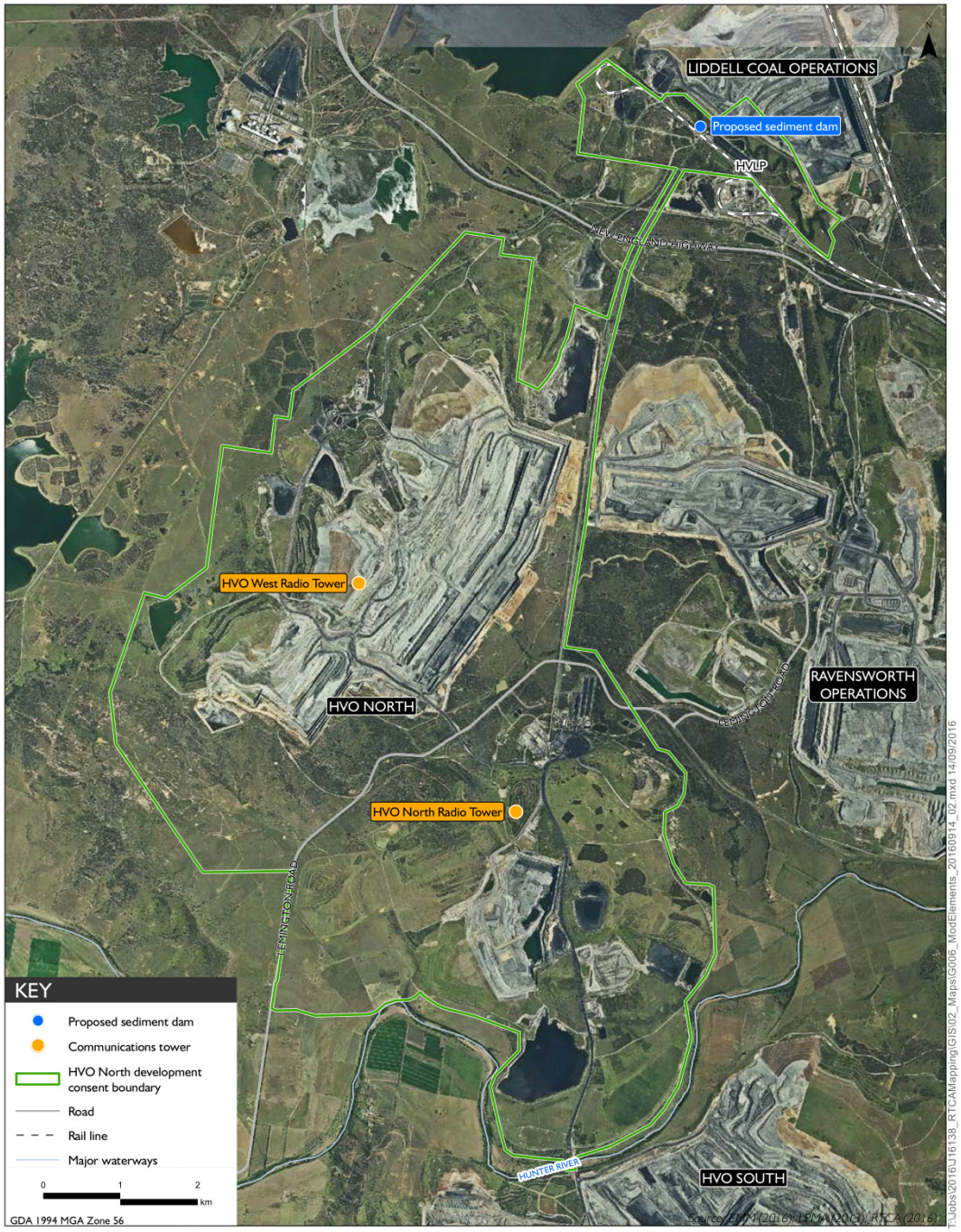


Figure 1.2 Location of the proposed activities subject to this modification application.

2. Overview of Existing Operations

2.1 Overview of Existing Development Consent

The current development consent at HVO North is DA 450 10 2003 (Appendix A) approved under the EP&A Act. A summary of the development consents and modifications granted for HVO North are listed in Table 2.1 below.

Table 2.1 High level summary of approvals for HVO North

Approval No.	Approval Type	Issue Date	Consent Authority	Summary of Approved Activity
450-10-2003	Consent	12/6/2004	Department of Planning and Infrastructure (DP&I)	Extension of open cut mining to the east of existing development. Production rate of 12Mtpa) ROM coal from West Pit, 10Mtpa ROM coal from Carrington Pit and 4Mtpa from North Pit. Coal haulage of 16Mtpa from HVO South to the Hunter Valley CHPP. Total processing capacity of 20Mtpa at Hunter Valley CHPP, 6Mtpa at Howick CHPP and 4.5Mtpa at Newdell CHPP. Movement of coal and rejects between areas of HVO, including between HVO South and HVO North. Temporary crossings of the Hunter River for heavy equipment too heavy for the existing bridge. Consolidation of 15 existing development approvals applying to HVO North, into a single consent.
884/2004	Consent	02/2/2005	Singleton Council	Construction and use of an access road to the former EnergyAustralia (now Ausgrid) substation.
450-10-2003 MOD1	Mod 1[(1)] of DA 450-10-2003	16/8/2005	DP&I	Upgrade of Hunter Valley Load Point to increase the loading rate from 4,000 tonnes per hour (tph) to an average rate of approximately 5,100tph with a peak load of up to 7,200tph.
450-10-2003 MOD2	Mod 2[(1)] of DA 450-10-2003	25/6/2006	DP&I	Extension of open cut mining to the south and east of Carrington Pit to access approximately 19Mt of ROM coal. Construction of up to three levees and potential construction of groundwater barrier walls. Diversion of an existing drainage channel. Construction of a service corridor and modification of the development consent boundary.

Approval No.	Approval Type	Issue Date	Consent Authority	Summary of Approved Activity
450-10-2003 MOD3	Mod 3 of DA 450-10-2003	19/3/2013	DP&I	Extension of the Carrington Pit to the west (in an area known as the Carrington West Wing) to allow an additional 17 million tonnes of ROM coal to be extracted over a period of 6 years. Development of an out-of-pit overburden emplacement area to the north of the extension area. Construction of flood levees, a groundwater barrier wall, a temporary watercourse diversion and a service corridor to the south of the extension area. Rehabilitation the site. Modification of the development consent boundary to include the extension area. Realignment and increase in size of the approved Carrington Pit final void to 100ha.
450-10-2003-MOD4	Mod 4 of DA 450-10-2003	16/01/2014	DP&I	Construction and operation of a fine reject emplacement to the north of the existing Carrington Pit. Installation of overland pipelines to transport fine reject slurry. Modification to the HVO North development consent boundary to encompass Cumnock void 3, located to the north-east of West Pit.

2.2 Overview of Existing Operations Relating to the Proposal

The coal that is mined from HVO North is trucked via internal haul roads to either the Hunter Valley Coal Processing Plant or the Howick Coal Processing Plant (HVPP) for processing. Product coal from the HVPP is transported by overland conveyor to the Hunter Valley Load Point (HVLP) (Figure 1.2) where it is loaded onto trains for transport to Port Waratah at Newcastle.

Water management at HVO is carried out in accordance with the HVO Water Management Plan (WMP) and within the HVO Water Management System. Water from disturbed areas within the mining operation is directed towards sedimentation dams or basins. Water in the basins that originated from disturbed areas are pumped out and used to supplement the mine's water supply.

2.3 Planning and Statutory Framework

Environmental Planning and Assessment Act 1979

While the development consent for the HVO North was a consent issued under Part 4 of the EP&A Act, transitional provisions within the *Environmental Planning and Assessment Regulation 2000* (NSW) (EP&A Regulation) allow for a consent to be modified under section 75W of the EP&A Act as if the consent were an approval under the now repealed Part 3A.

Pursuant to the transitional provisions under clause 12 to Schedule 6A of the EP&A Act, Section 75W of Part 3A continues to apply to modifications of certain development consents provided for under Clause 8J(8) of the EP&A Regulation.

Clause 8J(8)(c) of the EP&A Regulation states:

> *For the purposes only of modification, the following development consents are taken to be approvals under Part 3A of the Act and section 75W of the Act applies to any modification of such a consent:*
>
> *c) a development consent granted by the Minister under Part 4 of the Act (relating to State significant development) before 1 August 2005 or under clause 89 of Schedule 6 to the Act,*

DA 450-10-2003 was issued by the then Minister for Infrastructure, Planning and Natural Resources in 2004, under Part 4 of EP&A Act, and therefore, Clause 8J(8)(c) applies.

The main features of the approved operations at HVO North will not be affected by the proposed modification. It is contended that the proposed modification does not represent a radical transformation of the previously approved project. Further, as demonstrated by the assessments in chapters three and four, the proposed modification will not result in significant environmental consequences beyond those covered in the current development consent. Accordingly, Coal & Allied seeks to have the proposal approved as a modification of DA 450-10-2003, as provided for under Clause 8J (8A) of the EP&A Regulation and Section 75W of the EP&A Act.

Other state legislation

Table 2.2 summarises other NSW legislation that is of relevance to the proposed modification.

State Environmental Planning Policies

State environmental planning policies (SEPPs) are environmental planning instruments that address issues significant to NSW. The following SEPPs will be considered in the assessment of the proposed modification:

- *SEPP (Mining, Petroleum Production and Extractive Industries) 2007*;
- *SEPP (Major Development) 2005*;
- *SEPP (State and Regional Development) 2011*; and
- *SEPP 44 – Koala Habitat Protection*.

The *SEPP (Mining, Petroleum Production and Extractive Industries) 2007* aims to provide for the proper management and development of mineral, petroleum and extractive material resources for the social and economic welfare of the State. The policy establishes appropriate planning controls to encourage Ecologically Sustainable Development (ESD). The proposed modification is consistent with the aims and controls of this policy.

The *SEPP (Mining, Petroleum Production and Extractive Industries) 2007* also defines mining developments that are prohibited, exempt or complying developments. As will be discussed below, the proposed modification of the communication towers and the sediment basin is permissible under the provisions of the Singleton Local Environment

Plan (LEP) and the Muswellbrook LEP respectively. The permissibility of the proposed modification is not affected by this SEPP.

Table 2.2 Summary of other applicable legislation

Legislation	Requirement	Comment
Protection of the Environment Operations Act 1997 (NSW) (POEO Act)	Section 48 of the POEO Act requires that a premises-based Environment Protection Licence (EPL) be held for the activities listed in Schedule 1.	A premises-based EPL, EPL 640, applies across HVO as a whole. No update to the EPL will be required as a consequence of the proposed modification.
Mining Act 1992 (NSW)	This Act regulates the granting of Mining Leases and mining activities generally and, amongst other legislative instruments, places controls on methods of exploration and mining, the disposal of mining waste, and rehabilitation and environmental management activities.	Mining titles for the proposed activities will either be held by Coal & Allied, or sublease agreements with the adjoining Liddell Coal will be obtained. The HVO MOP will be reviewed and updated as required to incorporate the proposed modification.
Water Management Act 2000 (NSW) *(WM Act)*	The WM Act governs the issue of new water licences and the trade of water licences and allocations for those water sources (rivers, lakes and groundwater) in NSW where water sharing plans have commenced, such as within the project area.	The proposed modification will not affect any water source regulated by a Water Sharing Plan in force under the WM Act 2000.
National Parks and Wildlife Act 1974 (NSW) (NPW Act)	A permit under Section 87 or a consent under Section 90 of the Act is required to disturb or destroy an Aboriginal object.	No Aboriginal objects are assessed to be disturbed or destroyed under the proposed modification.
Threatened Species Conservation Act 1995 (NSW) (TSC Act)	If a planned development or activity will have an impact on a threatened species, population or ecological community listed under the Act, this must be taken into account in the development approval process.	The species protected under this Act have been considered in these assessments and with the implementation of management measures as outlined, the proposed modification will not adversely affect species prescribed in the schedules to the TSC Act.

SEPP (Major Development) 2005 previously defined classes of development to which Part 3A of the EP&A Act applied. This SEPP was amended by *SEPP (State and Regional Development) 2011* in accordance with the repeal of Part 3A, though it is still relevant to the proposed modifications as it continues to apply to transitional Part 3A projects. Prior to the repeal of Part 3A of the EP&A Act, Clause 6 of *SEPP (Major Development) 2005* stated:

> *(1) Development that, in the opinion of the Minister, is development of a kind:*
>
> *(a) that is described in Schedule 1 or 2, or*
>
> *…*
>
> *is declared to be a project to which Part 3A of the Act applies.*

Coal mining was a form of development described in Schedule 1 of SEPP (Major Development) 2005 and, therefore, Part 3A of the EP&A Act applies to DA 450-10-2003.

SEPP 44 applies to the extent that a consent authority is restricted from granting approval for a development proposal on land identified as core koala habitat without the preparation of a plan of management. No areas of core koala habitat exist within the proposed modification areas and, therefore, SEPP 44 does not place any constraints on the proposed modification.

Environment Planning and Biodiversity Conservation Act 1999

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) aims to protect Matters of National Environmental Significance (MNES).

The areas subject to this application will not affect any MNES, in particular, threatened flora and fauna or ecological communities. HVO North is approved under the EPBC Act to undertake the proposed works. HVO North has an existing EPBC Act approval (EPBC 2016/7640) and the activities occurring on site were approved by the State prior to the commencement of the EPBC Act 1999.

Singleton Local Environmental Plan

The majority of HVO is located within the Singleton LGA. The Singleton Local Environmental Plan 2013 applies to the communication towers in this modification. Under the Singleton LEP, the project area is Zoned RU1 – Primary Production. Open cut mining is permissible with development consent within this zone. The proposed modification is consistent with the provisions of the Singleton LEP.

Muswellbrook Local Environmental Plan

The HVLP is located within the Muswellbrook LGA. As such, the proposed sediment basin will be subject to the provisions of the *Muswellbrook Local Environment Plan 2009* (Muswellbrook LEP). The activities proposed for the HVLP are within an area zoned RU1 – Primary Production. Open cut mining is permissible within this zone with development consent. The proposed modification is consistent with the provisions of the Muswellbrook LEP.

Upper Hunter Strategic Regional Land Use Plan

The Upper Hunter Strategic Regional Land Use Plan (DP&I 2012) (the Plan) aims to minimise potential land use conflict between mining and coal seam gas proposals and key land values such as strategic agricultural land. The Plan includes a gateway process for State significant development applications for mining on, or within 2 km of, biophysical strategic agricultural land. This gateway process takes place prior to submission of development applications to the consent authority and is conducted by an independent panel of experts (Mining and Coal Seam Gas Gateway Panel). The proposal outlined in this modification is exempt from the gateway process as it is entirely within existing mining leases.

In accordance with the Plan, an Agricultural Impact Statement (AIS) is required for all State significant development applications for mining proposals in the region that would potentially impact on agricultural resources or industries. The proposed modification will not impact on agricultural resources or industries and, accordingly, an AIS has not been prepared for the proposal.

3. Sediment Basin Upgrade

3.1 Overview

The Hunter Valley Load Point (HVLP) is located at the northern end of the Hunter Valley Operations on the rail siding that also serves several of the Glencore coal mines (Figure 1.2 and Figure 3.1). Much of the HVLP catchment reports to an existing concrete sediment basin that is located adjacent to Bayswater Creek. The basin collects water from the immediate catchment and water is pumped out and managed in accordance with the approved HVO Water Management Plan.

The sediment basin collects run off from a large area. It was originally built to contemporary standards at the time of construction. This modification seeks to upgrade the sediment dam to meet the current requirements.

The construction of the proposed basin will require the relocation of existing powerlines and the removal of a small section of native and exotic overstorey vegetation adjacent to Bayswater Creek from the powerline corridor. To compensate for the removal of the overstorey vegetation, the proposal includes the restoration of existing disturbed land downstream of the sediment basin. The area to be restored will be equivalent to the vegetation being removed from the new corridor. It is anticipated that the restoration will utilise overstorey species representative of the listed Swamp Oak Floodplain Forest vegetation community.

3.2 Site and Design Details

The site of the proposed enlargement of an existing sediment basin is within previously disturbed lands at the Hunter Valley Load Point (Figure 3.1 and 3.2). The area is bound to the north and east by the meandering Bayswater Creek and lands managed by the adjacent Liddell open cut coal mine, to the south by the infrastructure associated with the Hunter Valley Load Point, and to the west by the rail line and access road into the infrastructure area.

Constraints imposed by the presence of Bayswater Creek, an adjacent coal loading nut bin, a road servicing the Load Point facilities, the rail line and a high voltage (11kV) powerline that services the Liddell Coal Mine Coal Handling Preparation Plant (CHPP) have been considered in the design of the proposed basin.

The existing and proposed sediment basin is sited within disturbed ground with unconsolidated fill supporting the existing basin wall and spillway. The unconsolidated fill has a vegetated angle of repose batter from the Load Point facilities down to the flood zone of Bayswater Creek. The top of the batter sits approximately six metres above the riparian flood zone.

Due to the restricted space in the proposed area and site geography, it is intended that the sediment basin will be dug into the site to maximise the volume available. To minimise disturbance to the Bayswater Creek riparian zone, the construction of the basin wall will not require the removal or reshaping of the existing batter. Gabion baskets will be used to support the proposed basin walls. This will ensure that the groundcovers on the batter walls will not be disturbed during the construction and the potential for erosion and sediment movement into Bayswater Creek is minimised.

Due to the proximity of the basin to the access road into the load point facilities, for safety reasons, the gabion wall will be extended above ground and a guard rail installed in front of the rock wall to reduce the potential for vehicles to enter the area.

The 11kV powerline that services the Liddell Coal Mine Coal Handling Preparation Plant will need to be redirected as the powerpole that currently resides within the proposed basin footprint will be relocated. The preferred location of the relocated pole is to the immediate north west within an existing cleared area adjacent to the proposed basin (Figure 3.1). This location is preferred as there is sufficient area available for the powerline and stay to be installed without these imposing additional operational risks. The alternative options are discussed in Section 3.4.

Relocating the pole to this location, however, will result in the high voltage powerlines traversing across the riparian corridor. For safety reasons, a new powerline corridor will be required to reduce the risk of bushfires and ensure the continued transmission of the power across the site. As a result, the installation of the powerline corridor will require the removal of a small area (0.14 ha) of overstorey vegetation from the disturbed batter adjacent to Bayswater Creek (Figure 3.3).

Bayswater Creek and adjacent vegetation

Bayswater Creek flows southwards from Lake Liddell to the Hunter River. The creek is highly modified due to the upstream damming of the catchment with the construction of Lake Liddell, current and historic coal mining activities in the upper reaches and an existing diversion channel that diverts much of the lower reach that was constructed to permit mining operations associated with the Ravensworth Operations coal mine.

The creek is typically ephemeral and sustains disconnected pools except during discharge events from Lake Liddell and the Hunter River Salinity Trading Scheme (HRSTS). Several coal mining operations in the area also discharge into tributaries of the Creek as per their participation in the HRSTS.

Bayswater Creek is vegetated in the vicinity of the proposed activity area with native and exotic overstorey species and grassy understorey.

The proposed sediment basin site is cleared with an exotic Rhodes Grass (*Chloris gayana*) groundcover with areas of exposed ground.

3.3 Alternatives Considered

A review of the existing sediment basin identified environmental improvements that may occur to ensure that the basin addresses contemporary standards. The risk assessment associated with the review considered various options to improve the basin at the Hunter Valley Load Point. The options considered include those outlined in Table 3.1. The necessary actions associated with each option is summarised in the table which provide support for the selection of the preferred option that is being proposed.

The ‘do nothing’ option is not discussed further as the environmental risk of the existing basin would not be diminished with this action.

The relocation of the existing power pole that resides within the proposed basin footprint is required to reduce the safety, maintenance and management risks associated with the power pole within the water filled basin. As this pole facilitates a change in the direction of

the powerline easement, the removal of this central angled pole will result in the easement moving to the north east across the existing vegetation (Figure 3.1).

To enable the effective management of the risk of branches coming in to contact with live powerlines and the ignition of bushfires and the subsequent impact to property, individuals and the environment, landowners and network operators are required to manage vegetation growth within power easements. The maintenance of vegetation clearance within the revised easement and the consideration around access for the machinery to undertake this task result in the removal of the overstorey vegetation beneath this easement being the preferred outcome.

Various options were examined to try to avoid the need to remove the overstorey vegetation. Relocating the powerlines to the west increases the safety risk with the reduced proximity to vehicles and existing infrastructure. Limitations also occur along this route with the need to install stays on the power poles in the restricted area. The retention of the pole at the existing location once the construction of the basin has been completed is not practical from a safety or management perspective.

As a result, the preferred route for the powerlines is across the corner of the existing vegetation which will necessitate the development of the relocated powerline easement and removal of the native Swamp Oak trees and any exotic overstorey vegetation in that location.

The area of disturbance is predominately away from the creek bed and flood zone and will not disturb the understorey vegetation nor encourage erosion or sedimentation downstream. The disturbance is largely confined to the batter slopes and upper edges of the project area. (Figure 2 of the ecological report in Appendix B).

3.4 Ecological Assessment

To further evaluate the feasibility of relocating the powerline easement across the vegetation associated with the Bayswater Creek, Rio Tinto Coal Australia commissioned SLR Consulting to evaluate the environmental significance of the vegetation at the subject site (Appendix B).

SLR Consulting observed that the site of the proposed sediment basin contains mown exotic grass intersected with unsealed tracks and mine infrastructure. These areas are highly disturbed and lack any native vegetation cover.

It was noted that the vegetation within the site and adjacent to Bayswater Creek is extremely degraded and weed infested. The only major element of native vegetation is the regrowth canopy of Swamp Oak (*Casuarina glauca*), which runs as a narrow band of riparian vegetation along both sides of the creek and includes the batter walls that run from the proposed basin area down to the flood zone of the creek.

Table 3.1 Risk benefit associated with the proposal.

Options	Considerations	Outcome
1. Use existing basin but install a larger pump.	• Does not decrease the relation of the catchment to basin size. Risk of pump failure during heavy rainfall events.	• This option does not meet contemporary standards.
2. Construct a second sediment basin to reduce the water catchment area of the existing basin.	• May reduce runoff into the existing basin.	• Limited area to construct second basin due to infrastructure and rail line.
3. Enlarge the existing basin to cater for the calculated runoff by an increase in surface area and depth.	• Will require the relocation of the powerline. Design must minimise disturbance to creek. Vehicle safety considerations.	• Preferred option. Gabion baskets to provide structural support to walls. Vehicle safety initiatives implemented.
4. Re-route the 11kV powerline to the west of the proposed sediment basin.	• Avoids additional vegetation removal. • Increases proximity of the powerline to the haul road and existing metal infrastructure. • Increases complexity of infrastructure management.	• Restricted area to install stay associated with the change in the direction of the powerline. • Increases vehicle safety risk with the powerline when traversing the haul road to the load point. • Increases safety risk with the powerline in closer proximity to load point infrastructure.
5. Re-route the 11kV powerline to the north east of the proposed sediment basin.	• Avoids powerline crossing haul road. • Increases safety of infrastructure management activities. • Requires removal of some standing vegetation across relocated powerline easement.	• Preferred option due to safety concerns of alternatives and mitigation potential with restoration of equivalent area of vegetation within the creek corridor.
6. Introduce taller poles to span the proposed sediment basin along the existing alignment.		• Will still result in realignment of the easement and vegetation removal
7. Install taller powerline within the proposed sediment basin in place of the existing powerpole.	• Will retain the easement across the existing location. • May require an additional stay to maintain the unbalanced load associated with the change in direction.	• Increases safety risk with the powerline in proximity to water. • Introduces maintenance difficulties in accessing the powerpole within the basin.

Flora Species and Vegetation Type

The extent of the exotic vegetation coverage along the site batter and adjacent to Bayswater Creek were found to exceed 70% projected foliage cover. These were most prominent in the understorey vegetation layer. The native vegetation in the vicinity of the nominated area include the Swamp Oak (*Casuarina glauca*), Sickle Wattle (*Acacia falcata*), *Spartothamnella juncea*, Blue Howittia (*Howittia trilocularis*), Native Raspberry (*Rubus parviflorus*) and Windmill Grass (*Chlorus truncata*) (Figure 3.3).

While the overstorey along the batters of the site and the banks of Bayswater Creek, were dominated by a regrowth canopy of the native Swamp Oak, mature individuals of the exotic Peppercorn Tree (*Schinus areira*) also occur along the top of the batter.

No eucalypts or other significant native trees occur within the riparian vegetation at the proposed location and the understory and ground cover is not representative of any listed vegetation communities. For this reason, SLR Consulting claim that the riparian vegetation constituted a disturbed form of MU213 Swamp Oak / Weeping Grass grassy riparian forest of the Hunter Valley. This is contrary to the Greater Hunter Vegetation Map (OEH 2012) which maps the riparian vegetation of Bayswater Creek as MU173 – Narrow-leaved Ironbark / Grey Box grassy woodland of the central and upper Hunter, and MU999 – Derived Grasslands of the Greater Hunter. It is possible that both these mapped communities occur at points along Bayswater Creek, however, neither occur at this location.

A total of three threatened plant species have been recorded within 10 kilometres of the site. These species include the Trailing Woodruff (*Asperula asthenes*), Pine Donkey Orchid (*Diuris tricolor*) and the Slaty Red Gum (*Eucalyptus glaucina*). No evidence for any of these species was recorded on the site during the site inspection and, given the nature and condition of the habitats present, none are likely to occur.

Four endangered populations of flora are known to occur within a 10 kilometre radius of the site, including:

- *Acacia pendula* population in the Hunter catchment;
- *Eucalyptus camaldulensis* population in the Hunter catchment;
- *Cymbidium canaliculatum* population in the Hunter catchment; and
- Pine Donkey Orchid population in the Muswellbrook local government area.

None of the above species were recorded on the site and, given nature and condition of the habitats present, none of these populations are likely to occur.

A total of 20 threatened ecological communities are listed as occurring within a 10 kilometre radius of the site. Of these, only the *Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions* is present at the site as described above. A detailed Section 5A assessment for this community is provided in Appendix B which concludes that the proposed action is not likely to impose a significant effect upon the Swamp Oak Floodplain Forest endangered ecological community.

Fauna Species and Habitats

Due to the highly disturbed nature of the vegetation communities present, as well as the dense exotic groundcover and understory, the majority of the site lacks any significant habitat for any native fauna groups. It is possible that the native Swamp Oak canopy may provide potential shelter and foraging habitat for a variety of bird species. The trees recorded in the area, however, are not hollow-bearing species and would not be favourable for hollow-dependent birds, arboreal mammals or microchiropteran bats.

While the banks of the creek contain numerous rock piles that may offer shelter for reptiles, amphibians and small mammals, these areas will not be disturbed as a result of the proposed activity.

During the survey, a small assemblage of common native fauna species was observed in the vicinity and it is likely that a range of other disturbance-tolerant native fauna species would utilise the proposed area during foraging or dispersal activities. As these species are mobile and tolerant of areas of disturbance and open ground, it is unlikely that they would be detrimentally impacted by the proposal as they are able to cross the cleared area or traverse the narrow creek into the vegetation on the other side.

Due to the lack of suitable habitat, it is unlikely that any threatened fauna species would be found at the proposed disturbance site. A total of 39 threatened fauna species have been recorded within 10 kilometres of the site. Of these, 15 threatened terrestrial mammals have been recorded within that distance comprising nine microchiropteran bats, the Grey-headed Flying-fox, three arboreal mammals and two ground mammals. Most of these are forest dependent and are unlikely to occur at this location with the exception of the some of the bat species and the Flying-fox which may use the site for foraging purposes. No significant roosting or shelter habitat exists at this locality and no evidence of a camp or colony of the Flying-fox can be found.

The site provides low quality habitat for the Green and Golden Bell Frog which prefers open, shaded water bodies and is thus unlikely to be found within the dense Swamp Oak Forest along the ephemeral Bayswater Creek.

A total of 23 threatened bird species have been recorded within 10 kilometres of the site. It is possible that, of these, individuals of species that are tolerant of disturbed and heavily cleared environments may occur on a temporary basis, however, due to the small size and general nature of the locality, the site would not constitute a significant area of habitat for these species.

The proposal to relocate a section of the existing powerline corridor, and remove the overstorey vegetation from the nominated area, will be compensated through the planting of supplementary habitat as will be discussed in Section 3.5 below.

Figure 3.1 Proposed location of the sediment basin and the relocated powerline corridor indicating the overstorey vegetation to be removed

Figure 3.2 Disturbed ground occurring at the proposed sediment basin

Figure 3.3 Vegetation occurring within the proposed powerline corridor taken during an upstream discharge event

3.5 Supplementary Habitat

The NSW Biodiversity Offsets Policy for Major Projects enables offsets, or compensatory habitats, to provide benefits to biodiversity to compensate for adverse impacts of an action. Long-term conservation outcomes can be achieved while enabling proponents to undertake actions that have unavoidable impacts on biodiversity. As the proposed area of disturbance to the Swamp Oak vegetation is only 0.14 ha, the Biodiversity Offsets Policy does not apply to modifications of this scale.

As can be seen in Table 3.1, a number of options have been evaluated to try to avoid and mitigate the removal of the Swamp Oak overstorey vegetation from the relocated powerline. The majority of these options did not provide the reduction in risk or upgrade to contemporary standards that was required for the sediment basin at the HVLP.

The preferred option will result in the removal of the overstorey vegetation from the relocated powerline corridor and a small area above the batter to the creek as indicated in Figure 3.1. As discussed, the vegetation to be removed comprises overstorey species consistent with the Swamp Oak Floodplain Forest vegetation community and some exotic peppercorn trees.

With the root systems of the overstorey vegetation to be left intact and only the above ground components to be removed from site, in addition to the retention of the understory vegetation, the action is unlikely to encourage erosion within the area nominated for the sediment basin or the relocated powerline.

To compensate for the removal of approximately 0.14 ha of vegetation which includes the native Swamp Oak trees, it is proposed that, following approval, an equivalent area of Bayswater Creek riparian area will be restored with overstorey species representative of the Swamp Oak Floodplain Forest.

The area identified for restoration is located approximately 600 m downstream of the proposed sediment basin (Figure 3.4). It is a cleared and disturbed predominately exotic grassland slope leading from the 33N mine water basin (Bayswater Basin) down to the Bayswater Creek (Figure 3.4). In this area, the Swamp Oaks forming the overstorey vegetation along the creek can be seen to thin out when compared to the immediate adjacent areas. Restoration at this locality will enable a greater riparian buffer and improve the continuity of vegetation along the creek in this area.

The understorey vegetation at the proposed compensatory site is of a similar quality to that occurring within the relocated powerline corridor. The slope is of a lower gradient than the unconsolidated batter of the powerline easement and the proximity to Bayswater Creek is similar.

The continuity of the vegetation for those mobile species that are likely to traverse these degraded habitats will be improved following the restoration. As a result, there will be no net loss of the Swamp Oak vegetation upon establishment of the proposed compensatory area.

The restored site will be monitored in accordance with the HVO Rehabilitation Management Plan and reported within the Annual Review.

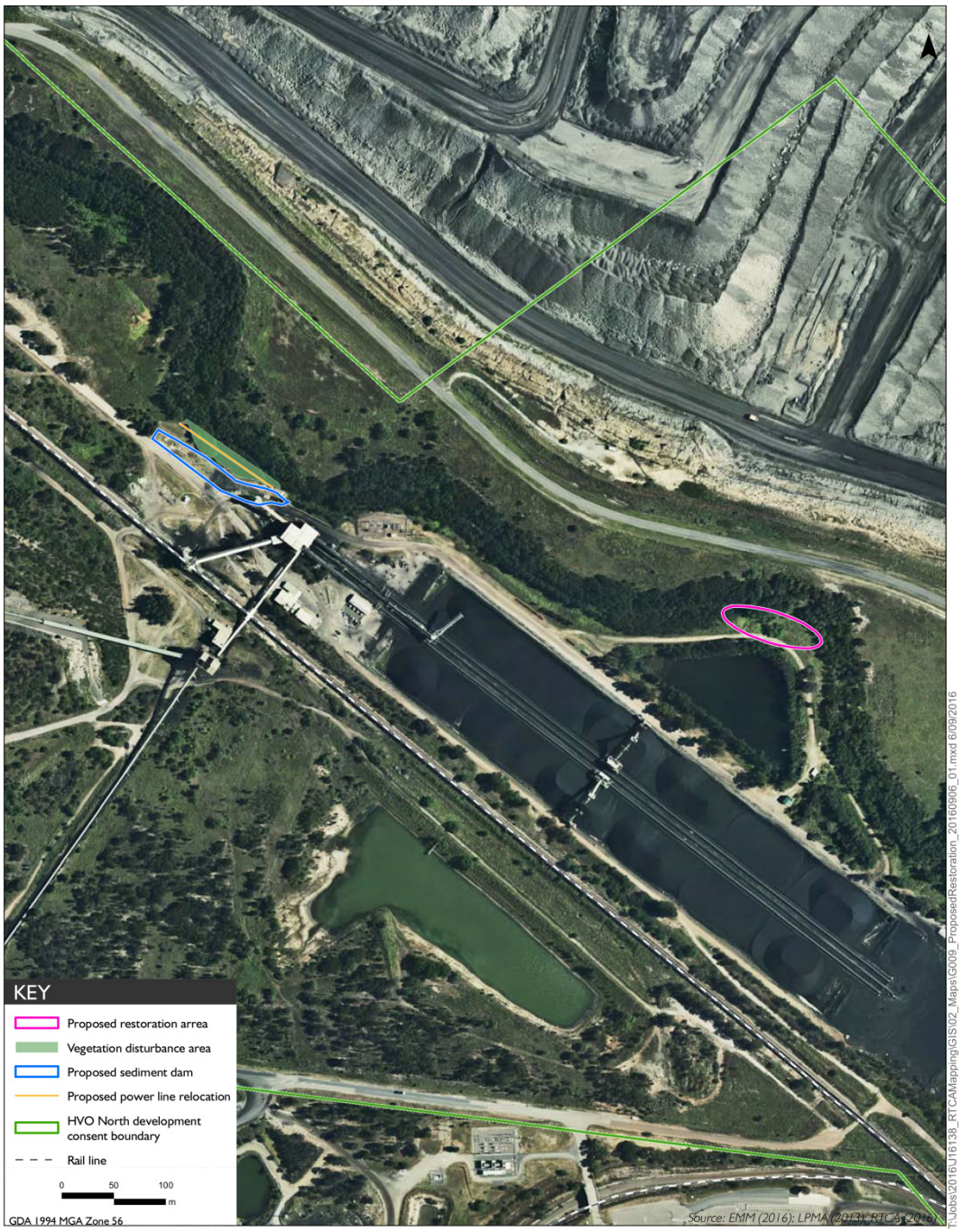


Figure 3.4 Location of the proposed area to be restored in relation to the proposed sediment basin

Figure 3.5 Views across the proposed area to be restored with overstorey vegetation

4. Communication Tower Construction and Relocation

4.1 Overview

As part of the management of Hunter Valley Operations, communication towers are required to relay and coordinate the activities occurring within the mine so that the operation can be undertaken in a safe and efficient manner. Figure 3.2 indicates the present location of the communication towers within HVO North.

The towers are standard equipment that are constructed in accordance with normal engineering practice and meets the requirements of the Building Code of Australia, the *Environmental Planning and Assessment Regulation 2000* (EP&A Reg), and relevant Australian Standards. The construction is certified as such by an accredited certifier with the provision of a Complying Development Certificate.

In accordance with Section 134 of the EP&A Reg, the conditions of the complying development certificate provided by the certifying agency stipulate a date on which the certificate lapses. This condition requires recertification of the towers every five years regardless of whether the towers are to be relocated or not. As such, this requirement presents an excessive and unnecessary administrative and financial burden on the operation.

As these towers are a vital tool in the management of the operation, approval via this development consent modification is sought to enable the construction of the towers anywhere within the HVO North mining complex in accordance with the development consent. This will assist to avoid the unnecessary costs associated with the repeated recertification process. In addition, approval will enable the site to reduce the risk that the operation will be in breach of its obligations in the unlikely event that recertification of a tower does not occur as planned.

4.2 Installation Requirements and Construction Standards

The *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* (NSW) (Mining SEPP) permits the construction and use of the communication towers as per Part 2 Section 11:

> *11 Complying development*
>
> *(1) This clause applies to development that is not on any of the following land:*
>
> *(a) land within an environmentally sensitive area of State significance,*
>
> *(b) land identified in Schedule 1 to the Water NSW Regulation 2013.*
>
> *(2) Development for any of the following purposes is complying development if it is on the site of an approved mine, an approved petroleum production facility or approved extractive industry:*
>
> *(a) the construction, maintenance and use of communication facilities, electricity distribution lines or water pipelines,*

In accordance with the requirements outlined in the above Mining SEPP, the land on which the communication towers are located and constructed are not designated as environmentally sensitive, are not identified in Schedule 1 of the *Water NSW Regulation 2013* (NSW), are located on the site of an approved mine and are sited in areas that have been approved to be lawfully cleared of vegetation under both State and Commonwealth legislation. Further discussion regarding the site selection and environmental considerations evaluated in determining the location of the communication towers is outlined in Section 4.3 below.

The communication towers are constructed and erected by appropriately licensed contractors in accordance with all the appropriate Australian Standards, legislation and building codes applicable for the erection of communication equipment.

4.3 Environmental Considerations

The activities relating to the construction and operation of the communication towers requested with this modification have been occurring for a significant period of time. There have been no environmental or community-related incidents relating to the towers and thus the towers have minimal environmental consequences and have been managed effectively in accordance with the existing management protocols.

In addition to the telecommunications requirements of HVO North, the environment is given due consideration when determining the location of the towers. As outlined above, the Mining SEPP permits the construction, maintenance and use of communication facilities as complying development if the construction is located within an approved mine.

All activities occurring on site are undertaken in accordance with the approved HVO North development consent and the applicable legislation. As such, the activities, including the location of the communication towers, have been subject to an environmental assessment and assessed in accordance with the requirements of the EP&A Act.

Specific environmental considerations given in selecting an appropriate location for the communication towers are outlined below.

Flora

For operational efficiency, the towers are typically located adjacent to active mining areas, existing haul roads and mine-related infrastructure. The communication towers are located within either previously disturbed areas or areas approved to be disturbed for mining. The location of the communication towers identified in Figure .1 below is on land that has been mined and thus cleared of vegetation as part of the mining approval process.

As a result, the appropriate vegetation assessments of these areas have been undertaken during the approval process and specific areas have not been cleared to facilitate the construction of the towers. The impact of the existing towers on the flora occurring in the vicinity is negligible as the site had been cleared for mining prior to their construction.

Should the communication towers need to be relocated, the nominated site(s) will be selected with preference given to pre-disturbed localities within the approved disturbance boundary of the operation.

Fauna

As with the impacts on flora stated above, the potential influence of the communication towers on the local fauna population is minimal to nil. As the preferred sites are located within pre-disturbed areas away from the advancing mine face, their operation and potential relocation will not have a detrimental impact on local fauna populations.

Where the nominated site is not within post-mined lands, it will be within an area approved for mining –related disturbance. In these situations, the approved Coal & Allied pre-clearing protocols will be undertaken. As such, no trees, existing water bodies or significant ecological habitat that have not previously been approved for clearing will be removed to accommodate the construction and operation of the communication towers.

Should any fauna be found to reside on the towers, a suitably qualified ecologist will be utilised to relocate the animal without harm to an appropriate habitat in accordance with the Coal & Allied Flora and Fauna Work Instruction.

Visual

While the potential visual impact of the towers is minimal to nil when viewed from outside the mine boundaries, in determining the location of the towers, minimising the potential visual impact is given due consideration along with their contribution to the effectiveness of the mine's communication network array.

The influence of the communication towers on the visual amenity of the region is not significant when taking into consideration their visibility from surrounding areas and the visual absorption capacity of these areas.

Visual absorption capacity is the ability of the landscape to be changed and still retain its existing visual characteristics. It is determined by considering the visibility of a proposed development and the degree of contrast between a proposed development and the local and regional viewscapes. When compared to the adjacent open cut mining operations, the visual prominence of the communication towers are negligible.

Although located above ground, their relatively small size means that they will not be readily distinguishable from any privately owned residences or public roads and thus, will not impact visual amenity in those areas.

Other considerations

Other environmental considerations that are taken into account in determining the location of communication towers include the potential impact of the towers and construction activities on surface and ground water, cultural heritage, noise and air quality. The impact on each of these criteria is negligible when undertaken in accordance with the requirements and considerations mentioned above. The environmental controls for each of these criteria is outlined in Table 4.1.

Table 4.1 Environmental management initiatives in communication tower site selection and construction.

Environmental Consideration	Management Initiative and Impact Outcome
Surface water	The proposed modification will not have an impact on surface water. No change that is likely to affect surface water is proposed. The construction and operation of the current and any future relocation sites is managed in accordance with the approved HVO Water Management Plan. The site is bunded to direct surface flow around the disturbed area. Surface flow originating from within the site is managed in accordance with the HVO Water Management Plan.
Ground water	The construction and operation of the communication towers on pre-disturbed sites will not have an influence on groundwater. No change that is likely to affect ground water is proposed. The installation of the tower footings are largely confined to the surface. An interaction between the surface installation of the towers adjacent to the active mining locations and the groundwater is unlikely.
Cultural heritage	No change that is likely to affect cultural heritage values are proposed. An assessment of cultural heritage values of the disturbed areas has been determined in the environmental assessment of the initial development consent application and any subsequent modifications as outlined in Section 2.1. As the towers are located within pre-disturbed areas or areas approved for mining, no detrimental interaction with cultural heritage values are likely.
Noise	No change that is likely to affect the noise generated from HVO is proposed. The communication towers are located adjacent to active mining operations. The noise arising from the construction and operation of the towers will be indiscernible from the background noise from any public vantage point or private residence. To date, the operational towers have been managed effectively in accordance with the HVO Noise Management Plan.
Air Quality	The proposed modification will not have an impact on local or regional air quality. No change that is likely to affect air quality is proposed. The communication towers and the power required for their operation are managed and accounted for within the approved HVO Air Quality and Greenhouse Gas Management Plan.
Greenhouse Gas	No change that is likely to affect greenhouse gas generation is proposed. Mining activities generate greenhouse gas emissions (GHG) from a number of sources including the combustion of fossil fuels in diesel powered equipment and electricity generation. The existing energy and GHG reduction measures and projects will continue to be implemented at HVO and thus the communication towers will have negligible contribution to the GHG emissions.
Traffic and Transport	Not applicable. The proposed modification relating to the communication towers will not result in an increase in employee numbers, production or result in an increase in traffic on public roads.
Non-Indigenous Heritage	Not applicable. No changes that are likely to affect the non-indigenous heritage values are proposed. The current and potential future locations of the towers are sited on post-mined land, or land approved for mining. The potential impact of the activity has been assessed in the initial development consent approval and subsequent modifications in accordance with the EP&A Act requirements.

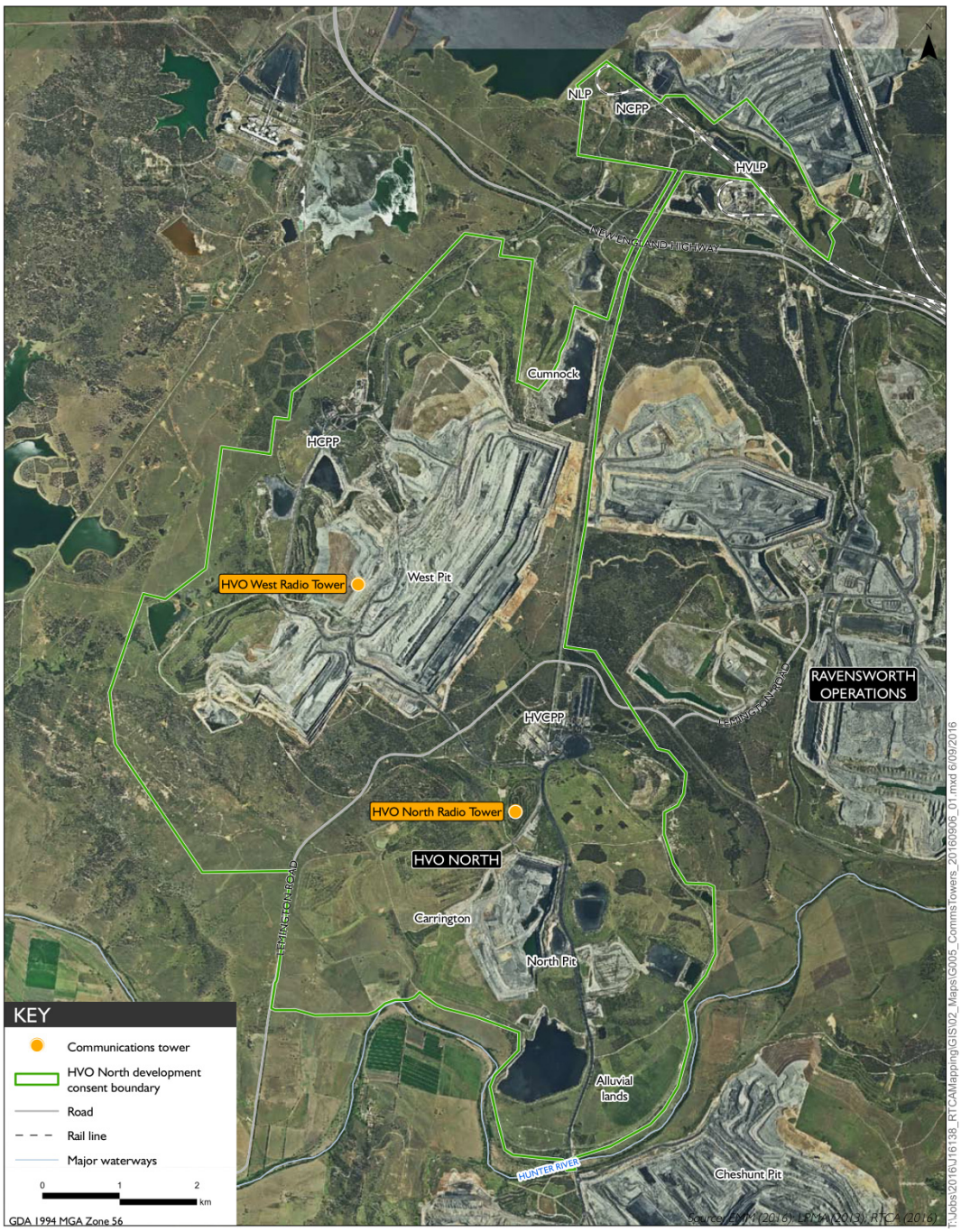


Figure 4.1 The location of the communication towers at Hunter Valley Operations North.

5. Summary

The information outlined in this application to modify Development Consent DA 450-10-2003 for HVO North has shown that this proposal will exhibit little to nil detrimental environmental impact.

The upgrade to the sediment basin has been sited within existing disturbed lands and will ensure that the environmental management of the area is able to meet contemporary standards. Bayswater Creek is within a highly modified catchment whose flow is largely regulated under the Hunter River Salinity Trading Scheme and has been subject to landscape modifications and creek diversions following various industrial approvals.

The proposed powerline development will require the removal of 0.14 ha of regrowth overstorey vegetation that represents a degraded form of the endangered ecological community, *Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions*.

To compensate for the removal of the native Swamp Oak overstorey vegetation, an area equivalent in size to the native vegetation proposed to be removed will be restored through the planting of overstorey species representative of the Swamp Oak community.

The ecological assessment determined that none of the listed threatened species, endangered populations or threatened ecological communities, with the exception of the *Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions*, were present at the site, or likely to occur given the nature and condition of the habitats present.

A Section 5A Assessment of Significance for the listed Swamp Oak Floodplain Forest community concluded that the removal of the overstorey vegetation is not likely to impose a significant effect upon the endangered ecological community and, as such, a species impact statement is not required.

Due to the highly disturbed nature of the vegetation communities present, as well as the dense exotic groundcover and understory, the majority of the site lacks any significant habitat for any native fauna groups. Of the common native species that were observed or may utilise the vegetation, they are generally disturbance-tolerant and mobile. As a result, it is unlikely that they would be detrimentally impacted by the proposal.

The approval of the communication towers within this modification anywhere within the HVO North mining complex will remove the administrative and financial burden associated with the need to recertify the towers every five years as complying development.

The towers are standard equipment that are constructed in accordance with normal engineering practice and meets the requirements of the *Environmental Planning and Assessment Regulation 2000*, the Building Code of Australia, and the relevant Australian Standards. The construction of the towers has been certified as such by an accredited certifier with the provision of a Complying Development Certificate.

The towers are sited in areas either approved to be cleared or in areas that have already been mined. Their low visual impact means that the towers do not contribute significantly to the viewshed from nearby residences. Environmental controls are implemented in the construction and operation of the communication towers and thus their construction and operation have minimal environmental impact.

6. References

Department of Planning and Infrastructure, 2012. Upper Hunter Strategic Regional Land Use Plan. https://www.nsw.gov.au/sites/default/files/initiatives/upperhunterslup_sd_v01.pdf

Office of Environment and Heritage, 2014. NSW Biodiversity Offsets Policy for Major Projects. http://www.environment.nsw.gov.au/resources/biodiversity/140672biopolicy.pdf

Office of the Environment and Heritage, 2012. Greater Hunter Vegetation Mapping. https://sdi.nsw.gov.au.

SLR, 2016. Hunter Valley Load Point Water Management Upgrade Works. Existing Environmental Report. 12 May 2016.

SLR, 2016. Hunter Valley Load Point Proposed Powerline Easement. Ecological Impact Assessment. 7 September 2016.

Appendix A

HVO North development consent DA 450-10-2003.

Development Consent

Section 80 of the *Environmental Planning and Assessment Act 1979*

I, the Minister for Infrastructure, Planning and Natural Resources, approve the Development Application referred to in schedule 1, subject to the conditions in schedules 3 to 6.

These conditions are required to:
- prevent, minimise, and/or offset adverse environmental impacts;
- set standards and performance measures for acceptable environmental performance;
- require regular monitoring and reporting; and
- provide for the on-going environmental management of the development.

Craig Knowles MP
Minister for Infrastructure and Planning
Minister for Natural Resources

Sydney, 2004 File No: S02/02690

SCHEDULE 1

Development Application:	DA 450-10-2003.
Applicant:	Coal & Allied Operations Pty Ltd.
Consent Authority:	Minister for Infrastructure and Planning.
Land:	See Appendix 1.
Proposed Development:	The extension of open cut coal mine operations at the West Pit of Hunter Valley Operations in general accordance with the Environmental Impact Statement for the *Hunter Valley Operations - West Pit Extension and Minor Modifications*, which includes: • extending open cut mining operations to the east of currently approved development; • using existing mining methods and equipment; • using existing coal preparation facilities at the West Pit to process up to 6 million tonnes per annum (Mtpa) of coal and use of related coal reject disposal facilities; • continuing coal production at the rate of 12 Mtpa at West Pit; • increasing the approved production capacity of the Carrington Pit from 6 Mtpa to 10 Mtpa; • increasing approved coal haulage from mining areas south of the Hunter River to the Hunter Valley Coal Preparation Plant from 8 Mtpa to 16 Mtpa; • upgrading the capacity of the Hunter Valley Coal Preparation Plant from 13 Mtpa to 20 Mtpa; • upgrading the Belt Line Conveyor from the Hunter Valley Coal Preparation Plant to the Hunter Valley Loading Point; • constructing a conveyor between the Hunter Valley Loading Point and the Newdell Loading Point; • hauling coal, on an intermittent basis, between the Hunter Valley Loading Point and Newdell Loading Point and the Ravensworth Coal Terminal; • hauling coal, on an intermittent basis, between the Hunter Valley Coal Preparation Plant and the Hunter Valley Loading Point along a private haul road;

- moving coal and coal rejects between mining areas and facilities of the Hunter Valley Operations, including mining areas and facilities located south of the Hunter River;
- constructing temporary crossings of the Hunter River to allow the relocation of heavy mining equipment; and
- consolidating 15 existing development approvals, applying to Hunter Valley Operations north of the Hunter River, into a single consent.

State Significant Development: The proposal is classified as State significant development, under section 76A(7) of the *Environmental Planning and Assessment Act 1979*, because it involves coal-mining related development that requires a new mining lease under section 63 of the *Mining Act 1992*.

Integrated Development: The proposal is classified as integrated development, under section 91 of the *Environmental Planning and Assessment Act 1979*, because it requires additional approvals under the:

- *Protection of the Environment Operations Act 1997;*
- *National Parks and Wildlife Act 1974*;
- *Water Act 1912;*
- *Rivers and Foreshores Improvement Act 1948*;
- *Roads Act 1993*; and
- *Mine Subsidence Compensation Act 1961*.

Designated Development: The proposal is classified as designated development, under section 77A of the *Environmental Planning and Assessment Act 1979*, because it is for a coal mine that would "*produce or process more than 500 tonnes of coal a day*", and consequently meets the criteria for designated development in schedule 3 of the *Environmental Planning and Assessment Regulation 2000*.

BCA Classification: Class 10b: Coal conveyor

Note:

1) *To find out when this consent becomes effective, see section 83 of the Environmental Planning and Assessment Act 1979 (EP&A Act);*
2) *To find out when this consent is liable to lapse, see section 95 of the EP&A Act; and*
3) *To find out about appeal rights, see section 97 of the EP&A Act.*

Red type represents August 2005 modification
Blue type represents June 2006 modification
Green type represents March 2013 modification
Light blue type represents January 2014 modification

SCHEDULE 2
DEFINITIONS

AEMR	Annual Environmental Management Report
Applicant	Coal & Allied Operations Pty Ltd
ARTC	Australian Rail Track Corporation
BCA	Building Code of Australia
Bore	Any bore or well or excavation or other work connected or proposed to be connected with sources of sub-surface water, and used or proposed to be used or capable of being used to obtain supplies of such water whether the water flows naturally at all times or has to be raised whether wholly or at times by pumping or other artificial means
CCC	Community Consultative Committee
Council	Singleton Shire Council
DA	Development Application
Day	Day is defined as the period from 7am to 6pm on Monday to Saturday, and 8am to 6pm on Sundays and Public Holidays
Department	Department of Planning and Infrastructure
Director-General	Director-General of the Department, or nominee
DPI	Department of Primary Industries
DRE	Division of Resources and Energy within the Department of Trade, Investment, Regional Infrastructure and Services
EIS	Environmental Impact Statement
EPA	Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000*
EPL	Environment Protection Licence
EPL 640	Environment Protection Licence No. 640 issued for HVO's operations north of the Hunter River or any subsequent replacement for, or variation of, EPL 640
Evening	Evening is defined as the period from 6pm to 10pm
Executive Director Mineral Resources	Executive Director of Mineral Resources within DRE, or equivalent position
Feasible	Feasible relates to engineering considerations and what is practical to build or carry out
GTA	General Term of Approval
HVO	Hunter Valley Operations
Land	As defined in the EP&A Act, except for where the term is used in the noise and air quality conditions in schedules 3 and 4 of this consent where it is defined to mean the whole of a lot, or contiguous lots owned by the same landowner, in a current plan registered at Land and Property Information at the date of this consent
LPB	Low Permeability Barrier
Mining operations	Includes the removal of overburden and extraction, processing, handling, storage and transportation of coal on site
MOP	Mining Operations Plan
MSC	Muswellbrook Shire Council
MSB	Mine Subsidence Board
Negligible	Small and unimportant, such as to be not worth considering
Night	Night is defined as the period from 10pm to 7am on Monday to Saturday, and 10pm to 8am on Sundays and Public Holidays
NOW	NSW Office of Water within the Department of Primary Industries
NP&W Act	*National Parks and Wildlife Act 1974*
OEH	Office of Environment and Heritage
PCA	Principal Certifying Authority appointed under Section 109E of the Act
POEO Act	*Protection of the Environment Operations Act 1997*
Privately owned land	Land that is not owned by a public agency, or a mining company, or its subsidiary
Reasonable	Reasonable relates to the application of judgement in arriving at a decision, taking into account: mitigation benefits, cost of mitigation versus benefits provided, community views and the nature and extent of potential improvements
ROM coal	Run-of-mine coal
RMS	Roads and Maritime Services
Site	The land described in Appendix 1
Vacant land	Vacant land is defined as the whole of the lot in a current plan registered at the Land Titles Office that does not have a dwelling situated on the lot and is permitted to have a dwelling on that lot at the date of this consent.

TABLE OF CONTENTS

SCHEDULE 3
ADMINISTRATIVE CONDITIONS

Obligation to Minimise Harm to the Environment

1. The Applicant shall implement all practicable measures to prevent and/or minimise any harm to the environment that may result from the construction, operation, or rehabilitation of the development.

Terms of Approval

2. The Applicant shall carry out the development generally in accordance with the:
   (a) DA 450-10-2003;
   (b) EIS titled *Hunter Valley Operations – West Pit Extension and Minor Modifications*, volumes 1 – 4, dated October 2003, and prepared by Environmental Resources Management Australia;
   (c) the section 96(1A) modification application for the Hunter Valley Loading Point, dated 30 June 2005, and prepared by Matrix Consulting;
   (d) *Carrington Pit Extended Statement of Environmental Effects* volumes 1 & 2, dated October 2005, and prepared by Environmental Resources Management Australia;
   (e) *Carrington Pit Extension Response to Submissions Report*, dated May 2006, and prepared by Environmental Resources Management Australia;
   (f) Summary of Commitments for Carrington Pit as Extended, dated 28 May 2006 and prepared by the Applicant;
   (g) *Carrington West Wing Environmental* Assessment dated 1 October 2010, *Carrington West Wing Response to Submissions* dated 21 December 2010, *Carrington West Wing Agricultural Impact Assessment* dated 10 June 2011, *Carrington West Wing Statement of Commitments* dated 4 March 2013;
   (h) *HVO North – Fine Reject Emplacement Modification Environmental Assessment* dated June 2013 and *HVO North – Fine Reject Emplacement Modification Response to Submissions* dated August 2013; and
   (i) conditions of this consent.

3. If there is any inconsistency between the above documents, the most recent document shall prevail to the extent of the inconsistency. However, the conditions of this consent shall prevail over all other documents to the extent of any inconsistency.

4. The Applicant shall comply with any reasonable requirement/s of the Director-General arising from the Department's assessment of:
   (a) any reports, strategies, plans, programs, reviews, audits or correspondence that are submitted in accordance with this consent; and
   (b) the implementation of any actions or measures contained in these documents.

Surrender of Consents

5. Within 3 months of the submission of the revised West Pit extension MOP to the DRE, the Applicant shall surrender all existing development consents and existing use rights associated with Hunter Valley Operations' (HVO's) mining operations and related facilities north of the Hunter River in accordance with clause 97 of the *EP&A Regulation*.

Limits on Approval

6. The Applicant may carry out mining operations on the site until 12 June 2025.

   Note: Under this consent, the Applicant is required to rehabilitate the site and carry out additional undertakings to the satisfaction of both the Director-General and the Executive Director Mineral Resources. Consequently, this consent will continue to apply in all other respects other than the right to conduct mining operations until the rehabilitation of the site and those additional undertakings have been carried out satisfactorily.

7. The Applicant shall not extract more than 12 million tonnes per annum (Mtpa) of ROM coal from the West Pit and 10 Mtpa of ROM coal from the Carrington Pit.

8. The Applicant shall ensure that the Hunter Valley Coal Preparation Plant does not receive more than 16 Mtpa of coal from mining operations south of the Hunter River, and process more than 20 Mtpa of coal.

9. The Applicant shall ensure that the West Pit Coal Preparation Plant does not process more than 6 Mtpa of coal.

Structural Adequacy

10. The Applicant shall ensure that all new buildings and structures, and any alterations or additions to existing buildings and structures, are constructed in accordance with the relevant requirements of the BCA.

Notes:
1) Under Part 4A of the EP&A Act, the Applicant is required to obtain construction and occupation certificates for the proposed building works.
2) Part 8 of the EP&A Regulation sets out the requirements for the certification of development.
3) [1]The development is located in the Patrick Plains Mine Subsidence District. Under section 15 of the Mine Subsidence Compensation Act 1961, the Applicant is required to obtain the Mine Subsidence Board's approval before constructing or relocating any improvements on the site.

Demolition

11. The Applicant shall ensure that any demolition work is carried out in accordance with *AS 2601-2001: The Demolition of Structures*, or its latest version.

Operation of Plant and Equipment

12. The Applicant shall ensure that all plant and equipment used at the site, or to transport coal off-site, are:
(a) maintained in a proper and efficient condition; and
(b) operated in a proper and efficient manner.

Community Enhancement Contribution

13. Before carrying out any development, or as agreed otherwise by Council, the Applicant shall pay Council $15,000 for the provision of stream improvement works in the Hunter River or its tributaries. If Council has not carried out these enhancement works within 12 months of payment, the Applicant may retrieve the funds from Council.

Staged Submission of any Strategy, Plan and Program

14. With the approval of the Director-General, the Applicant may submit any strategy, plan or program required by this consent on a progressive basis.

Notes:
- *While any strategy, plan or program may be submitted on a progressive basis, the Applicant will need to ensure that the existing operations of the site are covered by suitable strategies, plans or programs at all times; and*
- *If the submission of any strategy, plan or program is to be staged, then the relevant strategy, plan or program must clearly describe the specific stage to which the strategy, plan or program applies, the relationship of this stage to any future stages, and the trigger for updating the strategy, plan or program.*

[1] Incorporates MSB GTA.

SCHEDULE 4
SPECIFIC ENVIRONMENTAL CONDITIONS

ACQUISITION UPON REQUEST

1. Upon receiving a written request for acquisition from any landowner of the land listed in Table 1, the Applicant shall acquire the land in accordance with the procedures in conditions 6-7 of schedule 5 and condition 5 of schedule 5 for property 8.

Table 1: Land subject to acquisition upon request

8 - Holz	10 - Moses
9 - Dallas	12 - Barry

Note: To identify the locations referred to in Table 1, see Appendix 2.

2. While the land listed in condition 1 is privately-owned, the Applicant shall implement all practicable measures to ensure that the impacts of the development comply with the predictions in the EIS, to the satisfaction of the Director-General.

AIR QUALITY & GREENHOUSE GAS

Odour

3. The Applicant shall ensure that no offensive odours are emitted from the site, as defined under the POEO Act.

Greenhouse Gas Emissions

4. The Applicant shall implement all reasonable and feasible measures to minimise the release of greenhouse gas emissions from the site to the satisfaction of the Director-General.

Air Quality Criteria

4A. Except for the air quality affected land in Table 1, the Applicant shall ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the development do not exceed the criteria listed in Tables 2, 3 or 4 at any residence on privately-owned land or on more than 25 percent of any privately-owned land.

In this condition 'reasonable and feasible avoidance and mitigation measures' includes, but is not limited to, the operational requirements in Condition 5 of Schedule 4 and the requirements in Conditions 5 and 6 of Schedule 4 to develop and implement a real-time air quality management system that ensures effective operational responses to the risks of exceedance of the criteria.

Table 2: Long term criteria for particulate matter

Pollutant	**Averaging Period**	**[d] Criterion**
Total suspended particulate (TSP) matter	Annual	[a] 90 µg/m^3
Particulate matter < 10 µm (PM_{10})	Annual	[a] 30 µg/m^3

Table 3: Short term criterion for particulate matter

Pollutant	**Averaging Period**	**[d] Criterion**
Particulate matter < 10 µm (PM_{10})	24 hour	[a] 50 µg/m^3

Table 4: Long term criteria for deposited dust

Pollutant	**Averaging Period**	**Maximum increase in deposited dust level**	**Maximum total deposited dust level**
[c] Deposited dust	Annual	[b] 2 g/m^2/month	[a] 4 g/m^2/month

Notes to Tables 2–4:

- [a] *Total impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to all other sources);*
- [b] *Incremental impact (i.e. incremental increase in concentrations due to the development on its own);*

- *[c] Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method.*
- *[d] Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents, illegal activities or any other activity agreed by the Director-General.*

Air Quality Acquisition Criteria

4B. If particulate matter emissions generated by the development exceed the criteria in Tables 5, 6 or 7 on a systemic basis at any residence on privately-owned land or on more than 25 percent of any privately-owned land, then upon receiving a written request for acquisition from the landowner the Applicant shall acquire the land in accordance with the procedures in Conditions 7 and 8 of Schedule 5.

Table 5: Long term acquisition criteria for particulate matter

Pollutant	Averaging Period	[d] Criterion
Total suspended particulate (TSP) matter	Annual	[a] 90 µg/m^3
Particulate matter < 10 µm (PM_{10})	Annual	[a] 30 µg/m^3

Table 6: Short term acquisition criteria for particulate matter

Pollutant	Averaging period	[d] Criterion
Particulate matter < 10 µm (PM_{10})	24 hour	[a] 150 µg/m^3
Particulate matter < 10 µm (PM_{10})	24 hour	[b] 50 µg/m^3

Table 7: Long term acquisition criteria for deposited dust

Pollutant	Averaging Period	Maximum increase in deposited dust level	Maximum total deposited dust level
[c] Deposited dust	Annual	[b] 2 g/m^2/month	[a] 4 g/m^2/month

Notes to Tables 5-7:

- *[a] Total impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to all other sources);*
- *[b] Incremental impact (i.e. incremental increase in concentrations due to the development on its own);*
- *[c] Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method.*
- *[d] Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents, illegal activities or any other activity agreed by the Director-General.*

Mine-owned Land

4C. The Applicant shall ensure that particulate matter emissions generated by the development do not exceed the criteria listed in Table 2, Table 3 and Table 4 at any occupied residence on any mine-owned land (including land owned by adjacent mines) unless:

(a) the tenant and landowner has been notified of health risks in accordance with the notification requirements under Schedule 5 of this consent;

(b) the tenant on land owned by the Applicant can terminate their tenancy agreement without penalty, subject to giving reasonable notice, and the Applicant uses its best endeavours to provide assistance with relocation and sourcing of alternative accommodation;

(c) air mitigation measures (such as air filters, a first flush roof water drainage system and/or air conditioning) are installed at the residence, if requested by the tenant and landowner (where owned by another mine other than the Applicant);

(d) particulate matter air quality monitoring is undertaken to inform the tenant and landowner of potential health risks; and

(e) monitoring data is presented to the tenant in an appropriate format, for a medical practitioner to assist the tenant in making an informed decision on the health risks associated with occupying the property,

to the satisfaction of the Director-General.

Air Quality Operating Conditions

5. The Applicant shall:
   (a) implement best management practice to minimise the off-site odour, fume and dust emissions of the development, including best practice coal loading and profiling and other measures to minimise dust emissions from coal transportation by rail;
   (b) operate a comprehensive air quality management system on site that uses a combination of predictive meteorological forecasting, predictive and real time air dispersion modelling and real-time air quality monitoring data to guide the day to day planning of mining operations and implementation of both proactive and reactive air quality mitigation measures to ensure compliance with the relevant conditions of this approval;
   (c) manage $PM_{2.5}$ levels in accordance with any requirements of any EPL;
   (d) minimise the air quality impacts of the development during adverse meteorological conditions and extraordinary events (see note d above under Table 5-7);
   (e) minimise any visible off-site air pollution;
   (f) minimise the surface disturbance of the site generated by the development; and
   (g) co-ordinate air quality management on site with the air quality management at nearby mines (Mount Thorley Warkworth, Wambo, Ravensworth and HVO South mines) to minimise the cumulative air quality impacts of these mines and the development,

   to the satisfaction of the Director-General.

Air Quality & Greenhouse Gas Management Plan

6. The Applicant shall prepare and implement a detailed Air Quality & Greenhouse Gas Management Plan for the development to the satisfaction of the Director-General. This plan must:
   (a) be prepared in consultation with the EPA, and submitted to the Director-General for approval by the end of June 2013;
   (b) describe the measures that would be implemented to ensure:
      - best management practice is being employed;
      - the air quality impacts of the development are minimised during adverse meteorological conditions and extraordinary events; and
      - compliance with the relevant conditions of this consent.
   (c) describe the proposed air quality management system;
   (d) include a risk/response matrix to codify mine operational responses to varying levels of risk resulting from weather conditions and specific mining activities;
   (e) include commitments to provide summary reports and specific briefings at CCC meetings on issues arising from air quality monitoring;
   (f) include an air quality monitoring program that:
      - uses a combination of real-time monitors and supplementary monitors to evaluate the performance of the development;
      - adequately supports the proactive and reactive air quality management system;
      - includes $PM_{2.5}$ monitoring;
      - includes monitoring of occupied development-related residences and residences on air quality-affected land listed in Table 1, subject to the agreement of the tenant;
      - evaluates and reports on the effectiveness of the air quality management system; and
      - includes a protocol for determining any exceedances of the relevant conditions in this approval; and
   (g) include a protocol that has been prepared in consultation with the owners of nearby mines (Mt Thorley Warkworth, Wambo, Ravensworth and HVO South mines) to minimise the cumulative air quality impacts of these mines and the development.

[2]NOISE

Noise Impact Assessment Criteria

7. The Applicant shall ensure that the noise generated by the development does not exceed the noise impact assessment criteria presented in Table 9 at any privately-owned land.

[2] Incorporates EPA GTAs

Table 9: Noise impact assessment criteria dB(A)

Day/Evening/Night $L_{Aeq(15\ minute)}$	***Night*** $L_{A1(1\ minute)}$	***Land Number***
40	*46*	*4 – Muller (from year 1 to year 7)* *7 – Stapleton* *Jerrys Plains Village – represented by residence locations 13 and 14 on Figure 24, volume 4 of the EIS (years 20 & 21).* *1 – Hayes (years 20 & 21)* *18 – Bennet (years 20 & 21)* *51 – Nicholls (years 20 & 21)* *52 – Old – (years 20 & 21)*
39	*46*	*2 – Skinner* *3 – Elisnore* *11 – Fisher* *19 – Biralee Feeds* *31 – Cooper* *36 – Garland* *54 – Skinner*
38	*46*	*1 – Hayes (from year 1 to year 19)* *18 – Bennet (from year 1 to year 19)* *51 – Nicholls (from year 1 to year 19)* *52 – Old (from year 1 to year 19)*
36	*46*	*4 – Muller (from year 8 to year 21)*
35	*46*	*All other residential or sensitive receptors, excluding the receptors listed in condition 1 above.*

Notes:

(a) *The years referenced in Table 9 are to be considered as the position of mining operations as set out in the EIS for that year. If mining operations are delayed or accelerated from the planned location as shown in the EIS for a particular year, then the noise assessment criteria will be adjusted in accordance with the location of actual mining operations. The location of actual mining operations in relation to locations predicted in the EIS, will be indicated in the AEMR (see schedule 6, condition 5).*

(b) *The noise limits in Table 9 are for the noise contribution of the West Pit extension and all Hunter Valley Operations north of the Hunter River and coal haulage identified in the EIS from the south side of the Hunter River.*

(c) *Noise from the development is to be measured at the most affected point within the residential boundary, or at the most affected point within 30 metres of a dwelling (rural situations) where the dwelling is more than 30 metres from the boundary, to determine compliance with the $L_{Aeq(15\ minute)}$ noise limits in the above table.*

(d) *To determine compliance with the $L_{Aeq(15\ minute)}$ noise limits in the above table. Where it can be demonstrated that direct measurement of noise from the development is impractical, the EPA may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy). The modification factors in Section 4 of the NSW Industrial Noise Policy shall also be applied to the measured noise levels where applicable.*

(e) *Noise from the development is to be measured at 1 metre from the dwelling façade to determine compliance with the* $L_{A1(1\ minute)}$ noise limits in the above table.

(f) *The noise limits in Table 9 are to be applied in accordance with the limitations and requirements set out in Appendix 3.*

Land Acquisition Criteria

8. If the noise generated by the development exceeds the criteria in Table 10, the Applicant shall, upon receiving a written request for acquisition from the landowner, acquire the land in accordance with the procedures in Conditions 6 and 7 of Schedule 5.

Table 10: Land acquisition criteria dB(A)

Day/Evening/Night $L_{Aeq(15\ minute)}$	***Property***
43	*11 – Fisher*
42	*7 - Stapleton*
41	*All residential or sensitive receptors, excluding the receptors listed in condition 1 above*

Note: See notes (c) to (f) to Table 9.

Noise Operating Conditions

9. The Applicant shall:
   (a) implement best management practice to minimise the operational, low frequency, road and rail traffic noise of the development;
   (a) operate a comprehensive noise management system on site that uses a combination of predictive meteorological forecasting and real-time noise monitoring data to guide the day to day planning of mining operations and the implementation of both proactive and reactive noise mitigation measures to ensure compliance with the relevant conditions of this approval;
   (b) maintain the effectiveness of any installed noise suppression equipment on plant at all times and ensure defective plant is not used operationally until fully repaired;
   (c) ensure that any noise attenuated plant on site is deployed preferentially in locations relevant to sensitive receivers;
   (d) minimise the noise impacts of the development during meteorological conditions when the noise limits in this approval do not apply;
   (e) ensure that the site is only accessed by locomotives that are approved to operate on the NSW rail network in accordance with the noise limits in ARTC's EPL (No. 3142);
   (f) use its best endeavours to ensure that the rolling stock supplied by service providers is designed, constructed and maintained to minimise noise;
   (g) co-ordinate the noise management on site with the noise management at nearby mines (Mt Thorley Warkworth, Wambo, Ravensworth and HVO South mines) to minimise the cumulative noise impacts of these mines and the development,

   to the satisfaction of the Director-General.

Noise Management Plan

10. The Applicant shall prepare and implement a Noise Management Plan for the development to the satisfaction of the Director-General. This plan must:
   (a) be prepared in consultation with the EPA, and submitted to the Director-General for approval by the end of June 2013;
   (b) describe the measures that would be implemented to ensure:
      - best management practice is being employed;
      - the noise impacts of the development are minimised during meteorological conditions when the noise criteria in this consent do not apply; and
      - compliance with the relevant conditions of this consent.
   (c) describe the proposed noise management system in detail, including:
      - nomination of the real-time noise monitoring locations and the noise levels that would trigger additional noise management actions;
      - a matrix of predetermined actions to be employed when trigger levels are exceeded; and
      - procedures for varying the rates and locations of attended monitoring should the real-time monitoring data suggest that the relevant noise limits are being exceeded;
   (d) include a risk/response matrix to codify mine operational responses to varying levels of risk resulting from weather conditions and specific mining activities;
   (e) include a noise monitoring program that:
      - uses attended monitoring to evaluate the performance of the development, including a minimum of four days attended monitoring per quarter at locations agreed to by the Director-General, or more regularly where required;
      - uses real-time monitoring to support the proactive and reactive noise management system on site;
      - evaluates and reports on the effectiveness of the noise management system on site;
      - provides for the annual validation of the noise model for the development; and
   (f) include a protocol that has been prepared in consultation with the owners of nearby mines (Mt Thorley Warkworth, Wambo, Ravensworth and HVO South mines) to minimise the cumulative noise impacts of these mines and the development.

METEOROLOGICAL MONITORING

11. The Applicant shall maintain a permanent meteorological station at a location approved by the EPA, and to the satisfaction of the Director-General, to monitor the parameters specified in Table 13, using the specified units of measure, averaging period, frequency, and sampling method in the table.

Table 11: Meteorological monitoring

Parameter	***Units of measure***	***Averaging period***	**Frequency**	***Sampling method*** [1]
Lapse rate	*^{o}C/100m*	*1 hour*	Continuous	*Note* [2]
Rainfall	*mm/hr*	*1 hour*	Continuous	*AM-4*
Sigma Theta @ 10 m	°	*1 hour*	*Continuous*	*AM-2*
Siting	-	-	-	*AM-1*

Parameter	*Units of measure*	*Averaging period*	Frequency	*Sampling method*[1]
Temperature @ 10 m	*K*	*1 hour*	*Continuous*	*AM-4*
Temperature @ 2 m	*K*	*1 hour*	*Continuous*	*AM-4*
Total Solar Radiation @ 2m	*W/m²*	*1 hour*	*Continuous*	*AM-4*
Wind Direction @ 10 m	°	*1 hour*	*Continuous*	*AM-2*
Wind Speed @ 10 m	*m/s*	*1 hour*	Continuous	*AM-2*

[1] NSW EPA, 2001, Approved Methods for the Sampling and Analysis of Air Pollutants in NSW.
[2]The Applicant shall calculate lapse rate from measurements made at 2m and 10m or any improved system of the determination of inversions.

BLASTING & VIBRATION

Airblast Overpressure Limits

12. The Applicant shall ensure that the airblast overpressure level from blasting at the development does not exceed the criteria in Table 14 at any residence on privately-owned land.

Table 12: Airblast overpressure impact assessment criteria

Airblast overpressure level (dB(Lin Peak))	Allowable exceedance
115	5% of the total number of blasts in a 12 month period
120	0%

Ground Vibration Impact Assessment Criteria

13. The Applicant shall ensure that the ground vibration level from blasting at the development does not exceed the criteria in Table 15 at any residence on privately-owned land.

Table 13: Ground vibration impact assessment criteria

Peak particle velocity (mm/s)	Allowable exceedance
5	5% of the total number of blasts in a 12 month period
10	0%

Blasting Hours

14. The Applicant shall only carry out blasting at the development between 7 am and 6 pm Monday to Saturday inclusive. No blasting is allowed on Sundays, Public Holidays or any other time without the written approval of the EPA.

Blasting Frequency

14A. The Applicant may carry out a maximum of:
(a) 3 blasts a day, unless an additional blast is required following a blast misfire; and
(b) 12 blasts a week,
for all open cut mining operations at the HVO North mine.

This condition does not apply to blasts that generate ground vibration of 0.5 mm/s or less at any residence on privately-owned land, or to blasts required to ensure the safety of the mine or its workers.

Note: For the purposes of this condition, a blast refers to a single blast event, which may involve a number of individual blasts fired in quick succession in a discrete area of the mine.

Interactions With Adjoining Mines

15. Prior to carrying out any mining or associated development within 500 metres of active mining areas at Ravensworth Operations, the Applicant shall enter into an agreement with Ravensworth Operations Pty Ltd (or its assigns or successors in title) to address the potential interactions between the two mines. If during the course of entering into this agreement, or subsequently implementing this

agreement, there is a dispute between the parties about any aspect of the agreement, then either party may refer the matter to the Director-General for resolution.

16. Prior to carrying out any mining or associated development within 500 metres of active mining areas at Cumnock No. 1 Colliery, the Applicant shall enter into an agreement with Cumnock No. 1 Colliery Pty Ltd (or its assigns or successors in title) to address the potential interactions between the two mines. If during the course of entering into this agreement, or subsequently implementing this agreement, there is a dispute between the parties about any aspect of the agreement, then either party may refer the matter to the Director-General for resolution.

Property Inspections

16A. If the Applicant receives a written request from the owner of any privately-owned land within 2 kilometres of the approved open cut mining pit/s on site for a property inspection to establish the baseline condition of any buildings and/or structures on his/her land, or to have a previous property inspection updated, then within 2 months of receiving this request the Applicant shall:

(a) provide the Director-General with a report that:
- establishes the baseline condition of any buildings and other structures on the land, or updates the previous property inspection report; and
- identifies measures that should be implemented to minimise the potential blasting impacts of the development on these buildings and/or structures; and

(b) provide the landowner with a copy of the new or updated property inspection report.

The report is to be prepared by a suitably qualified, experienced and independent person, whose appointment is acceptable to both parties. If there is a dispute over the selection of the suitably qualified, experienced and independent person, or the Applicant or the landowner disagrees with the findings of the inspection report, either party may refer the matter to the Director-General for resolution.

If the Applicant considers that an extension of time is required to complete the report, the Applicant may apply in writing to the Director-General for an extension. The Applicant shall provide a copy of the request and of the Director-General's decision to the landowner.

Property Investigations

16B. If the owner of any privately-owned land claims that buildings and/or structures on his/her land have been damaged as a result of blasting on the site, then within 2 months of receiving this claim the Applicant shall:

(a) provide the Director-General with a report that:
- investigates the claim; and
- identifies measures or works that should be implemented to rectify any blasting impacts of the development on these buildings and/or structures; and

(b) provide the landowner with a copy of the claim inspection report and recommendations.

If this independent property investigation confirms the landowner's claim, and both parties agree with these findings, then the Applicant shall repair the damage to the satisfaction of the Director-General.

The report is to be prepared by a suitably qualified, experienced and independent person, whose appointment is acceptable to both parties. If there is a dispute over the selection of the suitably qualified, experienced and independent person, or the Applicant or the landowner disagrees with the findings of the claim inspection report, either party may refer the matter to the Director-General for resolution.

If the Applicant considers that an extension of time is required to complete the report, the Applicant may apply in writing to the Director-General for an extension. The Applicant shall provide a copy of the request and of the Director-General's decision to the landowner.

Blasting Operating Conditions

17. During mining operations on site, the Applicant shall:

(a) implement best management practice to:
- protect the safety of people and livestock in the surrounding area;
- protect public or private infrastructure/property in the surrounding area from any damage; and
- minimise the dust and fume emissions of any blasting;

(b) minimise the frequency and duration of any road closures, and avoid road closures during peak traffic periods;

(c) co-ordinate the timing of blasting on site with the timing of blasting at nearby mines (including the Mt Thorley Warkworth, Wambo, Ravensworth and HVO South mines) to minimise the cumulative blasting impacts of these mines and HVO North mine; and
(d) operate a suitable system to enable the public to get up-to-date information on the proposed blasting schedule on site,
to the satisfaction of the Director-General.

18. The Applicant shall not undertake blasting on site within 500 metres of:
(a) any public road without the approval of the appropriate road authority; or
(b) any land outside the site that is not owned by the Applicant; unless
- the Applicant has a written agreement with the relevant landowner to allow blasting to be carried out closer to the land, and the Applicant has advised the Department in writing of the terms of this agreement, or
- the Applicant has:
  - demonstrated to the satisfaction of the Director-General that the blasting can be carried out closer to the land without compromising the safety of the people or livestock on the land, or damaging the buildings and/or structures on the land; and
  - updated the Blast Management Plan to include the specific measures that would be implemented while blasting is being carried out within 500 metres of the land.

Blast Management Plan

19. The Applicant shall prepare and implement a Blast Management Plan for the development to the satisfaction of the Director-General. This plan must:
(a) be submitted to the Director-General for approval by the end of September 2013 unless otherwise agreed;
(b) propose and justify any alternative ground vibration limits for any public infrastructure in the vicinity of the site;
(c) describe the measures that would be implemented to ensure:
- best management practice is being employed;
- compliance with the relevant conditions of this consent;
- that blasting will not cause damage to the Carrington West Wing Groundwater Barrier (LPB) as described in Condition 23 of Schedule 4.

(d) include a road closure management plan for blasting within 500 metres of a public road, that has been prepared in consultation with the RMS and Council;
(e) include a specific blast fume management protocol to demonstrate how emissions will be minimised including risk management strategies if blast fumes are generated;
(f) include a monitoring program for evaluating the performance of the development, including:
- compliance with the applicable criteria;
- minimising the fume emissions from the site; and

(g) include a protocol that has been prepared in consultation with the owners of nearby mines (including the Mt Thorley Warkworth, Wambo, Ravensworth and HVO South mines) to minimise the cumulative blasting impacts of these mines and the HVO North mine.

[3]SURFACE & GROUND WATER

Note: Under the Water Act 1912 and/or Water Management Act 2000, the Applicant is required to obtain the necessary water licences and approvals for the development.

Pollution of Waters

20. Except as may be expressly provided by an EPA licence, the Applicant shall comply with section 120 of the *Protection of the Environment Operations Act 1997* during the carrying out of the development.

Water Supply

20A. The Applicant shall ensure that it has sufficient water for all stages of the development, and if necessary, adjust the scale of mining operations to match its available water supply, to the satisfaction of the Director-General.

Compensatory Water Supply

20B. The Applicant shall provide compensatory water supply to any landowner of privately-owned land whose water supply is adversely and directly impacted (other than an impact that is negligible) as a result of the development, in consultation with NOW, and to the satisfaction of the Director-General.

[3] Incorporates EPA GTA

The compensatory water supply measures must provide an alternative long-term supply of water that is equivalent to the loss attributed to the development. Equivalent water supply should be provided (at least on an interim basis) within 24 hours of the loss being identified, unless otherwise agreed with the landowner.

If the Applicant and the landowner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Director-General for resolution.

If the Applicant is unable to provide an alternative long-term supply of water, then the Applicant shall provide alternative compensation to the satisfaction of the Director-General.

Discharge Limits

21. Except as may be expressly provided by an EPA licence or the Protection of the Environment Operations (Hunter River Salinity Trading Scheme) Regulation 2002 (or any subsequent version of the Regulation), the Applicant shall:
    (a) not discharge more than 237 ML/day from the licensed discharge points at HVO north of the Hunter River;
    (b) ensure that the discharges from licensed discharge points comply with the limits in Table 17:

Table 15: Discharge Limits

Pollutant	Units of measure	100 percentile concentration limit
pH	pH	6.5 ≤ pH ≤ 9.5
Non-filterable residue	mg/litre	NFR ≤ 120

Note: This condition does not authorise the pollution of waters by any other pollutants.

[4]Water Licensing

22. Prior to the renewal of a licence obtained under the *Water Act*, or 5 years after the issue date (whichever is first), the Applicant must undertake a comparison of predicted impacts, on water resources, in the EIS against actual impacts, to the satisfaction of the NOW.

Groundwater Barrier

22A. Within 2 years of commencing mining in the Carrington Pit Southern Extension, or as otherwise agreed with the Director-General, the Applicant shall construct a groundwater barrier wall across the eastern arm of the palaeochannel of the Hunter River, to the satisfaction of the Director-General and at a location no further south than shown in the figure "*Carrington River Red Gums, Billabong and Associated Infrastructure*" included in the *Carrington Pit Extension Response to Submissions Report*, dated May 2006.

22B. By 31 December 2006, or as otherwise agreed with the Director-General, the Applicant shall submit a report to the Department and the NOW that:
    (a) examines all reasonable and feasible options for the design and construction of the groundwater barrier wall (including matters such as materials, timing and method of construction, costs, projected initial and long-term effectiveness) to the satisfaction of the Director-General; and
    (b) recommends a preferred option for the approval of the Director-General.

Carrington West Wing Groundwater Barrier (LPB)

23. The Applicant shall design the Carrington West Wing LPB to the satisfaction of NOW and the Director-General. The detailed design must:
    (a) ensure that negligible movement of water can occur through the barrier in either direction over the long term;
    (b) be prepared by a suitably qualified and experienced expert/s;
    (c) be endorsed by NOW and approved by the Director-General, prior to construction of the LPB;
    (d) achieve the relevant performance measures including:
        - applicable permeability of 10^{-8} metres/second or less;
        - applicable Australian Standards (including AS 3798-2007); and

[4] Incorporates NOW GTAs

- hydraulic, geomorphologic and seismic stability which will withstand any blasting-related vibrations, mining operations, fluvial and weather events, decay corrosive and biological attack.

Note: The conceptual low permeability barrier is shown in Appendix 4.

24. Prior to undertaking any mining operations within 100 metres of the western arm of the Hunter River paleochannel, the Applicant shall:
    (a) install the LPB in the western arm of the paleochannel;
    (b) submit an as-executed report to the Director-General and NOW by a suitably qualified and experienced practising engineer, certifying that the LPB has been constructed to achieve the relevant performance measures set out in Condition 23(d) of Schedule 4; and
    (c) obtain endorsement on the installed LPB from NOW.

    If there is evidence after its installation that the LPB is not achieving the performance objective and performance measures in Condition 23 of Schedule 4, mining operations within 100 metres of the western arm of the Hunter River paleochannel must cease until approval to recommence is granted by the Director-General.

LPB Monitoring and Management Plan

25. The Applicant must prepare and implement a Low Permeability Barrier Monitoring and Management Plan to the satisfaction of NOW and the Director-General. The plan must:
    (a) address the monitoring and management of both the Carrington West Wing LPB and the Carrington Pit Southern Extension LPB;
    (b) be prepared by a suitably qualified and experienced expert;
    (c) be endorsed by NOW and approved by the Director-General, prior to construction of the Carrington West Wing LPB;
    (d) describe the monitoring and maintenance procedures to be implemented and the scheduling of these procedures;
    (e) demonstrate that the monitoring system is capable of timely detection of any failure or deficiency in either LPB; and
    (f) describe the contingency measures that will be implemented in the event of a failure or deficiency in either LPB.

Flood Design Works

26. The Applicant shall design and construct the flood levees and associated flood design works in the Carrington West Wing area at least 1.0 metres higher than the 1 in 100 year ARI flood event, to the satisfaction of NOW.

Water Management Plan

27. The Applicant shall prepare and implement a Water Management Plan for the HVO North mine to the satisfaction of the Director-General. This plan must be prepared in consultation with NOW and the EPA by suitably qualified and experienced persons whose appointment has been approved by the Director-General, and submitted to the Director-General by the end of September 2013 unless otherwise agreed. This plan must include:
    (a) a Site Water Balance that:
        - includes details of:
            - sources and security of water supply, including contingency planning for future reporting periods;
            - water use on site;
            - water management on site, including details of water sharing between neighbouring mining operations;
            - any off-site water transfers and discharges;
            - reporting procedures, including comparisons of the site water balance for each calendar year; and
        - describes the measures that would be implemented to minimise clean water use on site;
    (b) a Surface Water Management Plan, that includes:
        - detailed baseline data on surface water flows and quality in the waterbodies that could be affected by the development;
        - a detailed description of the water management system on site, including the:
            - clean water diversion systems and their final positioning;
            - erosion and sediment controls; and
            - water storages;
        - detailed plans, including design objectives and performance criteria, for:
            - design and management of the final voids;

- design and management of the evaporative sink;
- design and management of any tailings dams;
- ensuring the stability of high walls adjacent to low permeability barriers;
- establishment of drainage lines on the rehabilitated areas of the site; and
- control of any potential water pollution from the rehabilitated areas of the site;

- performance criteria for the following, including trigger levels for investigating any potentially adverse impacts associated with the development:
  - the water management system;
  - the stability of high walls adjacent to low permeability barriers;
  - surface water quality of the Hunter River; and
  - stream and riparian vegetation health of the Hunter River;
- a program to monitor:
  - the effectiveness of the water management system; and
  - surface water flows and quality, stream and riparian vegetation health in the Hunter River (in so far as it could potentially be affected by the development); and
- a plan to respond to any exceedances of the performance criteria, and mitigate and/or offset any adverse surface water impacts of the development.

(c) a Groundwater Management Plan, which includes:

- detailed baseline data on groundwater levels, yield and quality in the region, and privately-owned groundwater bores, that could be affected by the development;
- groundwater assessment criteria, including trigger levels for investigating any potentially adverse groundwater impacts;
- a program to monitor:
  - groundwater inflows to the open cut mining operations;
  - the impacts of the development on:
    - the alluvial aquifers, including additional groundwater monitoring bores as required by NOW;
    - the effectiveness of the low permeability barrier;
    - base flows to the Hunter River;
    - any groundwater bores on privately-owned land that could be affected by the development; and
    - groundwater dependent ecosystems, including the River Red Gum Floodplain Woodland EEC located in the Hunter River alluvium;
  - the seepage/leachate from water storages, backfilled voids and the final void;
- a program to validate and recalibrate (if necessary) the groundwater model for the development, including an independent review of the model every 3 years, and comparison of monitoring results with modelled predictions; and
- a plan to respond to any exceedances of the groundwater assessment criteria.

Final Void Management Plan

28. At least 5 years before the cessation of open cut coal extraction that will result in the creation of a final void, or as otherwise agreed with the Director-General, the Applicant shall prepare and implement a Final Void Management Plan for each void, in consultation with DRE and NOW, and to the satisfaction of the Director-General. Each plan must:
    (a) assess locational, design and future use options;
    (b) be integrated with the Water Management Plan and the Rehabilitation Management Plan;
    (c) assess short term and long term groundwater and other impacts associated with each option; and
    (d) describe the measures to be would be implemented to avoid, minimise, manage and monitor potential adverse impacts of the final void over time.

Fine Reject Management Strategy

28A. The Applicant shall prepare and implement a life of mine fine reject management strategy to the satisfaction of the Director-General. The strategy must:
    (a) be prepared in consultation with DRE and NOW, and submitted to the Director-General for approval by 30 June 2015;
    (b) describe potential locations and design options for the emplacement of fine reject on site;
    (c) assess any material short term and long term impacts on surface and groundwater resources associated with each option;
    (d) describe the measures that would be implemented to avoid, minimise, manage and monitor any adverse impacts of the fine reject emplacements over time;
    (e) describe how the fine reject emplacements would be rehabilitated and describe potential options for future land uses; and
    (f) be integrated with the Rehabilitation Management Plan and Agricultural Land Reinstatement Management Plan for the mine.

[5]Temporary Crossing of the Hunter River

29. Prior to the commencement of any work within 40 metres of the Hunter River, a permit under Part 3A of the *Rivers and Foreshores Improvement Act 1948* shall be obtained from the NOW. All works shall be:
    (a) undertaken in accordance with the permit application, except as otherwise provided by conditions of the permit;
    (c) designed and constructed such that the works do not cause sedimentation, erosion or permanent diversion of the Hunter River;
    (d) constructed in accordance with section 10.8 (Temporary Crossing of the Hunter River), volume 1 of the EIS, dated October 2003; and titled *"Hunter Valley Operations – West Pit Extension and Minor Modifications";* and
    (e) constructed in accordance with the Statement of Environmental Effects, prepared by Coal & Allied, dated August 2001, titled *"Proposed relocation of a dragline and electric rope shovel - Ravensworth and Hunter Valley Operations."*

    Notes:
    (a) Should Crown land, as defined under the Crown Lands Act 1989, be included in the temporary crossing, there is a requirement to seek approval from the Department of Lands under the Crown Lands Act; and
    (b) Any works on Crown public roads require the Department of Lands' approval and must satisfy the statutory requirements of the Roads Act 1993.

FAUNA & FLORA

Rehabilitation/Regeneration Strategy

30. The Applicant shall not destroy or disturb more than 1 mature river red gum in the river red gum population associated with the Carrington billabong, and ensure that the mining highwall is located at least 150 metres from the standing water line of the billabong.

31. By 30 June 2007, the Applicant shall prepare and implement a comprehensive Rehabilitation and Restoration Strategy for the Carrington billabong and river red gum population, in consultation with NOW, and to the satisfaction of the Director-General. This strategy must be prepared by suitably qualified expert/s, and must include:
    (a) the rehabilitation and restoration objectives for the billabong and associated river red gum population;
    (b) a description of the short, medium and long term measures that would be implemented to rehabilitate and restore the billabong and associated river red gum population (including measures to address matters which affect the long term health and sustainability of the billabong and river red gums such as surface and ground water supply, and controlling weeds, livestock and feral animals); and
    (c) detailed assessment and completion criteria for the rehabilitation and restoration of the billabong and associated river red gum population.

    Note. The billabong, standing water line and river red gum population referred to are the billabong, standing water line and endangered population of river red gums located on land owned by the Applicant between the Hunter River and Levee 5, as shown in the figure "Carrington River Red Gums, Billabong and Associated Infrastructure" included in the Carrington Pit Extension Response to Submissions Report, dated May 2006.

32. By 30 June 2007, the Applicant shall prepare and implement a conceptual Landscape and Rehabilitation Management Strategy, in consultation with affected agencies, to the satisfaction of the Director-General. The strategy must:
    (a) include objectives for landscape management and rehabilitation of the site and a justification for the proposed strategy;
    (b) present a conceptual plan for landscape management and rehabilitation of the site;
    (c) be integrated with the relevant requirements of the Mining Operations Plan;
    (d) describe the measures that would be implemented to achieve the objectives (including an indicative timetable for mine closure);
    (e) include proposals to offset the flora and fauna impacts of the development (including proposals resulting from condition 31 above), and an outline of how the strategy would integrate with existing and planned corridors of native vegetation in areas surrounding the development; and
    (f) outline how the proposed strategy would be integrated with the landscape management and rehabilitation of the other operations within Hunter Valley Operations (both north and south of the Hunter River) and other coal mines in the vicinity.

[5] Incorporates NOW GTAs

Strategic Study Contribution

33. If, during the development, the Department or the OEH commissions a strategic study into the regional vegetation corridor stretching from the Wollemi National Park to the Barrington Tops National Park, then the Applicant shall contribute a reasonable amount, up to $10,000, towards the completion of this study.

Operating Conditions

34. The Applicant shall salvage and reuse as much material as possible from the land that will be mined, such as soil, seeds, tree hollows, rocks and logs. Cleared vegetation must be reused or recycled to the greatest extent practicable. No burning of cleared vegetation shall be permitted. Reuse options including removing millable logs, recovering fence posts, mulching and chipping unusable vegetation waste for on-site use are to be implemented.

Flora and Fauna Management

35. The Applicant shall prepare and implement procedures for the management of flora and fauna for the development. These procedures shall:
    (a) provide details on:
        - delineating areas of disturbance;
        - protecting areas outside of the disturbance areas;
        - identifying when pre-clearance surveys are required for fauna;
        - determining the best time to clear vegetation to avoid nesting/breeding activities of threatened fauna;
        - capturing and releasing fauna;
        - relocating bat roosts;
        - salvaging habitat resources and collecting seed;
        - controlling weeds in regeneration/rehabilitation areas; and
        - controlling access to the regeneration/rehabilitation areas;
    (b) describe how the land in regeneration areas would be revegetated;
    (c) describe how the mined areas would be rehabilitated for grazing and biodiversity values;
    (d) identify actions to minimise the potential impacts of the development on threatened fauna;
    (e) describe how the performance of the revegetation/rehabilitation strategies would be monitored over time including, as a minimum, the parameters in Table 18; and
    (f) identify who is responsible for monitoring, reviewing, and implementing the procedures.

    The Applicant shall submit a copy of these procedures to the Director-General for approval within 6 months of the date of this consent.

Table 16: Parameters and Units of Measure for Fauna and Flora Monitoring

Parameter	***Units of measure***
Density of vegetation	*Plants/m^2*
	Understorey
	Ground cover
Diversity of flora	*Species/m^2*
Age/maturity of flora	*Vegetation height/diameter/form*
Vegetation health	-
Disturbance	*Weeds/m^2*
	Erosion
	Feral animals
	Stock
Density of fauna	*Fauna (Avian/Mammals/Reptiles-Amphibians)/m^2*
Diversity of fauna	*Species/m^2*
Density of fauna habitat	*Hollow-bearing trees/nesting sites/ logs/dams, etc.* *Habitat Complexity Score*
Ecosystem Function	*Landscape Function Analysis*

Note: The requirements of condition 35 may be satisfied within the Rehabilitation Management Plan required under Condition 62C of Schedule 4.

Annual Review

36. The Applicant shall
    (a) review the performance of the flora & fauna management procedures annually, and, if necessary,
    (b) revise these documents to take into account any recommendations from the annual review.

[6]ABORIGINAL CULTURAL HERITAGE

Note: The Applicant is required to obtain consent from the OEH under the National Parks and Wildlife Act 1974 to destroy Aboriginal sites and objects on the site. The OEH has issued General Terms of Approval for the sites listed in condition 37.

West Pit Extension - Consents to Destroy

37. The Applicant shall obtain consent from OEH to destroy the following sites:

- WPE 1
- WPE 2
- WPE 3
- WPE 4
- WPE 5
- WPE 6
- WPE 7
- WPE 8
- WPE 9
- WPE 10
- WPE 11
- 37-2-1964
- 37-2-1965
- 37-2-1966
- 37-2-1967
- 37-2-0038
- 37-2-0144
- 37-2-0894
- 37-2-0896
- 37-2-0805

West Pit Extension - Salvage

38. Before making application for section 90 consents under NP&W Act, the Applicant shall prepare a salvage program for the sites listed in condition 37 in consultation with the OEH and Aboriginal communities, and to the satisfaction of the OEH.

39. The Applicant shall obtain consent under the *National Parks and Wildlife Act 1974* to destroy the following sites:

- 37-2-0145
- 37-2-0147
- 37-2-0148
- 37-2-0523
- 37-2-0524
- 37-2-0525
- 37-2-0526
- 37-2-0527
- 37-2-0528
- 37-2-0562
- 37-2-0777
- 37-2-0778
- 37-2-0779
- 37-2-0780
- 37-2-0781
- 37-2-0782
- 37-2-0783
- 37-2-0784
- 37-2-0785
- 37-2-0786
- 37-2-2078 (C1)
- 37-2-2079 (C2)
- 37-2-2080 (C3)
- 37-5-0494 (C4)
- 37-2-2083 (C8)
- 37-2-2084 (C9)
- 37-2-0787
- 37-2-0788
- 37-2-0789
- 37-2-0790
- 37-2-0791
- 37-2-0792
- 37-2-0793
- 37-2-0794
- 37-2-0795
- 37-2-0796
- 37-2-0895
- 37-2-1865
- 37-2-1866
- 37-2-1867
- 37-2-1868
- 37-2-1869
- 37-2-1870
- 37-2-1871
- 37-2-1872
- IF1
- 37-2-2085 (C10)
- 37-2-1962 (CM45)
- 37-2-1963 (CM46)
- 37-2-1504 (CM1)
- 37-2-1505 (CM2)
- 37-2-1522 (CM19)
- TD
- TG
- 37-2-1504
- 37-2-1522
- 37-2-1535
- 37-2-1864
- 37-2-1874
- 37-2-1875
- 37-2-1876
- 37-2-1962
- 37-2-1963
- 37-5-0061
- 37-2-1861
- 37-2-1862
- 37-2-1873
- 37-2-1860
- 37-5-0131
- 37-3-0286
- 37-5-0061
- 37-1-0399
- 37-2-1535 (CM32)
- 37-2-2754
- 37-2-2755
- 37-2-2756
- 37-2-2757

Aboriginal Heritage Site 37-2-1877 (CM-CD1)

40. Mining operations and associated activities in the Carrington West Wing area are not permitted to be carried out within 20 metres of Aboriginal heritage site 37-2-1877 (CM-CD1) and the Older Stratum as shown on the plan in Appendix 5.

Note: for clarification purposes, Condition 40 of Schedule 4 does not prohibit heritage surveys and studies to be undertaken within CM-CD1 or within 20 metres of CM-CD1 and the Older Stratum.

40A. The Applicant must ensure that mining operations (including blasting) and associated activities do not cause any impact to Aboriginal heritage site 37-2-1877 (CM-CD1) and the Older Stratum.

[6] Incorporates OEH GTAs.

Heritage Management Plan

41. The Applicant shall prepare and implement a Heritage Management Plan for the development to the satisfaction of the Director-General. This plan must:
    (a) be prepared by suitably qualified and experienced persons whose appointment has been endorsed by the Director-General;
    (b) be prepared in consultation with OEH and the Aboriginal stakeholders (in relation to the management of Aboriginal heritage values);
    (c) be submitted to the Director-General for approval by the end of June 2013, unless the Director-General agrees otherwise;
    (d) include the following for the management of Aboriginal Heritage:
        - a detailed plan of management for Aboriginal heritage site 37-2-1877 (CM-CD1) including a description of the measures that would be implemented to protect, monitor and manage the site from mining operations and associated activities;
        - a description of the measures that would be implemented for:
            - managing heritage items on the site, including any proposed archaeological investigations and/or salvage measures;
            - managing the discovery of any human remains or previously unidentified Aboriginal objects on site;
            - maintaining and managing reasonable access for Aboriginal stakeholders to heritage items on site;
            - ongoing consultation with the Aboriginal stakeholders on the conservation and management of Aboriginal cultural heritage both on-site and within any Aboriginal heritage conservation areas; and
            - ensuring any workers on site receive suitable heritage inductions prior to carrying out any development on site, and that suitable records are kept of these inductions; and
        - a strategy for the storage of any heritage items salvaged on site, both during the development and in the long term.

41A. Prior to disturbance by mining, the Applicant shall ensure that the scarred tree 37-2-2080 (C3) is removed and relocated to a site where it will be protected from future development, in consultation with the Wonnarua Tribal Council, and to the satisfaction of the Director-General.

Note: In conditions 37 – 41A, all seven-figure numbers refer to Aboriginal site listings in OEH's Aboriginal Heritage Information Management System (AHIMS). All other numbers are site numbers used by the Applicant in on-site Aboriginal heritage studies. Site numbers beginning with C or CM are associated with the Carrington Pit, as shown in Fig 5.1 of Annex G of the Carrington Pit Extended Statement of Environmental Effects.

Trust Fund Contribution

42. Before carrying out the development, or as agreed otherwise by the Director-General, the Applicant shall contribute $20,000 to the Hunter Aboriginal Cultural Heritage Trust Fund for further investigations into Aboriginal cultural heritage, as defined by the Trust Deed.

TRAFFIC & TRANSPORT

New Access Intersection to Hunter Valley Loading Point

Note: The Applicant requires Council approval under the Roads Act 1993 for the new road entry from Liddell Station Road to the Hunter Valley Loading Point.

43. [7]The Applicant shall design, construct and maintain for the duration of this consent, the proposed new access intersection from Liddell Station Road to the Hunter Valley Loading Point to the satisfaction of the Council.

Road Closure

Note: The Applicant requires MSC approval under the Roads Act 1993 prior to closing a section of Pikes Gully Road.

44. Within 12 months of the date of this consent, unless otherwise agreed by the Director-General, the Applicant is to complete the relevant requirements to enable the section of Pikes Gully Road situated in the Muswellbrook local government area to be closed as a public road.

[7] Incorporates Council GTA

45. The Applicant shall not blast within 500 metres of a public road while the road is open to the public. Any road closures with respect of blasting shall be subject to a plan of management approved by Council.

Lemington Road

46. The Applicant shall reimburse Council for any road upgrading works undertaken on Lemington Road, to a maximum amount of $30,000.

47. The Applicant shall alter or cease mining operations if driver visibility or traffic safety on Lemington Road is adversely affected by dust, in accordance with the requirements of Council.

48. The Applicant shall be responsible for the full cost of the maintenance of the Lemington Road deviation undertaken for the Carrington Pit until March 2011, in accordance with the standards and requirements of Council.

Intersection of Lemington Road and the Golden Highway

49. Within 2 years of the date of this consent, the Applicant shall upgrade the intersection of the Golden Highway (SH 27) and Lemington Road to a type "BAR" intersection with a sealed shoulder to the satisfaction of the RMS.

Road Safety Audit

49A.

(a) By 31 December 2006, the Applicant shall prepare and submit a road safety audit to the RMS and Council for all public roads used by mine employees and service vehicles in the vicinity of the development, including an audit of the existing intersections of all mine access roads with public roads;

(b) any improvement to meet accepted road safety standards required by the relevant road manager (ie the RMS or Council) for public roads as a result of impacts related to the development as identified by the audit shall be undertaken at the Applicant's cost and to the satisfaction of the road manager;

(c) any dispute between the Applicant and the relevant road manager in relation to the audit findings and the requirements of the road manager for improvements of public roads is to be determined by the Director-General; and

(d) any maintenance of line marking and sign posting required by the relevant road manager at existing intersections of mine access roads with public roads shall be undertaken at the Applicant's cost and to the satisfaction of the road manager.

Coal Haulage

50. [8]The Applicant shall ensure that spillage of coal from coal haulage vehicles is minimised and that sediment-laden runoff from roads is effectively managed, to the satisfaction of the Director-General. Measures that shall be implemented include:
(a) covering all loads where loaded coal trucks leave the site and enter public roads;
(b) ensuring the gunwhales of all loaded trucks are clean of coal;
(c) providing effective wheel wash facilities at all coal load and unload facilities prior to vehicles entering public roads; and
(d) sweeping, at regular intervals and at the completion of campaign hauls, public roads used for the transportation of coal.

51. The Applicant shall enter into an agreement with Council for the maintenance of the sections of Pikes Gully Road and Liddell Station Road whilst used by the Applicant for the haulage of coal, and during the period the roads are owned by Council.

Monitoring

52. The Applicant shall maintain and include in each AEMR records of the:
(a) amount of coal transported from the site each year;
(b) amount of coal received from Hunter Valley Operations south of the Hunter River;
(c) amount of coal hauled by road to the Hunter Valley Loading Point;
(d) amount of coal hauled by road to the Newdell Loading Point;
(e) amount of coal hauled by road from the Newdell Loading Point to the Ravensworth coal Terminal;

[8] This may include the use of sediment dams or the incorporation of runoff into the mine water management system.

(f) amount of coal hauled by road from the Hunter Valley Loading Point to the Ravensworth Coal Terminal; and
(g) number of coal haulage truck movements generated by the development.

VISUAL IMPACT

Visual Amenity

53. The Applicant shall implement measures to mitigate visual impacts including:
(a) design and construction of development infrastructure in a manner that minimises visual contrasts; and
(b) progressive rehabilitation of mine waste rock emplacements (particularly outer batters), including partial rehabilitation of temporarily inactive areas.

54. The Applicant shall plant trees to provide an effective visual screen from Lemington Road in the vicinity of the Belt Line Road and adjacent to the Mitchell pit area. The plan for this tree planting is to:
(a) provide for tree planting within 2 years of the date of this consent;
(b) achieve an 80% survival rate by the 5th year;
(c) be submitted to DRE and Director-General for review and approval; and
(d) provide an assessment of whether visual bunds are required to supplement the vegetative visual screen.

Lighting Emissions

55. The Applicant shall take all practicable measures to mitigate off-site lighting impacts from the development.

56. All external lighting associated with the development shall comply with *Australian Standard AS4282 (INT) 1995 – Control of Obtrusive Effects of Outdoor Lighting*.

WASTE MINIMISATION

57. The Applicant shall minimise the amount of waste generated by the development to the satisfaction of the Director-General.

HAZARDS MANAGEMENT

Spontaneous Combustion

58. The Applicant shall:
(a) take the necessary measures to prevent, as far as is practical, spontaneous combustion on the site; and
(b) manage any spontaneous combustion on-site to the satisfaction of DRE.

Dangerous Goods

59. The Applicant shall ensure that the storage, handling, and transport of:
(a) dangerous goods is done in accordance with the relevant *Australian Standards*, particularly *AS1940* and *AS1596*, and the *Dangerous Goods Code*; and
(b) explosives are managed in accordance with the requirements of DRE.

BUSHFIRE MANAGEMENT

60. The Applicant shall:
(a) ensure that the development is suitably equipped to respond to any fires on-site; and
(b) assist the Rural Fire Service and emergency services as much as possible if there is a fire on-site during the development.

61. The Applicant shall ensure that the Bushfire Management Plan for the site, is to the satisfaction of Council and the Rural Fire Service.

REHABILITATION

Rehabilitation Objectives

62. The Applicant shall rehabilitate the site to the satisfaction of the Executive Director Mineral Resources. The rehabilitation must be generally in accordance with the proposed rehabilitation

strategy described by the documents listed in Condition 2 of Schedule 3 (and depicted conceptually in the final landform plans in Appendices 6 and 7) and the objectives in Table 17.

Table 17: Rehabilitation Objectives

Area/Domain	Rehabilitation Objectives
Mine site (as a whole), including the final void	Safe, stable & non-polluting
Carrington West Wing revised proposed extension area	Reinstatement of Rural Land Capability agricultural land values to be measured as: 65.0 hectares of Class II and 65.0 hectares of Class III
Surface infrastructure	To be decommissioned and removed, unless the Executive Director Mineral Resources agrees otherwise
Community	Ensure public safety Minimise the adverse socio-economic effects associated with mine closure

Note: The Carrington West Wing revised proposed extension area is shown in Appendix 5.

Operating Conditions

62A. The Applicant shall:

(a) develop a detailed soil management protocol that identifies procedures for
- comprehensive soil surveys prior to soil stripping;
- assessment of top-soil and sub-soil suitability for mine rehabilitation; and
- annual soil balances to manage soil handling including direct respreading and stockpiling;

(b) maximise the salvage of suitable top-soils and sub-soils and biodiversity habitat components such as bush rocks, tree hollows and fallen timber for rehabilitation of disturbed areas within the site and for enhancement of biodiversity offset areas;

(c) ensure that coal reject or any potentially acid forming interburden materials must not be emplaced at elevations within the pit shell or out of pit emplacement areas where they may promote acid or sulphate species generation and migration beyond the pit shell or out of pit emplacement areas; and

(d) ensure that no dirty water can drain from an out of pit emplacement area to any offsite watercourse or to any land beyond the lease boundary.

Progressive Rehabilitation

62B. The Applicant shall carry out rehabilitation of the site progressively, that is, as soon as reasonably practicable following disturbance. All reasonable and feasible measures must be taken to minimise the total area exposed for dust generation at any time. Interim rehabilitation strategies shall be employed when areas prone to dust generation cannot yet be permanently rehabilitated.

Note: It is accepted that some parts of the site that are progressively rehabilitated may be subject to further disturbance at some later stage in the development.

Rehabilitation Management Plan

62C. The Applicant shall prepare and implement a Rehabilitation Management Plan for the HVO North mine to the satisfaction of the Executive Director Mineral Resources. This plan must:

(a) be prepared in consultation with the Department, NOW, OEH, Council and the CCC;

(b) be submitted to the Executive Director Mineral Resources by the end of September 2013;

(c) be prepared in accordance with any relevant DRE guideline;

(d) include an Agricultural Land Reinstatement Management Plan;

(e) include detailed performance and completion criteria for evaluating the achievement of the rehabilitation objectives in Table 17 and the overall rehabilitation of the site, and triggering remedial action (if necessary);

(f) include proposals to offset the flora and fauna impacts of the development (including proposals resulting from condition 31 above), and an outline of how the plan would integrate with existing and planned corridors of native vegetation in areas surrounding the development;

(g) describe the measures that would be implemented to ensure compliance with the relevant conditions of this consent, and address all aspects of rehabilitation including mine closure, final landform and final land use;

(h) outline how the proposed plan would be integrated with the landscape management and rehabilitation of the other operations within Hunter Valley Operations (both north and south of the Hunter River) and other coal mines in the vicinity;

(i) include interim rehabilitation where necessary to minimise the area exposed for dust generation;

(j) include a program to monitor, independently audit and report on the effectiveness of the measures, and progress against the detailed performance and completion criteria; and

(k) build to the maximum extent practicable on the other management plans required under this consent.

Agricultural Land Reinstatement Management Plan

62D. The Agricultural Land Reinstatement Management Plan required under Condition 62C of Schedule 4 is intended to ensure that the alluvial lands are restored to a productive capacity at least equivalent to their pre-mining state and are able to be managed using techniques and equipment common to management of equivalent lands in the district. The plan must:

(a) be prepared in consultation with DPI and to the satisfaction of the Director-General;

(b) be prepared in accordance with any relevant DPI guideline;

(c) include detailed performance and completion criteria for evaluating the performance of the rehabilitation of the Carrington West Wing revised proposed extension area, and triggering remedial action (if necessary);

(d) include a long-term monitoring programme on the success of reinstating alluvial lands, which must:

- assess a comprehensive suite of indicators of productivity and environmental sustainability (such as soil settling, soil profile development, other soil characteristics, water transmissivity and soil water availability, agricultural productivity, fertilizer needs, weeds and pests) over an extended period (a minimum of 20 years);
- compare the performance of the reinstated alluvial lands with a reference site; and
- make monitoring results publicly available.

(e) in accordance with Condition 4(h) of Schedule 6 provide for reviews of progress against the plan every 3 years (unless otherwise agreed by the Director-General after completion of the second review) and for a final review by the end of 2033.

Note: The Carrington West Wing revised proposed extension area is shown in Appendix 5.

MINE EXIT STRATEGY

63. Within 5 years of the date of this consent, the Applicant shall work with the Council and MSC to investigate the minimisation of adverse socio-economic effects of a significant reduction in local employment levels and closure of the development at the end of its life.

SCHEDULE 5
ADDITIONAL PROCEDURES FOR AIR QUALITY AND NOISE MANAGEMENT

Notification of Landowners/Tenants

1. By the end of September 2013, the Applicant shall:
   (a) notify in writing any remaining private owners of:
      - the land listed in Table 1 of schedule 4 that they have the right to require the Applicant to acquire their land at any stage during the development;
      - any residence on the land listed in Table 1 of schedule 4 that they have the right to request the Applicant to ask for additional noise and/or air quality mitigation measures to be installed at their residence at any stage during the development; and
      - any privately-owned land within 2 kilometres of the approved open cut mining pit/s that they are entitled to ask for an inspection to establish the baseline condition of any buildings or structures on their land, or to have a previous property inspection report updated;
   (b) notify the tenants of any mine-owned land of their rights under this approval; and
   (c) send a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time) to the owners and/or existing tenants of any land (including mine-owned land) where the predictions in the documents listed in condition 2 of schedule 3 identify that dust emissions generated by the development are likely to be greater than any air quality criteria in schedule 4 at any time during the life of the development.

2. Prior to entering into any tenancy agreement for any land owned by the Applicant that is predicted to experience exceedances of the recommended dust and/or noise criteria, or for any of the land listed in Table 1 purchased by the Applicant, the Applicant shall:
   (a) advise the prospective tenants of the potential health and amenity impacts associated with living on the land, and give them a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time);
   (b) advise the prospective tenants of the rights they would have under this approval; and
   (c) request the prospective tenants consult their medical practitioner to discuss the air quality monitoring data and prediction and health impacts arising from this information,

   to the satisfaction of the Director-General.

3. As soon as practicable after obtaining monitoring results showing:
   (a) an exceedance of any criteria in schedule 4, the Applicant shall:
      - notify each affected landowner and/or tenant of the land (including the tenants of any mine-owned land) in writing of the exceedance; and
      - provide each affected party with regular monitoring results until the development is again complying with the relevant criteria; and
   (b) an exceedance of the air quality criteria in schedule 4, the Applicant shall additionally provide each affected party with:
      - a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time), if not recently provided; and
      - monitoring data in an appropriate format such that the party's medical practitioner can assist them in making an informed decision on the health risks associated with continued occupation of the property,

   to the satisfaction of the Director-General.

Independent Review

4. If an owner of privately-owned land considers the development to be exceeding the criteria in Schedule 4, then he/she may ask the Director-General in writing for an independent review of the impacts of the development on his/her land.

   If the Director-General is satisfied that an independent review is warranted, then within 2 months of the Director-General's decision, the Applicant shall:
   (a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Director-General, to:
      - consult with the landowner to determine his/her concerns;
      - conduct monitoring to determine whether the development is complying with the relevant impact assessment criteria in Schedule 4; and
      - if the development is not complying with these criteria then:
         - determine if more than one mine is responsible for the exceedance, and if so the relative share of each mine regarding the impact on the land;
         - identify the measures that could be implemented to ensure compliance with the relevant criteria; and
   (b) give the Director-General and landowner a copy of the independent review.

5. If the independent review determines that the development is complying with the criteria in Schedule 4, then the Applicant may discontinue the independent review with the approval of the Director-General.

If the independent review determines that the development is not complying with the criteria in Schedule 4, and that the development is primarily responsible for this non-compliance, then the Applicant shall:

(a) implement all reasonable and feasible mitigation measures, in consultation with the landowner and appointed independent person, and conduct further monitoring until the development complies with the relevant criteria; or

(b) secure a written agreement with the landowner to allow exceedances of the relevant impact assessment criteria,

to the satisfaction of the Director-General.

If the independent review determines that the development is not complying with the relevant acquisition criteria in Schedule 4, and that the development is primarily response for this non-compliance, then upon receiving a written request from the landowner, the Applicant shall acquire all or part of the landowner's land in accordance with the procedures in Conditions 7 and 8 below.

6. If the independent review determines that the relevant criteria are being exceeded, but that more than one mine is responsible for this exceedance, then together with the relevant mine/s the Applicant shall:

(a) implement all reasonable and feasible mitigation measures, in consultation with the landowner and appointed independent person, and conduct further monitoring until there is compliance with the relevant criteria; or

(b) secure a written agreement with the landowner and other relevant mine/s to allow exceedances of the relevant impact assessment criteria,

to the satisfaction of the Director-General.

If the independent review determines that the development is not complying with the relevant acquisition criteria in Schedule 4, but that more than one mine is responsible for the exceedance, then upon receiving a written request from the landowner, the Applicant shall acquire all or part of the landowner's land on as equitable a basis as possible with the relevant mine/s in accordance with the procedures in Conditions 7 and 8 below.

Land Acquisition

7. Within 3 months of receiving a written request from a landowner with acquisition rights, the Applicant shall make a binding written offer to the landowner based on:

(a) the current market value of the landowner's interest in the land at the date of this written request, as if the land was unaffected by the development, having regard to the:
- existing and permissible use of the land, in accordance with the applicable planning instruments at the date of the written request; and
- presence of improvements on the land and/or any approved building or structure which has been physically commenced on the land at the date of the landowner's written request, and is due to be completed subsequent to that date;

(b) the reasonable costs associated with:
- relocating within the Singleton or Muswellbrook local government areas, or to any other local government area determined by the Director-General; and
- obtaining legal advice and expert advice for determining the acquisition price of the land, and the terms upon which it is to be acquired; and

(c) reasonable compensation for any disturbance caused by the land acquisition process.

However, if at the end of this period, the Applicant and landowner cannot agree on the acquisition price of the land and/or the terms upon which the land is to be acquired, then either party may refer the matter to the Director-General for resolution.

Upon receiving such a request, the Director-General will request the President of the NSW Division of the Australian Property Institute (the API) to appoint a qualified independent valuer to:
- consider submissions from both parties;
- determine a fair and reasonable acquisition price for the land and/or the terms upon which the land is to be acquired, having regard to the matters referred to in paragraphs (a)-(c) above;
- prepare a detailed report setting out the reasons for any determination; and
- provide a copy of the report to both parties.

Within 14 days of receiving the independent valuer's report, the Applicant shall make a binding written offer to the landowner to purchase the land at a price not less than the independent valuer's determination.

However, if either party disputes the independent valuer's determination, then within 14 days of receiving the independent valuer's report, they may refer the matter to the Director-General for review. Any request for a review must be accompanied by a detailed report setting out the reasons why the party disputes the independent valuer's determination. Following consultation with the independent valuer and both parties, the Director-General will determine a fair and reasonable acquisition price for the land, having regard to the matters referred to in paragraphs (a)-(c) above, the independent valuer's report, the detailed report disputing the independent valuer's determination, and any other relevant submissions.

Within 14 days of this determination, the Applicant shall make a binding written offer to the landowner to purchase the land at a price not less than the Director-General's determination.

If the landowner refuses to accept the Applicant's binding written offer under this condition within 6 months of the offer being made, then the Applicant's obligations to acquire the land shall cease, unless the Director-General determines otherwise.

8. The Applicant shall pay all reasonable costs associated with the land acquisition process described in Condition 7 above, including the costs associated with obtaining Council approval for any plan of subdivision (where permissible), and registration of this plan at the Office of the Registrar-General.

SCHEDULE 6
ENVIRONMENTAL MANAGEMENT, MONITORING, AUDITING & REPORTING

ENVIRONMENTAL MANAGEMENT STRATEGY

1. Within 6 months of the date of this consent, the Applicant shall prepare and implement an Environmental Management Strategy for the development to the satisfaction of the Director-General. This strategy must:
   (a) provide the strategic context for environmental management of the development;
   (b) identify the statutory requirements that apply to the development;
   (c) describe in general how the environmental performance of the development would be monitored and managed during the development;
   (d) describe the procedures that would be implemented to:
      - keep the local community and relevant agencies informed about the operation and environmental performance of the development;
      - receive, handle, respond to, and record complaints;
      - resolve any disputes that may arise during the course of the development;
      - respond to any non-compliance;
      - manage cumulative impacts; and
      - respond to emergencies; and
   (e) describe the role, responsibility, authority, and accountability of all the key personnel involved in environmental management of the development.

2. Within 14 days of the Director-General's approval, the Applicant shall:
   (a) send copies of the approved strategy to the relevant agencies, Council, and the CCC; and
   (b) ensure the approved strategy is publicly available during the development.

2A. Within 6 months of the completion of the Independent Environmental Audit, the Applicant shall review, and if necessary revise, the Environmental Management Strategy to the satisfaction of the Director-General.

ENVIRONMENTAL MONITORING PROGRAM

3. Within 6 months of the date of this consent, the Applicant shall prepare an Environmental Monitoring Program for the development in consultation with the relevant agencies, and to the satisfaction of the Director-General. This program must consolidate the various monitoring requirements in schedule 4 of this consent into a single document.

3A. Within 6 months of the completion of the Independent Environmental Audit, the Applicant shall review, and if necessary revise, the Environmental Management Strategy to the satisfaction of the Director-General.

MANAGEMENT PLAN REQUIREMENTS

4. The Applicant shall ensure that the management plans required under this consent are prepared in accordance with any relevant guidelines, and include:
   (a) detailed baseline data;
   (b) a description of:
      - the relevant statutory requirements (including any relevant consent, licence or lease conditions);
      - any relevant limits or performance measures/criteria;
      - the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures/criteria;
   (c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;
   (d) a program to monitor and report on the:
      - impacts and environmental performance of the development;
      - effectiveness of any management measures (see c above);
   (e) a contingency plan to manage any unpredicted impacts and their consequences;
   (f) a program to investigate and implement ways to improve the environmental performance of the development over time;
   (g) a protocol for managing and reporting any:
      - incidents;
      - complaints;
      - non-compliances with statutory requirements; and
      - exceedances of the impact assessment criteria and/or performance criteria; and

(h) a protocol for periodic review of the plan and for a final review. Any final review must be submitted for the approval of the Director-General and include an assessment as to whether the objectives of the plan have been met and any requirements for further action(s) to ensure objectives are met. The Director-General may require the Applicant to carry out the further actions to the satisfaction of the Director-General, or require the Applicant to provide an annuity or other funding arrangement to enable the actions to be carried out to the satisfaction of the Director-General.

ANNUAL REVIEW

5. By the end of March 2014, and annually thereafter, unless otherwise agreed, the Applicant shall review the environmental performance of the development to the satisfaction of the Director-General. This review must:
   (a) describe the development (including any rehabilitation) that was carried out in the past calendar year, and the development that is proposed to be carried out over the next calendar year;
   (b) include a comprehensive review of the monitoring results and complaints records of the development over the past calendar year, which includes a comparison of these results against the:
      - the relevant statutory requirements, limits or performance measures/criteria;
      - the monitoring results of previous years; and
      - the relevant predictions in the EA;
   (c) identify any non-compliance over the past calendar year, and describe what actions were (or are being) taken to ensure compliance;
   (d) identify any trends in the monitoring data over the life of the development;
   (e) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and
   (f) describe what measures will be implemented over the next year to improve the environmental performance of the development.

REVISION OF STRATEGIES, PLANS AND PROGRAMS

5A. Within 3 months of:
   (a) the submission of an annual review under Condition 5 above;
   (b) the submission of an incident report under Condition 5B below;
   (c) the submission of an audit under Condition 6 below; and
   (d) any modification to the conditions of this consent (unless the conditions require otherwise),

   the Applicant shall review, and if necessary revise, the strategies, plans, and programs required under this consent to the satisfaction of the Director-General.

   Note: This is to ensure the strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the development.

INCIDENT REPORTING

5B. The Applicant shall notify, at the earliest opportunity, the Director-General and any other relevant agencies of any incident that has caused, or threatens to cause, material harm to the environment. For any other incident associated with the development, the Applicant shall notify the Director-General and any other relevant agencies as soon as practicable after the Applicant becomes aware of the incident. Within 7 days of the date of the incident, the Applicant shall provide the Director-General and any relevant agencies with a detailed report on the incident, and such further reports as may be requested.

REGULAR REPORTING

5C. The Applicant shall provide regular reporting on the environmental performance of the development on its website in accordance with:
   (a) the reporting arrangements in any plans or programs approved under the conditions of this approval;
   (b) the requirements of condition 9; and
   (c) the requirements of an approved on-line communication plan to be submitted to the Director-General by the end of September 2013 containing a description of the content and frequency of posting for information that could reasonably be expected to be provided on the website concerning:
      - incidents of the type included in condition 5B;
      - any other non-compliance by the development;
      - responses to operational requirements imposed by real-time management systems for air and noise;
      - data from real-time management systems for air and noise.

INDEPENDENT ENVIRONMENTAL AUDIT

6. Within 3 years of the date of this consent, and every 3 years thereafter, unless the Director-General directs otherwise, the Applicant shall commission and pay the full cost of an Independent Environmental Audit of the development. This audit must:
   (a) be conducted by suitably qualified, experienced, and independent expert/s whose appointment has been endorsed by the Director-General;
   (b) assess the various aspects of the environmental performance of the development, and its effects on the surrounding environment;
   (c) assess whether the development is complying with the relevant standards, performance measures, and statutory requirements;
   (d) review the adequacy of any strategy/plan/program required under this consent; and, if necessary,
   (e) recommend measures or actions to improve the environmental performance of the development, and/or any strategy/plan/program required under this consent.

7. Within 3 months of completion of this audit, the Applicant shall submit a copy of the audit report to the Director-General, with a response to any of the recommendations contained in the audit report.

COMMUNITY CONSULTATIVE COMMITTEE

8. The Applicant shall establish and operate a new Community Consultative Committee (CCC) for the development to the satisfaction of the Director-General. This CCC must be operated in general accordance with the *Guidelines for Establishing and Operating Community Consultative Committees for Mining Projects* (Department of Planning, 2007, or its latest version, and be operating by the end of September 2013.

   Notes:
   - *The CCC is an advisory committee. The Department and other relevant agencies are responsible for ensuring that the Applicant complies with this approval; and*
   - *The CCC should have an independent chair and include appropriate representation from the Proponent, Council, recognised environmental groups and the local community.*

9. The Applicant shall:
   (a) by the end of September 2013, make the following information publicly available on its website:
      - all documents referred to in Condition 2 of Schedule 3;
      - all current statutory approval for the development;
      - approved strategies, plans and programs required under the conditions of this consent;
      - a comprehensive summary of the monitoring results of the development, which have been reported in accordance with the various plans and programs approved under the conditions of this consent;
      - a complaints register, which is to be updated on a monthly basis;
      - minutes of CCC meetings;
      - the last five AEMRs or Annual Reviews;
      - any independent environmental audit, and the Applicant's response to the recommendations in any audit;
      - any other material required by the Director-General; and
   (b) keep this information up to date,

   to the satisfaction of the Director-General.

APPENDIX 1
SCHEDULE OF LAND

Development Application Area - Lot and DP Schedule						
Hunter Valley Operations, West Pit Extension and Minor Modifications						
DP	**Lot**	**Portion**	**Part**	**Volume**	**Folio**	**Property Owner**
752468	128					Coal & Allied Operations Pty Limited
1018576	1					Coal & Allied Operations Pty Limited
1017998	100					Novacoal Australia Pty Limited
705454	161					Novacoal Australia Pty Limited and Mitsubishi Development Pty Ltd
727718	165					Coal & Allied Operations Pty Limited
191982	1					Coal & Allied Operations Pty Limited
752481			20	3269	568	Coal & Allied Operations Pty Limited
752481		170				Coal & Allied Operations Pty Limited
808301	2					Coal & Allied Operations Pty Limited
90727	1			7716	156	Coal & Allied Operations Pty Limited
752481						Coal & Allied Operations Pty Limited
544091	201					Coal & Allied Operations Pty Limited
752481	98					Coal & Allied Operations Pty Limited
752481	21					J. & A. Brown and Abermain Seaham Collieries Limited
752481	18					Coal & Allied Operations Pty Limited
752481	17					Coal & Allied Operations Pty Limited
752481	22					J. & A. Brown and Abermain Seaham Collieries Limited
752481	124					Coal & Allied Operations Pty Limited
752481	125					Coal & Allied Operations Pty Limited
752481	126					Coal & Allied Operations Pty Limited
752481	127					Coal & Allied Operations Pty Limited
752481	123					Coal & Allied Operations Pty Limited
752481	122					Coal & Allied Operations Pty Limited
752481	121					Coal & Allied Operations Pty Limited
752481	120					Coal & Allied Operations Pty Limited
752481	119					Coal & Allied Operations Pty Limited
752481	118					Coal & Allied Operations Pty Limited
752481	117					Coal & Allied Operations Pty Limited
7542481		89				J. & A. Brown and Abermain Seaham Collieries Limited
740183	10					Coal & Allied Operations Pty Limited
752481	171			6353	145	J. & A. Brown and Abermain Seaham Collieries Limited
110662	1			13933	249	J. & A. Brown and Abermain Seaham Collieries Limited
737796	1					Coal & Allied Operations Pty Limited
110656	1			11057	141	J. & A. Brown and Abermain Seaham Collieries Limited
752468	126					Novacoal Australia Pty Limited
779625	1					Novacoal Australia Pty Limited
779626	1					Novacoal Australia Pty Limited
625507	1					Novacoal Australia Pty Limited and Mitsubishi Development Pty Ltd
48165						Lemington Road
786904	22					Coal & Allied Operations Pty Limited
786904	21					Novacoal Australia Pty Limited
48555	4					Novacoal Australia Pty Limited

1037665	101			Coal & Allied Operations Pty Limited
752468	80	1782	37	Novacoal Australia Pty Limited
752468	81			Novacoal Australia Pty Limited
752468	53	7834	45	Novacoal Australia Pty Limited
752468	83	7834	45	Novacoal Australia Pty Limited
752468	157			Novacoal Australia Pty Limited
752481	83	6408	207	Novacoal Australia Pty Limited
752481	82	6408	207	Novacoal Australia Pty Limited
596670	3	13659	69	J. & A. Brown and Abermain Seaham Collieries Limited
868175	305			Novacoal Australia Pty Limited
752481	200	6408	207	Novacoal Australia Pty Limited
752468	158	6408	206	Novacoal Australia Pty Limited
752468	84	6408	206	Novacoal Australia Pty Limited
752468	54	6408	206	Novacoal Australia Pty Limited
752468	65			Novacoal Australia Pty Limited
752468	70	1782	37	Novacoal Australia Pty Limited
752468	71			Novacoal Australia Pty Limited
752468	68	1782	37	Novacoal Australia Pty Limited
752468	66	6408	206	Novacoal Australia Pty Limited
752468	159	6408	206	Novacoal Australia Pty Limited
252530	8	8625	137	Novacoal Australia Pty Limited
752468	94	6408	206	Novacoal Australia Pty Limited
752468	156	6408	206	Novacoal Australia Pty Limited
752468	102	6408	206	Novacoal Australia Pty Limited
700554	12	8625	137	Novacoal Australia Pty Limited
130831	1	10547	67	Novacoal Australia Pty Limited
252530	2	8625	137	Novacoal Australia Pty Limited
252530	4	8625	137	Novacoal Australia Pty Limited
48555	7			Novacoal Australia Pty Limited
252530	5	8625	137	Novacoal Australia Pty Limited
130831	2			Novacoal Australia Pty Limited
252530	3	8625	137	Novacoal Australia Pty Limited
393657	1			Novacoal Australia Pty Limited
780177	1	8625	137	Novacoal Australia Pty Limited
868175	304			Novacoal Australia Pty Limited
860535	319			Coal & Allied Operations Pty Limited
48555	3			Novacoal Australia Pty Limited
48555	2			Novacoal Australia Pty Limited
48555	5			Novacoal Australia Pty Limited
752481	58	8625	137	Novacoal Australia Pty Limited
256503	2			J. & A. Brown and Abermain Seaham Collieries Limited
130831	4	10547	67	Novacoal Australia Pty Limited
130831	3	10547	67	Novacoal Australia Pty Limited
752468	82	1782	37	Novacoal Australia Pty Limited
752481	38	8625	137	Novacoal Australia Pty Limited
48537	1			Novacoal Australia Pty Limited
727260	1			Novacoal Australia Pty Limited and Mitsubishi Development Pty Ltd
574166	1			Macquarie Generation
211043	1			Cumnock No 1 Colliery Pty Limited
574166	2			Novacoal Australia Pty Ltd and Mitsubishi Development Pty Ltd

700429	100					The Shortland County Council
979456						J. & A. Brown & Abermain Seaham Collieries Ltd
869839	380					Novacoal Australia Pty Limited and Mitsubishi Development Pty Ltd
808431	2					Novacoal Australia Pty Limited
1019325	601					Macquarie Generation
808431	1					Coal & Allied Operations Pty Limited
201214	1					Novacoal Australia Pty Limited
869399	22					Coal Operations Australia Limited, Cumnock No.1 Colliery Pty Limited, Muswellbrook Coal Company Limited, BCA No. 11 Pty Limited
858172	11					Coal & Allied Operations Pty Limited
752470						Coal & Allied Operations Pty Limited
659810	1					J. & A. Brown and Abermain Seaham Collieries Limited
114966	2			12915	20	J & A Brown & Abermain Seaham Collieries Limited
700429	101					Coal & Allied Operations Pty Limited
729048	1					Coal & Allied Operations Pty Limited
752470	148					Crown Land Reserve 144
93617						Crown land Reserve 68816

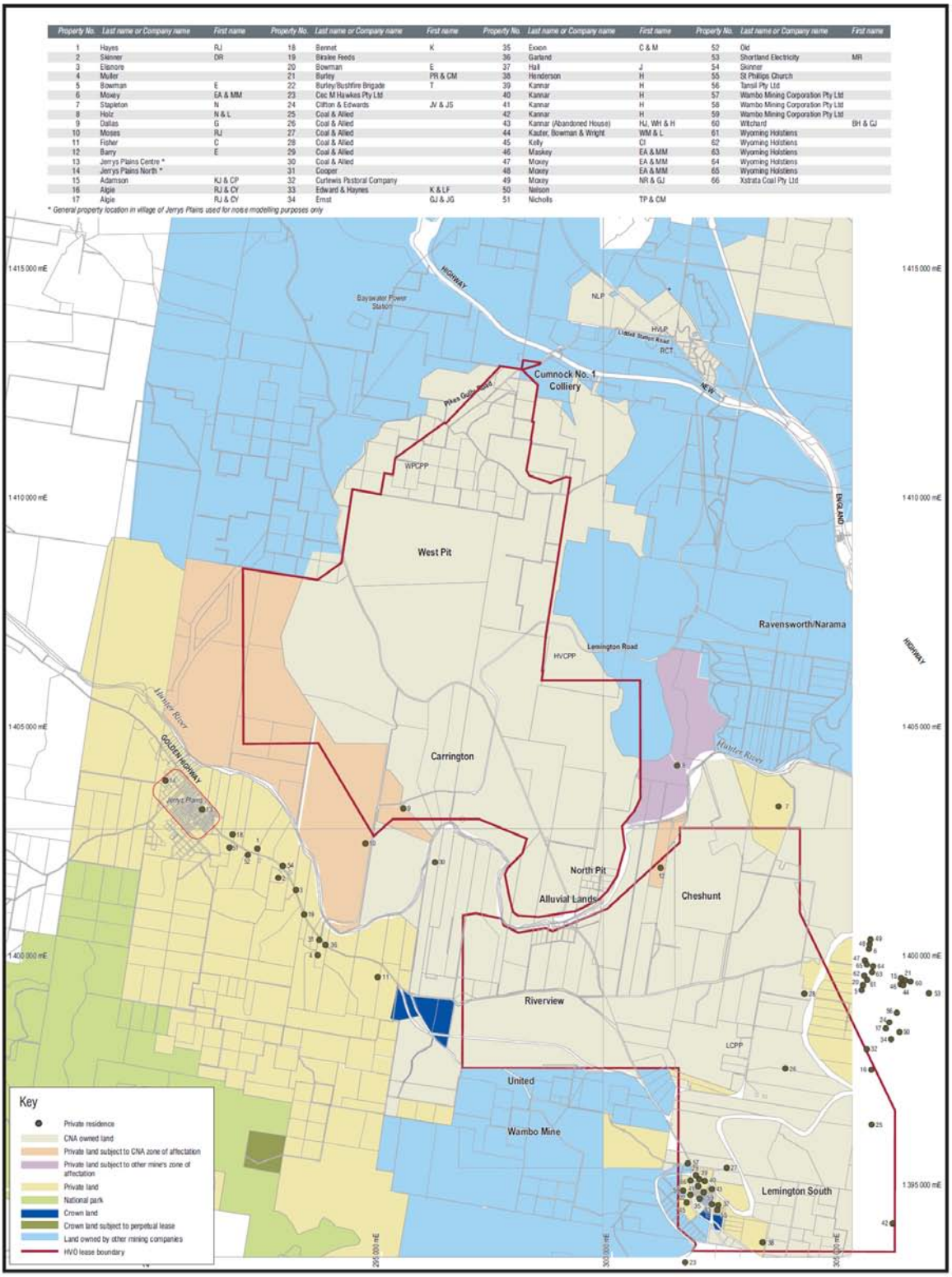
Carrington West Wing Extension Area						
DP	**Lot**	**Portion**	**Part**	**Volume**	**Folio**	**Property Owner**
808301	2					Coal & Allied Operations Pty Limited
1078618	1					Coal & Allied Operations Pty Limited
1113789	7					Novacoal Australia and Coal & Allied Operations Pty Limited
597726	300					Coal & Allied Operations Pty Limited
752468	127					Coal & Allied Operations Pty Limited

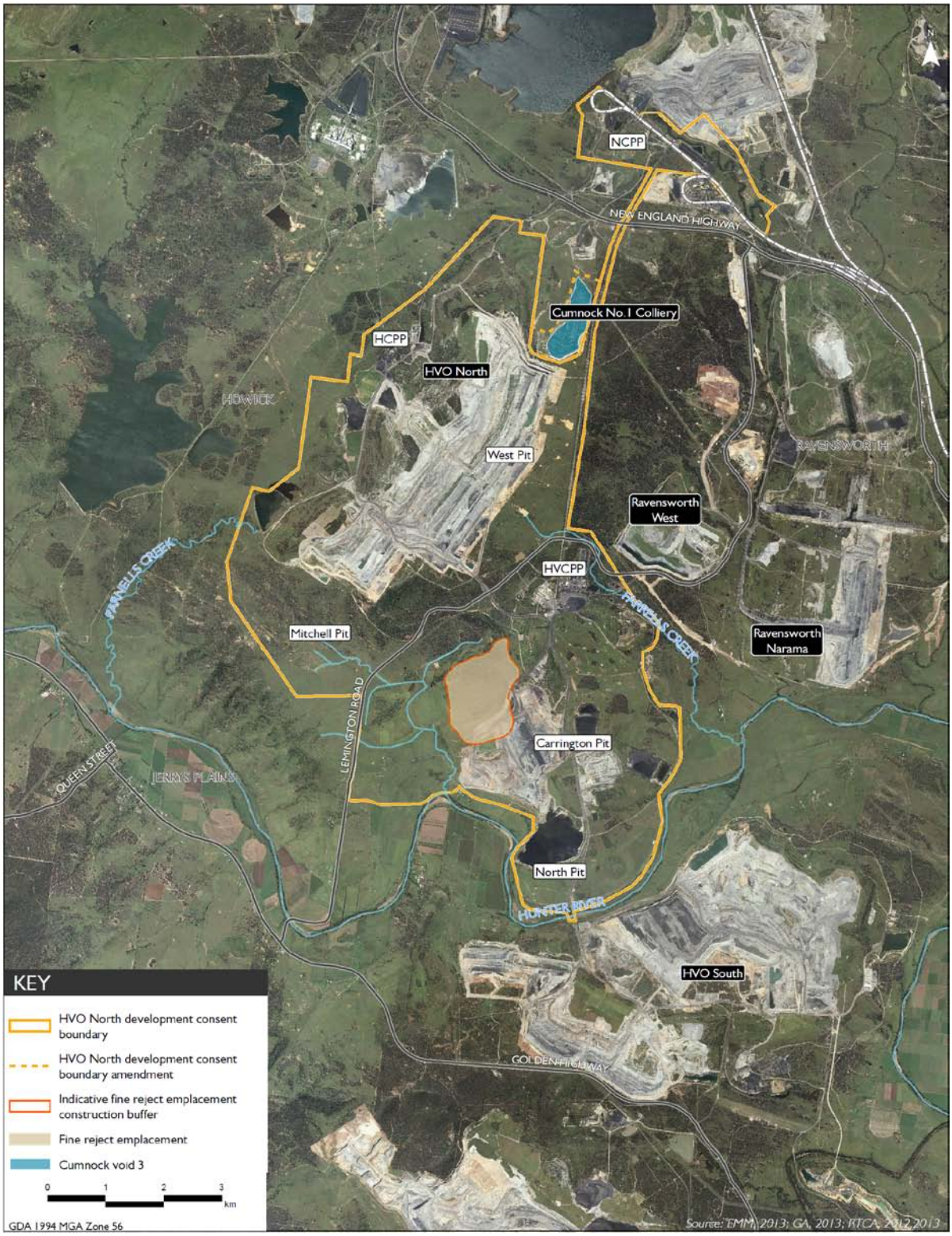
Cumnock Void 3 Boundary Amendment						
DP	**Lot**	**Portion**	**Part**	**Volume**	**Folio**	**Property Owner**
1132357	3000					Cumnock No 1 Colliery Pty Limited, ICRA CUMNOCK PTY LIMITED
1153575	1000					Coal & Allied Operations Pty Limited & Novacoal Australia PTY
48555	5 (part lot)					Novacoal Australia Pty Limited

APPENDIX 2
LANDOWNERSHIP PLAN & RESIDENTIAL RECEIVERS

Property No.	Last name or Company name	First name	Property No.	Last name or Company name	First name	Property No.	Last name or Company name	First name	Property No.	Last name or Company name	First name
1	Hayes	RJ	18	Bennet	K	35	Exxon	C & M	52	Old	
2	Skinner	DR	19	Brakke Reeds		36	Garland		53	Shortland Electricity	MR
3	Elsmore		20	Bowman	E	37	Hall	J	54	Skinner	
4	Muller		21	Burley	PR & CM	38	Henderson	H	55	St Phillips Church	
5	Bowman	E	22	Burley/Bushfire Brigade	T	39	Kannar	H	56	Tansil Pty Ltd	
6	Moxey	EA & MM	23	Cec M Hawkes Pty Ltd		40	Kannar	H	57	Wambo Mining Corporation Pty Ltd	
7	Stapleton	N	24	Clifton & Edwards	JV & JS	41	Kannar	H	58	Wambo Mining Corporation Pty Ltd	
8	Holz	N & L	25	Coal & Allied		42	Kannar	H	59	Wambo Mining Corporation Pty Ltd	
9	Dallas	G	26	Coal & Allied		43	Kannar (Abandoned House)	HJ, WH & H	60	Witchard	BH & GJ
10	Moses	RJ	27	Coal & Allied		44	Kauter, Bowman & Wright	WM & L	61	Wyoming Holsteins	
11	Fisher	C	28	Coal & Allied		45	Kelly	CI	62	Wyoming Holsteins	
12	Barry	E	29	Coal & Allied		46	Maskey	EA & MM	63	Wyoming Holsteins	
13	Jerrys Plains Centre *		30	Coal & Allied		47	Moxey	EA & MM	64	Wyoming Holsteins	
14	Jerrys Plains North *		31	Cooper		48	Moxey	EA & MM	65	Wyoming Holsteins	
15	Adamson	KJ & CP	32	Curlewis Pastoral Company		49	Moxey	NR & GJ	66	Xstrata Coal Pty Ltd	
16	Algie	RJ & CY	33	Edward & Haynes	K & LF	50	Nelson				
17	Algie	RJ & CY	34	Ernst	GJ & JG	51	Nicholls	TP & CM			

* General property location in village of Jerrys Plains used for noise modelling purposes only




NCPP
NEW ENGLAND HIGHWAY
Cumnock No.1 Colliery
HCPP
HVO North
HOWICK
West Pit
RAVENSWORTH
Ravensworth West
HVCPP
PIKEALS CREEK
Mitchell Pit
Ravensworth Narama
LEMINGTON ROAD
Carrington Pit
QUEEN STREET
JERRYS PLAINS
North Pit
HUNTER RIVER
HVO South
GOLDEN HIGHWAY
KEY
HVO North development consent boundary
HVO North development consent boundary amendment
Indicative fine reject emplacement construction buffer
Fine reject emplacement
Cumnock void 3
0 1 2 3 km
GDA 1994 MGA Zone 56
Source: EMM 2013; GA, 2013; RTCA, 2012,2013

APPENDIX 3
NOISE COMPLIANCE ASSESSMENT

Applicable Meteorological Conditions

1. The criteria in Table 9 and 10 apply under all meteorological conditions except:

   a) during periods of rain or hail;

   b) when average wind speed at microphone height exceeds 5 m/s;

   c) when wind speeds greater than 3 m/s are measured at 10 m above ground level; or

   d) during temperature inversion conditions greater than 3°C/100 m.

Determination of Meteorological Conditions

2. Except for wind speed at microphone height, the data to be used for determining meteorological conditions shall be those recorded by the meteorological station located on the site.

Compliance Monitoring

3. Attended monitoring is to be used to evaluate compliance with the relevant conditions of this approval.

4. Unless otherwise agreed with the Director-General, this monitoring is to be carried out in accordance with the relevant requirements for reviewing performance set out in the NSW *Industrial Noise Policy* (as amended or replaced from time to time), including the requirements relating to:

   a) monitoring locations for collection of representative noise data;

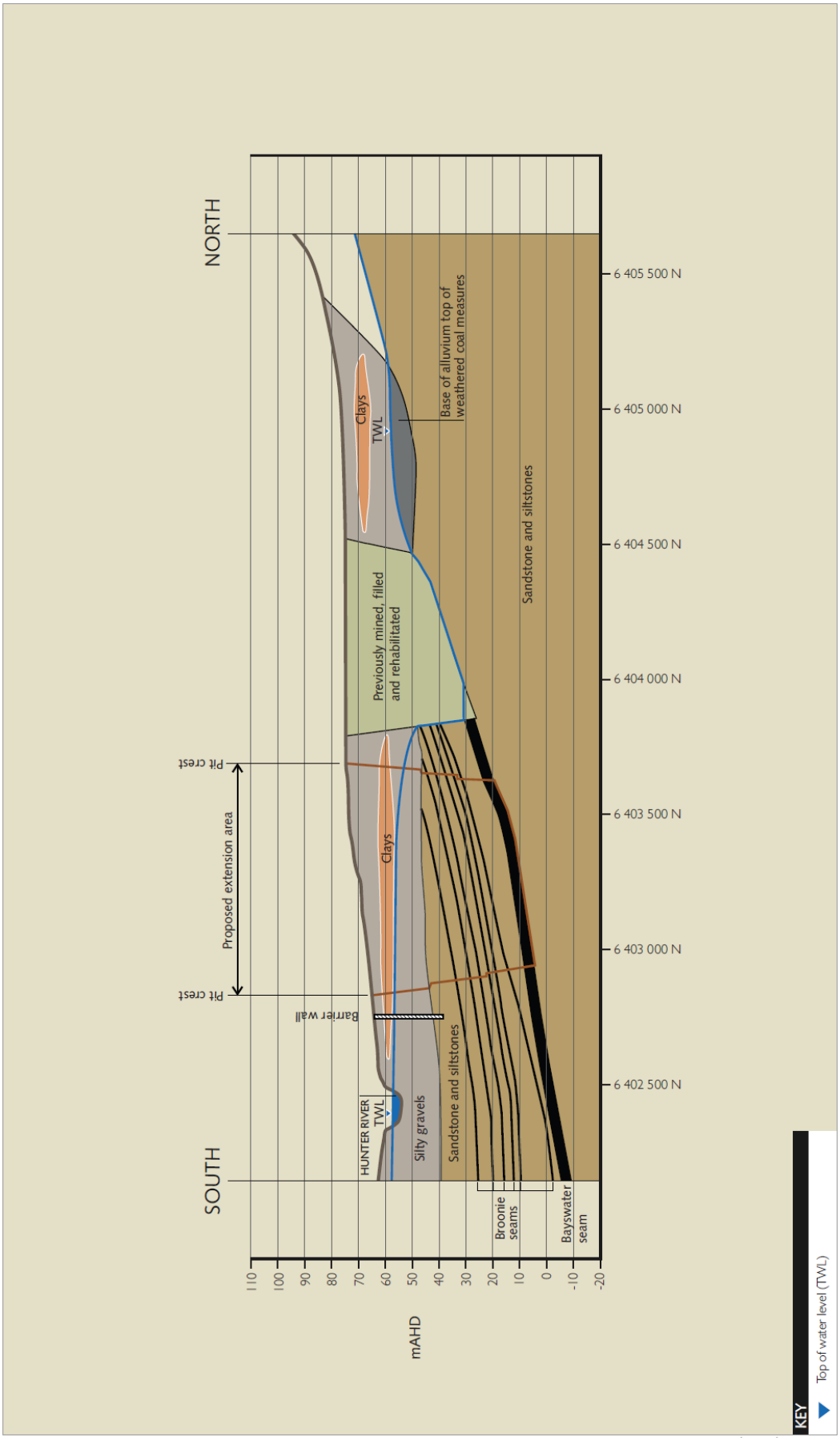
   b) meteorological conditions during which collection of noise data is not appropriate;

   c) equipment used to collect noise data, and conformation with relevant Australian Standards for such equipment; and

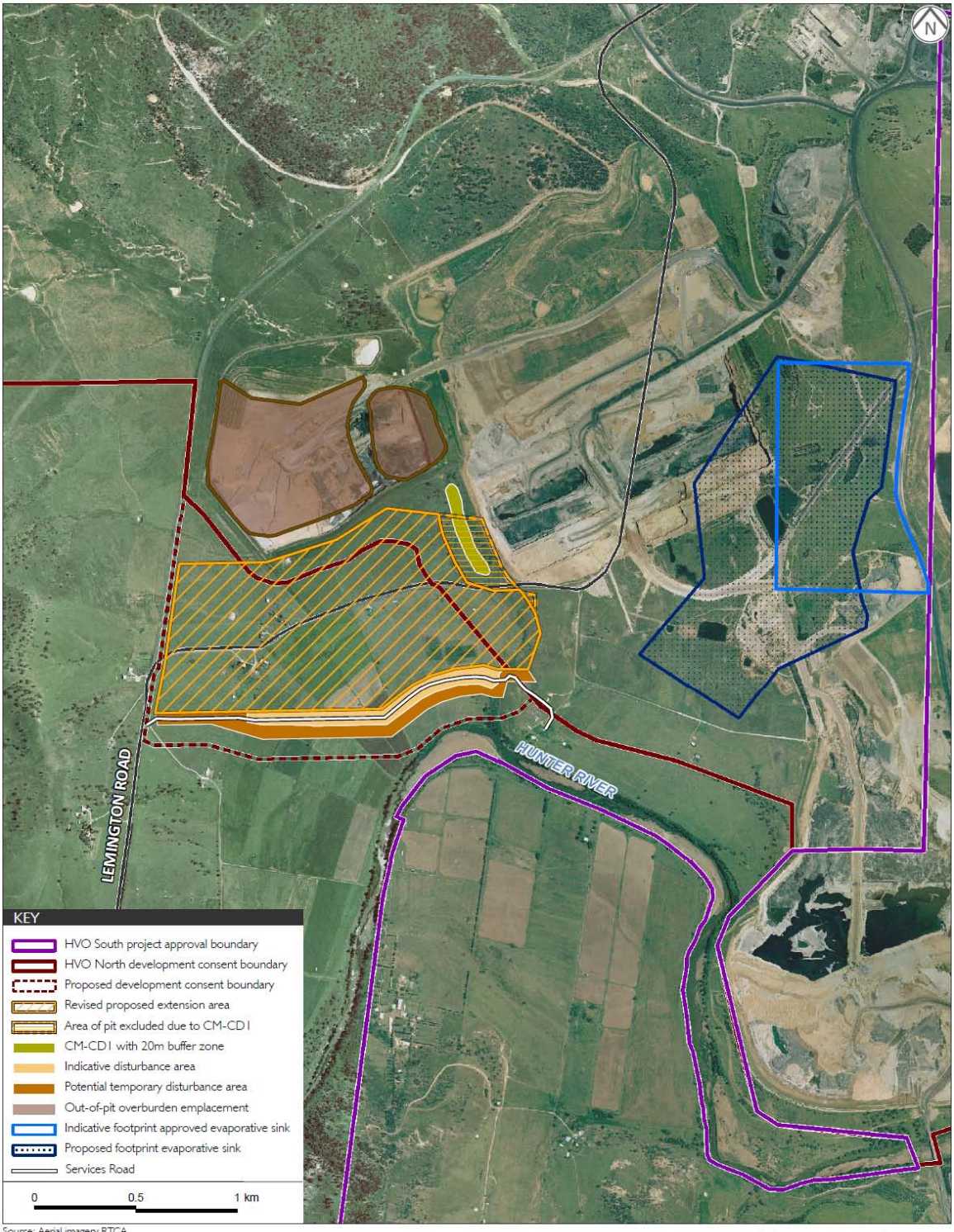
   d) modifications to noise data collected, including the exclusion of extraneous noise and/or penalties for modifying factors apart from adjustments for duration.

APPENDIX 4

CONCEPTUAL GROUNDWATER BARRIER WALL



APPENDIX 5
REVISED MINE PLAN AVOIDING SITE CM-CD1



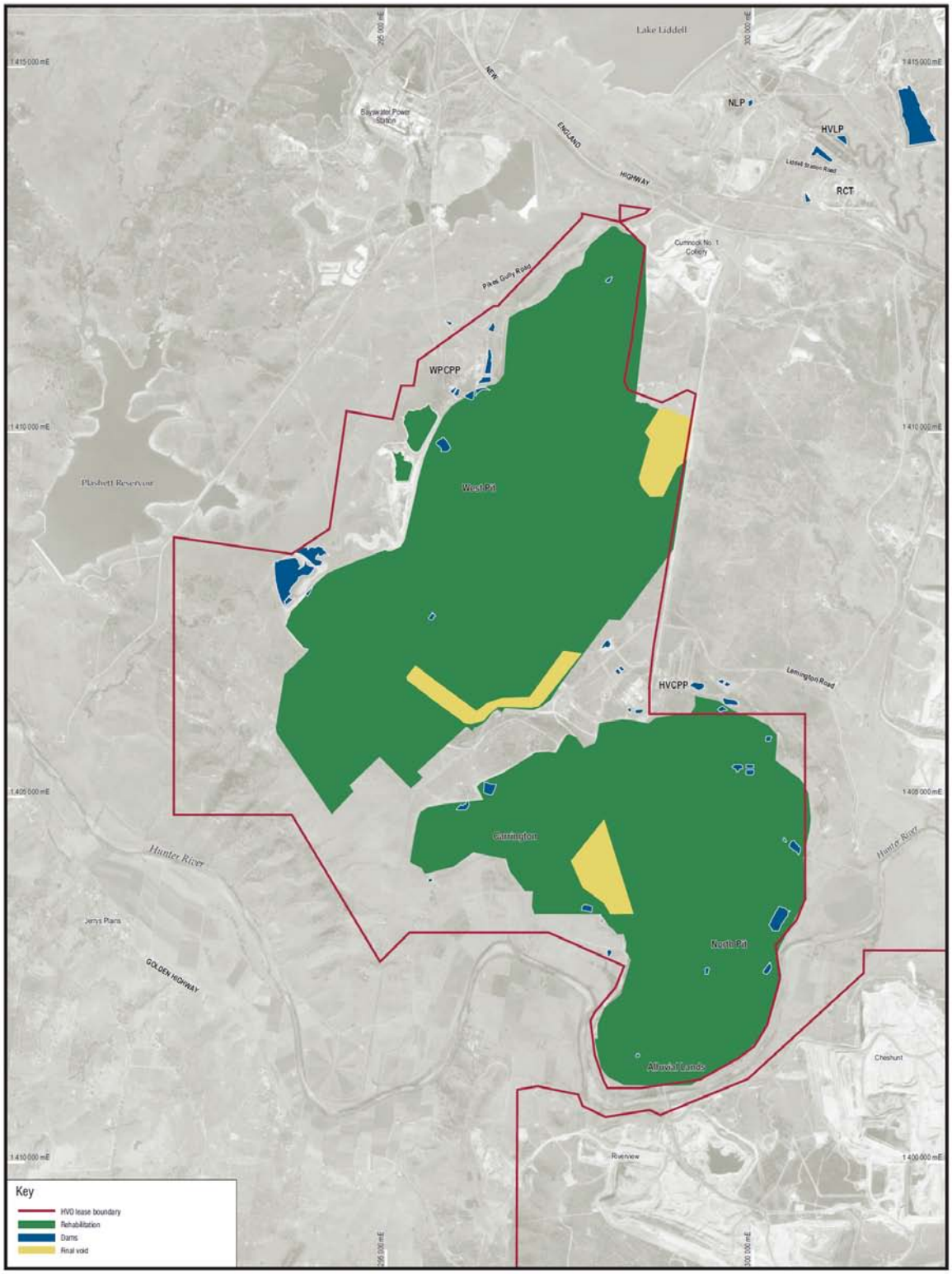
Source: Aerial imagery RTCA

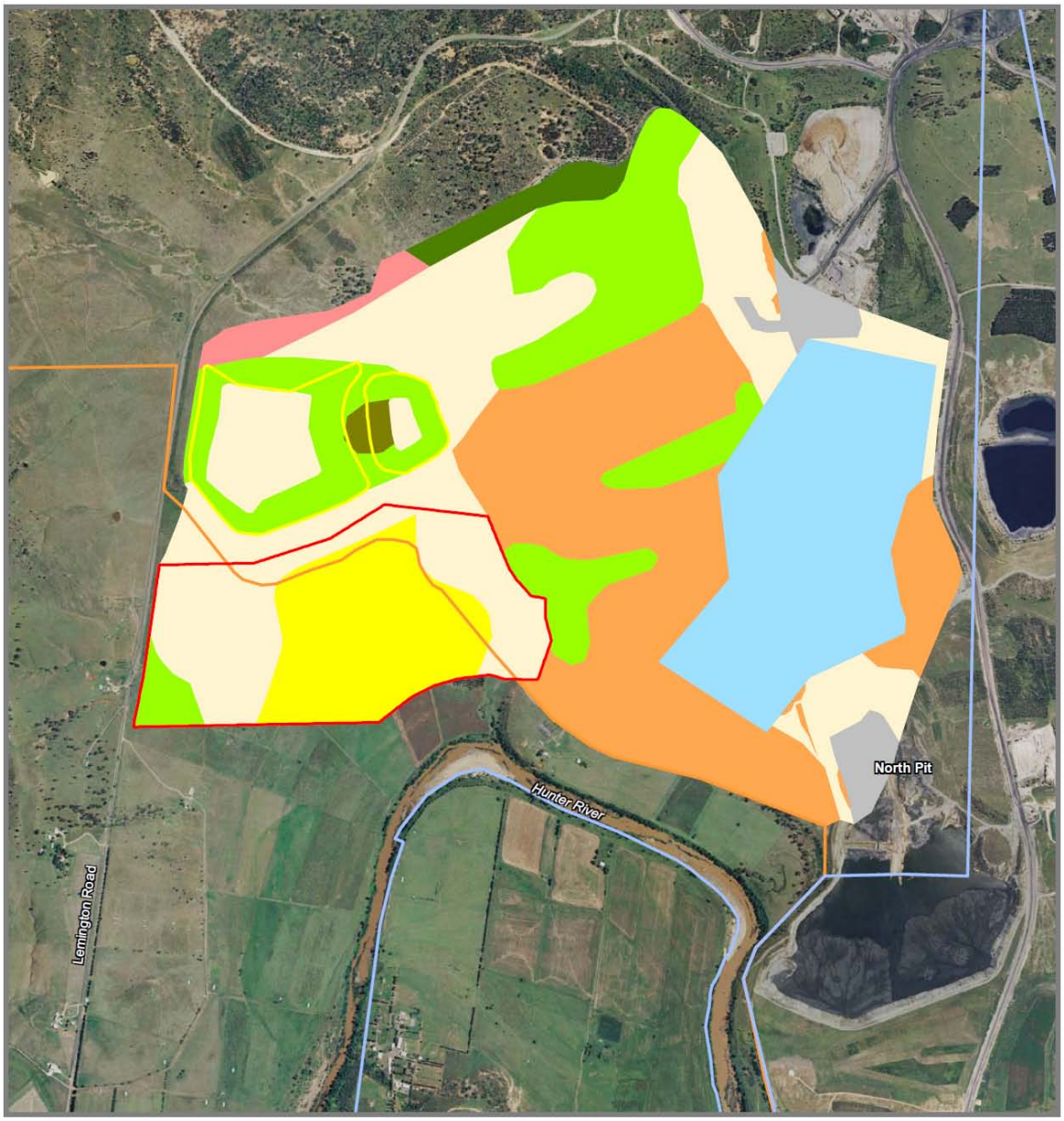
Revised key project elements

Carrington West Wing

FIGURE 1

APPENDIX 6
CONCEPTUAL FINAL LANDFORM PLANS

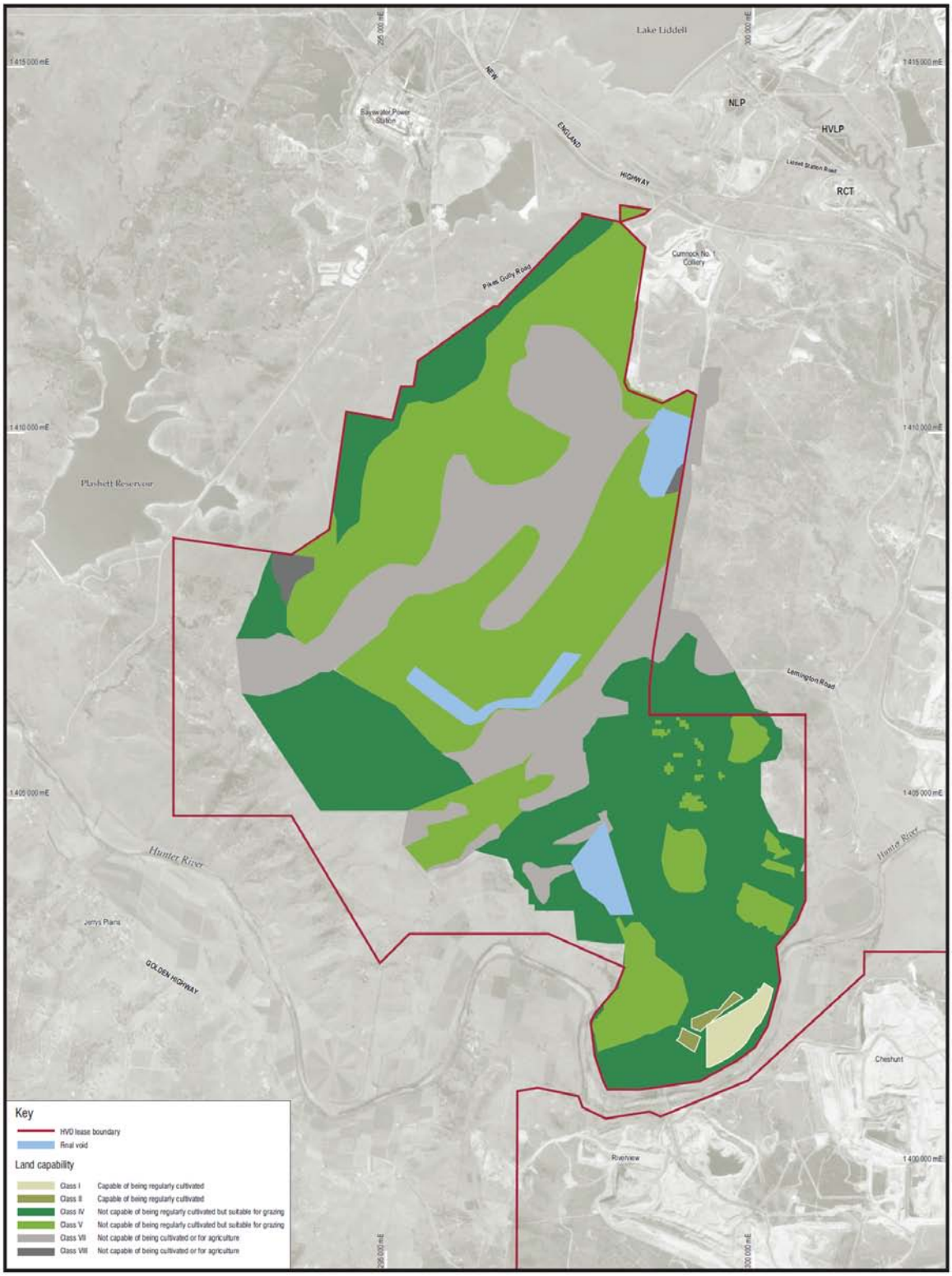




- Regenerated Grassland (grazing)
- Regenerated Woodland (biodiversity)
- Rehabilitated Grassland (grazing/cropping)
- Rehabilitated Woodland (biodiversity)
- Rehabilitated Woodland (grazing)
- Void / dam / mining area
- Rehabilitated Woodland (Central Hunter Box - Ironbark Woodland) - indicative location
- Rehabilitated Grassland (grazing/ cropping) - Class II land capability

- HVO North current development consent boundary
- HVO South project approval boundary
- Proposed footprint of evaporative sink
- Out-of-pit overburden emplacement
- Proposed extension area

APPENDIX 7
CONCEPTUAL FINAL LANDUSE PLANS



Source: Aerial imagery RTCA

Post-mining agricultural suitability classes

Carrington West Wing

FIGURE 2

Appendix B

Hunter Valley Load Point Proposed Powerline Easement Ecological Impact Assessment.

global environmental solutions

Hunter Valley Load Point

Proposed Powerline Easement

Ecological Impact Assessment

Report Number 630.11489.00000

7 September 2016

Rio Tinto Coal Australia Pty Ltd

PO Box 315

SINGLETON NSW 2330

Version: v0.2

Hunter Valley Load Point

Proposed Powerline Easement

Ecological Impact Assessment

PREPARED BY:

SLR Consulting Australia Pty Ltd
ABN 29 001 584 612
10 Kings Road
New Lambton NSW 2305 Australia
(PO Box 447 New Lambton NSW 2305 Australia)
T: +61 2 4037 3200 F: +61 2 4037 3201
newcastleau@slrconsulting.com www.slrconsulting.com

DOCUMENT CONTROL

Reference	Status	Date	Prepared	Checked	Authorised
630.11489.00000	Version 0.2	07 September 2016	M Consterdine	J Pepper	J Pepper

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TABLES

FIGURES

APPENDICES

1 INTRODUCTION

SLR Consulting have been commissioned by Hunter Valley Operations (HVO) to prepare an Ecological Impact Assessment for proposed development of a powerline easement within the riparian zone of Bayswater Creek, adjacent to the Hunter Valley Load Point (HVLP). The site is located approximately six kilometres north west of the town of Ravensworth and within the Muswellbrook Shire Council Local Government Area (**Figure 1**). In order to safely construct the new powerlines, approximately 0.14 hectares of the riparian vegetation, along southern side of the creek, is to be cleared (**Figure 1**). This proposed clearing will only require removal of the canopy species of the upper bank of Bayswater Creek and ground layer vegetation will be mostly retained. This vegetation has been identified as a disturbed Swamp Oak Forest community. To compensate the vegetation clearing, HVO propose to re-plant an equivalent area of vegetation to the west of the HVLP infrastructure, using trees representative of Swamp Oak Forest.

An SLR ecologist undertook a site inspection on 27 April 2016 to identify ecological constraints relevant to the proposal and to map vegetation present on the site (including weed mapping).

2 SITE DESCRIPTION

The site of the proposed power line lies within the north-west portion of the Hunter Valley Operations (HVO) mine, which lies approximately 20 km north-west of Singleton, NSW.

Bayswater Creek is a tributary of the Hunter River and flows in an eastern direction. The creek is highly modified due to the upstream damming of the catchment with the construction of Lake Liddell, current and historic coal mining activities in the upper reaches and an existing diversion channel that diverts much of the lower reach that was constructed as part of mining operations associated with the Ravensworth Operations open cut coal mine.

The creek is typically ephemeral and sustains disconnected pools except during discharge events from Lake Liddell and the Hunter River Salinity Trading Scheme (HRSTS). Several coal mining operations in the area also discharge into tributaries of the Creek as per their participation in the HRSTS.

The site has been exposed to a long history of clearing and disturbance as a result of decades of mining and agricultural activities in the area.

The north eastern margins of the site, closer to the steep banks of Bayswater Creek, contain a canopy of native Swamp Oak *Casuarina glauca* and exotic Peppercorn Tree *Schinus areira*. Beneath this canopy is an understorey of dense exotic shrubs and grasses which generally lacks any native species. Bayswater Creek lies directly to the north HVLP site and is a permanent, small sized watercourse, approximately 7 metres wide. The steep banks of Bayswater Creek are forested with dense Swamp Oak and occasional Sickle Wattle *Acacia falcata*, with a mostly exotic understorey and groundcover. Parts of the creek bank appear to have been previously constructed with fill materials.

The vegetation of the site is further described in **Chapter 3** below.

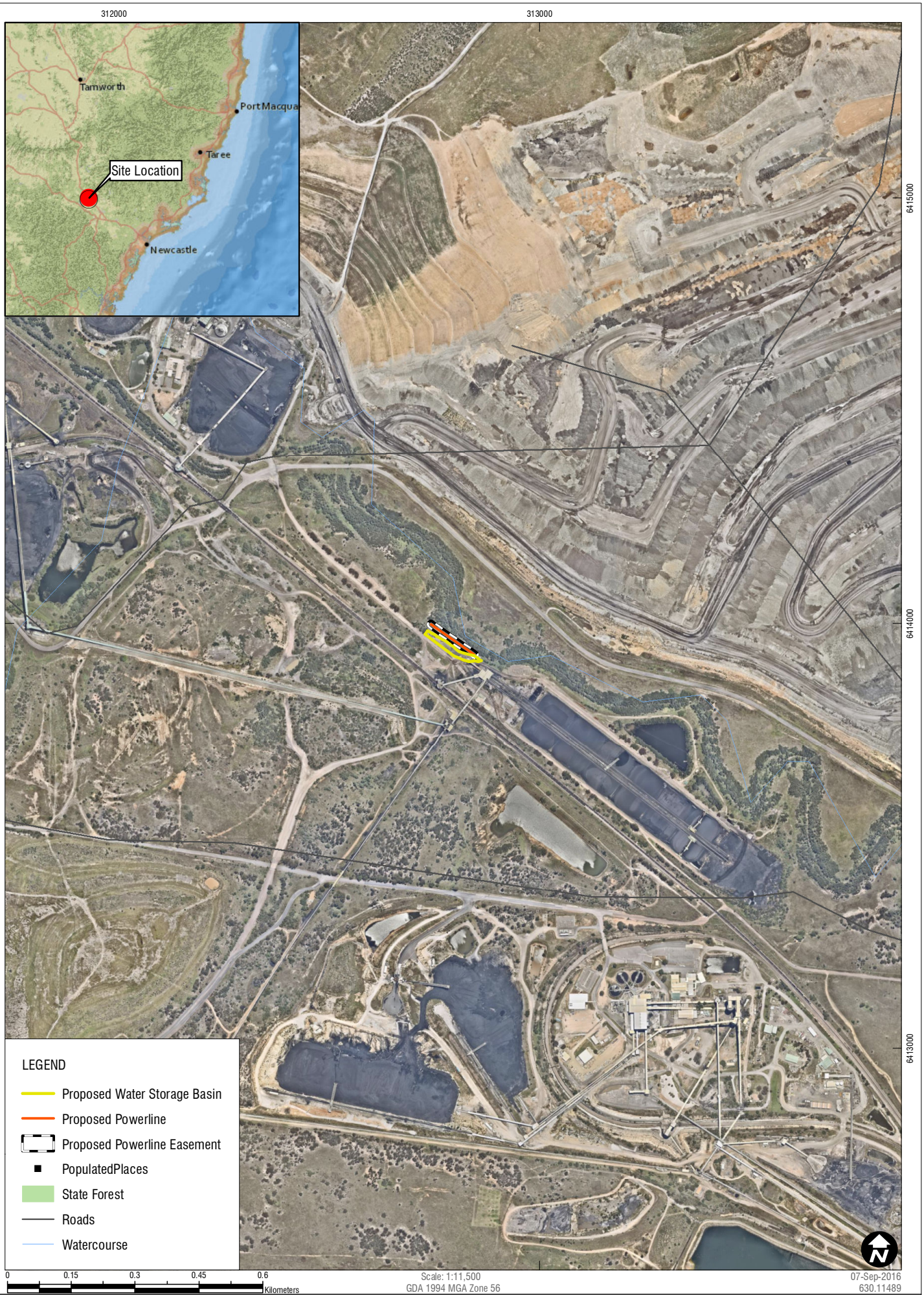
Photo 1 The southern edge of Bayswater Creek showing riparian Swamp Oak Forest surrounded by cleared areas and mine infrastructure associated with Hunter Valley Load Point.

3 VEGETATION

The following vegetation description is based on the SLR survey conducted in April 2016, which revealed a flora assemblage of 26 plant species, comprising eight native species and 18 exotic species.

3.1 Flora Species and Vegetation Type

The vegetation within the site and adjacent to Bayswater Creek is extremely degraded and weed infested. The only major element of native vegetation is the canopy of Swamp Oak *Casuarina glauca*, which runs as a narrow band of riparian vegetation along both sides of the creek (**Figure 2**). No eucalypts or other significant native trees occur within the riparian vegetation on the site and the understorey and ground layer vegetation is exotic and not representative of any listed vegetation communities. For this reason, the riparian vegetation is deemed to constitute a disturbed form of MU213 Swamp Oak / Weeping Grass grassy riparian forest of the Hunter Valley. This finding is contrary to the Greater Hunter Vegetation Mapping (OEH 2012), which maps the riparian vegetation of Bayswater Creek as MU173 – Narrow-leaved Ironbark / Grey Box grassy woodland of the central and upper Hunter and MU999 – Derived Grasslands of the Greater Hunter (**Figure 3**). It is likely that both communities occur at various points along Bayswater Creek; however neither is present on the site.



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Site Locality

FIGURE 1

H:\Projects-SLR\675-PER\630-NTL\630.11489 HVO pre-clearance survey\06 SLR Data\01 Drafting\Figures\ArcGIS\SLR630.11489_F02_HVLP_SiteVegMapping_02.mxd

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Vegetation Mapping of the Site (SLR)

FIGURE 2

H:\Projects-SLR\675-PER\630-NTL\630.11489 HVO pre-clearance survey\06 SLR Data\01 Drafting\Figures\ArcGIS\SLR630.11489_F03_HVLP_Regional Vegetation Mapping_02.mxd

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Regional Vegetation Mapping (OEH)

FIGURE 3

The Swamp Oak Forest on the site would likely form a highly degraded example of MU213 Swamp Oak / Weeping Grass grassy riparian forest of the Hunter Valley (OEH 2012). This community constitutes the Swamp Oak Floodplain Forest Endangered Ecological Community[1] (EEC), as listed under Schedule 1 (Part 3) of the *Threatened Species Conservation Act 1995*. A detailed Section 5A Assessment for this community is provided in **Appendix A**.

The areas surrounding the riparian vegetation represent mown exotic grass intersected with unsealed (dirt/gravel) tracks and mine infrastructure. These parts of the site are highly disturbed and lack any native vegetation cover.

Whilst the vegetation on the site is overwhelmingly composed of exotic species, a number of native plant species can be found in the vicinity of the nominated area (particularly within riparian areas). Such species include Swamp Oak (*Casuarina glauca*), Sickle Wattle (*Acacia falcata*), *Spartothamnella juncea,* Blue Howittia (*Howittia trilocularis*), Native Raspberry (*Rubus parviflorus*) and Windmill Grass (*Chloris truncata*).

Narrow-leaved Cumbungi *Typha domingensis* is abundant within the creek line areas (beyond the northern boundary of the site).

Weed density in on the site is very high (>70% projected foliage cover). Aside from the native canopy and occasional native understorey species, the remainder of the vegetation across the site and along Bayswater Creek comprises exotic and invasive weeds. The most abundant and widespread species are exotic grasses and herbs, notably Rhodes Grass *Chloris Guyana*, Fleabane *Conyza bonariensis*, Castor Oil Plant *Ricinus communis* and Paddy's Lucerne *Sida rhombifolia*.

Photo 2 Riparian vegetation of Bayswater Creek, consisting of Swamp Oak *Casuarina glauca* canopy with exotic understorey and ground layer.

[1] *Swamp oak floodplain forest of the NSW North Coast, Sydney Basin and South East Corner bioregions*.

3.2 Noxious weeds

Annual Ragweed (*Ambrosia artemisiifolia*) was recorded within riparian vegetation adjacent to the site. This species is listed as a 'noxious weed' species in Muswellbrook Shire Council LGA under the NSW *Noxious Weeds Act 1993* (Department of Primary Industries 2016). Details regarding the noxious weeds status for Annual Ragweed are listed in **Table 1**.

Table 1 Noxious weed species recorded on the site

Common Name	Species Name	NW Act category	NW Act Control
Annual Ragweed	*Ambrosia artemisiifolia*	5	Restricted Plant The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with

3.3 Threatened Flora

3.3.1 Threatened plants

A total of three threatened plant species have been recorded within the locality (10 km) of the site, including, Trailing Woodruff *Asperula asthenes*, Pine Donkey Orchid *Diuris tricolor* and Slaty Red Gum *Eucalyptus glaucina*. No evidence for any of these species was recorded on the site during the site inspection and given the nature and condition of the habitats present, none are likely to occur.

3.3.2 Endangered populations of plants

Four endangered populations of flora are known to occur within a 10km radius of the site including;

- *Acacia pendula* population in the Hunter catchment;
- *Eucalyptus camaldulensis* population in the Hunter catchment;
- *Cymbidium canaliculatum* population in the Hunter Catchment; and
- Pine Donkey Orchid population in the Muswellbrook local government area.

None of the above flora species were recorded on the site and given the nature and condition of the habitats present, none of these populations are likely to occur.

3.3.3 Threatened Ecological Communities

A total of 20 threatened ecological communities are listed as occurring within locality 10km radius of the site. Of these, only one, Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions, is present at the site, as described above. A detailed Section 5A Assessment for this community is provided in **Appendix A**.

4 FAUNA

4.1 Fauna Habitats

Due to the highly disturbed state of the vegetation present, as well as the dense exotic groundcover and understory, the majority of the site lacks any significant habitat for any native fauna groups. The native canopy of Swamp Oak along Bayswater Creek could provide potential shelter and foraging habitat for a selection of local bird species. However, the trees recorded in this area are not hollow-bearing and would not be favourable for hollow dependent birds, arboreal mammals or microchiropteran bats.

The banks of the creek contain numerous rock piles which may offer shelter for reptiles, amphibians and small mammals. The bed of creek contains a dense cover of exotic and native aquatic vegetation (mainly *Typha orientalis*) that has evidently colonised sediments that have accumulated in recent years. Nonetheless, the waterway would likely provide habitat for a small range of native aquatic fauna species. Aquatic habitat of Bayswater Creek would be compromised by the ephemeral nature of the creek as well us upstream and downstream man-made barriers and drop-structures.

During the survey a small assemblage of common native fauna species were observed including; Australian Raven, Magpie, Red-browed Finch, Eastern Rosella, Eastern Water Dragon and Garden Sun-skink. It is likely that a range of other disturbance-tolerant native species would occur on the site on a regular or transient basis. Due to a lack of suitable habitat, it is unlikely that any threatened species would occur on the site other than on rare occasions, such as during foraging or dispersal activities.

4.2 Threatened Fauna

A total of 39 threatened fauna species have been recorded within a 10 km radius of the site.

Of these, 15 threatened terrestrial mammals have been recorded within a 10 km radius of the site (comprising nine microchiropteran bats, the Grey-headed Flying-fox, three arboreal mammals and two ground mammals), most of which are forest-dependent. The majority of these species are highly unlikely to occur on the site, with the exception of individuals of some microchiropteran bat species and the Grey-headed Flying-Fox. These species could use the site for foraging purposes. No significant roosting or shelter habitat exists on the site. Notably, there is no evidence of a camp or colony of Grey-headed Flying-Fox on or near to the site.

The site provides low quality habitat for the Green & Golden Bell Frog which is the only threatened amphibian species recorded within 10km radius of the site. This species prefers open, unshaded water bodies and is therefore unlikely to be present within the dense Swamp Oak Forest along Bayswater Creek. The ephemeral nature of Bayswater Creek would also mean that this species is unlikely to occur. Due to the proposed clearing affecting only canopy vegetation, any potential habitat for this species would be retained in the riparian areas of Bayswater Creek.

A total of 23 threatened bird species have been recorded within 10 km of the site. It is possible that individuals of some wide-ranging threatened species (particularly those tolerant of disturbed and heavily cleared environments) could occur on a temporary basis, the site would not constitute a significant area of habitat for even individuals of these species due to its small size, disturbed nature and the general nature of the locality. There are no hollow trees on the site.

5 IMPACTS

The proposal will require removal of approximately 0.14 ha of the Swamp Oak Forest canopy, retaining the majority of understorey and ground layer vegetation. The small area of vegetation to be affected by the proposed powerline easement at HVLP is highly disturbed with an almost entirely exotic groundcover. The vegetation along the banks of Bayswater Creek constitutes a highly degraded form of MU 213 Swamp Oak / Weeping Grass grassy riparian forest of the Hunter Valley (OEH 2012) vegetation community, which represents a disturbed form of Swamp Oak Floodplain Forest Endangered Ecological Community (EEC).

It is unlikely that the proposal will have any significant impacts on the natural environment or riparian vegetation communities present on the site. Nonetheless, a detailed Section 5A Assessment for Swamp Oak Floodplain Forest EEC is provided in **Appendix A**. The assessment concludes that the proposed clearing is not "likely" to have "a significant effect" on Swamp Oak Floodplain Forest EEC pursuant to s.5A of the EP&A Act.

6 MITIGATION MEASURES

Although impacts on flora and fauna resulting from the proposed activity will be restricted in extent and within an area of low ecological value, best practice measures are recommended during and after construction to minimise potential adverse effects on the natural environment and existing flora and fauna. Recommended measures include:

- Installation of erosion controls within and adjacent to areas of earthworks and soil disturbance in accordance with the Blue Book (Landcom 2004);
- Inspections of erosion controls during and after rainfall events to ensure sedimentation of Bayswater Creek does not occur, with rectification actions as required;
- Progressive revegetation of disturbed areas to minimise erosion risk, using suitable local native grass species;
- Chipping of any felled trees, with the chipped vegetation to be used as mulch on disturbed areas;
- Revegetation of an equivalent area of vegetation to the north of the HVLP infrastructure (and adjoining existing riparian vegetation), using local tree species that are representative of the Swamp Oak Forest community. The revegetation and ongoing management will be undertaken by appropriately qualified personnel and will include supplementary planting if required to ensure the revegetation goals are achieved. The establishment and ongoing management of this area will be included in the HVO annual report.

7 CONCLUSION

The proposed powerline development will require removal of a small amount of degraded Swamp Oak Floodplain Forest canopy vegetation and is not "likely" to impose "a significant effect" upon the Swamp Oak Floodplain Forest EEC given:

- the small area of that vegetation proposed for removal relative to the extent of the local occurrence;
- its degraded, modified and disturbed condition; and
- its poor prognosis, given likely ongoing mining activity and weed infestation; and
- the proposed replanting of Swamp Oak Forest vegetation to compensate for the clearing (to the same extent as clearing footprint).

A species impact statement (SIS) is therefore not required for the proposed powerline development at Bayswater Creek with respect to the Swamp Oak Floodplain Forest EEC.

The small amount of vegetation to be cleared does not provide any important habitat for any of the threatened flora or fauna species, threatened ecological communities or endangered populations which are known to occur in this region of the Hunter Valley. There is no requirement for a species impact statement (SIS) for any of the listed threatened biota. The proposed vegetation clearing on the site is to be compensated for by replanting of Swamp Oak Forest vegetation adjacent to the HVLP infrastructure areas.

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SECTION 5A ASSESSMENT OF SIGNIFICANCE

INTRODUCTION

SLR conducted ecological surveys on the small area of land adjacent to the Hunter Valley Load Point (HVLP) and on the southern edge of Bayswater Creek in April 2016 for the purposes of the Existing Environment Report (SLR 2016). During surveys, the vegetation along Bayswater Creek was mapped and was found to constitute a highly disturbed form of Swamp Oak Floodplain Forest Endangered Ecological Community (EEC).

Since the survey, a new powerline easement has been proposed to be built within the riparian vegetation of Bayswater Creek and adjacent to the HVLP loader infrastructure.

The proposed development will require the removal of approximately 0.14 ha of degraded Swamp Oak Forest which could constitute a disturbed form of Swamp Oak Floodplain Forest EEC. Due to the potential impacts resulting from vegetation clearing, a Section 5A Assessments of Significance for this community is provided below.

The Section 5A Assessment

The *Environmental Planning & Assessment Act 1979* (EP&A Act) includes a requirement to determine "whether there is likely to be a significant effect on threatened species, populations or ecological communities, or their habitats". Section 5A (2) identifies seven factors which "must be taken into account" by a consent or determining authority in administering Sections 78A, 79B, 79C, 111 and 112 of the EP&A Act, as relevant in the circumstances.

In addition to the seven factors which "must be taken into account" (where relevant) pursuant to Section 5A(2) of the EP&A Act (see below), Section 5A(1)(b) of the EP&A Act requires that "any [relevant] assessment guidelines" promulgated by the relevant authorities (particularly in this instance the OEH) also "must be taken into account in deciding whether there is likely to be a significant effect on threatened species, populations or ecological communities, or their habitats". The Section 5A Assessment of Significance contained herein, and the generic Section 5A Assessment of Significance contained in the main Report, have been prepared in cognisance of the *Threatened Species Assessment Guidelines – The Assessment of Significance* prepared by the then Department of Environment & Climate Change (2007).

FACTORS for CONSIDERATION

The factors which "*must be taken into account*" pursuant to Section 5A of the EP&A Act are:

(a) in the case of threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such as that a viable local population of the species is likely to be placed at risk of extinction.

(b) in the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.

(c) in the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:
    (i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or
    (ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.

(d) in relation to the habitat of a threatened species, population or ecological community:
   (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, and
   (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and
   (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.

(e) whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).

(f) whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.

(g) whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.

ASSESSMENT OF SIGNIFICANCE

Swamp Oak Floodplain Forest is a community of plants that is generally dominated by the tree/s Swamp Oak (*Casuarina glauca*) and/or Swamp Paperbark (*Melaleuca ericifolia*). The community is found in close proximity to rivers and estuaries and is generally found on soils with a saline influence. The soils of the community may be quite wet and as such the composition of species present will vary markedly from site to site. Depending on the level of salinity in the groundwater the understorey will be composed of salt tolerant grasses and herbs and in more saline areas by sedges and reeds. (DECC, 2007)

Swamp Oak Floodplain Forest is associated with humic clay and sandy loam soils on waterlogged or periodically flooded areas. These soils are generally deposited during flood events and occur on the flats and drainage lines of the Coastal Floodplain.

This community is usually found below 20m in elevation although sometimes occurs to 50m elevation on small floodplains or where larger floodplains adjoin lithic substrates or coastal sand plains (NSW Scientific Committee, 2011). According to the NSW Wildlife Atlas, this community is known to occur within a 10km radius of the HVLP site, although, it should be noted that the HVLP site is 110m elevation, which may be beyond the above described limits.

The main canopy species of Swamp Oak Floodplain Forest are Swamp Oak (*Casuarina glauca*), but will also include other trees such as Lilly Pilly (*Acmena smithii*), Cheese Tree (*Glochidion ferdinandi*) and Paperbarks (Melaleuca spp.) The only canopy species present on the site is Swamp Oak.

The understorey of this community is characterised by frequent occurrences of vines such as: Common Silkpod (*Parsonsia straminea*), Scrambling Lily (*Geitonoplesium cymosum*) and Snake Vine (*Stephania japonica*). There may be a sparse layer of shrubs and a number of small herbs such as Indian Pennywort (*Centella asiatica*), Commelina (*Commelina cyanea*), Slender Knotweed (*Persicaria decipiens*) and Viola spp.. Grasses and grass type plants also occur like Tussock Sedge (*Carex appressa*), Tall Saw Sedge (*Gahnia clarkei*) and Basket Grass (*Oplismenus imbecillis*). The understorey vegetation on the site is predominantly exotic grasses and shrubs, with virtually no native species.

Threatening processes which continue to affect Swamp Oak Floodplain Forest include:

- further clearing for agriculture or urban development and the subsequent impacts from fragmentation;
- land management including slashing and mowing which prevents regeneration;
- urban stormwater runoff, which leads to increased nutrients and sedimentation;
- weed invasion, as invasive species outcompete native plants for soil nutrients and sunlight and prevent native seeds from germinating; and
- inappropriate fire regimes, which have altered the appropriate floristic and structural diversity.

SWAMP OAK FLOODPLAIN FOREST ENDANGERED ECOLOGICAL COMMUNITY

Factor (a) Threatened Species and the Risk of Extinction

A threatened species is defined in the TSC Act as a species specified in Part 1 or 4 of Schedule 1 or in schedule 2 of the Act. The Swamp Oak Floodplain Forest community is not a threatened species.

Factor (b) Endangered Populations and the Risk of Extinction

The TSC Act defines an endangered population as a population specified in Part 2 of Schedule 1 of the Act. The Swamp Oak Floodplain Forest community is not an endangered population.

Factor (c) Endangered Ecological Communities and the Risk of Extinction

The vegetation within the site represents a disturbed form of MU213 Swamp Oak / Weeping Grass grassy riparian forest of the Hunter Valley (OEH 2012). This community potentially constitutes the Swamp Oak Floodplain Forest Endangered Ecological Community[2] (EEC), as listed under Schedule 1 (Part 3) of the *Threatened Species Conservation Act 1995*. According to the definition in the Final Determination (NSW Scientific Committee, 2011) this EEC usually occurs at elevations below 20m in elevation although sometimes to 50m elevation on small floodplains or where larger floodplains adjoin lithic substrates or coastal sand plains (NSW Scientific Committee, 2011). The HVLP site is 110m elevation, which is beyond the above described limits.

Currently, the patch of Swamp Oak Forest vegetation on the site is degraded and modified, and is likely to continue to degrade as a consequence of its size and context, and ongoing mining activities. It has a poor prognosis in terms of biodiversity conservation values. The understorey and ground layer vegetation (beneath the Swamp Oak canopy) on the site is almost entirely exotic.

Given the circumstances, and given the condition and context of the Swamp Oak Forest vegetation on the site:

- the loss of the small area (Approximately 0.14 ha) of the Swamp Oak Forest vegetation from the site itself is not considered of significance with respect to the survival of any potentially occurring Swamp Oak Floodplain Forest EEC in general, either in the locality or in the region;
- the proposed re-planting of Swamp Oak Forest adjacent to the HVLP (to the same extent as cleared) would compensate for the clearing of Swamp Oak canopy within the site. This would prevent the local occurrence of the degraded Swamp Oak Floodplain Forest EEC vegetation at this location being placed at risk of extinction; and

[2] Swamp oak floodplain forest of the NSW North Coast, Sydney Basin and South East Corner bioregions.

- the removal of vegetation from the site would not substantially and adversely modify the composition of the ecological community at this location (given its extent and condition). Further, any such loss would not be such that its local occurrence is likely to be placed at risk of extinction.

Given those considerations, and given the degraded nature of the vegetation at this location, it is concluded that, with respect to the proposed development at Bayswater Creek:

- the local occurrence of the Swamp Oak Floodplain Forest EEC would not be placed at risk of extinction as a result of the proposal; and
- the loss of Swamp Oak Forest from the site would not constitute a significant effect with respect to the Swamp Oak Floodplain Forest EEC community.

Factor (d) Habitat Removal, Modification, Fragmentation, Isolation and Importance

The area of Swamp Oak Forest vegetation on the site is degraded and modified, with highly exotic understorey and ground layer vegetation. The patch of Swamp Oak Forest that extends along Bayswater Creek forms a substantial corridor of this community within the locality and as a whole would be valuable with respect to the conservation of native vegetation in the locality. The proposed clearing would not fragment or separate any riparian vegetation.

With respect to the relevant considerations contained in Factor (d) of Section 5A of the EP&A Act;

- the area of Swamp Oak Floodplain Forest vegetation on the site to be removed or modified as a result of the proposed action is small in absolute terms (approximately 0.14 ha). It is also only a minor part of that present in the locality – Factor (d)(i);
- the Swamp Oak Floodplain Forest vegetation present on the site and within Bayswater Creek is already fragmented and isolated from other significant areas of bushland in the general locality (within a few kilometres of the site). – Factor (d)(ii); and
- the area Swamp Oak Floodplain Forest vegetation within the site, taking into consideration its degraded condition, small area and setting, is not regarded of importance or value with respect to the long-term survival of the Swamp Oak Floodplain Forest EEC community in the locality – Factor (d)(iii).

Factor (e) Critical Habitat – Direct and Indirect Effects

The TSC Act 1995 defines “critical habitat” as habitat declared to be critical habitat under Part 3 of the Act. At the time of this Report, no critical habitat for the Swamp Oak Floodplain Forest EEC had been declared.

Factor (f) Recovery Plans and Threat Abatement Plans

There are currently no relevant *Threat Abatement Plans* with respect to Swamp Oak Floodplain Forest.

A *Recovery Strategy* for Swamp Oak Floodplain Forest has been prepared under the Saving Our Species Program OEH (2016). This strategy contains a number of proposed management actions intended to provide for the long-term survival and protection of this community. Whilst many of the proposed recovery actions are predominantly to be implemented by the OEH, the DPI and/or local Councils, there are some recovery actions which may be implemented by individual landowners.

The proposed development on the site does not contravene the proposed management actions, which are outlined in the Strategy. The proposed re-planting of Swamp Oak Forest vegetation adjacent to the HVLP will mitigate any potential threats to the Swamp Oak Floodplain Forest EEC occurring as part of the development.

Factor (g) Key Threatening Processes

Several of the key threatening processes (KTPs) listed on Schedule 3 of the TSC Act are of relevance or potential relevance to the Swamp Oak Floodplain Forest EEC in respect of the proposed development, particularly the '*Clearing of native vegetation*'.

The area of Swamp Oak Floodplain Forest to be removed from the site is degraded, and constitutes only a small proportion of the local occurrence of that community. The long-term prognosis for the patch of that vegetation on the site itself is poor, given the high levels of disturbance and modification arising from the mining activities associated with HVLP.

Given that the vegetation on the site potentially constitutes an endangered ecological community (albeit degraded) the proposed development has potential to exacerbate the 'Clearing of native vegetation' key threatening process. Whilst the proposal will involve the removal of only a small section of native canopy from the local occurrence (0.14 ha), this will be compensated by the re-planting of Swamp Oak Forest in cleared areas to the north of HVLP, and adjoining riparoian vegetation of Bayswater Creek. Furthermore, the majority of Swamp Oak Forest will be retained elsewhere within the riparian areas of Bayswater Creek.

A number of other key threatening processes are of potential relevance to the Swamp Oak Floodplain Forest, including invasion by a number of weed species, changes in fire regimes and stormwater discharge regimes, and the removal of dead wood and dead trees.

However, the proposed development of the site would unlikely impose or exacerbate any of those other key threatening processes.

CONCLUSION

The relevant factors which must be considered pursuant to Section 5A of the EP&A Act in the determination of whether there is likely to be a significant effect on threatened species, populations or ecological communities, or their habitats are discussed above with regard to the Swamp Oak Floodplain Forest and the proposed development on the powerline easement site at the Hunter Valley Load Point.

The proposed powerline development will require removal of a small amount of degraded Swamp Oak Floodplain Forest canopy vegetation and is not "likely" to impose "a significant effect" upon the Swamp Oak Floodplain Forest EEC given:

- the small area of that vegetation proposed for removal relative to the extent of the local occurrence;
- its degraded, modified and disturbed condition; and
- its poor prognosis, given likely ongoing mining activity and weed infestation; and
- the proposed replanting of canopy species representative of the Swamp Oak Forest vegetation adjacent to Bayswater Creek to compensate for the clearing (to the same extent as clearing footprint).

A species impact statement (SIS) is therefore not required for the proposed powerline development at Bayswater Creek with respect to the Swamp Oak Floodplain Forest EEC.