




# Annual Review 2015

Draft - REP 00008 - Annual Review 2015

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<b>SITE:</b>	Chain Valley Colliery
<b>Department:</b>	Environmental
<b>REPORT TITLE:</b>	Annual Review 2015
<b>Prepared by:</b>	Wade Covey
<b>Report Date:</b>	30/04/2016

## Chain Valley Colliery – Annual Review (AEMR) 2015

<b>Name of mine</b>	Chain Valley Colliery
<b>Titles/Mining Leases</b>	Consolidated Coal Lease 707 Consolidated Coal Lease 706 (part) Mining lease 1051 Mining lease 1052 Mining lease 1308 Mining Lease 1370 Mining lease 1632 (part sublease) Mining Purposes Lease 1349 Mining Purposes Lease 337 Mining Purposes Lease 1389 Mining Purposes Lease 1400 Consolidated Coal Lease 719 (part sublease) Consolidated Coal Lease 721 (part sublease) Consolidated Coal Lease 722
<b>MOP Commencement Date</b>	27 March 2015
<b>MOP Completion Date</b>	31 March 2018
<b>AEMR Commencement Date</b>	1 January 2015
<b>AEMR Completion Date</b>	31 December 2015
<b>Leaseholders</b>	LakeCoal Pty Ltd & Fassi Coal Pty Ltd
<b>Mine Operator</b>	LakeCoal Pty Ltd
<b>Reporting Officer</b>	Name: <b>Wade Covey</b> Title: <b>Environment and Community Coordinator</b> Date: <b>30 April 2016</b>  Signature: 

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## Executive Summary

During the 2015 reporting period Chain Valley Colliery produced approximately 1.35Mt of coal from its underground mining operations. This result was slightly lower than the volume produced in the previous 2014 reporting period (1.38Mt). Of the total volume produced, 473Kt was transported to the Port of Newcastle for export, 875Kt was transported to Vales Point Power Station for local electricity production and 6Kt was transported to other domestic customers.

A modification to Chain Valley's Colliery Development Consent (SSD-5465) was approved by the Department of Planning and Environment on 16 December 2015. The modification approved the following changes to Chain Valley's operations:

- An increase in the maximum rate of ROM coal extraction at the mine from 1.5 Mtpa to 2.1 Mtpa;
- Mine design changes, primarily the re-orientation of miniwall panels in the mine's northern area;
- An increase in full-time personnel from approximately 160 to approximately 220; and
- Construction of asset protection zones around critical infrastructure from bushfires.

A summary of the key environmental performance indicators and milestones for the 2015 reporting period is provided below:

## Key Performance Indicators for the reporting period

Indicator	Value
Total Full Time Employees (at 31 December 2015)	155
Total ROM Coal transported from site (tonnes)	1,354,522
Total ROM coal to export market (tonnes)	473,607
Total ROM coal to domestic market (tonnes)	880,913
Total Truck Movements on Public Roads	41,185
General Waste Produced (tonnes)	188.7
Total Waste Recycled (tonnes)	271.9
Waste Recycling % achieved	59%
Potable Water consumed (ML)	160
Total water discharged from the operation (ML)	2,098
Total number of Community Complaints received	11
Total number of environmental incidents for the period.	5
Total funding accrued for the Voluntary Planning Agreement with Wyong Council.	\$169,188
Number of Community Consultative Committee (CCC) Meetings undertaken	4
Total Greenhouse Gas Emissions (Co2 Eq t) (2014/2015 Financial period)	359,910

## 1 Introduction

The Chain Valley Colliery (the Colliery) is an underground coal mine located at the southern end of Lake Macquarie, approximately 60 km south of Newcastle (**Figure 1.1**) which is operated by LakeCoal Pty Ltd (LakeCoal) on behalf of the Wallarah Coal Joint Venture (WCJV). Underground mining has occurred at the Colliery since 1962 extracting coal from three seams – the Wallarah Seam, the Great Northern Seam and the Fassifern Seam, with current mining activities limited to the Fassifern Seam. The Colliery is located in the Swansea North Entrance Mine Subsidence District. Historically, underground mining was undertaken using the bord and pillar method; however in September 2011 miniwall mining was introduced.

In August 1960, J&A Brown and Abermain Seaham Collieries Ltd commenced clearing the present site with drift and shaft sinking starting a few months later. Production of coal from the Wallarah seam, commenced with the first delivery to the adjacent Delta Electricity's Vales Point power station in April 1963.

LakeCoal is a producer of thermal coal. The company was formed in 2001 to acquire BHP Billiton's 80% share in the Wallarah Coal Joint Venture (WCJV), the remaining 20% share was owned by Sojitz. In October 2006, Peabody Energy, a US listed company acquired LakeCoal Pty Limited.

In November 2009 LDO Coal Pty Limited purchased LakeCoal Pty Limited and in March 2011 the 20% share in the WCJV which Sojitz held was acquired by LDO Coal shareholders through the entity Fassi Coal Pty Ltd. During the 2015 reporting period a sale agreement was unable to be reached with Lake Macquarie Coal Pty Ltd which was reported in the previous period.

The WCJV had operated the Wallarah, Moonee and Chain Valley underground coal mines and the Catherine Hill Bay Coal Preparation Plant, all located at the southern end of Lake Macquarie. At the time of LakeCoal's acquisition by LDO Coal, both the Wallarah and Moonee mines were closed.

LakeCoal is currently undertaking the mine closure/rehabilitation process for the Moonee Colliery and the Catherine Hill Bay Coal Preparation Plant. The rehabilitation process for Wallarah Colliery has been completed and the lease in that area relinquished.

Chain Valley Colliery peaked with a workforce of approximately 380 personnel in the mid 1980's. At the end of the reporting period, Chain Valley Colliery had a workforce of 155 personnel, with approximately two thirds of those full time permanent employees and the remainder primarily made up of full time contractors.

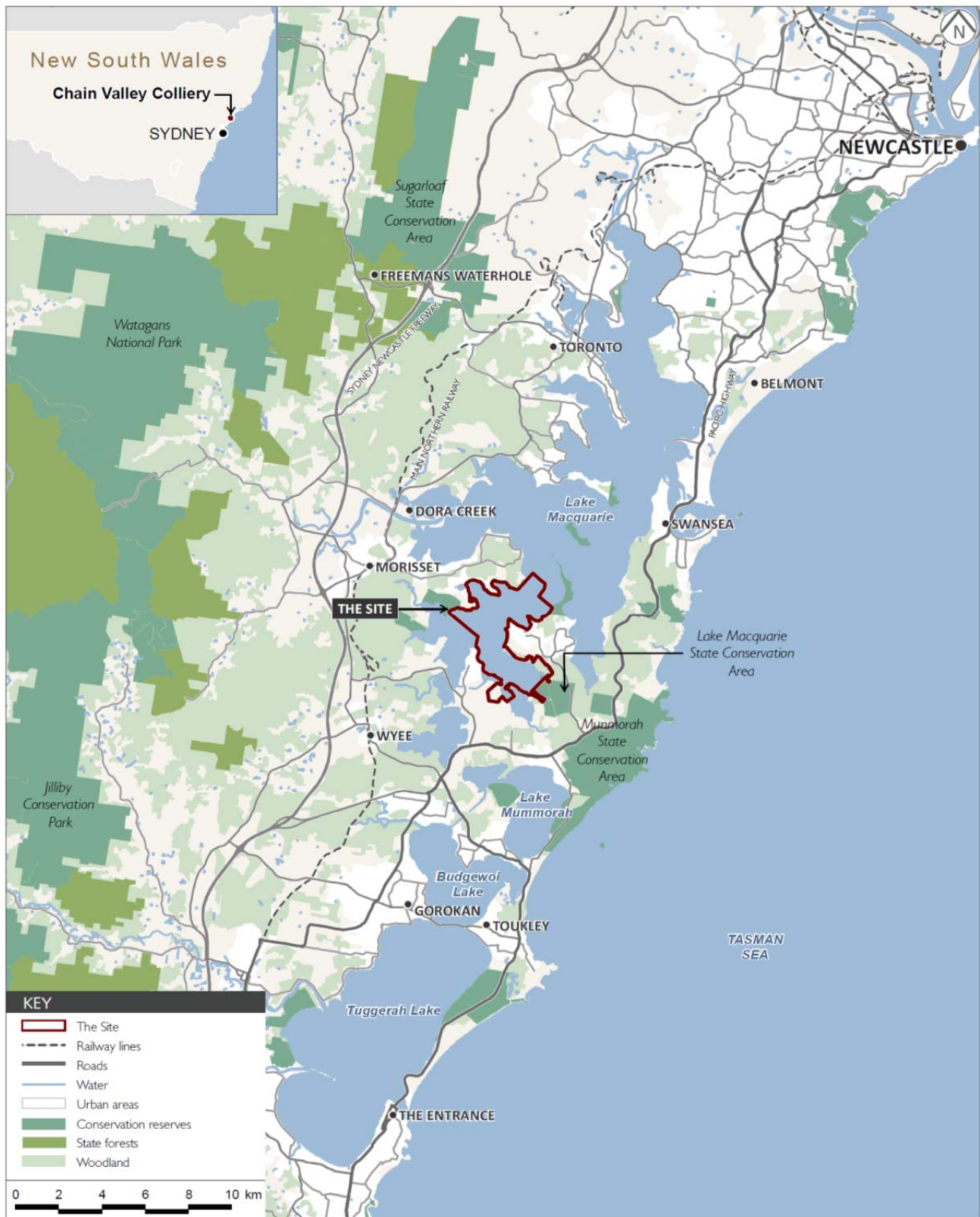


Figure 1.1: Location of Chain Valley Colliery

## Consent, Leases and Licences

### Consent

Chain Valley Colliery commenced mining operations in 1962 and the mine had been operating under existing use rights until the 23 January 2012 at which time major project approval (MP 10\_0161) was issued under Section 75J of the Environmental Planning and Assessment Act 1979 (EP&A Act) for the Colliery. The Project Approval permitted secondary extraction within domains referred to as Domain 1 and Domain 2, along with first workings within an area identified as Parcel A. The Project Approval permitted the continuation of mining within the Fassifern seam until the 31<sup>st</sup> December 2016. The Project Approval was subsequently modified on the 30<sup>th</sup> August 2012, following approval of a Section 75W modification, to permit a revised mine layout associated with the introduction of wider miniwalls within the Domain 1 and 2 areas. A copy of the Project Approval is attached as **Appendix 2**.

In 2013 LakeCoal lodged an application for the Chain Valley Colliery Mining Extension 1 Project (SSD-5465) under Part 4 of the EP&A Act. The Mining Extension 1 Project sought approval for;

- An extension of the currently approved extraction area to allow underground mining to continue within the Fassifern Seam (refer “Site” boundary on **Plan 2 (Appendix 1)**);
- The increase of the approved maximum rate of production from 1.2 million tonnes per annum (Mtpa) to 1.5 Mtpa of run-of-mine (ROM) coal;
- An increase in the approved hours for haulage of coal from the Colliery on private roads to Delta Electricity’s Vales Point Power Station (VPPS);
- Minor upgrades and modifications to existing approved infrastructure;
- An extension of the approved mining by a period of approximately 14 years, i.e., to around 2027; and;
- The consolidation of the above with all the operations and environmental activities currently approved under MP10\_0161, as modified, within a single development consent.

Development Consent for the Mining Extension 1 Project was subsequently issued under Section 89E of the EP&A Act on the 23<sup>rd</sup> December 2013.

On the 24 April 2014 a modification (Mod 1) was sought for SSD-5465, which related to the development of an underground linkage between Chain Valley Colliery and Mannering Colliery. Concurrently, a modification (Mod 2) to Mannering Colliery’s Project Approval (MP 06\_0311) was sought concurrently to permit coal to be received from Chain Valley Colliery and transported via existing facilities to the Vales Point Power Station. Public exhibition of the statement of environmental effects that supported to the modification application occurred from the 22 May 2014 to the 10 June 2014 and the modification applications were subsequently approved on the 27 November 2014.

On the 15 July 2015 an additional modification (Mod 2) was sought for SSD-5465. The Department of Planning and Environment approved the modification on 16 December 2015. The modification approved the following changes to Chain Valley’s operations:

- An increase in the maximum rate of ROM coal extraction at the mine from 1.5 Mtpa to 2.1 Mtpa;
- Mine design changes, primarily the re-orientation of miniwall panels in the mine’s northern area;
- An increase in full-time personnel from approximately 160 to approximately 220; and
- Construction of asset protection zones around critical infrastructure from bushfires.

This Annual Review has been completed in compliance with Condition 4 of Schedule 6 within SSD-5465.

## Leases

The surface areas occupied by Chain Valley Colliery lie within the Wyong Shire local government area. The facilities include the pit top area at Mannering Park and ventilation shaft site at Summerland Point.

All secondary extraction during the reporting period was undertaken beneath Lake Macquarie, i.e. part of the Lake Macquarie local government area.

The Colliery holding is shown on **Plan 1 (Appendix 1)** and the applicable mining tenements are listed in **Table 1.1**.

**Table 1.1: Mining Tenements**

Mining tenement	Holder	Grant date / Renewal date	Lease expiry date	Applicability
ML 1051	LakeCoal	7 July 1941	7 July 2022	Incorporates part of the approved mining area.
ML 1052	LakeCoal	7 July 1941	7 July 2022	Incorporates part of the approved mining area.
MPL 1349	LakeCoal	5 October 1967	5 October 2028	Mining purposes lease for the Chain Valley pit top area.
CCL 706 (part)	LakeCoal	24 January 1990	29 April 2022	Incorporates historical workings within the Fassifern, Wallarah and Great Northern Seams which are, and would continue to be utilised for passive operational activities.
CCL 707	LakeCoal	3 July 1989	30 December 2023	Incorporates historical workings within the Fassifern, Wallarah and Great Northern Seams which are, and would continue to be, utilised for passive operational activities and the Summerland Point ventilation shaft site.
ML 1308	LakeCoal	4 May 1965	4 May 2022	Mining lease for the mine drift entries.
MPL 337	LakeCoal	30 January 2016	30 January 2037	Mining purposes lease for a portion of the electricity cable on the bed of Chain Valley Bay connecting the pit top switchyard to the ventilation shaft site at Summerland Point.
MPL 1389	LakeCoal	14 May 1970	14 May 2031	Mining purposes lease for a portion of the electricity cable on the bed of Chain Valley Bay connecting the pit top switchyard to the ventilation shaft site at Summerland Point.
MPL 1400	LakeCoal	6 November 1970	6 November 2031	Mining purposes lease for a portion of the electricity cable on the bed of Chain Valley Bay connecting the pit top switchyard to the ventilation fan at Summerland Point.
CCL 719 (June 2003)	Centennial Mannering	3 July 1989	22 December 2020	Part CCL 719 subleased to LakeCoal, incorporates historic workings within the Wallarah and Great Northern Seams which are utilised for passive operational activities.
CCL 719	Centennial	3 July 1989	22 December	Sub-lease from Centennial Mannering for



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Mining tenement	Holder	Grant date / Renewal date	Lease expiry date	Applicability
(Sublease B)	Mannering		2020	Mannering Colliery.
CCL 721	Centennial Mannering	28 June 1989	29 July 2026	Incorporates part of the approved mining area, Part sublease to LakeCoal, incorporated into Chain Valley Colliery holding. Includes Mannering surface facilities.
ML1632	Centennial Myuna	13 April 2013	13 October 2022	Incorporates part of the approved mining area. Part sublease to LakeCoal, incorporated into Chain Valley Colliery holding.
CCL 722 (part)	Centennial Munmorah	28 June 1989	05 July 2019	Part sublease to LakeCoal, incorporated into Chain Valley Colliery holding.
ML1370 (part)	Centennial Myuna	26 Sep 1995	2 Dec 2016	Incorporates part of the approved mining area, Part sublease to LakeCoal, incorporated into Chain Valley Colliery holding.

It is noted that while the Chain Valley Colliery holding boundary now incorporates a significant portion of what was the Mannering Colliery holding, Annual Reviews for the two Collieries remain separate and relate specifically to the activities occurring within the relevant approval instrument boundaries.

## Licenses

Environment Protection License No. 1770 issued by the Environment Protection Authority under the Protection of the Environment Operations 1997 covers the Collieries activities / premises. EPL 1770 also includes the licensed daily discharge volume for mine water from the pit top settling ponds into Lake Macquarie at a maximum rate of 12,161 kL per day. EPL1770 was last updated during the reporting period on the 30 October 2015.

A copy of EPL1770 is posted on the Colliery website, [www.chainvalleymine.com.au](http://www.chainvalleymine.com.au) or via the EPA website, <http://www.environment.nsw.gov.au/licensing/> and is also provided as **Appendix 4**.

Monitoring results obtained in accordance with the license conditions are now also made available publicly on the Colliery website (updated monthly), under the environmental reporting page: <http://www.chainvalleymine.com.au/approvals-plans-reports/environmental-reporting/>

LakeCoal also holds groundwater bore license 20BL173107 issued under the Water Act 1912, which is valid until the 11 March 2018 and permits the extraction of 4443 ML per annum.

## Mine Contacts

The current Colliery contacts as at the end of the reporting period are:

Mine Manager: Craig Shales  
 Telephone: 0243 580 807  
 Email: [CShales@lakecoal.com.au](mailto:CShales@lakecoal.com.au)

Environment and Community Coordinator: Wade Covey  
 Telephone: 0243 580 883

**Title:** Annual Review 2015

**Email:** [WCovey@lakecoal.com.au](mailto:WCovey@lakecoal.com.au)

**Postal Address:** LakeCoal Pty Ltd  
P.O Box 7115  
Manning Park, NSW, 2259

## Actions Required from Previous Annual Review Inspection

The actions required from the 2014 Annual Review inspection are presented in **Table 1.2**

**Table 1.2: Actions required from last Annual Review inspection**

Item	Issue / Observation	Relevant Agency	Action	Status
1	House Keeping: Large quantities of mining equipment stored in the laydown areas along with rubbish.	DRE	Complete an audit of laydown area and remove unwanted or waste materials	Complete. Regular site audits/inspections were undertaken during the reporting period. Where possible old items have been removed from site.
2	Stockpiles of overburden and coal waste material were observed on site.	DRE/ DP&E	Complete an audit of stockpiles on site, identify material that will need to be managed / remediated during closure. Area to be remediated.	Complete. Stockpile of material located in the southern part of the site (noted during inspection) has been cleaned up, shaped and rehabilitated. Coal waste on the stockpile area has also been reduced.
3	Flora and Fauna	DRE	Provide DRE with a copy of the seagrass and benthos surveys	Complete. Provided to DRE on 24 June 2015
4	Rehabilitation Monitoring Plan	DRE	DRE encourages the development of a Rehabilitation Monitoring Plan	Complete. Rehabilitation Management Plan was provided as part of the CVC MOP.
5	DRE AEMR Guidelines	DRE	The 2015 AEMR is to include a section that specifically addresses the requirements of Section 5.	Complete - Refer to Section 5
6	Executive Summary	DP&E	2015 Annual Review to include an executive summary of significant activities, complaints/incidents, breaches and non-compliances.	Complete. Refer to Executive Summary.



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Item	Issue / Observation	Relevant Agency	Action	Status
7	Size of Annual Review	DP&E	Where possible try to reduce the size of the document by removing old information.	Complete. Historical information removed from main text where relevant.
8	Clarity of Figures	DP&E	Ensure all figures are clear and legible.	Complete. Figure quality improved as requested.
9	Currency of information	DP&E	Information provided in the next Annual Review must reflect the period as required by the annual review or contain an explanation as to why the information for the period was unavailable.	Noted. Addressed throughout main text.
10	Scaling of figures.	DP&E	Figures 3.15 and 3.16 from 2014 Annual Review should be provided at the same scale	Complete.
11	Water Balance	DP&E	Provide detailed site water balance in 2015 Annual Review.	Complete. Refer to <b>Section 2.8</b>
12	Surface Water and Groundwater results	DP&E	Include a comprehensive review of groundwater and surface water results in the 2015 Annual Review	Complete. Refer to <b>Section 2.8</b>
13	Proposed Activities	DP&E	Ensure that feedback is provided on the status of activities that were proposed to occur during the period as described in the previous document.	Complete. Refer to <b>Section 6</b>
14	TSP Monitoring	DP&E	Provide reasoning behind why TSP monitoring is not undertaken at CVC against the criteria.	Complete. Letter response sent to the Department on 7 July providing background to this matter. CVC subsequently revised its Air Quality Management Plan (v3) which was submitted to the Department in January 2016 for approval.

Item	Issue / Observation	Relevant Agency	Action	Status
15	Re-Fuel Area was in poor condition during the inspection	DP&E	It is recommended that a maintenance and spill control procedure be employed in this area to minimise contamination.	Complete. Environmental inspection checklist updated to include the re-fuel area specifically. Further training provided to the workforce regarding hydrocarbon management during 2015.
16	CVC Wash Bay Sediment. No treatment on washday sludge.	DP&E	The Department requests a hydrocarbon contamination and bioremediation strategy management strategy be prepared and submitted to DRE/DP&E.	Draft strategy developed and submitted to DP&E/DRE on 31 August 2015. Comments received from DP&E on 14 December 2015. Document to be updated in the 2016 reporting period.
17	During the inspection the Department observed large amounts of waste steel, other waste and poor housekeeping at the pit top.	DP&E	It is requested this be addressed prior to the next inspection.	Complete. Large site clean-up undertaken in June/July 2015. Regular housekeeping inspections being undertaken to keep standards to a high level.

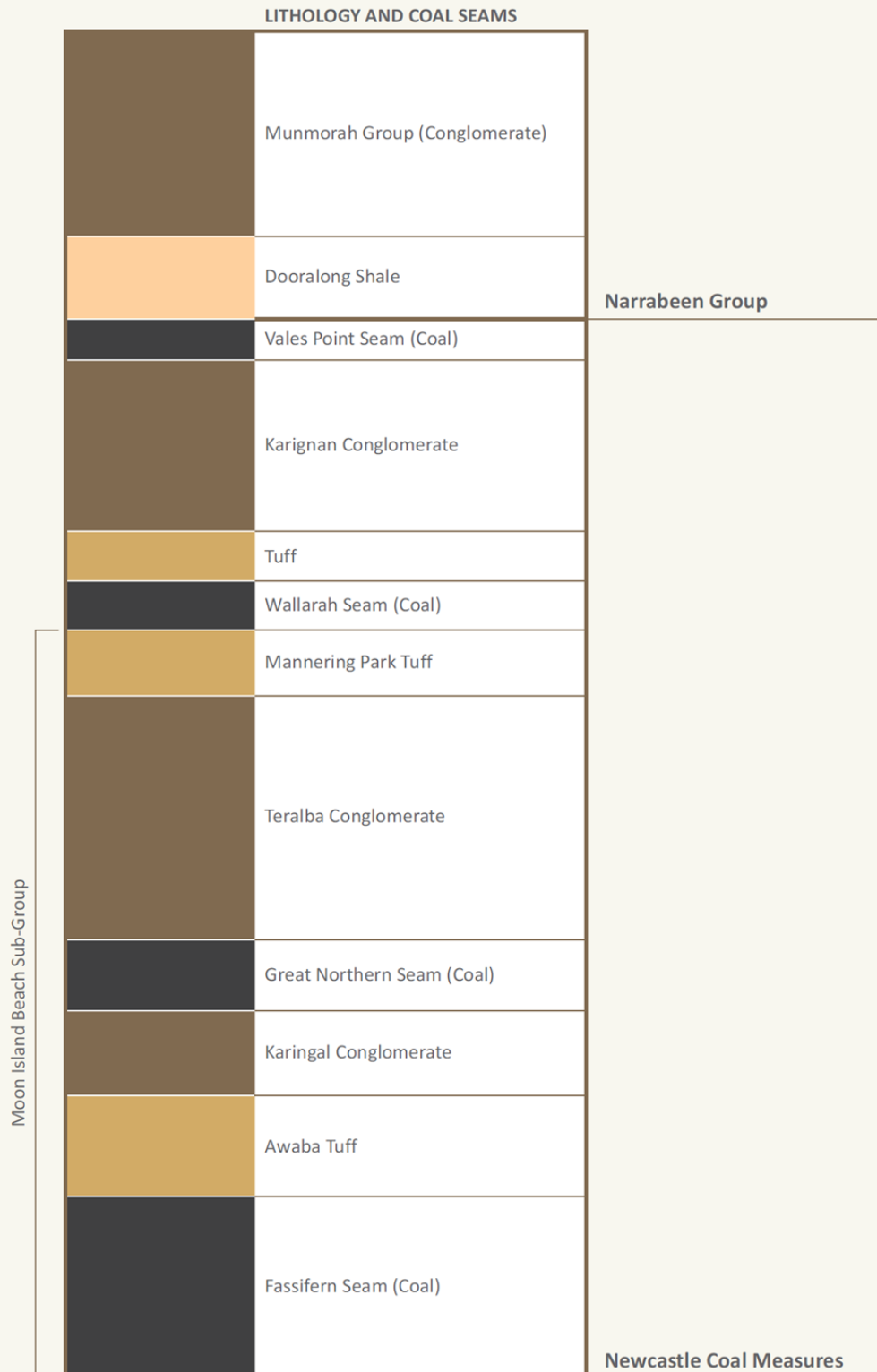
## Mine Geology

The Wallarah, Great Northern and Fassifern seams have been mined at Chain Valley Colliery to produce a raw, crushed thermal coal with low sulphur, which is suitable for both export and domestic markets.

The Fassifern Seam is mined at a depth of approximately 180 to 200 m with the seam being approximately 30 m deeper than the Great Northern seam, which underlies the Wallarah seam by approximately 30 m also. **Figure 1.2** shows the typical stratigraphy at Chain Valley Colliery including the Wallarah, Great Northern and Fassifern seams.

The Fassifern seam is overlain by a tuffaceous clay stone material which varies in thickness between 20-30 metres. The Fassifern seam measures up to 5 metres in thickness with roadway development carrying a coal roof and floor.

Mining in the Wallarah seam is complete in the Colliery holding area and mining was discontinued in the late 1990's. There is still some remaining resource within the Great Northern seam; however the focus of operations and current development consent only permits mining within the Fassifern seam.



Source: Modified by AECOM (2011) from Seedsman Geotechnics Pty Ltd (2010).

Typical stratigraphy at the Site



Chain Valley Colliery Mining Extension | Project - Environmental Impact Statement

**Figure 1.2: Typical stratigraphy at Chain Valley Colliery**

## 2 Operations

### 2.1 Exploration

There was no surface exploration drilling undertaken during the reporting period.

### 2.2 Land Preparation

There was no land preparation undertaken during the reporting period, as a result the surface disturbance footprint remains unchanged.

### 2.3 Construction

There has been no construction undertaken subsequent to the last reporting period.

### 2.4 Mining

Since commencement of mining in the 1960's Chain Valley Colliery has been utilising bord and pillar methods with full and partial pillar extraction as the primary means of secondary coal extraction.

In the latter part of 2010 it was decided to change the primary extraction method to miniwall mining. Miniwall extraction commenced in September 2011. Extraction plan approval for the current mining area was granted on 6<sup>th</sup> June 2014.

Total production for 2015 was 1.343MT, comprised of 2,345m of longwall retreat and 9,267m of development drivage.

2015 Miniwall mining consisted of Miniwall 8, Miniwall 9 and approximately 20% of the Miniwall 10 panel. As at 1<sup>st</sup> January 2015, development units had completed approximately 20% of the Maingate 9 gate road. Over the course of the year, gate road drivage totalled 6,223m, this being the inbye end of Maingate 9 as well as the entirety of Maingate 10. Mains development also continued in the North Headings, with a total of 3,045m driven, advancing the mains panel approximately 300m over 5 headings. Refer to **Plan 2 (Appendix 1)**.

Chain Valley Colliery will be developing and submitting a new Extraction Plan for MW13-18 in the next reporting period. The new extraction plan will reflect the changed orientation of the mine layout as approved under Mod 2.

**Figure 2.1** shows annual ROM production including the current reporting period. Note that prior to 2013 the reporting period was a financial year period, however to align reporting with Development Consent requirements this has now been moved to a calendar year period.

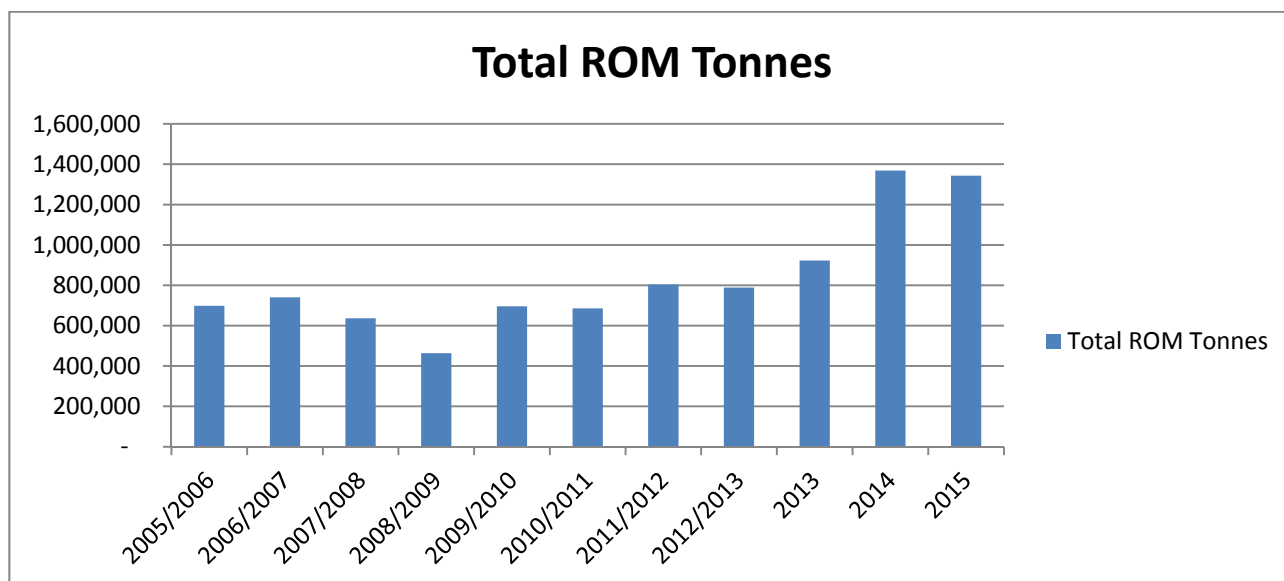


Figure 2.1: Annual ROM production levels

All coal produced, if not stockpiled at the end of the reporting period was dispatched to customers via truck from the pit top area, with the majority of coal delivered to either Port Waratah Coal Services (PWCS) or the adjacent Vales Point Power Station (VPPS). All coal delivered to VPPS was transported by internal private roads.

The maximum number of daily trucks departing the Colliery to public roads peaked at 225 on the 28<sup>th</sup> January 2015 (within the development consent limit of 270), with average daily departures much lower at 174 trucks per day when transporting coal to PWCS and 256 trucks per day when transporting to VPPS. In total 41,185 trucks departed the Colliery to all destinations (including to VPPS) during the reporting period. Product coal dispatched from site per destination is shown in **Figure 2.2**.

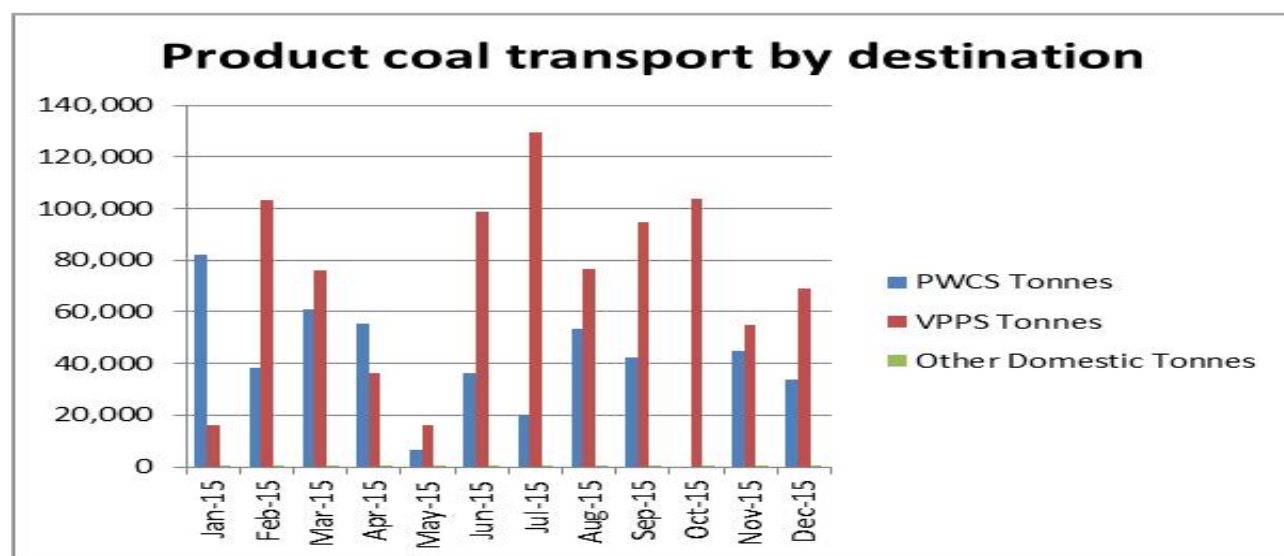


Figure 2.2: Product coal dispatched from site during the reporting period

Proportionally, 35% (or 473,607 tonnes) was dispatched to PWCS, while 64.6% (or 875,202 tonnes) was dispatched to VPPS, all via private roads, the remaining 0.4% (5,711 tonnes) was provided to other domestic customers.

Haulage on public roads remained significantly below the annual maximums approved under the development consent of 660,000 tonnes to PWCS and 180,000 tonnes to other domestic customers. Modifications to the existing development consent (for Chain Valley Colliery) and the project approval (for Mannering Colliery), were approved during the reporting period. The approvals increase the allowable production at CVC to 2.1Mt (increased from 1.5Mt) and the ROM coal handled at Mannering Colliery to 1.3Mt (increased from 1.1Mt).

## 2.5 Mineral Processing

Chain Valley Colliery produces a raw, crushed thermal coal with low sulphur which is suitable for both export and domestic markets. Raw coal is screened, crushed and sized on site to the market demands of specific export or domestic customers. Domestic customers include Delta Electricity and other local small industrial users. Export coal is all transported to Port Waratah Coal Services in Newcastle prior to being exported. No other mineral processing was carried out during the reporting period.

## 2.6 Waste Management

LakeCoal continued to implement a total waste management system for the site during the reporting period. The main waste streams currently provided for include;

- General Waste
- Scrap Metal
- Comingled Recycling
- Waste Oil
- Pallets/Timber Recycling
- Oily Rags
- Oil Filters
- Oil Drums
- Waste Batteries; and
- Confidential Documents

The total waste management system also involves weekly site inspections by the waste management contractor to facilitate effective waste management and continual improvement along with monthly reporting, with some of the data from key waste streams presented on **Figure 2.3**. While general waste is a consistently large volume, there was a substantial clean-up of scrap metal and waste from the laydown areas during June/July 2015 as evident on **Figure 2.3**. The total waste management system will continue during the next reporting period.

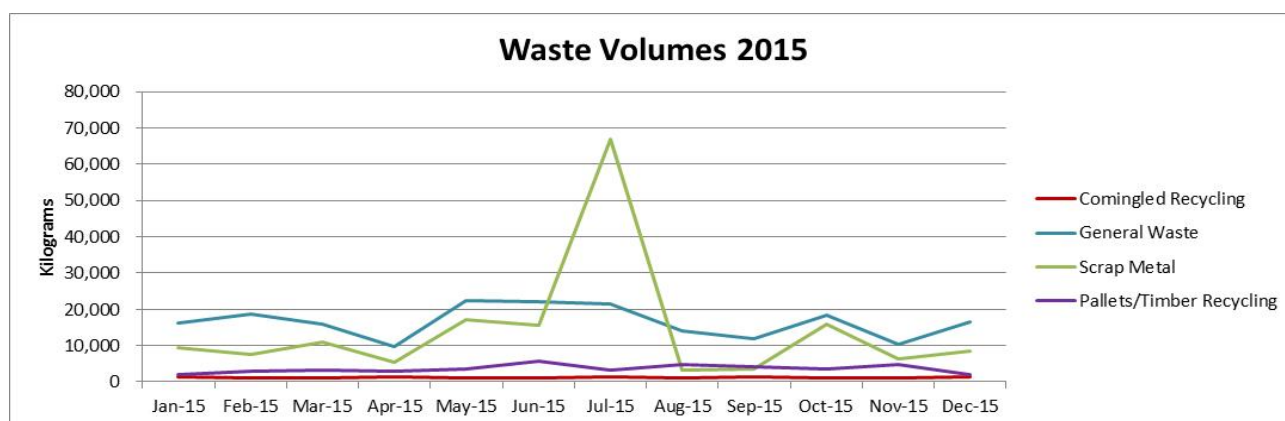


Figure 2.3: Major waste streams and volumes

## 2.7 Stockpiles

Generally coal stockpiles are in the order of 40,000 tonnes but depending on demand up to 150,000 tonnes may be kept on site. The stockpile size is dependent on demand, shipping schedules, coal pad space and ship loading windows.

The coal stockpile generally sat at around 45,000 tonnes during the reporting period.

Generally run of mine coal cut at the face continues through the coal handling system to the final products bin and is then trucked to the customer (or port in the case of export coal) or temporarily stockpiled. If being stockpiled the coal is conveyed from the final product bin to the stockpile via a stacker conveyor. A bulldozer or front end loader manages the cone of coal under the stacker conveyor and the coal stockpile in general as required.

There have been no changes to stockpile area or management during the reporting period.

## 2.8 Water Management

### 2.8.1 Licensed Mine Dewatering

LakeCoal holds a groundwater bore license 20BL173107 under the Water Act, 1912, which permits the industrial dewatering of groundwater up to volume of 4443 megalitres per year. The following details groundwater extraction volumes during the reporting period.

During the 2015 reporting period each week approximately 42 megalitres of mine water was extracted from within the mine workings, before being pumped to the Chain Valley Colliery surface facilities, where it is discharged into sediment dams prior to being discharged into Lake Macquarie under the Environment Protection Authority License No.1770.

The average groundwater extraction pumping rate over the reporting period was 6,020 kilolitres (kL) per day, with the daily average decreasing slightly over the reporting period when compared with 2014 data (refer to **Section 2.8.3. Water Balance** for long term water data). During the reporting year a total of 2,197 megalitres was extracted in accordance with 20BL173107, or around 49% of the licensed 4443 megalitre limit.

The maximum groundwater extraction on any day during 2015 peaked at 10,500kL, which reflects the automated control of pumping limits implemented in September 2014 as committed to by LakeCoal within the Environmental Impact Statement for the current mining operations.

LakeCoal operated well within the groundwater extraction limits prescribed by license 20BL173107 utilising less than half of the licensed extraction volume. **Figure 2.4** presents the daily dewatering volume from Chain Valley Colliery during the 2015 reporting period.

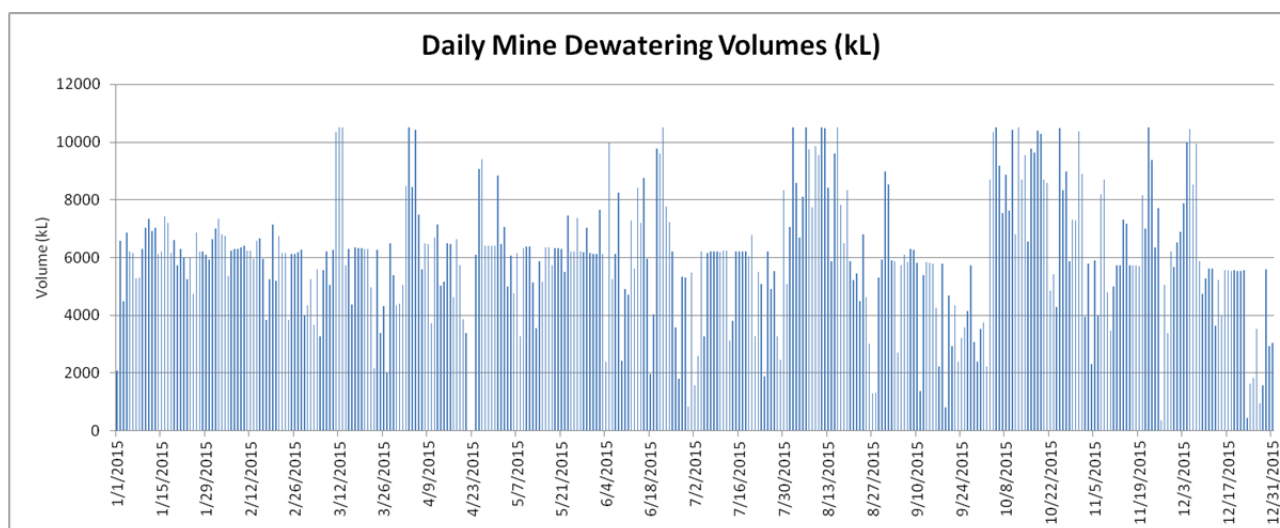


Figure 2.4: Daily groundwater extraction volumes (2015)

## 2.8.2 Licensed Discharge under EPL1770

LakeCoal holds EPL1770 which licenses the discharge of up to 12,161 kL per day from the site. On the 15 May 2015, i.e. during the reporting period, EPL 1770 was updated following the completion of earthworks associated with a new final dam spillway and installation of monitoring equipment. The update of the EPL has enabled the licensed discharge point to reflect the exact point that water is transferred from the final sediment dam into the surrounding environment, thereby enabling results to accurately reflect the water volume and quality leaving the site.

During the 2015 reporting period daily discharges averaged 5,748 kL with a maximum of 16,894 kL and a minimum of 159 kL. The total volume discharged over the reporting period was approximately 2,098 ML.

**Figure 2.5** presents the daily discharge volumes over the reporting period. Note that discharge limits applied under EPL 1770 relate to both licensed discharge points 1 and 27 (which reflect the low and high flow discharge points at the final sediment dam. Volumes presents are the sum of both points, to reflect total discharge volumes against the relevant license limit.



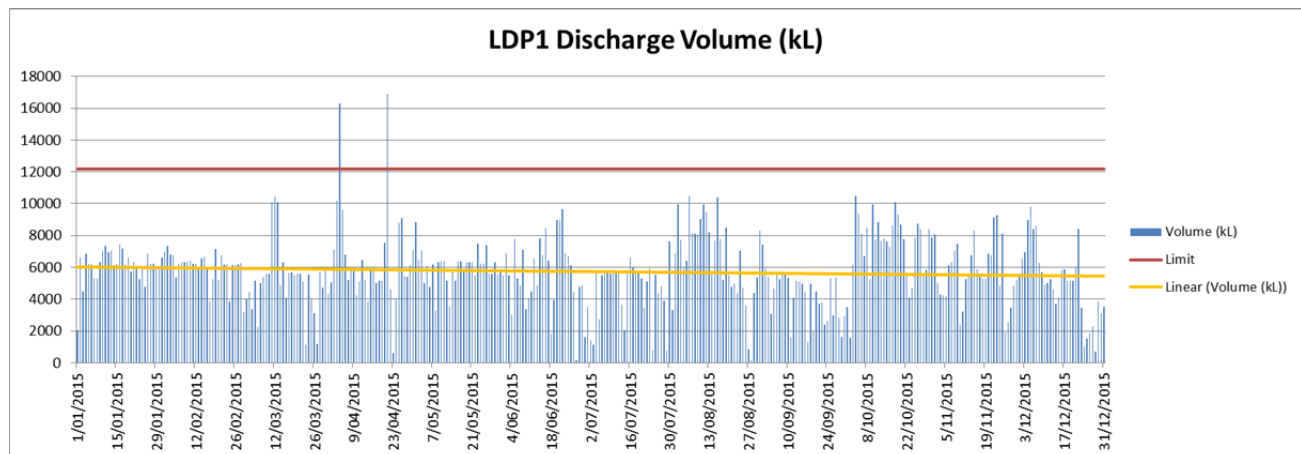


Figure 2.5: Mine dewatering volumes during the reporting period

As evident in **Figure 2.5**, there were two exceedances of the daily volumetric limit (12,161 kL) during the reporting period. These occurred on the:

1. 4<sup>th</sup> April 2015 – A total of 16,280 kL was discharged
2. 21<sup>st</sup> April 2015 – A total of 16,894 kL was discharged

In both of the above cases groundwater pumping was limited due to rainfall on the day in an attempt to remain under the discharge limit, however on both days, excessive rainfall runoff resulted in the exceedance of the limit. These exceedances are discussed further in **Section 3.3**. Daily rainfall data for April 2015 is presented in **Figure 2.6**.

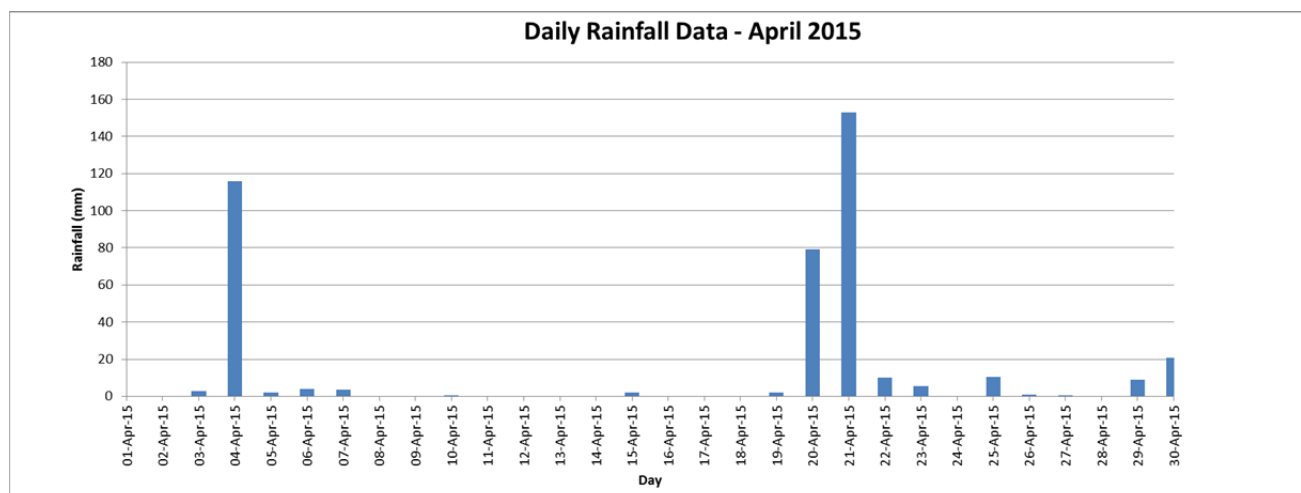


Figure 2.6: Daily rainfall data for April 2015

The water balance modelling presented in the EIS for Chain Valley did predict an annual average of 15 exceedances of the 12,161 kL/day volumetric discharge limit associated with rainfall events, and a number of conditions were applied in the Development Consent to mitigate and reduce the frequency of these

modelled exceedances. A pollution reduction program was also applied to EPL 1770 associated with the upgrade of the site water management system.

All works required under the EPL PRP were completed by the 31 July 2015 and a report provided to the EPA on the 14 August 2015 detailing the completion of the works. These works are discussed further in **Section 3**.

Water quality monitoring results at the licensed discharge point 1 (LDP1) are shown in **Figure 2.7** to **Figure 2.10**, refer to **Plan 3 (Appendix 1)** for the location of LDP1.

Monitoring is also required, and undertaken, at the licensed discharge point. Water quality results for pH, EC, TSS and Faecal Coliforms and a comparison against the compliance limits specified in EPL 1770 are presented in **Figure 2.7**, **Figure 2.8**, **Figure 2.9** and **Figure 2.10** respectively.

As evident in **Figure 2.9** there was a single exceedance of the total suspended solids criteria in May 2015. Details of this incident are discussed in **Section 3.3**.

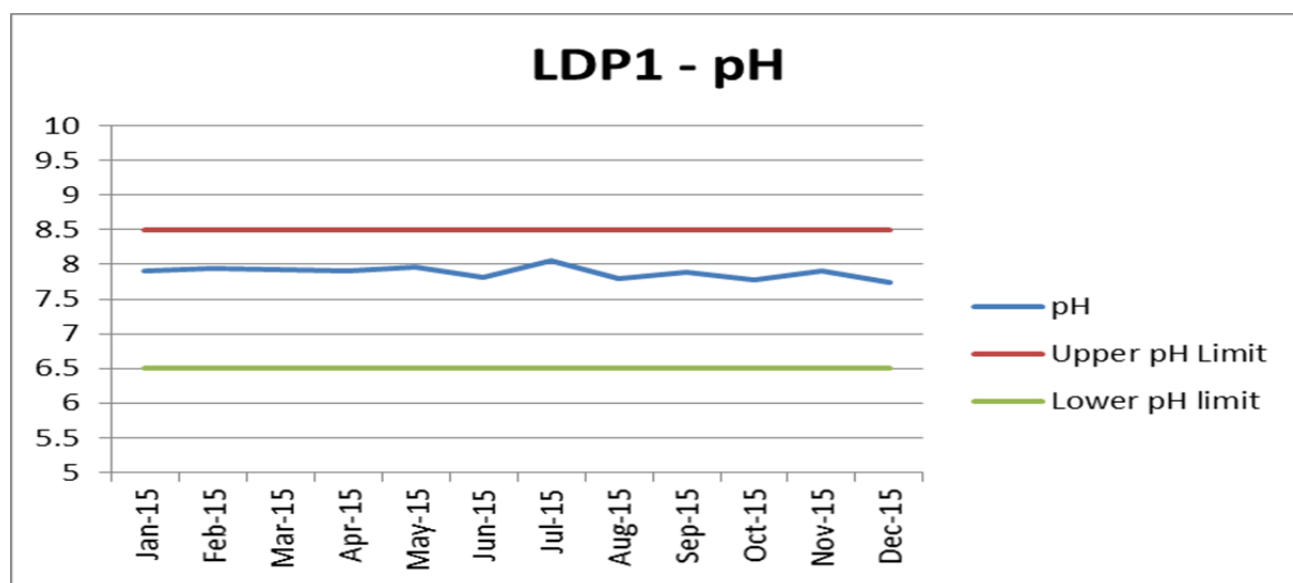


Figure 2.7: pH monitoring results at the licensed discharge point

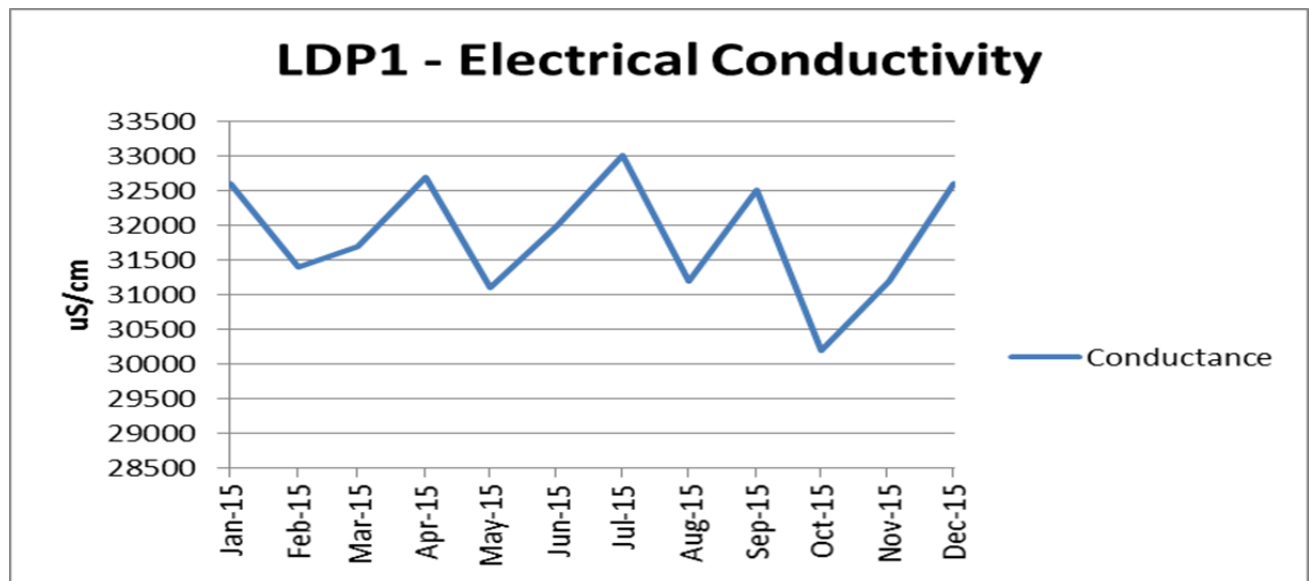


Figure 2.8: Electrical conductivity monitoring results at LDP1

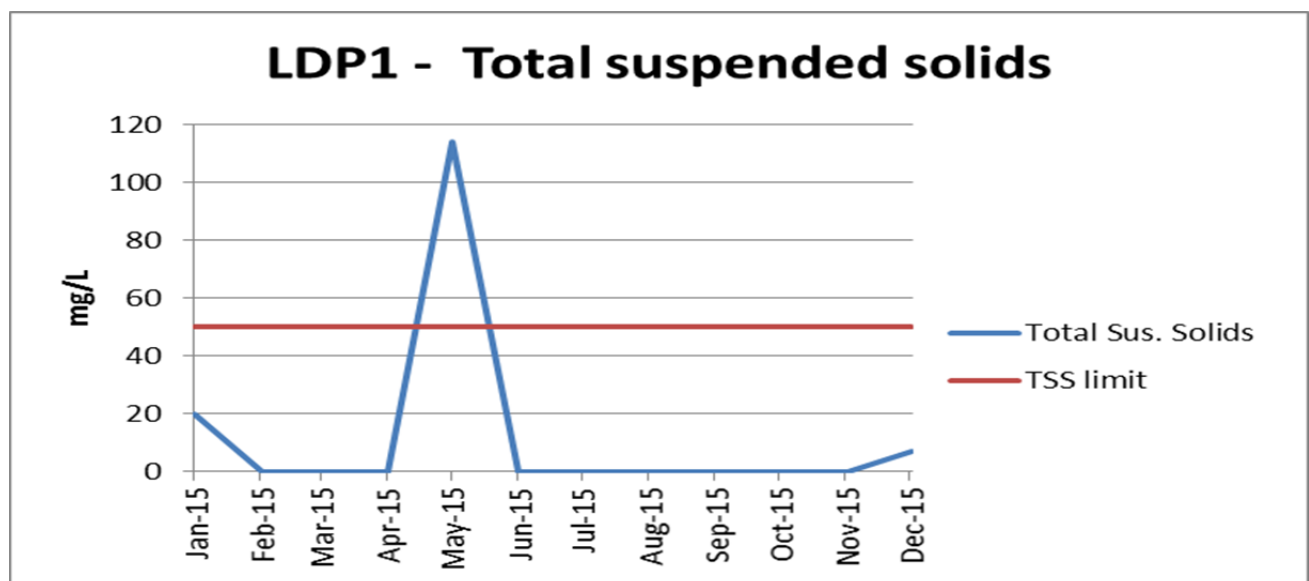


Figure 2.9: Total suspended solids monitoring results at LDP1

Notes: 1) Results shown as zero were below the limit of reporting (<5mg/L)

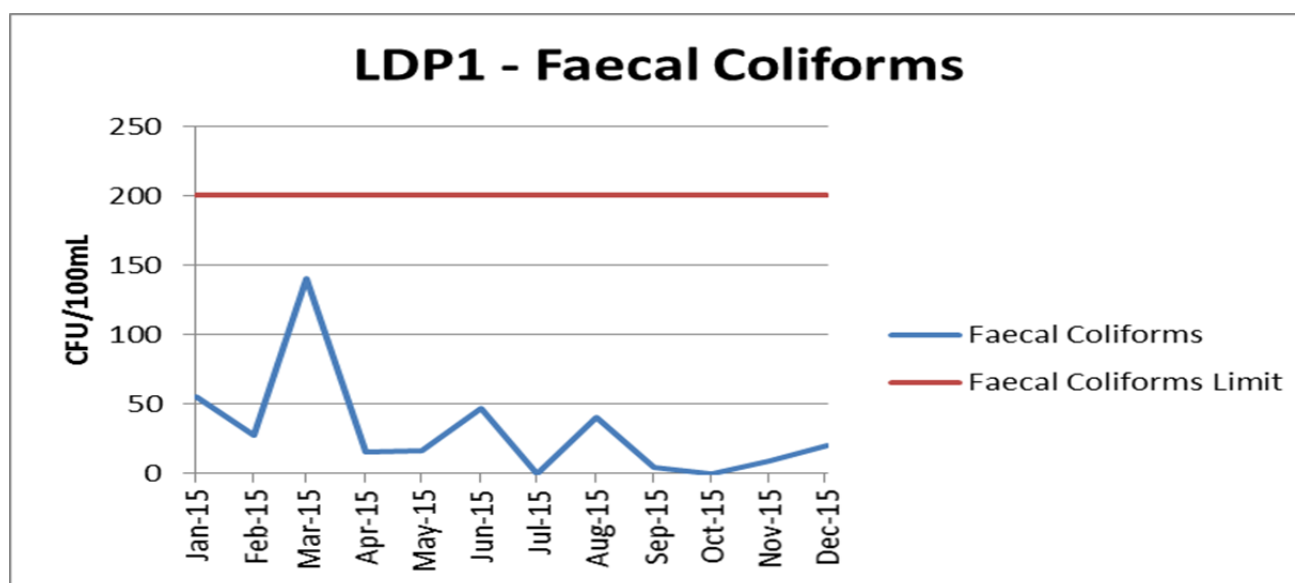


Figure 2.10: Faecal coliform results at LDP1

## 2.8.3 Long Term Water Management

To assess any long term trends in both water quality and quantity, four years of data is presented for pH (**Figure 2.11**), electrical conductivity (**Figure 2.12**), total suspended solids (**Figure 2.13**) and faecal coliforms from both LDP1 (**Figure 2.14**). The annual average of mine dewatering volumes for the past seven years is also presented in **Figure 2.15**. Note that prior to 2013, average mine dewatering volumes were calculated using the EPL 1770 reporting period (April – March), but since this time have reflected the calendar year period consistent with Annual Review requirements.

From the below figures it is evident that despite some infrequent higher results of faecal coliforms and one TSS result over 50 mg/L, there are no significant trends or changes in the water quality parameters. There is no obvious increase in mine dewatering volumes over the last seven years, however, it is expected that this will occur over time consistent with the groundwater modelling within the Chain Valley Colliery EIS that predicts an increase in groundwater make will occur to an annual average of 10.5 ML/day (at the end of mine life). The current mine dewatering levels (approximately 6.0 ML/day during 2015) are still significantly below this level.

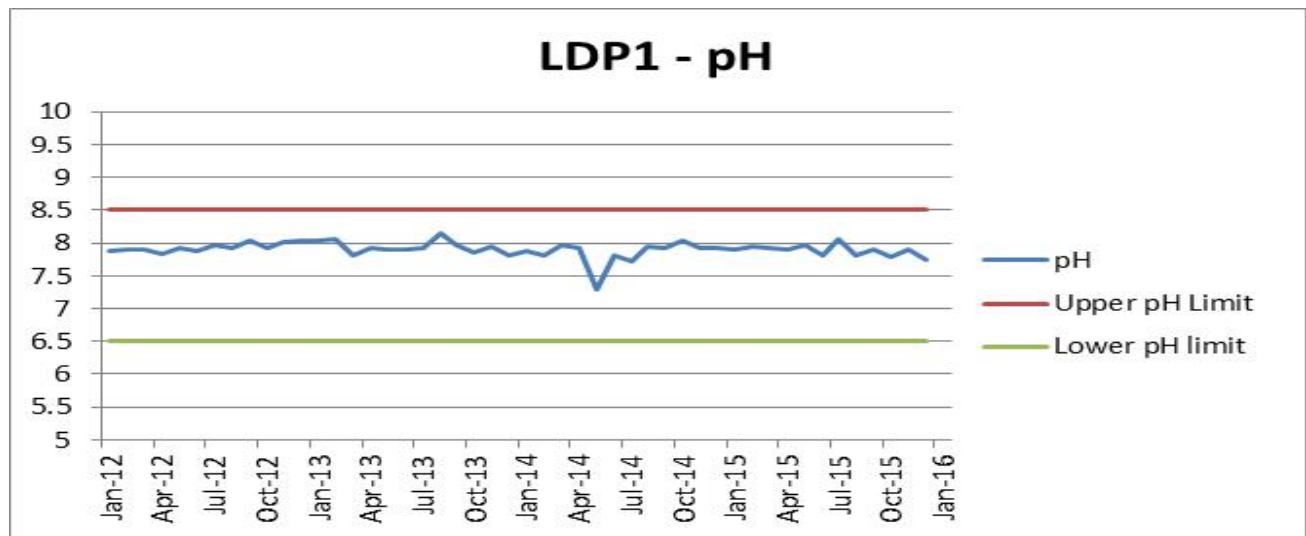


Figure 2.11: Long term pH results from LDP1

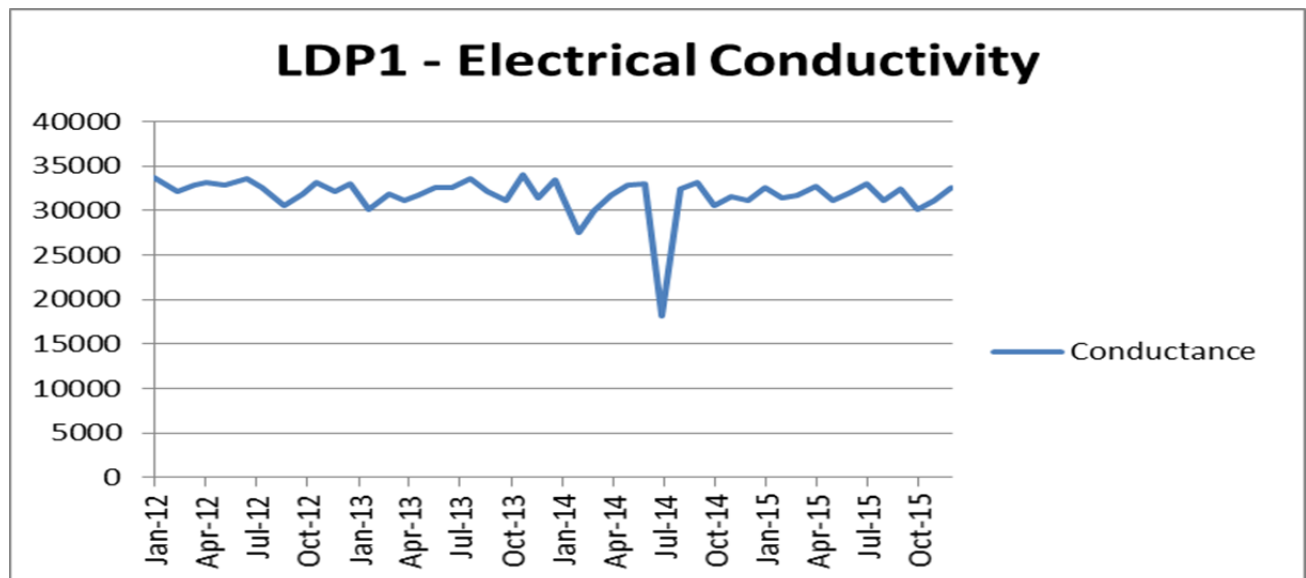


Figure 2.12: Long term EC results from LDP1

## LDP1 - Total suspended solids

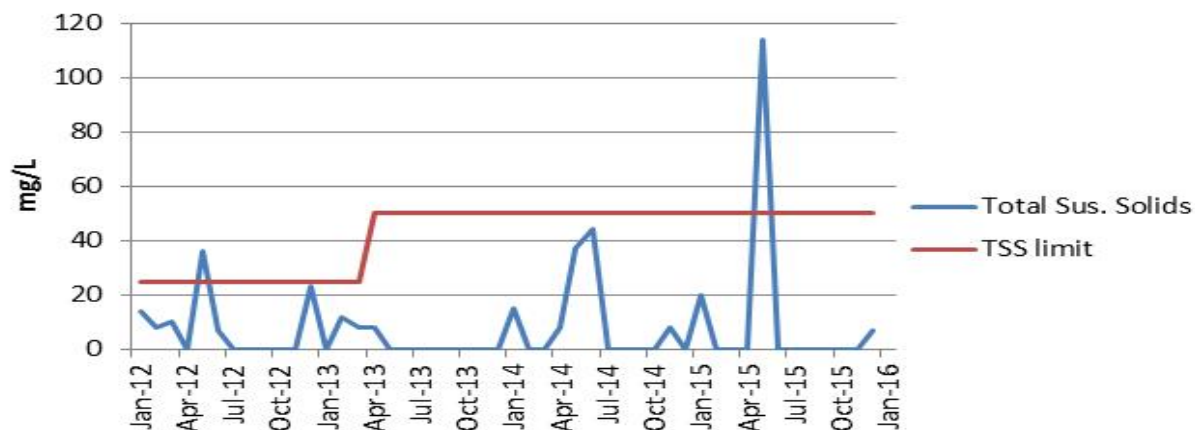


Figure 2.13: Long term TSS results from LDP1

## LDP1 - Faecal Coliforms

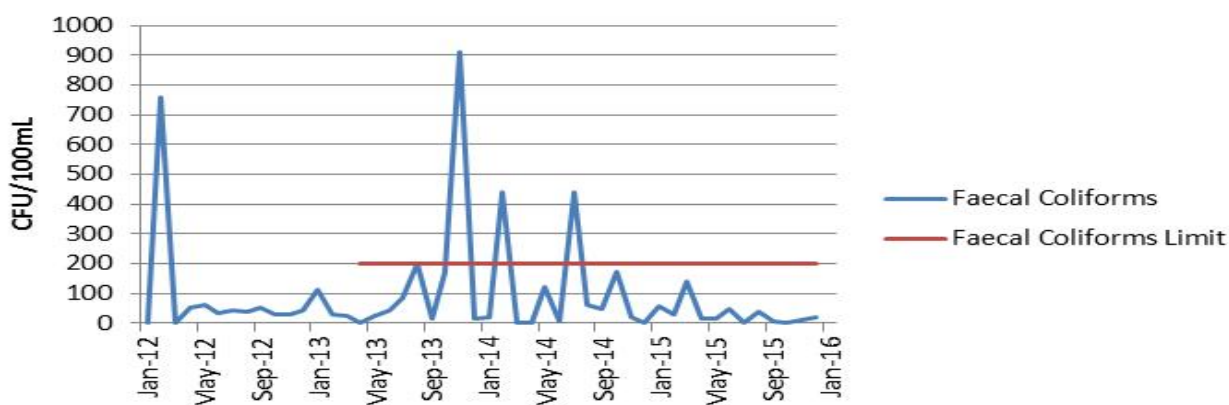


Figure 2.14: Long term faecal coliform results from LDP1

## Mine Dewatering

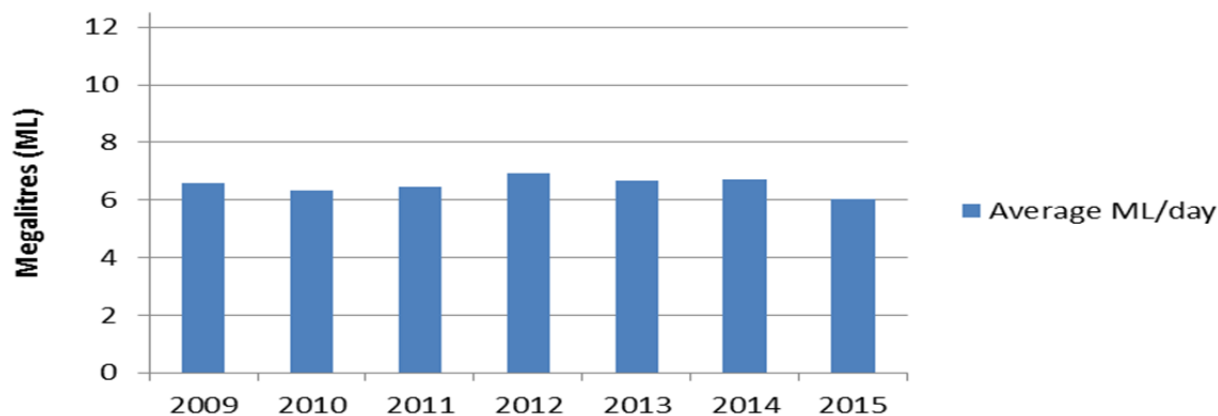


Figure 2.15: Long term mine dewatering volumes

## 2.9 Water Balance

A summary of the key water balance model predictions from the EIS compared with actual results over the reporting period are provided in **Table 2.1**.

**Table 2.1: Key water balance predictions and actual results during 2015**

Water Balance Results (from EIS)	Reporting Period Result	Comment
Daily average discharge through the LDP1 of 10.716 ML/day	Daily annual average discharge of 5.748 ML/day	The water balance used the groundwater model end of mine life groundwater make to ensure model was conservative over the life of the mine. Result is significantly below the water balance prediction but not unexpected due to the assumptions used in the water balance.
Maximum discharge through LDP1 of 35.124 ML/day	Maximum discharge of 16.894 ML/day on the 21 <sup>st</sup> April	Result is significantly lower than water balance prediction as water balance was conducted using a daily time step model over a 100 year period, as a result maximum result would not be expected except in the event of a 1:100 ARI rainfall event.
Likelihood of LDP1 volumetric limit exceedance on any given day of 4% (or approximately 15 times per year)	2 exceedances of the volumetric limit at LDP1 over 365 days (0.54%)	Result reflects significance of rainfall events during the year and improvements made to sediment dam storage capacity during the reporting period.
Average annual rainfall 1206mm	1555mm	Higher than average rainfall. Over 420mm of rainfall in April 2015 was a major contributor to this result.
Potable water use of 132.1 ML/yr	160ML	Potable water usage varies depending on operational requirements including dust suppression.

## 2.10 Hazardous Materials Management

Bulk storage of hazardous materials and dangerous goods occurs in the stores area adjacent to the workshop. The primary storage locations are;

- A 15,900L diesel tank;
- Chemical storage sheds; and
- A bunded area for storage of pallets of oils, and bulk fluid containers.
- 31.4kL self bunded diesel tank (compliant with both AS1692 and AS1940) at the coal stockpile area

There have been no other significant changes made to the management of hazardous materials during the reporting period.

## 2.11 Other Infrastructure Management

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No significant changes have been made to other infrastructure during the reporting period.



## 3 Environmental Management

Environmental management at Chain Valley Colliery is structured through the developed environmental management system based on the company's Environmental Policy (POL-0002). The site risk assessment of environmental aspects at Chain Valley Colliery forms the basis of environmental impact mitigation and control and will be reviewed throughout the life of the Colliery. The Environmental Management Strategy provides the overview of the environmental management system, which has been expanded throughout the reporting period to incorporate the documents as listed below in **Table 3.1**.

**Table 3.1: Primary elements of the Environmental Management System**

Document Number	Document Title
POL-0002 (D-10103)	Environment & Community Policy
OMP-D-16374	Environmental Management Strategy
RSK-D-16017	Environmental Risk Assessment
REG-D-16676	Environmental Objectives and Targets
EMP-D-16368	Water Management Plan
EMP-D-16369	Air Quality Management Plan
EMP-D-16591	Best Management Practice Air Quality Assessment
EMP-D-16370	Noise Management Plan
EMP-D-16371	Heritage Management Plan
EMP-D-16372	Biodiversity Management Plan
EMP-D-16674	Seagrass Management Plan
EMP-D-16672	Benthic Communities Management Plan
EMP-D-16373	Rehabilitation Management Plan
STD-D-11213	Waste Management Standard
STD-D-11211	Spill Response Standard
FRM-D-16673	Environmental Inspection
REG-D-13444	Complaints Register

## 3.1 Air Pollution

During previous reporting periods a mobile water cart was introduced to assist with dust suppression on the site, which achieved good results.

The operation of the water cart continued into and through the current reporting period, which maintained the dust control improvements achieved. The water cart operates around the unsealed surface areas, including hardstands, roads, coal stockpile and handling area as well as the car park.

Accordingly the surface water reticulation line for dust suppression sprinklers, which existed only around the surface coal handling areas, are no longer required, as the water cart is able to manage this and other areas of the site.

No complaints of dust or air pollution were received in the reporting period.

During the reporting period monitoring in accordance with the approved Air Quality Management Plan continued. Monitoring results are shown in Table 3.2 and the year-to-date averages are presented on **Figure 3.1**. In addition to the results during the reporting period, long term data showing the annual average depositional dust results trend from the commencement of monitoring are shown on Figure 3.2.

Table 3.2: Depositional dust results (2015)

	Limit	DDG001	DDG002	DDG003	DDG004	DDG005
Month		Insoluble Solids	Insoluble Solids	Insoluble Solids	Insoluble Solids	Insoluble Solids
Jan-15	4	1.10	0.90	0.80	1.20	0.80
Feb-15	4	0.40	0.70	0.70	1.10	1.50
Mar-15	4	0.80	1.00	0.60	1.90	0.50
Apr-15	4	0.90	0.70	0.60	1.60	1.30
May-15	4	0.70	0.80	0.90	1.80	2.90
Jun-15	4	0.30	0.40	2.00	0.60	0.90
Jul-15	4	0.50	0.40	0.30	0.60	1.90
Aug-15	4	0.30	0.20	0.20	0.20	0.20
Sep-15	4	0.70	0.70	0.80	5.80	1.10
Oct-15	4	0.40	0.60	0.50	1.00	0.50
Nov-15	4	1.10	1.20	7.80	2.40	1.70
Dec-15	4	1.40	1.60	3.00	2.00	36.5c
2015 AVG	4	0.72	0.77	1.52	1.68	1.21

Notes: 1) For site locations refer **Figure 3.3**

2) DDG005 contaminated in December 2015 – result not included in average calculations

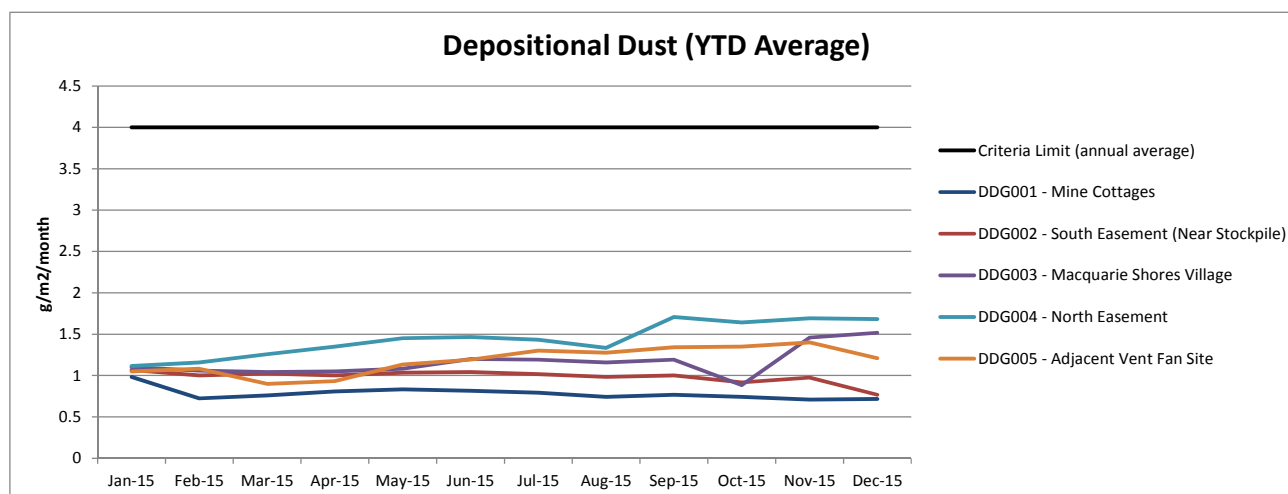


Figure 3.1: Year-to-date average depositional dust results

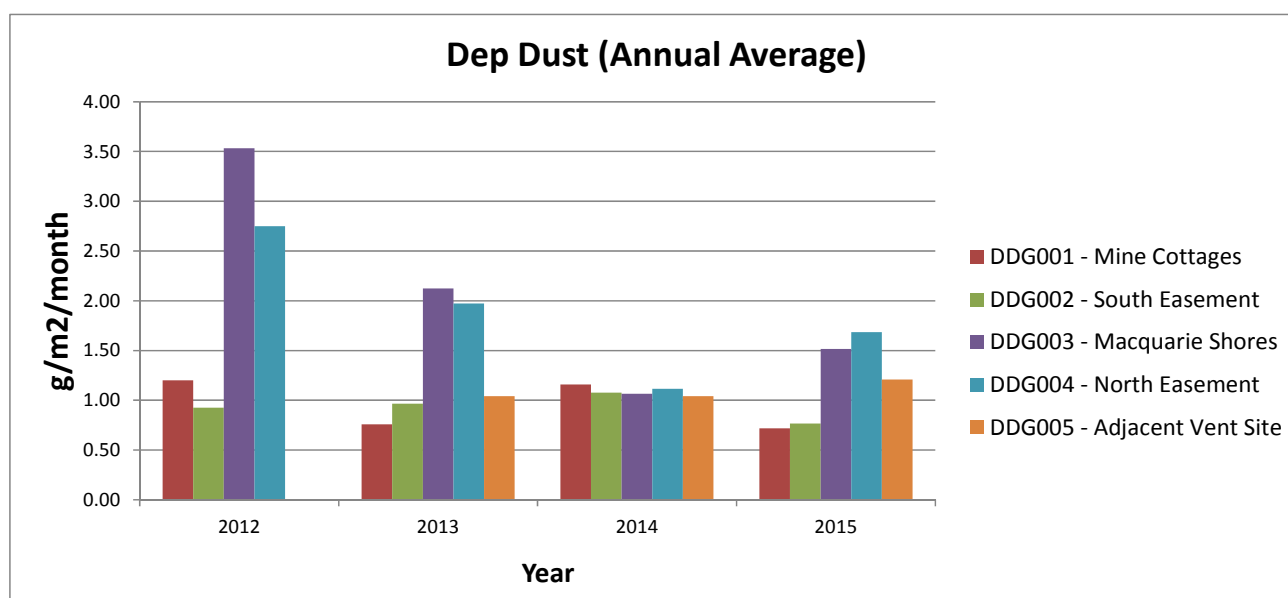


Figure 3.2: Annual average depositional dust result trend

Notes: 1) Monitoring commenced in September 2012, as such 2012 averages comprise only 4 months data  
2) Monitoring of DDG005 was commenced in March 2013 upon gaining access to private property for monitoring purposes, as a result the annual average for 2013 includes only 10 months data and no 2012 data is available.

Deposited dust levels for the reporting period were below the EPA long term criteria annual maximum level of 4 g/m<sup>2</sup>/month at all sites. Additionally, no gauges showed annual increases in deposited dust levels above the EPA maximum of 2 g/m<sup>2</sup>/month. Dust deposition results show low annual averages at all sites. Annual averages were generally similar to the maximum predicted cumulative air quality impacts identified in the EIS (May 2013) as presented in Table 7 of the Air Quality Management Plan. While the modelled values are not directly comparable, due to modelled locations vs actual monitoring locations, the 2015 results along with the EIS model predictions are shown on **Figure 3.4**.

**Figure 3.4** shows the nearest residential receivers to the Colliery at Kingfisher Shores (R12) has modelled levels of annual average depositional dust of 2.1 g/m<sup>2</sup>/month and the nearest monitoring

location (DDG002) recorded an annual average result of  $0.77 \text{ g/m}^2/\text{month}$  during the 2015 reporting period.

Monitoring results for 2015 show slightly higher levels of deposited dust at gauges DDG003, DDG004 and DDG005 and lower levels at DDG001 and DDG002 compared to results from 2014. DDG003 and DDG004 show higher averages than other gauges which is consistent with results from 2012 and 2013. Deposited dust results in general are displaying a continuing trend of low annual averages at all gauges.



Figure 3.3: Air quality monitoring locations





Figure 3.4: Depositional dust monitoring results and EIS model predictions

As detailed in the 2013 AEMR, a real time air quality monitor was installed in late 2013 within the Mannering Park Wastewater Treatment Plant site, the site is identified as RTD001 with the location shown on Figure 3.3. The real time monitor measures particulate matter less than 10 microns in size ( $PM_{10}$ ). Data capture from the real time monitor for the 2015 period was 97.0%, with the results trend generally reflecting that expected, i.e. slightly higher daily results during the hotter months of the year. There was one exceedance (6 May 2015) of the EPA short-term 24hr average criteria ( $50 \mu\text{g}/\text{m}^3$ ), however this was associated with a dust storm that occurred across NSW (the Mallee dust storm) and as a result the criteria does not apply in this instance. Further details on the dust storm, including numerous photos, can be found on the National Parks and Wildlife Service website (<http://www.nationalparks.nsw.gov.au/about-npws/stay-up-to-date/news/mallee-dust-storm-blankets-nsw>). Due to the dust storm occurrence, no incident reporting was undertaken as a result of the criteria exceedance occurring on the 6 May 2015.

The EPA long-term annual average criteria ( $30 \mu\text{g}/\text{m}^3$ ) was not exceeded during the 2015 period. Daily results, the rolling average and relevant limits are shown on **Figure 3.5**.

Daily (24 hour) results ranged from a minimum of  $1.3 \mu\text{g}/\text{m}^3$  to a maximum of  $56.0 \mu\text{g}/\text{m}^3$  during 2015. The 2015 annual average of 24hr  $PM_{10}$  results was  $13.7 \mu\text{g}/\text{m}^3$ . The most comparative locations from the EIS where  $PM_{10}$  air quality modelling was completed relates to receptors R12 and R15, with cumulative  $PM_{10}$  annual average predictions of  $22 \mu\text{g}/\text{m}^3$  and  $20 \mu\text{g}/\text{m}^3$  respectively. The actual location of real time  $PM_{10}$  monitoring is in between these two receivers, so a result of  $13.7 \mu\text{g}/\text{m}^3$  is significantly below the modelled values.

Monitoring of the  $PM_{10}$  via the TEOM unit commenced in late December 2013. When comparing the 2015 annual results to the previous year, the data capture rate was slightly higher in 2015. Minimum and average results were lower in 2015. The maximum was higher in 2015 with one exceedance of the EPA 24

Title: Annual Review 2015

hour average criteria (as detailed previously) compared to no exceedances in 2014. Data from the commencement of monitoring through to the end of the reporting period is shown on **Figure 3.6**.

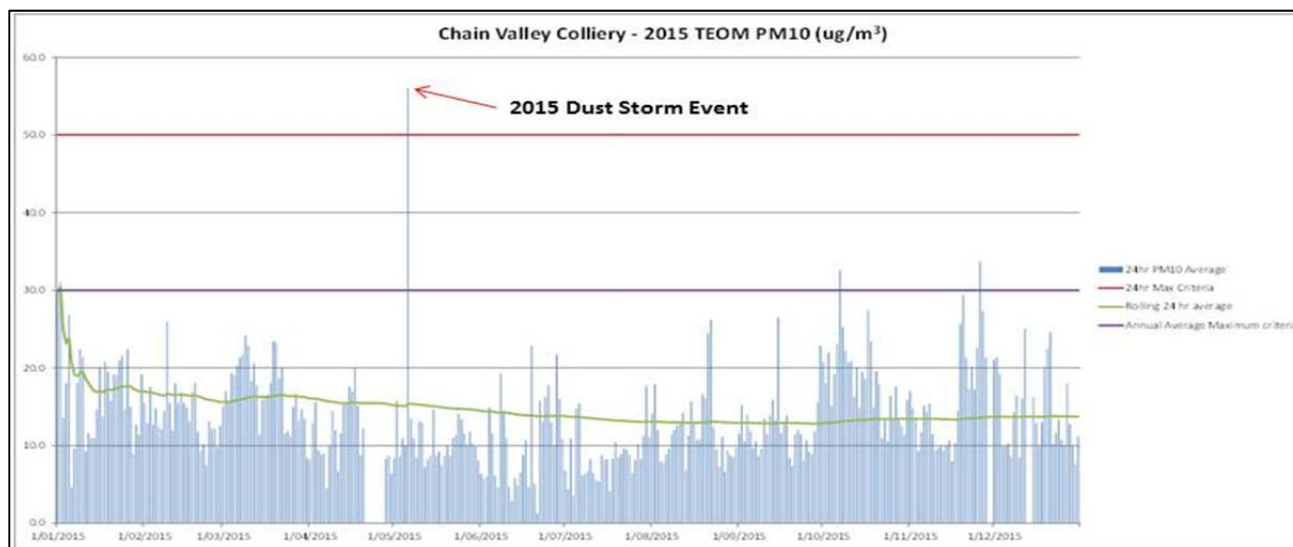


Figure 3.5: PM10 monitoring results during the reporting period

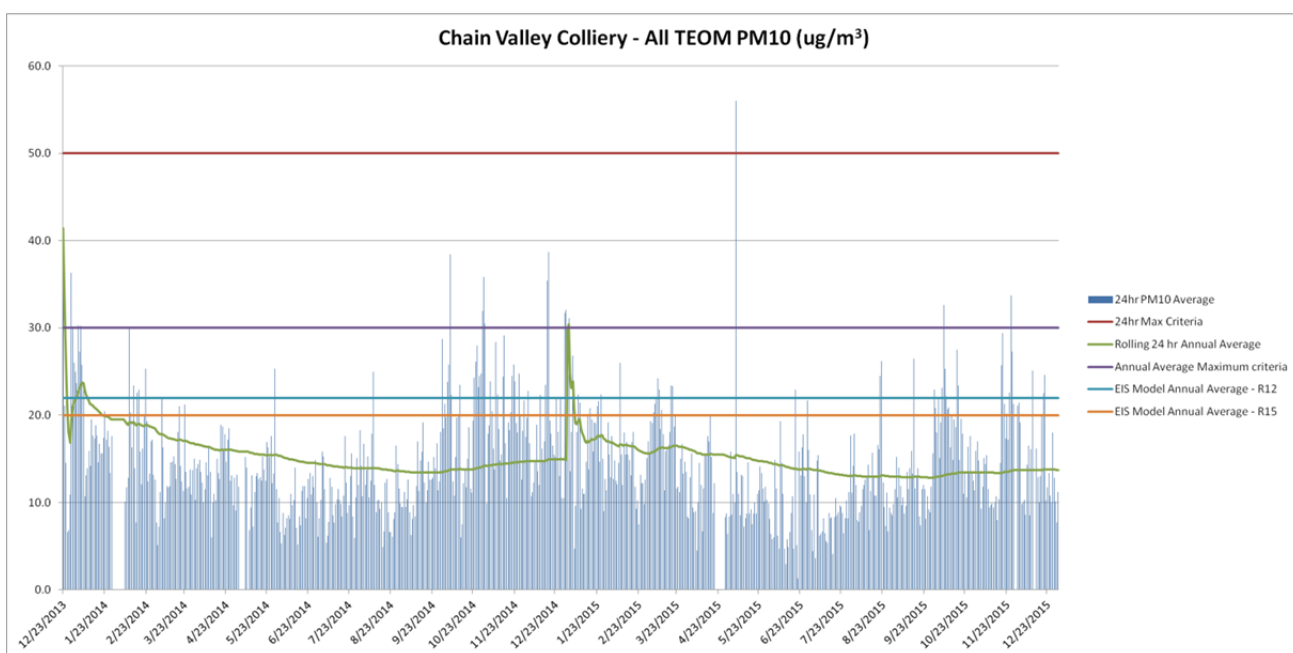


Figure 3.6: Long Term PM10 data compared against criteria and EIS predictions

In relation to **Figure 3.6** please note that the apparent spikes in the rolling 24 hour annual averages are associated with the commencement of a new calendar year when the annual average “resets”, and is not reflective of significant annual average air quality changes.

The air quality monitoring program, including depositional dust and PM10 monitoring will continue into the 2016 reporting period.

## 3.2 Erosion and Sediment

Mining operations and related activities that have the potential to cause erosion and/or generate sediment and impact on the surrounding catchment areas were unchanged during the reporting period and consist of:

- The exposed areas of the car park, workshop, laydown and internal access tracks
- Coal stockpiles and coal handling equipment areas;
- Vehicle and equipment movements; and
- Erosion of drainage structures.

Water draining from the access road on the western side of the site runs via a number of small drainage channels through dry basins, swales or silt fencing.

The water draining from the hardstand catchment area reports to the pollution control ponds D11, D12 and D13. D13 will if required overflow in D9, which then flows into D10 prior to being discharged from site via the dam spillway. Total suspended solids are monitored at the spillway of the final dam, which became the licenced discharge point on the 15 March 2015. Previously the licenced discharge point was at the location where discharge water entered the nearby unnamed creek; water quality at this location ("Outlet to Creek") is still monitored. Results (pH, EC, TSS and Faecal Coliforms) for both monitoring locations are shown comparatively in **Figures 3.7 to Figure 3.14** below. The pollution control ponds (sediment dams) and the location of the monitoring points are show on **Plan 3 (Appendix 1)**.

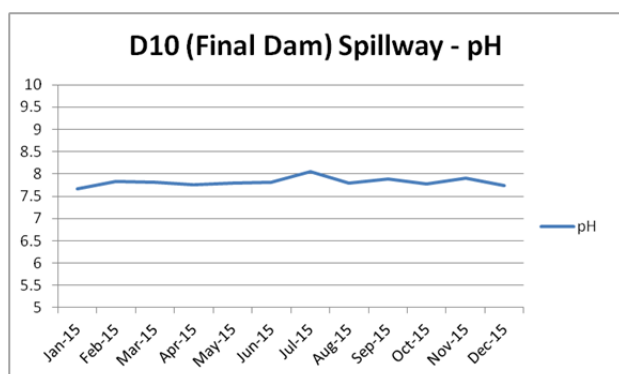


Figure 3.7: Final Dam Spillway - pH

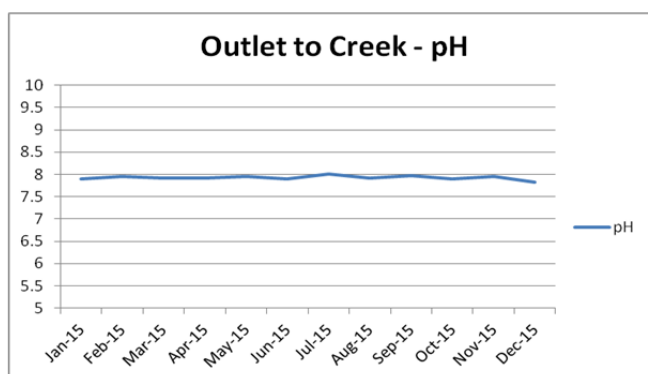


Figure 3.8: Outlet to Creek - pH

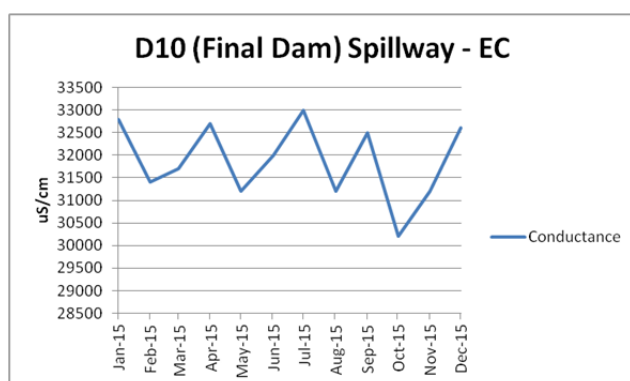


Figure 3.9: Final Dam Spillway - EC

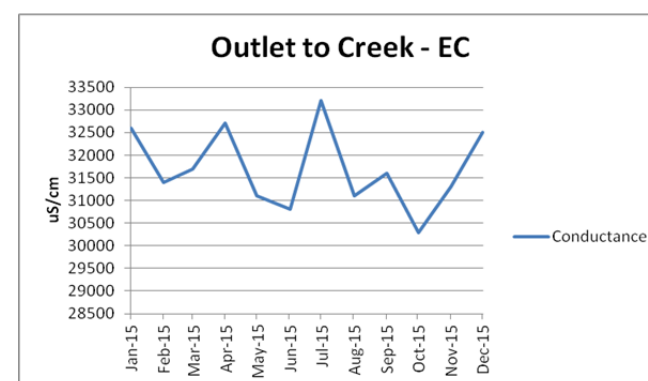


Figure 3.10: Outlet to Creek - EC

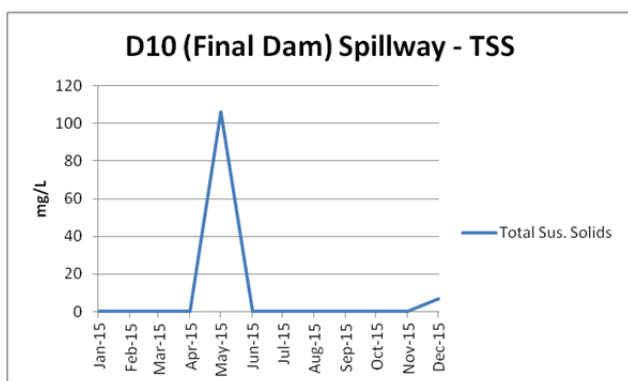


Figure 3.11: Final Dam Spillway - TSS

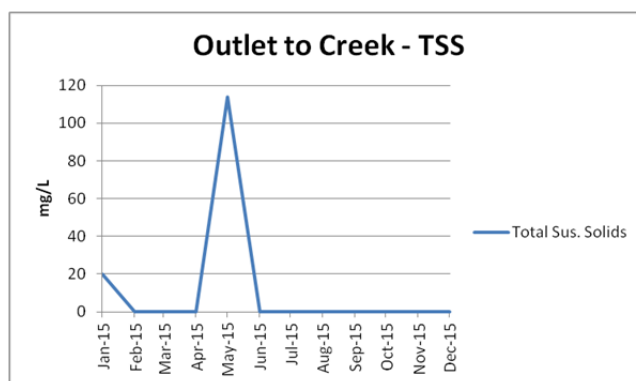


Figure 3.12: Outlet to Creek - TSS

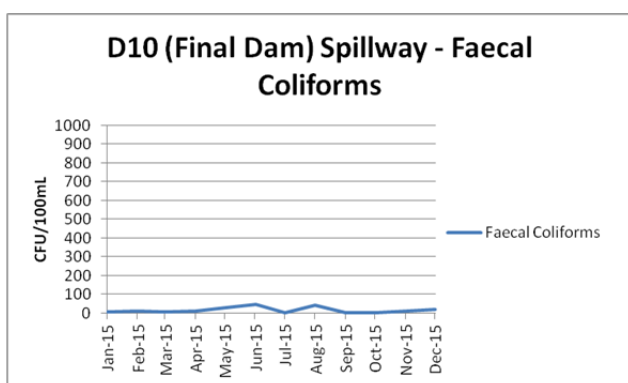


Figure 3.13: Final Dam Spillway - Faecal Coliforms

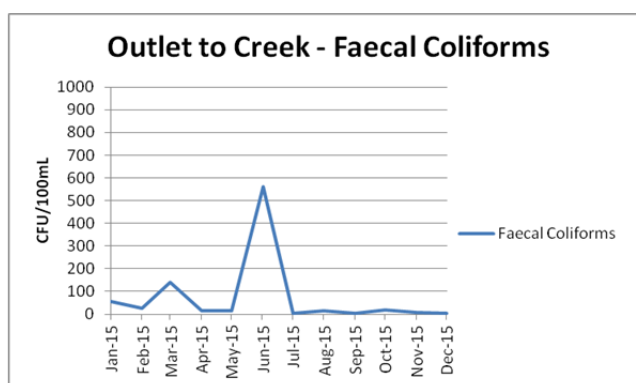


Figure 3.14: Outlet to Creek - Faecal Coliforms

Runoff from the coal handling and stockpile area is contained by two main drainage channels that surround the stockpile and report to a number of sediment dams below the stockpile. Runoff from this area can contain a significant amount of coal fines due to the nature of the activities. The majority of the runoff from this catchment area reports to D1, D2 and D6. These dams also function as primary settling ponds before discharging into dams further downstream. Both D1 and D2 report to D3 and then into D4 while D6 reports to D5 and then into D4. Once in D4 all the water flows into D9, water from D9 flows into D10 prior to discharge.

As evident in **Figure 3.11** and **Figure 3.12** there was a high total suspended solids result in May 2015. An incident investigation was completed following the detection of this event and it was identified that the cause of this exceedance was sediment dam cleaning activities occurring on the day of water sampling being completed. This incident is described further in **Section 3.3**.

The comparative analysis of **Figure 3.13** and **Figure 3.14** shows higher levels of faecal coliforms at the Outlet to Creek site compared to the levels leaving the Final Dam spillway, indicating that the majority of faecal contamination at this point is from natural sources in the surrounding environment as opposed to any impact from the Colliery's activities.



## 3.3 Surface Water Pollution

During the reporting period there were significant improvements undertaken to the site water management system in accordance with a Pollution Reduction Project on the site Environmental Protection License. These works included:

- Raising the final dam wall embankment approximately 300mm above the prior level (**Photo 1**);
- Installation of a 600mm wide clay core to stop major seepage within the embankment;
- Installation of an engineered two stage spillway, for low (typical flow rates) and high flow rates (**Photo 2**);
- Installation of an engineered discharge point (**Photo 3**)
- Installation of monitoring sensors for both the low and high flow points which send data back into a single packaged monitoring system with data logging and telemetry, enabling accurate flow volumes discharged offsite to be measured and recorded;
- Construction of clean water diversion drains around the southern side of the site to reduce clean water runoff into the site sediment dams.



Photo 1. Repairs and raising of Dam 10 embankment.



Photo 2. Installation of an engineered two stage spillway, for low (typical flow rates) and high flow rates.



Photo 3. Installation of an engineered discharge point

There were three surface water related incidents during the reporting period. A summary of the incidents and the actions taken are outlined below in **Table 3.3** below:

**Table 3.3 – Summary of surface water related incidents during the reporting period.**

Date	Incident Description	Actions taken.
4 <sup>th</sup> April 2015 and 21 <sup>st</sup> April 2015	The volumetric discharge limit for water at the licensed discharge point (12.161 ML/day) was exceeded on both 4 April 2015 (16.28ML) and 21 April 2015 (16.85ML).	In both cases groundwater pumping was limited due to rainfall on the day in an attempt to remain under the discharge limit, however on both days excessive rainfall runoff resulted in the exceedance of the limit. On the 4 April 2015, 116mm of rainfall fell at the site and while groundwater pumping was restricted to 8.455 ML by disabling one of the groundwater pumps, the total volume discharged from site was 16.28 ML. On the 21 April 2015 some 153mm of rainfall fell at the site. Prior warning of this storm and accompanying rainfall was heeded and groundwater pumping was restricted to only 3.369 ML. However, due to the rainfall intensity a total volume of 16.85 ML was discharged from site, as a result rainfall runoff totalled 13.481 ML on 21 April. In both of the above cases, groundwater pumping was restricted well below the Colliery's commitment to limit underground pumping to 10.5 ML per day, however on both days, over 100mm of rainfall ultimately resulted in the volumetric limit being exceeded.

Date	Incident Description	Actions taken.
12 May 2015	Following the receipt of the monthly water quality results for May an exceedance of the total suspended solids (TSS) criteria of 50 mg/L was identified, with a result of 114 mg/L being recorded.	LakeCoal self-reported the findings to the EPA with a written report subsequently provided. The cause of the exceedance was determined to be sediment dam cleaning activities that were occurring on the day of sampling. Visual inspections of water quality being discharged from site on the 12 May did not identify any signs of turbidity that would indicate high TSS levels, similarly, the field sheet for the sampling indicated the water was clear. Notwithstanding, the risk assessment for sediment dam cleaning activities was revised and updated to incorporate controls to better manage TSS levels during dam cleaning works prior to the next scheduled quarterly clean out of the sediment dams.

Monthly oil and grease samples from the licensed discharge point occurred as part of the water sampling program during the reporting period and recorded results <6mg/L for the entire reporting period.

### 3.4 Ground Water Pollution

There was no evidence of groundwater pollution detected during the reporting period, and there has been no groundwater pollution previously identified at Chain Valley Colliery.

### 3.5 Contaminated Polluted Land

There were no significant spills during the reporting period or reports of polluted land.

There is no known contaminated land at Chain Valley Colliery, however it is expected that a contamination study, such as an environmental site assessment would be completed at a time closer to mine closure as part of the rehabilitation requirements.

## 3.6 Threatened Flora

### 3.6.1 Terrestrial Flora

Potential impacts to threatened flora would arise from either impact or clearing of vegetation communities surrounding the pit top and ventilation shaft site which have been classified as the following communities: Surrounding the pit top area, as;

- Coastal open woodland;
- Swamp oak forest; and
- Swamp sclerophyll forest and surrounding the ventilation shaft site as;
- Coastal open woodland;
- Grassy open woodland; and
- Swamp sclerophyll forest.

**Figure 3.15** and **Figure 3.16** identify the approximate boundaries of the communities surrounding the surface infrastructure.



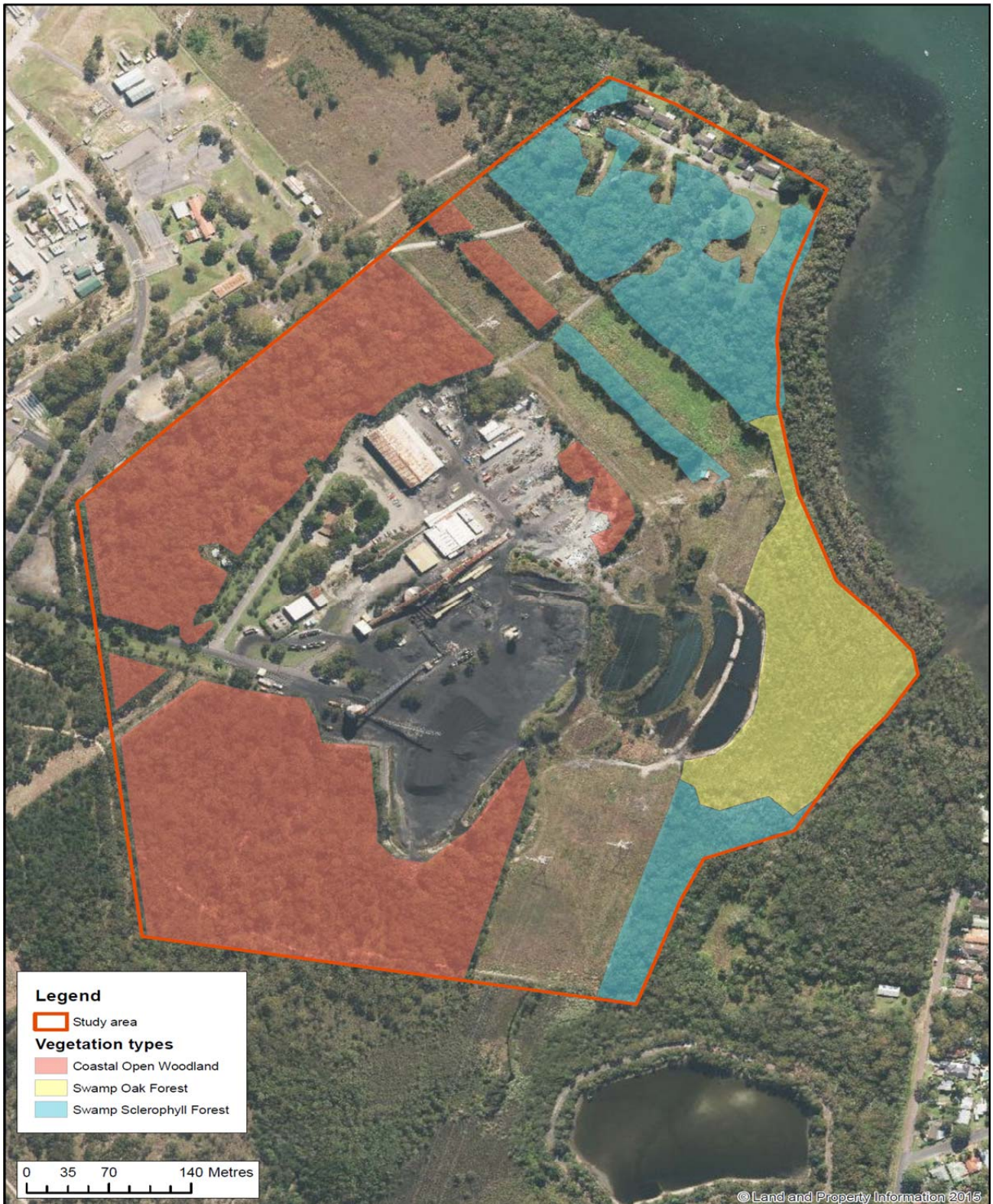


Figure 3.115: Vegetation communities around the pit top area



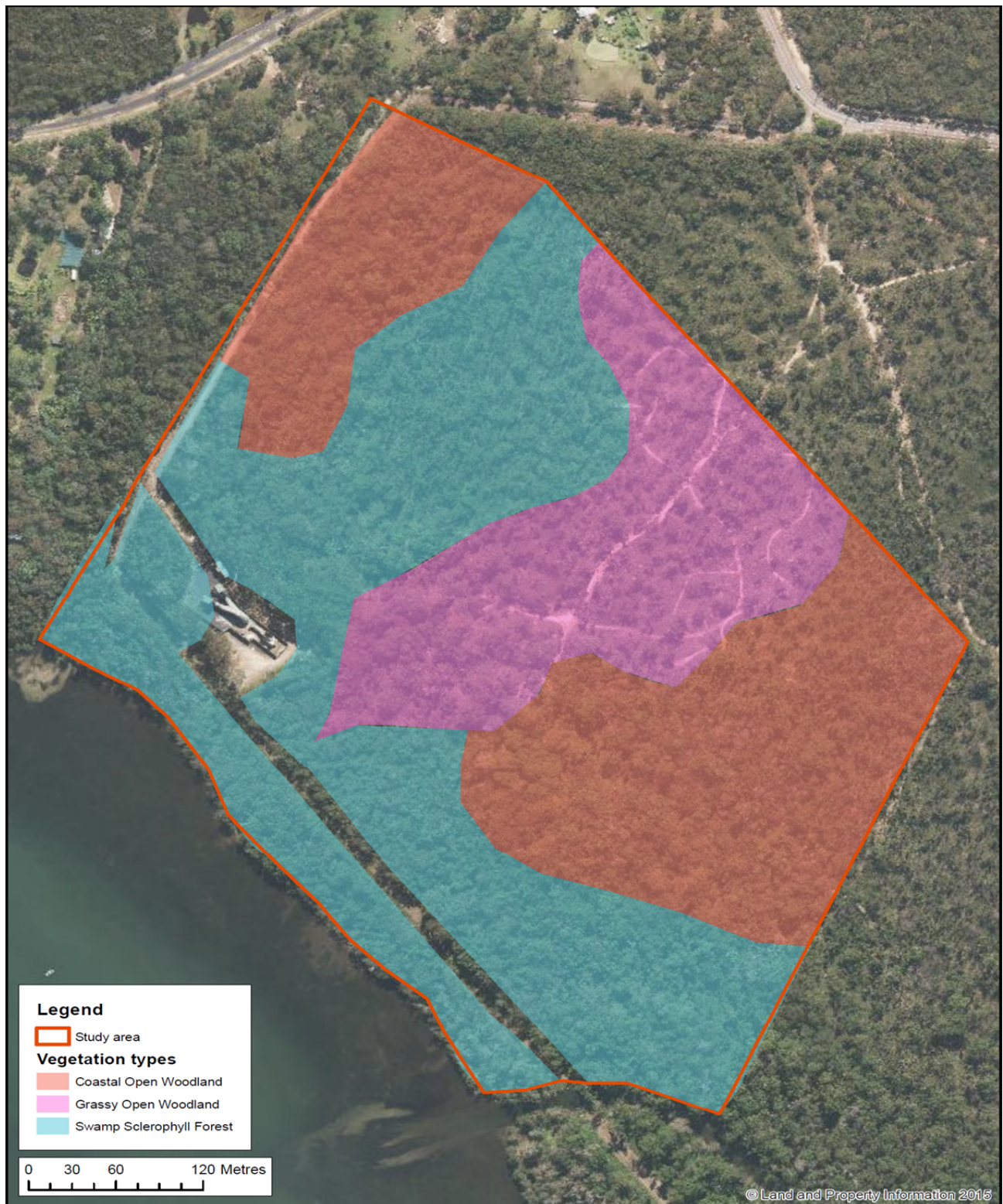


Figure 3.116: Vegetation communities around the ventilation shaft site

A Biodiversity Management Plan was previously completed and approved in 2012, and was updated during the reporting period. The updated Biodiversity Management Plan was approved on the 23 July 2014 and the latest version of this document is available from the Chain Valley Colliery website. The plan is due to be revised in Q1 2016 to reflect the most recent approval modification application.

Annual biodiversity monitoring in accordance with the plan was continued during the reporting period, being undertaken in April 2015. The monitoring specifically looks at;

- The Swamp Oak Floodplain Forest below the sediment dams;
- Weeds (both at the pit top area and ventilation shaft site); and
- Feral animal activity.

The monitoring results were assessed against the criteria and triggers within the Biodiversity Management Plan with no trigger levels being reached. Specifically, monitoring of the two established plots within the Swamp Oak floodplain forest, recorded a total weighted score of 80.3% which is significantly higher than the established trigger value of 60% (refer to the Biodiversity Management Plan for details on site attributes and methodology for determining the weighted score). There was no feral animal activity recorded during the 2015 monitoring. Weed monitoring and management is discussed in **Section 3.8**.

### 3.6.2 Aquatic Flora

Seagrass communities are a major feature of Lake Macquarie, which have the potential to be affected by subsidence as a result of mining activities under the Lake. To ensure protection of the seagrass communities from mining related impacts a Seagrass Protection Barrier was placed around the mapped seagrass communities, with the barrier extending out to the 26.5 degree angle of draw to the Colliery workings. Only first workings are permitted in the Seagrass Protection Barrier, which will result in negligible subsidence.

Seagrass monitoring occurred during the reporting period in accordance with the current Seagrass Management Plan. Seagrass transect locations are shown on **Figure 3.17** and the discussion from the report (Laxton & Laxton, June 2015) related to the results obtained during the reporting period highlighted the following;

In May 2015, seagrass cover in Chain Valley Bay, Bardens Bay and Crangan Bay ranged from 76.62 (Transect E6) to 100 percent (Transect C2). The seagrasses were largely free from epiphytic algae. The brown seaweed *Cystophyllum onustum* was present on shells and pebbles protruding through the seagrass almost reaching the surface at Transects E1 to E4.

Seagrass cover has been high consistently at each transect since 2012, with seagrass health and condition being good.

During the 2015 monitoring most sites reported similar results to the previous year and in most cases, when compared to the 2008 baseline data have shown a significant increase in seagrass cover. Transect T2 did however show a 20% reduction in seagrass during the reporting period (compared to the 2014 monitoring).

While the result at T2 does shows a 20% reduction from the previous reporting period the result is consistent with the baseline reading for this site. It should also be noted that the results from this site have fluctuated greatly over the previous monitoring periods. Monitoring of site T2 will continue to be undertaken to see if the results improve over time. Results from 2008 to 2015 for the transects are shown in **Table 3.3**.



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Table 3.3: Seagrass monitoring results since commencement of monitoring (2008)

<b>Transect E1</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
% seagrass	84.15		81.01	77.75	98.82	99.44	96.85	92.44
% no seagrass	15.85		18.99	22.25	1.38	0.56	3.15	7.56
<b>Transect E2</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
% seagrass	83.72		75.87	73.38	95.49	99.09	98.38	98.49
% no seagrass	16.28		24.13	26.62	4.49	0.91	1.62	1.51
<b>Transect E3</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
% seagrass	98.29		98.97	92.76	96.97	99.16	97.66	100.0
% no seagrass	1.71		1.03	7.24	1.54	0.84	2.34	0.00
<b>Transect E4</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
% seagrass	80.16		98.54	95.74	100.0	97.50	98.06	96.43
% no seagrass	19.84		1.46	4.26	0.00	2.50	1.94	3.57
<b>Transect E5</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
% seagrass	95.88		94.93	95.19	100.0	98.82	97.01	99.82
% no seagrass	4.12		5.07	4.81	0.00	1.18	2.99	0.18
<b>Transect E6</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
% seagrass	17.74		34.06	49.56	55.51	54.93	83.24	76.62
% no seagrass	82.16		65.94	50.44	44.49	45.07	16.76	23.38
<b>Transect E7</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
% seagrass	97.93		51.40	45.47	68.31	43.38	87.65	92.65
% no seagrass	2.07		48.60	54.53	31.69	56.62	12.35	7.35
<b>Transect E8</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
% seagrass	99.32		84.26	95.56	90.96	99.93	99.26	99.85
% no seagrass	0.68		15.74	4.44	9.04	0.07	0.74	0.15
<b>Transect E9</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
% seagrass	95.94		99.39	95.51	99.49	99.71	99.71	99.56
% no seagrass	4.06		0.61	4.49	0.51	0.29	0.29	0.44
<b>Transect E10</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
% seagrass	97.94		92.21	86.25	98.99	98.82	98.87	NS
% no seagrass	2.06		7.79	13.75	1.01	1.18	1.13	
<b>Transect E11</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
% seagrass				86.93	99.85	99.49	97.65	NS
% no seagrass				13.07	0.15	0.51	2.35	
<b>Transect E12</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
% seagrass				95.68	95.53	98.09	97.94	NS
% no seagrass				7.32	4.47	1.91	2.06	

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<b>Transect E13</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
% seagrass				93.97	99.26	100.0	99.93	NS
% no seagrass				6.03	0.74	0.00	0.07	
<b>Transect E14</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
% seagrass				86.54	99.34	100.0	99.68	NS
% no seagrass				13.46	0.56	0.00	0.32	
<b>Transect E15</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
% seagrass				90.29	99.93	99.66	92.28	NS
% no seagrass				9.71	0.07	0.34	7.72	
<b>Transect E16</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
% seagrass				82.79	93.22	94.12	97.87	NS
% no seagrass				17.21	6.78	5.88	2.13	
<b>Transect T1</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
% seagrass	88.94		41.90	32.60	77.91	94.41	94.85	94.65
% no seagrass	11.06		58.10	67.40	22.09	5.59	5.15	5.35
<b>Transect T2</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
% seagrass	77.91		70.29	7.95	75.74	60.83	93.68	74.41
% no seagrass	22.09		29.71	92.05	24.26	39.17	6.32	25.59
<b>Transect T3</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
% seagrass	46.20		63.16	58.53	83.53	89.93	92.65	93.82
% no seagrass	53.80		36.84	41.47	16.47	10.07	7.35	6.18
<b>Transect T4</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
% seagrass	83.51		81.89	70.37	90.37	97.28	99.41	97.94
% no seagrass	16.49		18.01	29.63	9.63	2.72	0.59	2.06
<b>Transect T5</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
% seagrass	81.78		77.00	51.40	92.35	99.12	98.24	99.41
% no seagrass	18.22		23.00	48.60	7.65	0.88	1.76	0.59
<b>Transect T6</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
% seagrass	53.82		59.63	44.77	65.59	95.22	99.85	95.74
% no seagrass	46.18		40.37	53.23	34.41	4.78	0.15	4.26
<b>Transect T7</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
% seagrass	97.93		70.79	89.34	89.09	99.78	98.97	98.38
% no seagrass	2.07		29.51	10.66	10.91	0.22	1.03	1.62
<b>Transect T8</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
% seagrass	95.94		60.29	76.99	87.64	96.76	99.85	99.26
% no seagrass	4.06		39.71	23.01	13.26	3.24	0.15	0.74
<b>Transect A1</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
% seagrass							97.97	98.09
% no seagrass							2.03	1.91



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<b>Transect A2</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
% seagrass							92.38	96.99
% no seagrass							7.62	3.01
<b>Transect A3</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
% seagrass							100.0	96.40
% no seagrass							0.00	13.60
<b>Transect A4</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
% seagrass							94.51	93.97
% no seagrass							5.49	6.03
<b>Transect A5</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
% seagrass							96.37	95.59
% no seagrass							3.63	4.41
<b>Transect A6</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
% seagrass							99.56	98.01
% no seagrass							0.44	1.99
<b>Transect C1</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
% seagrass	48.60		80.53	68.71	85.38	99.31	97.82	94.04
% no seagrass	51.40		19.47	31.29	14.62	0.69	2.18	5.96
<b>Transect C2</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
% seagrass	93.09		98.03	67.79	95.21	97.24	96.69	100.0
% no seagrass	6.91		1.97	32.21	4.79	2.76	3.31	0.00
<b>Transect C3</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
% seagrass	95.59		88.75	94.41	97.16	99.93	98.75	98.46
% no seagrass	4.41		11.25	5.59	2.84	0.07	1.25	1.54
<b>Transect C4</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
% seagrass	87.25		86.56	58.09	90.40	100.0	98.49	99.49
% no seagrass	12.75		13.44	41.91	9.60	0.00	1.51	0.51
<b>Transect L1</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
								99.12
% no seagrass								0.88

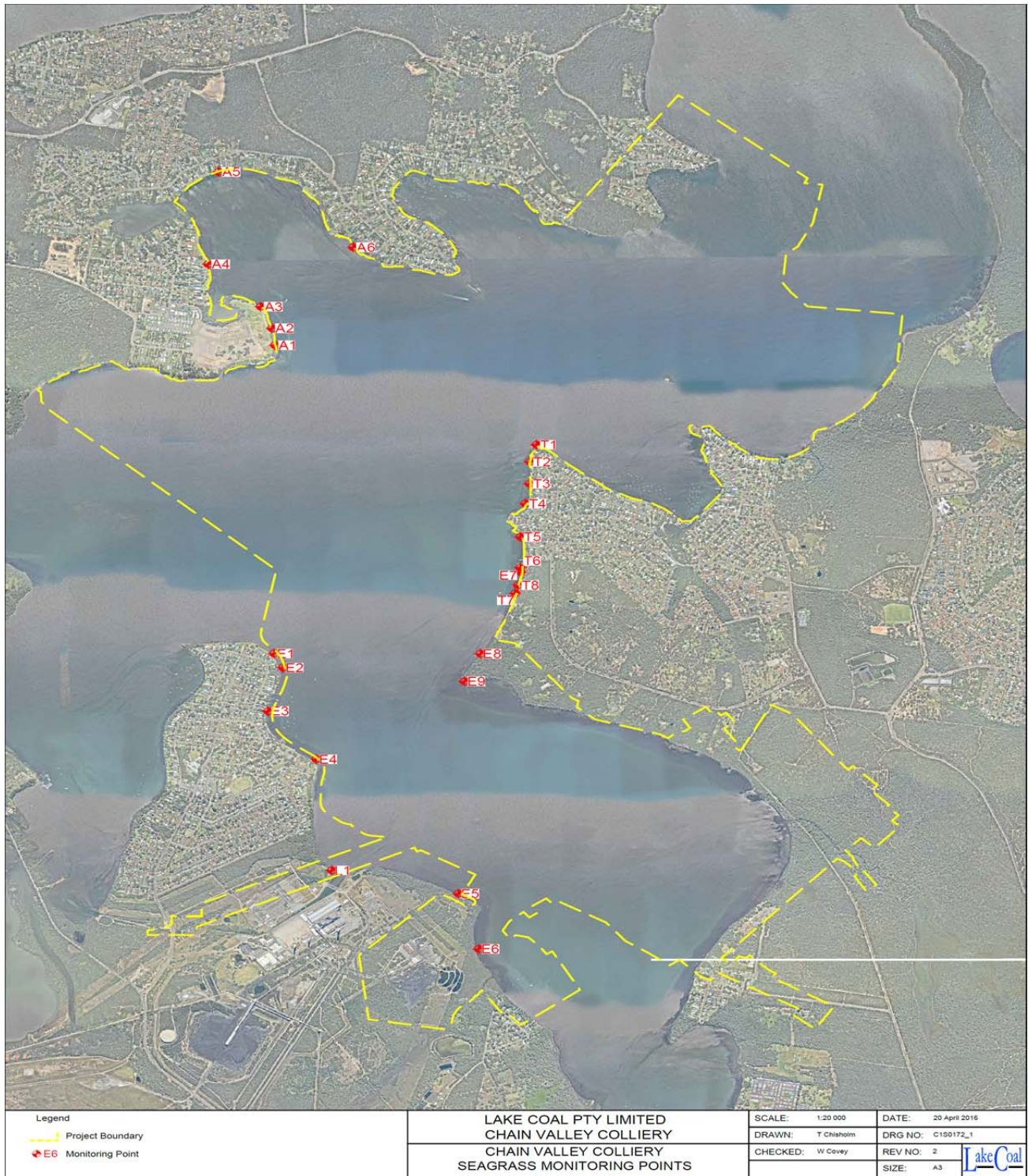


Figure 3.17 - Seagrass transect locations



## 3.7 Threatened Fauna

### 3.7.1 Terrestrial Fauna

No clearing works were undertaken during the reporting period and as a result potential to impact to threatened fauna or other native fauna was minimised.

### 3.7.2 Aquatic Fauna

During the reporting period sampling for benthic fauna was undertaken in Lake Macquarie during March 2015 and September 2015, sampling occurred at the 12 original benthic sampling locations, as well as the two additional monitoring stations which were added in 2014 (R5 and R6) (refer **Figure 3.18**). Monitoring was undertaken in accordance with the approved Benthic Communities Management Plan (EMP-D-16672). The monitoring reports from the March and September sampling provided the following information.

Eleven families of benthic marine organisms were recorded in the study area of Lake Macquarie. The fauna comprised three species of Polychaete worm; five species of bivalve; and one species of Ophurid. A total of 1115 benthic marine organisms were captured during the September 2015 survey, with the greatest number caught at station C2 (198 organisms recorded) and the least number caught at station IM4 (20 organisms).

The stations with the greatest diversity of benthic organisms were R4 with 6 species and IM1, IM2, R1 and C1 with 5 species (see **Table 3.4**). Stations C4 and R2 had the least diversity with three species only found at each station. *Corbula truncata* and the Polychaete worm *Sthenelais pettiboneae* were collected at all stations. *Soletellina Alba* was found at 13 of the 14 stations (**Table 3.4**).

**Table 3.4** also shows the number of species found in the 5 replicate samples from each station between February 2012 and September 2015. Of the 14 stations being sampled during this period, seven showed variation in the number of species. For example, the number of species sampled at station C1 varied from three to ten species, and station R2 varied from three to eight species. The number of species found at stations R1, R3, R4, IM3 and IM4, however, showed little change.

Table 3.4: Number of Species found at each Station from February 2012 to September 2015

Station	C1	C2	C3	C4	R1	R2	R3	R4	R5	R6	IM1	IM2	IM3	IM4
Feb 2012	10	5	5	7	8	8	5	5			7	4	4	5
Sept 2012	3	6	4	4	6	3	4	5			4	4	3	5
March 2013	4	5	7	7	6	5	6	5			7	5	5	5
Sept 2013	6	6	3	7	5	6	5	4			4	3	4	5
March 2014	4	3	5	5	6	4	5	3	4	3	5	9	4	5
Sept. 2014	3	4	4	8	6	5	6	6	3	3	5	6	3	6
March 2015	3	3	5	3	5	3	6	5	3	3	5	4	4	5
Sept. 2015	5	4	4	3	5	3	4	6	5	4	5	5	4	4

In summary, the mud basin off Summerland Point and in Chain Valley between February 2012 and September 2015 was found to be inhabited by 20 species of organisms greater than 1mm in size. Polychaete worms and bivalve molluscs were the most frequently encountered animals.

Bottom sediment in the study area was composed of a small fraction of black sand and shell fragments of various sizes. Most of the sediment was fine black mud. There was no significant difference in sediment

characteristics at the stations sampled or between samples taken between February 2012 and September 2015, however sediment composition does vary over time at all sites.

The seventh and eighth sampling events of the benthos in March and September 2015 continued to show that:

- Stations were again distinguished by the composition of the dominant species.
- Water depth was not important in determining the species composition at a station.
- Physical variables such as salinity (conductivity), dissolved oxygen concentration and turbidity of the bottom water had little influence on the species composition of the benthos.

There were some differences in the relative abundance of organisms in the samples collected at the eight time periods although the same species of animals made up the fauna in each case. It is too early to say whether these differences represent seasonal changes or were caused by patchiness in the distribution of animals. It was noted that during the September 2015 monitoring, C4, R3 (IM5), IM1, IM2 and IM4 appeared to have lower numbers of benthic organisms than the other stations sampled. Four of these stations are Impact Stations.

Notwithstanding, ANOSIM analysis of the benthic community data between unimpacted and impacted sites between 2012-2015 identified a significance level 1.2% (p significance level of 0.056) which indicates that there were no significant differences between the unimpacted and impacted site communities over the three year period which supports the notion and predictions that increasing the water depth by the predicted levels of subsidence will have no discernible effect on the composition and distribution of the benthic organisms.

As the monitoring data received in the reporting period did not indicate any adverse impacts to benthic community diversity or abundance directly associated with mine subsidence, continued monitoring of the communities will be undertaken as per the Benthic Communities Management Plan.

It is expected that two additional monitoring sites will be added to the monitoring program in the 2016 period (R7 and C5) as mining progresses in accordance with the sites approved mine plan.

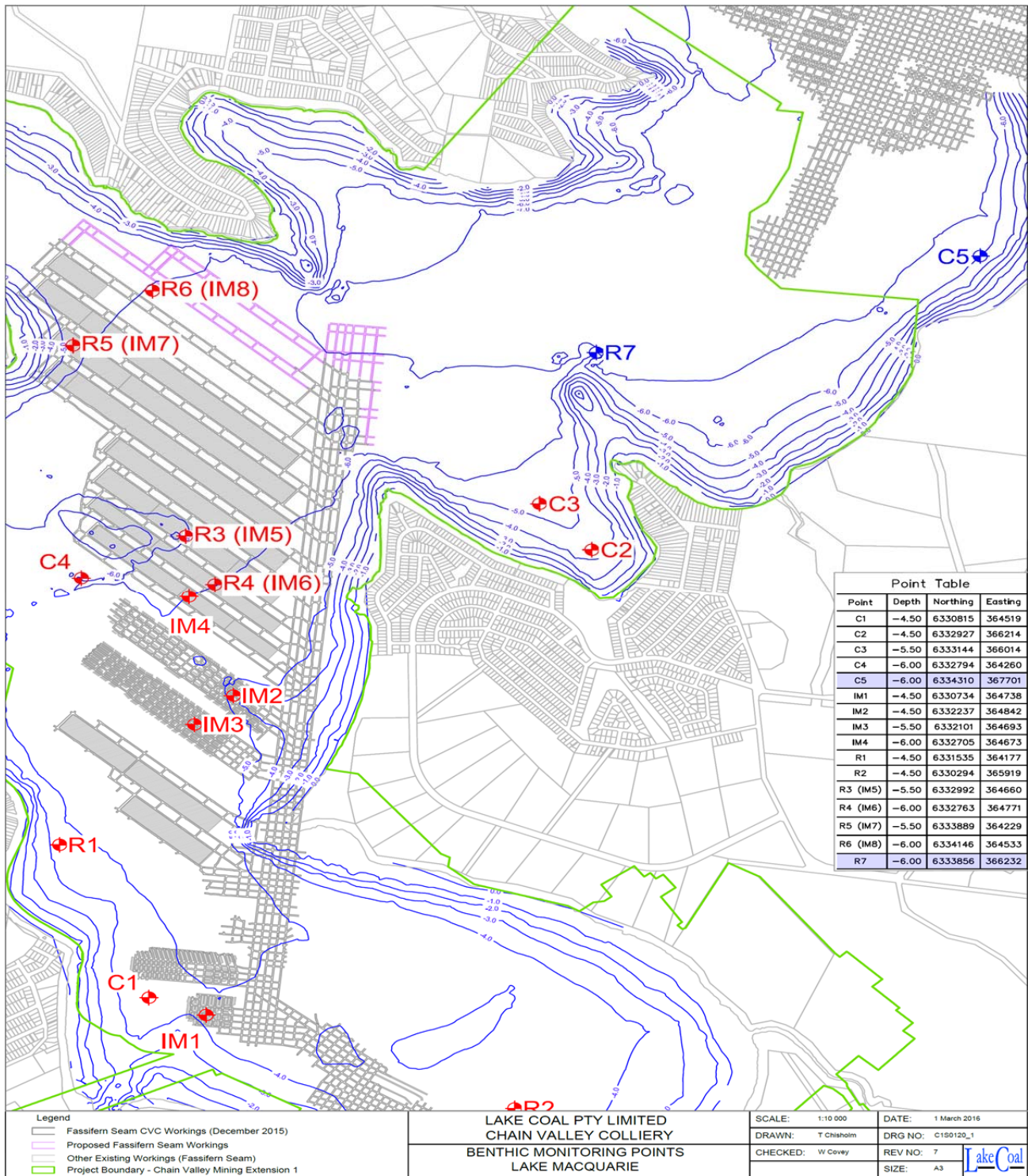


Figure 3.18 - Benthic sampling locations

## 3.8 Weed Management

Identification, treatment and ongoing monitoring are the key steps in managing weeds that surround the surface infrastructure areas (pit top area and ventilation shaft site).

The Biodiversity Management Plan (EMP-D-16372), identifies noxious and other weeds within or adjacent to the pit top area and ventilation shaft site, along with recommended control techniques.

**Figure 3.19** and **Figure 3.20** show the weeds identified as part of the development of the Biodiversity Management Plan. These areas have again been targeted during the reporting period, along with other areas identified by the persons undertaking weed management works. The ongoing weed control focus is directed by the annual weed monitoring program which is also completed in accordance with the Biodiversity Management Plan, which was undertaken in late April during the reporting period. Weed spraying during the reporting period was undertaken in February, July and September.

The most common weeds found as a result of the monitoring undertaken during the reporting period were bitou bush, pampas grass and asparagus fern (at the pit top area) and cobbler's pegs and lantana (around the ventilation shaft site).



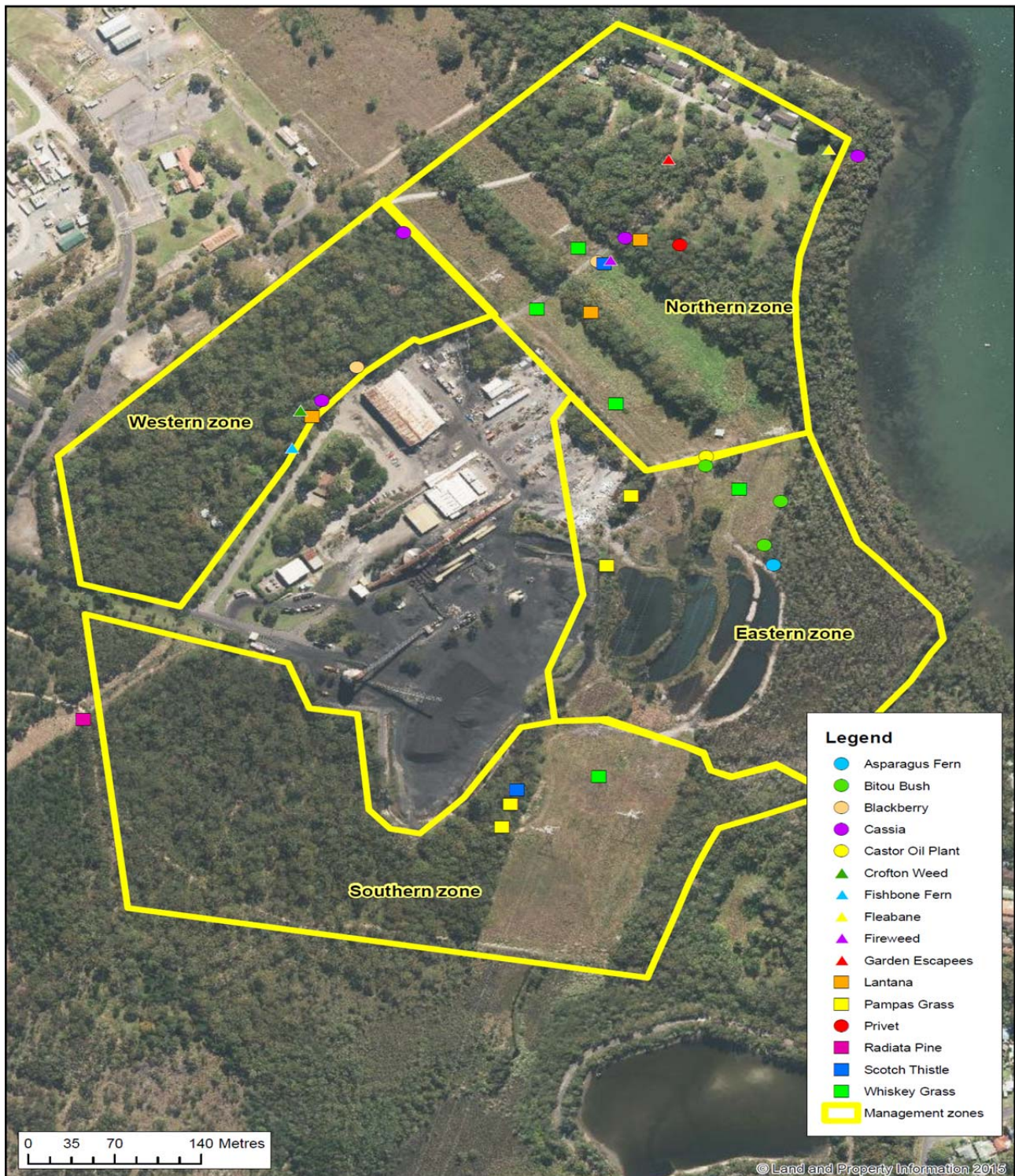


Figure 3.19: Identified weed locations around the pit top area



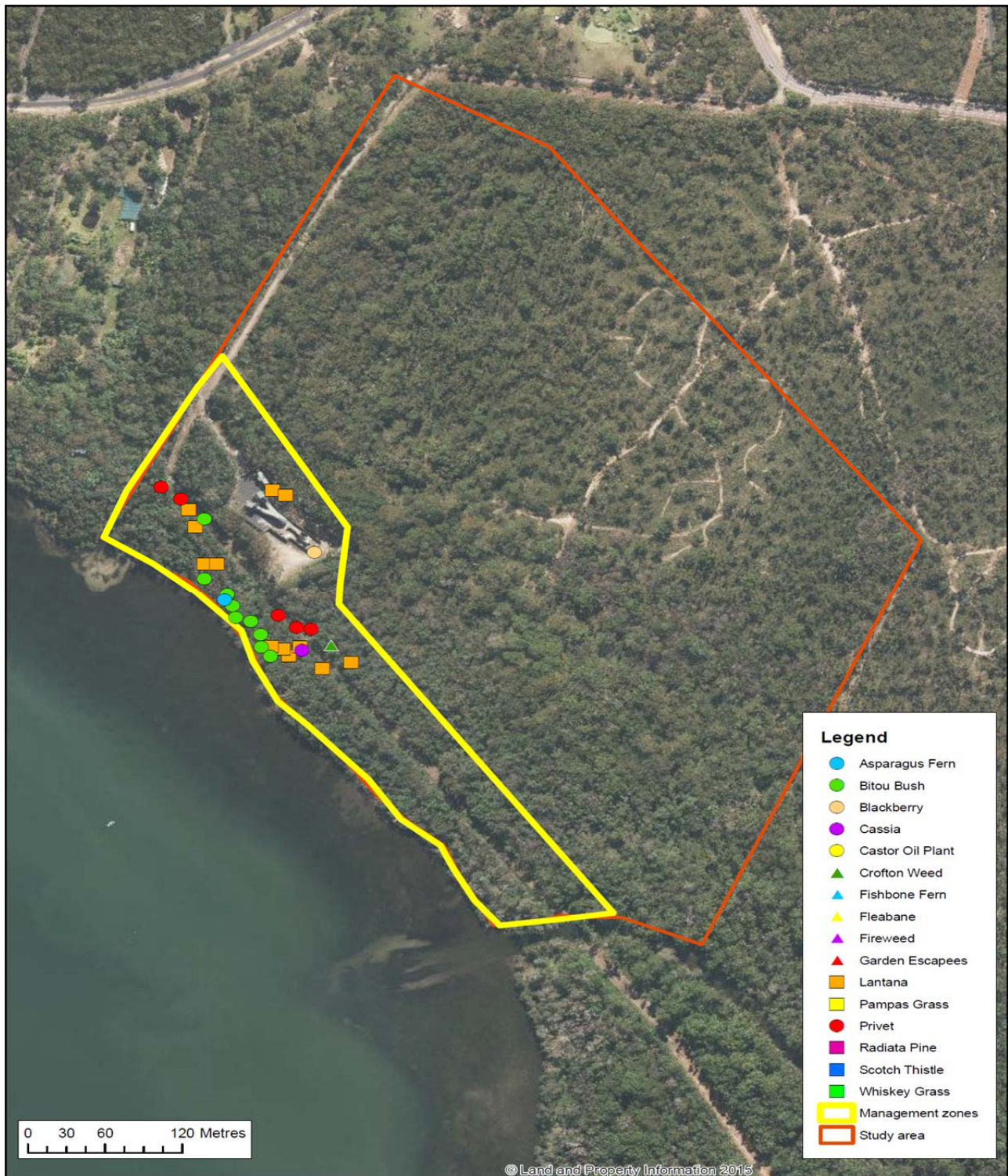


Figure 3.20: Identified weed locations around the ventilation shaft site

## 3.9 Blasting

No surface blasting activities were undertaken during the reporting period at the Colliery and during 2015 there was none used underground, however it is likely that in the next reporting period small amounts will again be required to be used to remove geological intrusions into the coal seam and create overcasts, however this blasting is imperceptible from an environmental impact point of view.

## 3.10 Operational Noise

Noise impact assessment criteria along with long term noise goals for specific locations from the Development Consent are reproduced in **Table 3.6** and **Table 3.7** respectively, with the receiver locations shown on **Figure 3.21**.

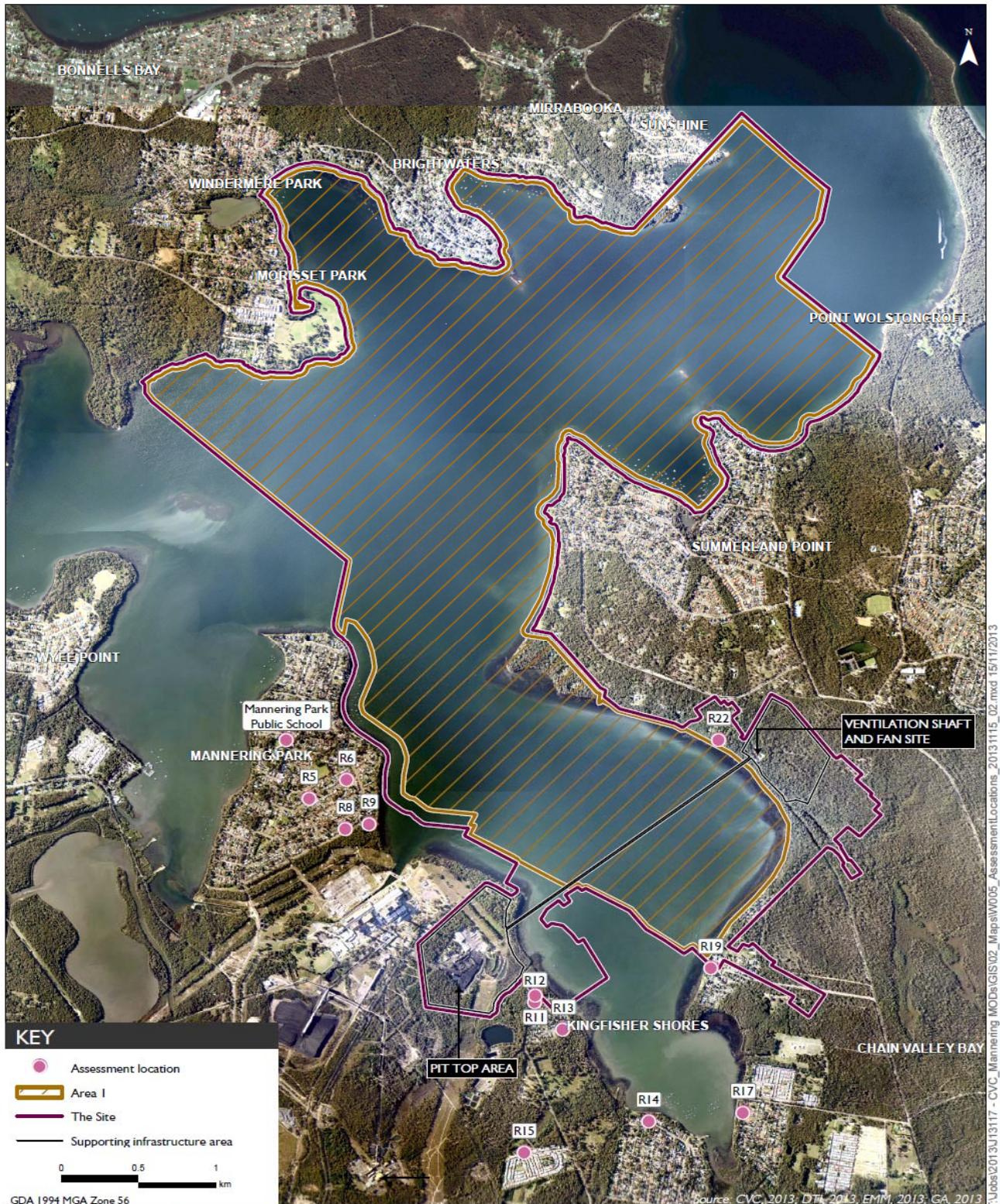
Table 3.6: Noise Criteria dB (A)

Location	Day	Evening	Night	
	L <sub>Aeq</sub> (15 min)	L <sub>Aeq</sub> (15 min)	L <sub>Aeq</sub> (15 min)	L <sub>A1</sub> (1 min)
R8	38	38	38	45
R11	49	49	49	54
R12	49	49	49	53
R13	43	43	43	49
R15	36	36	36	45
R19	37	37	37	45
R22	46	46	46	46
all other privately-owned land	35	35	35	45

Table 3.7: Long-term Noise Goals dB (A)

Location	Day	Evening	Night
	L <sub>Aeq</sub> (15 min)	L <sub>Aeq</sub> (15 min)	L <sub>Aeq</sub> (15 min)
R11-13	41	41	41
R22	40	40	40





Assessment locations  
Chain Valley Colliery Mining Extension I Project -  
Noise Impact Assessment

Figure 3.21: Noise Receiver Locations



Results of the attended noise monitoring undertaken during the 2015 reporting period in accordance with both the Noise Management Plan and EPL 1770 are shown in **Tables 3.8 to Table 3.15**. Refer to **Figure 3.22** for noise monitoring locations. The specific noise criteria that applied at each of the monitoring locations is also shown on **Table 3.6 to Table 3.7** and is taken directly from the Development Consent limits (specified in **Table 3.6**).

There were no exceedances of the applicable noise criteria however there was three noise related complaints were received during the 2015 reporting period, two of which related to the Colliery's operations with the third relating to concerns about rail noise (although the Colliery doesn't rail coal). All complaints and actions taken are covered in **Section 4.1**.

**Table 3.8: LAeq (15 min) attended noise monitoring results – Quarter 1 2015**

Location	Date / Time	Criteria LAeq dB	LAeq dB (from Colliery)
Day			
ATN001	03-03-15 11:37	35	Inaudible
ATN002	03-03-15 13:44	49	Not measureable
ATN003	03-03-15 12:49	36	Inaudible
ATN004	03-03-15 12:25	35	Inaudible
ATN005	03-03-15 14:14	35	Inaudible
ATN006	03-03-15 14:39	37	Inaudible
ATN007	03-03-15 15:12	46	40
Evening			
ATN001	03-03-15 18:00	35	Inaudible
ATN002	03-03-15 19:27	49	<30
ATN003	03-03-15 18:47	36	Inaudible
ATN004	03-02-15 19:23	35	Inaudible
ATN005	03-02-15 19:52	35	Inaudible
ATN006	03-02-15 20:17	37	Inaudible
ATN007	03-02-15 20:45	46	39
Night			
ATN001	03-02-15 22:02	35	Inaudible
ATN002	03-02-15 23:52	49	43
ATN003	03-02-15 23:12	36	33
ATN004	03-02-15 22:49	35	Inaudible
ATN005	04-02-15 0:18	35	Not measureable
ATN006	04-02-15 0:43	37	Not measureable
ATN007	04-02-15 1:10	46	37

**Table 3.9: LA1 (1min) attended noise monitoring results – Quarter 1 2015**

Location	Date / Time	Criteria LA1 dB	LA1 dB (from Colliery)
Night			
ATN001	03-02-15 22:02	45	Inaudible
ATN002	03-02-15 23:52	54	48
ATN003	03-02-15 23:12	45	36
ATN004	03-02-15 22:49	45	Inaudible
ATN005	04-02-15 0:18	45	Not measureable
ATN006	04-02-15 0:43	45	Not measureable
ATN007	04-02-15 1:10	46	38

Title: Annual Review 2015

Table 3.10: LAeq (15 min) attended noise monitoring results – Quarter 2 2015

Location	Date / Time	Criteria L <sub>Aeq</sub> dB	L <sub>Aeq</sub> dB (from Colliery)
Day			
ATN001	22-06-15 12:29	35	Inaudible
ATN002	22-06-15 16:11	49	Inaudible
ATN003	22-06-15 15:29	36	Inaudible
ATN004	22-06-15 14:58	35	Inaudible
ATN005	22-06-15 14:29	35	Inaudible
ATN006	22-06-15 14:06	37	Inaudible
ATN007	22-06-15 13:36	46	40
R12	22-06-15 16:11	49	Inaudible
R13	22-06-15 16:35	43	Inaudible
Evening			
ATN001	23-06-15 18:49	35	Inaudible
ATN002	23-06-15 20:19	49	45
ATN003	23-06-15 19:36	36	35
ATN004	22-06-15 19:24	35	26
ATN005	22-06-15 18:57	35	Inaudible
ATN006	22-06-15 18:34	37	35
ATN007	22-06-15 18:00	46	45
R12	23-06-15 20:19	49	45
R13	23-06-15 20:01	43	37
Night			
ATN001	25-06-15 2:09	35	Inaudible
ATN002	25-06-15 1:42	49	43
ATN003	25-06-15 1:00	36	Inaudible
ATN004	24-06-15 2:21	35	Inaudible
ATN005	24-06-15 1:54	35	Inaudible
ATN006	24-06-15 1:30	37	36
ATN007	24-06-15 1:00	46	43
R12	25-06-15 1:42	49	43
R13	25-06-15 1:23	43	Inaudible

Table 3.11: LA1 (1min) attended noise monitoring results – Quarter 2 2015

Location	Date / Time	Criteria L <sub>A1</sub> dB	L <sub>A1</sub> dB (from Colliery)
Night			
ATN001	25-06-15 2:09	45	Inaudible
ATN002	25-06-15 1:42	54	45
ATN003	25-06-15 1:00	45	Inaudible
ATN004	24-06-15 2:21	45	Inaudible
ATN005	24-06-15 1:54	45	Inaudible
ATN006	24-06-15 1:30	45	44
ATN007	24-06-15 1:00	46	45
R12	25-06-15 1:42	53	45
R13	25-06-15 1:23	49	Inaudible

Title: Annual Review 2015

Table 3.12: LAeq (15 min) attended noise monitoring results – Quarter 3 2015

Location	Date / Time	Criteria L <sub>Aeq</sub> dB	L <sub>Aeq</sub> dB (from Colliery)
Day			
ATN001	10:47 21-09-2015	35	Inaudible
ATN002	13:02 21-09-2015	49	31
ATN003	12:00 21-09-2015	36	Inaudible
ATN004	11:33 21-09-2015	35	Inaudible
ATN005	13:44 21-09-2015	35	Inaudible
ATN006	14:09 21-09-2015	37	Inaudible
ATN007	15:23 21-09-2015	46	46
R12	13:02 21-09-2015	49	31
R13	12:43 21-09-2015	43	Inaudible
Evening			
ATN001	18:00 21-09-2015	35	Inaudible
ATN002	18:00 28-09-2015	49	32
ATN003	19:10 21-09-2015	36	Inaudible
ATN004	18:48 21-09-2015	35	Inaudible
ATN005	18:52 28-09-2015	35	Inaudible
ATN006	19:17 28-09-2015	37	Inaudible
ATN007	19:46 28-09-2015	46	46
R12	18:00 28-09-2015	49	31
R13	18:23 28-09-2015	43	Not measureable
Night			
ATN001	02:30 30-09-2015	35	Inaudible
ATN002	01:45 29-09-2015	49	Inaudible
ATN003	01:00 29-09-2015	36	Inaudible
ATN004	02:07 29-09-2015	35	Inaudible
ATN005	01:00 30-09-2015	35	Inaudible
ATN006	01:26 30-09-2015	37	Inaudible
ATN007	01:56 30-09-2015	46	45
R12	01:45 29-09-2015	49	Inaudible
R13	01:24 29-09-2015	43	Inaudible

Table 3.13: LA1 (1min) attended noise monitoring results – Quarter 3 2015

Location	Date / Time	Criteria L <sub>A1</sub> dB	L <sub>A1</sub> dB (from Colliery)
Night			
ATN001	02:30 30-09-2015	45	Inaudible
ATN002	01:45 29-09-2015	54	Inaudible
ATN003	01:00 29-09-2015	45	Inaudible
ATN004	02:07 29-09-2015	45	Inaudible
ATN005	01:00 30-09-2015	45	Inaudible
ATN006	01:26 30-09-2015	45	Inaudible
ATN007	01:56 30-09-2015	46	46
R12	01:45 29-09-2015	53	Inaudible
R13	01:24 29-09-2015	49	Inaudible

# Report

Title: Annual Review 2015

Table 3.14: LAeq (15 min) attended noise monitoring results – Quarter 4 2015

Location	Date / Time	Criteria LAeq dB	LAeq dB (from Colliery)
Day			
ATN001	13:25 24-12-2015	35	Inaudible
ATN002	15:00 24-12-2015	49	Inaudible
ATN003	14:13 24-12-2015	36	Inaudible
ATN004	15:44 24-12-2015	35	Inaudible
ATN005	16:12 24-12-2015	35	Inaudible
ATN006	16:38 24-12-2015	37	Inaudible
ATN007	17:07 24-12-2015	46	38
R12	15:00 24-12-2015	49	Inaudible
R13	15:21 24-12-2015	43	Inaudible
Evening			
ATN001	18:00 28-12-2015	35	Inaudible
ATN002	19:47 28-12-2015	49	Inaudible
ATN003	18:45 28-12-2015	36	Inaudible
ATN004	20:11 28-12-2015	35	Inaudible
ATN005	20:38 28-12-2015	35	Inaudible
ATN006	21:03 28-12-2015	37	Inaudible
ATN007	21:41 28-12-2015	46	42
R12	19:47 28-12-2015	49	Inaudible
R13	19:26 28-12-2015	43	Inaudible
Night			
ATN001	01:31 09-12-2015	35	Inaudible
ATN002	02:32 28-12-2015	49	Inaudible
ATN003	01:22 28-12-2015	36	Inaudible
ATN004	02:55 28-12-2015	35	Inaudible
ATN005	03:22 28-12-2015	35	Inaudible
ATN006	04:08 28-12-2015	37	Inaudible
ATN007	01:00 09-12-2015	46	41
R12	02:32 28-12-2015	49	Inaudible
R13	02:11 28-12-2015	43	Inaudible

Table 3.15: LA1 (1min) attended noise monitoring results – Quarter 4 2015

Location	Date / Time	Criteria LA1 dB	LA1 dB (from Colliery)
Night			
ATN001	01:31 09-12-2015	45	Inaudible
ATN002	02:32 28-12-2015	54	Inaudible
ATN003	01:22 28-12-2015	45	Inaudible
ATN004	02:55 28-12-2015	45	Inaudible
ATN005	03:22 28-12-2015	45	Inaudible
ATN006	04:08 28-12-2015	45	Inaudible
ATN007	01:00 09-12-2015	46	44
R12	02:32 28-12-2015	53	Inaudible
R13	02:11 28-12-2015	49	Inaudible





Figure 3.22: Noise monitoring locations

The real time noise monitor located at site RTN001 as shown on **Figure 3.22** remained in operation during the reporting period and provided daily and weekly noise summary data via emailed reports which are automatically generated and distributed. The system also provided notifications, with an audio file attached of the event that triggered the notification. There were no notifications that were triggered as a result of the Colliery's operations during the reporting period. LakeCoal is continuing to investigate noise mitigation options for its ventilation fan site and pit top area to assist with meeting the long term noise goals as outlined in the site Noise Management Plan. Progress on these investigations will be reported in the next Annual Review.

### 3.11 Visual, Stray Light

The pit top area and ventilation shaft site are not dominant features of the landscape the pit top area is somewhat overshadowed by the adjacent power station. The ventilation fans were also designed to maintain a relatively low profile, below the surrounding vegetation to ensure amenity and lighting impacts were minimised.

There have been no significant changes to surface lighting during the reporting period and no visual amenity or lighting complaints were received in the reporting period.

### 3.12 Aboriginal Heritage

No impact on any Aboriginal heritage sites has occurred during the reporting period nor are any impacts expected due to the locations of the mine workings in relation to the known aboriginal sites. The surface facilities and disturbed area associated with mine infrastructure have no known Aboriginal sites. The development of a Heritage Management Plan was completed during 2012 following consultation with Aboriginal stakeholders. This plan was updated and approved during 2014; the update was again

completed in consultation with Aboriginal stakeholders. The primary update of the management plan was to include additional monitoring sites associated with proposed mining activities. However, mining is not scheduled to be undertaken in these areas for a number of years.

In accordance with the site Heritage Management Plan, monitoring of Aboriginal shell midden site #45-7-0189 was undertaken during the 2015 reporting period. The monitoring consisted of traditional survey (undertaken by Montheath & Powys) and a site inspection with the sites Registered Aboriginal Parties (RAP's). During the 2015 inspection, the extent of visible surface shell and areas of exposure were of a comparable size to that recorded in 2013. No ground disturbance from subsidence was noted during the inspection which was supported by the survey data.

### 3.13 Natural Heritage

There are no sites or items of historic heritage within the pit top area and ventilation shaft site as determined by both the Environmental Assessment completed in 2011 and the Environmental Impact Statement that was prepared to support the Mining Extension 1 Project.

Accordingly, no ongoing monitoring or management actions were required and none have been undertaken within the reporting period.

### 3.14 Spontaneous Combustion

The  $R_{70}$  self-heating rate value recorded for a sample from the middle of the Fassifern Seam is  $3.03^{\circ}\text{C} / \text{h}$ . This rates the coal as having medium intrinsic spontaneous combustion reactivity for New South Wales conditions. This value is consistent with the rank and type of coal and agrees with previous test results obtained for the Fassifern Seam at Chain Valley Colliery. The self-heating rates of the samples from the Chain Valley Colliery are significantly lower than coals from the Hunter Valley, and are also lower than Spring Creek Mine in New Zealand and San Juan Mine in New Mexico.

Moist adiabatic benchmark tests of the samples from Chain Valley Colliery indicate that self-heating is controlled by the moisture in the coal and the initial start temperature. Heating development to thermal runaway would take in the order of 48 to 72 days for the middle of the Fassifern Seam, but the top and bottom of the seam show self-heating over a protracted period, before any possible thermal runaway could take place. Similarly, the higher ash content Chain Valley Rider Seam also shows a protracted delay in self-heating due to its lower intrinsic reactivity.

While the laboratory  $R_{70}$  analysis of the Fassifern seam coal at Chain Valley indicates a medium propensity for spontaneous combustion, propensity to spontaneously combust is only one factor in a complex chain of conditions that can create spontaneous combustion in underground coalmines. There have been no known underground spontaneous combustion incidences in the Fassifern seam at Chain Valley Colliery. Accordingly, the risk of spontaneous combustion is considered to be low. Coal stockpiling is kept to a minimum and is managed in such a way as to limit risk of combustion.

Controls in place to mitigate the risk from spontaneous combustion include:

- Sealing of extracted panels.
- Consideration of spontaneous combustion issues within the mine design and utilisation of an Authority to Mine Permit.
- The development of Trigger Action Response Plans for Spontaneous Combustion
- Segregation of extraction panels by an inter panel pillar.

- Monitoring of mine gases using a multipoint tube bundle gas analysis system and a real time gas monitoring system.

There were no incidents of spontaneous combustion at Chain Valley Colliery during the reporting period.

## 3.15 Bush Fire

The pit top area contains vegetation which is considered to be bushfire prone land (Category 1) as shown on **Figure 3.23**. The ventilation shaft area has also been identified as containing Category 1 vegetation (**Figure 3.24**).



Figure 3.23: Bushfire Prone Land Map for the Pit Top Area (Source: Wyong Council, 2012)

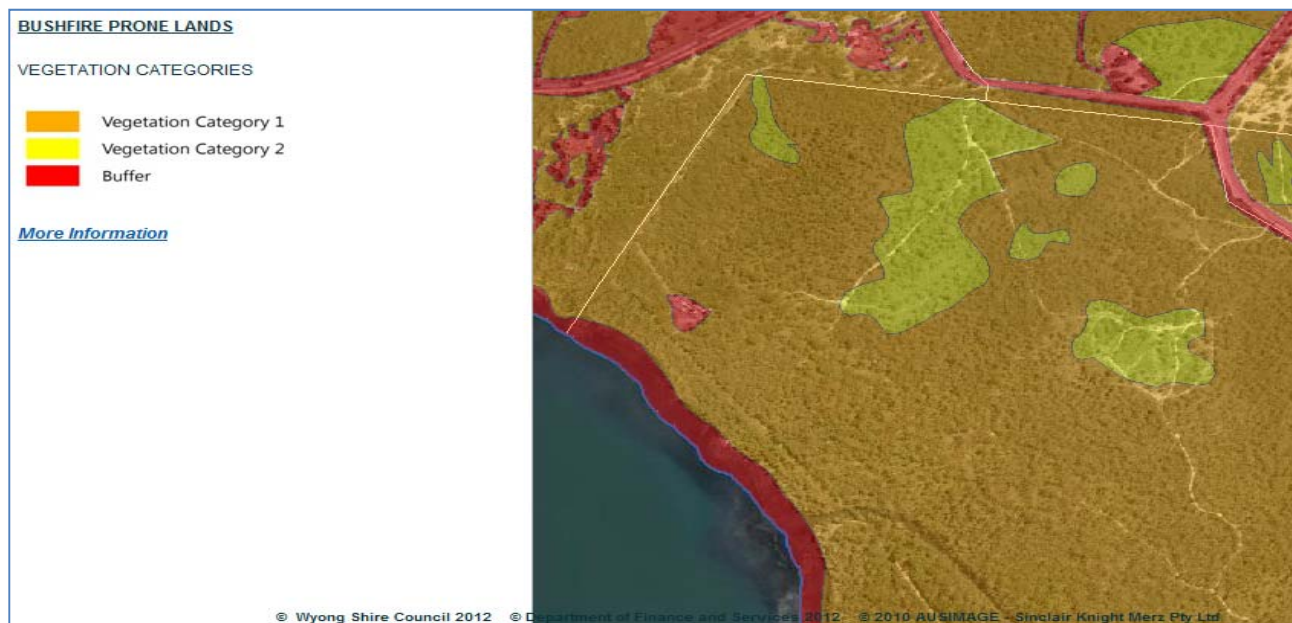


Figure 3.24: Bushfire Prone Land Map for the Ventilation Shaft Area (Source: Wyong Council, 2012)

As the project site is not a residential development, there are no strict requirements for fire management, with the exception of preventing fires within the project area and their spread to surrounding land. To manage bushfire risk LakeCoal have the following management measures in place;

- a high capability for firefighting purposes through the 100mm diameter mine water reticulation line and the mine Emergency Management System
- firebreaks and fire trails in the vicinity of the pit top area and ventilation shaft site
- fire hydrants and depots placed in strategic positions around the pit top area
- regular training of mine firefighting crews and liaison with local rural firefighting brigades

There was a significant bushfire on the 17<sup>th</sup> October 2013, which, while not affecting the pit top site, threatened the ventilation shaft site, the site was able to be defended by the rural fire service, but it highlighted a number of potential risks that had not previously been considered, such as access to the site during a bushfire event. A risk assessment and review was undertaken following this event which determined additional asset protection zones would be required. Approval was subsequently sought and approved during the reporting period for the establishment of the proposed APZ's. **Figure 3.25** below shows the approved APZ area. LakeCoal is proposing to establish the APZ's during the 2016 reporting period.





Figure 3.25: Approved APZ's for Chain Valley Colliery.

## 3.16 Mine Subsidence

### 3.16.1 Overview of mining progress

Please refer to **Section 2.4** for details of the mining activities undertaken during the 2015 reporting period.

### 3.16.2 Approvals

The orientation & layout of the miniwall panels 7-9 required a nominal amount of first workings roadways within the High Water Mark Subsidence Barrier. An application to mine within the HWMSB was submitted to DRE on 7 Feb 2014 and approval was received on 14<sup>th</sup> March 2014. Additionally, first workings are required within a zone identified as a "Seagrass Protection Barrier", being 26.5 degrees projected from a mapped seagrass location as identified as part of the SSD-5465 mining approval.

In accordance with Schedule 4 of SSD-5465 Consent conditions, no secondary extraction was undertaken within the HWMSB or 26.5 degree angle of draw to the mapped seagrass extents.

### 3.16.3 Subsidence Surveys

Subsidence surveys are required to be undertaken annually as a minimum, with reference monitoring points located on shorelines nearby any mining activities. Shoreline surveys are also undertaken at intervals corresponding with key Miniwall retreat milestones (100m retreat, 50% and 100% complete). Bathymetric surveys are also undertaken each year to gauge subsidence levels over the area of secondary extraction undertaken beneath Lake Macquarie, where land-based surveys are not possible.

## 3.16.4 Performance Measures

Condition 1, Schedule 4 of SSD-5465 states: “The Proponent shall ensure that vertical subsidence within the High Water Mark Subsidence Barrier and within Seagrass beds is limited to a maximum of 20 millimetres (mm).”

In addition to the above, Condition 2 within Schedule 4 of SSD-5465 also requires that: “The Applicant shall ensure that the development does not cause any exceedance of the performance measures in Table 8 to the satisfaction of the Director-General.”

The relevant subsidence requirements from Table 8 within Schedule 4 of the Development Consent, including the relevant notes, are recreated in **Table 3.5**.

**Table 3.5: Subsidence Impact Performance Measures - Natural and Heritage Features**

Mine Workings	
First Workings under an approved Extraction Plan beneath any feature where performance measures in this table require negligible environmental consequences	To remain long term stable and non-subsiding

Condition 4 within Schedule 4 of SSD-5465 also requires that:

“The Applicant shall ensure that the development does not cause any exceedances of the performance measures in Table 9, to the satisfaction of the Director-General”. The relevant subsidence requirements from Table 9 within Schedule 4 of the Development Consent, including the relevant notes, are recreated in **Table 3.6**.

**Table 3.6: Subsidence Impact Performance Measures – Built Features**

Built Features	
Trinity Point Marina Development Other built features	<ul style="list-style-type: none"> <li>• Always safe</li> <li>• Serviceability should be maintained wherever practicable. Loss of serviceability must be fully compensated</li> <li>• Damage must be fully compensated</li> </ul>

## 3.16.5 Lake Floor Bathymetric Survey / Scanning

A bathymetric survey of Domains 1 and 2 commissioned by LakeCoal in March 2012 was compared to a bathymetric survey of Lake Macquarie undertaken by OEH in 2010, to determine the subsidence which had occurred during this period LakeCoal was granted a license to use the OEH data for the purposes of monitoring changes in the bed of Lake Macquarie and acknowledges the OEH's data which has enabled the subsidence comparison.

The 2012 survey, which was undertaken with a higher resolution of data points than the OEH data, will be used as the baseline for future subsidence comparisons.

From 2013 to 2015 further surveys were carried out on an annual basis over the mining area and the results compared to the original survey. **Figure 3.27** shows the extent of measured subsidence between the 2012 and 2015 surveys in addition to miniwall extraction in the same period.

### 3.16.6 Subsidence Results

The Trinity Point shoreline monitoring was completed several times over the 2014 calendar year, corresponding to various miniwall retreat stages on Miniwall 8-10. No significant subsidence levels were measured along the shoreline in this vicinity.

**Table 3.7** Trinity Point shoreline monitoring points shows the 2015 results for surveys on Trinity Point. Of note is a single point (T19) which has experienced 44mm of upwards movement in 2014. This result appears anomalous, and the mark will continue to be monitored. Marks T11 and T21 were removed due to construction of the Trinity Point Marina.

The foreshore along Summerland Point has been monitored since 1994, after secondary extraction was undertaken in the Wallarah beneath the south-western point (corresponding to mark S63 – 74). **Figure 3.26** shows the location of specific monitoring points on Summerland Point. **Table 3.8** summarises the subsidence monitoring in 2015. The monitoring points to the south of mark #53 are only monitored annually due to their distance from the current extraction area.

A maximum of 114mm of subsidence was measured (Point S71) since 1994. It is noted this point, along with points #63-75 have all experienced more than negligible amounts of subsidence (20mm) since June 2008. Since 2008, when Fassifern first workings were completed, subsidence has ranged between 20-40mm. This subsidence is however linked to residual effects from both first and second workings in the Wallarah and Great Northern Seams above the Fassifern seam workings (*Ditton, 2013 - CHV-002/2*), due the presence of soft claystone floor beneath the Great Northern seam. The measured subsidence movement over time has been plotted alongside the theoretical subsidence movement in **Figure 3.28** and shows actual subsidence in line with expectations for Wallarah and Great Northern seam secondary pillar extraction.

The Wallarah and Great Northern Seam workings were assessed as long term stable (*Seedsman, 2008 – CV11*) prior to mining in the Fassifern Seam being undertaken beneath the seams in the High Water Mark Subsidence Barrier (HWMSB).

It is considered, then, that the continuing subsidence effects along the foreshore are not a result of the 2008 Fassifern first workings or current miniwall extraction – rather due to the continuing consolidation of moisture-sensitive claystones in the Great Northern seam floor, and would occurred irrespective of the development of the Fassifern Seam roadways.

The Lake Macquarie bathymetric scan is carried out annually and the most recent survey was undertaken in April 2015. **Figure 3.27** shows the scan results comparative to the initial bathymetric survey in April 2012. A maximum difference of approximately 550-600mm was recorded with the major proportion of subsidence impacts ranging between the 100-400mm as evident in **Figure 3.27**. These results are consistent with the recent subsidence modelling completed which indicated up to 780mm of vertical subsidence in association with single seam extraction (such is the case with the current mining area). Note that increased subsidence of approximately 1230mm was predicted in areas beneath existing workings.

It is also important to note both the results and limitations of the Bathymetric scanning. The multi-beam echo sounder captures data at approximately  $\pm 0.100\text{m}$ . The survey vessel captures a swathe of data (down

to sub-metre resolution) and is weeded to a 10m x 10m grid. In addition to this, the dynamic nature of lake bed sediment movement and change has and will affect the depth of the lake bed over time; such effects are unable to be accounted for in the survey results. As a result, the collected data - while useful in determining trends of subsidence and approximate subsidence that has occurred - is not as accurate as land based surveys and should be viewed in consideration of these constraints.

Some noise is evident in **Figure 3.28** due to a combination of these limitations but there is unmistakably a measureable change in the lake floor due to mining activities, which is useful for fine-tuning the geotechnical subsidence model in addition to ensuring there have been no obvious exceedances of the expected subsidence values.

Monitoring is planned to continue in accordance with the approved Extraction Plan during the 2016 reporting period.



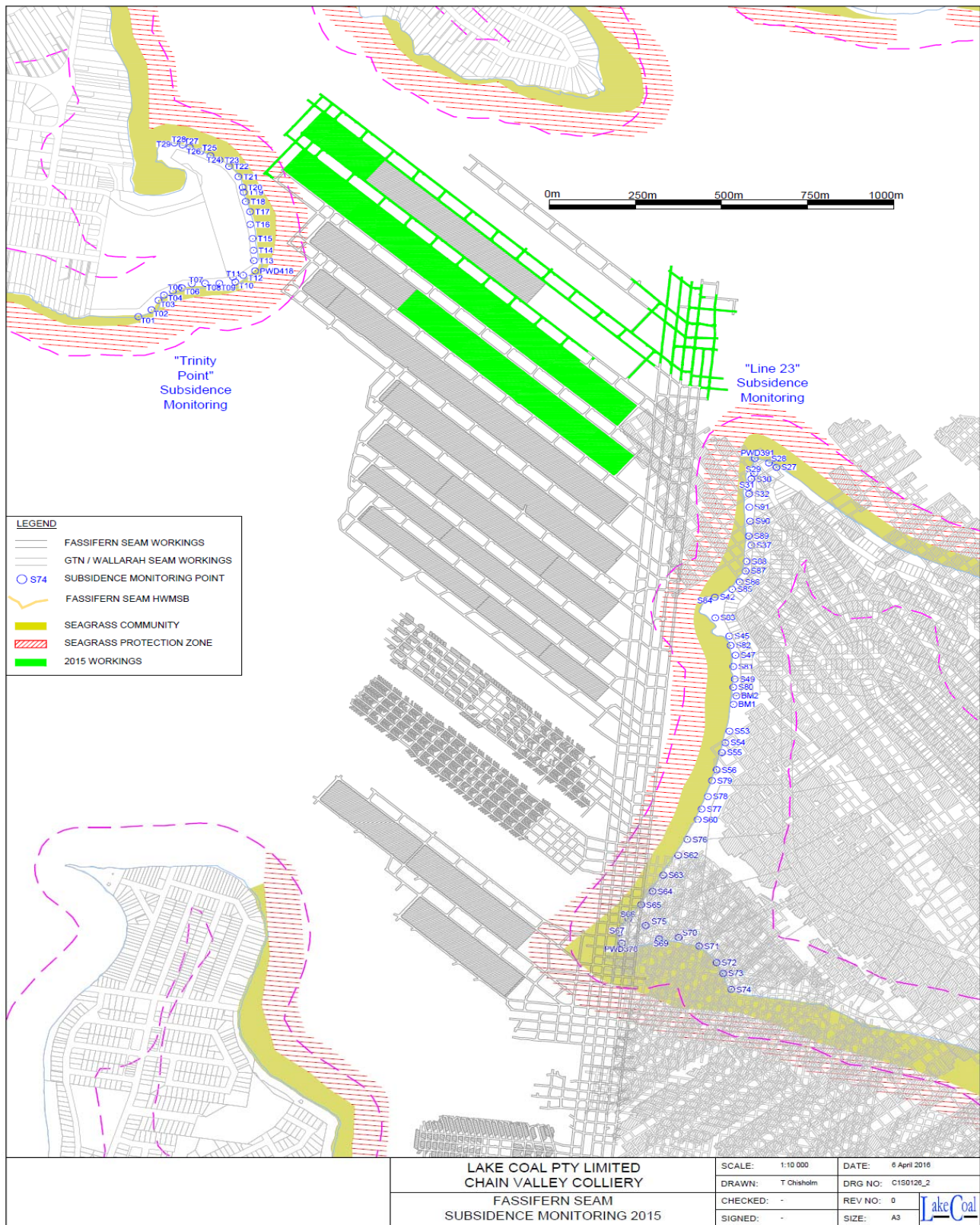


Figure 3.26: Shoreline subsidence monitoring locations

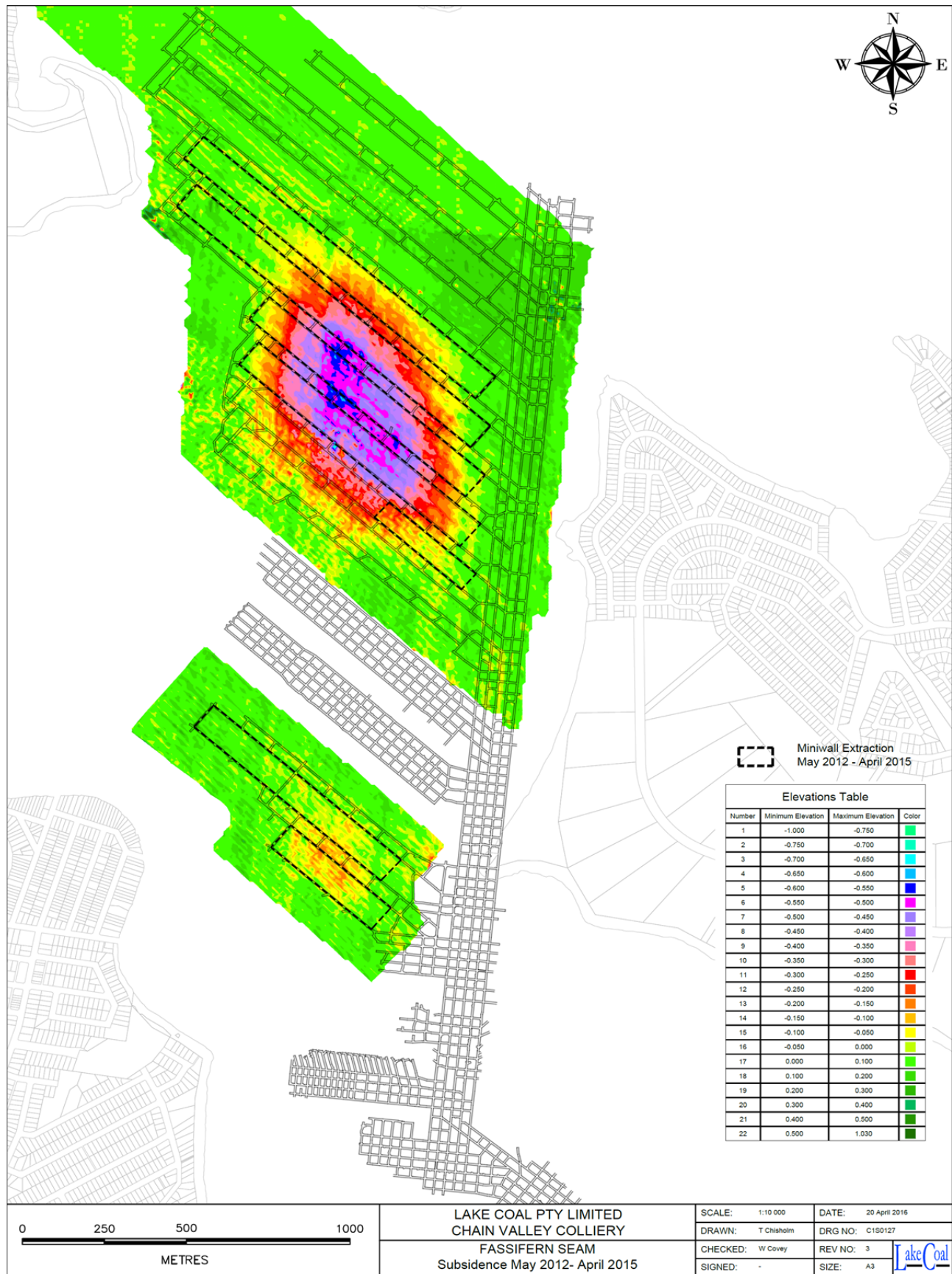


Figure 3.27: 2015 Lake bed subsidence results

Table 3.7. Trinity Point shoreline monitoring points

MARK	Original RL	31/01/2015		23/06/2015		01/09/2015		17/12/2015	
		MW8 Void = 565m		MW9 Void = 178m		MW9 Void = 754m		MW10 Void = 193m	
T01	0.328	0.328	0.001	0.327	-0.001	0.326	-0.001	0.327	0.000
T02	0.555	0.556	0.001	0.555	0.000	0.554	-0.001	0.555	0.000
T03	0.391	0.392	0.001	0.391	0.000	0.390	-0.001	0.391	0.000
T04	0.349	0.351	0.002	0.353	0.004	0.350	0.000	0.350	0.001
T05	0.430	0.431	0.002	0.431	0.001	0.428	-0.001	0.427	-0.003
T06	0.411	0.412	0.001	0.414	0.003	0.411	0.000	0.411	0.000
T07	1.841	1.842	0.001	1.845	0.004	1.841	0.001	1.843	0.003
T08	1.548	1.551	0.002	1.548	0.000	1.544	-0.004	1.547	-0.002
T09	0.841	0.842	0.001	0.842	0.001	0.838	-0.003	0.840	-0.002
T10	1.108	1.108	0.000	1.110	0.002	1.103	-0.005	1.104	-0.004
T11	6.328	6.327	-0.001	6.329	0.001	6.322	-0.005		
T12	7.647	7.642	-0.005	7.643	-0.004	7.641	-0.006	7.639	-0.008
PWD418	8.717	8.711	-0.006	8.715	-0.002	8.711	-0.006	8.707	-0.010
T13	5.467	5.461	-0.006	5.469	0.002	5.465	-0.002	5.454	-0.013
T14	3.249	3.242	-0.007	3.250	0.001	3.250	0.000	3.238	-0.011
T15	2.694	2.691	-0.003	2.694	0.000	2.693	-0.001	2.688	-0.007
T16	1.229	1.228	-0.002	1.226	-0.003	1.226	-0.003	1.221	-0.008
T17	0.280	0.279	-0.001	0.278	-0.002	0.277	-0.003	0.274	-0.007
T18	0.670	0.669	-0.001	0.669	-0.001	0.667	-0.002	0.664	-0.006
T19	0.456	0.500	0.044	0.497	0.041	0.495	0.039	0.492	0.036
T20	0.302	0.302	0.000	0.302	0.000	0.300	-0.002	0.297	-0.005
T21	0.523	0.524	0.001	0.523	0.000	0.521	-0.002		
T22	0.419	0.421	0.001	0.422	0.003	0.420	0.000	0.417	-0.002
T23	0.591	0.592	0.001	0.592	0.001	0.592	0.001	0.579	-0.012
T24	0.547	0.549	0.001	0.549	0.002	0.548	0.001	0.546	-0.002
T25	0.198	0.199	0.001	0.202	0.004	0.199	0.001	0.197	-0.001
T26	0.290	0.290	0.000	0.292	0.002	0.290	0.000	0.289	-0.001
T27	0.296	0.297	0.001	0.298	0.002	0.296	0.000	0.295	-0.001
T28	0.140	0.141	0.001	0.142	0.002	0.140	0.000	0.139	0.000
T29	0.246	0.246	0.000	0.247	0.001	0.248	0.002	0.246	0.000



# Report

LakeCoal

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Table 3.8- Line 23 shoreline monitoring points

Stn	Original Level	Jan-15		Jun-15		Dec-15		Comments
		Survey	Subsidence	Survey	Subsidence	Survey	Subsidence	
20	1.826	1.823	-0.003	1.823	-0.003	1.823	-0.003	Found
96	0.716	0.721	0.005	0.718	0.002			Feno
95	0.769	0.775	0.006	0.772	0.003	0.771	0.002	Feno
93	1.000	1.005	0.005	1.001	0.001	1.000	0.000	Feno
92	1.061	1.063	0.002	1.065	0.004	1.061	0.000	Feno
28	1.143	1.146	0.003	1.145	0.002	1.142	-0.001	Nail in tree
PWD 391	1.275	1.246	-0.029	1.244	-0.031	1.242	-0.033	Found - on lean
29	2.213	2.206	-0.007	2.203	-0.010	2.199	-0.014	Nail in tree
30	2.050	2.049	-0.001	2.046	-0.004	2.044	-0.006	Nail in tree
31	1.922			1.936	0.014	1.934	0.012	Nail in tree
91	2.247	2.252	0.005	2.250	0.003	2.249	0.002	Nail in tree on Track
32	1.662	1.672	0.010	1.666	0.004	1.668	0.006	Nail in tree
90	1.686	1.691	0.005	1.690	0.004	1.687	0.001	Nail in tree on Track
89	1.598	1.603	0.005	1.602	0.004	1.600	0.002	Nail in tree on Track
37	2.796	2.778	-0.019	2.780	-0.016	2.777	-0.019	Nail in tree
88	1.760	1.765	0.005	1.765	0.005	1.762	0.002	Nail in tree on Track
87	1.667	1.678	0.011	1.678	0.011	1.677	0.010	Nail in tree on Track
86	1.734	1.740	0.006	1.740	0.006	1.738	0.004	Nail in tree on Track
85	2.190	2.193	0.003	2.193	0.003	2.190	0.000	Nail in tree on Track
42	2.121	2.123	0.001	2.126	0.005	2.124	0.003	Nail in tree
84	0.531	0.528	-0.003	0.526	-0.005	0.525	-0.006	Nail in Rock Platform
83	1.031	1.029	-0.002					Feno, marked with stake close to lake
45	2.058	2.072	0.013	2.094	0.036	2.091	0.033	Nail in tree
82	0.545	0.541	-0.004	0.541	-0.004	0.537	-0.008	Feno, marked with stake close to lake
47	1.848			1.842	-0.006	1.841	-0.007	Nail in tree
81	0.624	0.620	-0.004	0.623	-0.001	0.622	-0.002	Feno, marked with stake, east side of cleaning Table
49	0.800	0.771	-0.029	0.772	-0.028	0.771	-0.029	Headwall
80	0.625	0.625	0.000	0.628	0.003	0.629	0.004	Feno, marked with stake, Clump of Trees, lakeside
53	1.263	1.229	-0.033					Nail in tree
54	1.327	1.298	-0.029					Nail in tree
55	1.196	1.175	-0.021					Nail in tree
56	1.403	1.361	-0.042					Nail in tree - Nail bent down on Survey 25/09/2013
78	0.866	0.877	0.011					Feno, marked with stake
77	0.762	0.764	0.002					Feno, marked with stake
60	1.583	1.562	-0.021					Nail in tree
76	0.947	0.947	0.000					Feno, marked with stake
62	1.533	1.510	-0.023					Nail in tree
63	1.285	1.256	-0.029					Nail in tree
64	1.895	1.862	-0.033					Nail in tree
65	1.612	1.581	-0.031					Nail RHS side of tree
66	1.083	1.051	-0.032					Nail in tree
67	0.811	0.766	-0.045					Nail in tree
PWD 378	1.290	1.246	-0.044					Found - Top Plague missing effecting level
75	1.349	1.339	-0.010					Nail in tree on Track
69	0.740	0.665	-0.075					Nail in tree
70	1.135	0.998	-0.137					Found - Nail rusted away to point
71	0.852	0.699	-0.153					Nail in tree
72	0.802	0.689	-0.113					Nail in tree
73	0.882	0.784	-0.098					Nail in tree
74	0.880							Picket, loose Top rusted away NOT SURVEYED



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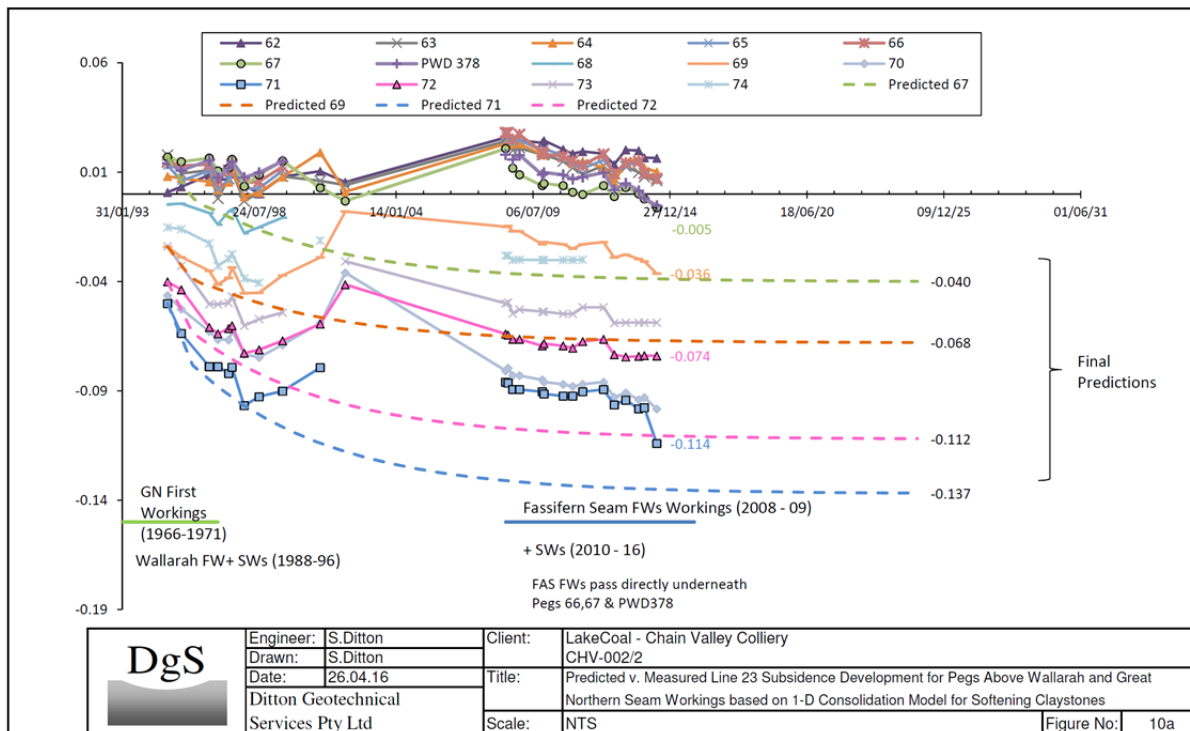


Figure 3.28: Long term predicted vs measured subsidence (Line 23)

## 3.17 Hydrocarbon Contamination

Hydrocarbons are managed in accordance with the site Storage of Fuel and Chemical Standard (STD-0038).

Suitable bunding has been installed around all liquid storage areas with an oil separator installed on the wash down sump which treats water prior to transfer of the treated water to the site sediment dams. Spill kits are also located at hydrocarbon storage areas. All waste oil is taken off site by an external licensed waste collection company. A weekly inspection regime is in place to check waste oil levels and arrange disposal on an as required basis.

Following a recommendation from the Department during the reporting period, LakeCoal has developed a hydrocarbon contaminated materials management standard for use on site. The standard has been developed to assist with providing guidance around the appropriate management of hydrocarbon contaminated material on site.

LakeCoal is also investigating the feasibility and practicality of constructing a dedicated bioremediation area for the site to assist with managing hydrocarbon impacted material. This assessment will be undertaken during the 2016 reporting period.

## 3.18 Methane Drainage

Methane levels in the Fassifern seam of approximately 2 – 4 m<sup>3</sup>/t do not warrant the need for pre or post gas drainage, and as such all methane from the mining operations are ventilated from the via the main fans at Summerland Point.

The methane levels in the return are generally low enough to ensure operations are not adversely affected by the gas levels.

Given the mining operations are being undertaken beneath Lake Macquarie and methane levels are manageable with the existing ventilation system there are no plans to install pre or post gas drainage infrastructure at this time.

Methane emissions from the Colliery are reported annually to the Clean Energy Regulator in accordance with the *National Greenhouse and Energy Reporting Act 2007* (NGER Act), the details from the latest (financial year 2014-2015) are below in **Table 3.9**. The estimated emissions have been broken down into direct (Scope 1 emissions) and indirect (Scope 2 emissions).

**Table 3.9: 2014-2015 Greenhouse Gas Emissions (NGER)**

<b>Scope 1</b>	
<b>Ventilation Emissions</b>	
CH4 and CO2	323,382 t CO <sub>2</sub> -e
<b>Post-Mining Emissions</b>	
Fugitive based on ROM	19,609 t CO <sub>2</sub> -e
<b>Fuel Emissions</b>	
Diesel	1,042 t CO <sub>2</sub> -e
Acetylene	0.3 t CO <sub>2</sub> -e

<b>Lubricant Emissions</b>	
Oils	165 t CO <sub>2</sub> -e
Grease	2 t CO <sub>2</sub> -e
<b>Synthetic Gasses</b>	
SF <sub>6</sub>	5 t CO <sub>2</sub> -e
<b>Wastewater Emissions</b>	
CH <sub>4</sub>	38 t CO <sub>2</sub> -e
N <sub>2</sub> O	4 t CO <sub>2</sub> -e
<b>Scope 2</b>	
Electricity Use	15,663 t CO <sub>2</sub> -e

### 3.19 Public Safety

Public safety is primarily a concern around the surface facilities at the Colliery being both the pit top area and the ventilation shaft site.

The public safety around the ventilation shaft site is generally afforded by;

- Restricting access to the site by utilising a locked access gate across the access road;
- Provision of a security fence around the entire perimeter of the compound, with locked access gates; and
- Security monitoring.

In relation to the pit top area, there is one sealed access road into the area which has a set of lockable gates present, which can be closed should the need arise to stop access to the site. These gates may be closed and locked at times of no expected traffic, such as during the night time period but would otherwise remain open for deliveries, employee and authorised visitor access. A security firm is also engaged to undertake scheduled site security checks and remote alarm monitoring and reporting. The security checks are random, but generally undertaken at times of higher unauthorised access risk such as nights and weekends.

Public access will be monitored and managed during operation of the mine through the standard incident reporting process which would include reporting of unauthorised access.

A visitor login system onsite ensures that authorised visiting members of the public are assigned a site contact and that upon login the site contact is notified immediately by email of the visitor's presence onsite.

Public safety is also a consideration in the road coal haulage operations; this is discussed in **Section 3.20**. During the reporting period there were no incidents of injury to the public.

### 3.20 Other Issues and Risks

As all product coal is trucked from site there is a risk to public safety and property associated with the use of road trucks transporting coal on public roads directly to domestic customers or to Port Waratah Coal Services for export.

A large proportion of the coal transported from site is taken directly to the adjacent Vales Point Power Station by private roads and consequently poses no risk to users of the public road system. The monthly volumes of coal transported from site by destination are shown in **Section 2.4**.

A number of controls are in place in relation to the transport of the coal on public roads; these are covered in the site Coal Haulage Traffic Management Plan and Coal Haulage Driver Code of Conduct to ensure that the risks are adequately controlled. In addition, independent traffic audits on the road coal haulage, completed by a Level 3 Road Safety Auditor appointed by NSW Planning and Environment, were undertaken during the reporting period.

The findings from the independent traffic audit that was completed in December 2015 (for the August 2014 – July 2015 period) are provided below, a response to the findings is also provided in **Table 3.10**

“Following a review of truck haulage records, complaint register and daily weighbridge records for the review period, and observing numerous truck trips over random days, GHD did not observe any behavioural problems or impacts to the travelling public or road network functionality as a result of the ongoing coal haulage operation.

GHD did observe some minor infringements with regard to exceeding the sign posted speed limit, slowing but not stopping at the Construction Road/Ruttley’s Road intersection stop sign, and use of a mobile phone whilst driving. In this regard, LakeCoal should remind all truck drivers periodically of their responsibilities as outlined in the Drivers Code of Conduct.

“... during the audit period there was one recorded truck accident involving a fully laden truck travelling eastbound to PWCS, which rolled on its side whilst negotiating a left turn slip lane at the intersection of Maitland Road and Industrial Highway. ME Transport (the Colliery’s principle haulage contractor) investigated the incident in consultation with LakeCoal, counselled each of its truck drivers regarding the incident and provided training (via tool box talks) to its truck drivers, reminding them of the importance of undertaking their haulage activities in a safe manner”.

For the review period there were a total 16,373 laden truck movements from the Colliery on the public road network (to PWCS, ME Coal Storage and Weathertex), and the same number of movements again, unladen, into the Colliery - a total of 32,746 movements for the year. During this period, a total of 8 public complaints we received indicating a strong road safety culture across the truck drivers and the drivers’ respective companies.”

**Table3.10: Actions from independent traffic audit**

Finding	Recommendation	Action / Status
Minor infringements with regard to exceeding the sign posted speed limit	Remind all truck drivers periodically of their responsibilities as outlined in the Driver Code of Conduct.	Complete. Toolbox talk presented (28/10/15) to all drivers specifically reiterating requirement for compliance with speed limits.
Slowing but not stopping at Construction Road/Ruttley’s Road stop sign	Remind all truck drivers periodically of their responsibilities as outlined in the Driver Code of Conduct.	Complete. Toolbox talk presented (28/10/15) to all drivers with specific reference to expected behaviour at the stop sign at Ruttley’s Rd / Construction Rd (and all other advisory signs).
Talking on phone while driving	Remind all truck drivers that it is illegal	Complete. Toolbox talk presented (28/10/15) to all drivers with specific reference to use of



	to use a mobile phone while driving.	mobile phones.
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LakeCoal's commitment to enforcement of the Code of Conduct remains vigorous and disciplinary measures from temporary suspensions to permanent dismissals were exercised during 2015 and will continue to be exercised as necessary. Aside from a number of complaints received (refer **Section 4.1**) there were no injuries to the public associated with the road coal haulage during the reporting period. No other issues or risks have been identified.

## 4 Community Relations

### 4.1 Environmental Complaints

A total of 11 complaints were received during the reporting period. Two were regarding noise from the coal loading operations and 1 was an anomalous complaint regarding rail noise (which was not attributable to Chain Valley). The remaining 8 complaints were related to coal haulage operations on public roads, with details of each, including the action taken provided in **Table 4.1** below. Total complaint numbers has increased slightly on the 2014 reporting period (7 complaints).

A copy of the Complaints register is provided on the Chain Valley Colliery website.

Title: Annual Review 2015

Table 4.1: Complaint Summary and actions taken during the reporting period

Date	Nature of Complaint	Complaint/Incident Details	Action Taken
12/01/2015	Noise	Complainant called the LDO office in Rutherford and left a message on the answering machine at 7:10am. Complainant noted noise from a coal loader waking him up early in the morning again. No name or contact details were left.	No activities on the stockpile were undertaken from around 7pm (11/1/15) to 5am (12/1/15). Recent night time noise monitoring in December identified no issues with noise levels (result nearest stockpile was 37dB, criteria 49 dB). Unable to follow up with complainant as no name or contact details provided.
12/01/2015	Truck Haulage	The complainant advised his car was struck with coal after falling from a truck adjacent Doyalson Welding, southbound on the Pacific H'way and his windscreen had sustained a "star" chip.	The registration of the truck was used to determine the owner and operator. The truck owners contacted the complainant and agreed to cover any costs incurred. The complainant was contacted again by LakeCoal and confirmed he was happy with the outcome and conveyed his thanks for our cooperation in the matter.
24/02/2015	Noise	The complainant called regarding loader noise which woke him up at 4:30am yesterday and 1:30am this morning.	Complaint discussed in detail with the complainant. Review of stockpiling activities undertaken. Reverse alarm of 988 loader identified as having been replaced with high pitch alarm, arranged to refit low tone alarm on 27/2. Limited use of horns discussed and agreed with ME supervisor / loader driver. Discussed and agreed with ME supervisor that when stockpiling coal a large windrow for noise reduction is to be created at back of stockpile and recreated from time to time following haulage of the coal previously used to create the windrow. Complainant advised of actions taken/proposed on the 26/2 and appreciated the action taken and follow up communication.
15/03/2015	Truck Haulage	The complainant left a message with our after hours answering service on Sun 15/3 alleging a truck was driving erratically Northbound on the M1 Fri Mar 13.	The trucking company and driver were identified from the information provided. Both the driver and the employer were spoken to in relation to the complaint, the driver stated he was at a loss as to the reason for the complaint and did not recall a specific incident that it would have related to. The employer confirmed that the driver had been employed with the company for several years and in this time has had good driving record. He did however thank us for bringing this to his attention and would always want to be made aware of anyone's concerns regarding his drivers' behaviour on the road. No further action was taken however the complainant was provided with the above information.
17/03/2015	Truck Haulage	Complainant rang to say he has sustained a cracked windscreen after following a truck on to the Sparks Rd exit southbound on M1	The complainant was contacted and further details sought. The complainant could not confirm what cracked the windshield, or the truck rego details. It was however confirmed that the truck was not displaying a LakeCoal sign, but did have the name of a quarry on the rear trailer, and turned left onto Sparks Rd. The complainant was advised that all trucks hauling coal for LakeCoal would display a sign and turn right at Sparks Rd to re-join the M1 northbound. The complainant agreed that the truck would not have been working for LakeCoal and no further action was required.

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Date	Nature of Complaint	Complaint/Incident Details	Action Taken
08/07/2015	Truck Haulage	Email received from complainant observing coal truck returning to site via public roads at 6:07pm. The complainant questioned if this truck movement was occurring outside of approved hours (referencing the 5:30am to 5:30pm haulage hours from the Development Consent). Partial identification details of the truck were provided by the complainant.	Investigation of truck movements undertaken, however it is noted that the condition of consent restricts coal trucks being "dispatched from the site to public roads outside of the hours of 5:30 am to 5:30 pm". Trucks are permitted to return to site after this time. The truck was identified from the partial licence plate provided. It had left site at 2:41pm to PWCS, however was delayed at PWCS for approximately 2 hours due to a "red light" (for unloading). The truck was returning to site as it remains parked onsite overnight. The last truck dispatched from site on the 8/7/15 was at 4:45pm, prior to the 5:30pm restriction. The complainant was contacted on the 9/7/15 and advised of the above and appreciated the follow up and details.
11/08/2015	Truck Haulage	Phone call received from complainant identifying that a truck had run through a red light on Maitland Rd, near the Haxham bridge. Partial identification details of the trailer were provided.	Truck and driver were identified (truck ID# 912). Driver was contacted and questioned, he recalled the location of the complaint but asserted that the light was orange upon entry to the intersection, turning red as he passed through, and that at the time he judged that proceeding as opposed to attempting to brake was the appropriate decision. The driver was issued a formal warning in relation to the incident. Follow up correspondence with the complainant occurred and the feedback and response were appreciated.
14/08/2015	Truck Haulage	Complainant called to advise that a truck had tailgated them when travelling southbound on the M1 and tailgated another driver after changing lanes. The trailer registration was provided. The complainant indicated no call back was necessary but thought the driver should be spoken to.	The truck and driver were identified (truck ID# 228). The driver was spoken to on site in the early afternoon and questioned about the complaint. The driver was adamant he had not been tailgating any other road users and offered his dash-cam in support of his claim. The dash-cam footage was reviewed however the time of the complaint had already been overwritten by more recent video, so was unable to support either parties views. The driver was reminded of his obligations and allowed to return to work. No follow up contact was possible with the complainant as no contact details were provided.
17/11/2015	Truck Haulage	Complainant rang to advise that a truck displaying the LakeCoal signage had overtaken him on the Beresfield roundabout, northbound at John Renshaw Drive. The complainant was driving a 26m B Dbl combination truck.	The complainant alleged that he was in the LH lane approaching the roundabout in preparation for a RH turn, eastbound towards Hexham. It was explained that LakeCoal truck #935 approached the roundabout in the RH lane and proceeded to overtake the complainant on the roundabout. The complainant explained that there was not enough room for both trucks and they came very close together. During an interview with the ME transport driver he explained that this was a very large roundabout and considered that there was plenty of room for both trucks to negotiate the roundabout. The driver was adamant that at no stage did he consider he or anyone else was in any danger and was most apologetic that he had caused concern to another road user. The driver assured us that his compliance to all protocols and conditions of haulage would continue.

Date	Nature of Complaint	Complaint/Incident Details	Action Taken
26/11/2015	Truck Haulage	Cracked Windscreen	Complainant rang the mine at approx 10.25am and alleged that his windscreen had been cracked from falling coal off an oncoming truck on Ruttleys Rd at approx 8.10am. He was unable to provide any information regarding truck type, markings or rego etc. The complainant explained that the incident occurred at the vicinity of the Eaton's exit on Ruttleys Rd whilst the complainant was travelling west bound towards Mannering Park. A check of weighbridge records revealed that five trucks recorded loads between 8.05am and 8.17am. The drivers of these trucks were spoken to and they each advised that they had checked their trucks prior to departure as normal and had no knowledge of any coal spillage. The complainant was advised of our investigation and advised he explained he would proceed with repairs to his vehicle via his insurance company.
18/12/2015	Noise	Complainant called the LakeCoal general switch number to enquire about the media reports associated with Chain Valley's recent approval modification and in particular the increase in coal production. The complainant was concerned about noise impacts (from coal trains) on the rail line near argenton.	The complainant was advised that the majority of Chain Valley's coal was trucked next door to the local power station and that coal was not railed from the operation.  The complainant acknowledged the information and was asked if they wanted to leave any contact details. The complainant advised that they did not want to provide thier details.

## 4.2 Community Liaison

The Chain Valley Colliery Community Consultative Committee (CCC) continued to operate in accordance with the *Guidelines for Establishing and Operating Community Consultative Committees for Mining Project, June 2007 (NSW Department of Planning)* during the reporting period. The current CCC representatives are listed in **Table 4.2**.

There were four CCC meetings held during the reporting period on the 24 February 2015, 19 May 2015, 11 August 2015 and the 10 November 2015. Minutes for each of the committee meetings are available on the LakeCoal website (<http://www.chainvalleymine.com.au/community/consultative-committee-information/>).



Table 4.2: Community Consultative Committee Members

Stakeholder	Name
Chairperson	Margaret MacDonald-Hill
Community	Andrew Whitbourne
Community	John Oakes
Community	Neil Wynn
Community	Peter Cripps
Community	Paul Maky
Community	Bart Vanderzee
Community	Ian Carr
LakeCoal	Wade Covey
Lake Macquarie City Council	Daniel Wallace
Wyong Shire Council	Tanya O'Brien

In addition to the above the LakeCoal website was updated on a monthly basis with monitoring data, management plans, reports, audits and complaint details among other items.

The community hotline number (1800 687 557) also remained in place during the reporting period and is displayed prominently and permanently on the website.

## 5 Rehabilitation

### 5.1 Buildings

There was no rehabilitation of buildings undertaken in the reporting period.

### 5.2 Rehabilitation of Disturbed Land

There was no significant rehabilitation works on disturbed lands during the reporting period, which relates the fixed nature of the surface infrastructure and the ongoing mining operations requiring continued use of all this area. A summary of the rehabilitation statistics for Chain Valley Colliery is provided in **Tables 5.1** and **5.2 below**. A copy of the sites final rehabilitation plans is provided in **Appendix 1**. The plans are consistent with the approved Chain Valley Colliery MOP.

Table 5.1 – Summary of Rehabilitation at Chain Valley Colliery

Item	This period (2015)	Next period (2016)
<b>A. Total Mine Footprint</b> (managed by LakeCoal)	Approximate ly 14.70	Approximately 14.70
<b>B Total Active Disturbance</b>	14.70	14.70

Title: Annual Review 2015

<b>C. Land being prepared for rehabilitation</b>	Nil	Nil
<b>D Land Under Active Rehabilitation</b>	Nil	Nil
<b>E Completed Rehabilitation</b>	Nil	Nil

Table 5.2 – Maintenance Activities on Rehabilitated Land at Chain Valley Colliery

NATURE OF TREATMENT	Area Treated (Ha)		Comment/Control Strategies/Treatment Detail
	This period (2015)	Next period (2016)	
<b>Additional Erosion Control Works</b> (drains re-contouring, rock protection)	1	1	Installation of rock protection, new spillway and dam embankments improvements during 2015. Further improvements to be undertaken in 2016.
<b>Re-covering</b> (further topsoil, subsoil sealing etc.)	0.2	0.5	Minor shaping associated with temporary rehabilitation of southern stockpile area. Additional seeding to undertaken following APZ establishment in 2016.
<b>Soil Treatment</b> (fertiliser, lime, gypsum etc.)	0	0	n/a
<b>Treatment/Management</b> (grazing, cropping, slashing etc.)	0	0	n/a
<b>Re-seeding/Replanting</b> (species density, season etc.)	0.2	0.5	Minor seeding (pasture mix) associated with temporary rehabilitation of southern stockpile area. Additional seeding to undertaken following APZ establishment in 2016.
<b>Adversely Affected by Weeds</b> (type and treatment)	1	0	Weed Management undertaken during the reporting period.
<b>Feral Animal Control</b> (additional fencing, trapping, baiting etc.)	14.70	n/a	Feral animal control undertaken during the reporting period. Not scheduled to be undertaken again until 2017.

## 5.3 Other Infrastructure

There was no other rehabilitation works completed during the reporting period.

## 5.4 Rehabilitation Trials and Research

No rehabilitation trials or research was undertaken during the reporting period.

## 5.5 Further Development of the Final Rehabilitation Plan

The Rehabilitation Management Plan (EMP-D-16373) was updated during the previous reporting period, it was provided to numerous regulators and stakeholders as required by Condition 27, Schedule 3 of SSD-5465, however comments were only received back from Wyong Shire Council, Delta Electricity (the landowner) and the NSW Office of Water, all comments were addressed, and documented within the consultation section, within the final version of the Rehabilitation Management Plan that was submitted to both the Department of Planning and Environment and DRE for approval on the 8 December 2014. At the end of the reporting period the revised Rehabilitation Management Plan had not been approved. The contents of the plan were however used to form the basis of the new Mining Operations Plan for the Colliery which was approved on 27 March 2015 by the Department. The proposed final rehabilitation plan, consistent with both the Rehabilitation Management Plan and Mining Operations Plan is provided as **Plan 4 (Appendix 1)**.

## 6 Activities proposed in the next Annual Review period

A summary of the activities (and their current status) that were proposed to be undertaken during the 2015 reporting period is provided in **Table 6.1** below.

**Table 6.1 – Update on activities planned to be undertaken in the 2015 reporting period.**

Activity Proposed	Status Update
Upgrades to the sediment dam spillway and embankment, installation of new flow monitoring equipment at outlet of final dam;	Complete. These works were completed in July 2015 and were undertaken in accordance with the PRP placed on EPL1770.
Engineering development for new wastewater treatment or disposal solution	Complete. Concept design report submitted to the EPA for approval.
Improvements to bunded oil storage area.	Complete. Shed constructed over former storage area.
Submission of new Mining Operations Plan, associated with operations from 2015 - 2018;	Complete. New MOP submitted and approved on 27 March 2015.
Implementation of additional water management improvement works; as outlined in the revised Water Management Plan;	Complete. These works were completed in July 2015 and were undertaken in accordance with the PRP placed on EPL1770.
Undertake bushfire hazard assessment and development of a bushfire management plan;	Complete. Undertaken as part of Modification 2 to SSD 5465 which was approved on 16 December 2015. APZ's to be installed in the 2016 reporting period.

Activity Proposed	Status Update
Improvements to endangered ecological communities surrounding the site, as per Biodiversity Management Plan.	Partially complete. Weed management and removal works undertaken during 2015 to improve these areas. To be continued in the next reporting period.
Establishment of Voluntary Planning Agreement with Wyong Shire Council for contributions to be made and distributed for local community enhancement purposes;	Partially complete. VPA currently with Wyong Council for finalisation. Extension to DA requirement granted till 31 December 2016.
Commence S 96(2) modification process for improved mine design and production increase.	Complete. Modification was lodged in July 2015. Approved on 16 December 2015.

There are a number of activities proposed to be undertaken in the 2016 reporting period which highlights the ongoing environmental improvements being undertaken at Chain Valley Colliery in response to current regulatory requirements and the continual improvement process. These activities include but are not limited to:

- Finalisation of engineering design for sewer system upgrade required under EPL 1770;
- Installation of the Asset Protection Zones as approved under Mod 2;
- Construction of 2 new U/G mine water lines from existing drift to Dam 8;
- Acoustic and noise mitigation assessment for ventilation fan site to meet long term noise goals;
- Environmental Management Plan reviews as required following Mod 2;
- Development of a LakeCoal Life of Mine approvals strategy to assist with long term planning;
- Development and submission of an Extraction Plan for MW13–18;
- Finalisation of the Biodiversity Offsets for the APZ's in consultation with OEH;
- Finalisation of the Voluntary Planning Agreement (VPA) with Wyong Shire Council so contributions can be made and distributed for local community enhancement purposes; and
- Variation to EPL1770 to align with increased production approved under Mod 2.

## 7 References

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EMGA Mitchell McLennan, 2013 – *Environmental Impact Statement, Chain Valley Colliery Mining Extension 1 Project*. Prepared for LakeCoal Pty Ltd.

Global Acoustics, 2015 – *Chain Valley Colliery Environmental Noise Monitoring, Quarter 1 2015*.

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Laxton, J. H. & Laxton, E. S., 2015 – *Seagrass Survey of Chain Valley Bay, Summerland Point and Crangan Bay, Lake Macquarie, NSW (Results for 2008 to 2015)*.

Laxton, J. H. & Laxton, E. S., 2015 – *Lake Macquarie Benthos Survey Results No. 7 (March 2015)*.

Laxton, J. H. & Laxton, E. S., 2015 – *Lake Macquarie Benthos Survey Results No. 8 (September 2015)*.

Project Approval MP 10\_0161 (as modified), issued under Section 75J of the *Environmental Planning and Assessment Act, 1979*.



Development Consent SSD 5465 (as modified), issued under Section 89E of the *Environmental Planning and Assessment Act, 1979*.

## 8 Definitions

### **AEMR**

Annual Environmental Management Report, now known as the Annual Review.

### **Annual Review**

The annual environmental report compiled for CVC, the Annual Review also fulfills the requirement for an Annual Environmental Report or an Annual Environmental Management Report generally required by mining leases.

### **CCC**

Community Consultative Committee

### **CVC**

LakeCoal - Chain Valley Colliery

### **DRE**

Division of Resources and Energy within the Department of Trade, Investment, Regional Infrastructure and Services.

### **EPA**

Environment Protection Authority

### **EP&A Act**

Environmental Planning and Assessment Act, 1979

### **EPL**

Environment Protection License

### **EMS**

Environmental Management System

### **kL**

Kilolitre

### **LDP1**

Licensed Discharge Point 1 (per EPL1770)

### **OEH**

NSW Office of Environment and Heritage

### **PWCS**

Port Waratah Coal Services

### **t CO<sub>2</sub>-e**

tonnes of carbon dioxide equivalence

### **The website**

The website of LakeCoal - Chain Valley Colliery, which is, [www.chainvalleymine.com.au](http://www.chainvalleymine.com.au)

### **MP10\_0161**

Project approval MP 10\_0161, as modified, issued under Section 75J of the Environmental Planning and Assessment Act 1979 for the Chain Valley Colliery Domains 1 & 2 Continuation Project.

### **SSD 5465**

Development Consent SSD 5465, as modified, issued under Section 89E of the Environmental Planning and Assessment Act 1979 for the Chain Valley Colliery Mining Extension 1 Project.

### **VPPS**

Vales Point Power Station

### **WCJV**

Wallarrah Coal Joint Venture

## 9 Appendices

**Appendix 1: Plans**

**Appendix 2: Project Approval MP 10\_0161**

**Appendix 3: Development Consent SSD-5465**

**Appendix 4: Environment Protection Licence 1770**

## **Appendix 1: Plans**

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## **Appendix 2: Project Approval MP 10\_0161**

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## **Appendix 3: Development Consent SSD-5465**

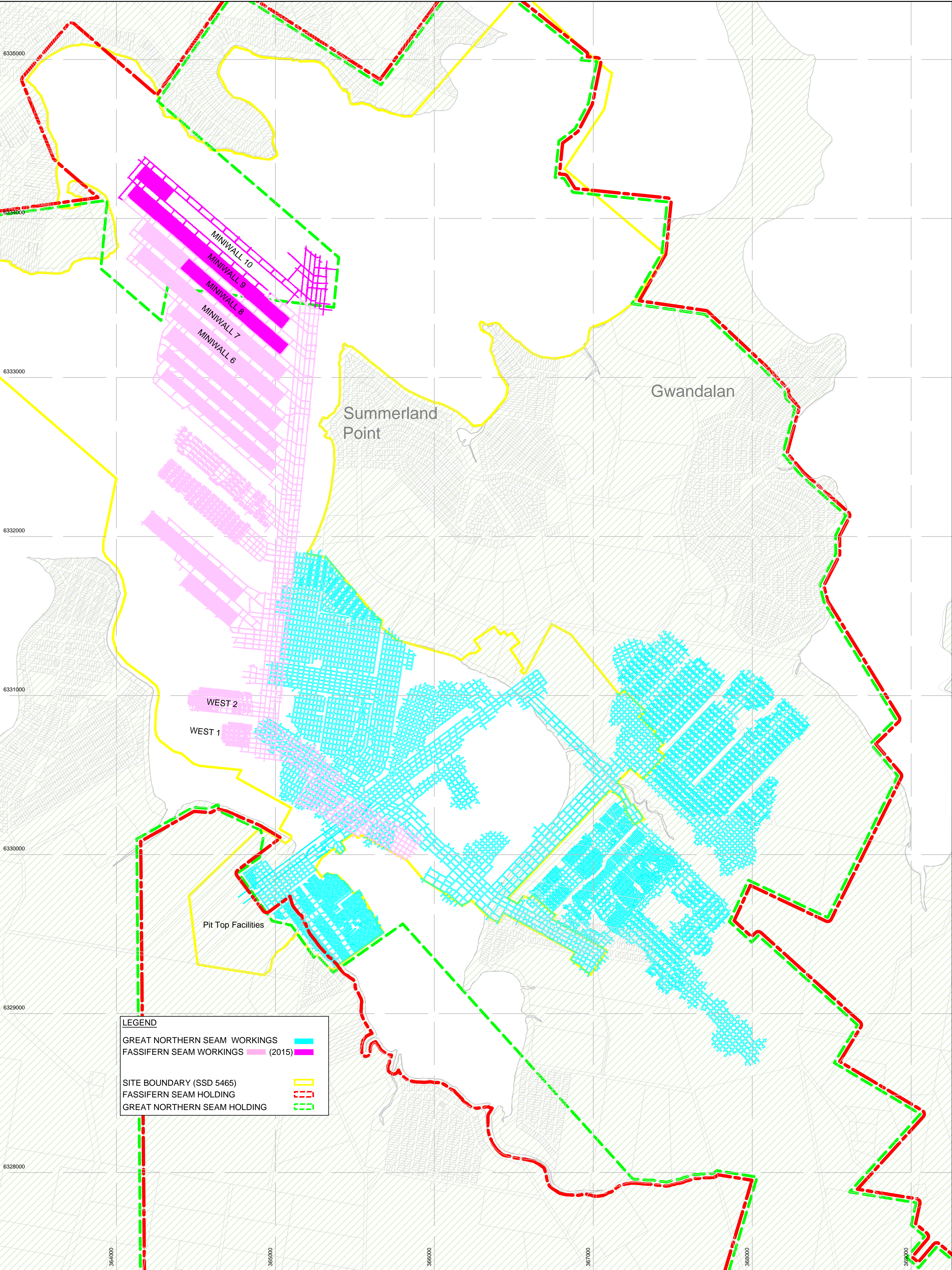
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## **Appendix 4: Environment Protection Licence 1770**



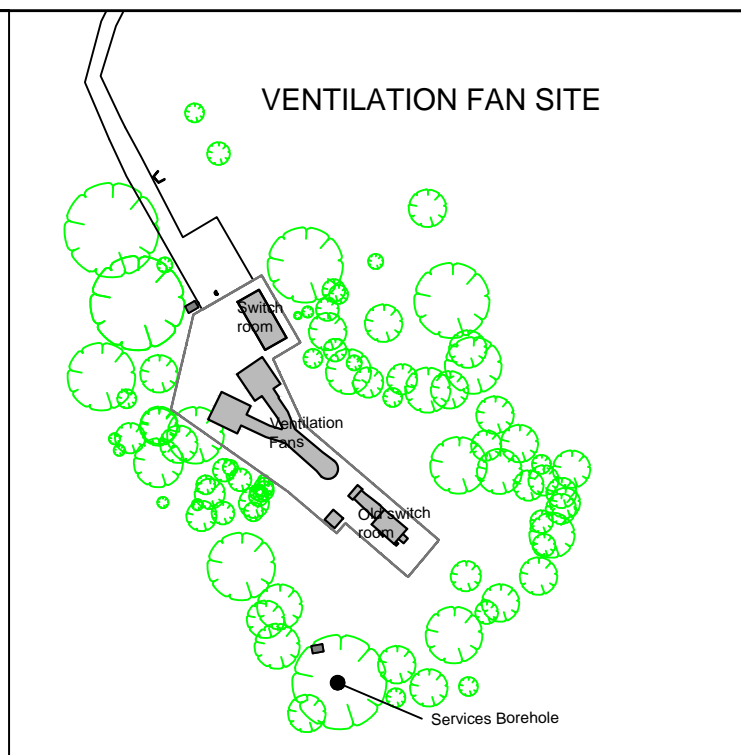
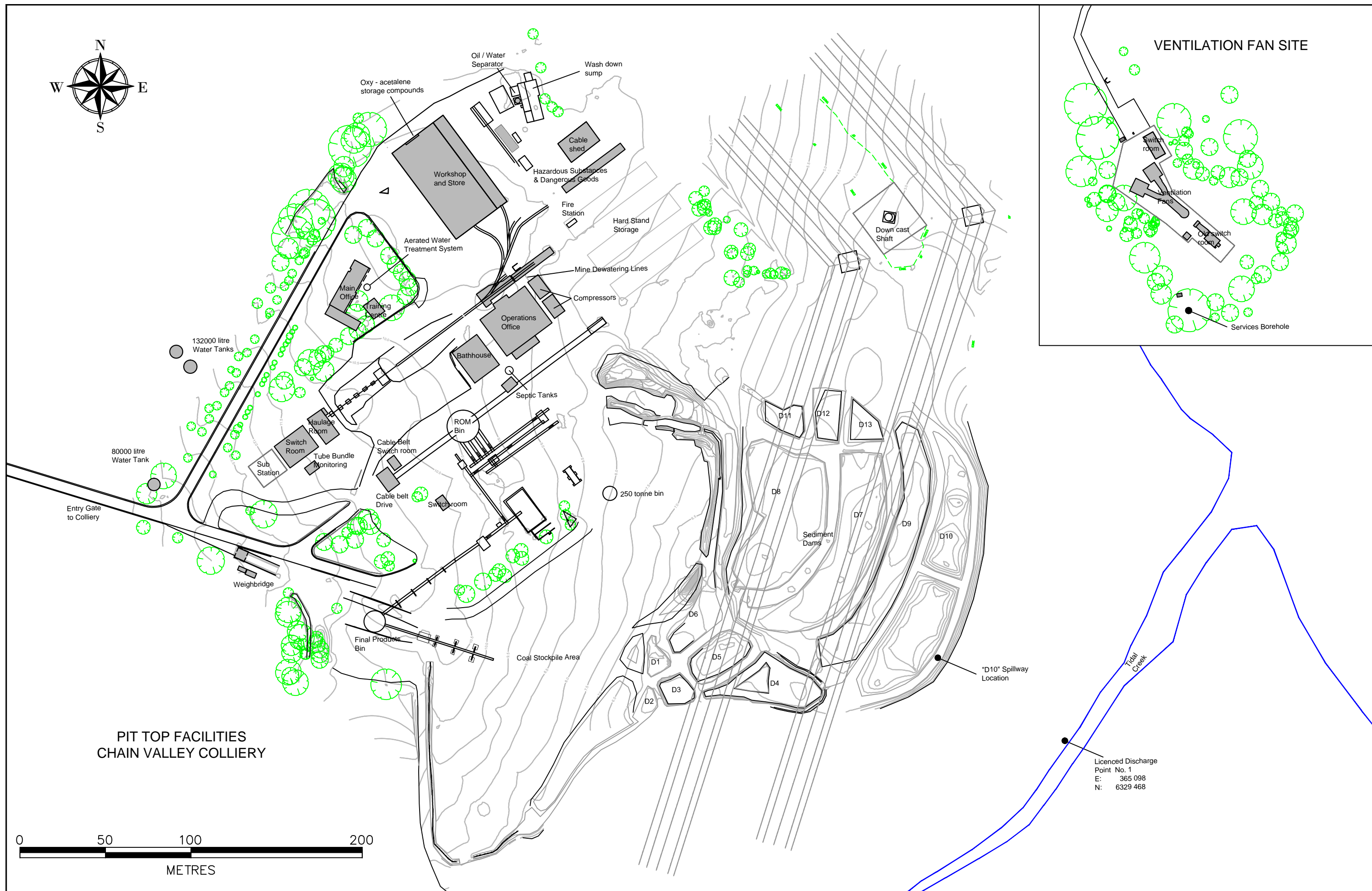
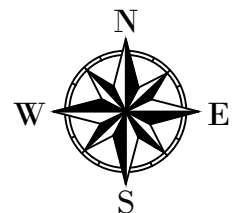




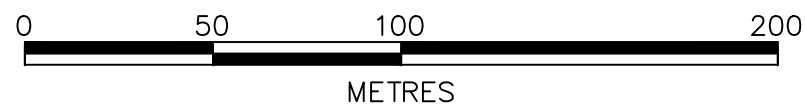
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		DRAWN:	T Chisholm	DRG NO:	C4P0180_2
	ANNUAL REVIEW (AEMR) 2015 PLAN 2 - Mining Areas	CHECKED:	W Covey	REV NO:	2015
				SIZE:	A2







PIT TOP FACILITIES  
CHAIN VALLEY COLLIERY

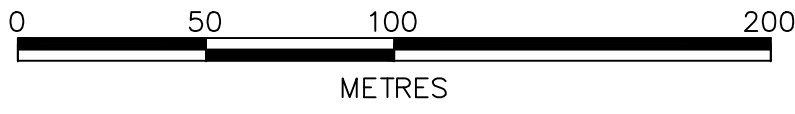
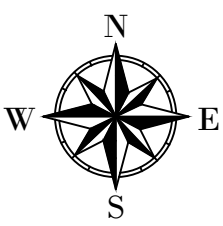
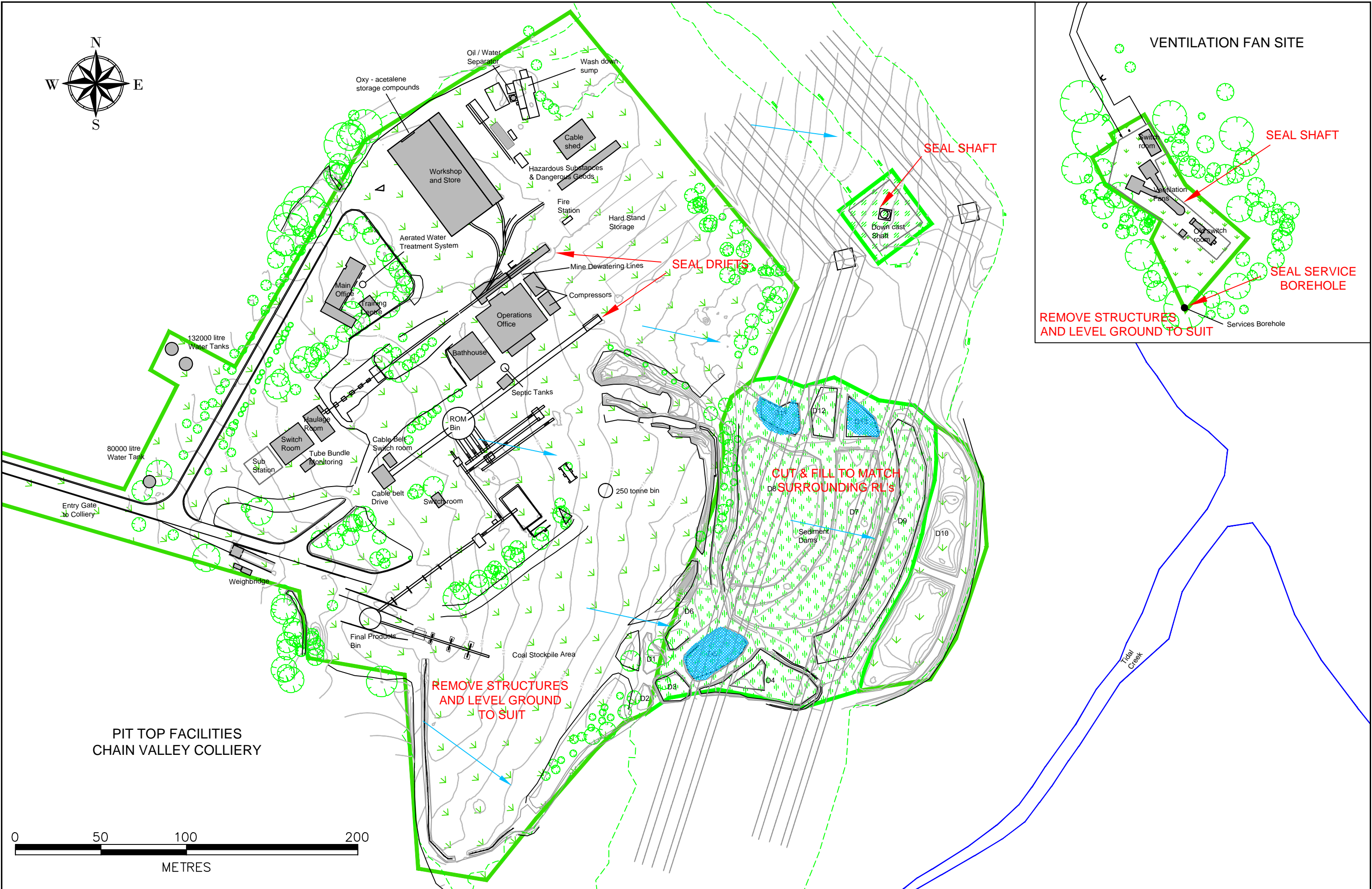


LAKE COAL PTY LIMITED  
CHAIN VALLEY COLLIERY  
ANNUAL REVIEW (AEMR) 2015  
Plan 3 - Surface Facilities

SCALE:	1:2000	DATE:	16 March 2016
DRAWN:	T Chisholm	DRG NO:	C4P0180_3
CHECKED:	W Covey	REV NO:	2015
		SIZE:	A3







- Rehabilitation - Bushland
- Rehabilitation - Surface Water Flow
- Rehabilitation - Grassland
- Rehabilitation - Proposed Dams

LAKE COAL PTY LIMITED CHAIN VALLEY COLLIERY  ANNUAL REVIEW (AEMR) 2015 Plan 4 - Proposed Rehabilitation	SCALE: 1:2000	DATE: 16 March 2016
	DRAWN: T Chisholm	DRG NO: C4P0180_4
	CHECKED: W Covey	REV NO: 2015
		SIZE: A3





# Project Approval

## Section 75J of the *Environmental Planning & Assessment Act 1979*

As delegate for the Minister for Planning and Infrastructure, I approve the project application referred to in Schedule 1, subject to the conditions in Schedules 2 to 5.

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 ongoing environmental management of the project.



**Richard Pearson**  
**Deputy Director-General**  
**Development Assessment and Systems Performance**

Sydney

23<sup>rd</sup> January

2012

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### SCHEDULE 1

<b>Application Number:</b>	10_0161
<b>Proponent:</b>	LakeCoal Pty Limited
<b>Approval Authority:</b>	Minister for Planning and Infrastructure
<b>Land:</b>	See Appendix 1
<b>Project:</b>	Chain Valley Colliery Domains 1 & 2 Continuation Project

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## DEFINITIONS

Adaptive management	Adaptive management includes monitoring subsidence impacts and subsidence effects and, based on the results, modifying the mine plan as mining proceeds to ensure that the effects, impacts and/or associated environmental consequences remain within the predicted and/or designated ranges and in compliance with the conditions of this approval
Annual Review	The review required by Condition 4 of Schedule 5
Approval	This Project Approval
Approved Mine Plan	The mine plan depicted in Figure 1 in Appendix 2
Benthic communities	Aquatic flora and fauna assemblages that live on or in the bottom of the lake
BCA	Building Code of Australia
Built features	Includes any building or work erected or constructed on land, and includes dwellings and infrastructure such as any formed road, street, path, walk, or driveway; and any pipeline, water, sewer, telephone, gas or other service main
CCC	Community Consultative Committee
Conditions of this approval	Conditions contained in Schedules 2 to 5 inclusive
Day	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 delegate
DPI	Department of Primary Industries
DPI (Fisheries)	Fisheries Division of the Department of Primary Industries
DRE	Division of Resources and Energy in the Department of Trade and Investment, Regional Infrastructure and Services
EA	Environmental Assessment titled ' <i>Environmental Assessment – Chain Valley Colliery Domains 1 and 2 Continuation Project</i> ' dated July 2010 and associated response to submissions titled ' <i>Submissions Report – Chain Valley Colliery Domains 1 and 2 Continuation Project</i> ', dated 14 November 2011
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EP&A Regulation	<i>Environmental Planning and Assessment Regulation 2000</i>
EPL	Environment Protection Licence issued under the POEO Act
Environmental consequences	The environmental consequences of subsidence impacts, including: damage to built features; loss of surface water flows to the subsurface; loss of standing pools; adverse water quality impacts; cliff falls; rock falls; damage to Aboriginal heritage sites; impacts on aquatic ecology; and ponding.
Evening	The period from 6pm to 10pm
Executive Director Mineral Resources	Executive Director Mineral Resources within DRE, or the equivalent role
Existing strategies, plans or programs	Any strategy, plan or program described in the EA as existing.
Feasible	Feasible relates to engineering considerations and what is practical to build or to implement
First workings	Development of the main headings and gateroads in the underground mining area
Heritage Item	An item as defined under the <i>Heritage Act 1977</i> and/or an Aboriginal object or Aboriginal place as defined under the <i>National Parks and Wildlife Act 1974</i>
High Water Mark Subsidence Barrier	The area of land defined: <ul style="list-style-type: none"> <li>a) on the surface by the highwater level of Lake Macquarie and a point 2.44 metres in elevation above that highwater level; and</li> <li>b) in the seam, where it is intersected by lines: <ul style="list-style-type: none"> <li>• drawn landwards from all points 2.44 metres elevation above the highwater level of Lake Macquarie; and</li> <li>• drawn lakewards from the highwater level of Lake Macquarie, at an angle of 35 degrees from the vertical.</li> </ul> </li> </ul>
Incident	A set of circumstances that: <ul style="list-style-type: none"> <li>• causes or threatens to cause material harm to the environment; and/or</li> <li>• breaches or exceeds the limits or performance measures/criteria in this approval</li> </ul>
INP	NSW Industrial Noise Policy
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 approval 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 the Land Titles Office at the date of this approval
LMCC	Lake Macquarie City Council
Material harm to the environment	Actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial
Mining area	The areas shown as Full Extraction Boundary and Parcel A – First Workings

	shown on Figure 1 of Appendix 2
Mining operations	Includes all extraction, processing, handling, storage and transportation of coal carried out on the site
Minister	Minister for Planning and Infrastructure, or delegate
Minor	Not very large, important or serious
Mitigation	Activities associated with reducing the impacts of the project prior to or during those impacts occurring
MSB	Mine Subsidence Board
NCC	Newcastle City Council
Negligible	Small and unimportant, such as to be not worth considering
Night	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
OEH	Office of Environment and Heritage, which includes the Environment Protection Authority, within the Department of Premier and Cabinet
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
Privately-owned land	Land that is not owned by a public agency, Vales Point Power Station or a mining company (or its subsidiary)
Project	The project described in the EA
Proponent	LakeCoal Pty Limited, or any other person or persons who rely on this approval to carry out the development that is subject to this approval
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
Reasonable costs	The costs agreed between the Department and the Proponent for obtaining independent experts to review the adequacy of any aspects of an extraction plan
Rehabilitation	The treatment or management of land disturbed by the project for the purpose of establishing a safe, stable and non-polluting environment.
Remediation	Activities associated with partially or fully repairing or rehabilitating the impacts of the projects or controlling the environmental consequences of this impact
ROM coal	Run-of-mine coal
RMS	Roads and Maritime Services
Safe, serviceable and repairable	Safe means no danger to users who are present, serviceable means available for its intended use, and repairable means damaged components can be repaired economically
Site	The land listed in Appendix 1
Second workings	Extraction of coal by miniwall or pillar extraction methods
SMP	Subsidence Management Plan
Statement of Commitments	The Proponent's commitments in Appendix 5
Subsidence	The totality of subsidence effects, subsidence impacts and environmental consequences of subsidence impacts
Subsidence effects	Deformation of the ground mass due to mining, including all mining-induced ground movements, such as vertical and horizontal displacement, tilt, strain and curvature
Subsidence impacts	Physical changes to the ground and its surface caused by subsidence effects, including tensile and shear cracking of the rock mass, localised buckling of strata caused by valley closure and upsidence and surface depressions or troughs
Surface facilities sites	The Chain Valley Colliery surface facilities site; the Summerland Point ventilation shaft site; and any other site subject to existing or proposed surface disturbance associated with the project
WSC	Wyong Shire Council



## **SCHEDULE 2 ADMINISTRATIVE CONDITIONS**

### **OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT**

1. In addition to meeting the specific performance criteria established under this approval, the Proponent shall implement all reasonable and feasible measures to prevent and/or minimise any harm to the environment that may result from the construction, operation or rehabilitation of the project.

### **TERMS OF APPROVAL**

2. The Proponent shall carry out the project generally in accordance with the:
  - (a) EA;
  - (b) Statement of Commitments; and
  - (c) conditions of this approval.

*Notes:*

- *The general layout of the project is shown in Appendix 2; and*
- *The Statement of Commitments is reproduced in Appendix 5.*

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

### **LIMITS ON APPROVAL**

#### **Mining Operations**

5. The Proponent may carry out mining operations on the site until 31 December 2016.

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

#### **Coal Extraction and Transport**

6. The Proponent shall not extract more than 1.2 million tonnes of coal from the site in any calendar year.
7. The Proponent shall ensure that laden coal trucks only leave the Chain Valley Colliery surface facilities site between 5:30 am and 5:30 pm, Monday to Friday, and not at all on Saturdays, Sundays or public holidays.
8. The Proponent shall ensure that only private roads are used for the transport of coal to Vales Point Power Station by truck, unless otherwise approved by the Director-General for limited periods, should these private roads be unavailable to transport coal.

#### **Hours of Operation**

9. The Proponent may undertake mining operations 24 hours a day, 7 days a week.

### **STRUCTURAL ADEQUACY**

10. The Proponent 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:*

- *Under Part 4A of the EP&A Act, the Proponent is required to obtain construction and occupation certificates for the proposed building works; and*
- *Part 8 of the EP&A Regulation sets out the requirements for the certification of the project.*

### **DEMOLITION**

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

## **OPERATION OF PLANT AND EQUIPMENT**

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

## **CONTINUATION OF EXISTING MANAGEMENT PLANS**

13. The Proponent shall continue to implement existing strategies, plans or programs that apply to existing activities on the site until they are replaced by an equivalent strategy, plan or program approved under this approval.

## **COMMUNITY TRUST**

14. The Proponent shall pay WSC \$0.035 for each tonne of ROM coal produced by the project for the purpose of improving public infrastructure and the provision of community projects for the communities of Summerland Point, Gwandalan, Chain Valley Bay and Mannering Park. These payments shall be:
- (a) held in a fund administered by a trust comprising representatives of the local communities, WSC and the Proponent in accordance with a set of guidelines to be established by the trustees;
  - (b) made by the end of February 2013, and at yearly intervals thereafter;
  - (c) calculated on the ROM coal produced in the previous calendar year; and
  - (d) subject to indexation in line with the Consumer Price Index, as published by the Australian Bureau of Statistics.
15. Any dispute about the membership of the trust or the guidelines established by the trustees and/or their application is to be settled by the Director-General, following consultation with the WSC. Any decision by the Director-General shall be final and not subject to further dispute resolution under this approval.
-

## SCHEDULE 3 ENVIRONMENTAL PERFORMANCE CONDITIONS

### SUBSIDENCE

- The Proponent shall ensure that vertical subsidence within the High Water Mark Subsidence Barrier and vertical subsidence of seagrass beds is limited to a maximum of 20 millimetres (mm).

### Environmental Performance Measures

- The Proponent shall ensure that the project does not cause any exceedance of the performance measures in Table 1, to the satisfaction of the Director-General.

Table 1: Environmental Subsidence Impact Performance Measures

Biodiversity	
Threatened species, populations or their habitats and endangered ecological communities	Negligible impact or environmental consequences.
Seagrass beds	Negligible environmental consequences including: <ul style="list-style-type: none"> <li>• negligible change in the size and distribution of seagrass beds;</li> <li>• negligible change in the functioning of seagrass beds; and</li> <li>• negligible change to the composition or distribution of seagrass species within seagrass beds.</li> </ul>
Benthic communities	Minor environmental consequences, including minor changes to species composition and/or distribution.

Notes: 1) The Proponent will be required to define more detailed performance indicators (including impact assessment criteria) for each of these performance measures in the Extraction Plan required under this approval (see condition 6 below).

2) Measurement and/or monitoring of compliance with performance measures and performance indicators is to be undertaken using generally accepted methods that are appropriate to the environment and circumstances in which the feature or characteristic is located. These methods are to be fully described in the relevant management plans. In the event of a dispute over the appropriateness of proposed methods, the Director-General will be the final arbiter.

3) The requirements of this condition only apply to the impacts and consequences of mining operations, construction or demolition undertaken following the date of this approval.

### Offsets

- If the Proponent exceeds the performance measures in Table 1 and the Director-General determines that:
  - it is not reasonable or feasible to remediate the impact or environmental consequence; or
  - remediation measures implemented by the Proponent have failed to satisfactorily remediate the impact or environmental consequence;
then the Proponent shall provide a suitable offset to compensate for the impact or environmental consequence, to the satisfaction of the Director-General.

Note: Any offset required under this condition must be proportionate with the significance of the impact or environmental consequence.

### Built Features Performance Measures

- The Proponent shall ensure that the project does not cause any exceedances of the performance measures in Table 2, to the satisfaction of the Director-General.

Table 2: Built Features Subsidence Impact Performance Measures

Built Features	
Public infrastructure (including water supply pipelines; high pressure gas pipelines and the gas distribution network; electricity transmission and distribution lines; telecommunications cables and optical fibre networks; roads, trails and associated structures).	Always safe. Serviceability should be maintained wherever practicable. Loss of serviceability must be fully compensated. Damage must be fully repaired, replaced or fully compensated.
Other built features (including houses, industrial premises, swimming pools and other improvements).	
Public Safety	
Public Safety.	Negligible additional risk.

Notes: 1) The Proponent will be required to define more detailed performance indicators (including impact assessment criteria) for each of these performance measures in the Extraction Plan required under this approval (see condition 6 below).

2) Measurement and/or monitoring of compliance with performance measures and performance indicators is to be undertaken using generally accepted methods that are appropriate to the environment and circumstances in which the feature or characteristic is located. These methods are to be fully described in the relevant management plans. In the event of a dispute over the appropriateness of proposed methods, the Director-General will be the final arbiter.

3) The requirements of this condition only apply to the impacts and consequences of mining operations undertaken following the date of this approval.

4) Requirements regarding safety or serviceability do not prevent preventative or mitigatory actions being taken prior to or during mining in order to achieve or maintain these outcomes.

5. Any dispute between the Proponent and the owner of any built feature over the interpretation, application or implementation of the performance measures in Table 2 is to be settled by the Director-General, following consultation with the MSB and the Executive Director Mineral Resources. Any decision by the Director-General shall be final and not subject to further dispute resolution under this approval.

## Extraction Plan

6. The Proponent shall prepare and implement an Extraction Plan for all second workings on site 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 approved by the Director-General before the Proponent carries out any of the second workings covered by the plan;
  - (c) include detailed plans of existing and proposed first and second workings and any associated surface development;
  - (d) include detailed performance indicators for each of the performance measures in Tables 1 and 2;
  - (e) provide revised predictions of the potential subsidence effects, subsidence impacts and environmental consequences of the proposed second workings, incorporating any relevant information obtained since this approval;
  - (f) describe the measures that would be implemented to ensure compliance with the performance measures in Tables 1 and 2; and manage or remediate subsidence impacts and/or environmental consequences;
  - (g) include a Benthic Communities Management Plan, which has been prepared in consultation with OEH, DPI Fisheries and LMCC, which provides for the management of the potential impacts and/or environmental consequences of the proposed second workings on benthic communities, and which includes:
    - surveys of the lake bed to enable contours to be produced and changes in depth following subsidence to be accurately measured;
    - benthic species surveys within the area subject to second workings, as well as control sites outside the area subject to second workings (at similar depths) to establish baseline data on species number and composition within the communities;
    - a program of ongoing seasonal monitoring of benthic species in both control and impact sites;
    - development of a model to predict likely impact of increased depth and associated subsidence impacts and effects, including but not limited to light reduction and sediment disturbance, on benthic species number and benthic communities composition, incorporating the survey data collected;
  - (h) include a Seagrass Management Plan, which has been prepared in consultation with OEH, DPI Fisheries and LMCC, which provides for the management of the potential impacts and/or environmental consequences of the proposed second workings on seagrass beds, and which includes:
    - a program of ongoing monitoring of seagrasses in both control and impact sites; and
    - a program to predict and manage subsidence impacts and environmental consequences to seagrass beds to ensure the performance measures in Table 1 are met;
  - (i) include a Public Safety Management Plan, which has been prepared in consultation with DRE, to ensure public safety in the mining area;
  - (j) include a Built Features Management Plan, which has been prepared in consultation with DRE, to manage the potential subsidence impacts and/or environmental consequences of the proposed second workings on built features, and which:
    - addresses in appropriate detail all items of public infrastructure and other public infrastructure and all classes of other built features;
    - has been prepared following appropriate consultation with the owner/s of potentially affected feature/s; and
    - recommends appropriate remedial measures and includes commitments to mitigate, repair, replace or compensate for predicted impacts on potentially affected built features in a timely manner; and
    - in the case of all key and other public infrastructure, reports external auditing for compliance with ISO 31000 (or alternative standard agreed with the infrastructure owner) and provides



- for annual auditing of compliance and effectiveness during secondary extraction which may impact the infrastructure;
- (k) include a contingency plan that expressly provides for adaptive management where monitoring indicates that there has been an exceedance of any performance measure in Tables 1 and 2, or where any such exceedance appears likely;
  - (l) include a subsidence monitoring program, which has been prepared in consultation with DRE, OEH, and DPI Fisheries, to:
    - provide data to assist with the management of the risks associated with subsidence;
    - validate the subsidence predictions;
    - analyse the relationship between the predicted and resulting subsidence effects and predicted and resulting impacts under the plan and any ensuing environmental consequences; and
    - inform the contingency plan and adaptive management process;
  - (m) a Spontaneous Combustion Management Plan, prepared in consultation with DRE;
  - (n) propose appropriate revisions to the Rehabilitation Management Plan required under condition 40 of Schedule 4; and
  - (o) include a program to collect sufficient baseline data for future Extraction Plans.

Notes: 1) An SMP that is approved by DRE prior to 31 December 2011 is taken to satisfy the requirements of this condition.

2) The Benthic Communities and Seagrass Management Plans may be prepared jointly with similar plans required for any adjacent colliery.

### First Workings

- 7. The Proponent may carry out first workings within the site, other than in accordance with an approved Extraction Plan, provided that DRE is satisfied that the first workings are designed to remain stable and non-subsiding in the long-term, except insofar as they may be impacted by approved second workings.

Note: The intent of this condition is not to require an additional approval for first workings, but to ensure that first workings are built to geotechnical and engineering standards sufficient to ensure long term stability, with negligible resulting direct subsidence impacts.

### Payment of Reasonable Costs

- 8. The Proponent shall pay all reasonable costs incurred by the Department to engage suitably qualified, experienced and independent persons to review the adequacy of any aspect of any Extraction Plan.

## NOISE

### Noise Impact Assessment Criteria

- 9. The Proponent shall ensure that the noise generated by the project does not exceed the criteria in Table 3 at any residence on privately-owned land or on more than 25 percent of any privately-owned land.

Table 3: Noise criteria dB(A)

Location	Day	Evening	Night		
	$L_{Aeq}(15 \text{ min})$	$L_{Aeq}(15 \text{ min})$	10 pm - 5 am $L_{Aeq}(15 \text{ min})$	5 - 7 am $L_{Aeq}(15 \text{ min})$	$L_{A1}(1 \text{ min})$
R6	35	35	35	37	45
R8	38	38	38	40	45
R11	51	50	50	51	54
R12	49	49	49	50	53
R13	44	44	44	46	49
R14	36	36	36	37	45
R15	37	37	37	39	45
R17	36	36	36	38	45
R19	40	40	40	42	45
R20	38	38	38	40	45
R21	39	39	39	40	45
R22	40	40	40	41	45
R1-R5, R7, R9, R16, R18, R23 and privately-owned land in all other noise catchments	35	35	35	35	45

Notes:

- To interpret the locations referred to in Table 3, see the appropriate figure in Appendix 3;

- Noise generated by the project is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the INP; and
- Criteria applicable to a particular parcel of land are those criteria for the nearest specified location in Table 3.

However, these criteria do not apply if the Proponent has a written agreement with the relevant landowner to exceed the criteria, and the Proponent has advised the Department in writing of the terms of this agreement.

### Operating Conditions

10. The Proponent shall:
- implement best management practice, including all reasonable and feasible noise mitigation measures, to minimise the construction, operational, low frequency and transport noise generated by the project;
  - regularly assess the noise monitoring and meteorological data and relocate, modify, and/or stop operations on site to ensure compliance with the relevant conditions of this approval;
  - minimise the noise impacts of the project during temperature inversions;
  - use its best endeavours to achieve the long-term noise goals in Table 4, where reasonable and feasible, and report on progress towards achieving these goals in each Annual Review;
  - carry out a comprehensive noise audit of the project in conjunction with each independent environmental audit; and
  - prepare an action plan to implement any additional reasonable and feasible onsite noise mitigation measures identified by each audit;
- to the satisfaction of the Director-General.

Table 4: Long-term Noise Goals dB(A)

Location	Day	Evening	Night
	<i>L<sub>Aeq</sub>(15 min)</i>	<i>L<sub>Aeq</sub>(15 min)</i>	<i>L<sub>Aeq</sub>(15 min)</i>
R8	-	37	37
R11 – R13	41	41	41
R19	-	-	41

Notes:

- To interpret the locations referred to in Table 4, see the appropriate figure in Appendix 3; and
- Noise generated by the project is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the INP.

### Noise Management Plan

11. The Proponent shall prepare and implement a Noise Management Plan for the project to the satisfaction of the Director-General. This plan must:
- be submitted for approval to the Director-General within 7 months of the date of this approval;
  - describe the measures that would be implemented to ensure compliance with the relevant conditions of this approval;
  - outline procedures to manage responses to any complaints or issues raised by the owners of affected residences; and
  - include a noise monitoring program that:
    - uses a combination of real-time and supplementary attended monitoring to evaluate the performance of the project; and
    - includes a protocol for determining exceedances of the relevant conditions of this approval.

### Construction Noise

12. Prior to the commencement of construction activities at the Summerland Point ventilation shaft site, the Proponent shall submit to the Director-General for approval a Construction Noise Management Plan prepared in accordance with OEH's *Interim Construction Noise Guideline 2009*.

### AIR QUALITY & GREENHOUSE GAS

#### Odour

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

#### Greenhouse Gas Emissions

14. The Proponent 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 Assessment Criteria

15. The Proponent shall ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the project do not exceed the criteria listed in Tables 5, 6 or 7 at any residence on privately-owned land or on more than 25 percent of any privately-owned land.

Table 5: Long-term criteria for particulate matter

Pollutant	Averaging Period	<sup>d</sup> Criterion
Total suspended particulate (TSP) matter	Annual	<sup>a</sup> 90 µg/m <sup>3</sup>
Particulate matter < 10 µm (PM <sub>10</sub> )	Annual	<sup>a</sup> 30 µg/m <sup>3</sup>

Table 6: Short-term criterion for particulate matter

Pollutant	Averaging Period	<sup>d</sup> Criterion
Particulate matter < 10 µm (PM <sub>10</sub> )	24 hour	<sup>a</sup> 50 µg/m <sup>3</sup>

Table 7: Long-term criteria for deposited dust

Pollutant	Averaging Period	Maximum increase in deposited dust level	Maximum total deposited dust level
<sup>c</sup> Deposited dust	Annual	<sup>b</sup> 2 g/m <sup>2</sup> /month	<sup>a</sup> 4 g/m <sup>2</sup> /month

Notes to Tables 5 - 7:

- <sup>a</sup> Total impact (ie incremental increase in concentrations due to the project plus background concentrations due to all other sources);
- <sup>b</sup> Incremental impact (ie incremental increase in concentrations due to the project on its own);
- <sup>c</sup> 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 - Gravimetric Method.
- <sup>d</sup> 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 in consultation with OEH.

## Operating Conditions

16. The Proponent shall implement best practice air quality management on site, including all reasonable and feasible measures to minimise off-site odour, fume and dust emissions generated by the project.

## Air Quality & Greenhouse Gas Management Plan

17. The Proponent shall prepare and implement an Air Quality & Greenhouse Gas Management Plan for the project to the satisfaction of the Director-General. This plan must:
- be prepared in consultation with OEH, and submitted for approval to the Director-General within seven months of the date of this approval;
  - describe the measures that would be implemented to ensure compliance with the relevant conditions of this approval, including the proposed air quality management system;
  - include an air quality monitoring program, that:
    - uses a combination of volumetric sampling and dust deposition gauges to evaluate the performance of the project;
    - monitors greenhouse gas emissions, particularly methane; and
    - includes a protocol for determining exceedances with the relevant conditions of this approval;
  - describe the measures that would be implemented to minimise the release of greenhouse gas emissions from the site, particularly methane.

## METEOROLOGICAL MONITORING

18. During the life of the project, the Proponent shall ensure that there is a suitable meteorological station operating in the vicinity of the Chain Valley Colliery surface facilities site that:
- complies with the requirements in the *Approved Methods for Sampling of Air Pollutants in New South Wales* guideline; and
  - is capable of continuous real-time measurement of temperature lapse rate in accordance with the INP.

## TRANSPORT

### Monitoring of Coal Transport

19. The Proponent shall:
- keep accurate records of the amount of coal transported from the site (on a monthly basis);
  - make these records publicly available on its website at the end of each calendar year.

### Road Transport Protocol

20. The Proponent shall prepare and implement a Road Transport Protocol, in consultation with RMS, NCC, WSC, DRE and CCC. This protocol shall:
- be submitted to the Director-General for approval within seven months of the date of this approval;
  - describe the designated haulage routes to be used (as shown in Appendix 4); the maximum number of road movements proposed and the haulage hours permitted under this approval;
  - include a Traffic Management Plan, which includes:
    - procedures to ensure that drivers adhere to the designated haulage routes;
    - measures to maximise the use of a low frequency (regular) trucking schedule rather than an intermittently-high frequency (campaign) trucking schedule;
    - contingency plans to apply when (for example) the designated haulage route is disrupted, including procedures for notifying relevant agencies and affected communities of the need to implement such contingency plans;
    - procedures to ensure that all haulage vehicles associated with the Colliery are clearly distinguishable as Chain Valley Colliery coal haulage trucks;
    - details of procedures for receiving and addressing complaints from the community concerning traffic issues associated with truck movements to and from the Colliery; and
    - measures to ensure that the provisions of the Traffic Management Plan are implemented, eg driver training in the heavy vehicle driver's Code of Conduct and contractual agreements with heavy vehicle operators; and
    - procedures for ensuring compliance with and enforcement of the heavy vehicle driver's Code of Conduct; and
  - include a Code of Conduct for heavy vehicle drivers that addresses:
    - travelling speeds;
    - staggering of truck departures to ensure a regular trucking schedule throughout the day;
    - instructions to drivers not to overtake each other on the haulage route, as far as practicable, and to maintain appropriate distances between vehicles;
    - instruction to drivers to adhere to the designated haulage routes;
    - instruction to drivers to be properly safety conscious and to strictly obey all traffic regulations; and
    - appropriate penalties for infringements of the Code.

### Independent Traffic Audit

21. Within six months of the date of this project approval, and every six months thereafter, unless the Director-General directs otherwise, the Proponent shall commission a suitably qualified person, whose appointment has been approved by the Director-General, to conduct an Independent Traffic Audit of the coal haulage operations. This audit must:
- be undertaken without prior notice to the Proponent, and in consultation with the RMS, NCC, WSC and CCC;
  - review haulage records;
  - assess the impact of the project on the performance of the road network;
  - investigate the accident records on the haulage route, and any incidents involving haulage vehicles from the project;
  - assess the effectiveness of the Driver's Code of Conduct; and, if necessary,
  - recommend measures to reduce or mitigate any adverse (or potentially adverse) impacts.

*Note: After three such audits, the Director-General may consider a request to reduce audit frequency to every 12 months.*

22. Within two months of commissioning the audit, or as otherwise agreed by the Director-General, the Proponent 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.

### Ruttleys Road and Construction Road Intersection

23. The Proponent shall upgrade the Ruttleys Road and Construction Road intersection within 12 months of this project approval, unless the Director-General directs otherwise, by:
- installing additional signage on and adjacent to Construction Road prior to the intersection;
  - repairing the surface of Construction Road and ensuring the edge seal of the left turn lane is of sufficient width to accommodate coal trucks;
  - installing or replacing "Stop" signs in accordance with Austroads guidelines;

- (d) repainting road line markings and raised pavements associated with this intersection;
- (e) removing silt from drains adjacent to the intersection and removing gravel and any other debris from the sealed surface of the intersection; and
- (f) installing barriers to prevent trucks parking on the gravel area adjacent to the intersection and the electricity substation located in the vicinity of this intersection.

The design and construction of these works must be undertaken in consultation with, and to the relevant satisfaction of, WSC, RMS and Vales Point Power Station.

#### **Maintenance of Ruttleys Road and Scenic Drive**

24. Throughout the life of the project, the Proponent shall contribute an amount to fund the maintenance of local roads proportionate to the wear and tear of those roads caused by traffic generated by the colliery's operations and in accordance with road maintenance agreement(s) to be negotiated between the Proponent and WSC. The local roads to be covered by agreement(s) are:
- (a) Ruttleys Road from the Pacific Highway intersection to Construction Road; and
  - (b) Scenic Drive from the Pacific Highway intersection to Coal Plant Road (if coal is proposed to be trucked from the colliery to the Munmorah Power Station).

Each agreement is to take into consideration a Dilapidation Report, prepared at the Proponent's cost, covering the relevant section of road and must include a method for determining reduced pavement life on the road section that is attributable to traffic generated by the colliery's operations.

The road maintenance agreement for Ruttleys Road must be finalised within seven months of the date of this approval. The Dilapidation Report for Scenic Drive must be completed prior to recommencing coal haulage to Munmorah Power Station. The road maintenance agreement for Scenic Drive must be finalised within six months of any recommencement of coal haulage to Munmorah Power Station.

25. Any dispute about the terms of this agreement is to be settled by the Director-General, following consultation with the WSC and the Proponent. Any decision by the Director-General shall be final and not subject to further dispute resolution under this approval.

#### **Coal Transport Options Report**

26. Prior to 31 December 2012, and every two years thereafter, the Proponent shall prepare and submit to the Director-General for approval, a study of reasonable and feasible options to reduce or eliminate the use of public roads to transport coal from the project.

#### **SOIL AND WATER**

*Note: Under the Water Act 1912 and/or the Water Management Act 2000, the Proponent is required to obtain all necessary water licences for the project.*

#### **Surface Water Discharges**

27. The Proponent shall ensure that all surface water discharges from the site comply with the discharge limits (both volume and quality) set for the project in any EPL.

#### **Water Management Plan**

28. The Proponent shall prepare and implement a Water Management Plan for the project to the satisfaction of the Director-General. This plan must:
- (a) be prepared in consultation, NOW, DRE and WSC by suitably qualified and experienced persons whose appointment has been approved by the Director-General;
  - (b) be submitted for approval to the Director-General within seven months of the date of this approval; and
  - (c) include:
    - a Site Water Balance;
    - an Erosion and Sediment Control Plan;
    - a Surface Water Management Plan;
    - a Groundwater Monitoring Program; and
    - a Surface and Ground Water Response Plan.
29. The Site Water Balance must:
- (a) include details of:
    - sources and security of water supply;
    - water use on site;
    - water management on site;
    - any off-site water transfers;
    - groundwater transfers from the underground operations to the surface; and



- (b) investigate and implement all reasonable and feasible measures to minimise potable water use from the town water supply and to reuse and recycle water.
30. The Erosion and Sediment Control Plan must:
- (a) be consistent with the requirements of the *Managing Urban Stormwater – Soils and Construction, Volume 2E: Mines and Quarries* (DECC 2008), or its latest version;
  - (b) identify activities that could cause soil erosion and generate sediment particularly in relation to activities near waterways;
  - (c) describe the location, function, and capacity of erosion and sediment control structures;
  - (d) describe what measures would be implemented to maintain the structures over time; and
  - (e) describe the sediment and erosion control measures to be implemented for all activities undertaken at the site.
31. The Surface Water Management Plan must:
- (a) include detailed baseline data on surface water flows and quality of the unnamed creek which receives the water from the licenced discharge point identified in the site's EPL;
  - (b) detail surface water quality and stream health assessment criteria, including trigger levels for investigating any potentially adverse surface water impacts;
  - (c) provide a program to monitor:
    - surface water discharges;
    - surface water flows and quality;
    - stream health and channel stability of the unnamed creek; and
    - water quality of Lake Macquarie; and
  - (d) identify and assess practical measures to minimise potable water consumption, maximise recycled water use and improve the management of sewage and surface rainfall runoff for the project, including quantifying the abatement potential of identified measures and their related costs and benefits.
32. The Groundwater Monitoring Program must include:
- (a) detailed baseline data of all groundwater levels (including any alluvial and weathered rock aquifers), yield and quality in the region, and any privately-owned groundwater bores that may be affected by mining operations on site;
  - (b) groundwater assessment criteria based upon analysis of baseline data for groundwater, surface water and ecology, including trigger levels for investigating any potentially adverse groundwater impacts; and
  - (c) a program to monitor and/or validate the impacts of the project on any alluvial and coal seam aquifers, groundwater bores and groundwater dependent ecosystems.
33. The Surface and Ground Water Response Plan must describe what measures and/or procedures would be implemented to:
- (a) respond to any exceedances of the surface water, stream health, and groundwater assessment criteria;
  - (b) mitigate and/or offset any adverse impacts on any groundwater dependent ecosystems and riparian or lakeshore vegetation located within and adjacent to the site.

## BIODIVERSITY

### Biodiversity Management Plan

34. The Proponent shall prepare and implement a Biodiversity Management Plan for the project to the satisfaction of the Director-General. This plan must:
- (a) be submitted to the Director-General within 7 months of the date of this approval;
  - (b) be prepared by a suitably qualified ecologist approved by the Director-General;
  - (c) include a detailed description of measures that would be implemented over the life of the project to protect and conserve biodiversity, including the procedures to be implemented for:
    - weed management (both control and suppression) and monitoring;
    - management of retained native vegetation and habitat;
    - feral animal control;
    - fire management (including asset protection zones);
    - management of public access; and
    - ecological monitoring of the:
      - receiving waters of the minewater discharge from the licenced discharge point identified in the site's EPL;
      - *Swamp Sclerophyll Floodplain Forest* Endangered Ecological Community located downstream of the licenced discharge point identified in the site's EPL; and
      - remnant woody vegetation around the ventilation facilities at Summerland Point.

## HERITAGE

### Heritage Management Plan

35. The Proponent shall prepare and implement a Heritage Management Plan for the project to the satisfaction of the Director-General. This Plan must:
- (a) be prepared in consultation with any relevant Aboriginal stakeholders;
  - (b) be submitted for approval to the Director-General within seven months of the date of this approval;
  - (c) include consideration of the Aboriginal and non-Aboriginal cultural context and significance of the site;
  - (d) detail the responsibilities of all stakeholders; and
  - (e) include programs/procedures and management measures for:
    - the ongoing monitoring of site 45-7-0189 at Summerland Point;
    - dealing with previously unidentified Aboriginal objects (excluding human remains), including any need to halt works in the vicinity, assessment of significance, determination of appropriate mitigation measures (by a qualified archaeologist in consultation with Aboriginal stakeholders), re-commencement of works, notifying OEH, and registering the new site(s) in the OEH AHIMS register;
    - dealing with any human remains which may be discovered, including halting of works in the vicinity; notifying NSW Police, OEH, the Department and Aboriginal stakeholders; and not re-commencing any works in the vicinity unless authorised;
    - heritage induction for construction personnel (including procedures for keeping records of inductions);
    - ongoing Aboriginal consultation and involvement (including procedures for keeping records of this);
    - appropriate identification, management, conservation and protection of both Aboriginal and non-Aboriginal heritage items identified on the site; and
    - dealing with previously unidentified non-Aboriginal heritage items which may be discovered during the project.

## VISUAL

### Visual Amenity and Lighting

36. The Proponent shall:
- (a) minimise visual impacts, and particularly the off-site lighting impacts, of the Chain Valley Colliery surface facilities site;
  - (b) take all reasonable and feasible measures to further mitigate off-site lighting impacts from the project; and
  - (c) ensure that all external lighting associated on site complies with *Australian Standard AS4282 (INT) 1995 – Control of Obtrusive Effects of Outdoor Lighting*, to the satisfaction of the Director-General.

## WASTE

37. The Proponent shall:
- (a) minimise the waste generated by the project; and
  - (b) ensure that the waste generated by the project is appropriately stored, handled and disposed of, to the satisfaction of the Director-General.

## BUSHFIRE MANAGEMENT

38. The Proponent shall:
- (a) ensure that the project 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 in the surrounding area.

## REHABILITATION

### Rehabilitation Objectives

39. The Proponent shall rehabilitate the surface facilities sites to the satisfaction of the Executive Director Mineral Resources. This rehabilitation must be generally consistent with the proposed rehabilitation strategy described in the EA, and comply with the objectives in Table 8.

Table 8: Rehabilitation Objectives

<b>Feature</b>	<b>Objective</b>
Surface facilities sites.	Safe, stable & non-polluting. Final land use compatible with surrounding land uses.
Project 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.

Notes: 1) These rehabilitation objectives apply to all subsidence impacts and environmental consequences caused by mining taking place after the date of this approval; and to all project surface infrastructure part of the project, whether constructed prior to or following the date of this approval.

2) Rehabilitation of subsidence impacts and environmental consequences caused by mining which took place prior to the date of this approval may be subject to the requirements of other approvals (eg under a mining lease or an Subsidence Management Plan approval) or the Proponent's commitments.

### **Progressive Rehabilitation**

40. The Proponent shall carry out the rehabilitation of the site progressively, that is, as soon as reasonably practicable following disturbance.

### **Rehabilitation Management Plan**

41. The Proponent shall prepare and implement a Rehabilitation Management Plan for the project to the satisfaction of the Executive Director Mineral Resources. This plan must:
- (a) be prepared in consultation with the Department, DPI Fisheries, WSC and the CCC;
  - (b) be prepared in accordance with any relevant DRE guideline and be consistent with the rehabilitation objectives in the EA and Table 8;
  - (c) provide for detailed mine closure planning, including measures to minimise socio-economic effects due to mine closure, to be conducted prior to the site being closed or placed on care and maintenance;
  - (d) build, to the maximum extent practicable, on the other management plans required under this approval; and
  - (e) be submitted to the Executive Director Mineral Resources for approval within 12 months of the date of this approval.

## **SCHEDULE 4 ADDITIONAL PROCEDURES**

### **NOTIFICATION OF LANDOWNERS**

1. As soon as practicable after obtaining monitoring results showing:
  - (a) an exceedance of any relevant criteria in Schedule 3, the Proponent shall notify affected landowners in writing of the exceedance, and provide regular monitoring results to each affected landowner until the project is again complying with the relevant criteria; and
  - (b) an exceedance of any relevant air quality criteria in Schedule 3, the Proponent shall send a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time) to the affected landowners and/or existing tenants of the land (including the tenants of any mine-owned land).

### **INDEPENDENT REVIEW**

2. If an owner of privately-owned land considers the project to be exceeding the relevant criteria in Schedule 3, then he/she may ask the Director-General in writing for an independent review of the impacts of the project 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 Proponent 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 project is complying with the relevant criteria in Schedule 3; and
    - if the project is not complying with these criteria, then 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.
3. If the independent review determines that the project is complying with the relevant criteria in Schedule 3, then the Proponent may discontinue the independent review with the approval of the Director-General.

If the independent review determines that the project is not complying with the relevant impact assessment criteria in Schedule 3, and that the project is primarily responsible for this non-compliance, then the Proponent shall:

- (a) implement all reasonable and feasible mitigation measures, in consultation with the landowner and appointed independent person, and conduct further monitoring until the project complies with the relevant criteria; or
  - (b) secure a written agreement with the landowner to allow exceedances of the relevant criteria, to the satisfaction of the Director-General.
-

## **SCHEDULE 5 ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING**

### **ENVIRONMENTAL MANAGEMENT**

#### **Environmental Management Strategy**

1. The Proponent shall prepare and implement an Environmental Management Strategy for the project to the satisfaction of the Director-General. This strategy must:
  - (a) be submitted for approval to the Director-General within nine months of the date of this approval;
  - (b) provide the strategic framework for the environmental management of the project;
  - (c) identify the statutory approvals that apply to the project;
  - (d) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the project;
  - (e) describe the procedures that would be implemented to:
    - keep the local community and relevant agencies informed about the operation and environmental performance of the project;
    - receive, handle, respond to, and record complaints;
    - resolve any disputes that may arise during the course of the project;
    - respond to any non-compliance;
    - respond to emergencies; and
  - (f) include:
    - copies of any strategies, plans and programs approved under the conditions of this approval; and
    - a clear plan depicting all the monitoring required to be carried out under the conditions of this approval.

#### **Management Plan Requirements**

2. The Proponent shall ensure that the management plans required under this approval 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 approval, 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 project or any management measures;
  - (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 project;
    - effectiveness of any management measures (see c above);
  - (e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;
  - (f) 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
  - (g) a protocol for periodic review of the plan.

*Note: The Director-General may waive some of these requirements if they are unnecessary for particular management plans.*

#### **Adaptive Management**

3. The Proponent must assess and manage project-related risks to ensure that there are no exceedances of the criteria and/or performance measures in Schedule 3. Any exceedance of these criteria and/or performance measures constitutes a breach of this approval and may be subject to penalty or offence provisions under the EP&A Act or EP&A Regulation.

Where any exceedance of these criteria and/or performance measures has occurred, the Proponent must, at the earliest opportunity:

- (a) take all reasonable and feasible steps to ensure that the exceedance ceases and does not recur;



- (b) consider all reasonable and feasible options for remediation (where relevant) and submit a report to the Department describing those options and any preferred remediation measures or other course of action; and
- (c) implement remediation measures as directed by the Director-General, to the satisfaction of the Director-General.

#### **Annual Review**

4. By the end of 2012, and annually thereafter, the Proponent shall review the environmental performance of the project 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 year;
  - (b) include a comprehensive review of the monitoring results and complaints records of the project over the past calendar year, which includes a comparison of these results against the:
    - the relevant statutory requirements, limits or performance measures/criteria;
    - requirements of any plan or program required under this approval;
    - the monitoring results of previous years; and
    - the relevant predictions in the EA;
  - (c) identify any non-compliance over the past 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 project;
  - (e) identify any discrepancies between the predicted and actual impacts of the project, 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 project.

#### **Revision of Strategies, Plans and Programs**

5. Within 3 months of:
  - (a) the submission of an annual review under Condition 4 above;
  - (b) the submission of an incident report under Condition 7 below;
  - (c) the submission of an audit under Condition 9 below; and
  - (d) any modification to the conditions of this approval (unless the conditions require otherwise),
 the Proponent shall review, and if necessary revise, the strategies, plans, and programs required under this approval 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 project.*

#### **Community Consultative Committee**

6. The Proponent shall establish and operate a Community Consultative Committee (CCC) for the project 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 to the satisfaction of the Director-General. This CCC must be operating within seven months of the date of this approval.

##### **Notes:**

- *The CCC is an advisory committee. The Department and other relevant agencies are responsible for ensuring that the Proponent complies with this approval; and*
- *In accordance with the guideline, the Committee should be comprised of an independent chair and appropriate representation from the Proponent, Council, recognised environmental groups and the local community.*

#### **REPORTING**

##### **Incident Reporting**

7. The Proponent 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 incidents associated with the project, the Proponent shall notify the Director-General and any other relevant agencies as soon as practicable after the Proponent becomes aware of the incident. Within 7 days of the date of the incident, the Proponent 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**

8. The Proponent shall provide regular reporting on the environmental performance of the project on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this approval.

## INDEPENDENT ENVIRONMENTAL AUDIT

9. Within 12 months of this approval and every three years thereafter, unless the Director-General directs otherwise, the Proponent shall commission and pay the full cost of an Independent Environmental Audit of the project. This audit must:
- (a) be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Director-General;
  - (b) include consultation with the relevant agencies;
  - (c) assess the environmental performance of the project and assess whether it is complying with the requirements in this approval and any relevant EPL or Mining Lease (including any assessment, plan or program required under these approvals); and
  - (d) recommend appropriate measures or actions to improve the environmental performance and rehabilitation of the project while on care and maintenance or following mine closure.

*Note: This audit team must be led by a suitably qualified auditor and include experts in any fields specified by the Director-General.*

10. Within 6 weeks of the completion of this audit, or as otherwise agreed by the Director-General, the Proponent shall submit a copy of the audit report to the Director-General, together with its response to any recommendations contained in the audit report.

## ACCESS TO INFORMATION

11. From the end of August 2012, the Proponent shall:
- (a) make copies of the following publicly available on its website:
    - the documents referred to in condition 2 of Schedule 2;
    - all relevant statutory approvals for the project;
    - all approved strategies, plans and programs required under the conditions of this approval;
    - a comprehensive summary of the monitoring results of the project, reported in accordance with the specifications in any approved plans or programs required under the conditions of this or any other approval;
    - a complaints register, which is to be updated on a monthly basis;
    - minutes of CCC meetings;
    - the annual reviews required under this approval;
    - any independent environmental audit of the project, and the Proponent's response to the recommendations in any audit;
    - any other matter 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

**Notes:**

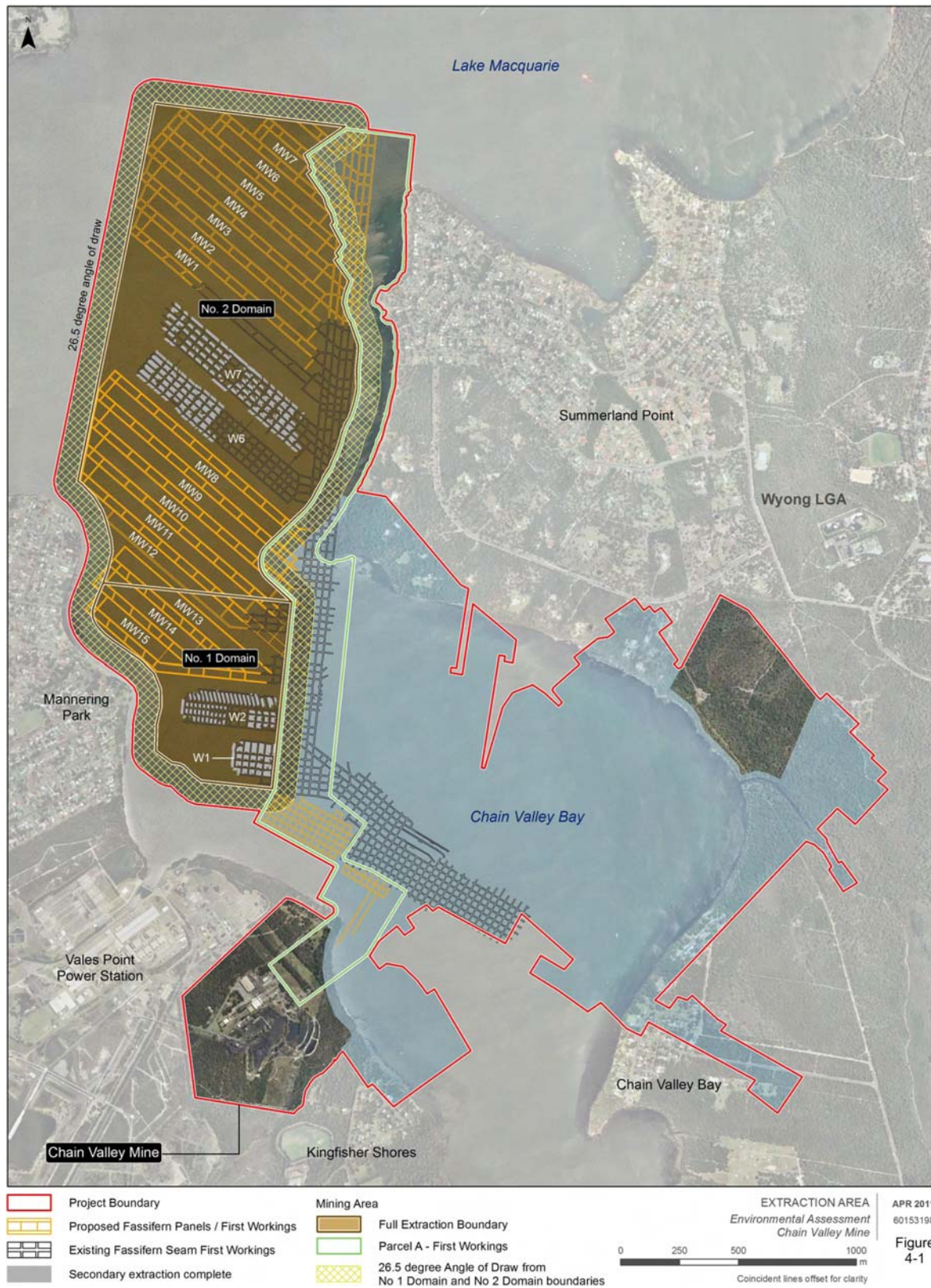
1. All proposed mining activity for the Project (Domains 1 and 2) is to occur under Lake Macquarie.
2. The surface facilities for the Colliery are limited to “pit top facilities area” adjacent to Vales Point Power Station, and the “ventilation shaft and fan site” at Summerland Point.
3. Refer to Figure 2.1 of the Environmental Assessment for the Project Boundary.

Project Related Surface Facilities			
Pit Top Facilities Area		Ventilation Shaft and Fan	
Lot	Deposited Plan	Lot	Deposited Plan
A	379918	1	226133
B	379918		
C	349733		
A	187570		
1B	339441		

All other areas within Project Boundary				
Lot	Deposited Plan		Lot	Deposited Plan
7339	1167067		19	25593
7330	1148105		20	25593
593	727722		21	25593
594	727722		22	25593
D	349733		23	25593
1	410653		24	25593
23	708344		25	25593
21	708344		26	25593
20	708344		27	25593
19	708344		58	31306
18	708344		59	31306
17	708344		60	31306
34	714879		61	31306
33	714879		62	31306
32	714879		63	31306
31	714879		64	31306
2	1043151		65	31306
426	755266		66	31306
427	755266		67	31306
136	755266		68	31306
2	515214		69	31306
1	515214		70	31306
1	214300		71	31306
2	214300		72	31306
167	755266		73	31306
1	388154		74	31306
144	661695		75	31306

All other areas within Project Boundary (continued)				
Lot	Deposited Plan		Lot	Deposited Plan
76	31306		188	31306
77	31306		189	31306
78	31306		190	31306
79	31306		191	31306
139	31306		192	31306
140	31306		193	31306
141	31306		194	31306
142	31306		195	31306
143	31306		238	31306
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175	31306		42	31322
176	31306		43	31322
177	31306		44	31322
178	31306		45	31322
179	31306		46	31322
180	31306		47	31322
181	31306		48	31322
182	31306		78	31322
183	31306			
184	31306			
185	31306			
186	31306			
187	31306			

## APPENDIX 2 PROJECT LAYOUT PLANS



**Figure 1: Project Application Boundary and Proposed Mining Layout**

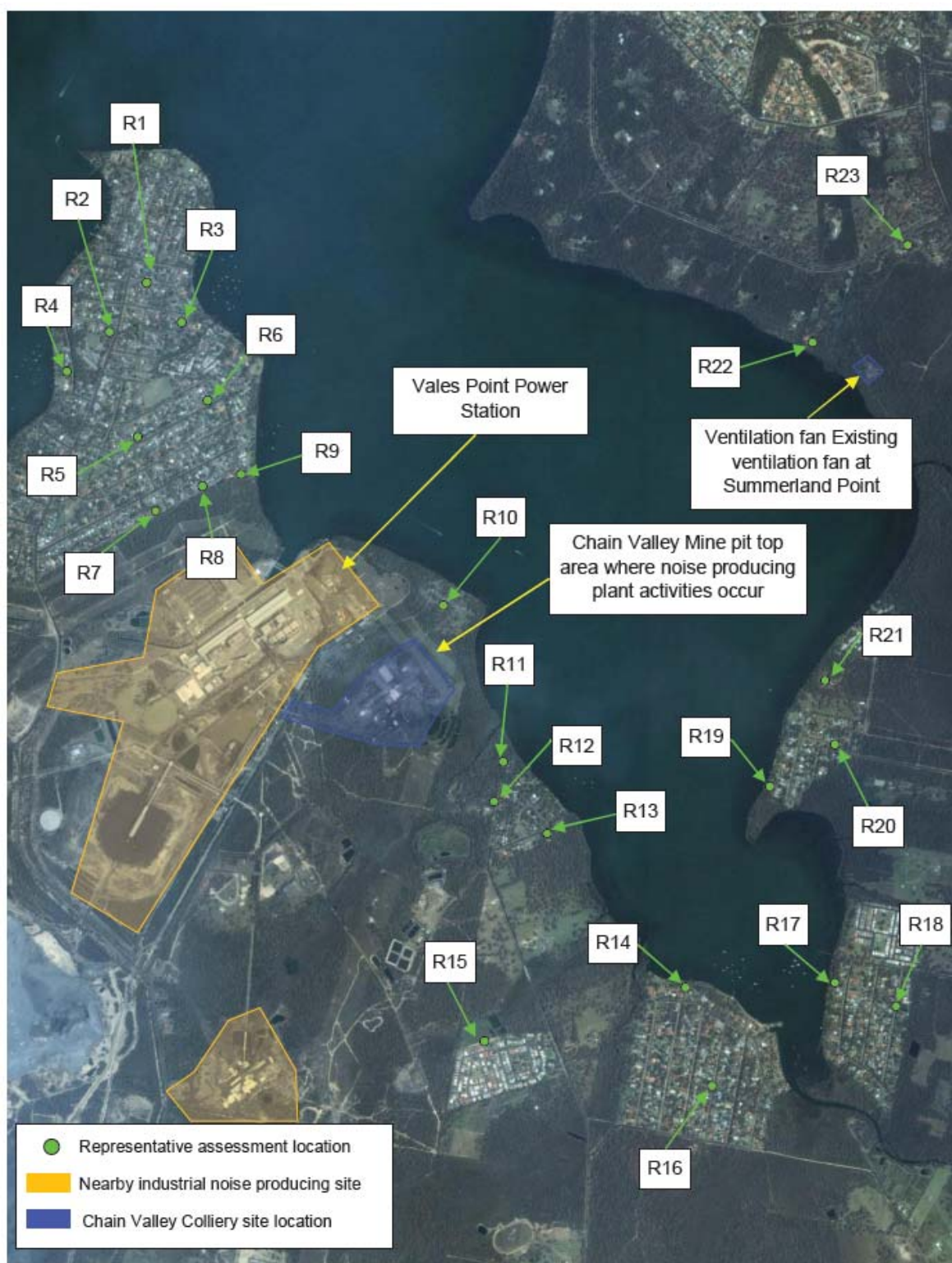




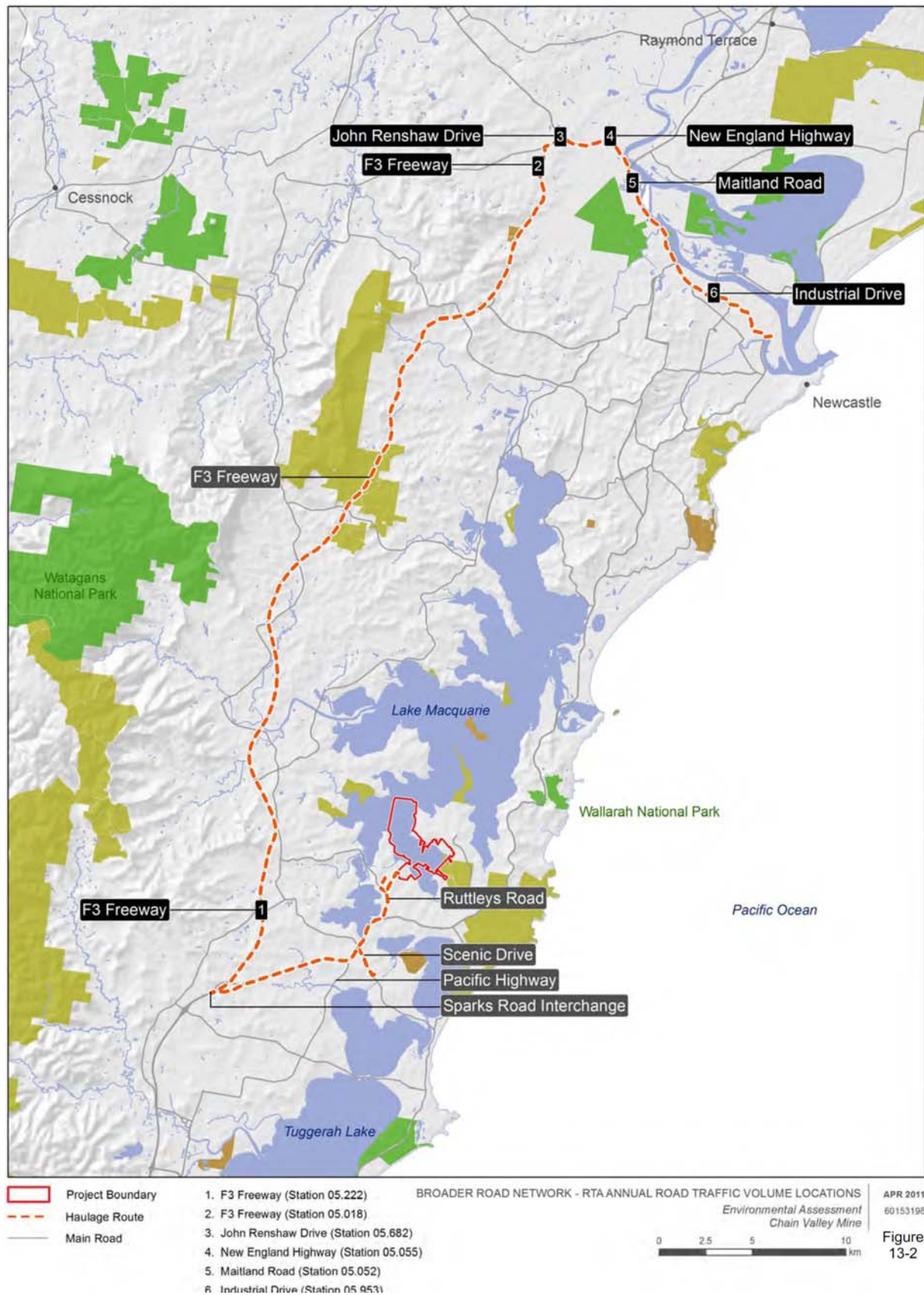
**Figure 2: Pit Top Area and Infrastructure**



### APPENDIX 3 NOISE RECEIVER LOCATIONS



## APPENDIX 4 COAL ROAD HAULAGE ROUTES





## APPENDIX 5 STATEMENT OF COMMITMENTS

Timing	Commitment
<b>Subsidence</b>	
Project design	The Project would be designed to take into account areas which may be sensitive to subsidence, including the lake foreshore, low lying land to the 2.44 metre contour and seagrass communities.
Project design	The Project would be designed such that no secondary extraction would be undertaken within a 26.5 degree angle of draw to the seaward extent of the Seagrass communities and the 35 degree angle of draw to the high water mark of the lake.
During mining operations	Only first workings would be undertaken within Parcel A.
During mining operations	LakeCoal acknowledges that the Chain Valley Colliery site is located within the Swansea / North Entrance Mine Subsidence District and as such, any new surface improvements or alterations to existing improvements would require the approval of the Mine Subsidence Board.
During mining operations	<p>Subsidence issues associated with the changes to the mine layout from the current Subsidence Management Plan (SMP) approvals would be addressed via an SMP variation application to the Division of Resources &amp; Energy. Following receipt of Project approval, a detailed Extraction Plan and/or Subsidence Management Plan (as required by the relevant Authorities at the time, would be prepared which would build on the approved Subsidence Management Plans for No 1 Domain and No 2 Domain. The Plan(s) would address the matters specified in the approval and any relevant guidelines including:</p> <ul style="list-style-type: none"> <li>- Further outlining and clarifying the subsidence barriers and environmental safeguards developed to prevent subsidence adversely impacting on the environment.</li> <li>- Nomination of a conservative proven mine design specifically focussed on controlling the levels of subsidence in nominated areas of the surface above mining.</li> <li>- Programs to monitor subsidence impacts.</li> </ul>
<b>Ecology</b>	
Within 6 months of Project Approval	<p>The existing Seagrass Management Plan would be reviewed in consultation with DTIRIS (Fisheries) and Lake Macquarie City Council and updated as warranted. The review shall:</p> <ul style="list-style-type: none"> <li>- address the need for additional baseline data analysis and conduct Tests of statistical significance;</li> <li>- address the continuation of data collection in order to determine natural variation in seagrass distribution and abundance; and</li> <li>- provide clear definitions of seagrass impact threshold criteria.</li> <li>- <i>If identified through the monitoring program, subsidence is found to occur in areas known to contain seagrass beds (as identified in Figure 10) and loss of seagrass habitat has been determined to have occurred as a result of this subsidence, then LakeCoal would commit to undertaking remediation strategies to replace an equal area of any loss of seagrass habitat that has occurred.</i></li> <li>- <i>Remediation and or mitigation strategies would be included in the updated Seagrass Management Plan (SGMP), in consultation with and requiring the approval of DTIRIS. Where remediation on-site is not viable, mitigation would be undertaken at other sites within Lake Macquarie in consultation with DTIRIS (Fisheries) and LMCC.</i></li> </ul>
Within 6 months of Project Approval	LakeCoal will commence monitoring of the health of Swamp Sclerophyll Floodplain Forest EEC that receives mine discharge water downstream of the sedimentation and pollution control ponds. Any harm to EEC vegetation due to mine water discharge would be offset in accordance with OEH policy.
During construction of the ventilation fan	<p>Weeds on the site would be managed in the following manner:</p> <ul style="list-style-type: none"> <li>- Dense infestations of Lantana are to be removed or controlled prior to the</li> </ul>

Timing	Commitment
augmentation	<p>commencement of vegetation clearing works.</p> <ul style="list-style-type: none"> <li>- earthworking equipment and vehicles would be cleaned of excess soil by brushing and/or hosing at the commencement and completion of construction works in order to minimise the likelihood of the spread of weed seeds and plant pathogens;</li> <li>- sediment fences and sediment traps would be put in place for the duration of the construction works until disturbed areas have been stabilised by rehabilitation works, to prevent sediments that contain weed seeds, weed propagules and plant pathogens leaving the site;</li> <li>- disturbed areas would be kept to a minimum and be revegetated as soon as practically possible. This is to reduce the opportunities for weeds to colonise disturbed areas and also to minimise the potential for erosion and sediment transport;</li> <li>- any soil and vegetation removed from the site would be covered during transport and only taken to approved disposal sites, to minimise the risks of spreading weeds and plant pathogens beyond the area of disturbance; and</li> <li>- seasonal monitoring and weed control would be undertaken as necessary following the completion of works to minimise the spread of weeds into nearby remnant vegetation.</li> </ul>
During construction of the ventilation fan augmentation	<p>The following measures would be applied to minimise potential impacts to native fauna associated with removal of native vegetation as part of the proposed works:</p> <ul style="list-style-type: none"> <li>- A qualified and suitably experienced fauna spotter is to be present during tree-felling to check for wildlife and to capture or relocate animals if necessary.</li> <li>- Immediately prior to clearing, canopy trees would be visually inspected for the presence of fauna by a suitably qualified ecologist;</li> <li>- If fauna species are detected in a tree scheduled for clearing, the tree is to be nudged prior to felling to encourage the fauna to vacate the tree prior to felling.</li> <li>- If threatened fauna are located in trees scheduled to be cleared, clearing is to be halted until the fauna has been relocated.</li> <li>- Felled trees are to be left in-situ for at least 24 hours to allow the escape of fauna that may be hidden in hollows, under bark, etc.</li> <li>- If any wildlife is inadvertently injured during the proposed works, WIRES or an accredited veterinarian would be contacted.</li> </ul>
<b>Surface Water and Soils</b>	
Project design	Rainwater tanks would be installed at the operations block and workshop area for use at the Chain Valley Mine.
Prior to construction of the ventilation fan	A detailed Construction Soil and Water Management Plan would be developed in accordance with <i>Managing Urban Stormwater – Soils and Construction</i> (Landcom, 2004).
Prior to construction of the ventilation fan	Sediment traps would be installed downslope of areas of exposed soils external to the catchments identified in Figure 10-2 of the EA during construction works to protect downstream water quality.
During construction of the ventilation fan	Disturbance of acid sulfate soils (ASS) would be avoided wherever practicable. Where ASS has the potential to be disturbed, an ASS Management Plan would be prepared. Any ASS disturbed would be tested and handled in accordance with the ASS Management Plan and would be treated or disposed of to an appropriately-licensed facility.
During mining operations	<p>An internal audit of water management practices would be undertaken with the aim of improving overall water efficiency and to reduce total potable water consumption. The scope of the audit would include:</p> <ul style="list-style-type: none"> <li>- review of water consumption by individual facilities, equipment and appliances;</li> </ul>



Timing	Commitment
	<ul style="list-style-type: none"> <li>- consideration of measures to improve water efficiency through behavioural change, revised operational procedures or equipment modification/upgrades;</li> <li>- investigation of alternative water supplies; and</li> <li>- consideration of on-site opportunities for water recycling and reuse.</li> </ul>
During mining operations	Improvements would be made with regard to the stormwater quality and runoff from the impervious surfaces of the car park and site entry. Any such improvements would be determined as part of the site water audit to be undertaken following Project Approval.
During mining operations	<p>A revised Water Management Plan would be submitted for endorsement to the NSW Office of Water, Lake Macquarie City Council and Wyong Shire Council, and for approval to the Director General. The site Water Management Plan shall include:</p> <ul style="list-style-type: none"> <li>- Details of site water balance, including source(s) of water from which supply shall be obtained, and entitlements under which any supply of water from a water source governed under the <i>Water Sharing Plan for the Central Coast Unregulated Water Sources 2009</i> is obtained.</li> <li>- Demonstration of maximising the beneficial reuse of water intercepted and obtained from the underground mining operation, and any surface capture of water runoff from the internal catchment circuitry.</li> <li>- Demonstration that any harvesting of clean catchment runoff for beneficial use for the Colliery is obtained in compliance with the NSW Harvestable Rights Order, established under S.54 of the <i>Water Management Act 2000</i>.</li> <li>- A groundwater monitoring plan, which provides justification to any monitoring arrangement within unconsolidated or porous rock aquifers in consultation with the NSW Office of Water. This shall include locations, target strata and/or aquifers, parameters, frequency and reporting of data and interpretation of results in consultation with the NSW Office of Water.</li> <li>- A surface and ground response strategy, which defines and explains trigger levels, response actions and any mitigation and/or rehabilitation measures which shall be undertaken for the project.</li> <li>- Incorporate principles from the Landcom "Blue Book" for any improvements made to site as a result of recommendation from the site water audit.</li> <li>- Detail the current wastewater treatment train, pollutant removal and disposal, water infiltration, discharge point and rates, existing basin capacity and the ongoing maintenance program.</li> <li>- Minimising the erosion of soil from disturbed areas by: <ul style="list-style-type: none"> <li>• Limiting the area of disturbance and period of exposure.</li> <li>• Implementation of site management procedures such as watering of disturbed areas and unsecured stockpiles.</li> <li>• Installation of sediment traps around areas of exposed soils to protect downstream water quality.</li> </ul> </li> <li>- Relevant licences and management plans are in place for the correct storage and handling of all hydrocarbons at the Chain Valley Mine.</li> <li>- Suitable bunding has been installed around all liquid storage areas and would be maintained for the life of the Project.</li> <li>- Oil separator filtration traps are used for regular servicing of the diesel fleet machinery.</li> <li>- All waste sump oil is removed from site and disposed of by a licensed external waste collection company.</li> </ul>
During mining operations	<p>Recommendations of the site water audit would determine the nature of any works which may relate to an upgrade of existing water infrastructure. Where necessary, a comprehensive report would be prepared prior to the commencement of works, by an experienced and qualified person, including water quality modelling (for example MUSIC) and engineering plans. LakeCoal would obtain all appropriate licences and approvals to undertake such works and update the site's Water Management Plan accordingly.</p>

Timing	Commitment
During mining operations	Sufficient water supply would be ensured for all stages of mine development. Should insufficient water supply be available, the Project shall be scaled back to match its water supply.
Within one year of Project Approval	LakeCoal is committed to securing and complying with all necessary environmental and planning approvals. Within one year of Project Approval, LakeCoal would supply the NSW Office of Water with records to demonstrate compliance with any statutory authority regulated under either the <i>Water Act 1912</i> or <i>Water Management Act 2000</i> , which would include reference to all licences obtained under either statute, volumes authorised under licence and registration of any dealings undertaken in accordance with the NSW Access Dealings Principles Order 2004 and rules of the <i>Water Sharing Plan for the Central Coast Unregulated Water Sources 2009</i> .
Annually, commencing upon Project Approval	Annual reporting of water balance, monitoring results and any response actions defined in the site Water Management Plan, shall be provided to the NSW Office of Water.
During mining operations	Investigations of alternate water supply options to the Wyong Water Supply Authority would be undertaken, to account for, and if necessary reduce existing and increased water supply from the Authority.
During mining operations	Hydrocarbons would continue to be stored on site in accordance with existing licences and management plans.
During mining operations	Existing bunding would be maintained around liquid storage areas.
During mining operations	Oil separator filtration traps would continue to be used during regular servicing of the diesel fleet machinery.
During mining operations	Existing monitoring of ponds would continue, to assist in the identification of the need for erosion-related maintenance.
During mining operations	Water that is likely to be contaminated with suspended solids, oil and grease, such as the oil storage facilities, diesel tank storage, workshop maintenance areas and wash bay, would continue to be directed to, and treated by, an oily water separator.
During mining operations	Water that is potentially contaminated with suspended solids, for example, from unsealed areas, would continue to be directed to the existing ponds.
During mining operations	Further investigation of sedimentation of surface water would be undertaken and appropriate treatment/management implemented, based upon findings of the surface water audit.
During mining operations	Surface water quality would continue to be monitored in accordance with EPL 1770 for the site.
During mining operations	Existing surface water quality monitoring would be supplemented with the following: <ul style="list-style-type: none"> <li>- incorporation of upstream and downstream sampling points, in addition to those required by EPL 1770, to enable background conditions and the contribution of surface water contaminants from Chain Valley Mine to be assessed;</li> <li>- analysis for a wider range of analytes than those required under EPL 1770, including oil and grease;</li> <li>- the development or maintenance on-site of written protocols for: <ul style="list-style-type: none"> <li>• collection and analysis of surface water samples; and</li> <li>• review and evaluation of surface water analytical results to confirm that adverse impacts for the discharge of water from the site is identified, addressed and reported in a timely manner;</li> </ul> </li> <li>- development of site specific criteria following the collection of two years of surface water quality data with appropriate limits of detection.</li> </ul>
During mining operations	A surface water reticulation irrigation line with dust suppression sprinklers would be utilised to suppress dust during coal processing.
During mining operations	The existing sprinklers installed around the access roads to the final product bin and in the product coal stockpile areas would be upgraded to minimise the generation of dust.
During mining operations	Existing dust minimisation measures would continue including use of a road sweeper to water internal roads and education of truck drivers to cover loads.

Timing	Commitment
<b>Groundwater</b>	
Currently in progress	LakeCoal has submitted a Groundwater Licence application to NOW, seeking approval to pump a mix of potable and groundwater from the underground workings sump to the sedimentation and pollution control ponds at the pit top.
<b>Traffic and Transport</b>	
During mining operations	Coal transport to Newcastle Port for export would be along Ruttleys Road, then south along the Pacific Highway and the Doyalson Link Road to the F3 Freeway Interchange at Sparks Road. The route would then follow the F3 Freeway to its northern end, then easterly on John Renshaw Drive and the New England Highway and then south to the Newcastle Port via the Pacific Highway (Maitland Road), Industrial Highway and Elizabeth Street.
During mining operations	Records would be kept of all haulage vehicles leaving and entering the Chain Valley Mine including details of departure and arrival times and haulage routes used.
During mining operations	Haulage would only be undertaken on weekdays. No haulage would occur on public holidays.
Within 6 months of Project Approval	<p>The existing Traffic Management Plan would be revised /updated and implemented, and would include:</p> <ul style="list-style-type: none"> <li>- procedures to ensure that drivers adhere to the designated haulage routes as required under these safeguards;</li> <li>- measures to achieve a low-frequency, regular trucking schedule rather than a high-frequency, campaign trucking schedule. Consideration would be given to arrangements with the Port of Newcastle to receive long-lead time ship nominations and to store coal at the facility where there is discontinuance in the lease holder's ship nominations;</li> <li>- contingency plans where, for example the designated transport routes are disrupted or arrangements with the Port of Newcastle to maintain even scheduling of truck movements are not available. This would also address procedures for notifying relevant agencies of the required implementation of any such contingency plans;</li> <li>- details of procedures for receiving and addressing complaints from the community concerning traffic issues associated with haulage from the Project;</li> <li>- measures to ensure that the provisions of the Traffic Management Plan are implemented, for example education of drivers and any contractual agreements with operators of heavy vehicles which service the Project.</li> </ul>
Within 6 months of Project Approval	<p>The Driver Code of Conduct would be amended /updated and implemented, and would address:</p> <ul style="list-style-type: none"> <li>- address travelling speeds;</li> <li>- include instructions to drivers not to overtake each other on the haulage routes, as far as practicable, and to maintain appropriate distances between vehicles;</li> <li>- include instruction to drivers to adhere to the designated haulage routes;</li> <li>- include instruction to drivers to be especially safety conscious and to ensure that traffic regulations are obeyed strictly;</li> <li>- address driver training in the Code to ensure that all drivers are made aware and to do; and</li> <li>- include procedures for ensuring compliance with and enforcement of the Code.</li> </ul>
During mining operations	<p>An independent traffic consultant would be engaged to conduct a traffic audit of the Project six months after obtaining Project Approval. The audit would include:</p> <ul style="list-style-type: none"> <li>- haulage contractor records and any available receipt records;</li> <li>- provision of estimates of average daily truck movements on these haulage routes, including identification of haulage trucks travelling to and from the</li> </ul>

Timing	Commitment
	<p>Chain Valley Mine;</p> <ul style="list-style-type: none"> <li>- hours of haulage for trucks leaving and returning to the site; and</li> <li>- advice on compliance with the Driver's Code of Conduct.</li> </ul>
During mining operations	<p>An annual compliance review would be undertaken with outcomes being presented in the AEMR. The review would address:</p> <ul style="list-style-type: none"> <li>- annual tonnage of coal hauled from the site;</li> <li>- number of truck movements and routes taken from the site on an average daily, maximum daily, maximum hourly and per annum basis;</li> <li>- a review of compliance with these safeguards;</li> <li>- a record of complaints received and the manner in which complaints were addressed; and</li> <li>- disruptions to services or haulage, or any projected disruption to this scheduling.</li> </ul>
During construction of the ventilation fan	<p>A separate Construction Traffic Management Plan would be put in place to manage the traffic generated during the relocation of the ventilation fan to the pit top area should this option be chosen, and would address:</p> <ul style="list-style-type: none"> <li>- Implementing appropriate signage to warn road users of the presence of construction vehicles, as well as any changes to normal traffic conditions;</li> <li>- Scheduling heavy vehicle movements in off-peak hours when traffic volumes are typically at a minimum;</li> <li>- Restricting heavy vehicle movements to designated haulage routes to minimise any impacts to residents and the local road network;</li> <li>- Ensuring heavy vehicles meet the Australian Road Rules and RTA standards so that road safety is not compromised; and</li> <li>- Transporting oversized equipment and machinery in accordance with the RTA guidelines for oversized movements.</li> </ul>
During mining operations	<p>LakeCoal would address each of the key improvement areas identified from the Road Safety Audit in the EA through the updated Chain Valley Coal Road Transport Protocol. This would include consultation with Wyong Shire Council and Delta Electricity or consultation with the RTA and/or Newcastle City Council as appropriate.</p>
During mining operations	<p>LakeCoal commits to continued discussions with Council with a view to formulating an agreement regarding the ongoing maintenance of the section of Ruttleys Road administered by Council travelled by heavy vehicles hauling coal.</p>
During mining operations	<p>Subject to the agreement of the landowner, LakeCoal agree to install barriers to prevent trucks entering the unpaved area from Construction Road into the electricity substation for the purpose of parking or potentially bypassing the formal intersection of Construction and Ruttleys Roads.</p>
Noise and Vibration	
During construction of the ventilation fan	<p>A Construction Noise Management Plan would be prepared prior to commencing construction activities associated with the augmentation of the ventilation fan at Summerland Point. The construction noise management plan would:</p> <ul style="list-style-type: none"> <li>- link construction methodologies with those assessed in the Noise Impact Assessment presenting a reasonable and a feasible approach to construction noise management;</li> <li>- identify the extent of the residential area affected and assess the impact on residents; and</li> <li>- detail a 24 hour contact phone number for residents to call regarding complaints or queries.</li> </ul>
Within 6 months of Project Approval	<p>A noise monitoring program would be prepared to assist in confirming and/or identifying the site specific potential for disturbance at nearby residential receiver locations. The noise monitoring program would identify areas where operational methods or sequences or alternate plant could be used to reduce noise emissions from the site.</p>
Air Quality	

Timing	Commitment
During mining operations	Bulldozer operations would be scheduled to avoid periods of high winds, where reasonable and feasible to do so.
During mining operations	The pit top area would be maintained in such a manner as to minimise areas affected by coal dust, and consideration would be given to providing additional watering to the stockpile and trafficable areas if dust generation is excessive.
During mining operations	Monitoring would be undertaken with both the existing and augmented fan arrays and the results presented to the Director-General.
During mining operations	The mine's continuous gas monitoring system is currently being updated to include new real time and tube bundle monitoring systems which would enable more comprehensive analysis of CO <sub>2</sub> e emissions.
Within 6 months of Project Approval	An Air Quality Management Plan would be developed and implemented to detail dust mitigation measures, and to reflect a proactive dust monitoring and mitigation approach for the Project.
<b>Heritage</b>	
During mining operations	Monitoring of site 45-7-0189 should occur following Project approval at the end of year 1, year 3, and year 5. Monitoring should include a visual inspection of the site by an archaeologist and Aboriginal stakeholders. Given that negligible subsidence is expected above Parcel A, in order to measure any changes in land-surface, monitoring should include the following: <ul style="list-style-type: none"> <li>- establishment of fixed datum point;</li> <li>- stakes with horizontal markings placed on either extent of the site to enable accurate recording of landscape shifts;</li> <li>- a control reference point outside proposed subsidence area such as a building;</li> <li>- photograph records from the fixed datum point to enable photographic comparison. Photos should be large format with clear distinguishable features; and</li> <li>- production of a letter report to be retained by LakeCoal and sighted as requested by Aboriginal stakeholders.</li> </ul>
During mining operations	In the event that any unexpected historic heritage or archaeology is uncovered during the works, all works in the vicinity will stop and a heritage consultant will be contacted to assess the finds. Depending on the results of the assessment further mitigation measures may be required to protect or record this heritage before works recommence. If unexpected 'relics' are located, the Heritage Council will be notified in accordance with S146 of the Heritage Act.
<b>Community, Infrastructure and Service Contributions</b>	
During mining operations	Two cents from each tonne of coal produced at the Chain Valley Mine would be contributed to a fund to be administered by Council for the provision of public infrastructure and services for the communities of Summerland Point, Gwandalan, Chain Valley and Mannering Park.
During mining operations	One and half cents from each tonne of coal produced would be contributed towards a dedicated Chain Valley Community Fund
<b>Waste Management</b>	
During mining operations	Waste generated during the life of the Project would continue to be managed in accordance with current DECCW guidelines using the existing waste management practices at the Mine.
<b>Environmental Management</b>	
Within 6 months of Project Approval	An Operational Environmental Management Plan would be prepared and implemented to provide a framework for effective environmental management of the Project and incorporating relevant plans, standards and procedures required. The Operational Environmental Management Plan would guide conformance with environmental management requirements for the Project and would include risk analysis, monitoring programmes, responsibility allocations and inspection



Timing	Commitment
	<p>checklists.</p> <p>The following sub-plans would be incorporated into the framework of the Operational Environmental Management Plan and prepared taking into account the existing environmental controls, the effectiveness of management under the existing MOP and the requirements of the approval:</p> <ul style="list-style-type: none"> <li>- Soils and Water Management Plan;</li> <li>- Water Efficiency Management Plan;</li> <li>- Seagrass Management Plan;</li> <li>- Air Quality Management Plan;</li> <li>- Traffic Management Plan;</li> <li>- Extraction Plan;</li> <li>- Waste Management Standard; and</li> <li>- Spill Containment Standard.</li> </ul>
During mining operations	Additional data requested by the Department of Resources and Energy (DRE) would be included in the required Annual Environmental Management Report (AEMR). The proponent would amend the Mining Operation Plan, to include the proposed project, and throughout the life of the Project, to the satisfaction of the DRE.
During mining operations	Rehabilitation and environmental management reporting would be captured in the existing Mining Operation Plan and Annual Environmental Management Report to the satisfaction of the Division of Resources and Energy's Director of Environmental Sustainability.
Two years prior to the completion of mining (conditional)	Should a further Project Approval not be sought and/or obtained prior to December 2013, that is, in excess of two years prior to the completion of mining sought under this Project Application, LakeCoal would prepare a Mine Closure and Rehabilitation plan for approval by the relevant authorities. The Mine Closure and Rehabilitation Plan would be prepared in accordance with the relevant guidelines at the time and build upon the content and commitments in the approved MOP.

# Development Consent

## Section 89E of the *Environmental Planning & Assessment Act 1979*

As delegate of the Minister for Planning and Infrastructure, I approve the development application referred to in Schedule 1, subject to the conditions in Schedules 2 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 ongoing environmental management of the development.

Chris Wilson  
**Executive Director**  
**Development Assessment Systems and Approvals**

Sydney

2013

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### SCHEDULE 1

<b>Application Number:</b>	SSD-5465
<b>Applicant:</b>	LakeCoal Pty Limited
<b>Consent Authority:</b>	Minister for Planning and Infrastructure
<b>Land:</b>	See Appendix 1
<b>Development:</b>	Chain Valley Extension Project

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Red type represents November 2014 Modification (SSD\_5465 MOD 1)

Blue type represents December 2015 Modification (SSD\_5465 MOD 2)

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## DEFINITIONS

Adaptive management	Adaptive management includes monitoring subsidence impacts and subsidence effects and, based on the results, modifying the mining plan as mining proceeds to ensure that the effects, impacts and/or associated environmental consequences remain within predicted and designated ranges and in compliance with the conditions of this consent
Annual Review	The review required by Condition 4 of Schedule 6
Applicant	LakeCoal Pty Limited, or any other person or persons who rely on this consent to carry out the development that is subject to this consent
Approved mine plan	The mine plan show in Appendix 3, as varied by any Extraction Plan approved under this consent
APZs	The asset protection zones shown in Appendix 7A
BCA	Building Code of Australia
Built features	Any building or work erected or constructed on land or water, and includes dwellings and infrastructure such as any formed road, street, path, walk, marina or driveway; any pipeline, water, sewer, telephone, gas or other service main
CCC	Community Consultative Committee
Coal haulage route	The route proposed in the EIS for haulage of coal by trucks between the site and Port Waratah Coal Services (as shown in Appendix 5).
Conditions of this consent	Conditions contained in Schedules 2 to 6 inclusive
Construction	The demolition of buildings or works, carrying out of works and erection of buildings covered by this consent
Day	The period from 7am to 6pm on Monday to Saturday, and 8am to 6pm on Sundays and Public Holidays
Delta Electricity	Delta Electricity, or subsequent owners of the Vales Point Power Station
Department	Department of Planning & Environment
Development	The development described in the EIS, as amended by SEE Mod 1
DPI Water	Department of Primary Industries - Water
DRE	Division of Resources and Energy of the Department of Industry
DPI Fisheries	Fisheries Division of the Department of Primary Industries
EA	Environmental Assessment titled ' <i>Environmental Assessment – Chain Valley Colliery Domains 1 and 2 Continuation Project</i> ' dated July 2010 and associated response to submissions titled ' <i>Submissions Report – Chain Valley Colliery Domains 1 and 2 Continuation Project</i> ', dated 14 November 2011
EIS	Environmental Impact Statement titled ' <i>Chain Valley Colliery Mining Extension 1 Project</i> ' dated 28 May 2013, as modified by the response to submissions, titled ' <i>Chain Valley Colliery Mining Extension 1 Project Response to Submissions</i> ', dated August 2013, and the letter by EMM to the Applicant, dated 29 October 2013
Endangered population	As defined under the <i>Fisheries Management Act 1994</i>
Environmental consequences	The environmental consequences of subsidence impacts, including: damage to built features; loss of surface water flows to the subsurface; loss of standing pools; slope changes to streams; adverse water quality impacts; development of iron bacterial mats; landslides; damage to Aboriginal heritage sites; impacts on aquatic ecology; and ponding.
EPA	Environment Protection Authority
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EP&A Regulation	<i>Environmental Planning and Assessment Regulation 2000</i>
EPL	Environment Protection Licence issued under the POEO Act
Evening	The period from 6pm to 10pm
Feasible	Feasible relates to engineering considerations and what is practical to build or carry out
First workings	Development of the main headings and gateroads in the underground mining area
Ha	Hectare
Heritage item	An item as defined under the <i>Heritage Act 1977</i> and/or an Aboriginal object or Aboriginal place as defined under the <i>National Parks and Wildlife Act 1974</i>
High Water Mark Subsidence Barrier	The area of land defined: <ul style="list-style-type: none"> <li>a) on the surface by the highwater level of Lake Macquarie and a point 2.44 metres in elevation above that highwater level; and</li> <li>b) in the seam, where it is intersected by lines: <ul style="list-style-type: none"> <li>• drawn landwards from all points 2.44 metres elevation above the highwater level of Lake Macquarie; and</li> <li>• drawn lakewards from the highwater level of Lake Macquarie, at an angle of 35 degrees from the vertical.</li> </ul> </li> </ul>

Incident	A set of circumstances that: <ul style="list-style-type: none"> <li>• causes or threatens to cause material harm to the environment; and/or</li> <li>• breaches or exceeds the limits or performance measures/criteria in this consent</li> </ul>
Land	As defined in the EP&A Act, except for where the term is used in the noise and air quality conditions in Schedule 3 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 the Land Titles Office at the date of this consent
LMCC	Lake Macquarie City Council
Material harm to the environment	Actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial
Mining operations	Includes all extraction, processing, handling, storage and transportation of coal carried out on the site
Minister	Minister for Planning, or delegate
Minor	Not very large, important or serious
Mitigation	Activities associated with reducing the impacts of the development
MSB	Mine Subsidence Board
NCC	Newcastle City Council
Negligible	Small and unimportant, such as to be not worth considering
Night	The period from 10pm to 7am on Monday to Saturday, and 10pm to 8am on Sundays and Public Holidays
OEH	Office of Environment and Heritage
Peak hour periods	7 am to 9 am and 4:30 pm to 6 pm weekdays
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
Privately-owned land	Land that is not owned by a public agency, Delta Electricity 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
Reasonable costs	The costs agreed between the Department and the Applicant for obtaining independent experts to review the adequacy of any aspects of the Extraction Plan, or where such costs cannot be agreed, the costs determined by a dispute resolution process
Rehabilitation	The treatment or management of land disturbed by the development for the purpose of establishing a safe, stable and non-polluting environment
Remediation	Activities associated with partially or fully repairing or rehabilitating the impacts of the development or controlling the environmental consequences of this impact
Road Maintenance Agreement	The document prepared by McCullough Robertson Lawyers and titled ' <i>Road Maintenance Agreement</i> ', signed by WSC on 1 July 2013 and by LakeCoal on 5 July 2013
ROM coal	Run-of-mine coal
RMS	Roads and Maritime Services
Safe, serviceable & repairable	Safe means no danger to users who are present; serviceable means available for its intended use; and repairable means damaged components can be repaired economically
Second workings	Extraction of coal by miniwall or pillar extraction methods
Secretary	Secretary of the Department, or nominee
SEE Mod 1	Statement of Environmental Effects titled ' <i>Chain Valley Colliery – Modification 1, Statement of Environmental Effects, Section 96 Modification to SSD-5465</i> ' dated April 2014, as modified by the associated Response to Submissions dated 15 September 2014.
SEE Mod 2	Statement of Environmental Effects titled ' <i>Chain Valley Colliery – Modification 2, Statement of Environmental Effects, Section 96 Modification to SSD-5465</i> ' dated 29 June 2015, including the associated Response to Submissions dated 16 September 2015.
Site	All land within the Development Area (see Appendices 1 and 2)
Statement of commitments	The Applicant's commitments in Appendix 9
Subsidence	The totality of subsidence effects, subsidence impacts and environmental consequences of subsidence impacts
Subsidence effects	Deformation of the ground mass due to mining, including all mining-induced ground movements, such as vertical and horizontal displacement, tilt, strain and curvature
Subsidence impacts	Physical changes to the ground and its surface caused by subsidence effects, including tensile and shear cracking of the rock mass, localised buckling of strata caused by valley closure and upsidence and surface depressions or troughs



Surface facilities sites	The Chain Valley Colliery surface facilities site; the Summerland Point ventilation shaft site; and any other site subject to existing or proposed surface disturbance associated with the development
Threatened Species	As defined under the <i>Threatened Species Conservation Act 1995</i> and the <i>Environment Protection and Biodiversity Conservation Act 1999</i>
WSC	Wyong Shire Council

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## SCHEDULE 2 ADMINISTRATIVE CONDITIONS

### OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT

1. In addition to meeting the specific performance criteria established under this consent, the Applicant shall implement all reasonable and feasible 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 CONSENT

2. The Applicant shall carry out the development generally in accordance with the:
  - (a) EIS;
  - (b) SEE Mod 1;
  - (c) SEE Mod 2; and
  - (d) Project Layout Plans.

*Note: The Project Layout Plans of the development are shown in Appendices 2 to 4 and Appendix 7A*

- 2A. The Applicant shall carry out the development in accordance with the:
  - (a) Statement of Commitments; and
  - (b) conditions of this consent.
3. If there is any inconsistency between the documents in condition 2, the more recent document shall prevail to the extent of the inconsistency. The conditions of this consent shall prevail over the documents in conditions 2 and 2A(a) to the extent of any inconsistency.
4. The Applicant shall comply with any reasonable requirement/s of the Secretary arising from the Department's assessment of:
  - (a) any strategies, plans, programs, reviews, audits, reports or correspondence that are submitted by the Applicant in accordance with this consent; and
  - (b) the implementation of any actions or measures contained in these documents.

### LIMITS ON CONSENT

#### Mining Operations

5. The Applicant may carry out mining operations on the site until 31 December 2027.

*Note: Under this consent, the Applicant is required to rehabilitate the site and perform additional undertakings to the satisfaction of either the Secretary or the DRE. 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 these additional undertakings have been carried out satisfactorily.*

#### Coal Extraction

6. The Applicant shall not extract more than 2.1 million tonnes of ROM coal from the site in any calendar year.

#### Coal Transport – Public Roads

7. The Applicant shall ensure that no laden coal trucks are dispatched from the site to public roads outside of the hours of 5:30 am to 5:30 pm, Monday to Friday, and not at all on Saturdays, Sundays or public holidays.
8. The Applicant shall not dispatch from the site more than:
  - (a) 660,000 tonnes of product coal in any calendar year to Port Waratah Coal Services for export;
  - (b) 180,000 tonnes of product coal in any calendar year to domestic customers other than Vales Point Power Station;
  - (c) a total of 270 laden coal trucks per day by public roads;
  - (d) a total of 32 laden coal trucks per hour; and
  - (e) an average of 16 laden coal trucks per hour by public roads during peak hour periods, calculated monthly, until the intersection of M1 Motorway and Sparks Road Interchange (East Side - unsignalised with stop sign) is upgraded to a signalised intersection.

#### Coal Transport – Vales Point Power Station

9. The Applicant shall ensure that only private roads are used for the transport of coal by truck to Vales Point Power Station, except in an emergency. In an emergency, product coal may be transported by public roads,

with the prior written approval of the **Secretary**, and subject to any restrictions that the **Secretary** may impose.

10. The Applicant shall restrict the transport of coal by truck to the Vales Point Power Station between 10 pm and 5:30 am to:
  - (a) 16 laden trucks per hour for the Spring and Autumn months; and
  - (b) zero during Winter months.

#### **PLANNING AGREEMENT**

11. Within 12 months of the date of this consent, unless otherwise agreed by the **Secretary**, the Applicant shall enter into a planning agreement with the WSC in accordance with Division 6 of Part 4 of the EP&A Act that provides for payment to the WSC for community enhancement purposes.

The agreement must include provision for those matters set out in condition 12 below.

If there is any dispute between the Applicant and WSC relating to the preparation or implementation of the planning agreement, then either party may refer the matter to the **Secretary** for resolution.

#### **COMMUNITY ENHANCEMENT**

12. The Applicant shall pay WSC \$0.035 for each tonne of product coal produced by the development for the purposes of improving public infrastructure and providing community projects for the communities of Summerland Point, Gwandalan, Chain Valley Bay and Mannering Park. Payments from the approval date of project approval 10\_0161 must be:
  - (a) made by the end of March, for coal produced in the previous calendar year;
  - (b) made for each year that coal is produced by the colliery; and
  - (c) subject to indexation in accordance with the Australian Bureau of Statistics Consumer Price Index.

#### **SURRENDER OF EXISTING PROJECT APPROVAL**

13. Within 12 months of the date of this development consent, unless the **Secretary** agrees otherwise, the Applicant shall surrender its project approval for the Chain Valley Colliery Domains 1 & 2 Continuation Project (10\_0161) to the satisfaction of the **Secretary**, in accordance with section 75YA of the EP&A Act.

*Note: This requirement does not extend to the surrender of construction and occupation certificates for existing and proposed building works under Part 4A of the EP&A Act. Surrender of a consent or approval should not be understood as implying that works legally constructed under a valid consent or approval can no longer be legally maintained or used.*

14. Prior to the surrender of the existing project approval, the conditions of this consent (including any notes) shall prevail to the extent of any inconsistency with the conditions of the existing project approval (10\_0161).

#### **STRUCTURAL ADEQUACY**

15. The Applicant shall ensure that all new buildings and structures, and any alterations or additions to existing buildings and structure, that are part of the development are constructed in accordance with:
  - (a) the relevant requirements of the BCA; and
  - (b) any additional requirements of the MSB where the building or structure is located on land within declared Mine Subsidence Districts.

*Notes:*

- Under Part 4A of the EP&A Act, the Applicant is required to obtain construction and occupation certificates for the proposed building works;
- Part 8 of the EP&A Regulation sets out the requirements for the certification of the development; and
- Under Section 15 of the Mine Subsidence Compensation Act 1961, the Applicant is required to obtain the MSB's approval before constructing any improvements in a Mine Subsidence District.

#### **DEMOLITION**

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

#### **OPERATION OF PLANT AND EQUIPMENT**

17. The Applicant shall ensure that all plant and equipment used at the site is:
  - (a) maintained in a proper and efficient condition; and
  - (b) operated in a proper and efficient manner.

#### **UPDATING AND STAGING STRATEGIES, PLANS OR PROGRAMS**

18. The Applicant must regularly review the strategies, plans and programs required under this consent and ensure that these documents are updated to incorporate measures to improve the environmental performance of the development and reflect current best practice in the mining industry. To facilitate these updates, the Applicant may at any time submit revised strategies, plans or programs for the approval of the Secretary. With the agreement of the Secretary, the Applicant may also submit any strategy, plan or program required by this consent on a staged basis.

With the agreement of the Secretary, the Applicant may prepare a revision or stage of any strategy, plan or program required under this consent without undertaking consultation with all parties nominated under the applicable condition in this consent.

*Notes:*

- *While any strategy, plan or program may be submitted on a staged basis, the Applicant must ensure that the existing operations on site are covered by suitable strategies, plans or programs at all times.*
- *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.*

#### **ROAD MAINTENANCE CONTRIBUTION**

19. The Applicant must pay Road Maintenance Fees to WSC in accordance with its Road Maintenance Agreement with WSC.
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### SCHEDULE 3 ENVIRONMENTAL CONDITIONS – GENERAL

#### TRANSPORT

##### Monitoring of Coal Transport

1. The Applicant shall:
  - (a) keep accurate records of the amount of coal transported from the site (on a weekly basis); and
  - (b) make these records publicly available on its website at the end of each calendar quarter.

##### Road Works

2. The Applicant shall upgrade the Ruttleys Road and Construction Road intersection within 6 months of the date of this consent, unless the Secretary directs otherwise, by:
  - (a) installing additional signage on and adjacent to Construction Road prior to the intersection;
  - (b) repairing the surface of Construction Road as required and ensuring the edge seal of the left turn lane is of sufficient width to accommodate coal trucks;
  - (c) installing or replacing “Stop” signs in accordance with Austroads guidelines;
  - (d) repainting road line markings and raised pavements associated with this intersection; and
  - (e) installing barriers to prevent trucks parking on the gravel area adjacent to the intersection and the electricity substation located in the vicinity of this intersection.

The design and construction of these works must be undertaken in consultation with, and to the relevant satisfaction of, WSC, RMS and Delta Electricity and to the satisfaction of the Secretary.

##### Road Transport Protocol

3. The Applicant shall prepare a Road Transport Protocol to the satisfaction of the Secretary. This protocol shall:
  - (a) be prepared in consultation with RMS, NCC, WSC, DRE and CCC and submitted to the Secretary for approval within 6 months of the date of this consent;
  - (b) describe the designated haulage routes to be used (as shown in Appendix 5); the maximum number of road movements proposed and the haulage hours permitted under this consent;
  - (c) include a Traffic Management Plan, which includes:
    - procedures to ensure that drivers adhere to the designated haulage routes;
    - measures to maximise the use of a low frequency (regular) trucking schedule rather than an intermittently-high frequency (campaign) trucking schedule, especially during the morning peak hour;
    - contingency plans to apply when (for example) the designated haulage route is disrupted, including procedures for notifying relevant agencies and affected communities of the need to implement such contingency plans;
    - procedures to ensure that all haulage vehicles associated with the development are clearly distinguishable as Chain Valley Colliery coal haulage trucks;
    - details of procedures for receiving and addressing complaints from the community concerning traffic issues associated with truck movements to and from the site;
    - measures to ensure that the provisions of the Traffic Management Plan are implemented, eg driver training in the heavy vehicle driver's Code of Conduct and contractual agreements with heavy vehicle operators; and
    - procedures for ensuring compliance with and enforcement of the heavy vehicle driver's Code of Conduct;
  - (d) include a Code of Conduct for heavy vehicle drivers that addresses:
    - travelling speeds;
    - instructions to avoid grouping or convoying of trucks;
    - instructions to drivers not to overtake each other on the haulage route, as far as practicable, and to maintain appropriate distances between vehicles;
    - instruction to drivers to adhere to the designated haulage routes;
    - instruction to drivers to be properly safety conscious and to strictly obey all traffic regulations; and
    - appropriate penalties for infringements of the Code.

The Applicant shall implement the approved Road Transport Protocol as approved from time to time by the Secretary.

##### Independent Traffic Audit



4. Prior to 31 March 2014, and every 12 months thereafter, unless the **Secretary** directs otherwise, the Applicant shall commission a suitably qualified person, whose appointment has been approved by the **Secretary**, to conduct an Independent Traffic Audit of the development. This audit must:
  - (a) be undertaken without prior notice to the Applicant, and in consultation with RMS, NCC, WSC and the CCC;
  - (b) assess the impact of the development on the performance and safety of the road network, including a review of:
    - haulage records;
    - accident records on the haulage route, infringements relating to the code of conduct and any incidents involving haulage vehicles;
    - community complaints register; and
  - (c) assess the effectiveness of the Road Transport Protocol; and, if necessary, recommend measures to reduce or mitigate any adverse (or potentially adverse) impacts.
5. Within 1 month of receiving the audit report, or as otherwise agreed by the **Secretary**, the Applicant shall submit a copy of the report to the **Secretary**, with a detailed response to any of the recommendations contained in the audit report, including a timetable for the implementation of any measures proposed to address the recommendations in the audit report.

A summary of the audit report must be included in the Annual Review.

### Alternative Coal Transport Options

6. Prior to 31 December 2014, and every three years thereafter, the **Applicant** shall prepare and submit to the **Secretary** for approval, a study of the reasonable and feasible options to reduce or eliminate the use of public roads to transport coal from the development. The assessment must include:
  - (a) an analysis of the capital, construction and operating costs of the alternative transport options; and
  - (b) quantified social and environmental impacts associated with road and rail transport.

### NOISE

#### Noise Impact Assessment Criteria

7. The Applicant shall ensure that the noise generated by the development at any residence on privately-owned land does not exceed the criteria for the location in Table 1 nearest to that residence.

Table 1: Noise Criteria dB(A)

Location	Day	Evening	Night	
	$L_{Aeq}(15 \text{ min})$	$L_{Aeq}(15 \text{ min})$	$L_{Aeq}(15 \text{ min})$	$L_{A1}(1 \text{ min})$
R8	38	38	38	45
R11	49	49	49	54
R12	49	49	49	53
R13	43	43	43	49
R15	36	36	36	45
R19	37	37	37	45
R22	46	46	46	46
all other privately-owned land	35	35	35	45

Notes:

- To interpret the locations referred to in Table 1, see Appendix 6 and the EIS; and
- Noise generated by the development is to be measured in accordance with the relevant requirements, and exemptions (including certain meteorological conditions), of the NSW Industrial Noise Policy. Appendix 8 sets out the meteorological conditions under which these criteria apply, and the requirements for evaluating compliance with these criteria.

However, these criteria do not apply if the Applicant has a written agreement with the relevant landowner to exceed the noise criteria, and the Applicant has advised the Department in writing of the terms of this agreement.

### Operating Conditions

8. The Applicant shall:
  - (a) implement best management practice, including all reasonable and feasible noise mitigation measures, to minimise the construction, operational and transport noise generated by the development;

- (b) regularly assess the noise monitoring and meteorological data and relocate, modify, and/or stop operations on site to ensure compliance with the relevant conditions of this consent;
  - (c) minimise the noise impacts of the development during meteorological conditions under which the noise limits in this consent do not apply (see Appendix 8);
  - (d) use its best endeavours to achieve the long-term noise goals in Table 2, where reasonable and feasible, and report on progress towards achieving these goals in each Annual Review;
  - (e) carry out a comprehensive noise audit of the development in conjunction with each independent environmental audit; and
  - (f) prepare an action plan to implement any additional reasonable and feasible onsite noise mitigation measures identified by each audit;
- to the satisfaction of the **Secretary**.

Table 2: Long-term Noise Goals dB(A)

Location	Day	Evening	Night
	$L_{Aeq}(15 \text{ min})$	$L_{Aeq}(15 \text{ min})$	$L_{Aeq}(15 \text{ min})$
R11 – R13	41	41	41
R22	40	40	40

Notes:

- To interpret the locations referred to in Table 2, see Appendix 6 and the EIS; and
- Noise generated by the development is to be measured in accordance with the relevant requirements, and exemptions (including certain meteorological conditions), of the NSW Industrial Noise Policy. Appendix 8 sets out the meteorological conditions under which these criteria apply, and the requirements for evaluating compliance with these criteria.

## Noise Management Plan

9. The Applicant shall prepare a Noise Management Plan for the development to the satisfaction of the **Secretary**. This plan must:
  - (a) be prepared in consultation with the EPA and submitted to the **Secretary** for approval within 4 months of the date of this consent, unless otherwise agreed by the **Secretary**;
  - (b) describe the measures that would be implemented to ensure compliance with the noise criteria and operating conditions in this consent;
  - (c) describe the proposed noise management system in detail including the mitigation measures that would be implemented to minimise noise during construction and operations, including on and off site road noise generated by vehicles associated with the development; and
  - (d) include a monitoring program that:
    - uses attended monitoring to evaluate the compliance of the development against the noise criteria in this consent;
    - evaluates and reports on:
      - the effectiveness of the on-site noise management system; and
      - compliance against the noise operating conditions; and
    - defines what constitutes a noise incident, and includes a protocol for identifying and notifying the Department and relevant stakeholders of any noise incidents.

The Applicant shall implement the approved management plan as approved from time to time by the **Secretary**.

## AIR QUALITY

### Odour

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

### Air Quality Criteria

11. 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 cause exceedance of the criteria listed in Tables 3, 4 and 5 at any residence on privately-owned land.

Table 3: Long-term criteria for particulate matter

Pollutant	Averaging period	<sup>d</sup> Criterion
Total suspended particulate (TSP) matter	Annual	<sup>a</sup> 90 $\mu\text{g}/\text{m}^3$
Particulate matter < 10 $\mu\text{m}$ (PM <sub>10</sub> )	Annual	<sup>a</sup> 30 $\mu\text{g}/\text{m}^3$

Table 4: Short-term criterion for particulate matter

Pollutant	Averaging period	<sup>d</sup> Criterion
Particulate matter < 10 µm (PM <sub>10</sub> )	24 hour	<sup>a</sup> 50 µg/m <sup>3</sup>

Table 5: Long-term criteria for deposited dust

Pollutant	Averaging period	Maximum increase in deposited dust level	Maximum total deposited dust level
<sup>c</sup> Deposited dust	Annual	<sup>b</sup> 2 g/m <sup>2</sup> /month	<sup>a</sup> 4 g/m <sup>2</sup> /month

Notes for Tables 3 to 5:

- <sup>a</sup> Total impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to other sources);
- <sup>b</sup> Incremental impact (i.e. incremental increase in concentrations due to the development on its own);
- <sup>c</sup> 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; and
- <sup>d</sup> Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents, illegal activities or any other activity agreed to by the **Secretary**.

## Operating Conditions

12. The Applicant shall:
- implement best practice air quality management at the site, including all reasonable and feasible measures to minimise the off-site odour, fume and dust emissions generated by the development;
  - implement best practice management to minimise the risk of spontaneous combustion and related emissions;
  - implement all reasonable and feasible measures to minimise the release of greenhouse gas emissions from the site;
  - operate an air quality management system on site to ensure compliance with the relevant conditions of this consent;
  - minimise the air quality impacts of the development during adverse meteorological conditions and extraordinary events (see note d to Tables 3-5 above);
  - regularly assess the air quality monitoring data, and modify operations on site to ensure compliance with the relevant conditions of this consent,
- to the satisfaction of the **Secretary**.

## Air Quality Management Plan

13. The Applicant shall prepare an Air Quality Management Plan for the development to the satisfaction of the **Secretary**. This plan must:
- be prepared in consultation with the EPA, and submitted to the **Secretary** for approval within 6 months of the date of this consent;
  - describe the measures that would be implemented to ensure compliance with the relevant air quality criteria and operating conditions of this consent;
  - describe the measures that would be implemented to minimise the release of greenhouse gas emissions from the site;
  - describe the proposed on-site air quality management system; and
  - include an air quality monitoring program that:
    - is capable of evaluating the operating conditions of this consent;
    - evaluates and reports on:
      - the effectiveness of the air quality management system; and
      - compliance against the air quality operating conditions;
    - defines what constitutes an air quality incident, and includes a protocol for identifying and notifying the Department and relevant stakeholders of any air quality incidents.

The Applicant shall implement the approved management plan as approved from time to time by the **Secretary**.

## METEOROLOGICAL MONITORING

14. During the life of the development, the Applicant shall ensure that there is a suitable meteorological station operating in the vicinity of the site that:

- (a) complies with the requirements in the *Approved Methods for Sampling of Air Pollutants in New South Wales* guideline; and
- (b) is capable of continuous real-time measurement of temperature lapse rate in accordance with the NSW Industrial Noise Policy, unless a suitable alternative is approved by the **Secretary** following consultation with the EPA.

## SOIL & WATER

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

### Water Supply

- 15. 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 **Secretary**.

### Water Pollution

- 16. Unless an EPL authorises otherwise, the Applicant shall comply with Section 120 of the POEO Act.

### Sewage Management

- 17. The **Applicant** shall manage on-site sewage in accordance with *NSW Environmental Guidelines: Use of Effluent by Irrigation* (DEC 2004) and the *National Guidelines for Sewerage Systems - Effluent Management* (ANZECC 1997) or its latest version, to the satisfaction of EPA.

### Water Management Plan

- 18. The **Applicant** shall prepare a Water Management Plan for the surface facilities sites to the satisfaction of the **Secretary**. This plan must be prepared in consultation with **DPI Water** and EPA, by suitably qualified and experienced persons whose appointment has been endorsed by the **Secretary**, and submitted to the **Secretary** for approval within 6 months of the date of this consent. This plan must include:
  - (a) a comprehensive water balance for the development that includes details of:
    - sources and security of water supply;
    - water make in the underground workings;
    - water transfers from the underground operations to the surface;
    - water use; and
    - any water discharges;
  - (b) management plans for the surface facilities sites, that include:
    - a detailed description of water management systems for each site, including:
      - clean water diversion systems;
      - erosion and sediment controls; and
      - any water storages;
    - measures to minimise potable water use and to reuse and recycle water;
    - measures to manage acid sulphate soils, if encountered;
    - activities that would involve ground disturbance at the site; and
    - monitoring and reporting procedures.
  - (c) a Surface Water Management Plan which:
    - includes baseline data on surface water flows and quality of Swindles Creek;
    - details surface water impact assessment criteria, including trigger levels for investigating any potentially adverse impacts on surface water resources or surface water quality;
    - provides a program to monitor:
      - surface water discharges;
      - surface water flows and quality; and
      - channel stability;
  - (d) a Ground Water Monitoring Program which includes a program to:
    - monitor and report groundwater inflows to underground workings;
    - predict, manage and monitor impacts to nearby groundwater bores on privately-owned land that may be impacted by the development; and
  - (e) a detailed review of surface water management at the site, with particular reference to the water storages within the dirty water management system, to:
    - determine whether the capacity, integrity, retention time and management of the dirty water storages (particularly the final Pollution Control Dam) are sufficient to ensure that water discharged from the site meets the EPL limits and surface water impact assessment criteria within the Surface Water Management Plan; and

- propose any appropriate changes to the surface water management system.

The Applicant shall implement the approved management plan as approved from time to time by the Secretary.

*Note: The Secretary may require the Applicant to implement upgrades and other changes identified under paragraph (e), in accordance with condition 4 of schedule 2.*

## BIODIVERSITY

### Biodiversity Enhancement Strategy

19. The Applicant shall implement a Biodiversity Enhancement Strategy as described in the EIS and summarised in Table 6, in consultation with OEH, and to the satisfaction of the Secretary.

*Table 6: Summary of the Biodiversity Enhancement Strategy*

Area	Offset Type	Minimum Size/Amount
Biodiversity Enhancement Area	Enhancement and restoration measures, including weed and rubbish removal, return of natural hydrological regime and regeneration with native endemic species.	3 ha (in total) of Swamp Sclerophyll Floodplain Forest and Swamp Oak Floodplain Forest endangered ecological communities within the surface facilities sites

*Note: To identify the Biodiversity Enhancement Area referred to in Table 6 see the applicable figures in Appendix 7.*

The Applicant shall implement its preferred option of the three options set out in new dot point 1 of the Terrestrial Ecology section of its Statement of Commitments by 1 December 2016, following consultation with OEH and to the satisfaction of the Secretary.

### Biodiversity Management Plan

20. The Applicant shall prepare a Biodiversity Management Plan for the surface facilities sites, for all areas that are not, or will not, be subject to condition 7 of schedule 4, to the satisfaction of the Secretary. This plan must:
- be prepared by a suitably qualified person approved by the Secretary; in consultation with OEH, and submitted to the Secretary within 6 months of the date of this consent;
  - establish baseline data for the existing habitat in the Biodiversity Enhancement Area and elsewhere on the site;
  - describe the short, medium, and long term measures that would be implemented to:
    - manage the impacts of clearing vegetation;
    - manage the remnant vegetation and habitat in the Biodiversity Enhancement Area and elsewhere on the site; and
    - implement the Biodiversity Enhancement Strategy, including detailed performance and completion criteria;
  - include a program to monitor and report on the effectiveness of these measures, and progress against the detailed performance and completion criteria;
  - identify the potential risks to the successful implementation of the Biodiversity Enhancement Strategy, and the contingency measures that would be implemented to mitigate these risks; and
  - include details of who would be responsible for monitoring, reviewing, and implementing the plan.

The Applicant shall implement the approved management plan as approved from time to time by the Secretary.

- 20A. Within 3 months of the approval of MOD 2, the Applicant shall revise the Biodiversity Management Plan to incorporate the measures required to implement its commitments described in new dot point 2 of the Terrestrial Ecology section of its Statement of Commitments, and submit it to the Secretary for approval.

## HERITAGE

### Heritage Management Plan

21. The Applicant shall prepare a Heritage Management Plan for the development to the satisfaction of the Secretary. This Plan must:
- be prepared in consultation with any relevant Aboriginal stakeholders;
  - be submitted to the Secretary for approval within 6 months of the date of this consent;



- (c) include consideration of the Aboriginal and non-Aboriginal cultural context and significance of the site;
- (d) detail the responsibilities of all stakeholders; and
- (e) include programs/procedures and management measures for:
  - the ongoing monitoring of site 45-7-0189 at Summerland Point;
  - managing the discovery of any human remains or previously unidentified Aboriginal objects on site, including (in the case of human remains) stop work provisions and notification protocols;
  - ongoing consultation and involvement of the Aboriginal community in the conservation and management of Aboriginal heritage within the site; (including procedures for keeping records of this);
  - appropriate identification, management, conservation and protection of both Aboriginal and non-Aboriginal heritage items identified on the site; and
  - ensuring relevant workers on site receive suitable heritage inductions prior to carrying out any activities which may disturb Aboriginal sites, and that suitable records are kept of these inductions.

The Applicant shall implement the approved management plan as approved from time to time by the Secretary.

## VISUAL

### Visual Amenity and Lighting

22. The Applicant shall:
- (a) minimise visual impacts, and particularly the off-site lighting impacts, of the Surface facilities sites;
  - (b) take all reasonable and feasible measures to further mitigate off-site lighting impacts from the development; and
  - (c) ensure that all external lighting associated on site complies with *Australian Standard AS4282 (INT) 1995 – Control of Obtrusive Effects of Outdoor Lighting*, to the satisfaction of the Secretary.

## WASTE

23. The Applicant shall:
- (a) minimise and monitor the waste generated by the development;
  - (b) ensure that the waste generated by the development is appropriately stored, handled and disposed of; and
  - (c) report on waste management and minimisation in the Annual Review, to the satisfaction of the Secretary.

## BUSHFIRE MANAGEMENT

24. 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 in the vicinity of the Surface facilities sites.

## REHABILITATION

### Rehabilitation Objectives

25. The Applicant shall rehabilitate the site to the satisfaction of the DRE. This rehabilitation must be generally consistent with the proposed rehabilitation strategy described in the EIS, and comply with the objectives in Table 7.

Table 7: Rehabilitation Objectives

Feature	Objective
Mine site (as a whole)	<ul style="list-style-type: none"> <li>• Safe, stable and non-polluting.</li> <li>• Final land use compatible with surrounding land uses.</li> </ul>
Rehabilitation materials	<ul style="list-style-type: none"> <li>• Materials (including topsoils, substrates and seeds of the disturbed area) are recovered, appropriately managed and used effectively as resources in rehabilitation.</li> </ul>
Surface infrastructure	<ul style="list-style-type: none"> <li>• To be decommissioned and removed, unless the DRE agrees otherwise.</li> </ul>
Portals and ventilation shafts	<ul style="list-style-type: none"> <li>• To be decommissioned and made safe and stable.</li> <li>• Retain habitat for threatened species (eg bats), where</li> </ul>

	practicable.
Other land affected by the development	<ul style="list-style-type: none"> <li>Restore ecosystem function, including maintaining or establishing self-sustaining ecosystems comprised of: <ul style="list-style-type: none"> <li>local native plant species (unless the DRE agrees otherwise); and</li> <li>a landform consistent with the surrounding environment.</li> </ul> </li> </ul>
Built features damaged by mining operations	<ul style="list-style-type: none"> <li>Repair to pre-mining condition or equivalent unless: <ul style="list-style-type: none"> <li>the owner agrees otherwise; or</li> <li>the damage is fully restored, repaired or compensated under the <i>Mine Subsidence Compensation Act 1961</i>.</li> </ul> </li> </ul>
Community	<ul style="list-style-type: none"> <li>Ensure public safety.</li> <li>Minimise the adverse socio-economic effects associated with mine closure.</li> </ul>

**Notes:**

- These rehabilitation objectives apply to all subsidence impacts and environmental consequences caused by underground mining taking place after the granting of project approval MP 10\_0161, and to all development surface infrastructure that is part of the development, whether constructed prior to or following the date of this consent.
- Rehabilitation of subsidence impacts and environmental consequences caused by mining which took place prior to the date of project approval (MP 10\_0161) may be subject to the requirements of other approvals (eg under a mining lease or a Subsidence Management Plan approval).

### Progressive Rehabilitation

26. The Applicant shall carry out the rehabilitation of the site progressively, that is, as soon as reasonably practicable following disturbance to the satisfaction of the Secretary and DRE.

### Rehabilitation Management Plan

27. The Applicant shall prepare a Rehabilitation Management Plan for the development, in consultation with OEH, DPI Water, WSC, LMCC, and the CCC, and to the satisfaction of the DRE. This plan must:
- be submitted to the Secretary and the DRE for approval within 12 months of the date of approval of this development consent;
  - be prepared in accordance with any relevant DRE guideline and be consistent with the rehabilitation objectives in the EIS and in Table 7;
  - describe how the performance of the rehabilitation would be monitored and assessed against the objectives in Table 7;
  - describe the process whereby additional measures would be identified and implemented to ensure the rehabilitation objectives are achieved;
  - provide for detailed mine closure planning, including measures to minimise socio-economic effects due to mine closure, to be conducted prior to the site being placed on care and maintenance; and
  - be integrated with the other management plans required under this consent.

The Applicant shall implement the approved management plan as approved from time to time by the Secretary.

**Note:** The Rehabilitation Management Plan should address all land impacted by the development whether prior to, or following, the date of this consent.

## SCHEDULE 4 ENVIRONMENTAL CONDITIONS – UNDERGROUND MINING

### SUBSIDENCE

- The Applicant shall ensure that vertical subsidence within the High Water Mark Subsidence Barrier and within seagrass beds is limited to a maximum of 20 millimetres (mm). If at any stage predicted subsidence levels are exceeded within these areas, an ecological monitoring program shall be initiated to assess the impacts to ecological communities and threatened species and if appropriate, offsets are to be provided for any impacts detected.

### Performance Measures – Natural Environment

- The Applicant shall ensure that the development does not cause any exceedance of the performance measures in Table 8 to the satisfaction of the Secretary.

Table 8: Subsidence Impact Performance Measures – Natural and Heritage Features

<b>Biodiversity</b>	
Threatened species or endangered populations	Negligible environmental consequences
Seagrass beds	Negligible environmental consequences including: <ul style="list-style-type: none"> <li>negligible change in the size and distribution of seagrass beds;</li> <li>negligible change in the functioning of seagrass beds; and</li> <li>negligible change to the composition or distribution of seagrass species within seagrass beds.</li> </ul>
Benthic communities	Minor environmental consequences, including minor changes to species composition and/or distribution.
<b>Mine workings</b>	
First workings under an approved Extraction Plan beneath any feature where performance measures in this table require negligible environmental consequences	To remain long-term stable and non-subsiding.
Second workings	To be carried out only in accordance with an approved Extraction Plan.

**Notes:**

- The Applicant will be required to define more detailed performance indicators (including impact assessment criteria) for each of these performance measures in the various management plans that are required under this consent (see Condition 7 below).
- Measurement and/or monitoring of compliance with performance measures and performance indicators is to be undertaken using generally accepted methods that are appropriate to the environment and circumstances in which the feature or characteristic is located. These methods are to be fully described in the relevant management plans. In the event of a dispute over the appropriateness of proposed methods, the Secretary will be the final arbiter.
- The requirements of this condition only apply to the impacts and consequences of mining operations, construction or demolition undertaken following the date of approval of this consent.

### Offsets

- If the Applicant exceeds the performance measures in Table 8 and the Secretary determines that:
  - it is not reasonable or feasible to remediate the impact or environmental consequence; or
  - the remediation measures implemented by the Applicant have failed to satisfactorily remediate the impact or environmental consequence;
then the Applicant shall provide a suitable offset to compensate for the impact or environmental consequence to the satisfaction of the Secretary.

*Note: Any offset required under this condition must be proportionate with the significance of the impact or environmental consequence.*

### Performance Measures – Built Features

- The Applicant shall ensure that the development does not cause any exceedances of the performance measures in Table 9, to the satisfaction of the Secretary.

Table 9: Subsidence Impact Performance Measures – Built Features

Built Features	Performance Measure
Trinity Point Marina Development Other built features	<ul style="list-style-type: none"> <li>Always safe.</li> <li>Serviceability should be maintained wherever practicable. Loss of serviceability must be fully compensated.</li> <li>Damage must be fully repaired, replaced or fully compensated.</li> </ul>
Public Safety	
Public Safety.	Negligible additional risk.

**Notes:**

- The Applicant will be required to define more detailed performance indicators for each of these performance measures in Built Features Management Plans or a Public Safety Management Plan (see Condition 7 below).
- Measurement and/or monitoring of compliance with performance measures and performance indicators is to be undertaken using generally accepted methods that are appropriate to the environment and circumstances in which the feature or characteristic is located. These methods are to be fully described in the relevant management plans. In the event of a dispute over the appropriateness of proposed methods, the **Secretary** will be the final arbiter.
- The requirements of this condition only apply to the impacts and consequences of mining operations undertaken following the date of this development consent.
- Requirements regarding safety or serviceability do not preclude preventative actions or mitigation being taken prior to or during mining in order to achieve or maintain these outcomes.
- Requirements under this condition may be met by measures undertaken in accordance with the Mine Subsidence Compensation Act 1961.

- Any dispute between the Applicant and the owner of any built feature over the interpretation, application or implementation of the subsidence performance measures in Table 9 is to be settled by the **Secretary**, following consultation with the MSB and the **DRE**. Any decision by the **Secretary** shall be final and not subject to further dispute resolution under this consent.

#### Multi-Seam Mining Feasibility Investigation

- Prior to the submission of an Extraction Plan for Miniwalls 41 to 45 in Chain Valley Bay, the Applicant must prepare a detailed Multi-Seam Mining Feasibility Investigation to the satisfaction of the **Secretary**. This plan must:
  - be prepared in consultation with DRE by suitably qualified and experienced persons whose appointment has been endorsed by the **Secretary**;
  - assess the extent of the soft claystone floor/roof conditions within former workings in the Great Northern and Wallarah Seams;
  - assess the stability of remnant coal pillars within former workings in the Great Northern and Wallarah Seams;
  - give particular consideration to the risks of irregular subsidence, pillar run and long-term subsidence leading to subsidence outside of the predicted angle of draw;
  - include revised multi-seam subsidence predictions for the proposed second workings; and
  - recommend final design of the second workings and any necessary adaptive management measures.

#### Extraction Plan

- The Applicant shall prepare an Extraction Plan for all second workings on site, to the satisfaction of the **Secretary**. Each Extraction Plan must:
  - be prepared by suitably qualified and experienced persons whose appointment has been endorsed by the **Secretary**;
  - be approved by the **Secretary** before the Applicant carries out any second workings covered by the plan;
  - include detailed plans of existing and proposed first and second workings and any associated surface development, including any applicable adaptive management measures;
  - include detailed performance indicators for each of the performance measures in Tables 8 and 9;
  - provide revised predictions of the potential subsidence effects, subsidence impacts and environmental consequences of the proposed second workings, incorporating any relevant information obtained since this consent;
  - describe the measures that would be implemented to ensure compliance with the performance measures in Tables 8 and 9, and manage or remediate any impacts and/or environmental consequences;
  - include a Built Features Management Plan, which has been prepared in consultation with DRE and the owners of affected public infrastructure, to manage the potential subsidence impacts and/or environmental consequences of the proposed second workings, and which

- addresses in appropriate detail all items of public infrastructure and other public infrastructure and all classes of other built features;
  - has been prepared following appropriate consultation with the owner/s of potentially affected feature/s;
  - recommends appropriate remedial measures and includes commitments to mitigate, repair, replace or compensate all predicted impacts on potentially affected built features in a timely manner; and;
- (h) include a Benthic Communities Management Plan, which has been prepared in consultation with OEH, LMCC, and DPI Fisheries, which provides for the management of the potential impacts and/or environmental consequences of the proposed second workings on benthic communities, and which includes:
- surveys of the lake bed to enable contours to be produced and changes in depth following subsidence to be accurately measured;
  - benthic species surveys within the area subject to second workings, as well as control sites outside the area subject to second workings (at similar depths) to establish baseline data on species number and composition within the communities;
  - a program of ongoing seasonal monitoring of benthic species in both control and impact sites;
  - development of a model to predict likely impact of increased depth and associated subsidence impacts and effects, including but not limited to light reduction and sediment disturbance, on benthic species number and benthic communities composition, incorporating the monitoring and survey data collected; and
  - updating the model every 2 years using the most recent monitoring and survey data;
- (i) include a Seagrass Management Plan, which has been prepared in consultation with OEH, LMCC, and DPI Fisheries, which provides for the management of the potential impacts and/or environmental consequences of the proposed second workings on seagrass beds, and which includes:
- a program of ongoing monitoring of seagrasses in both control and impact sites; and
  - a program to predict and manage subsidence impacts and environmental consequences to seagrass beds to ensure the performance measures in Table 8 are met;
- (j) include a Public Safety Management Plan, which has been prepared in consultation with DRE, to ensure public safety;
- (k) include a Subsidence Monitoring Program which has been prepared in consultation with DRE, to:
- provide data to assist with the management of the risks associated with subsidence;
  - validates the subsidence predictions;
  - analyses the relationship between the predicted and resulting subsidence effects and predicted and resulting impacts under the plan and any ensuing environmental consequences; and
  - informs the contingency plan and adaptive management process;
- (l) include a contingency plan that expressly provides for adaptive management where monitoring indicates that there has been an exceedance of any performance measure in Tables 8 and 9, or where any such exceedance appears likely;
- (m) include appropriate revisions to the Rehabilitation Management Plan required under Condition 28 of Schedule 3; and
- (n) include a program to collect sufficient baseline data for future Extraction Plans.

The Applicant shall implement the approved management plan as approved from time to time by the Secretary.

*Notes:*

- To identify the underground mining areas approved under this consent referred to in this condition, see Appendix 3.
- This condition does not limit secondary extraction under a Subsidence Management Plan approved as at the date of this consent.

8. The Applicant shall ensure that the management plans required under conditions 7(g)-(j) above include:
- (a) an assessment of the potential environmental consequences of the Extraction Plan, incorporating any relevant information that has been obtained since this consent; and
  - (b) a detailed description of the measures that would be implemented to remediate predicted impacts.

### First Workings

9. The Applicant shall not carry out first workings on site that are not generally in accordance with the approved mine plan without written approval of the Secretary.
- 9A. Within 3 months of the approval of MOD 1, the Applicant shall produce and subsequently implement a Built Features Management Plan that considers surface infrastructure potentially affected by the first workings of the Underground Linkage between Chain Valley Colliery and Mannering Colliery, including WCS's MP01



sewer rising main, TransGrid's electricity transmission assets and infrastructure associated with the Vales Point Power Station, to the satisfaction of the Secretary.

**Payment of Reasonable Costs**

10. The Applicant shall pay all reasonable costs incurred by the Department to engage suitably qualified, experienced and independent experts to review the adequacy of any aspect of an Extraction Plan.
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## SCHEDULE 5 ADDITIONAL PROCEDURES

### NOTIFICATION OF LANDOWNERS

1. As soon as practicable after obtaining monitoring results showing:
  - (a) an exceedance of any relevant criteria in Schedule 3, the Applicant shall notify affected landowners in writing of the exceedance, and provide regular monitoring results to each affected landowner until the development is again complying with the relevant criteria; and
  - (b) an exceedance of any relevant air quality criteria in Schedule 3, the Applicant shall send a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time) to the affected landowners and/or existing tenants of the land (including the tenants of any mine-owned land).

### INDEPENDENT REVIEW

2. If an owner of privately-owned land considers the development to be exceeding the relevant criteria in Schedule 3, then he/she may ask the **Secretary** in writing for an independent review of the impacts of the development on his/her land.

If the **Secretary** is satisfied that an independent review is warranted, then within 2 months of the **Secretary's** decision the Applicant shall:

- (a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the **Secretary**, to:
    - consult with the landowner to determine his/her concerns;
    - conduct monitoring to determine whether the development is complying with the relevant criteria in Schedule 3; and
    - if the development is not complying with these criteria then identify the measures that could be implemented to ensure compliance with the relevant criteria; and
  - (b) give the **Secretary** and landowner a copy of the independent review.
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## SCHEDULE 6 ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING

### ENVIRONMENTAL MANAGEMENT

#### Environmental Management Strategy

1. The Applicant shall prepare an Environmental Management Strategy for the development to the satisfaction of the **Secretary**. This strategy must:
  - (a) be submitted to the **Secretary** for approval within 7 months of the date of this consent;
  - (b) provide the strategic framework for environmental management of the development;
  - (c) identify the statutory approvals that apply to the development;
  - (d) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the development;
  - (e) 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;
    - respond to emergencies; and
  - (f) include:
    - copies of any strategies, plans and programs approved under the conditions of this consent; and
    - a clear plan depicting all the monitoring required to be carried out under the conditions of this consent.

The Applicant shall implement the approved management strategy as approved from time to time by the Secretary.

#### Adaptive Management

2. The Applicant must assess and manage development-related risks to ensure that there are no exceedances of the criteria and/or performance measures in Schedules 3 and 4. Any exceedance of these criteria and/or performance measures constitutes a breach of this consent and may be subject to penalty or offence provisions under the EP&A Act or EP&A Regulation.

Where any exceedance of these criteria and/or performance measures has occurred, the Applicant must, at the earliest opportunity:

- (a) take all reasonable and feasible steps to ensure that the exceedance ceases and does not recur;
- (b) consider all reasonable and feasible options for remediation (where relevant) and submit a report to the Department describing those options and any preferred remediation measures or other course of action; and
- (c) implement remediation measures as directed by the **Secretary**, to the satisfaction of the **Secretary**.

#### Management Plan Requirements

3. 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 approval, 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;
  - (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 and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;
  - (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.

*Note: The **Secretary** may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.*

## Annual Review

4. By the end of March each year, or other timing as may be agreed by the **Secretary**, the Applicant shall review the environmental performance of the development to the satisfaction of the **Secretary**. 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 current 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:
    - relevant statutory requirements, limits or performance measures/criteria;
    - requirements of any plan or program required under this consent;
    - monitoring results of previous years; and
    - relevant predictions in the [documents listed in condition 2 of Schedule 2](#);
  - (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 current financial year to improve the environmental performance of the development.

## Revision of Strategies, Plans and Programs

5. Within 3 months of:
- (a) the submission of an annual review under Condition 4 above;
  - (b) the submission of an incident report under Condition 7 below;
  - (c) the submission of an audit report under Condition 9 below; or
  - (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 **Secretary**. Where this review leads to revisions in any such document, then within 4 weeks of the review the revised document must be submitted for the approval of the **Secretary**.

*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.*

## Community Consultative Committee

6. The Applicant shall continue to operate a Community Consultative Committee (CCC) for the development to the satisfaction of the **Secretary**. This CCC must be operated in accordance with the *Guidelines for Establishing and Operating Community Consultative Committees for Mining Developments* (Department of Planning, 2007, or its latest version).

### Notes:

- The CCC is an advisory committee. The Department and other relevant agencies are responsible for ensuring that the Applicant complies with this consent.
- In accordance with the guideline, the Committee should be comprised of an independent chair and appropriate representation from the Applicant, Council, recognised environmental groups and the local community.
- In operating the CCC, the Department will accept the continued representation from existing CCC members.

## REPORTING

### Incident Reporting

7. The Applicant shall immediately notify the **Secretary** 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 **Secretary** 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 **Secretary** and any relevant agencies with a detailed report on the incident, and such further reports as may be requested.

### Regular Reporting

8. The Applicant shall provide regular reporting on the environmental performance of the development on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this consent.

### INDEPENDENT ENVIRONMENTAL AUDIT

9. By the end of February 2016 (or other such timing as agreed by the **Secretary**), and every 3 years thereafter, unless the **Secretary** 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 a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the **Secretary**;
  - (b) include consultation with the relevant agencies;
  - (c) assess the environmental performance of the development and assess whether it is complying with the requirements in this consent and any relevant EPL or Mining Lease (including any assessment, plan or program required under these approvals);
  - (d) review the adequacy of strategies, plans or programs required under the abovementioned approvals; and
  - (e) recommend appropriate measures or actions to improve the environmental performance of the development, and/or any assessment, plan or program required under the abovementioned approvals.

*Note: This audit team must be led by a suitably qualified auditor and include experts in any field specified by the **Secretary**.*

10. Within 6 weeks of the completion of this audit, or as otherwise agreed by the **Secretary**, the Applicant shall submit a copy of the audit report to the **Secretary**, together with its response to any recommendations contained in the audit report.

### ACCESS TO INFORMATION

11. The Applicant shall:
    - (a) make copies of the following publicly available on its website:
      - the EIS;
      - all current statutory approvals for the development;
      - all 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 (updated monthly);
      - minutes of CCC meetings;
      - the Annual Reviews of the development;
      - any Independent Environmental Audit, and any other audit, and the Applicant's response to the recommendations in these audits;
      - any other matter required by the **Secretary**; and
    - (b) keep this information up-to-date, to the satisfaction of the **Secretary**.
-



**APPENDIX 1  
SCHEDULE OF LAND**

Notes:	
1.	All proposed secondary extraction for the Project (Mining Extension 1) is to occur under Lake Macquarie.
2.	The surface facilities for the Colliery are limited to "pit top area" adjacent to Vales Point Power Station, and the "ventilation shaft site" at Summerland Point.
3.	Refer to Figure 1 of Appendix 2 for the Site.

Project Related Surface Facilities			
Pit Top Area		Ventilation shaft site	
Lot	Deposited Plan	Lot	Deposited Plan
A	379918	1	226133
B	379918		
C	349733		
A	187570		
1B	339441		

All other areas within the Site			
Lot	Deposited Plan	Lot	Deposited Plan
7339	1167067	20	708344
7330	1148105	19	708344
593	727722	18	708344
594	727722	17	708344
D	349733	34	714879
1	410653	33	714879
23	708344	32	714879
21	708344	31	714879
2	1043151	64	31306
426	755266	65	31306
427	755266	66	31306
136	755266	67	31306
2	515214	68	31306
1	515214	69	31306
1	214300	70	31306
2	214300	71	31306
167	755266	72	31306
1	388154	73	31306
144	661695	74	31306
19	25593	75	31306
20	25593	76	31306
21	25593	77	31306
22	25593	78	31306
23	25593	79	31306
24	25593	139	31306
25	25593	140	31306
26	25593	141	31306
27	25593	142	31306
58	31306	143	31306
59	31306	144	31306
60	31306	145	31306
61	31306	146	31306
62	31306	147	31306
63	31306	148	31306
149	31306	175	31306
150	31306	176	31306
151	31306	177	31306
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153	31306	179	31306
154	31306	180	31306
155	31306	181	31306

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168	13123
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241	31306
242	31306
46	31322
47	31322
48	31322
78	31322
4	981106
3	981104
11	13120
12	13120
13	13120
14	13120
15	13120
16	13120
17	13120
18	13120
19	13120
20	13120
21	13120
22	13120
23	13120
24	13120
60	13120
30	13123
31	13123
A	368634
100	1065718
102	1065718
20	1113256
7329	1148149
5	981103
9	13120
100	713777
25	13120
26	13120
27	13120
28	13120
29	13120

## APPENDIX 2 DEVELOPMENT AREA



Figure 1: Chain Valley Extension Project – Development Application Area and Lease Plan (The Site)



### APPENDIX 3 DEVELOPMENT LAYOUT

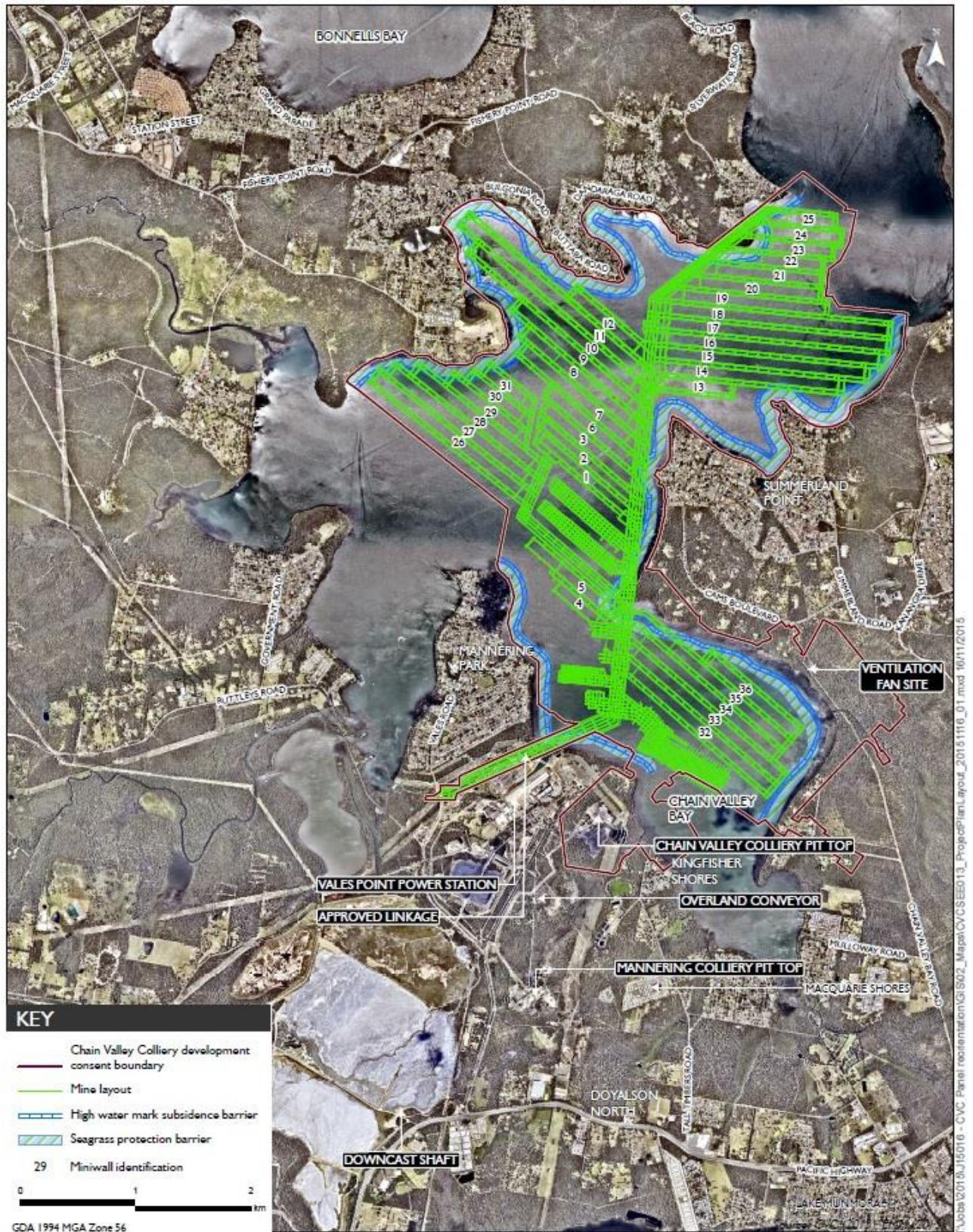
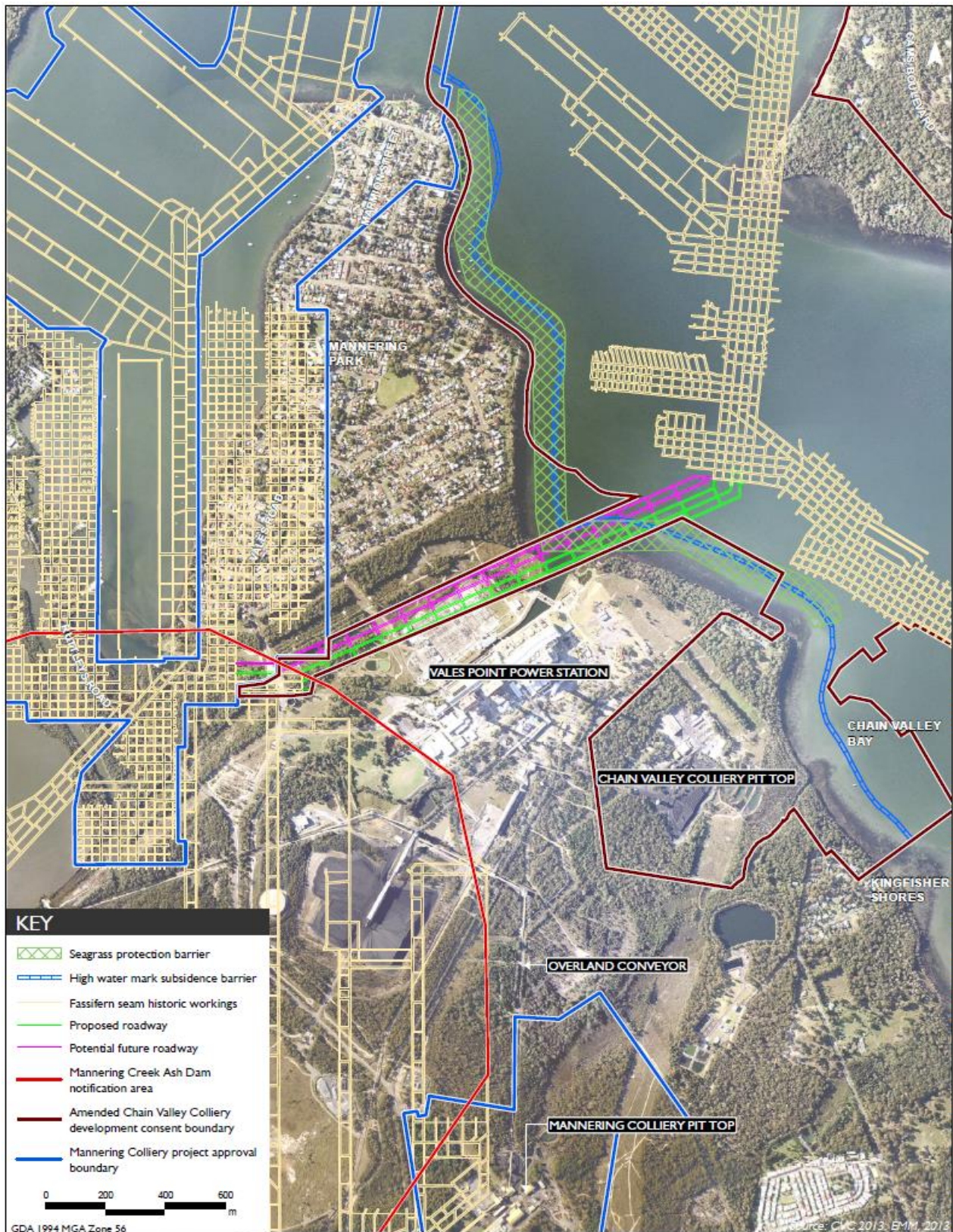


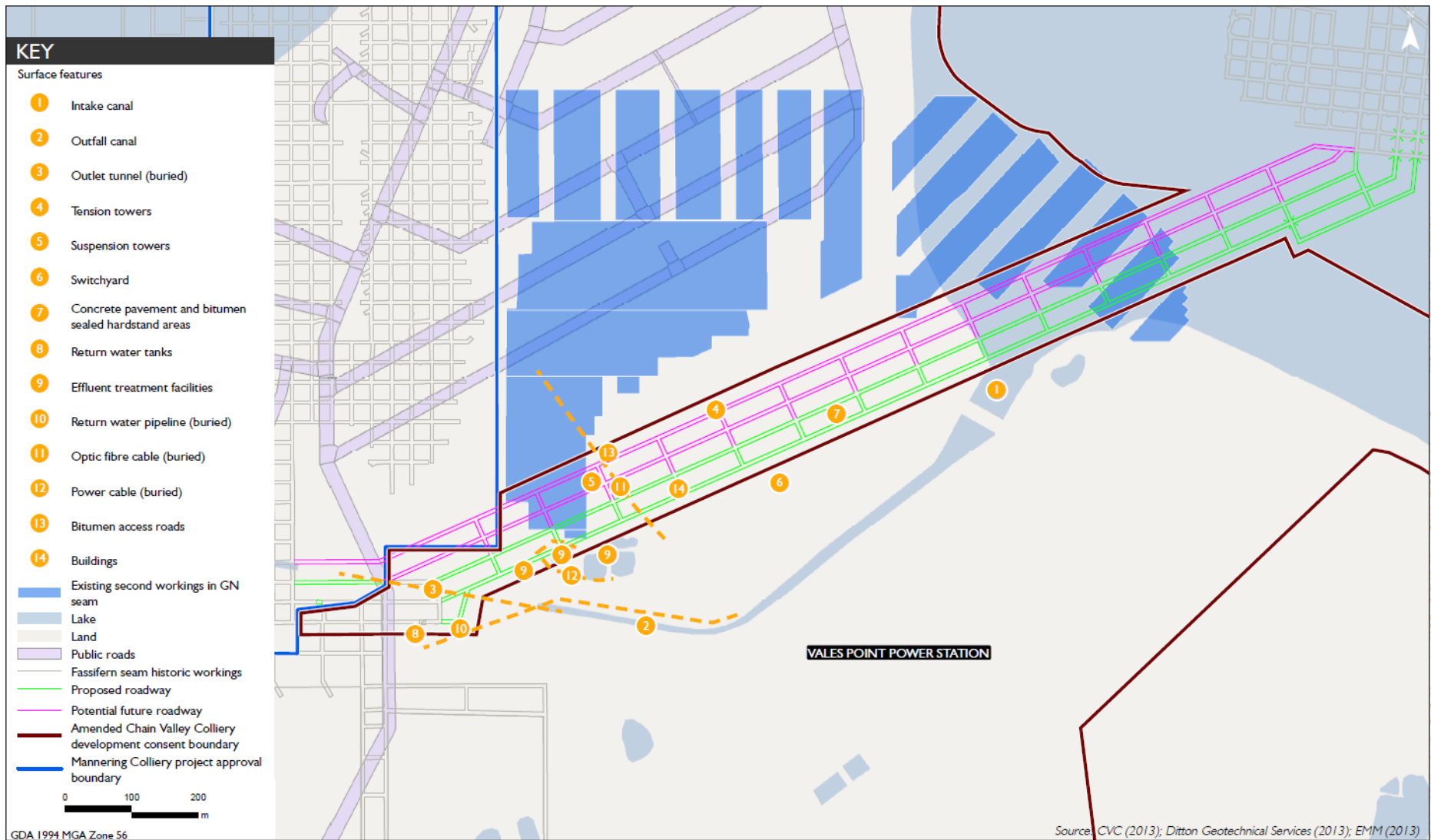
Figure 1: Layout of the Chain Valley Extension Project





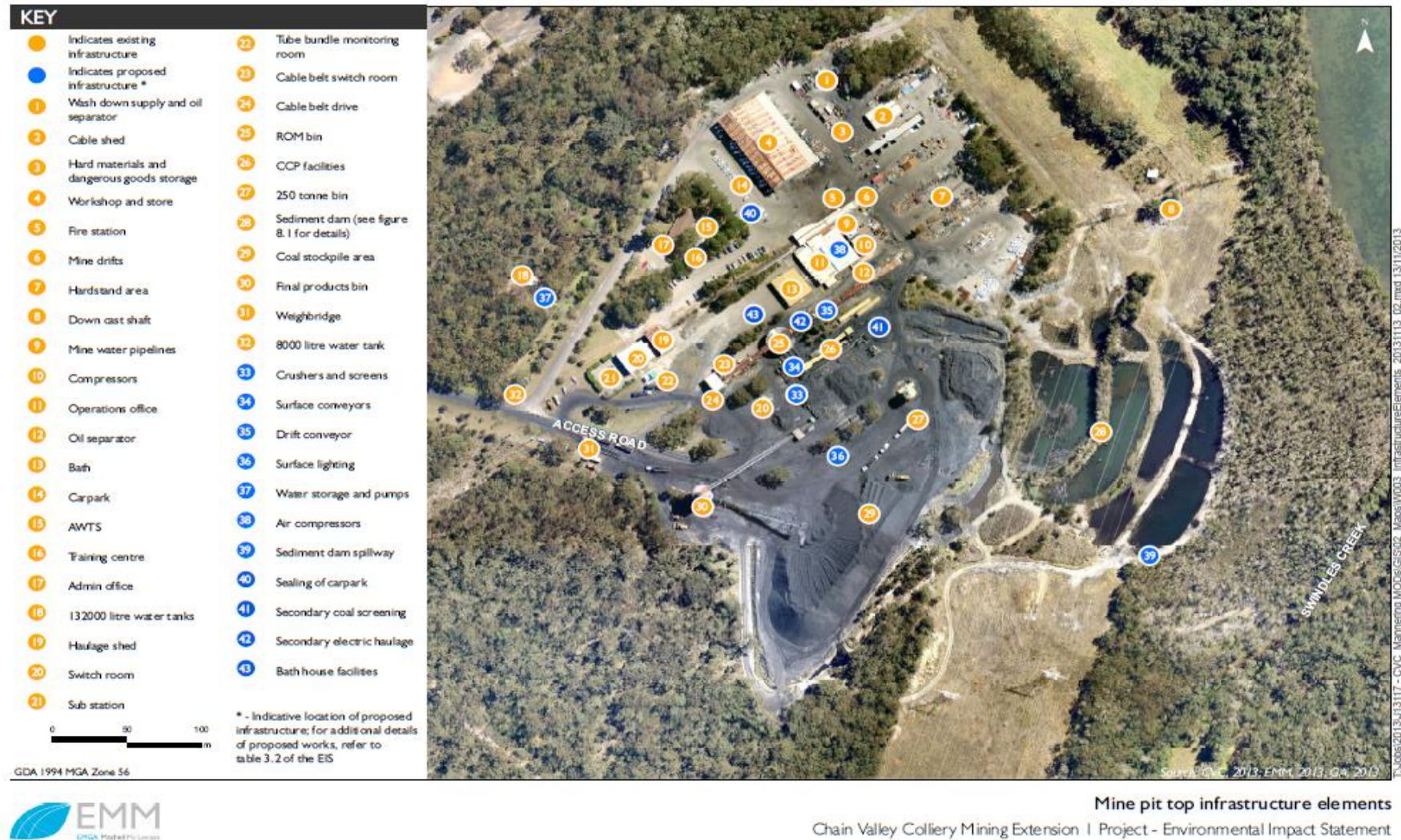
**Figure 2: Location of the underground linkage to Manning Colliery**





**Figure 3: Location of the underground linkage and surface infrastructure**

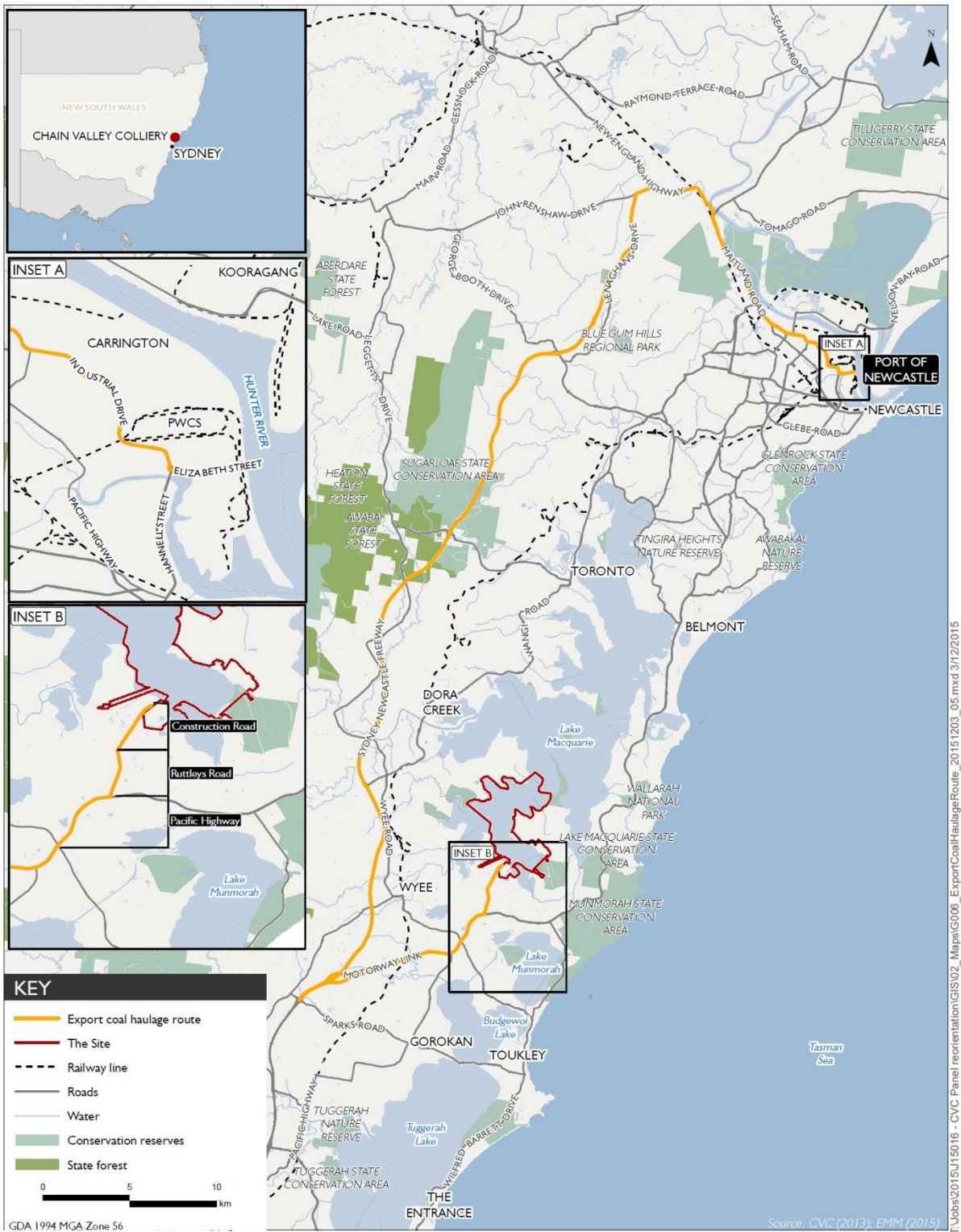
## APPENDIX 4 KEY SURFACE FACILITIES



**Figure 1: General Arrangement of the Chain Valley Colliery surface facilities site**



## APPENDIX 5 COAL HAULAGE ROUTE – PUBLIC ROADS



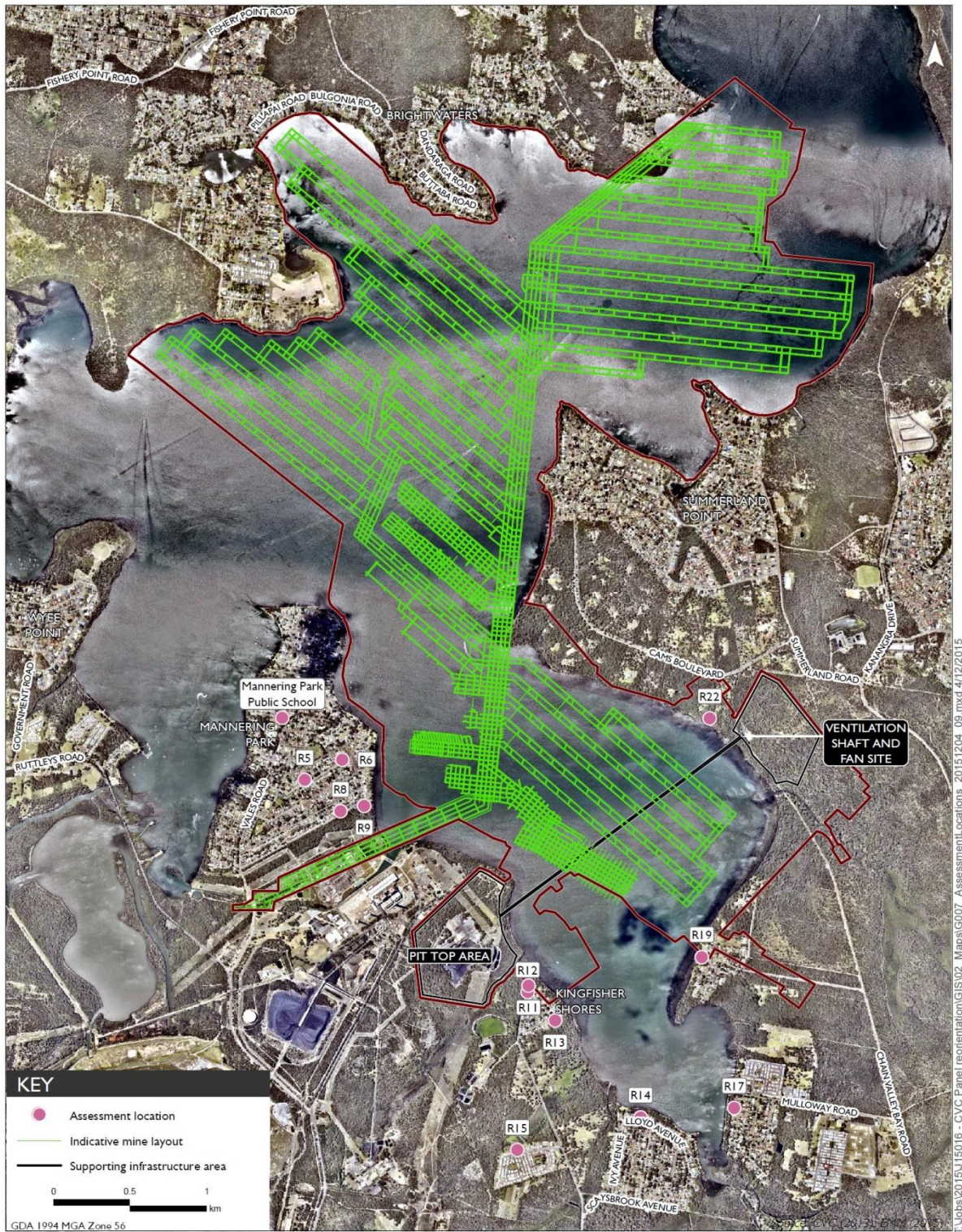
Export coal haulage route



Figure 1: Export Coal Haulage Route



## APPENDIX 6 NOISE RECEIVER LOCATIONS



Assessment locations



Figure 1: Noise Receiver Locations



## APPENDIX 7 BIODIVERSITY ENHANCEMENT AREA



Terrestrial vegetation communities and EECs  
within the Colliery's supporting infrastructure areas

Chain Valley Colliery Mining Extension I Project - Environmental Impact Statement

**Figure 1:** Location of the Biodiversity Enhancement Area, shown in red and orange hatching



## APPENDIX 7A ASSET PROTECTION ZONES



Asset protection zones  
Chain Valley Colliery - Modification 2

*Figure 1. Location of asset protection zones*

## **APPENDIX 8 NOISE COMPLIANCE ASSESSMENT**

### **Applicable Meteorological Conditions**

1. The noise criteria in Table 1 of the conditions are to apply under all meteorological conditions except the following:
  - (a) during periods of rain or hail;
  - (b) average wind speed at microphone height exceeds 5 m/s;
  - (c) wind speeds greater than 3 m/s measured at 10 m above ground level; or
  - (d) 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 that recorded by the meteorological station described in condition 15 of schedule 3.

### **Compliance Monitoring**

3. Attended monitoring is to be used to evaluate compliance with the relevant conditions of this consent.
4. This monitoring must be carried out at least 4 times in each calendar year (ie at least once every 3 months), unless the **Secretary** directs otherwise.
5. Unless otherwise agreed with the **Secretary**, 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 from time to time), in particular the requirements relating to:
  - (a) monitoring locations for the 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 conformity with Australian Standards relevant to such equipment; and
  - (d) modifications to noise data collected, including for the exclusion of extraneous noise and/or penalties for modifying factors apart from adjustments for duration.

## APPENDIX 9 STATEMENT OF COMMITMENTS

Item	Commitment
Groundwater	<p>In addition to the management and mitigation measures undertaken at the Colliery for groundwater as described in the WMP, the following commitments specific to the Proposal will be undertaken. Some commitments are already undertaken under the WMP. LakeCoal will:</p> <ul style="list-style-type: none"> <li>• assess whether abnormal or significant groundwater inflow changes occur in the active panels;</li> <li>• maintain the water flow monitoring appliances used to measure pumped water volumes to and from the Colliery in good working order;</li> <li>• maintain and plot records of daily total Colliery water pumping and annually communicate an interpretation of the findings within the Annual Review. A copy of the Annual Review will be supplied to <a href="#">DPI Water</a>;</li> <li>• measure water levels and quality within private bores, where access is possible, in relevant areas to assess if any adverse effects occur due to subsidence from the Proposal; and</li> <li>• develop groundwater assessment criteria and triggers, response protocols and contingency measures.</li> </ul> <p>Although it is not anticipated that private bore yields would be impacted due to subsidence, should such a situation arise, LakeCoal would provide an alternative water supply until the impacted bore recovers.</p> <p>Any monitored or reported adverse impacts on the yield, saturated thickness or quality of a private registered bore will be investigated by LakeCoal. In the event of a groundwater level drop of over 2 m for a period of two months or more, a notable increase in iron hydroxide, or an adverse change in salinity as a consequence of subsidence, LakeCoal will enter into negotiations with the affected landowners and the Mine Subsidence Board with the intent of formulating an agreement which provides for one, or a combination of:</p> <ul style="list-style-type: none"> <li>• re-establishment of saturated thickness in the affected bore(s) through bore deepening;</li> <li>• establishment of additional bores to provide a yield at least equivalent to the affected bore prior to mining;</li> <li>• provision of access to alternative sources of water; and/or</li> <li>• compensation to reflect increased water extraction costs (eg. due to lowering pumps or installation of additional or alternative pumping equipment).</li> </ul>
Surface water	<p>Management and monitoring of surface water will continue to be undertaken in accordance with the Colliery's WMP, which will be reviewed and updated as required to include the commitments made below. LakeCoal will:</p> <ul style="list-style-type: none"> <li>• <a href="#">update the WMP to include any changes as a result of the proposed modification</a>;</li> <li>• limit the main underground pumps to a maximum pump out rate of 10.5 ML/day within 12 months of approval;</li> <li>• request an amendment of EPL1770 to include a condition on the daily discharge volume limit stating that "Exceedance of the volume limit for Point 1 is permitted only if the discharge from Point 1 occurs solely as a result of rainfall at the premises exceeding 10 mm during the 24 hours immediately prior to commencement of the discharge";</li> <li>• undertake daily measurements of discharge volumes and report publicly on a monthly basis via LakeCoal's website;</li> <li>• continue collection of baseline water quality data to aid in the development of appropriate discharge water quality trigger values;</li> <li>• engage suitably qualified expert to conduct an assessment of the metals contained within discharge water in accordance with the ANZECC water quality guidelines and provide this assessment to the EPA by 31 December 2013;</li> <li>• investigate water saving measures to minimise the amount of potable water required from WSC for Colliery operations;</li> <li>• quantify the groundwater storage capacity in the Great Northern and Wallarah Seams;</li> <li>• continue effluent monitoring regime of receiving soils from the AWTS in accordance with the parameters and testing frequencies identified in the Colliery's WMP. The results of this monitoring program will be reviewed by a suitably qualified expert and used to determine the appropriateness of the existing irrigation area to receive this effluent;</li> <li>• develop a program to monitor creek line channel stability and the health of riparian vegetation within Swindles Creek. Monitoring will be undertaken in accordance with Section 8.5.2 of the Surface Water Impact Assessment (EIS Appendix E) and incorporated into the Colliery's WMP or Biodiversity Management Plan; and</li> <li>• record monitoring data in accordance with the Colliery's WMP and EPL 1770. Monitoring data will be interpreted as it is received to ensure appropriate operational guidance on monitoring water quality within desired parameters. Results of water quality monitoring will be reported in the Annual Review and made available to the CCC, as well as Wyong</li> </ul>

and Lake Macquarie Councils.

<b>Noise</b>	<p>Management and monitoring of noise will continue to be undertaken in accordance with the Colliery's NMP, which will be reviewed and updated as required to include the commitments made below. LakeCoal will:</p> <ul style="list-style-type: none"> <li>• continue attended compliance monitoring on site which will be used to identify potential hot spots and primary noise sources;</li> <li>• continue real-time noise monitoring alerts to site personnel to enable implementation of any required rapid noise management initiatives;</li> <li>• manage potential non-compliance through a noise complaint handling and response system, including the identification of responsible sources to enable targeted remedial action;</li> <li>• assess if further noise mitigation options for the ventilation fans are reasonable and feasible following the receipt of attenuation proposals; and</li> <li>• discuss potential management measures or agreement options with the landowner at 275 Cams Boulevard, following receipt of proposals from acoustics specialists.</li> </ul> <p>In addition to the above, LakeCoal is committed to the progressive implementation of feasible measures to target long term noise goals which are designed to reduce noise emissions from the Colliery. Long term options for investigation include:</p> <ul style="list-style-type: none"> <li>• modification to belt/movement alarms;</li> <li>• investigation of surface conveyer and coal preparation equipment, to determine if noise reductions are possible;</li> <li>• identifying sound attenuation options for the surface bulldozer and front end loader;</li> <li>• strategic placement of acoustic barriers;</li> <li>• attenuation for the surface screener/shaker;</li> <li>• installation of quiet rollers for surface conveyor belts;</li> <li>• acoustic treatments around compressors; and</li> <li>• the use of a conveyor stacker for product coal stockpiling.</li> </ul>
<b>Air Quality and greenhouse gases</b>	<p>Management and monitoring of air quality and greenhouse gases will continue to be undertaken in accordance with the Colliery's AQCHCMP, which will be reviewed and updated as required to include the commitments made below. LakeCoal will:</p> <ul style="list-style-type: none"> <li>• investigate the use of a stacker to replace hauling between current conveyor system and stockpiles;</li> <li>• undertake GHG monitoring comprising measurement of carbon dioxide and methane at the ventilation shaft and fan sites; and</li> <li>• record and report annual diesel, oil, grease, acetylene and electricity use to fulfil National Greenhouse and Energy Reporting Scheme requirements.</li> </ul>
<b>Traffic and transport</b>	<p>Management and monitoring of traffic and transport will continue to be undertaken in accordance with the Colliery's RTP. In addition, LakeCoal will continue to investigate alternative options for transporting export coal to the PWCS, specifically the preferred rail transport option, requiring the construction of a private haul road to the VPPS coal unloading facility and associated infrastructure upgrades. In addition, LakeCoal will:</p> <ul style="list-style-type: none"> <li>• provide a detailed feasibility report of rail transport options to DP&amp;I as part of the next coal transport options report to be submitted, by 31 December 2014. Should the report identify that coal transport via rail is feasible, and subject to obtaining necessary agreements, LakeCoal will prepare and lodge an application to modify the relevant approval so as to permit the installation and operation of facilities necessary to undertake rail transport of coal to PWCS;</li> <li>• discuss the potential to utilise proposed rail loading facilities associated with the Wallarah 2 Coal Project, following this project receiving approval; and</li> <li>• investigate options to reduce peak hour traffic would be investigated including potentially limiting the peak hourly volumes of the Colliery truck traffic which would be permitted to travel via this intersection should the Colliery not be using rail transport for export coal by five years from the granting of development consent. Alternatively, a pro rata financial contribution to the cost of installing traffic signals at the southbound intersection of the F3 and Sparks Road interchange could be made commensurate with the percentage of Colliery generated traffic using the intersection.</li> </ul>
<b>Subsidence</b>	<p>Management and monitoring of subsidence will continue to be undertaken in accordance with the Colliery's SMP, which will be reviewed and updated as required to include the commitments made below. LakeCoal will:</p> <ul style="list-style-type: none"> <li>• provide raw subsidence survey data to OEH within 7 days of completion;</li> <li>• undertake annual bathymetric surveys of the lake bed to determine actual subsidence and undertake a comparison with predicted levels. Should measured subsidence significantly exceed predicted levels, LakeCoal will review future panel designs to limit future impacts to acceptable levels;</li> <li>• install a new foreshore survey line above the first and second workings panels where the underground linkage passes beneath them and possibly extending from the foreshore to</li> </ul>



- the point of connection with the MC workings;
- inspect existing conditions in the Fassifern Seam and undertake geotechnical and geological mapping in the roadways proximate to the proposed linkage in both CVC and MC workings;
- complete representative borehole core drilling and sampling of the Fassifern Seam floor at the start and finishing ends of the underground linkage and where the headings pass beneath the SPB. Development below the foreshore will be limited to two headings only until floor conditions can be confirmed;
- develop infrastructure monitoring and management plans in consultation with infrastructure owners and other relevant stakeholders;
- re-establish and re-survey Survey Line 24;
- install a suitable survey line at the starting end above Great Northern Seam first workings to provide early warning monitoring data for the tension towers and switchyard structures;
- monitor tension and suspension towers and switchyard conductor suspension frames directly above the panels, foreshore and adjacent inlet canal wall;
- ensure that a monitoring and management plan for the MP01 sewer rising main is in place prior to commencement of mining that may impact Council's infrastructure; and
- complete an annual subsidence report and make this report publicly available on the Colliery's website.

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#### **Marine ecology**

Management and monitoring of marine ecology will continue to be undertaken in accordance with the Colliery's BCMP and SGMP, which will be reviewed and updated as required to include the commitments made below. LakeCoal will

- revise the BCMP to include the sampling locations in the assessment of the Proposal;
- undertake seasonal surveys (spring and autumn) for the Site as required under the BCMP;
- commission additional independent sampling and analysis to validate results obtained during monitoring, and review future panel design if impacts due to subsidence are determined to be moderate or greater;
- revise the SGMP to include the transect locations utilised in the assessment of the Proposal;
- continue annual seagrass surveys/monitoring;
- continue annual subsidence surveys (bathymetric surveys) and land based surveys;
- include results from the BCMP and SGMP within the Colliery's Annual Review; and
- make the Annual Review and annual subsidence surveys available on the Colliery's website.

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#### **Terrestrial ecology**

In addition to the management and mitigation measures undertaken at the Colliery for terrestrial ecology as described in the BMP, the following commitments specific to the Proposal will be undertaken. Some commitments are already undertaken under the BMP. LakeCoal will:

- investigate one of the following options in consultation with OEH to offset the biodiversity impacts arising from the proposed modification:
  - provide \$10,000 of funding, which is equivalent to the biodiversity being lost (i.e. 5 credits x \$2,000 per credit) to existing environmental programs at the site which benefits the Swamp Sclerophyll EEC; or
  - consult with OEH to identify a suitable conservation program and provide \$10,000 of funding; or
  - purchase and retire 5 credits on the Biobanking register.
- update the BMP to include the following:
  - the completion of pre-disturbance surveys in the survey area for Black-eyed Susan, Leafless Tongue Orchid and Variable Midge Orchid during their flowering periods (July to December, November to February and September to October, respectively);
  - pre-disturbance surveys by an ecologist to determine the important components of vegetation communities and fauna habitats that should be preferentially retained in the APZs;
  - installation of delineation fencing around threatened flora populations (if found) to ensure their protection during development and maintenance of the APZs;
  - condition monitoring for threatened flora populations (if found);
  - retention of hollow-bearing trees in the APZs, where possible, with details to be included in a hollow tree register;
  - installation of nest boxes (or salvaged hollows) within the APZs under the supervision of a suitably qualified ecologist or wildlife carer to replace hollows where hollow-bearing trees cannot be retained;
  - measures for APZ maintenance that include weed control;
  - clearing of hollow-bearing trees (if required) under the supervision of a suitably



	<ul style="list-style-type: none"> <li>qualified ecologist;</li> <li>any injured fauna would be taken to the nearest veterinary hospital for treatment before release; and</li> <li>relocation of suitable hollow-bearing felled trees adjacent to the APZs to create additional fauna habitat;</li> </ul> <ul style="list-style-type: none"> <li>undertake the design of the dam embankment and spillway works in consultation with an ecologist to minimise potential impacts on the Swamp Oak Floodplain Forest EEC;</li> <li>ensure pre-clearing surveys are undertaken by an ecologist to minimise the potential impact to fauna and significant vegetation prior to clearing works being undertaken within the embankment and spillway area;</li> <li>clearly delineate the clearing footprint and cordon off surrounding vegetation as a 'no go' zone during works to the dam embankment and spillway;</li> <li>minimise disturbance areas where possible by ensuring all stockpiling of materials, parking of machinery etc, is undertaken in previously cleared areas;</li> <li>ensure that, wherever possible, dead standing timber and fallen timber will be avoided by any clearing works, or if required to be removed, be relocated into suitable habitat areas nearby;</li> <li>ensure all equipment used for the earthworks associated with the dam embankment and spillway will be cleaned of excess soil potentially containing pathogens and weed seeds prior to entering the Site;</li> <li>install sediment fencing surrounding the proposed earthwork areas, in accordance with a site-specific erosion and sediment control plan for the works;</li> <li>ensure that in the event that sedimentation dam water is released from Dam 10 prior to the works being undertaken, it will be undertaken in a controlled manner over a number of days to ensure that the release does not result in significant erosion and sedimentation to the Swamp Oak Floodplain Forest;</li> <li>continue the management and monitoring of flora and fauna in accordance with the BMP for the life of the mine, including: <ul style="list-style-type: none"> <li>the condition and composition of the Swamp Oak Floodplain Forest area;</li> <li>the condition of vegetation adjacent to the ventilation shaft and fans;</li> <li>the location and distribution of weed infestations; and</li> <li>the abundance and distribution of feral animal use.</li> </ul> </li> <li>noxious weeds will be removed and continually controlled from the pit top area, allowing for natural regeneration of vegetation;</li> <li>weed invasion will be monitored as part of the Colliery's BMP; and</li> <li>the condition of the EEC areas will be monitored through the Colliery's BMP.</li> </ul>
<b>Heritage</b>	<p>Management and monitoring of heritage will continue to be undertaken in accordance with the Colliery's HMP, which will be reviewed and updated as required to include the commitments made below. LakeCoal will:</p> <ul style="list-style-type: none"> <li>review and revise the HMP to remove site #45-7-0154 and incorporate any other changes as a result of the proposed modification;</li> <li>update the HMP following approval of the Proposal to include the extended area to which it relates;</li> <li>ensure that should unanticipated Aboriginal or historic heritage artefacts be found during dam embankment and diversion works, work will cease and the site assessed by an archaeologist; and</li> <li>ensure that in the unlikely event that skeletal remains are found during dam embankment and diversion works, work will cease immediately in the area and the NSW Police Coroner called to determine if the material is of Aboriginal origin. OEH and relevant Aboriginal community stakeholders will be notified if the remains are positively identified as being of Aboriginal origin to determine their appropriate management prior to works recommencing.</li> </ul>
<b>Wastes</b>	<p>Management and monitoring of waste will continue to be undertaken in accordance with the Colliery's Waste Management Standard. In addition, LakeCoal will continue to try and improve its waste volumes and waste management practices in line with its objective for 60% of all wastes generated at the Colliery (excluding wastewater) to be recyclable or reusable.</p>
<b>Hazards</b>	<p>Management and monitoring of hazards will continue in accordance with the Colliery's existing hazard management measures. Periodic review of the effectiveness of existing measures will occur in accordance with the Colliery's safety management system and additional measures implemented as warranted.</p>
<b>Visual</b>	<p>Management and monitoring of visual impacts will continue to be undertaken in accordance with the Colliery's existing commitment. In addition, LakeCoal will: ensure additional surface lighting at the Colliery complies with AS4282 (INT) 1995 – <i>Control of Obtrusive Effects of Outdoor Lighting</i>.</p>
<b>Soil</b>	<p>Management and monitoring of soils will continue to be undertaken in accordance with the Colliery's WMP, which will be reviewed and updated as required to include the commitments</p>

made below. LakeCoal will:

- prevent disturbance of ASS where practicable during any construction activities;
- prepare an ASSMP where there is potential that ASS will be disturbed;
- test and handle any ASS disturbed in accordance with the ASSMP and treat or dispose of to an appropriately licensed facility;
- limit the area of any disturbance at the surface infrastructure sites and period of exposure;
- implement site management procedures such as watering of disturbed areas and unsecured stockpiles;
- ensure relevant licences and management plans are in place for the correct storage and handling of hydrocarbons;
- maintain suitable bunding around all hazardous liquid storage areas;
- maintain oil separation facilities on the wash down sump for the treatment of oily water; and
- remove all waste oil from site and dispose via a licensed external waste collection company.

<b>Rehabilitation and mine closure</b>	Rehabilitation will be undertaken in accordance with the Colliery's RMP and the MOP in force at the time. Detailed management and monitoring proposals for final rehabilitation will be included within a Mine Closure Plan to be prepared at least two years prior to cessation of mining activities.
<b>Economic</b>	LakeCoal will contribute \$0.035/t of coal from the Colliery into a dedicated community fund to improve public infrastructure and for the provision of community projects in the surrounding communities of Chain Valley Bay, Mannering Park, Summerland Point and Gwandalan.
<b>Social</b>	<p>LakeCoal will continue to implement management measures and monitoring programs to prevent or minimise negative impacts and enhance positive impacts in accordance with its Environment and Community Policy. LakeCoal will:</p> <ul style="list-style-type: none"> <li>• maintain open and constructive communication with affected individuals and groups;</li> <li>• participate in the CCC;</li> <li>• provide environmental monitoring data and other relevant information in a timely manner via the LakeCoal website;</li> <li>• be responsive to community issues and actual and/or perceived impacts from the Colliery's activities;</li> <li>• work in partnership with stakeholders to address community needs;</li> <li>• ensure effective management of LakeCoal's social impacts;</li> <li>• liaise regularly with relevant government agencies and councils;</li> <li>• provide regular Colliery updates with landowners and local residents through the CCC;</li> <li>• continue payments, throughout the life of the Proposal, to the community fund established; and</li> <li>• consider individual sponsorship opportunities throughout the life of the Proposal.</li> </ul>
<b>Other</b>	LakeCoal will commit to only carrying out mining operations in the extension areas consistent with the development consent granted pursuant to this Proposal.

# Environment Protection Licence



Licence - 1770

Licence Details	
Number:	1770
Anniversary Date:	01-April

Licensee
LAKECOAL PTY LTD
PO BOX 7115
MANNERING PARK NSW 2259

Premises
CHAIN VALLEY COLLIERY
CONSTRUCTION ROAD
CHAIN VALLEY BAY NSW 2259

Scheduled Activity
Coal Works
Mining for Coal

Fee Based Activity	Scale
Coal works	0-2000000 T handled
Mining for coal	> 500000-2000000 T produced

Region
North - Hunter
Ground Floor, NSW Govt Offices, 117 Bull Street
NEWCASTLE WEST NSW 2302
Phone: (02) 4908 6800
Fax: (02) 4908 6810
PO Box 488G NEWCASTLE
NSW 2300

# Environment Protection Licence

Licence - 1770



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# Environment Protection Licence



Licence - 1770

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# Environment Protection Licence

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## Information about this licence

### Dictionary

A definition of terms used in the licence can be found in the dictionary at the end of this licence.

### Responsibilities of licensee

Separate to the requirements of this licence, general obligations of licensees are set out in the Protection of the Environment Operations Act 1997 ("the Act") and the Regulations made under the Act. These include obligations to:

- ensure persons associated with you comply with this licence, as set out in section 64 of the Act;
- control the pollution of waters and the pollution of air (see for example sections 120 - 132 of the Act);
- report incidents causing or threatening material environmental harm to the environment, as set out in Part 5.7 of the Act.

### Variation of licence conditions

The licence holder can apply to vary the conditions of this licence. An application form for this purpose is available from the EPA.

The EPA may also vary the conditions of the licence at any time by written notice without an application being made.

Where a licence has been granted in relation to development which was assessed under the Environmental Planning and Assessment Act 1979 in accordance with the procedures applying to integrated development, the EPA may not impose conditions which are inconsistent with the development consent conditions until the licence is first reviewed under Part 3.6 of the Act.

### Duration of licence

This licence will remain in force until the licence is surrendered by the licence holder or until it is suspended or revoked by the EPA or the Minister. A licence may only be surrendered with the written approval of the EPA.

### Licence review

The Act requires that the EPA review your licence at least every 5 years after the issue of the licence, as set out in Part 3.6 and Schedule 5 of the Act. You will receive advance notice of the licence review.

### Fees and annual return to be sent to the EPA

For each licence fee period you must pay:

- an administrative fee; and
- a load-based fee (if applicable).

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The EPA publication “A Guide to Licensing” contains information about how to calculate your licence fees. The licence requires that an Annual Return, comprising a Statement of Compliance and a summary of any monitoring required by the licence (including the recording of complaints), be submitted to the EPA. The Annual Return must be submitted within 60 days after the end of each reporting period. See condition R1 regarding the Annual Return reporting requirements.

Usually the licence fee period is the same as the reporting period.

### Transfer of licence

The licence holder can apply to transfer the licence to another person. An application form for this purpose is available from the EPA.

### Public register and access to monitoring data

Part 9.5 of the Act requires the EPA to keep a public register of details and decisions of the EPA in relation to, for example:

- licence applications;
- licence conditions and variations;
- statements of compliance;
- load based licensing information; and
- load reduction agreements.

Under s320 of the Act application can be made to the EPA for access to monitoring data which has been submitted to the EPA by licensees.

### This licence is issued to:

LAKECOAL PTY LTD
PO BOX 7115
MANNERING PARK NSW 2259

subject to the conditions which follow.

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## 1 Administrative Conditions

### A1 What the licence authorises and regulates

A1.1 This licence authorises the carrying out of the scheduled activities listed below at the premises specified in A2. The activities are listed according to their scheduled activity classification, fee-based activity classification and the scale of the operation.

Unless otherwise further restricted by a condition of this licence, the scale at which the activity is carried out must not exceed the maximum scale specified in this condition.

Scheduled Activity	Fee Based Activity	Scale
Coal Works	Coal works	0 - 2000000 T handled
Mining for Coal	Mining for coal	> 500000 - 2000000 T produced

A1.2 The licensee must not produce by mining activities more than 1.5 million tonnes of coal within any calendar year.

Note: These limits on the scale of the fee based activities are based on Project Approval SSD5465 granted under the S.89E of the *Environmental Planning and Assessment Act 1979* which limits extraction to 1.5 million tonnes of run of mine (ROM) coal per calendar year.

### A2 Premises or plant to which this licence applies

A2.1 The licence applies to the following premises:

Premises Details
CHAIN VALLEY COLLIERY
CONSTRUCTION ROAD
CHAIN VALLEY BAY
NSW 2259
<p>SURFACE PREMISES OF THE COLLIERY IDENTIFIED IN PLAN TITLED "EPL PREMISES PLAN FIGURE 2 - SURFACE EXTENTS" 12 MARCH 2015 DOC15/39169 AND UNDERGROUND PREMISES (MINING FOR COAL) INCLUDES ONLY MINING FOR COAL IN THE FASSIFERN COAL SEAM AND GREAT NORTHERN COAL SEAM AS IDENTIFIED IN THE PLAN TITLED "FIGURE 1: GENERAL LAYOUT OF THE CHAIN VALLEY EXTENSION PROJECT" 28/1/14 ACCOMPANYING THE LICENCE APPLICATION DOC14/10689 AND THE UNDERGROUND ROAD JOINING MANNERING COLLIERY TITLED "LOCATION OF UNDERGROUND LINKAGE" DOC14/298690-02 ACCOMPANYING SSD5465-MOD 1 APPROVAL AND THE PLAN TITLED "EPL PREMISES PLAN - FIG 1 PROJECT EXTENTS, MONITORING AND COMPLIANCE LOCATIONS" 12 MARCH 2015 DOC15/83810.</p>

Note: An updated plan of the premises must be provided to the EPA by the licensee, to the EPA's specifications.

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## A3 Other activities

A3.1 This licence applies to all other activities carried on at the premises, including:

Ancillary Activity
Sewage Treatment Systems

## A4 Information supplied to the EPA

A4.1 Works and activities must be carried out in accordance with the proposal contained in the licence application, except as expressly provided by a condition of this licence.

In this condition the reference to "the licence application" includes a reference to:

- a) the applications for any licences (including former pollution control approvals) which this licence replaces under the Protection of the Environment Operations (Savings and Transitional) Regulation 1998; and
- b) the licence information form provided by the licensee to the EPA to assist the EPA in connection with the issuing of this licence.

## 2 Discharges to Air and Water and Applications to Land

### P1 Location of monitoring/discharge points and areas

P1.1 The following points referred to in the table below are identified in this licence for the purposes of monitoring and/or the setting of limits for the emission of pollutants to the air from the point.

<i>Air</i>			
EPA identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description
25	Air Monitoring Point Particulate Matter PM10 Thermo Fisher Scientific TEOM 1405		MPSTP Compound 220 Tall Timbers Road Doyalson NSW 2262

P1.2 The following utilisation areas referred to in the table below are identified in this licence for the purposes of the monitoring and/or the setting of limits for any application of solids or liquids to the utilisation area.

P1.3 The following points referred to in the table are identified in this licence for the purposes of the monitoring and/or the setting of limits for discharges of pollutants to water from the point.

### *Water and land*

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EPA Identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description
1	Discharge to waters Discharge quality and volume monitoring	Discharge to waters Discharge quality and volume monitoring	Discharge to waters and monitoring from final settlement pond via low level discharge identified as EPA 1 on plan of the premises titled "EPL premises Plan Fig 1 Project Extents, Monitoring and Compliance Locations dated 12 March 2015 DOC15/83810.
27	Discharge to waters Discharge quality and volume monitoring	Discharge to waters Discharge quality and volume monitoring	Discharge to waters via concrete high level spillway from final settlement pond adjacent to EPA 1 on plan of the premises titled "EPL premises Plan Fig 1 Project extents, Monitoring and Compliance Locations" dated 12 March 2015 DOC15/83810.

- P1.4 The following points referred to in the table below are identified in this licence for the purposes of monitoring and/or setting of limits for the emission of noise from the point.

## Noise

EPA identification no.	Type of monitoring point	Location description
9	Noise monitoring	(R8) 109 Griffith Street, MANNERING PARK, 2259
12	Noise monitoring	(R11) 35 Lakeshore Avenue, CHAIN VALLEY BAY, 2259
13	Noise monitoring	(R12) 20 Lakeshore Avenue, Kingfisher Shores, CHAIN VALLEY BAY, 2259
14	Noise monitoring	(R13) 33 Karoola Avenue, Kingfisher Shores, CHAIN VALLEY BAY, 2259
16	Noise monitoring	(R15) Short Street, Macquarie Shores, CHAIN VALLEY BAY, 2259
20	Noise monitoring	(R19) 2 Sunset Parade, CHAIN VALLEY BAY, 2259
23	Noise monitoring	(R22) 275a Cams Boulevard, CHAIN VALLEY BAY, 2259
26	Meteorological Station	Ruttleys Road Doyalson

## 3 Limit Conditions

### L1 Pollution of waters

- L1.1 Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.



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## L2 Concentration limits

- L2.1 For each monitoring/discharge point or utilisation area specified in the table\ below (by a point number), the concentration of a pollutant discharged at that point, or applied to that area, must not exceed the concentration limits specified for that pollutant in the table.
- L2.2 Where a pH quality limit is specified in the table, the specified percentage of samples must be within the specified ranges.
- L2.3 To avoid any doubt, this condition does not authorise the pollution of waters by any pollutant other than those specified in the table\.
- L2.4 Water and/or Land Concentration Limits

### POINT 1,27

Pollutant	Units of Measure	50 percentile concentration limit	90 percentile concentration limit	3DGM concentration limit	100 percentile concentration limit
Faecal Coliforms	colony forming units per 100 millilitres				200
pH	pH				6.5-8.5
Total suspended solids	milligrams per litre				50

## L3 Volume and mass limits

- L3.1 For each discharge point or utilisation area specified below (by a point number), the volume/mass of:
- liquids discharged to water; or;
  - solids or liquids applied to the area;
- must not exceed the volume/mass limit specified for that discharge point or area.

Point	Unit of Measure	Volume/Mass Limit
1	kilolitres per day	12161
27	kilolitres per day	12161

- L3.2 The volumetric daily discharge limit for the premises is the combined discharge measured at EPA discharge points 1 and 27 and must not exceed 12161 kilolitres per day.

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## L4 Waste

- L4.1 The licensee must not cause, permit or allow any waste to be received at the premises, except the wastes expressly referred to in the column titled "Waste" and meeting the definition, if any, in the column titled "Description" in the table below.

Any waste received at the premises must only be used for the activities referred to in relation to that waste in the column titled "Activity" in the table below.

Any waste received at the premises is subject to those limits or conditions, if any, referred to in relation to that waste contained in the column titled "Other Limits" in the table below.

This condition does not limit any other conditions in this licence.

Code	Waste	Description	Activity	Other Limits
NA	Waste	Any other waste received on the premises for storage, treatment, processing, sorting or disposal and which receipt is not a scheduled activity under Schedule 1 of the POEO Act, as in force from time to time.	-	
NA	General or Specific exempted waste	Waste that meets all the conditions of a resource exemption under Clause 92 of the Protection of the Environment Operations (Waste) Regulation 2014.	As specified in each particular resource recovery exemption	NA

## L5 Noise limits

- L5.1 Noise generated at the premises that is measured at each noise monitoring point established under this licence must not exceed the noise levels specified in Column 4 of the table below for that point during the corresponding time periods specified in Column 1 when measured using the corresponding measurement parameters listed in Column 2.

### POINT 12

Time period	Measurement parameter	Measurement frequency	Noise level dB(A)
Day	Day-LAeq (15 minute)	-	49
Evening	Evening-LAeq (15 minute)	-	49
Night	Night-LAeq (15 minute)	-	49
Night	Night-LA1 (1 minute)	-	54

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**POINT 13**

Time period	Measurement parameter	Measurement frequency	Noise level dB(A)
Day	Day-LAeq (15 minute)	-	49
Evening	Evening-LAeq (15 minute)	-	49
Night	Night-LAeq (15 minute)	-	49
Night	Night-LA1 (1 minute)	-	53

**POINT 14**

Time period	Measurement parameter	Measurement frequency	Noise level dB(A)
Day	Day-LAeq (15 minute)	-	43
Evening	Evening-LAeq (15 minute)	-	43
Night	Night-LAeq (15 minute)	-	43
Night	Night-LA1 (1 minute)	-	49

**POINT 16**

Time period	Measurement parameter	Measurement frequency	Noise level dB(A)
Day	Day-LAeq (15 minute)	-	36
Evening	Evening-LAeq (15 minute)	-	36
Night	Night-LAeq (15 minute)	-	36
Night	Night-LA1 (1 minute)	-	45

**POINT 20**

Time period	Measurement parameter	Measurement frequency	Noise level dB(A)
Day	Day-LAeq (15 minute)	-	37
Evening	Evening-LAeq (15 minute)	-	37
Night	Night-LAeq (15 minute)	-	37
Night	Night-LA1 (1 minute)	-	45

**POINT 23**

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Time period	Measurement parameter	Measurement frequency	Noise level dB(A)
Day	Day-LAeq (15 minute)	-	46
Evening	Evening-LAeq (15 minute)	-	46
Night	Night-LAeq (15 minute)	-	36
Night	Night-LA1 (1 minute)	-	45

## POINT 9

Time period	Measurement parameter	Measurement frequency	Noise level dB(A)
Day	Day-LAeq (15 minute)	-	38
Evening	Evening-LAeq (15 minute)	-	38
Night	Night-LAeq (15 minute)	-	38
Night	Night-LA1 (1 minute)	-	45

L5.2 The licensee must ensure that noise generated on the premises does not exceed:

- a) 35 LAeq(15min) during the day, evening or night at any privately owned land nearest to the residence apart from those receivers identified in Condition 5.1; and
- b) 45 LA1(1min) during the night at any privately owned land nearest to the residence apart from those receivers identified in Condition 5.1.

Note: The licensee may provide to the EPA written evidence of any agreement with a landholder which is subject to the above noise limits. The written evidence may be submitted with a licence variation to remove the landholder from the above tables.

L5.3 For the purpose of condition L5.1 and condition L5.2:

- (a) Day is defined as the period from 7am to 6pm Monday to Saturday and 8am to 6pm Sunday and public holidays;
- (b) Evening is defined as the period 6pm to 10pm, and
- (c) Night is defined as the period from 10pm to 7am Monday to Saturday and 10pm to 8am Sunday and public holidays.

L5.4 The noise limits set out in condition L5.1 and condition L5.2 apply under all meteorological conditions except for any one of the following:

- (a) Wind speeds greater than 3 metres/second at 10 metres above ground level; or
- (b) Stability category F temperature inversion conditions and wind speeds greater than 2 metres/second at 10 metres above ground level; or
- (c) Stability category G temperature inversion conditions.

L5.5 For the purpose of condition L5.4:

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(a) the meteorological data to be used for determining meteorological conditions is the data recorded at the meteorological station identified in this licence as EPA Identification Point 26.

(b) Stability category temperature inversion conditions are to be determined by the sigma-theta method referred to in Part E4 of Appendix E to the *NSW industrial Noise Policy* (EPA 2000)

**Note:** The weather station must be designed, commissioned and operated in a manner to obtain the necessary parameters required under the above condition.

**L5.6** For the purpose of determining the noise generated at the premises the licensee must use a Class 1 or Class 2 noise monitoring device as defined by AS IEC61672.1 and AS IEC61672.2-2004, or other noise monitoring equipment accepted by the EPA in writing.

**L5.7** To determine compliance:

1. With the  $L_{Aeq}(15 \text{ min})$  noise limits in condition L5.1 and condition L5.2, the licensee must locate noise monitoring equipment;

(a) within 30 metres of a dwelling facade (but not closer than 3 metres) where any dwelling on the property is situated more than 30 metres from the property boundary that is closest to the premises;

(b) approximately on the boundary where any dwelling is situated 30 metres or less from the property boundary that is closest to the premises, or, where applicable,

(c) within approximately 50 metres if the boundary of a national park or nature reserve.

2. With the  $LA1(1 \text{ minute})$  noise limits in condition L5.1 and L5.2, the noise monitoring equipment must be located within 1 metre of a dwelling facade.

3. With the noise limits in condition L5.1 and condition L5.2, the noise monitoring equipment must be located;

(a) at the most affected point at a location where there is no dwelling at the location, or

(b) at the most affected point within an area at a location prescribed by conditions L5.7 1(a) or L5.7 1(b).

**L5.8** A non-compliance of condition L5.1 or condition L5.2 will still occur where noise generated from the premises in excess of the appropriate limit is measured;

a) at a location other than an area prescribed by conditions L5.7 1(a) and L5.7 1(b), and /or

b) at a point other than the most affected point at a location.

**L5.9** For the purposes of determining the noise generated at the premises the modification factors in Section 4 of the NSW Industrial Noise Policy must be applied, as appropriate, to the noise levels measured by the noise monitoring equipment.

## 4 Operating Conditions

### O1 Activities must be carried out in a competent manner

O1.1 Licensed activities must be carried out in a competent manner.



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This includes:

- a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and
- b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.

## O2 Maintenance of plant and equipment

- O2.1 All plant and equipment installed at the premises or used in connection with the licensed activity:
- a) must be maintained in a proper and efficient condition; and
  - b) must be operated in a proper and efficient manner.

## O3 Dust

- O3.1 The premises must be maintained in a condition which minimises or prevents the emission of dust on or from the premises.
- O3.2 Activities occurring in or on the premises must be carried out in a manner that will minimise the generation of wind-blown or traffic generated dust.
- O3.3 All trafficable areas, coal stockpile(s) and storage areas, and vehicle manoeuvring areas in or on the premises must be maintained, at all times, in a condition that will minimise the generation of dust.
- O3.4 All vehicles transporting coal from the premises must be covered immediately after loading to prevent wind blown emissions and spillage.

Note: Vehicles transporting coal on the private haul road from Chain Valley Colliery to Vales Point Power station are exempt from covering their load if surface coal moisture is above 8%.

- O3.5 Activities occurring in or on the premises must be carried out in a manner that will minimise the tracking of dust from the premises.

## O4 Effluent application to land

- O4.1 An area must be provided for the use of effluent from the sewage treatment plant. The design of the system must be in accordance with the DEC's Environmental Guideline: Use of Effluent By Irrigation.
- O4.2 The quantity of wastewater applied to the utilisation area(s) must not exceed the capacity of the utilisation area(s) to effectively utilise the effluent.

For the purpose of this condition, "effectively utilise" includes the ability of the soil to absorb the nutrient, salt and hydraulic loads and the applied organic material without causing harm to the environment.

## O5 Emergency response

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- O5.1 The licensee must maintain, and implement as necessary, a current emergency response plan for the premises. The licensee must keep the emergency response plan on the premises at all times. The emergency response plan must document systems and procedures to deal with all types of incidents (e.g. spills, explosions or fire) that may occur at the premises or that may be associated with activities that occur at the premises and which are likely to cause harm to the environment. If a current emergency response plan does not exist at the date on which this condition is attached to the licence, the licensee must develop an emergency response plan within three months of that date.

## O6 Waste management

- O6.1 The licensee must ensure that any liquid and/or non liquid waste generated and/or stored at the premises is assessed and classified in accordance with the EPA's Waste Classification Guidelines as in force from time to time.
- O6.2 The licensee must ensure that waste identified for recycling is stored separately from other waste.

## O7 Other operating conditions

### Sewage Treatment

- O7.1 All sewage generated on the premises must be directed, collected and treated by the sewage treatment system(s).
- O7.2 The licensee is responsible for the correct operation of the sewage treatment system(s) on their premises.
- O7.3 Correct operation involves regular supervision and system maintenance. The licensee must be aware of the system requirements and must ensure that the necessary service contracts are in place.
- O7.4 The sewage treatment system(s) must be serviced by a suitably qualified and experienced waste water technician at least once each quarterly period and a minimum of four times per year.
- O7.5 The licensee must record each inspection and any actions required or recommended by the technician; including all results from tests performed on the sewage treatment system(s) by the technician as defined in Condition O7.4.
- O7.6 All treated sewage that is discharged from the premises must be discharged through licensed discharge point "EPA Identification no. 1", as defined in condition P1.3.

### Bunding

- O7.7 All above ground tanks containing material that is likely to cause material harm to the environmental must be banded or have an alternative spill containment system in place.

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## 5 Monitoring and Recording Conditions

### M1 Monitoring records

- M1.1 The results of any monitoring required to be conducted by this licence or a load calculation protocol must be recorded and retained as set out in this condition.
- M1.2 All records required to be kept by this licence must be:
- a) in a legible form, or in a form that can readily be reduced to a legible form;
  - b) kept for at least 4 years after the monitoring or event to which they relate took place; and
  - c) produced in a legible form to any authorised officer of the EPA who asks to see them.
- M1.3 The following records must be kept in respect of any samples required to be collected for the purposes of this licence:
- a) the date(s) on which the sample was taken;
  - b) the time(s) at which the sample was collected;
  - c) the point at which the sample was taken; and
  - d) the name of the person who collected the sample.

### M2 Requirement to monitor concentration of pollutants discharged

- M2.1 For each monitoring/discharge point or utilisation area specified below (by a point number), the licensee must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The licensee must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns:

#### M2.2 Air Monitoring Requirements

#### POINT 25

Pollutant	Units of measure	Frequency	Sampling Method
Particulate matter	micrograms per cubic metre	Continuous	AM-22

#### M2.3 Water and/ or Land Monitoring Requirements

#### POINT 1

Pollutant	Units of measure	Frequency	Sampling Method
Biochemical oxygen demand	milligrams per litre	Once a month (min. of 4 weeks)	Grab sample
Enterococci	colony forming units per 100 millilitres	Once a month (min. of 4 weeks)	Grab sample
Faecal Coliforms	colony forming units per 100 millilitres	Once a month (min. of 4 weeks)	Grab sample

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pH	pH	Once a month (min. of 4 weeks)	Grab sample
Total suspended solids	milligrams per litre	Once a month (min. of 4 weeks)	Grab sample

## POINT 27

Pollutant	Units of measure	Frequency	Sampling Method
Enterococci	colony forming units per 100 millilitres	Daily during any discharge	Grab sample
Faecal Coliforms	colony forming units per 100 millilitres	Daily during any discharge	Grab sample
pH	pH	Daily during any discharge	Grab sample
Total suspended solids	milligrams per litre	Daily during any discharge	Grab sample

## M3 Testing methods - concentration limits

- M3.1 Monitoring for the concentration of a pollutant emitted to the air required to be conducted by this licence must be done in accordance with:
- any methodology which is required by or under the Act to be used for the testing of the concentration of the pollutant; or
  - if no such requirement is imposed by or under the Act, any methodology which a condition of this licence requires to be used for that testing; or
  - if no such requirement is imposed by or under the Act or by a condition of this licence, any methodology approved in writing by the EPA for the purposes of that testing prior to the testing taking place.

Note: The *Protection of the Environment Operations (Clean Air) Regulation 2010* requires testing for certain purposes to be conducted in accordance with test methods contained in the publication "Approved Methods for the Sampling and Analysis of Air Pollutants in NSW".

- M3.2 Subject to any express provision to the contrary in this licence, monitoring for the concentration of a pollutant discharged to waters or applied to a utilisation area must be done in accordance with the Approved Methods Publication unless another method has been approved by the EPA in writing before any tests are conducted.

## M4 Environmental monitoring

### Requirement to monitor noise

- M4.1 To determine compliance with condition L5.1, attended noise monitoring must be undertaken in accordance with conditions L5.7 and L5.8, and

- at each one of the locations listed in condition L5.1;

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- (b) occur quarterly within the reporting period of the Environment Protection Licence with at least 2 months between monitoring periods;
- (c) occur during each day, evening and night period as defined in the NSW Industrial Noise Policy (EPA 2000) for a minimum of 15 minutes for three of the quarters;
- (d) the night time 15 minute attended monitoring in accordance with c) must be undertaken between the hours of 1am and 4am;
- (e) the night time LA1 (1 min) attended monitoring in accordance with c) must be undertaken between the hours of 1am and 4am;
- (f) one quarterly monitoring must occur during each day, evening and night period as defined in the NSW Industrial Noise Policy (EPA 2000) for a minimum of 1.5 hours during the day; 30 minutes during the evening; and 1 hours during the night, and
- (g) each quarterly monitoring must be undertaken on a different day(s) of the week not including Saturdays, Sundays and public holidays; and
- (h) these monitoring conditions take effect in the 2015 Reporting period.

Note: The intention of this condition is that quarterly monitoring be undertaken at each sensitive receiver. That at each sensitive receiver monitoring is undertaken over a range of different days excluding weekends and public holidays during the reporting period so as to be representative of operating hours. That night time 15 minute attended monitoring and the LA1 (1min) monitoring for three of the quarters be undertaken at worst case being the most stable atmospheric conditions and when noise would be most intrusive to sleep. All of the sensitive receivers do not have to be monitored on the same day, evening and night for sub condition f.

- M4.2 For the Annual Reporting Period ending March 2015 the EPA will accept all monitoring required by the current Department of Planning and Environment consent (usually quarterly monitoring for noise as dB(A) Leq15minutes) for compliance with noise monitoring requirements in this licence, as a single report attached to the Annual Return for the premises.

## M5 Weather monitoring

- M5.1 At the point(s) identified below, the licensee must monitor (by sampling and obtaining results by analysis) the parameters specified in Column 1 of the table below, using the corresponding sampling method, units of measure, averaging period and sampling frequency, specified opposite in the Columns 2, 3, 4 and 5 respectively.



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## POINT 26

Parameter	Sampling method	Units of measure	Averaging period	Frequency
Rainfall	AM-4	millimetres	24 hours	Continuous
Wind Direction at 10 metres	AM-2 & AM-4	Degrees	1 hour	Continuous
Wind speed	AM-2 & AM-4	metres per second	1 hour	Continuous
Temperature at 10 metres	AM-4	degrees Celsius	1 hour	Continuous
Sigma theta	AM-2 & AM-4	Degrees	15 minutes	Continuous
Relative humidity	AM-4	percent	1 hour	Continuous

## M6 Recording of pollution complaints

- M6.1 The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.
- M6.2 The record must include details of the following:
- the date and time of the complaint;
  - the method by which the complaint was made;
  - any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;
  - the nature of the complaint;
  - the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and
  - if no action was taken by the licensee, the reasons why no action was taken.
- M6.3 The record of a complaint must be kept for at least 4 years after the complaint was made.
- M6.4 The record must be produced to any authorised officer of the EPA who asks to see them.

## M7 Telephone complaints line

- M7.1 The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.
- M7.2 The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.
- M7.3 The preceding two conditions do not apply until 3 months after: the date of the issue of this licence.
- M7.4 The licensee must notify the EPA with contact details of personnel capable of a timely response to emergencies or any other exigent circumstances.

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- (a) the nominated contact must be available at all times.
- (b) contact details must include a telephone number and must be current.
- (c) such notification must be made within 14 days of receiving this licence.

## M8 Requirement to monitor volume or mass

M8.1 For each discharge point or utilisation area specified below, the licensee must monitor:

- a) the volume of liquids discharged to water or applied to the area;
  - b) the mass of solids applied to the area;
  - c) the mass of pollutants emitted to the air;
- at the frequency and using the method and units of measure, specified below.

### POINT 1

Frequency	Unit of Measure	Sampling Method
Continuous during discharge	kilolitres per day	In line instrumentation

### POINT 27

Frequency	Unit of Measure	Sampling Method
Continuous during discharge	kilolitres per day	In line instrumentation

## 6 Reporting Conditions

### R1 Annual return documents

- R1.1 The licensee must complete and supply to the EPA an Annual Return in the approved form comprising:
- a) a Statement of Compliance; and
  - b) a Monitoring and Complaints Summary.

At the end of each reporting period, the EPA will provide to the licensee a copy of the form that must be completed and returned to the EPA.

- R1.2 An Annual Return must be prepared in respect of each reporting period, except as provided below.

Note: The term "reporting period" is defined in the dictionary at the end of this licence. Do not complete the Annual Return until after the end of the reporting period.

- R1.3 Where this licence is transferred from the licensee to a new licensee:
- a) the transferring licensee must prepare an Annual Return for the period commencing on the first day of the reporting period and ending on the date the application for the transfer of the licence to the new licensee is granted; and
  - b) the new licensee must prepare an Annual Return for the period commencing on the date the application for the transfer of the licence is granted and ending on the last day of the reporting period.

Note: An application to transfer a licence must be made in the approved form for this purpose.

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- R1.4 Where this licence is surrendered by the licensee or revoked by the EPA or Minister, the licensee must prepare an Annual Return in respect of the period commencing on the first day of the reporting period and ending on:
- a) in relation to the surrender of a licence - the date when notice in writing of approval of the surrender is given; or
  - b) in relation to the revocation of the licence - the date from which notice revoking the licence operates.
- R1.5 The Annual Return for the reporting period must be supplied to the EPA by registered post not later than 60 days after the end of each reporting period or in the case of a transferring licence not later than 60 days after the date the transfer was granted (the 'due date').
- R1.6 The licensee must retain a copy of the Annual Return supplied to the EPA for a period of at least 4 years after the Annual Return was due to be supplied to the EPA.
- R1.7 Within the Annual Return, the Statement of Compliance must be certified and the Monitoring and Complaints Summary must be signed by:
- a) the licence holder; or
  - b) by a person approved in writing by the EPA to sign on behalf of the licence holder.

## R2 Notification of environmental harm

Note: The licensee or its employees must notify all relevant authorities of incidents causing or threatening material harm to the environment immediately after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act.

- R2.1 Notifications must be made by telephoning the Environment Line service on 131 555.
- R2.2 The licensee must provide written details of the notification to the EPA within 7 days of the date on which the incident occurred.

## R3 Written report

- R3.1 Where an authorised officer of the EPA suspects on reasonable grounds that:
- a) where this licence applies to premises, an event has occurred at the premises; or
  - b) where this licence applies to vehicles or mobile plant, an event has occurred in connection with the carrying out of the activities authorised by this licence,
- and the event has caused, is causing or is likely to cause material harm to the environment (whether the harm occurs on or off premises to which the licence applies), the authorised officer may request a written report of the event.
- R3.2 The licensee must make all reasonable inquiries in relation to the event and supply the report to the EPA within such time as may be specified in the request.
- R3.3 The request may require a report which includes any or all of the following information:
- a) the cause, time and duration of the event;
  - b) the type, volume and concentration of every pollutant discharged as a result of the event;
  - c) the name, address and business hours telephone number of employees or agents of the licensee, or a specified class of them, who witnessed the event;

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- d) the name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort;
- e) action taken by the licensee in relation to the event, including any follow-up contact with any complainants;
- f) details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event; and
- g) any other relevant matters.

R3.4 The EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided by the licensee. The licensee must provide such further details to the EPA within the time specified in the request.

## R4 Other reporting conditions

### Noise Monitoring Report

R4.1 The licensee must submit to the EPA a noise compliance assessment report at the end of each reporting period. The report must be submitted with the Environment Protection Licence Annual Return. The report must be prepared by a suitably qualified and experienced acoustical consultant which:

- (a) details the noise monitoring undertaken in accordance with condition M4;
- (b) assesses compliance with noise limits presented in condition L5.1 and condition 5.2; and
- (c) outlines any management actions taken within the monitoring period to address any exceedences of limits contained in condition L5.1 and condition L5.2.

Note: The licensee must provide the EPA with one report, but this report may be a combination of the monitoring undertaken by the licensee as part of their quarterly monitoring program as required by the Project Approval SSD-5456 and must include LA1(1min).

## 7 General Conditions

### G1 Copy of licence kept at the premises or plant

G1.1 A copy of this licence must be kept at the premises to which the licence applies.

G1.2 The licence must be produced to any authorised officer of the EPA who asks to see it.

G1.3 The licence must be available for inspection by any employee or agent of the licensee working at the premises.

### G2 Other general conditions

#### G2.1 Completed Pollution Studies and Reduction Programs (PRPs)

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PRP	Description	Completed Date
Coal Mine Particulate Matter Control Best Practice	Requires licensee to conduct a site specific Best Management Practice (BMP) determination to identify ways to reduce particle emissions	28-September-2012
Assessment of Potential Impacts of Metals in wastewater	The licensee must conduct an assessment of metals detected in wastewater discharges from the mine in accordance with the ANZECC water quality guidelines.. To obtain a greater understanding of the type and concentration of metals discharged in mine water and entering the receiving waters. To limit the concentration of metals discharged in mine water within ANZECC guidelines.	23-October-2013
Air Quality Monitoring	The licensee must evaluate best locations and install monitoring devices as defined in Project Approval MP10_0161 under the Environment Planning & Assessment Act 1979.	31-December-2013
PRP5 - Remediation of Dam Wall and Spillway formalisation	The licensee must design and remediate the dam wall on the final control pond and formalise a spillway to prevent dam seepage and to ensure that volumetric discharge can be monitored	27-February-2015
PRP 6 Upgrade to Sewage Treatment Systems	Assessment of options for improved disinfection of effluent from STP on licenced premises.	06-January-2015

## 8 Pollution Studies and Reduction Programs

### U1 PRP4 - Upgrade to Clean and Dirty Water Management System

U1.1 The licensee must review and upgrade water management on the premises. The review and upgrade must be undertaken by an appropriately qualified person. The review and upgrade must:

- a) identify risks of surface water and groundwater contamination on the premises; and
- b) prioritise these risks, prepare an action program and implement these works to decrease these risks.

The water management system upgrade must ensure that:

- c) clean water is diverted away from the operational part of the premises to prevent contamination by carboniferous materials;
- d) dirty water is appropriately captured and treated prior to being discharged into the premises water management control ponds;
- e) bunded areas are reviewed and appropriately retrofitted to prevent contamination by clean water such as rain and runoff; and
- f) any contaminated waters from bunds are appropriately treated before discharge to remove contaminants, and/ or removed from the premises by a waste contractor and disposed of in a lawful manner.



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The Licensee must provide the EPA Manager Hunter [hunter.region@epa.nsw.gov.au](mailto:hunter.region@epa.nsw.gov.au) a report prepared by an appropriately qualified person that details the outcomes of the review and demonstrates implementation of appropriate work program by 30 December 2014.

U1.2 a) The licensee must have implemented and completed the works program documented in U1.1 by 31 July 2015; and

b) At completion of the works, the licensee must provide a report to the EPA Manager Hunter Region [hunter.region@epa.nsw.gov.au](mailto:hunter.region@epa.nsw.gov.au) that indicates to the EPA that the works have been completed.

## U2 PRP7 Sewage Treatment System Concept Design

U2.1 The licensee must provide the EPAs Manager Hunter [hunter.region@epa.nsw.gov.au](mailto:hunter.region@epa.nsw.gov.au) in writing details of the preferred option for sewage treatment system upgrade by 30 June 2015. The preferred option:

a) must be based on the options identified in the study titled "*Lake Coal Chain Valley Sewage Treatment System Upgrade Options Investigations Report No. 630.11042*" dated 15 December 2014 prepared by SLR consultants; and

b) must be approved by the EPA in writing before proceeding to develop the Concept Design.

U2.2 The licensee must provide the EPA with a concept design and report of the implementation schedule for upgrade of all the sewage treatment systems at Chain Valley Colliery by 31 January 2016. The concept design and report must:

a) be prepared by an appropriately qualified and experienced person;

b) include a concept design and costing;

c) include the schedule timeframe for the implementation of works; and

d) include detailed information about the consultation process and approvals sought and obtained or that need to be obtained to implement the works.

Note: This concept design will be used as the basis for another Environment Improvement Program for construction and commissioning of upgrades to the sewage treatment system.

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## Dictionary

### General Dictionary

<b>3DGM [in relation to a concentration limit]</b>	Means the three day geometric mean, which is calculated by multiplying the results of the analysis of three samples collected on consecutive days and then taking the cubed root of that amount. Where one or more of the samples is zero or below the detection limit for the analysis, then 1 or the detection limit respectively should be used in place of those samples
<b>Act</b>	Means the Protection of the Environment Operations Act 1997
<b>activity</b>	Means a scheduled or non-scheduled activity within the meaning of the Protection of the Environment Operations Act 1997
<b>actual load</b>	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
<b>AM</b>	Together with a number, means an ambient air monitoring method of that number prescribed by the <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> .
<b>AMG</b>	Australian Map Grid
<b>anniversary date</b>	The anniversary date is the anniversary each year of the date of issue of the licence. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
<b>annual return</b>	Is defined in R1.1
<b>Approved Methods Publication</b>	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
<b>assessable pollutants</b>	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
<b>BOD</b>	Means biochemical oxygen demand
<b>CEM</b>	Together with a number, means a continuous emission monitoring method of that number prescribed by the <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> .
<b>COD</b>	Means chemical oxygen demand
<b>composite sample</b>	Unless otherwise specifically approved in writing by the EPA, a sample consisting of 24 individual samples collected at hourly intervals and each having an equivalent volume.
<b>cond.</b>	Means conductivity
<b>environment</b>	Has the same meaning as in the Protection of the Environment Operations Act 1997
<b>environment protection legislation</b>	Has the same meaning as in the Protection of the Environment Administration Act 1991
<b>EPA</b>	Means Environment Protection Authority of New South Wales.
<b>fee-based activity classification</b>	Means the numbered short descriptions in Schedule 1 of the Protection of the Environment Operations (General) Regulation 2009.
<b>general solid waste (non-putrescible)</b>	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997

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<b>flow weighted composite sample</b>	Means a sample whose composites are sized in proportion to the flow at each composites time of collection.
<b>general solid waste (putrescible)</b>	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
<b>grab sample</b>	Means a single sample taken at a point at a single time
<b>hazardous waste</b>	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
<b>licensee</b>	Means the licence holder described at the front of this licence
<b>load calculation protocol</b>	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
<b>local authority</b>	Has the same meaning as in the Protection of the Environment Operations Act 1997
<b>material harm</b>	Has the same meaning as in section 147 Protection of the Environment Operations Act 1997
<b>MBAS</b>	Means methylene blue active substances
<b>Minister</b>	Means the Minister administering the Protection of the Environment Operations Act 1997
<b>mobile plant</b>	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
<b>motor vehicle</b>	Has the same meaning as in the Protection of the Environment Operations Act 1997
<b>O&amp;G</b>	Means oil and grease
<b>percentile [in relation to a concentration limit of a sample]</b>	Means that percentage [eg.50%] of the number of samples taken that must meet the concentration limit specified in the licence for that pollutant over a specified period of time. In this licence, the specified period of time is the Reporting Period unless otherwise stated in this licence.
<b>plant</b>	Includes all plant within the meaning of the Protection of the Environment Operations Act 1997 as well as motor vehicles.
<b>pollution of waters [or water pollution]</b>	Has the same meaning as in the Protection of the Environment Operations Act 1997
<b>premises</b>	Means the premises described in condition A2.1
<b>public authority</b>	Has the same meaning as in the Protection of the Environment Operations Act 1997
<b>regional office</b>	Means the relevant EPA office referred to in the Contacting the EPA document accompanying this licence
<b>reporting period</b>	For the purposes of this licence, the reporting period means the period of 12 months after the issue of the licence, and each subsequent period of 12 months. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
<b>restricted solid waste</b>	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
<b>scheduled activity</b>	Means an activity listed in Schedule 1 of the Protection of the Environment Operations Act 1997
<b>special waste</b>	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
<b>TM</b>	Together with a number, means a test method of that number prescribed by the <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> .

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<b>TSP</b>	Means total suspended particles
<b>TSS</b>	Means total suspended solids
<b>Type 1 substance</b>	Means the elements antimony, arsenic, cadmium, lead or mercury or any compound containing one or more of those elements
<b>Type 2 substance</b>	Means the elements beryllium, chromium, cobalt, manganese, nickel, selenium, tin or vanadium or any compound containing one or more of those elements
<b>utilisation area</b>	Means any area shown as a utilisation area on a map submitted with the application for this licence
<b>waste</b>	Has the same meaning as in the Protection of the Environment Operations Act 1997
<b>waste type</b>	Means liquid, restricted solid waste, general solid waste (putrescible), general solid waste (non - putrescible), special waste or hazardous waste

Ms Debbie Maddison

Environment Protection Authority

(By Delegation)

Date of this edition: 10-November-2000

# Environment Protection Licence

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## End Notes

1	Licence varied by notice 1008662, issued on 24-Oct-2001, which came into effect on 24-Oct-2001.
2	Licence transferred through application 141163, approved on 24-Apr-2002, which came into effect on 20-Apr-2002.
3	Licence varied by notice 1026573, issued on 16-Apr-2003, which came into effect on 11-May-2003.
4	Condition A1.3 Not applicable varied by notice issued on <issue date> which came into effect on <effective date>
5	Licence varied by notice 1104492, issued on 11-Dec-2009, which came into effect on 11-Dec-2009.
6	Licence varied by notice 1502571 issued on 21-Dec-2011
7	Licence varied by notice 1504446 issued on 15-Apr-2013
8	Licence varied by notice 1516485 issued on 20-Aug-2013
9	Licence varied by notice 1519380 issued on 26-Sep-2014
10	Licence varied by notice 1527706 issued on 15-May-2015
11	Licence varied by notice 1535160 issued on 30-Oct-2015