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ANNUAL REVIEW

2013

(Annual Environmental Management Report)

Edition	Rev.	Comments	Author	Authorised By	Date
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Annual Review Title Block

MAULES CREEK COAL MINE													
Mining Operations Plan													
Name of Mine	Maules Creek Coal Mine												
Annual Review Commencement Date	1 January 2013												
Annual Review Completion Date	31 December 2013												
Mining Authorisations (Lease/License No.)	CL375, A346, MLA404, MLA8072 and EL8072												
Name of Authorisation / Authorisation holder(s)	Aston Coal 2 Pty Ltd (75%), ICRA MC Pty Ltd (15%), J Power Australia Pty Ltd (10%)												
Name of Mine Operator (if different)	Maules Creek Coal Pty Limited												
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1.0 INTRODUCTION

Aston Coal 2 Pty Ltd submitted a Project Application to the New South Wales (NSW) Department of Planning (now the Department of Planning and Environment [DP&E]) in August 2010, for approval under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) to enable the construction and operation of the Maules Creek Coal Project. Project Approval (PA) 10_0138 for the Maules Creek Coal Mine (MCCM) was issued by the NSW Planning Assessment Commission (PAC) under delegation of the Minister for Planning and Infrastructure on 23 October 2012.

This is the first Annual Review produced for the MCCM. It has been prepared in accordance with Condition 4 of Schedule 5 of PA 10_0138. The relevant condition is repeated in **Table 1.1** below. Also included in the table are cross-references to the relevant sections in this document where each aspect is addressed.

Table 1.1: Condition 4 of PA 10_0138

Condition	Relevant Section of this Annual Review
Annual Review	
4. By the end of March each year, the Proponent shall review the environmental performance of the project for the previous calendar year 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 current calendar year.	Sections 2 and 5
b) include a comprehensive review of the monitoring results and complaints records of the project over the past year, which includes a comparison of these results against the: <ul style="list-style-type: none"> relevant statutory requirements, limits or performance measures/criteria; monitoring results of previous years; and relevant predictions in the EA; 	Sections 3 and 4
c) identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance;	Section 3
d) identify any trends in the monitoring data over the life of the project;	Section 3
e) identify any discrepancies between the predicted and actual impacts of the project, and analyse the potential cause of any significant discrepancies; and	Section 3
f) describe what measures will be implemented over the next year to improve the environmental performance of the project.	Section 3

This Annual Review also addresses the requirements of Condition 4 of Coal Lease (CL) 375, which was issued under the NSW *Mining Act, 1992*. As a result, the document has been given the subtitle of 'Maules Creek Annual Environmental Management Report (AEMR)'. The relevant CL 375 condition, and cross references to the relevant sections of this report are provided in **Table 1.2**. This Annual Review incorporates the requirements of the NSW Department of Primary Industries Mineral Resources (DPI-MR) (2006) document entitled "*EDG03 - Guidelines to the Mining, Rehabilitation and Environmental Management Process*" Version 3 dated January 2006 where appropriate.


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Table 1.2: Condition 4 of CL 375

Condition	Relevant Section of this Annual Review
4. Environmental Management Report	
(a) The lease holder must lodge Environmental Management Reports (EMR) with the Director General annually or at dates otherwise directed by the Director General.	
(b) The EMR must:	Section 3
i. report against compliance with the Mining Operations Plan (MOP);	
ii. report on progress in respect of rehabilitation criteria;	Section 5
iii. report on the extent of compliance with regulatory requirements; and	Section 3
iv. have regard to any relevant guidelines adopted by the Director General.	Section 1

Although it primarily covers the period from 1st January 2013 to 31st December 2013 (the reporting period), where relevant this Annual Review also provides information on historical aspects of the MCCM, longer term trends in environmental monitoring results, and provides relevant information on activities to be undertaken during the ensuing period, i.e. 2014 calendar year, and beyond.

The MCCM is located within Narrabri Local Government Area (LGA), approximately 45 kilometres (km) north north-west of Gunnedah and 15 km north-east of Boggabri (**Figure 1.1**).

1.1 Project Background

The ownership of the MCCM currently lies with the Maules Creek Coal Joint Venture (MCCJV), a joint venture between Aston Coal 2 Pty Limited (a company 100% owned by Whitehaven Coal Limited [Whitehaven]) (75%), ITOCHU Coal Resources Australia Maules Creek Pty Ltd (ICRA MC Pty Ltd) (15%) and J-Power Australia Pty Limited (J-Power) (10%). The MCCM is managed by Maules Creek Coal Pty Ltd (MCC) (a wholly owned subsidiary of Whitehaven) on behalf of the MCCJV.

The Construction Mining Operations Plan (CMOP) applicable to the 2013 reporting period was approved by the NSW Department of Trade & Investment – Division of Resources and Energy (DRE) on 5 June 2013.

1.2 Project Description

Key components of the approved MCCM include:

- the construction and operation of an open cut mining operation extracting up to 13 million tonnes per annum (Mtpa) Run of Mine (ROM) coal down to the Templemore Seam;
- open cut mining fleet including excavator / shovels and fleet of haul trucks, dozers, graders and water carts utilising up to 470 permanent employees;
- the construction and operation of a Coal Handling and Preparation Plant (CHPP) with a throughput capacity of 13 Mtpa;
- the construction and operation of a Tailings Drying Area;
- the construction and operation of a rail spur, rail loop, associated load out facility and connection to the Werris Creek to Mungindi Railway Line;
- the construction and operation of a Mine Access Road;
- the construction and operation of administration, workshop and related facilities;


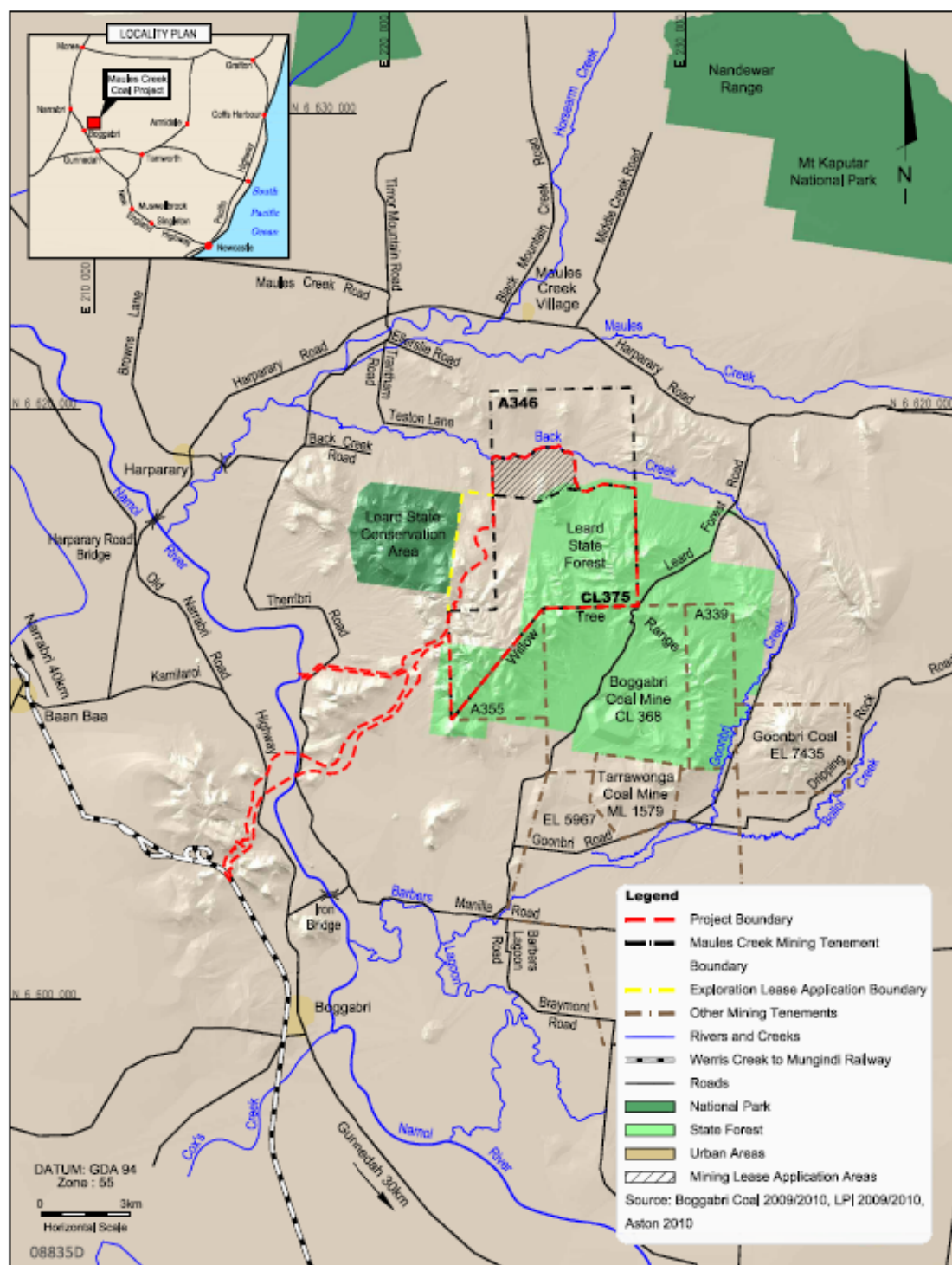

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Figure 1.1 – Project Locality Plan



MAULES CREEK COAL MINE

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- The construction and operation of water management infrastructure including a water pipeline, pumping station and associated infrastructure for access to water from the Namoi River;
- The installation of supporting power and communications infrastructure; and
- The construction and operation of explosive magazine and explosives storage areas.

In April 2013, MCC lodged an application to modify PA 10_0138 under Section 75W of the EP&A Act. In the application, MCC sought approval for the following activities:

- construction and operation of a 5 km section of TransGrid's high voltage (132 kilovolt [kV]) electricity transmission line (ETL);
- construction of TransGrid's Boggabri North 132 kV Switching Station;
- a minor extension of an existing low voltage (11 kV) ETL to the MCCM Project Boundary to supplement power supplies; and
- a minor realignment of the CHPP and associated facilities including the product stockpiles and construction water pipeline.

The application was assessed by the DP&E and approved by a delegate of the Minister for Planning and Infrastructure on 25 July 2013.

1.3 Leases, Licences and Approvals

Table 1.3 below provides a summary of the key licences, leases and approvals required for the MCCM under NSW and Commonwealth legislation to enable the construction and operation of the mine and associated infrastructure. The MCCM is considered to be a transitional Part 3A project under Schedule 6A of the EP&A Act, and in line with the Mining Operations Plan (MOP) guidelines, is a Level 1 Mine.

1.4 Mine Contacts

The contact details relevant for the MCCM are provided in the Title Block at the front of this document.

1.5 Actions Requested from Previous Annual Review

As this is the first Annual Review for the MCCM, there are no relevant actions.



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Table 1.3: Licenses, Leases and Approvals

Approval	Reference	Detail	Validity Dates
Project Approval	PA 10_0138	Pursuant to the Maules Creek Environmental Assessment (EA), the PAC approval of the Maules Creek Coal Mine referred to in schedule 1 subject to the conditions in schedules 2 to 5.	23 October 2012 to December 2034
Project Approval Modification	PA 10_0138 (MOD1)	Pursuant to the Maules Creek Project Approval Modification EA, the Modification was granted to allow modifications to infrastructure requirements.	Granted on 25 July 2013
Commonwealth Environmental Approval	EPBC 2010/5566	Approval granted under the Commonwealth <i>Environment Protection and Biodiversity Conservation Act, 1999</i> (EPBC Act).	Granted on 11 February 2013.
Coal Lease	CL 375	Covers an area of approximately 4,200 hectares (ha). The southern part of the lease covers rights to mine from the surface to unlimited depth (~2,500 ha). The northern part of the lease covers rights to mine from 20 m depths to unlimited depth (~1,700 ha).	04 June 1991 to 04 June 2033
Authorisation	A 346	Covers the rights of the northern part of CL 375 from the surface to 20 metres (m) depth (~1,700 ha).	Expires 27 February 2016
Mining Lease Application	MLA 404	Covers the area to the north of the surface rights of CL 375, over a portion of A 346 that will accommodate part of the Northern Overburden Emplacement Area for the MCCM.	Submitted 25 May 2011 *(Not yet approved – subject to a right to negotiate process)
Exploration Lease Application	EL 8072	Covers the area to the west of CL 375 that will facilitate the extraction of some coal and accommodate some mine related infrastructure.	Expires 12 March 2018
Mining Lease Application	MLA 453	Covers the area to the west of CL 375 within EL 8072 and the MCCM Project Boundary that will facilitate the extraction of some coal and accommodate some mine related infrastructure.	Submitted May 2013 (Awaiting approval)
Environmental Protection Licence (EPL)	EPL20221	Applies to activities associated with the construction of the MCCM.	From 02 May 2013
Surface Water Licence	90SL101060	Water supply for mining and irrigation one Overshot dam and a 150 millimetre (mm) Centrifugal Pump.	01 November 2010 to 01 November 2015
Water Access Licence (WAL)	WAL 13050	3000 units (equivalent to 3,000 megalitres [ML]) of water entitlements for site supply.	Transferred to Aston 11 May 2010
Water Supply Works Approval	90WA801901 DWE Ref no: 90AL801900	Allows construction of a 610 mm Axial Flow Pump located on the Namoi River.	01 July 2004 to 30 June 2017
Bore Licence	90WA809078	Bore constructed in the Upper Namoi Zone 4 Namoi Valley (Keepit Dam to Gins Leap) Groundwater Source.	Commencement 1 November 2006
Bore Licence	90WA809079	Bore constructed in the Upper Namoi Zone 4 Namoi Valley (Keepit Dam to Gins Leap) Groundwater Source.	Commencement 1 November 2006

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Approval	Reference	Detail	Validity Dates
Bore Licence	90WA809300	Bore constructed in the Upper Namoi Zone 4 Namoi Valley (Gins Leap to Narrabri) Groundwater Source.	Commencement 1 November 2006
Bore Licence	90WA809127	Bore constructed in the Upper Namoi Zone 4 Namoi Valley (Keepit Dam to Gins Leap) Groundwater Source.	Commencement 1 November 2006
Bore Water Licence	90BL255704	6 ML bore licence for industrial and mining purposes.	Granted 7 June 2010 to 6 June 2015
Bore Water Licence	90BL001144	Bore will be used for stock and domestic services.	Granted 28 February 1939 for perpetuity
Water Access Licence	WAL12811	135 units with works approval 90CA807230. Upper Namoi Zone 5 Namoi Valley (Gins Leap to Narrabri) Groundwater Source.	Transferred to Aston 16 November 2010 Tenure continuing
Water Access Licence	WAL29467	6 ML water licence from porous rock water source for construction purposes.	Tenure continuing
Water Access Licence	WAL29588	300 ML water licence from porous rock water source under works approval 90CA826925.	Granted 21 June 2012 for perpetuity
Water Access Licence	WAL 27385	38 ML water licence from Namoi Groundwater Zone 4.	Granted 24 April 2012 for perpetuity.
Water Access Licence	WAL12479	78 ML water licence from Namoi Groundwater Zone 11 under works approval 90CA807652.	Granted 2 November 2011 for perpetuity
Water Access Licence	WAL27383	0 ML water licence from Namoi Groundwater Zone 11.	Spare WAL. Granted 24 October 2011 for perpetuity
Water Access Licence	WAL13050	3,000 ML water licence from Lower Namoi Regulated River Water under works approval 90WA801901.	Granted 23 August 2011 for perpetuity
Forests NSW Occupation Agreement	N/A	Agreement applies to exploration activities on that part of Leard State Forest No. 420 that occurs within CL 375.	Granted 31 March 2010 to 2013 * MCCM is in ongoing discussions with Forests NSW over updating for operations
S100 Approval	N/A	Approval under Section 100 of the <i>Coal Mine Health and Safety Act, 2002</i> for the establishment of emplacements.	MCCM will seek this from DTIRIS-DRE prior to the commencement of mining operations
Construction MOP	N/A	Approved by DRE.	Covering the period from 1 June 2013 to 1 June 2014.

The maximum extent of the approved MCCM is shown in **Figure 1.2** below.


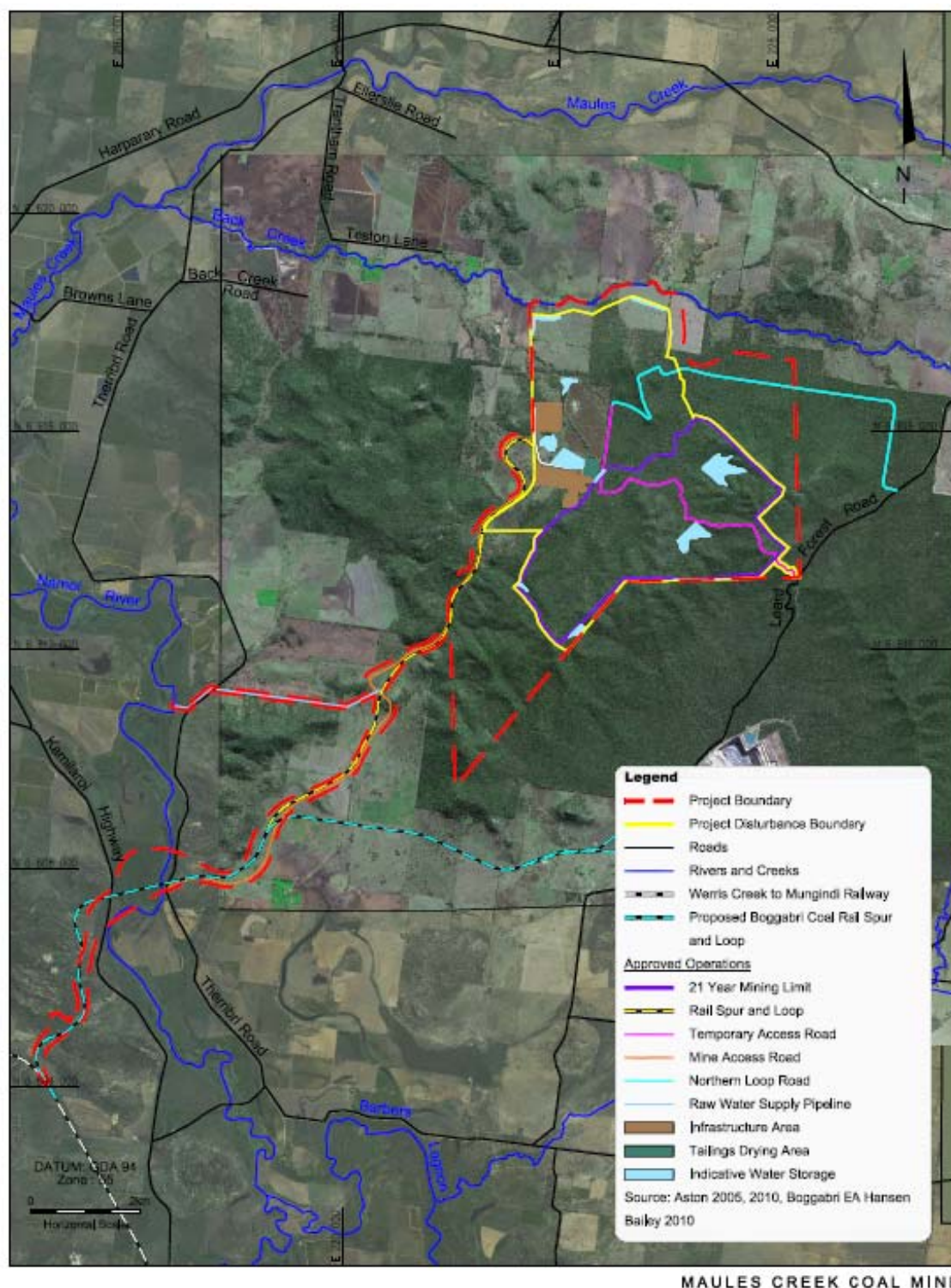

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Figure 1.2: MCCM Layout



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2.0 SUMMARY OF ACTIVITIES DURING THE REPORTING PERIOD

Construction of MCCM infrastructure did not commence until December 2013, and therefore, activities during the reporting period were limited to:

- the commencement of construction of the water supply pipeline from the Namoi River (discussed in further detail below);
- drilling of 24 exploration boreholes;
- installation of 8 vibrating wire piezometers (VWP) and monitoring bores to monitor groundwater;
- five days of drilling for rock testing;
- approximately 221 shallow test pit excavations (approximately 0.5 m by 0.5 m) for archaeological salvage and investigation;
- 51 m² of open area excavation for archaeological salvage and investigation;
- approximately 400 m² of mechanical test excavation for archaeological salvage and investigation, involving the systematic stripping of topsoil using a small excavator with a toothless bucket;
- installation of two portable site offices in a cleared area to serve as sample processing facilities during archaeological salvage works; and
- construction of water tank foundations on Velyama property (only grass clearing required).

2.1 Exploration and Groundwater Monitoring Activities

During the term of this Annual Review, exploration activities undertaken focussed on the installation of groundwater monitoring boreholes and piezometers, as required by both NSW and Commonwealth approval conditions.

Many of the boreholes were located outside the Leard State Forest, in previously cleared areas such as paddocks and reserves. Boreholes located inside the Leard State Forest were located on existing drill lines from previous exploration programmes, to minimise clearing of vegetation. If necessary, existing access tracks were regraded using local materials for resurfacing. Drill pads were typically prepared by clearing a small working area up to 625 square metres (m²) (approximately 25 m by 25 m) for the drilling rig and support equipment. If vegetation was required to be cleared, it was stockpiled within each drill site and reused to rehabilitate the site on completion of drilling. Erosion and sediment control measures were installed around the disturbance area and above ground tanks were used to contain and recirculate the drill water supply. Following completion of each exploration borehole the borehole, the drilling site and the access tracks were rehabilitated.


A total of 24 boreholes were completed as a part of the 2013 groundwater monitoring program.

Core material extracted as part of the exploration program has been stored within a core shed located on the "Harvenvale" property near the township of Boggabri.

2.2 Water Supply Pipeline

MCCM holds an allocation of 3,000 units from the Namoi River Water Source. Construction of a temporary pump station and associated 8.3 km HDPE pipeline to supply construction water from the Namoi River to the MCCM commenced in late December 2013 with the delivery of pipe to the MCCM and commencement of welding sections together along the pipeline alignment. Vegetation clearance and earthworks associated with the pipeline will be conducted during the start of 2014.

Further detail on the construction of the pipeline will be presented in the next Annual Review.

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2.3 Rehabilitation

A Rehabilitation Management Plan has been prepared in accordance with Schedule 3, Condition 73 of PA 10_0138. The Rehabilitation Management Plan outlines the rehabilitation activities for the life of the mine.

MCC has minimised the disturbance during the construction phase of the MCCM by ensuring that temporary laydown and storage areas are located where possible within areas that are to be disturbed during mining operations. Rehabilitation activities are further discussed in **Section 5**.

2.4 Waste and Hazardous Materials Management

2.4.1 Waste Management

During the reporting period for this Annual Review, waste associated with exploration activities such as drill cuttings and drilling fluids have been contained in above ground sumps, with disposal to a licensed facility at appropriate intervals, typically weekly. The small quantities of domestic and operational wastes from exploration activities were collected by the drilling contractor and disposed of in a responsible manner (i.e. to an appropriately licensed facility).

Wastes produced from the construction activities associated with the MCCM are managed under the respective contractor under their Construction Environmental Management Plans (CEMP), and comprise the following:

- general domestic-type wastes from on-site offices and routine maintenance consumables;
- waste oils and grease;
- effluents from site ablution facilities; and
- recyclable materials (timber, scrap metals, other recyclable wastes).

A more detailed description of the management of MCCM wastes is provided in **Section 3.10**.

2.4.2 Hazardous Materials Management

Management of potentially hazardous materials during the construction phase is undertaken via the specific CEMPs.


Materials Safety Data Sheets (SDSs) are retained on-site for all hazardous materials, independent of the quantity. Additionally, all contractors are required to supply SDS sheets for any hazardous goods they are required to bring onto the site.

Fuels

No fuel was stored at the MCCM during 2013.

Explosives

No explosive materials were stored at the MCCM during the 2013 reporting period. The supplier for the rail corridor (Orica Mining Services) has a storage facility located adjacent to the nearby Tarrawonga Coal Mine site, from which materials will be transported when required. The supplier for the mine construction area (Maxim) will transport the required quantity to the site on the day of the blast.

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3.0 ENVIRONMENTAL MANAGEMENT AND PERFORMANCE

The following sub-sections describe the implementation and effectiveness of the various control strategies adopted at the MCCM, together with monitoring data for the reporting period. Existing monitoring sites for air quality, noise and vibration, weather and surface water are indicated in the respective sections.

3.1 Meteorological Monitoring

An automatic weather station (AWS) was installed on the western edge of the MCCM on 14 May 2010, in accordance with the *Approved Methods for the Sampling and Analysis of Air Pollutants in NSW* guideline (NSW DEC 2005a), and in general accordance with condition 35 (a) of the Project Approval (see below). The monitoring site and instrumentation is in compliance with Australian Standard (AS) 2923 – 1987: “*Ambient Air Guide for the measurement of horizontal wind for air quality applications*”. The existing weather station records sigma theta which can be subsequently used to derive stability class and inversion strength in accordance with the NSW Industrial Noise Policy (as required by condition 35 (b)). The parameters measured are presented in **Table 3.1**.

METEOROLOGICAL MONITORING

35. For the life of the project, the Proponent shall ensure that there is a meteorological station 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 Director-General following consultation with the EPA.

Additional weather data is available from the TEOM installation (**Section 3.2.4**) for back-up, and this is also reported on monthly as part of the environmental monitoring program.

Table 3.1: Weather Station Parameters

Parameter	Unit	Frequency	Averaging Period
Rainfall	mm	Continuous	1 hour
Temperature@ 2 m	°C		10 Minute
Temperature @ 10 m	°C		
Wind Speed @ 10 m	m/s		
Wind Direction @ 10 m	Degrees		
Sigma Theta	Degrees		
Solar Radiation	W/m ²		

The following sections summarise rainfall, wind and temperature data for the reporting period. Additional meteorological data is presented in **Appendix C**.

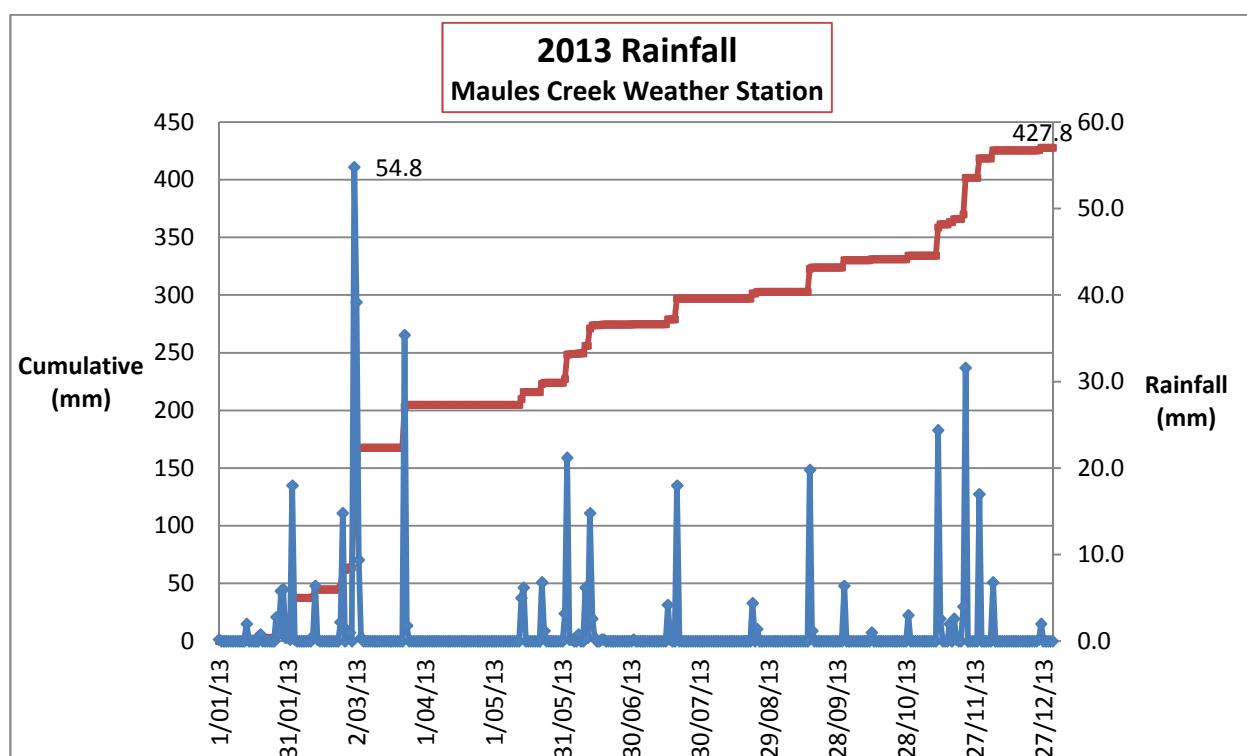
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3.1.1 Rainfall

Rainfall data for the reporting period recorded from the MCCM AWS is presented in **Table 3.2** and **Figure 3.1**. The total annual rainfall for the year was 428 millimetres (mm).

Measured rainfall at the site is significantly lower than average when compared to nearby Bureau of Meteorology) BOM stations at Gunnedah and Narrabri (approximately 60% of average annual rainfall totals).

Figure 3.1: Rainfall at the Maules Creek Automatic Weather Station




3.1.2 Wind Speed and Direction

Ten minute average wind speed and direction data is collected from the MCCM AWS, as it, together with operational records and environmental monitoring results, can be used to assess the environmental effects or consequences of specific activities undertaken at the mine site or in the surrounding areas. Additional data on these parameters is also collected from the TEOM on a monthly basis.

Wind data is summarised in **Table 3.2** below and monthly wind rosettes from the Maules Creek AWS are provided in **Appendix C**.

3.1.3 Temperature and Inversions

Monthly average maximum and minimum temperatures, taken from 2 m elevation, for the reporting period are presented in **Table 3.2**.

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The Maules Creek AWS is fitted with temperature sensors at 2 m and 10 m intervals to assist in the determination of inversion conditions. An assessment of temperature inversions will be presented in the next Annual Review following the commencement of noise monitoring in 2014.


3.1.4 Review of Weather Monitoring

Aside from a malfunction in the rainfall gauge during April 2013 and again during July 2013, there were no significant gaps in the data during the reporting period.

Table 3.2: Summary of MCCM Weather Station Data

Date	Rain (mm)	2 m Temperature (°C)			Wind Speed (m/s)		
		Minimum	Average	Maximum	Minimum	Average	Maximum
Jan-13	19.2	15.4	29.0	43.4	0.0	2.7	10.0
Feb-13	44.8	12.1	23.9	34	0.0	2.4	9.3
Mar-13	141	8.1	22.5	34	0.0	2.1	8.3
Apr-13	0.0*	0.6	17.8	31.7	0.0	1.5	6.3
May-13	19.2	-0.8	14.1	29.1	0.0	1.4	6.5
Jun-13	50.4	-1.4	10.6	22.8	0.0	2.9	13.8
Jul-13	22.6*	-3.4	10.2	21.6	0.0	2.6	12.8
Aug-13	5.8	-2.0	11.5	26.4	0.0	2.8	15.5
Sep-13	21.0	0.9	15.8	32.8	0.0	2.9	15.8
Oct-13	10.4	-0.6	18.3	34.9	0.0	3.9	20.8
Nov-13	84.4	7.3	22.2	36.6	0.0	2.5	10.0
Dec-13	9.0	4.8	25.7	42.1	0.0	2.3	9.8

* Rain gauge not functioning correctly.

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3.2 Air Quality Management and Performance

An Air Quality and Greenhouse Gas Management Plan (AQGGMP) has been developed for the MCCM that details the management measures and monitoring to be undertaken to ensure the MCCM complies with conditions of PA 10_0138. Continuous monitoring of air quality associated with the MCCM has been undertaken since 2011 to ensure that relevant criteria in PA 10_0138 and EPL 20221 are not exceeded.

In line with Section 8.3 of the AQGGMP, this section reviews the environmental performance of the MCCM with regard to air quality for the 2013 reporting period, and includes:

- a comprehensive review of the air quality monitoring results and complaints and comparison against:
 - relevant statutory requirements, limits or performance measures/criteria;
 - monitoring results of previous years; and
 - relevant predictions in the Maules Creek EA;
- any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance;
- any trends in the monitoring data over the life of the MCCM;
- any discrepancies between the predicted and actual impacts of the MCCM, and the potential cause of any significant discrepancies; and
- measures to be implemented over the next year to improve the air quality performance of the MCCM.

3.2.1 Criteria

The air quality criteria applicable to the MCCM are specified in Condition 29 of Schedule 3 of PA 10-0138, which is reproduced below.

Table 9: Long-term criteria for particulate matter

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

Table 10: Short-term criteria for particulate matter

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

Table 11: Long-term criteria for deposited dust

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

Notes to Table 9, Table 10 and Table 11:


^a Total impact (ie incremental increase in concentrations due to the project plus background concentrations due to all other sources);

^b Incremental impact (ie incremental increase in concentrations due to the project on its own);

^c Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method.

^d Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents or any other activity agreed by the Director-General.

'reasonable and feasible avoidance and mitigation measures' includes, but is not limited to, the operational requirements in condition 33 and the requirements in conditions 33 and 34 to develop and implement a real-time air quality management system that ensures effective operational responses to the risks of exceedance of the criteria.

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In addition, exhaust gases on earthmoving/mining equipment should not be visible for more than 10 seconds continuously.

Routine air quality monitoring at the MCCM is required for deposited dust and PM₁₀ particulates. Monitoring of deposited dust is undertaken on a monthly basis and PM₁₀ levels are monitored every six days.

3.2.2 Control Procedures

The clearing of vegetation and the use of earth moving equipment during the construction phase has the potential to be a significant source of dust and particulate emissions if not controlled. Mitigation measures as detailed in the AQGGMP include:

- the use of water sprays during construction;
- modified work practices where conditions are excessively dusty and windy;
- limiting the extent of clearing of vegetation and topsoil to the designated footprint required for construction;
- site vehicles are restricted to designated routes, with speed limits enforced; and
- appropriate staging of any vegetation clearing activities.

The limited construction activities conducted during 2013 (Section 2) did not require the implementation of any dust mitigation measures.

3.2.3 Depositional Dust

Depositional dust monitoring is undertaken by a subcontractor at the MCCM. Four dust deposition gauges are operated to the *Australian Standard AS3580.10.1 —Methods for Sampling and Analysis of Ambient Air Method 10.1 Determination of Particulates—Deposited Matter—Gravimetric Method II*. Sampling is undertaken monthly and each gauge is analysed for insoluble solids and ash residue. The results are reported as g/m²/month. All laboratory analysis is conducted by a National Association of Testing Authorities (NATA) accredited laboratory.

Figure 3.2.1 identifies the locations of the four depositional dust gauges maintained during the reporting period. Monthly data from these four gauges has been generated since 2010. **Figures 3.2.2 to 3.2.5** summarise the results of deposited dust monitoring (total insoluble solids and ash content) undertaken during the 2013 reporting period.

The monthly insoluble solids measurement at MC3 for June 2013 exceeded the maximum total monthly deposited dust level of 4 g/m². Since construction activities only commenced in late December 2013, and did not involve any land clearing activities, it is considered that this peak was not caused by MCCM-related activities. Similarly, the increase in deposited dust observed at MC1 (1.0 to 3.6 g/m²) from July to August 2013 occurred prior to construction works commencing. No other exceedances of the criteria were recorded during the 2013 reporting period.

The mean annual total insoluble solids (deposited dust) criterion was satisfied at all monitoring locations during the reporting period.

Gaps in the monthly measurements have arisen due to the presence of contaminants in the dust gauges, specifically bird droppings, decomposed insect remains and vegetation debris. This occurred on one occasion (December 2013) at MC1 and several occasions at MC2 (July, August, and October 2013). Efforts will be made to reduce occurrences of this nature at MC2.

Appendix D presents the results of all deposited dust monitoring at the MCCM.


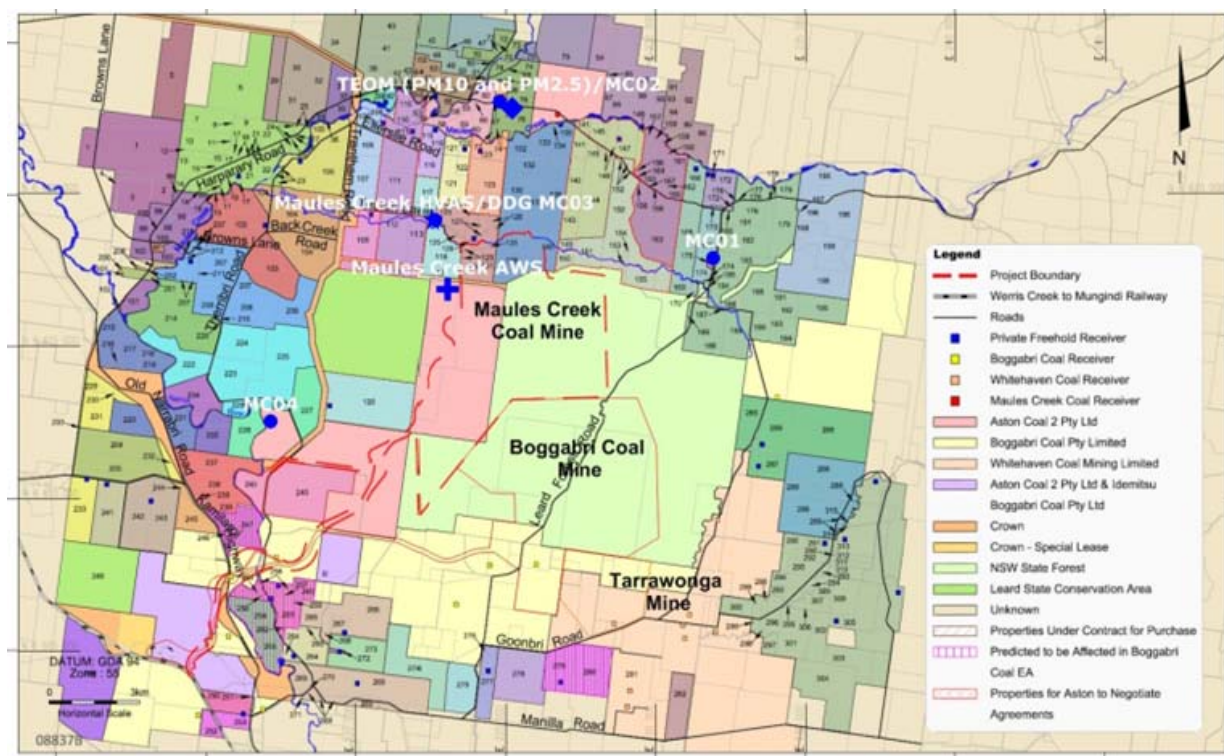
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Figure 3.2.1: Air Quality Monitoring Network for Construction Activities




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Figure 3.2.2: Results from Depositional Dust Gauge MC1

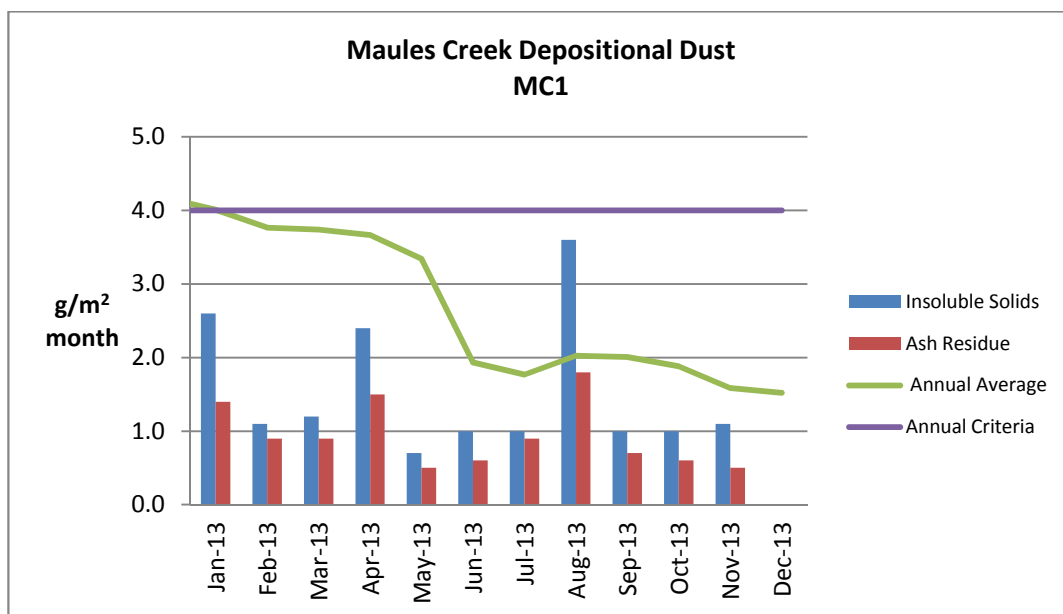
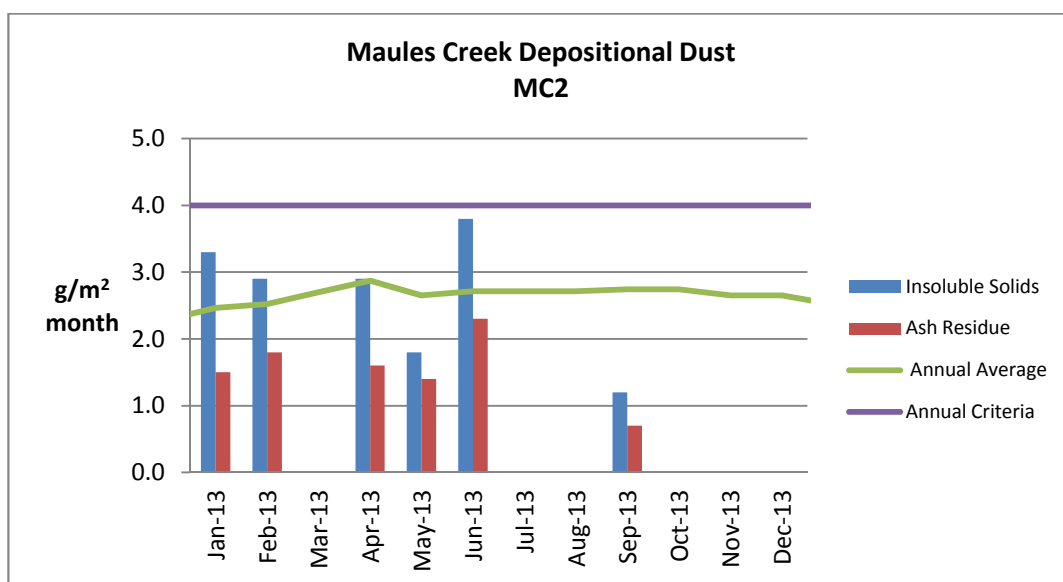


Figure 3.2.3: Results from Depositional Dust Gauge MC2




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Figure 3.2.4: Results from Depositional Dust Gauge MC3

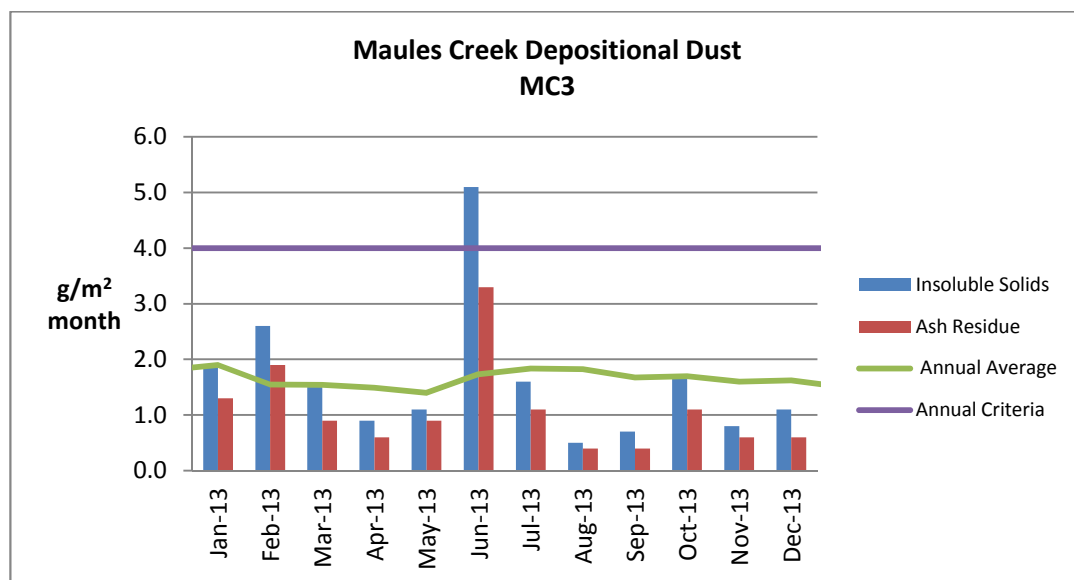
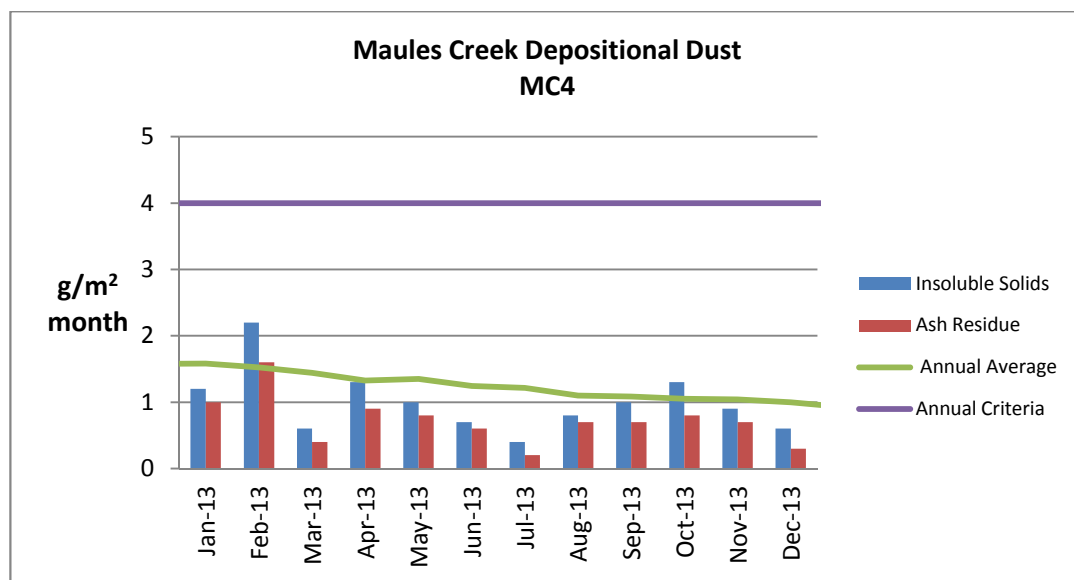



Figure 3.2.5: Results from Depositional Dust Gauge MC4

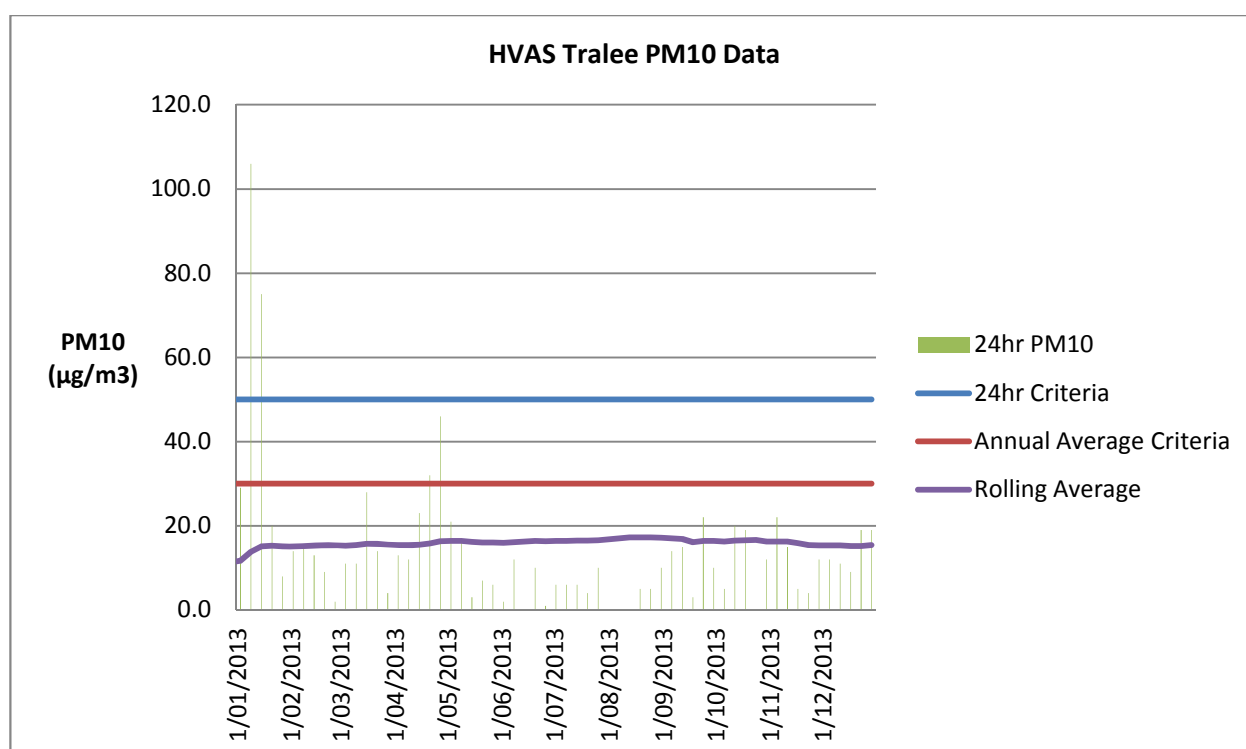


There is one High Volume Air Sampler (HVAS) located at the property "Tralee", to the north of the MCCM, which measures PM₁₀ (particulate matter with a mean aerodynamic diameter <10µm). The HVAS is sited and operated to the *Australian Standards AS3580.1.1.2007* and *AS3580.9.6.2003*. Sampling is scheduled for 24 hours every 6 days to the NSW Environment Protection Authority (EPA) protocol, with filter papers sent to an accredited laboratory for analysis. The results are reported as micrograms per cubic metre (µg/m³).

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Throughout the 2013 reporting period, the PM₁₀ results at the “Tralee” monitor have indicated compliance with the 24 hour criteria with the exception of two days in January 2013 (**Figure 3.2.6**). Cattle hair and high levels of dust found in the HVAS indicate cattle were rubbing against the unit, causing the high readings on the 9th and 15th of January 2013. The “Tralee” measurements remain within the annual average compliance criteria of 30 µg/m³, with an annual average for the period up to December 2013 of 14.2 µg/m³.

Figure 3.2.6: Summary of Results from HVAS Instrument at Tralee (2013)



3.2.4 Particulate Matter

The MCCM has one continuous TEOM for Fine Particulates (PM_{2.5}, PM_{Coarse} [PM_C] and PM₁₀), located adjacent to the Maules Creek village, to the north of the mine site. The TEOM is operated according to US EPA Standard Operating Procedure for the *Continuous Measurement of Particulate Matter: Thermo Scientific TEOM® 1405-DF Dichotomous Ambient Particulate Monitor with FDMS® Federal Equivalent Method EQPM-0609-182 for PM_{2.5}* and the manufacturer's requirements and recommendations. PM_{2.5} and PM_C are directly determined by the method. PM₁₀ is determined by addition of the measured particulate size fractions. TEOM PM_{2.5}, PM_C and PM₁₀ results provided in this report are 24 hour averages calculated at midnight and are reported as µg/m³ corrected to 0 degrees celcius and 101.3 kPa. The location of the air quality monitoring equipment meets the *Australian Standard AS 2922 (1987) Ambient Air – Guide for the Siting of Sampling Units*. The TEOM has NextG telemetry and is downloaded remotely. Data from this instrument has been generated since 2011.

Results for particulate matter (PM₁₀, PM_C and PM_{2.5}) are summarised in **Figures 3.2.7 to 3.2.9** below.


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Figure 3.2.7: PM_{2.5} Results from Maules Creek TEOM

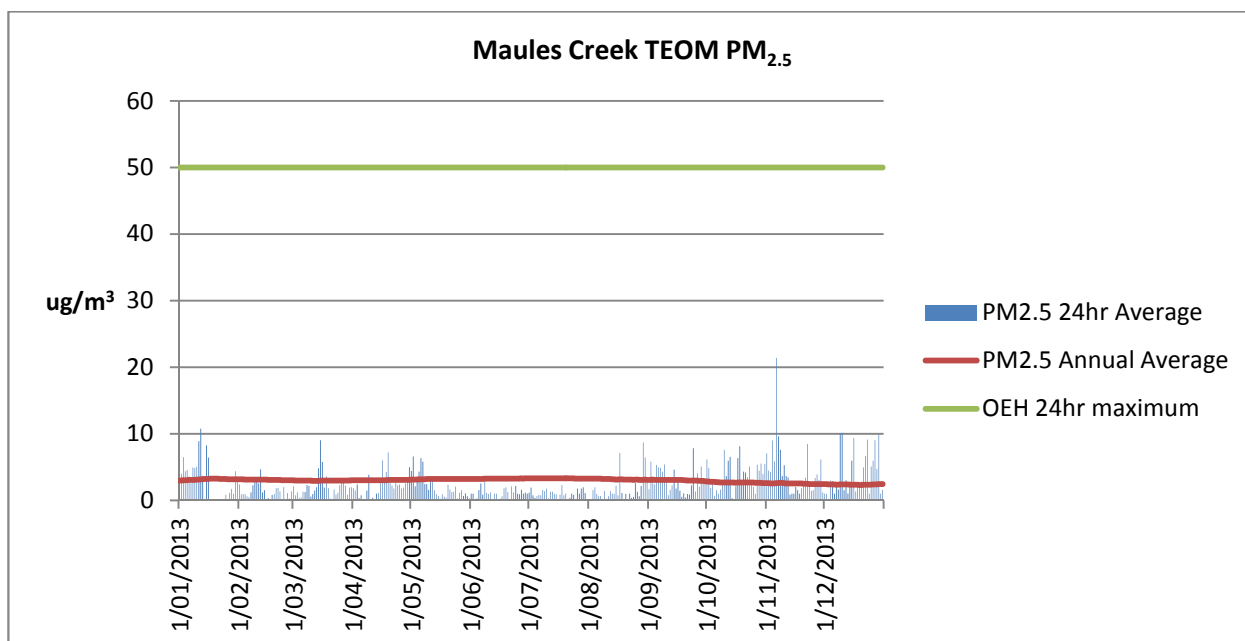
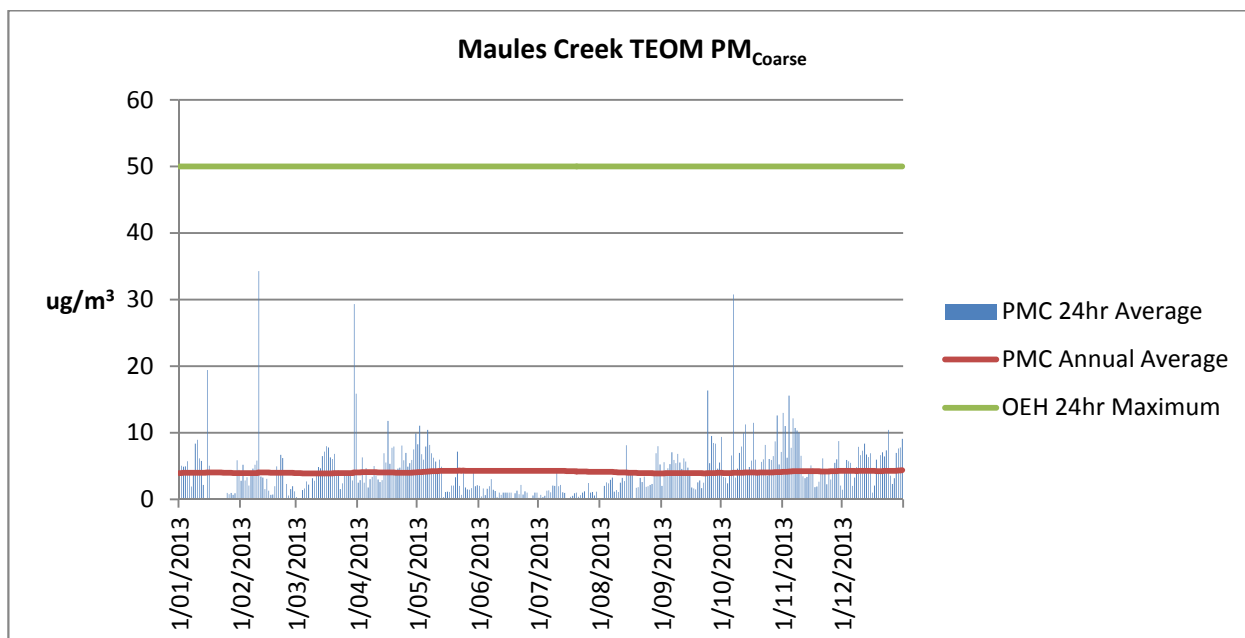


Figure 3.2.8: PM_{coarse} Results from Maules Creek TEOM




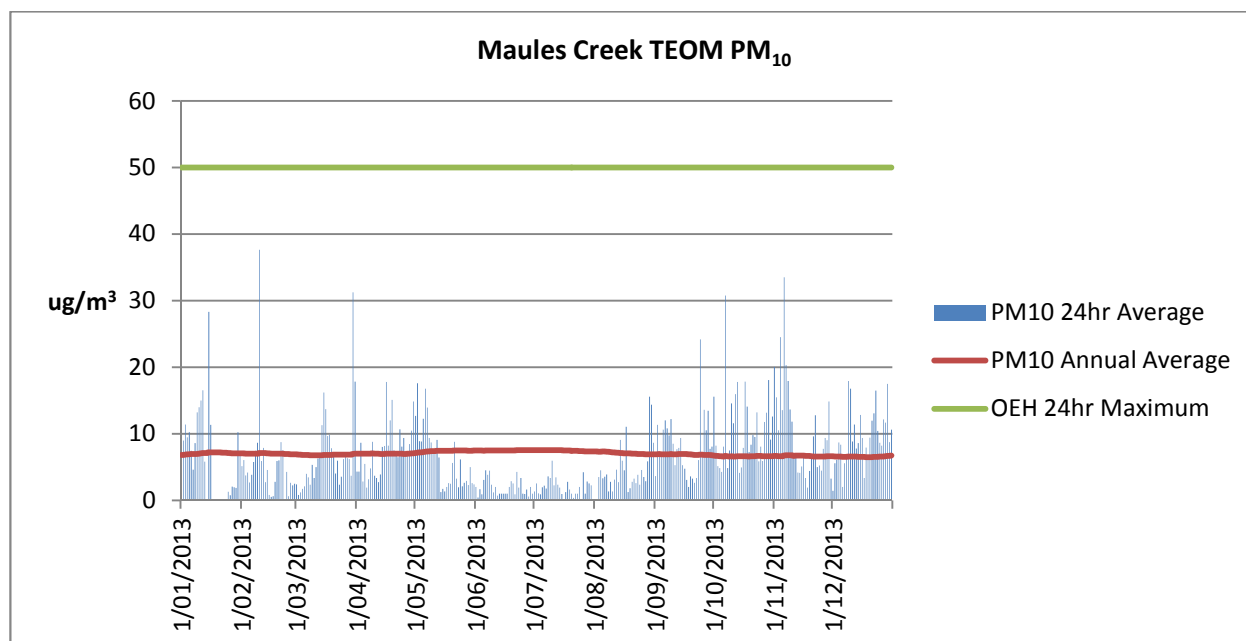
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Figure 3.2.9: PM₁₀ Results from Maules Creek TEOM



All measured results remain below the respective criteria for the MCCM. A general increase in measured particulate levels for all three categories throughout the period August to November 2013 is considered to reflect the dry conditions affecting the region at the time, with corresponding region-wide increase in background dust levels from all likely sources in the surrounding area.

3.2.5 Cumulative Impacts


PA 10_0138 requires the coordination of air quality management strategies of mine sites within the Leard Forest Mining Precinct to minimise the cumulative air quality impacts of the mines, as well as the development of a Leard Forest Mining Precinct Air Quality Management Strategy (refer **Section 5.1** of the AQGGMP). The Precinct Air Quality Management Strategy (PAQMS) is still being finalised and relevant sections of this plan will be updated as required following the staged implementation of the strategy. The PAQMS will be subject to ongoing review dependent upon the status of other mining projects.

A second PM₁₀ monitor is located on the “Merriown” property, to the south of the MCCM, which is operated by Boggabri Coal Pty Ltd. On commencement of operations at the MCCM, data from this source will be combined with the Tralee data and used as a cumulative impact monitor for the Boggabri, Tarrawonga, Maules Creek Complex (BTM).

A significant factor contributing to visible dust in the wider valley area is dust generation from gravel roads. Since commencement of construction works, a water cart has been used daily as required on Therribri Road to control dust generation by MCCM-related traffic.

3.2.6 GHG Emissions

Issues related to Greenhouse Gas (GHG) emissions are reported in **Section 3.12** of this Annual Review.

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3.2.7 Spontaneous Combustion

Spontaneous combustion events have the potential to give rise to odour impacts. A Spontaneous Combustion Management Plan will be developed for the MCCM prior to the stockpiling of coal. This plan will outline management and mitigation measures to reduce the potential for spontaneous combustion events. As no extraction or exposure of in-situ coal has occurred to date, this issue is not considered further in this report.

3.2.8 Review of Performance

The objectives of the AQGGMP are in accordance with the conditions in PA 10_0138 and those relevant to air quality (excluding GHG) are summarised in **Table 3.2.2**.

As limited construction works were conducted during 2013, an assessment of the MCCM's performance in regard to air quality is not warranted in this document, however an assessment will be conducted as part of the next Annual Review.



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Table 3.2.2: Air Quality Objectives and Performance Indicators

Objectives	Requirement	Performance Indicator	Target
Implement best management practice to minimise the off-site odour, fume and dust emissions of the MCCM.	No offensive odours emitted from the site.	Number of odour complaints received.	Zero complaints
	No exceedance of the air quality impact assessment criteria listed in the Project Approval at any residence on privately-owned land or on more than 25% of any privately owned land.	Air quality monitoring data does not exceed impact assessment criteria. ¹	To comply with the relevant impact assessment criteria
	No exceedance of the land acquisition criteria listed in the Project Approval.	Air quality monitoring data does not exceed land acquisition criteria.	Zero
	Strategies within the AQGHGMP are comparable to established best practice.	Dust management measures in place.	Dust management measures meet or exceed best practice.
	Minimise air quality complaints from the community.	Number of air quality complaints from the community.	Decrease number of complaints received over time.
	Minimise visible off-site air pollution	Opacity determined by visual observation	Visible dust leaving site less than 20% opacity
	Minimise the surface disturbance	Actual surface disturbance in accordance with mine operation plan (MOP)	No additional disturbance as per MOP
Manage PM _{2.5} levels in accordance with any requirements of the EPL.	No exceedance of the PM _{2.5} criteria listed in the EPL	Air quality monitoring data does not exceed the PM _{2.5} criteria listed in the EPL.	To comply with the PM _{2.5} criteria listed in the EPL.
Minimise the air quality impacts of the MCCM during adverse meteorological conditions and extraordinary events.	Air quality management system including predictive meteorological forecasting	Preparatory measures are put in place for adverse meteorological conditions. Measures will include planning maintenance, booking additional water carts, relocating activities. Review of all onsite activities during extraordinary events.	Modify operations during adverse conditions, as required. The predictive management system will log and report all actions taken during adverse conditions
Continual improvement in dust management.	Introduce new/improved dust management measures as opportunities arise.	New/improved measures adopted.	N/A

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3.3 Noise Management and Performance

The MCCM is located in a quiet rural area at some distance from major sources of background noise such as arterial roads or other industrial developments. The Boggabri Coal Mine is located approximately 3 km to the south of the MCCM. Background noise monitoring completed for the MCCM has indicated background levels regularly occur below 30 dBA during all time periods at all monitoring locations.

The Noise Impact Assessment conducted for the MCCM (Bridges Acoustics, 2011) as described in **Section 7.3** of the Maules Creek EA (Hansen Bailey, 2010a) included an assessment of construction noise impacts. This assessment was based on the worst case scenario for construction activities (assuming certain activities being undertaken concurrently) and also considered prevailing weather conditions for comparison of predicted noise levels against the relevant criteria.

The earthmoving phase for each construction project typically produces the highest sound power level and is therefore considered in this assessment. The following components were included in the construction noise assessment which, would most likely occur simultaneously and would therefore represent a worst case assessment:

- water pump station, power supply and pipeline;
- permanent Mine Access Road and rail spur;
- water management structures including dams;
- power supply to the MCCM;
- Mine Infrastructure Area (MIA) including offices, workshop, fuel storage and bathhouse; and
- CHPP.


The Noise Impact Assessment (Bridges Acoustics, 2011) confirmed the potential for adverse noise impacts to be experienced to some sensitive receivers located adjacent to the proposed rail spur and the water supply pipeline. It is noted that the construction for the rail spur adjacent to these residences is being undertaken by Boggabri Coal Pty Ltd. The Bridges Acoustic (2011) assessment of construction noise indicated that the construction noise criterion would potentially be exceeded on occasions at the following receivers:

- Receiver 264 – Due to Therribri Road upgrade work;
- Receiver 236 – Primarily from water pipeline construction work with a minor contribution from rail spur construction work; and
- Receiver 225 – Primarily from water pipeline and pump construction work.

These sensitive receivers have been consulted with in relation to the potential noise impacts and have either been purchased or are currently negotiating noise mitigation measures line with the relevant conditions of PA 10_0138.

All other sensitive receivers are either expected to also be affected by noise from operation of the MCCM or would remain unaffected by the proposed construction works.

A Noise Management Plan (NMP) has been prepared in accordance with conditions 16 and 25 of Schedule 3 of PA 10_0138. The aim of the NMP is to manage project specific and cumulative noise impacts associated with the construction and operational phases of the MCCM. The NMP has been prepared in consultation with the EPA, and has been approved for implementation during the construction phase of the MCCM.

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The objectives of the NMP are to:

- ensure that construction noise, operational noise and vibration from MCCM are minimised;
- maintain compliance with conditions of the development approval, environmental protection licence and legislation relating to noise;
- provide a protocol for monitoring and evaluation of noise impacts on surrounding private residences and sensitive receivers;
- manage project specific and cumulative noise impacts associated with the MCCM mining operations; and
- communicate with the local community and regulators regarding MCCM activities.

The management and performance of noise and vibration related to construction blasting activities is addressed in **Section 3.4** below.

Contractor CEMPs are designed and implemented to address specific noise controls on plant and machinery and related construction noise management issues. Measures used on-site during the reporting period include the use of effective silencers, reversing alarms, restrictions on out-of-hours work, regular monitoring of noise levels from specific plant activities, switch off policies for machinery not in use and by following plant service and maintenance programs.

3.3.1 Noise Monitoring

Construction noise and vibration levels are required to be measured on a monthly basis at residences in close proximity to the construction activities that MCCM has agreements for access to. However, the monitoring locations will change throughout the construction phase, depending on the timing and location of the various component activities. Various real time monitoring units will also be installed during the construction phase and prior to operations. Once the real time monitoring units have been installed and commissioned, they will also be used to manage and monitor noise emissions from the construction activities.

Operational noise levels are to be measured continuously at strategic locations around the site using unattended equipment, and, by attended monitoring at regular intervals. The planned number and location of monitoring units is shown in **Figure 3.3.1**.

Attended monitoring is the methodology for determining compliance with prescribed limits; since it allows an accurate determination of the contribution by activities associated with the MCCM, if any, to measured noise levels.

Unattended monitoring data allows management by site staff if and when noise issues arise. It also provides a history that can be used to identify trends and is useful for management, planning and decision-making related to noise control.

Both forms of monitoring can quantify cumulative mining noise.


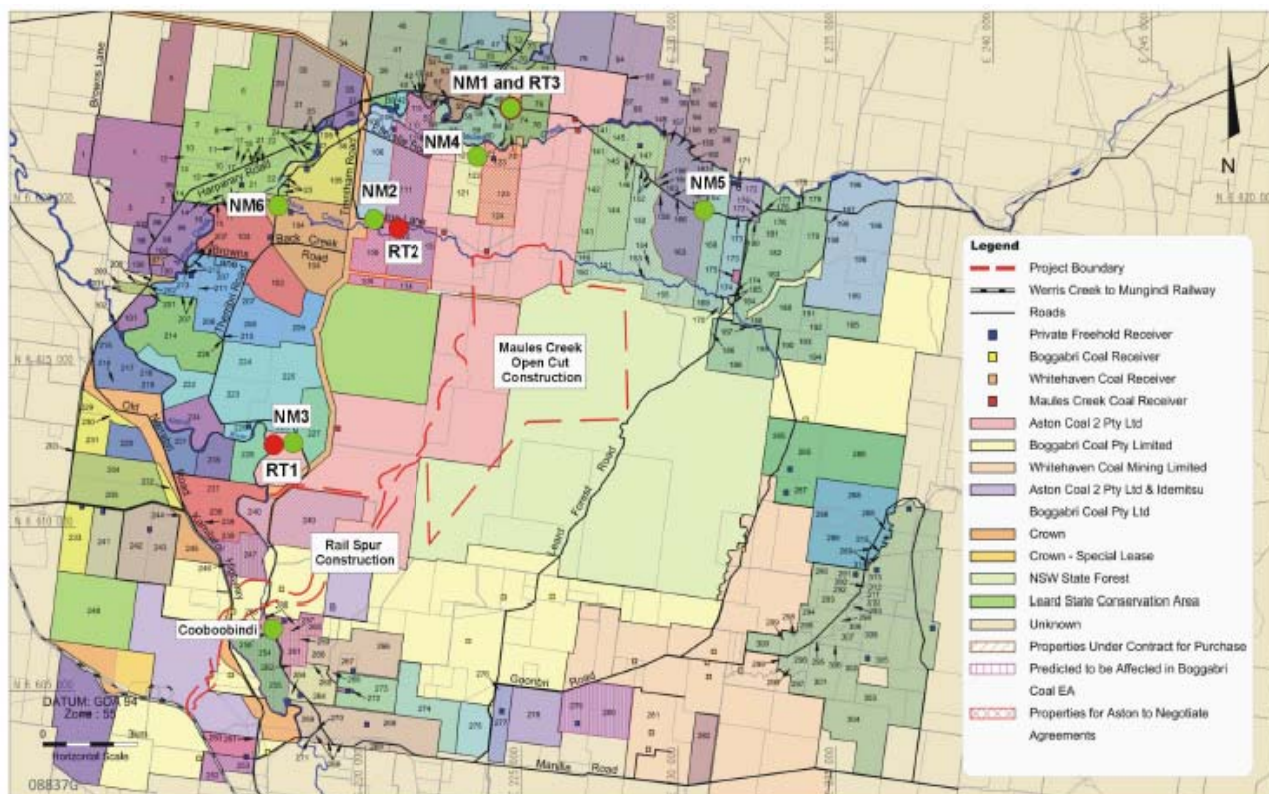
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Figure 3.3.1: Construction Noise Monitoring Locations



Unattended Monitoring


Continuous unattended ('real time') noise monitoring is required as a management tool to satisfy the requirements of *Schedule 3, Conditions 15 b) and e) and Condition 16 b)*, of PA 10_0138. However, results from the real time monitoring system are not used to determine compliance, since the noise levels recorded do not represent only noise from the MCCM but noise from all sources. Compliance is the measured performance of the site relative to compliance limits. Any modifications to the site operations as a result of real time noise monitoring are to be documented. A network of real-time monitors will be used to monitor and manage operational noise, and will be commissioned prior to the commencement of 24 hour operations.

Attended Monitoring

Attended monitoring is required to assess compliance with regulatory limits. The limits relevant to construction activities being undertaken during the reporting period cover the following aspects:

- Construction noise: Noise from road and rail construction; and
- Construction vibration: Vibration, not from blasting, from road and rail construction.

Construction noise and vibration monitoring is required to be undertaken one day per month. Noise monitoring is to be conducted at the nearest residences to the activity that MCCM has an agreement to access within 2 km of construction current at that time. Vibration monitoring is only required at residences within 500 m of construction current at that time. These locations are to be determined in consideration of the location of works at the time of monitoring and the requirement has not been triggered during the present reporting period.

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3.3.2 Review of Performance

Conditions 4 to 6 of Schedule 3 of PA 10_0138 address the construction noise requirements and these are reproduced below.

Construction Noise and Vibration Criteria – Maules Creek and Boggabri Shared Rail Spur Lines

4. During the hours of:
- 7 am to 6 pm Monday to Fridays, inclusive;
 - 8 am to 1 pm on Saturdays; and
 - at no time on Sundays or public holidays,
- noise from activities associated with the construction and/or upgrade of the Maules Creek rail spur line and shared section of the Boggabri rail spur line shall meet the criteria in Table 4.

Table 4: Rail spur line construction noise criteria dB(A)

Location Property/ID	Construction Noise Criteria
	Day dB(A) $L_{Aeq}(15 \text{ min})$
256	50
259	45
All other privately-owned residences	40

Note: To interpret the locations referred to in Table 4, see the applicable figure in Appendix 4.


5. Vibration from activities associated with the construction and/or upgrade of the Maules Creek rail spur line and shared section of the Boggabri rail spur line shall comply with the following:
- for structural damage, the vibration limits set out in the German Standard *DIN 4150-3: Structural Vibration - effects of vibration on structures*; and
 - for human exposure, the acceptable vibration values set out in the *Environmental Noise Management Assessing Vibration: A Technical Guideline* (Department of Environment and Conservation, 2006).
6. If the Proponent proposes to undertake any construction works associated with the Maules Creek rail spur line (and shared section of the Boggabri rail spur line) outside the hours specified above, then the Proponent must prepare and implement an Out of Hours Work protocol for these works to the satisfaction of the Director-General. This protocol must be prepared in consultation with the EPA and the residents who would be affected by the noise generated by these works, and be consistent with the requirements of the *Interim Construction Noise Guideline* (Department of Environment and Climate Change, 2009). The Proponent shall not carry out any out of hours construction works before this protocol has been approved by the Director-General.

Note: For areas where construction noise from the Maules Creek rail spur line and shared section of the Boggabri rail spur line is predicted to be at or below 35 dB(A) and/ or below operational noise criteria at sensitive receptors, this is likely to provide sufficient justification for the need to operate outside of recommended standard hours as specified in the ICNG.

Monthly attended noise monitoring of construction activities commenced in January 2014. Results of the attended noise monitoring will be reported in the next Annual Review.

3.3.3 Cumulative Noise

Assessment of the noise contributions from the MCCM's construction works and their relationship with noise generated by the adjacent operational mines have not yet commenced. This will occur during the 2014 reporting period.

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3.3.4 Activities Next Reporting Period

Modifications to the noise monitoring program during the next reporting period will reflect the transition from construction activities towards mining operations later in 2014. Independent noise studies and acquisitions of properties will be considered on a case by case basis.

The installation of real-time monitoring facilities will also be addressed during the next reporting period with the adequacy and performance of the protocol to be reported in the next Annual Review.

3.4 Blast Management and Performance

Blasting will be required during construction of the MCCM to fragment shallow bedrock to permit removal by earth moving machinery. It has been predicted that construction blasting will generate detectable overpressure and vibration at privately owned residences. PA 10_0138 defines a blast as a single blast event, which may involve a number of individual blasts fired in quick succession in a discrete area of the mine.


Blasting generates noise (i.e. overpressure or air blast) and vibration, which can be detectable at residential receptor locations. Vibration levels may also impact infrastructure in proximity to the site. At times, blasting may also generate fume (coloured gas emissions), which can result in adverse community reaction, and has the potential to be harmful to human health.

The Noise Impact Assessment conducted as part of the Maules Creek EA by Bridges Acoustic (2011) predicted blast vibration associated with construction activities to be well below criteria for all privately owned residences. Similarly, overpressure was predicted to be less than criteria, although the Maules Creek EA (Hansen Bailey, 2010a) did indicate that throw blasts (not anticipated in construction phase) have the potential to exceed. However, this was only for residences likely to be acquired due to noise affectation and the EA showed no overpressure exceedances are likely for more distant receptors, regardless of blast type.

A Blast Management Plan has been developed for the MCCM construction works that details the management measures and monitoring to be undertaken to ensure the MCCM complies with conditions of PA 10_0138.

3.4.1 Blast Monitoring

Blast monitoring commenced in February 2014. Results of blast monitoring will be reported in the next Annual Review.

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3.5 Site Water Management and Performance

A Water Management Plan (WMP) has been developed for the MCCM. It details the management measures and monitoring to be undertaken to ensure the MCCM complies with the relevant conditions of PA 10_0138.

3.5.1 Surface Water Monitoring Network

The MCCM surface water monitoring network described in the WMP consists of four main components:

- scheduled (monthly and quarterly) monitoring;
- event based monitoring;
- discharge based monitoring; and
- geomorphological monitoring.

The MCCM surface water monitoring network, frequency and parameters is summarised in **Table 3.5.2** and shown in **Figure 3.5.1** below. A number of the listed locations are associated with the monitoring of operational storages and waste rock emplacements not yet commissioned as part of the MCCM. Monitoring of these locations has therefore not yet commenced (SW9, SW10 and SW11). In addition, components of the network, such as the flow meters in Back Creek and the Namoi River have not yet been installed. For this reporting period, use has been made of the data available on the NSW Office of Water (NOW) website. It is anticipated that the full monitoring program described in **Table 3.5.2** will be implemented throughout 2014, as each component is commissioned.


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Table 3.5.2: Maules Creek Surface Water Monitoring Parameters

Location		Parameters	Frequency
Maules Creek	SW1	Suite 1	Daily during runoff events
	SW2	Suite 2	Monthly if flowing
Namoi River	SW5	Flow ^a	Continuous
		BTM Complex Monitoring Suite	Monthly until baseline established, then quarterly
			+ Daily during runoff events
	SW6	Suite 1	Monthly
	SW7		
	SW8	Flow ^a	Continuous
		BTM Complex Monitoring Suite	Monthly until baseline established, then quarterly
			+ Daily during runoff events
Back Creek	SW4	Flow ^a	Continuous
		BTM Complex Monitoring Suite	Monthly until baseline established, then quarterly
			+ Daily during runoff events
	SW3	Suite 2	Daily during runoff events
	SW10		
	SW9	Flow ^a	Continuous
		BTM Complex Monitoring Suite	Quarterly
			+ Daily during runoff events
Site Clean Water Discharge Point	SW11	Suite 2	Daily during runoff events
Mine Water Dam		Suite 2	Monthly
Raw Water Dam & Sediment Dams		Suite 2	Monthly until baseline established, then quarterly
Sediment Dam overflows		Suite 1 + Oil & grease	Daily during overflows
Pit Water Seepage		Suite 2	Quarterly
Emplacement Seepage		Suite 2	Quarterly

Suite 1 = pH, EC, TSS, TDS, Turbidity.

Suite 2 = Suite 1 + Major Anions, Major Cations, Alkalinity, Metals, Total Nitrogen, Total Phosphorus.

^a Rating curve to be developed to convert recorded water levels to flow rates.


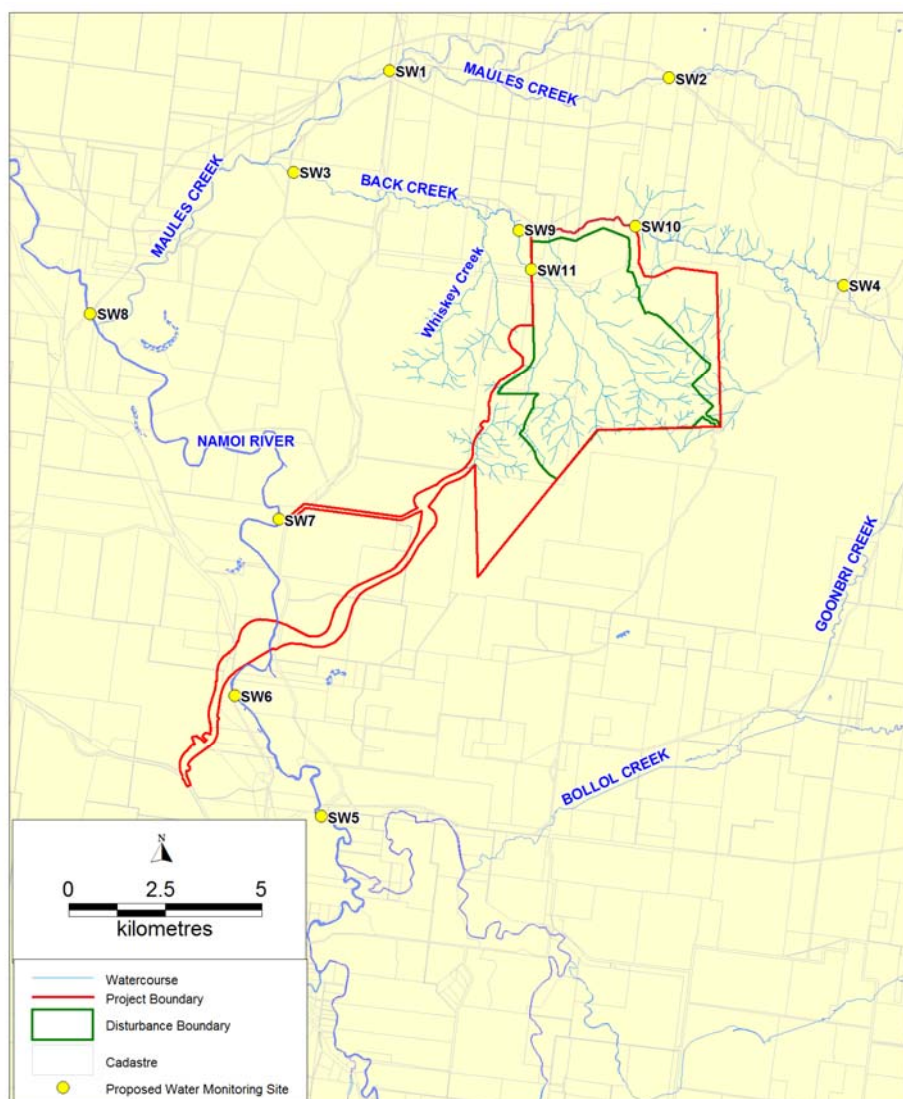
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Figure 3.5.1: Surface Water Monitoring Locations




3.5.2 Surface Water Impact Assessment Criteria

Preliminary Trigger Values (PTVs) for twenty six key water quality parameters for Maules Creek, Back Creek and the Namoi River have been proposed in the WMP (**Appendix E, Table E.1**). Where insufficient data is available, ANZECC eco-system trigger values have been adopted (eleven parameters). Trigger values have been proposed using background data for fifteen parameters. The adopted trigger values will be refined based on further sampling to be undertaken prior to commencement of the operational stages of the MCCM.

3.5.3 Surface Water Monitoring Results

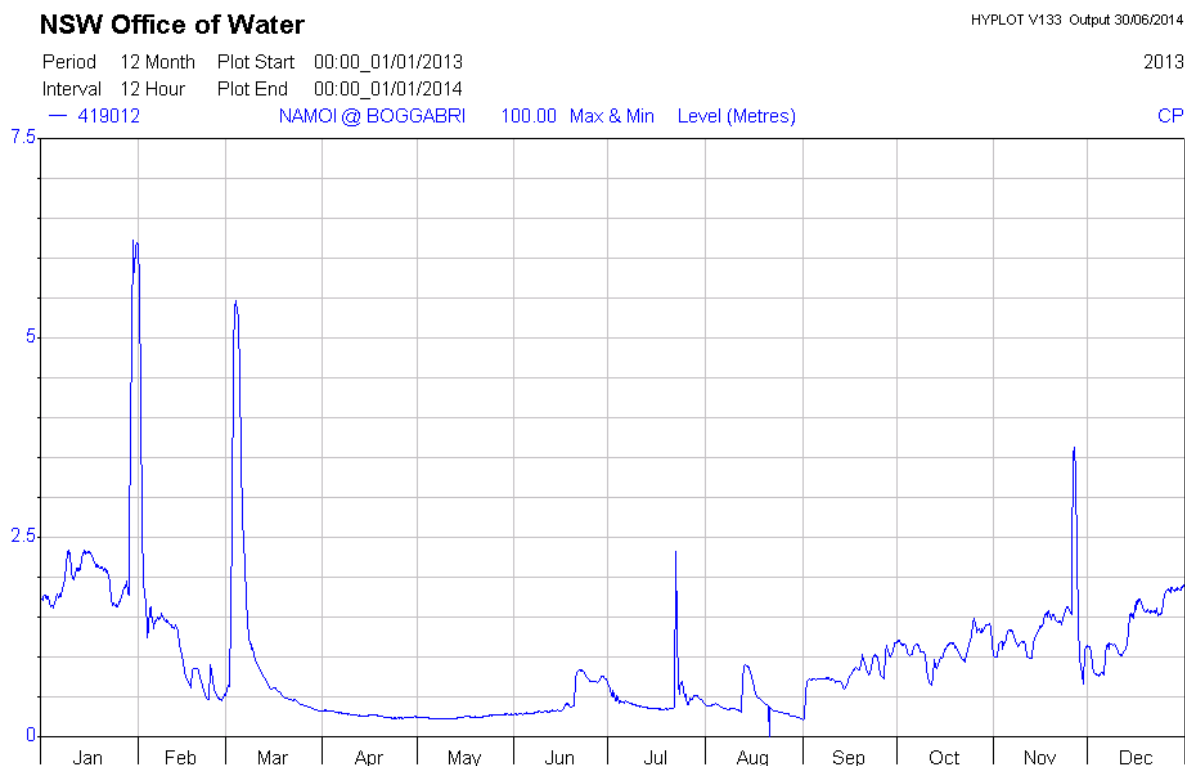
Monitoring during the 2013 reporting period has been restricted to the scheduled monitoring of ambient (receiving) waters and establishment of the base line conditions of receiving creeks and rivers for geomorphological monitoring.

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Of the eight surface water monitoring locations sampled on a monthly basis during the reporting period, two are on Maules Creek (SW1 and SW2), two are on Back Creek (SW3 and SW4) and four are on the Namoi River (SW5 to SW8). Water levels in the Namoi River adjacent to SW5 are presented in **Figure 3.5.2** using data from NSW Government website (www.waterinfo.nsw.gov.au). Note that throughout the reporting period, flow in the Namoi River has been largely dictated by water releases from the Keepit Dam. No flow data is available from either Maules Creek or Back Creek, and at three of the monitoring locations (MW2, MW3 and MW4), there has been little or no surface water flow throughout the reporting period. Maules Creek above MW1 is fed by a spring and has experienced continuous flow throughout the monitoring period.

Physical parameters measured as part of this monitoring are detailed below in **Figures 3.5.3 to 3.5.8**. Additional results are provided in **Appendix E**.

Figure 3.5.2: Mean Monthly Water Level in Namoi River at Boggabri




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Figure 3.5.3: MCCM Surface Water pH Levels

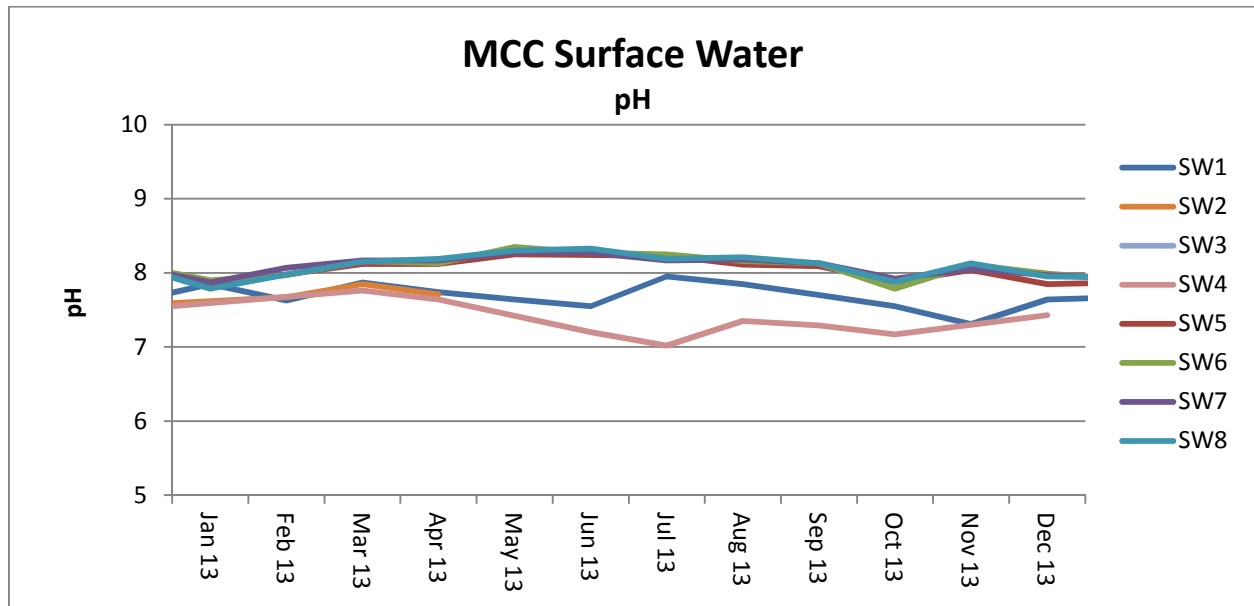
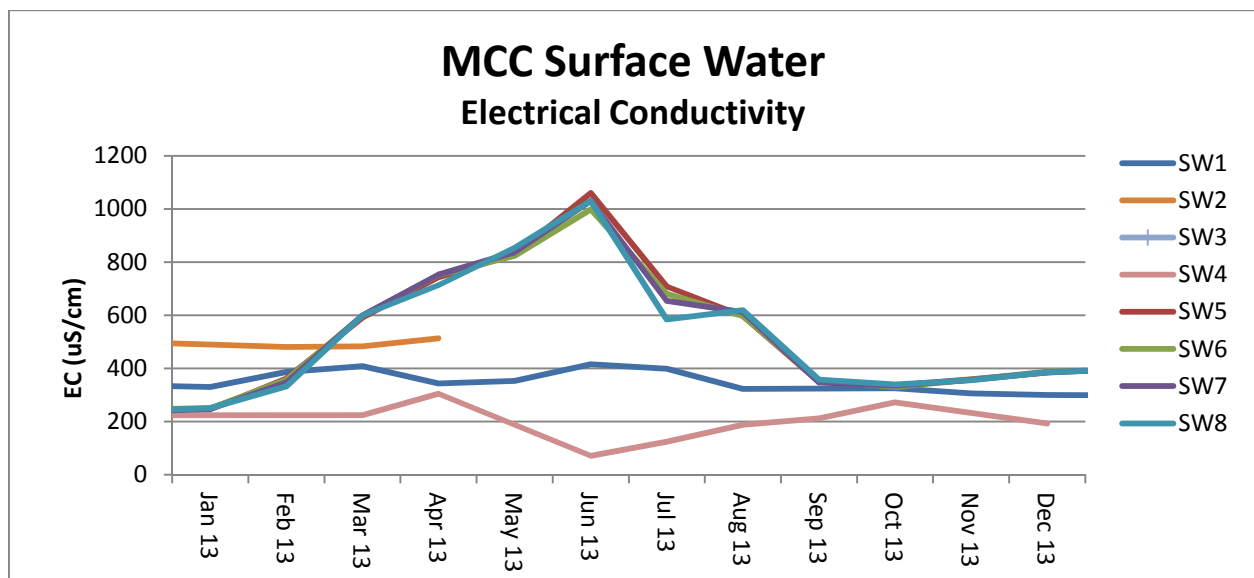



Figure 3.5.3 displays the variation in measured pH levels at surface water monitoring locations throughout the 2013 reporting period. The results from the four Namoi River locations (SW5 – SW8) follow each other closely and appear to display a slight seasonal variation. The other results follow a slightly more erratic pattern, and may reflect the very low water conditions experienced. All results fall within the respective PTVs of 6.5 (minimum) and 8.0 (BC/MC) to 8.7 (NR) (maximum).

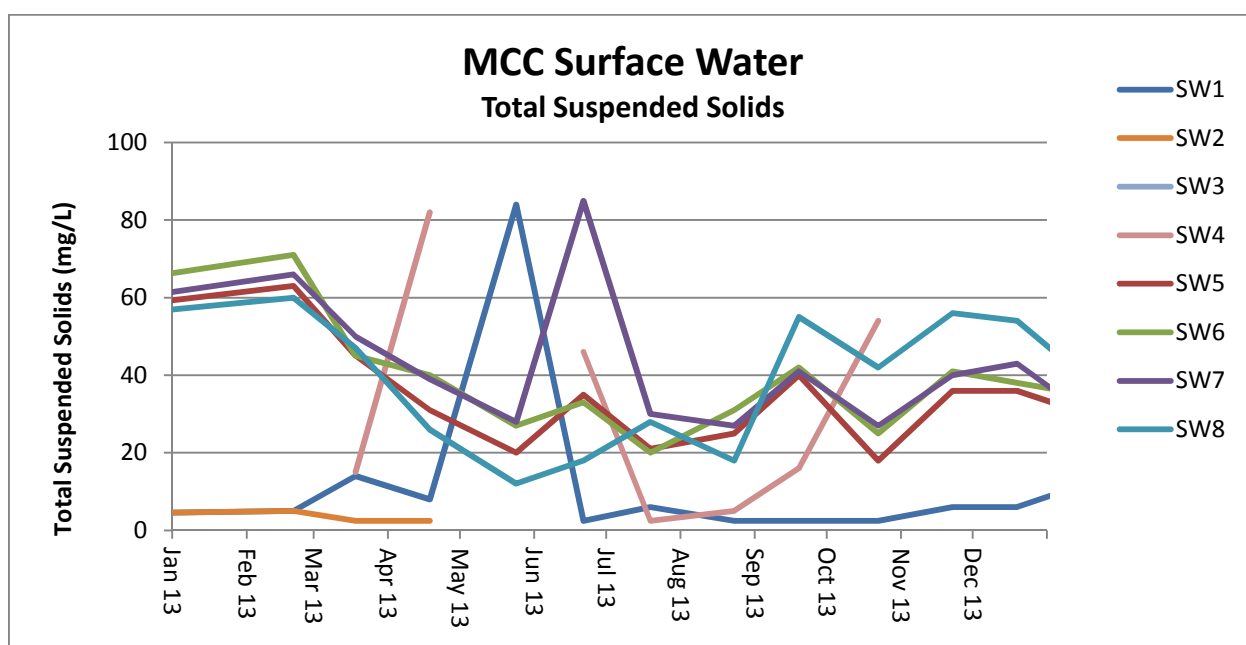
Figure 3.5.4: MCCM Surface Water Electrical Conductivity Levels



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Measured Electrical Conductivity (EC) levels recorded at monitoring points along the Namoi River peaked during winter 2013, significantly above historical averages. This may reflect the very low flow volumes associated with an extended dry period experienced by the entire region. The release of water from Keepit Dam from August 2013 onwards returned EC concentrations to more typical levels. The PTV for Namoi waters is 500 microsiemens per centimetre ($\mu\text{S}/\text{cm}$), which was exceeded from March to September 2013 at all four locations. The measured results for Maules Creek (SW1) were generally below the PTV of 400 $\mu\text{S}/\text{cm}$. Location SW2 dried up during May 2013. The results obtained from Back Creek (SW4) remained below the PTV of 350 $\mu\text{S}/\text{cm}$.

Figure 3.5.5: MCCM Surface Water Total Suspended Solids Levels



Measured Total Suspended Solids (TSS) levels in the Namoi River have fluctuated slightly throughout the reporting period, with one minor peak during the first half of the year possibly reflecting stock activity. The release of water from Keepit Dam appears to coincide with a slight rise in TSS levels. Levels in the Namoi River have generally remained below the PTV of 80 milligram per litre (mg/L).

The PTV for Back Creek and Maules Creek (30 mg/L) has been exceeded on a number of occasions, at SW4 (Back Creek), where flow volumes were very low to zero, and once at SW1 (Maules Creek).

There were no significant surface water run-off events recorded during the period covered by the monitoring results depicted.


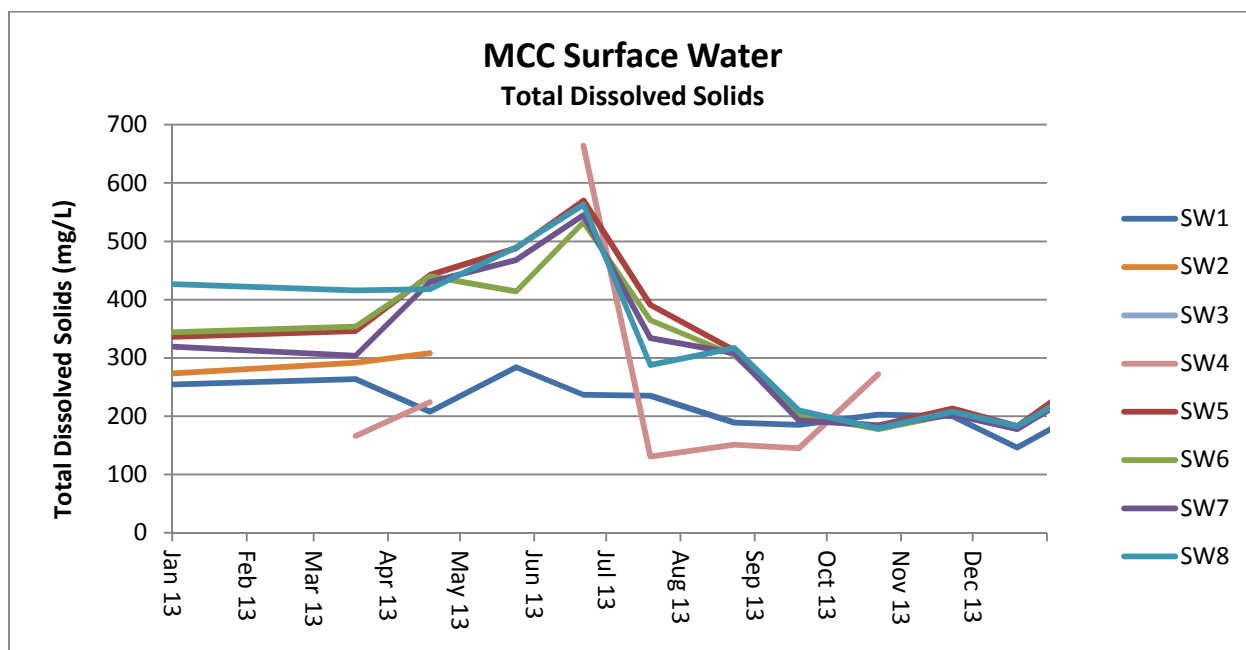
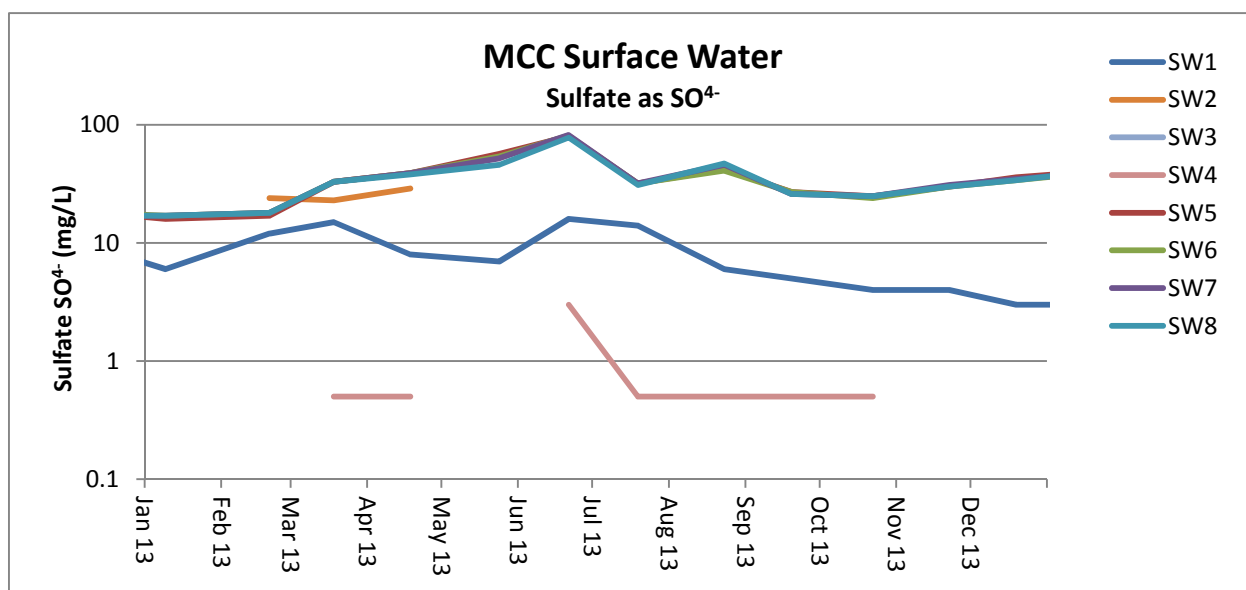
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Figure 3.5.6: MCCM Surface Water Total Dissolved Solids Levels



Total Dissolved Solids (TDS) levels measured within the Namoi River peaked during the winter months and dropped off as the water release from Keepit Dam took place. Between April and Jun 2013 results were consistently above the PTV of 400 mg/L. Results for Maules Creek (SW1) remained relatively consistent, and below the 300 mg/L PTV for this location. Measurements from Back Creek were erratic and reflect the absence of water flow experienced during the reporting period, with water disturbance likely due to stock activity in remnant pools.

Figure 3.5.7: MCCM Surface Water Sulphate Levels (note log scale used)




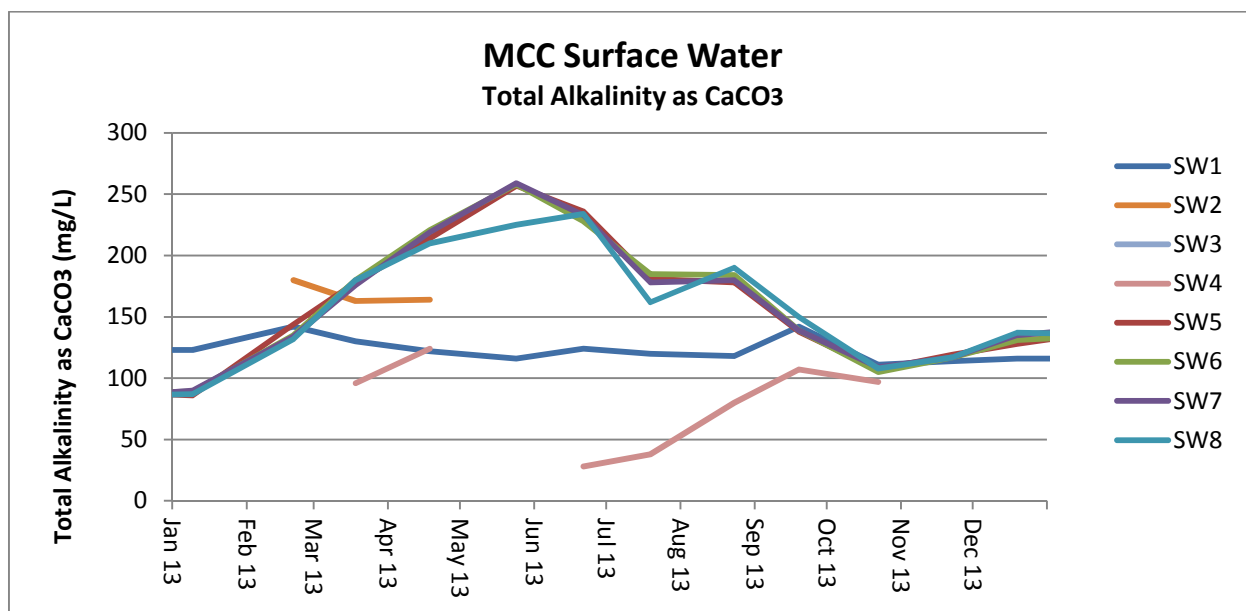
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Figure 3.5.8: MCCM Surface Water Total Alkalinity Levels



Sulphate levels in Namoi River exceeded the PTV of 40 mg/L between May and August 2013. Sulphate levels in Maules Creek (SW1) remained below the relevant PTV of 30 mg/L. Similarly, in the samples from Back Creek (SW4), measured levels remained below the relevant PTV of 10 mg/L throughout the monitoring period.

A pronounced seasonal trend in measured alkalinity levels is noted for the Namoi River locations, possibly also reflecting the discharge of water from Keepit Dam. No such pattern is apparent from the limited data obtained from Maules Creek and Back Creek. There are no PTVs in place for alkalinity levels.

Additional monitoring results from these locations, including metals, and covering a more extensive period, are provided in **Appendix E**.


As MCCM construction works commenced during December 2013, those exceedances of the PTVs described in the above paragraphs are unrelated to site activities. For this reason, no supplementary investigations have yet been undertaken. An appraisal of available monitoring data will be made during the revision of the WMP, to determine which Trigger Values (if any) may require adjustment to reflect background variations within the drainage system.

Baseline surveys of the downstream drainage system commenced during October 2013, with assessments of the Back Creek existing geomorphological condition at accessible monitoring locations. Access to the remaining sites on private properties will be arranged during the next reporting period.

3.5.4 Activities in the Next Reporting Period

The proposed surface water management and monitoring activities that are scheduled to occur in the next reporting period are as follows:

- submission of the updated WMP for approval;
- refinement of surface water trigger values; and
- commence operational monitoring in compliance with the approved WMP.

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3.5.5 Groundwater Monitoring Network

During the reporting period the existing MCCM groundwater monitoring network was updated through the installation of eight additional groundwater monitoring bores within and around the proposed MCCM operations for the following purposes:

- to form the BTM complex monitoring network;
- to confirm the extent of regional groundwater drawdown caused by the cumulative mining in the Leard State Forest, Leard State Forest Conservation Area and surrounding region; and
- to validate the site groundwater model and predictions made in the Maules Creek EA (Hansen Bailey, 2010a).

To coincide with installation of the BTM network, additional monitoring bores were installed to replace existing bores that were due to be removed by mining operations in accordance with the WMP. During this process it was also decided that bores recording high alkalinity due to cement grout ingress would also be replaced as they were deemed unsuitable for ongoing water quality monitoring.

The combined network has been designed in consultation with NOW and, once complete, will comprise seventeen open hole monitoring bores (standpipes) and eleven nested VWPs.

To monitor potential impacts on groundwater levels in surrounding private properties, MCC has in consultation with landholders implemented a private bore monitoring network.

As of September 2013, all boreholes listed within **Table 3.5.2** have been monitored for standing water levels (SWL) monthly and physical parameters/chemistry six monthly. Prior to this all boreholes were monitored on a monthly basis for scheduled analytes and SWL. Monitoring has not yet commenced on those boreholes forming part of the BTM and private monitoring bore network due to bore establishment requirements and access restrictions to private land.

The network general arrangement is shown as **Figure 3.5.9** and detailed in **Tables 3.5.2** to **3.5.5** below.


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Table 3.5.2: Existing Monitoring Boreholes

Drill Hole ID	Type	Screen or VWP Depth (mBGL)	Screen or VWP Zone Geology
MAC252	Standpipe	92.5 – 98.5	Braymont Seam
MAC1218	Standpipe	107 – 110	Nagero, Upper/Lower Northam, Therribri and Flixtion Seams
MAC1219	Standpipe	107 – 110	Jeralong and Merriown Seams
MAC1259	Standpipe	94 – 97	Boggabri Volcanics
MAC1261	Standpipe	161 – 164	Braymont Seam
MAC1279	Standpipe	70 – 73	Jeralong Seam
MAC1280	Standpipe	56 – 59	Conglomerate/ Interburden
MAC1283	Standpipe	61 – 64	Velyama Seam
MAC263	VWP	105 183	Braymont Seam, Velyama, Nagero, Upper Northam
MAC267P	VWP	154 260	Braymont Seam, Velyama, Nagero, Upper Northam
MAC268P	VWP	280	Velyama, Nagero, Upper Northam

Table 3.5.3: Replacement Monitoring Boreholes

Drill Hole ID	Type	Screen or VWP Depth (mBGL)	Screen or VWP Zone Geology
RB01	VWP	97	Braymont
		140	Merriown
		194.5	Flixtion
RB01a	Standpipe	220.5	Templemore Seam
RB02	VWP	110	Braymont
		162	Merriown
		225	Nagero
RB02a	Standpipe	234	Nagero
RB03	VWP	164	Braymont
		242	Merriown
		289	Nagero
		317	4.Templemore
RB04	VWP	209	Braymont
		272.5	Merriown
		309	Nagero
		339	4.Lower Northam
RB05	VWP	107	Braymont
		213	Jeralong
		280	Nagero
		382	4.Templemore
RB05a	Standpipe	246.5	Merriown


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Table 3.5.4: BTM Cumulative Monitoring Network

Drill Hole ID	Type	Screen or VWP Depth (mBGL)	Screen or VWP Zone Geology
BCM01	Standpipe	10	Alluvium
BCM03	Standpipe	10	Alluvium
Reg1	VWP	118.7 134.5 193.5 281.5	Jeralong Merriown Nagero Therribri Upper
Reg2	VWP	60 120 200 260	Leard formation
Reg3	Standpipe		Boggabri Volcanics
Reg4	Standpipe	72.5	Boggabri Volcanics
Reg5	Standpipe	78.7	Boggabri Volcanics
Reg5a	Standpipe	22	Alluvium
Reg6	Standpipe	96	Boggabri Volcanics
Reg7 ¹	VWP	67.5 148.2 242.5	Braymont ¹ Merriown ¹ Nagero ¹
Reg7a	Standpipe	36	Alluvium
Reg8 ²	VWP	91.50 221 274	Braymont Middle Merriown Nagero
Reg9 ¹	VWP	115.75 175.2 269.5	Braymont ¹ Merriown ¹ Nagero ¹
Reg10	VWP	55 144.2 178 185.5	Braymont Merriown Nagero Upper Northam
Reg10a	Standpipe	10	Alluvium
Reg11 ²	Standpipe		Boggabri Volcanics
Reg11a ²	Standpipe		Alluvium
Reg12	Standpipe	48.3	Boggabri Volcanics
Reg13	Standpipe	133	Boggabri Volcanics
Reg14	Standpipe	102	Alluvium


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Table 3.5.5: Private Monitoring Bore Network

Work No.	Land Ownership	Usage	Bore Depth (m)
GW000583	MJ Brennan ^{##}	Stock	98.7
GW020434	Boggabri Coal	Monitoring	85.3
GW002748	Aston Coal 2 Pty Limited	Stock	72.2
GW002831	PF Murphy ^{##}	Stock	33.2
GW003115	Boggabri Coal	Monitoring	82.9
GW003466	VA and MA Younger [†]	Stock	50
GW003478	DJC Watson [†]	Stock and domestic	33.8
GW003483	DJC Watson [†]	Stock	32.9
GW003489	MJ & ML Nott [†]	Stock and domestic	45.4
GW006529	Aston Coal 2 Pty Limited		34.7
GW006567	PF Murphy ^{##}	Stock	59.1
GW008221	Aston Coal 2 Pty Limited	Cannot locate	108.2
GW008255	MJ Brennan ^{##}	None	91.4
GW001869	CM & RRF Morse ^{##}	No access	63.1
GW020607	JM Morris ^{##}	No access	29.9
GW028893	Aston Coal 2 Pty Limited	Stock	54.9
GW028894	Aston Coal 2 Pty Limited	Stock	48.8
GW053825	NSW State Forest	None	257
GW900043	JM Morris ^{##}	No access	32.9
GW967856	NSW State Forest	Monitoring	66.5
GW967861	NSW State Forest	Monitoring	59
GW967862	NSW State Forest	Monitoring	85


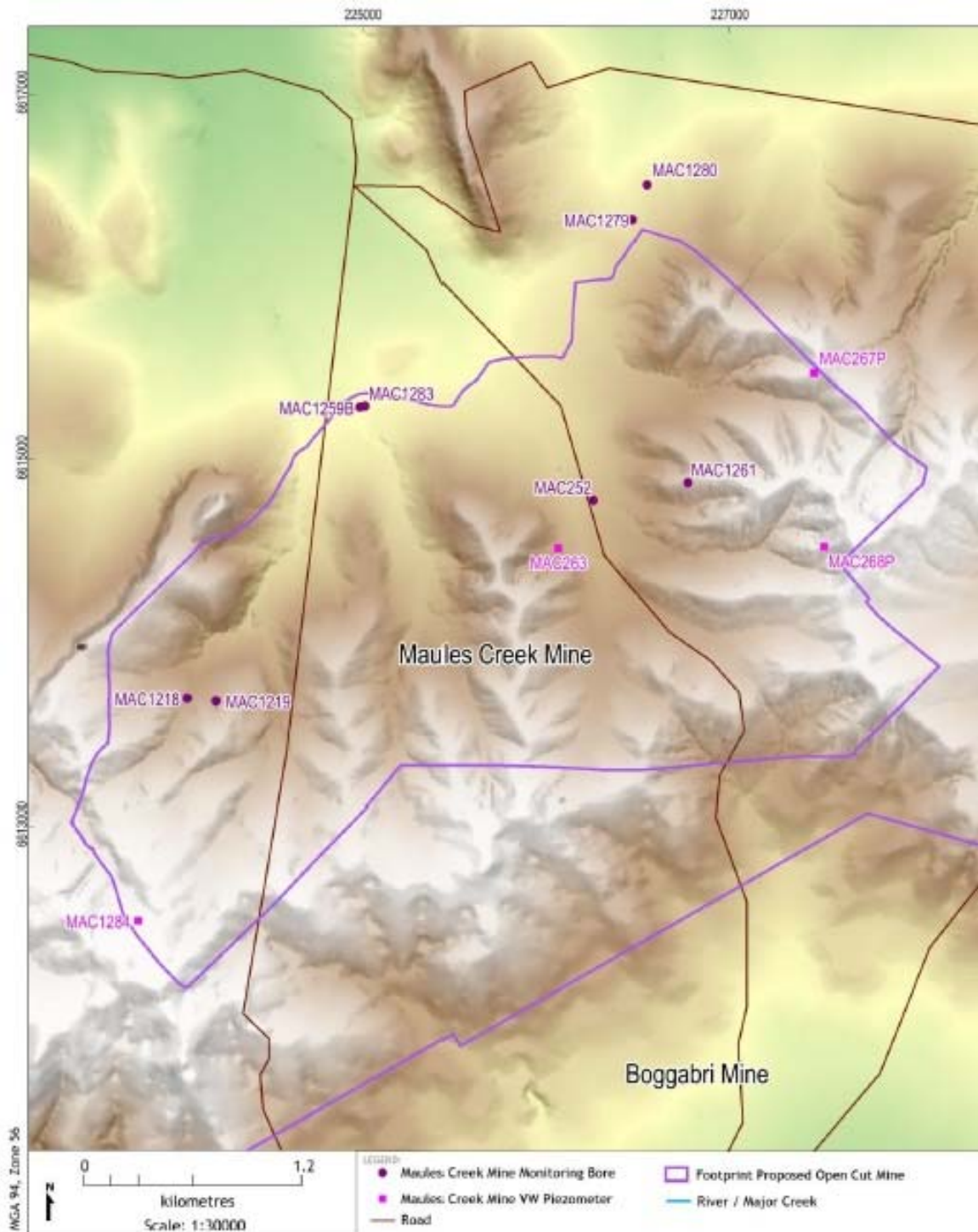

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Figure 3.5.9: Monitoring Borehole Locations



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3.5.6 Groundwater Impact Assessment Criteria

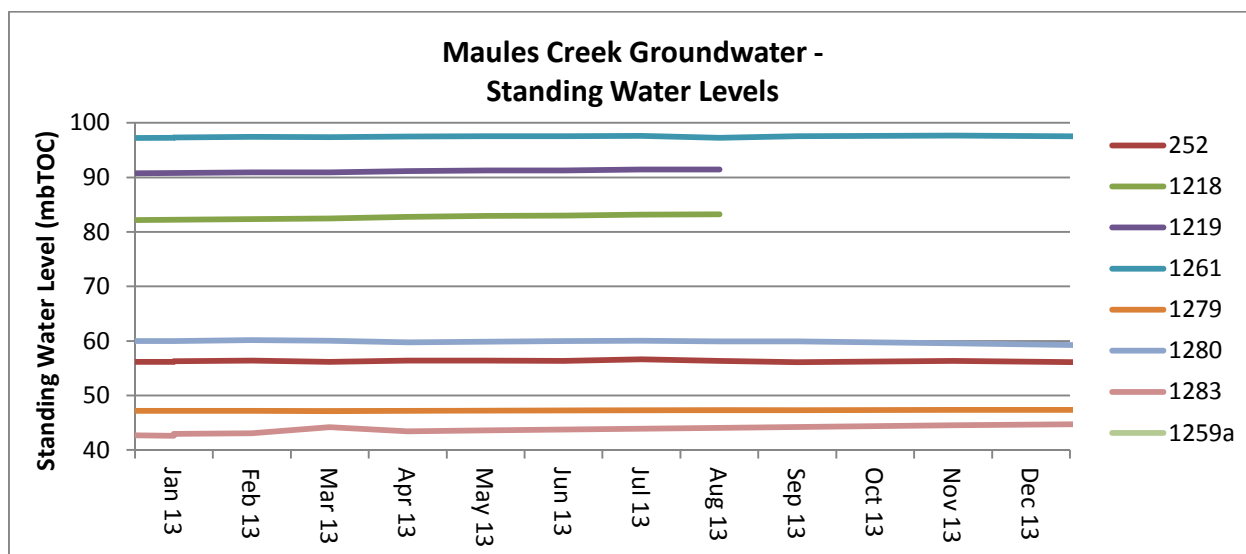
As described in the WMP, groundwater impact assessment criteria will be determined from results obtained over an extended period prior to mining commencing, most likely at some stage during the next Annual Review reporting period.

3.5.7 Groundwater Monitoring Results

Parameters recorded as part of the scheduled groundwater monitoring for this reporting period are summarised below in **Figures 3.5.10 to 3.5.15**. Additional summaries of laboratory data are presented in **Appendix F**.

As noted above, during the 2013 reporting period, monitoring frequency was reduced from monthly to six monthly for many of the water quality parameters tested. Note that during the period November to December 2013, access to some monitoring borehole locations was prevented.

Figure 3.5.10: MCCM Groundwater Standing Water Levels



Groundwater levels in all monitored bores have remained relatively static over the monitoring period. As mining operations commence and significant excavation works are undertaken within the proposed pit area, drawdown is expected to occur in line with predictions made in the Maules Creek EA (Hansen Bailey, 2010a).


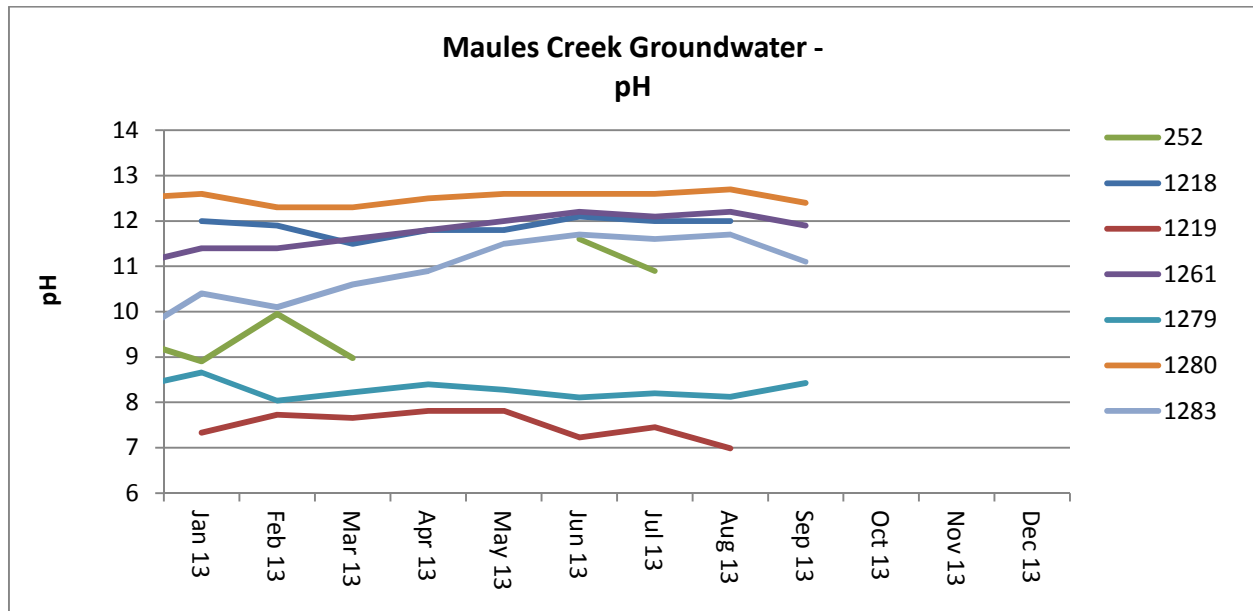
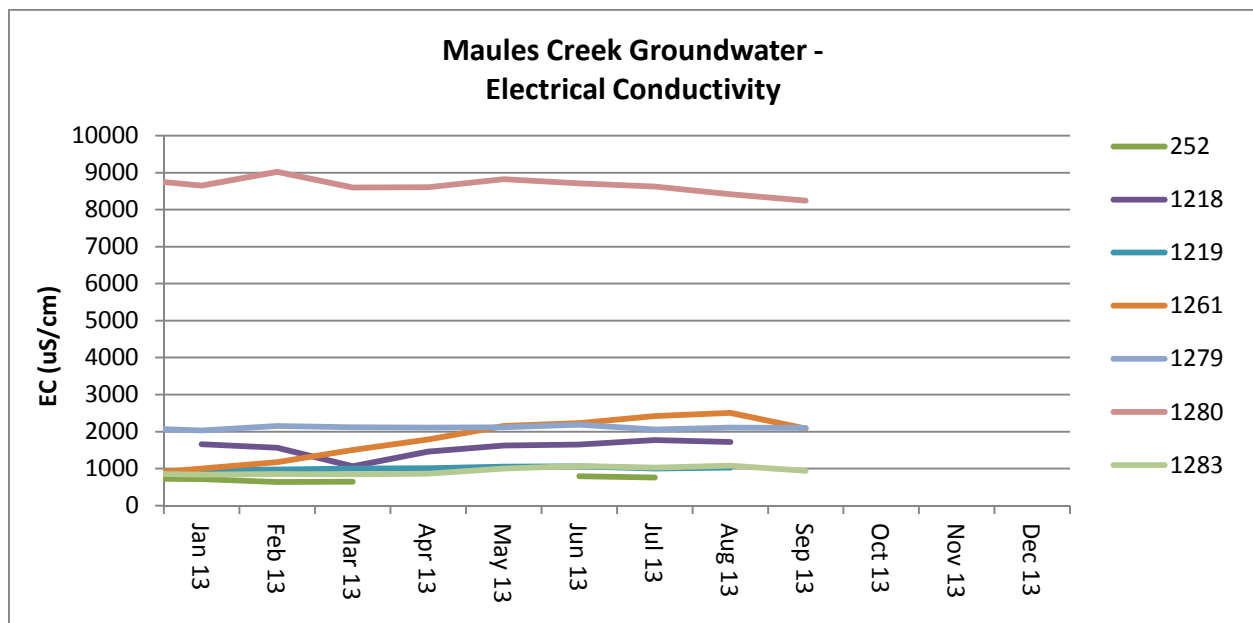
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Figure 3.5.11: MCCM Groundwater pH Levels




Groundwater quality results for pH indicate that all bores, with the exception of MAC1219 and MAC1279, recorded consistently elevated alkaline (above 8.5) pH levels throughout the baseline monitoring period. These results are not considered consistent with water quality within the coal seams.

Figure 3.5.12: MCCM Groundwater EC Levels

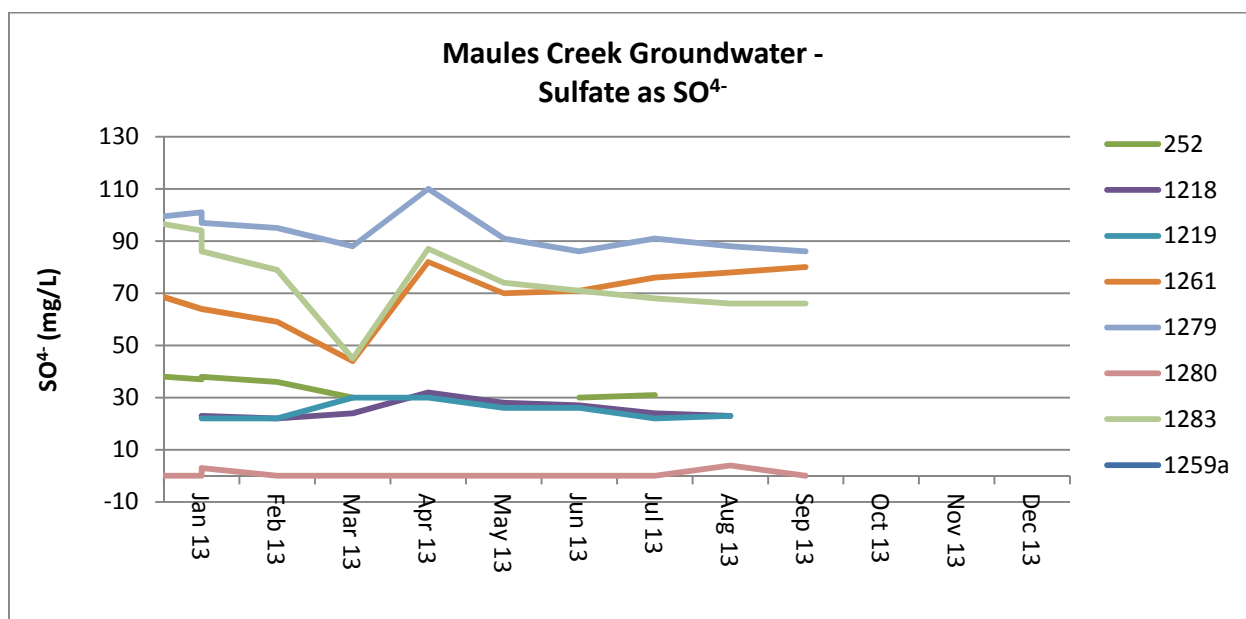


Recorded EC levels remained relatively stable during the 2013 reporting period and indicate a slightly brackish groundwater quality is present. These levels are relatively consistent with original sampling undertaken as part of the Maules Creek EA in 2010.

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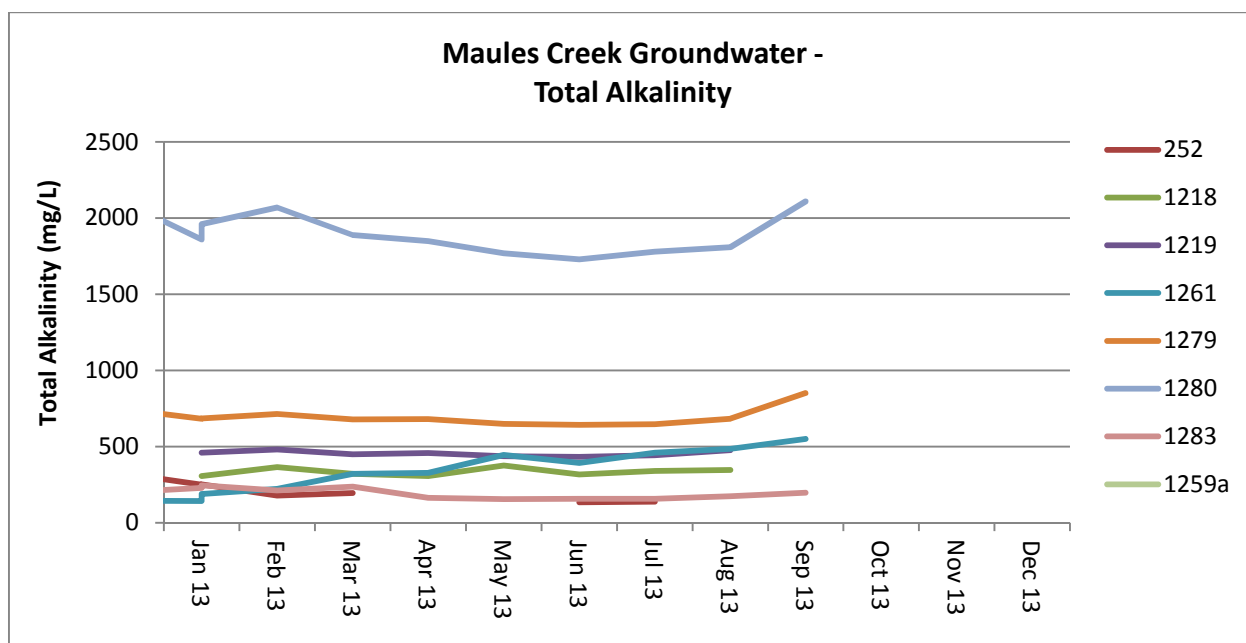
The abnormally high EC level of MAC1280 is considered likely to be a direct result of grout ingress.


Figure 3.5.13: MCCM Groundwater Sulfate Levels



Concentrations of sulphate were relatively low within all seven monitoring bores during the 2013 reporting period (i.e. generally below 100 mg/L). The highest sulphate concentrations were recorded within MAC1279, which is screened within the Jeralong Seam and recorded an average sulphate concentration of approximately 90 mg/L.

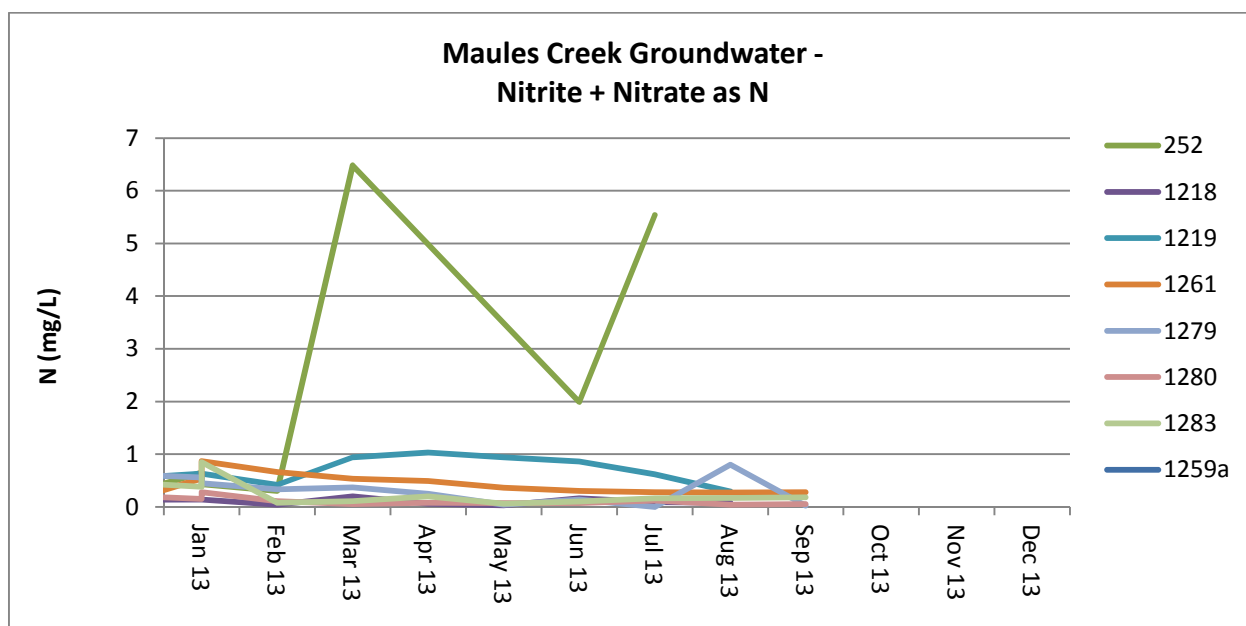
Figure 3.5.14: MCCM Groundwater Alkalinity Levels



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As previously discussed, the elevated levels of alkalinity that were recorded are considered to be in direct response to the ingress of cement grout which has impacted the majority of the boreholes converted into groundwater monitoring wells. Impacted bores are not considered to represent the natural groundwater chemistry of the surrounding strata and are no longer being monitored for groundwater quality.

Figure 3.5.15: MCCM Groundwater Nitrate Levels



Measured concentrations of nitrogen compounds recorded during the 2013 reporting period were noted to fluctuate considerably, but generally fell within naturally occurring levels.


3.5.8 Compliance with EA Predictions

Since MCCM activities likely to affect natural groundwater quality and levels have yet to be undertaken and construction works only commenced in December 2013, no assessment has been made of any possible deviations from predictions made in the Maules Creek EA (Hansen Bailey, 2010a).

3.5.9 Activities in the Next Reporting Period

The proposed groundwater management and monitoring activities scheduled to occur in the next reporting period are:

- monitoring of the BTM, private and existing network in compliance with the WMP;
- progressive installation of pressure transducers in all monitoring bores;
- determination of groundwater impact assessment criteria;
- commencement of operational monitoring in compliance with the WMP.

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3.6 Biodiversity Management and Performance

Construction activities during the reporting period occurred in December 2013 and were undertaken in accordance with the MCCM Biodiversity Management Plan (BMP), which was prepared to satisfy Condition 52 of Schedule 3 of PA 10_0138. The BMP was approved by the DP&E in June 2013 for the construction phase of the MCCM. An amended version of the BMP has since been approved by the DP&E for the operations phase of the MCCM in May 2014 (2014 BMP).

3.6.1 Ecological Monitoring

Under the BMP, ecological monitoring is required in respect of vegetation clearing. Ecological monitoring involves measures such as pre-clearance surveys of fauna, taking steps to relocate fauna affected by clearing, collecting seeds and habitat features from cleared areas for later use, and other measures designed to mitigate the impact of clearing vegetation.

The 2014 BMP also contains provisions relating to ecological monitoring in respect of vegetation clearing, including provision for additional mitigation measures that are specific to clearing in the colder months of the year. It is noted that these measures, and the validity of the 2014 BMP, are presently the subject of legal proceedings. It is also noted that an undertaking has been given to the Court in the proceedings by Aston Coal 2 Pty Ltd that clearing in the MCCM's operations area will cease until final orders are made in the proceedings, or the Court orders otherwise.

No ecological monitoring was undertaken during the reporting period given the nature of the activities which occurred in 2013 (Section 2).

3.6.2 Weed Management


A number of noxious weed species have been recorded at the MCCM during baseline surveys, and disturbance as a result of the mine has the potential to exacerbate the impact of weeds on areas of retained native vegetation, particularly Leard State Forest. The principal mechanisms for weeds establishing in an area include:

- elevated nutrients in stormwater runoff;
- physical disturbances to the soil;
- increased soil moisture from shading / reduced water infiltration;
- increased light at the margins of vegetation; and
- weed introduction on vehicles and equipment.

Review of Performance

During the construction phase contractors will undertake weed management measures in line with their own CEMPs, typically involving inspections of plant and equipment mobilising to the site.

During the reporting period, baseline surveys were being undertaken within the MCCM area, particularly in those areas where construction works have since commenced in 2014. Due to the limited activities conducted in the 2013 reporting period (i.e. only in late December 2013), formal inspection of stockpiles, disturbed areas and landscaped zones within the MCCM area had not yet commenced. These activities will occur during the next reporting period (i.e. 2014).

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3.6.3 Feral Pests

Formal surveys of feral pests had not commenced at the MCCM at the end of the reporting period (i.e. 31 December 2013). However opportunistic sightings were recorded by ecologists during baseline surveys. The following species have been encountered:

- European Rabbit (*Oryctolagus cuniculus*);
- European Red Fox (*Vulpes vulpes*);
- Wild Pig (*Sus scrofa*);
- Deer (*Cervus* and/or *Dama* sp.);
- Feral Cat (*Felis cattus*) and
- European Hare (*Lepus europaeus*).

Rabbits, foxes and hares were observed mainly in the cleared areas around the edge of forest in both the north and south of the MIA. Deer, pigs and cats have been predominantly seen in Leard State Forest (along roads and adjacent bush or as road kill) as well as in the biodiversity offset areas to the north of the MCCM (i.e. Eastern offsets).

3.6.4 Creek Lines

Baseline Stream Health Monitoring was undertaken during October 2013. A photographic assessment was conducted at those sites where access could be arranged and the results of this monitoring are presented in the WMP. Annual monitoring of creek lines is currently programmed to take place in October 2014.

3.6.5 Biodiversity Annual Report


During the life of the MCCM the Biodiversity Management Plan Annual Report (BMP Annual Report) will be used to document the performance of management, rehabilitation and restoration actions within the rehabilitation and biodiversity offset areas, and identify any measures that should be implemented to improve the performance of these actions.

The BMP refers to the BMP Annual Report in section 13.3.2. It is noted that the 2014 BMP also refers to the BMP Annual Report, in section 17.3.2.

It is intended that the first BMP Annual Report will be produced following the completion of the 2014 annual monitoring and will provide the results of the year's surveys and any results relevant to activities in 2013.

3.7 Rehabilitation Management

A review of the management of rehabilitation activities associated with the mine construction works is provided in Section 5 of this report.

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3.8 Aboriginal Cultural Heritage Management and Performance

Construction activities during the reporting period were undertaken in accordance with the Aboriginal Archaeology and Cultural Heritage Management Plan (AACHMP) which was prepared to satisfy Condition 58 of Schedule 3 of PA 10_0138. It sets out the procedures for care and salvage of Aboriginal objects identified at the MCCM. The AACHMP requires that annual monitoring of all sites to be reported in the Annual Review.

The aim of the AACHMP is to provide for the appreciation of Aboriginal heritage values within the MCCM Project boundary by future generations either through protection of sites where impact is avoidable or through salvage collections and excavations of a sample of Aboriginal objects. The main objectives of the AACHMP are:

- to identify ongoing management measures for the care of Aboriginal sites where mining impacts are avoidable;
- to establish an ongoing Registered Aboriginal Party (RAP) consultation process;
- to describe the manner in which certain Aboriginal sites will be salvaged and cared for; and
- to provide a summary research design and work plan for the sub surface excavation of select sites and areas.

3.8.1 Annual Monitoring Program

Annual inspection of all Indigenous archaeological sites is undertaken as part of the MCCM compliance auditing program. An archaeologist and two Aboriginal representatives are engaged to conduct the annual monitoring program. When seeking advice from RAPs on the representatives to take part in annual monitoring program, the applicants for the Gomeri People Native Title Claim are asked to nominate a person for those activities and similarly, other RAPs are also invited to assist with prioritising the nomination of Gomeri People.

Monitoring of each site involves recording of the following (as a minimum):

- condition assessment of site;
- condition assessment of fencing;
- photographic recording of each site from set location; and
- evidence of nearby disturbance.


A compliance audit of previously salvaged Aboriginal objects is undertaken as part of the annual review conducted for the Keeping Place (refer to Section 6.11 of the AACHMP).

3.8.2 Review of Performance

Inspection, salvage and monitoring within the 2013 construction areas occurred during the 2013 reporting period. In accordance with the AACHMP, the following activities took place onsite during this reporting period:

- cultural values / walk on country (Stage 1);
- salvage (Stage 1);
- monitoring;
- community liaison; and
- specialist studies and reports.

A summary of these activities is provided in the following sections.

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Cultural Values and Walk on Country

The NSW Government is currently reviewing the Aboriginal heritage provisions of the *National Parks and Wildlife Act, 1994*, to bring heritage legislation in line with government policies for the identification and management of all aspects of Aboriginal cultural heritage, including cultural values. Cultural Values consider the ways in which humans interact with the 'intangible' aspects of the environment and relies on extensive 'on-country' interviews with Traditional Owners. During the 2013 reporting period, a Walk 'on-country' and Cultural Values assessment was facilitated in August 2013 for the rail and infrastructure footprint (i.e. Stage 1) by Associate Professor Annie Ross (PhD – The University of Queensland) and Dr Dee Gorrington (AECOM).

The Stage 2 walk on-country and Cultural Values assessment was facilitated by Dr Dee Gorrington and Dr Andrew Sneddon (University of Queensland Culture and Heritage Unit) during January 2014. This assessment will be reported in the 2014 Annual Review.

A report detailing the combined assessments of Stages 1 and 2 was drafted in consultation with the RAP's and the findings were presented in a group forum in March 2014. The finalised report was also submitted to the Office of Environment and Heritage (OEH).

Salvage

In accordance with the AACHMP, a comprehensive salvage program involving RAPs, and supervised by Archaeologists, was initiated in 2013. During the reporting period this program was restricted to the rail and infrastructure footprint (i.e. Stage 1).

The surface collection process included;


- a site visit;
- survey of known site boundaries and environs;
- flagging of artefacts;
- recording of artefact location by differential GPS;
- photographic record of each artefact/site compiled;
- recording of unique provenance data for each artefact recorded; and
- individual bagging of artefacts with a unique ID.

Shovel Test Pits (STPs), measuring 0.5 by 0.5 m (total area of 0.25 m²), were manually excavated with a shovel in 100 mm depth increments with all excavated material sieved through a 3 mm mesh sieve. The test pits were completed to a depth where clay, gravel or culturally sterile deposits were encountered. No significant occurrences of archaeological material were recovered from any of the additional test excavations.

Stage 1 Salvage

A summary of the archaeological salvage activities undertaken the 2013 reporting period in the Maules Creek Stage 1 infrastructure area follows:

- 38 known sites;
- 6,666 artefacts identified;
- 221 Shovel test pits excavated;
- 51 m² of open-area excavation;
- 400 m² mechanical test excavation;
- 23 Quinine trees identified (seeds collected during December 2013);
- nine potential scarred trees (pending further assessment);
- one potential burial (pending further assessment);

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- one possible grinding grooves site (further assessment pending); and
- a small number (4-5) of portable grindstones were collected.

Stage 1 Salvage works were completed in the second and third quarters of 2013.

Monitoring

In accordance with the AACHMP, the aboriginal heritage monitoring team consists of an Archaeologist accompanied where possible by 2 RAPs. Monitoring is required in the following areas:

- within cultural heritage sensitive areas including the 50 m buffer of registered recorded sites;
- within 200 m of named creeks; and
- within 100 m either side of mapped drainage lines.

No monitoring was required or occurred during the 2013 Annual Review reporting period.

Community Liaison

In addition to the involvement of RAPs on-site for salvage and monitoring, MCC facilitates forums in which findings or results of packages of works are disseminated to the community as a 'group'.

Community liaison on this subject is also covered by the Maules Creek Community Consultative Committee (MCCCC) (**Section 4**).

Specialist Studies and Reports


In accordance with the AACHMP, and in response to the identification of features throughout the salvage and monitoring processes, specialist advice, re-assessment, laboratory analysis and reporting was undertaken on various areas / sites during the 2013 reporting period. A list of specialist investigations and reports undertaken during the 2013 reporting period is provided below:

- salvage - Stage 1 Archaeological Clearance Works (Quarters 3 and 4 2013);
- Teston South Site Complex Ground – Geophysical Investigation (December 2013); and
- appraisal of Scar Trees Stage 1, (December 2013).

Other Heritage matters

Blast monitoring is required to be undertaken at a number of locations in order to ensure compliance with PA 10_0138 and the EPL requirements and also to monitor noise and vibration on heritage features identified as potentially 'sensitive receivers'. A number of these sites will be included in blast monitoring activities during the construction phase (see **Section 3.4**).


Quinine trees identified on the MCC-owned property 'Velyama' as trees of cultural heritage significance for their 'medicinal properties', were monitored on a weekly basis throughout the third quarter of 2013. Quinine tree seed pods ripen and disperse during a mass release event over a three-day period. Seeds and pods were collected from the Velyama Quinine trees and are currently being cultivated in a controlled nursery environment. Germination of seeds has proven successful with over 1,000 seedlings produced to date. Once a suitable Aboriginal Heritage Keeping Place is identified, it is proposed to have the Quinine seedlings / saplings repatriated from the nursery to the Keeping Place. At the time of reporting, one property had been proposed by MCC, and consultation with RAPs was ongoing in regard to the suitability of this property as a Keeping Place.

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Fencing of all identified heritage sites, including some scar trees, has been conducted in areas where it is determined that sites may be at risk from construction activities. Subsequent inspection by RAPs is undertaken where appropriate. Fencing at other sites has used reflective rope type bunting for demarcation purposes or temporary fencing and signage.

2014 Reporting Period

During the next reporting period, it is anticipated that Archaeologist / RAP monitoring activities will continue within Stage 2a, covering the initial mine infrastructure and box cut areas.

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3.9 Historic Heritage

Activities during the 2013 reporting period were undertaken in accordance with the Historic Heritage Management Plan (HHMP), which was prepared to satisfy Condition 58 of Schedule 3 of PA 10_0138. The HHMP sets out the procedures for the care and salvage of historic relics, deposits and structures identified on land within and immediately adjacent to the MCCM. The HHMP was prepared in accordance with the management recommendations made in the Non Indigenous Heritage Impact Assessment (NIHIA) for the MCCM (Archaeology Australia, 2010) which was included within the Maules Creek Coal EA (Hansen Bailey, 2011).

A total of five sites were identified in proximity to the MCCM Project Boundary. Three sites associated with the Velyama Homestead site (i.e. the homestead, shearing shed and burial ground) were determined to be of local significance.

Warriahdool Hut was identified to be of local significance and is located to the north of the MCCM. The Therribri Homestead Site was also determined to be of local significance, and is located to the west of the MCCM. Each of these sites is located outside the MCCM Project Boundary and will not be impacted by the mine.

No sites of European heritage significance have been identified within the MCCM Project Boundary. Should any other heritage objects be identified subsequently, these will be managed in line with the HHMP that details the management measures and monitoring to be undertaken to ensure the MCCM complies with the conditions of PA 10_0138.


A regular inspection and monitoring program of the identified historic sites has been implemented to ensure the preservation of the site is maintained, which will include but not be limited to fencing condition, signage, weed control and evidence of impacts. Monitoring is required if any ground disturbing works are to occur within 50 m of identified historic heritage sites. Monitoring is not required for land use activities in areas where no historic heritage has been identified.

No impacts to identified historic heritage sites are expected to occur as a result of the MCCM.

3.9.1 Review of performance

A dilapidation survey was undertaken prior to undertaking any blasting activities within the rail infrastructure corridor. The survey provided a baseline photographic record of each site and included the following locations:

- homestead foundations;
- heritage grave sites;
- overhead power poles; and
- shearing shed.


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In accordance with the HHMP, the Velyama European grave site has been fenced with a robust all steel modern stock fence style construction, as illustrated in **Plate 3.9.1** below.

Plate 3.9.1: Velyama European Grave site (photo taken February 2014).



As indicated in the photo above, the prevailing weather conditions have witnessed extended below average rainfall or drought conditions. With the exception of some drought tolerant Boxthorn observed growing at the base of trees, there was very little vegetation growing in and around the historic heritage features. Retention of some groundcover is preferred in order to minimise potential erosion.

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3.10 Waste Management

Condition 70 of Schedule 3 of PA 10_0138 addresses waste management as follows:

WASTE

70. The Proponent shall:

- (a) implement all reasonable and feasible measures to minimise the waste (including coal reject) generated by the project;
- (b) ensure that the waste generated by the project is appropriately stored, handled and disposed of; and
- (c) monitor and report on the effectiveness of the waste minimisation and management measures in the Annual Review.

Waste materials at the MCCM are managed in accordance with the legal and strategic framework for managing wastes in NSW, including the:

- *Protection of the Environment Operations Act, 1997 (POEO Act);*
- *Waste Avoidance and Resource Recovery Act, 2001; and*
- *Protection of the Environment Operations (Waste) Regulation, 2005.*

Waste streams that are, or will be, generated by the MCCM include general waste, hazardous wastes and ablation effluents. Under the POEO Act, MCC is required to monitor, remove, track and report wastes on a regular basis. While the aim is to avoid and minimise waste, activities associated with construction of the MCCM will generate a range of wastes which requires ongoing management.

The following sub-sections identify the management procedures adopted for each of these wastes during the 2013 reporting period and beyond.

3.10.1 Exploration Activities

Waste associated with exploration activities such as drill cuttings and drilling fluids are contained in the above ground sumps, with disposal to the approved Narrabri Underground Tailing facility at appropriate intervals, typically weekly. Typically, an exploration borehole will create approximately 10 cubic metres of drill cutting and drilling fluid. A total of 240 m³ of drilling fluids was created and removed from site by the MCCM drilling program during the 2013 reporting period.


All domestic and operational waste from exploration activities were collected by the drilling contractor and disposed of by a licensed waste contractor or to an appropriately licensed facility.

3.10.2 Construction Works

For construction activities, each Principal Contractor manages its own waste outputs according to their respective CEMP.

General Wastes

All general and recyclable (metal, glass and plastic co-disposal) wastes are collected on-site and placed into suitable covered or enclosed storage receptacles within the contractor compound areas. A licensed waste collector collects this waste, typically on a weekly basis.

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Effluent Treatment and Disposal

There is no effluent treatment proposed for the site during construction. Effluent from the ablutions facilities at the construction areas (both temporary and long-term) is managed through the NSC-approved septic system, which is serviced by a licensed contractor. Pump outs and removal off-site are undertaken by a licensed waste disposal contractor on an as-needs-basis.

Other Wastes

Other waste such as waste oils and containers, solvents, timber, scrap metal, tyres and used batteries are stored in designated lay down areas, in accordance with the defined waste management practice in the contractor CEMP for collection by a licensed regulated waste contractor when required.

Inspections and audits of waste management practice are carried out regularly by both MCC and contractor personnel. On site disposal of wastes by burning, burial or other means is not permitted. No incidents relating to waste management practice were recorded during the 2013 reporting period.

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3.11 Hazardous Materials Management and Performance

A Materials Safety Management Plan (MSMP) has been developed for the MCCM that details the management measures and monitoring to be undertaken. A Pollution Incident Reporting Management Plan (PIRMP) has also been developed for the MCCM.

The MCCM requires the use of a range of hazardous materials which are, or will be, managed and disposed of in accordance with the *Waste Classification Guidelines* (DECCW 2008), the *Australian Code for the Transport of Dangerous Goods by Road and Rail* (National Transport Division 2007, the *SEPP 33 – Hazardous and Offensive Development Application Guidelines* (DUAP 1994) (SEPP 33 Guidelines) and the *Hazardous Industry Planning Advisory Papers* (HIPAPs) developed under SEPP 33.

The Principal Contractors are required to ensure that hydrocarbon products (such as diesel, oils, and greases) are transported, stored, handled, disposed and stored in a manner that minimises the potential for pollution and complies with the requirements of the *Work Health and Safety Act 2011* (as the relevant legislation for dangerous goods) and AS1940 – *The Storage and Handling of Flammable and Combustible Liquids*.

Any spillages of hydrocarbons, however minor in nature, are to be reported immediately to the Construction Manager (or delegate) and are to be recorded as an environmental incident. A report is then to be prepared identifying the nature and scale of the incident and any additional measures to be put in place to ensure that the risk of the incident is minimised. Restoration works required for any spillage of hydrocarbon products are to be undertaken to the satisfaction of the Construction Manager. The Principal Contractors are responsible for spill clean-up and any subsequent site restoration works.

The following sections summarise the performance during the 2013 reporting period.

Hydrocarbons

No bulk hydrocarbon storage facilities were constructed or used during the reporting period. However, once construction of these facilities is completed in 2014 at the MIA, they will be designed to comply with the requirements of AS1940 – *The storage and handling of flammable and combustible liquids*.

No incidents involving fuel storage, handling or delivery occurred during the 2013 reporting period.

Explosives


No incidents involving explosives handling or storage occurred during the 2013 reporting period.

Other Materials

No incidents involving the handling or storage of other potentially hazardous materials occurred during the 2013 reporting period.

Contaminated or Polluted Land

There was no action taken or required during the 2013 reporting period to manage contaminated or polluted land at the MCCM.

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3.12 Greenhouse Gas Management

The AQGGMP addresses the management of greenhouse gas (GHG) emissions. GHG emissions not considered in the AQGGMP are those not under the MCC's operational control (e.g. coal transportation off site or energy production from product coal). The main sources of GHG emissions considered in the AQGGMP are:

- fuel consumption (diesel) during mining operations – Scope 1;
- release of fugitive methane (CH₄) from the fracturing of coal seams – Scope 1; and
- indirect emissions resulting from the MCCM's consumption and use of purchased electricity - Scope 2.

Ongoing monitoring and management of greenhouse gas emissions and energy consumption at the MCCM will be achieved through participation in the Commonwealth Government's National Greenhouse and Energy Report Scheme (NGERS). Under NGERS requirements, relevant sources of greenhouse gas emissions and energy consumption are measured and reported on an annual basis, allowing major sources and trends in emissions/energy consumption to be identified.

Whitehaven is also a participant in the Commonwealth Government's Energy Efficiency Opportunities (EEO) Program. As such, Whitehaven is required to assess energy usage from all aspects of its operations, including the MCCM, and publicly report the results of energy efficiency assessments, and the opportunities that exist for energy efficiency projects with a financial payback of up to four years. As part of its obligations under the EEO Program, Whitehaven has set up an internal steering committee with the objective of identifying and implementing GHG mitigation initiatives.

The objectives of the AQGGMP relevant to GHG emissions are in accordance with the conditions of PA 10-0138 (specifically Condition 27 of Schedule 3), which requires that the MCCM implements all reasonable and feasible measures to minimise the release of GHG emissions are implemented at the MCCM.

GHG emissions and performance associated with the operational phase of the mine will be reported within the Annual Review, including any energy savings projects that have been implemented or plan to be implemented in the following year. Relevant figures associated with construction phase activities during the reporting period are summarised in the following sections.

Diesel Consumption


During the 2013 reporting period, a total of 67,636 litres (L) of diesel fuel was used on site for construction related activities. Assuming an energy content of Automotive Diesel Oil of 38.6 gigajoules per kilolitre (GJ/kL) and using Table 3 of the *National Greenhouse Accounts (NGA) Factors – July 2011*, the estimated direct – Scope 1 Greenhouse Gas emissions including all carbon dioxide (CO₂) and non CO₂ gases are 181.4 equivalent tonnes of CO₂.

Explosives

No explosives were used at the MCCM during the 2013 reporting period.

Fugitive Emissions

ROM coal production is used to estimate fugitive emission factors. As no coal was produced at the MCCM during 2013, there are no CO₂ emissions in this category during the reporting period.

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3.13 Visual Impact

A visual and lighting assessment of the potential impacts of the MCCM was undertaken as part of the Maules Creek EA (Hansen Bailey, 2010a). This assessment was undertaken to identify the character of the surrounding visual landscape and provide management and mitigation measures for visual impacts associated with the mine.

A primary viewing catchment was determined where views to the MCCM had a potential to occur, within which the visual impact of the MCCM was determined by a combined consideration of both visual effect and visual sensitivity. Lighting impacts were evaluated qualitatively and considered both direct lighting effects and indirect lighting effects of the MCCM at night.

Onsite treatments during construction will be implemented to mitigate visual impacts of the MCCM including (but not limited to):

- use of directional lighting in lieu of general area lighting; and
- consideration of fixed and mobile night lighting locations and orientation.

The construction works undertaken during the reporting period were limited and not generally visible from public roadways or vantage points. As a result, no specific visual impact management measures were required during 2013.


3.14 Bushfire Management

The MCCM lies within the Leard State Forest which is densely vegetated and has a potential for bushfire. The area surrounding the MCCM Project Boundary and the Leard State Forest is predominantly agricultural land, dominated by grazing and cropping activities which present a much lower bushfire hazard. The Leard State Conservation Area lies to the west of the MCCM Project Boundary consisting of dense forest vegetation and consequently is a higher bushfire hazard.

Due to the relatively low rainfall and dry nature of the landscape combined with the build-up of high fuel loads (leaf drop and tinder) over time, a risk of bushfire presents itself to the MCCM. Onsite bushfires and potential bushfire hazards will be managed in accordance with the *Rural Fires Act, 1999*.

Condition 69 of Schedule 3 of PA 0138 requires the MCCM to be suitably prepared and equipped to respond to any fires and that MCC be able to assist the relevant emergency services and NSW authorities in the event of a fire in the surrounding area.

No bush fires or incidents involving fire were recorded at the MCCM during the 2013 reporting period.

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3.15 Social Impact

In accordance with Condition 78 of Schedule 3 of PA 10_0138, a Social Impact Management Plan (SIMP) is required to be prepared and implemented at the MCCM. The draft SIMP is currently undergoing internal review, prior to submission to the Director General of the DP&E. In line with PA 10_0138 requirements, the SIMP is to include a monitoring program, incorporating key performance indicators, together with a review and reporting protocol. MCCM will report performance against these protocols in the 2014 Annual Review.

3.15.1 Workforce

In accordance with Condition 77 of Schedule 3 of PA 10_0138, a Construction Workforce Accommodation Plan (CWAP) for the MCCM has been prepared and was approved by the DP&E in April 2013. In accordance with the CWAP and draft SIMP, the following section including **Figure 3.15.1**, reports performance against forecast and actual workforce numbers.

In consultation with the NSC, two 500 room MAC Villages have been constructed to alleviate pressure on local housing markets. The two MAC Villages primarily service accommodation requirements of the Maules Creek, Boggabri, and Tarrawonga mining operations. Whitehaven has standing allocations for the MCCM of 200 and 250 rooms at the Narrabri and Boggabri MAC Villages respectively. The Narrabri MAC Village was completed in 2011 and has a capacity of 500. The Boggabri MAC Village was completed in 2013 and also has a capacity of 500 people, however, it is to be extended in 2014 to include an additional 300 rooms, ultimately raising capacity to 800.

Monthly MAC Village occupancy rates are used to report construction workforce numbers and are referred to as 'full time equivalent (FTE)'. The 250 room allocation for the MCCM at the Boggabri MAC village was not exceeded during the reporting period.

As shown in **Figure 3.15.1**, the maximum FTE during the reporting period was 59 in September 2013. Workforce numbers are expected to peak and stabilise in mid 2014 which is consistent with the Maules Creek accommodation strategy.


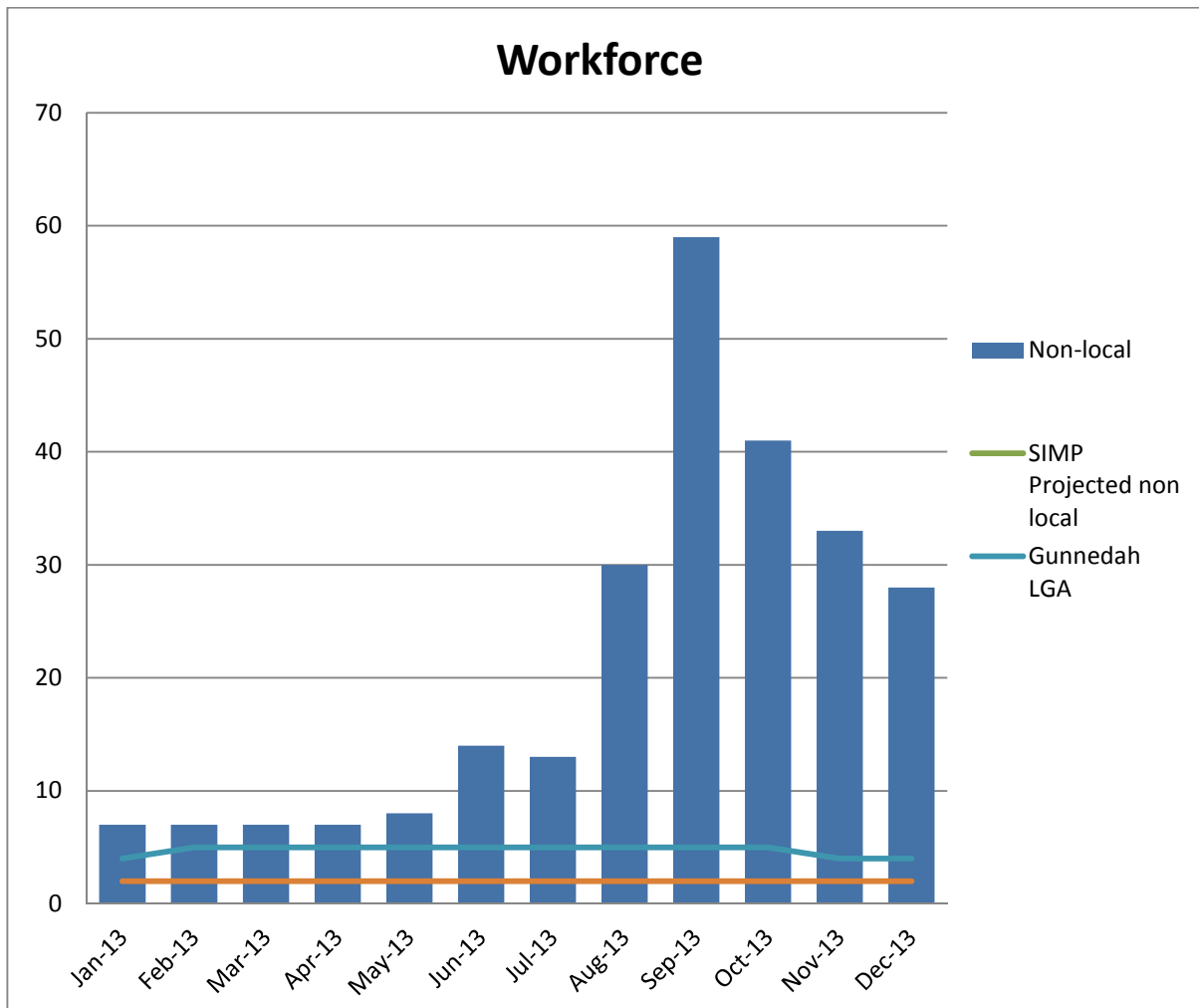
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Figure 3.15.1: MCCM Workforce – Full Time Equivalent (FTE)




3.15.2 Traffic Management

The Traffic and Transport Impact Assessment conducted for the MCCM is described in **Section 7.14** of the Maules Creek EA (Hansen Bailey, 2010a). The assessment included a consideration of construction traffic impacts, based on the worst case scenario of the construction activities on the regional traffic network.

Construction activities generate traffic associated with transportation of personnel and also for the delivery of materials and equipment to and from the site. The peak construction period has been determined as the worst case scenario as the existing road network will be relied upon for the transport of equipment and materials to the MCCM Project Boundary. During the construction period, impacts on intersections were determined not likely to be significant and the intersections would continue to perform at a satisfactory level.

It has been assessed that there will be no significant impacts on the existing rail network during the construction period for the MCCM. In addition, no coal will be transported during the construction phase and all construction related traffic will utilise the road network.


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The management of traffic and transportation related impacts during construction activities is to be undertaken in accordance with the Traffic Management Plan (TMP), which has been prepared by MCCM to satisfy Condition 64 of Schedule 3 of PA 10_0138. The TMP was approved by the DP&E in April 2013.

The Traffic Management Plan describes;

- traffic routes to the MCCM including heavy vehicle routes;
- transportation of workers to site via shuttle bus;
- local road upgrades;
- driver protocols;
- mitigation measures relating to traffic; and
- auditing and monitoring requirements.

Due to the limited MCCM construction works that occurred during the reporting period, no specific traffic management or transportation-related activities were conducted by MCC in 2013.

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4.0 COMMUNITY RELATIONS

4.1 Community Enquiries

MCC maintains a designated Community Hotline (1800 MAULES) for the MCCM, with messages checked on a daily basis (seven days/week) by the Environmental Manager. The Hotline is extensively advertised in the local press. In the event of a complaint or enquiry, details pertaining to the complainant, complaint and action taken are recorded on a “Complaints Form” and entered into the site register.

4.1.1 Review of Enquiries and Actions


No complaints regarding the MCCM were received during the 2013 reporting period.

4.2 Community Liaison

As required by PA 10_0138, the MCCCC has been set up, with meetings held approximately quarterly at the project offices in Boggabri. Three MCCCC meetings were held during the reporting period:

- 7th June 2013 (8 attendees);
- 14th August 2013 (11 attendees); and
- 19th November 2013 (22 attendees – joint meeting with Boggabri Coal and Tarrawonga Mine CCC held in Boggabri Bowling Club).

Minutes of these meetings are posted on to the Whitehaven website.

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5.0 REHABILITATION PLANNING AND MANAGEMENT

The Maules Creek EA (Hansen Bailey, 2010a) describes the conceptual rehabilitation management and final landform development procedures to be implemented during and at the completion of mining operations. In addition, the Maules Creek EA details a number of objectives and targets that the MCCM final rehabilitation and mine closure plan must address. These rehabilitation objectives are replicated in Condition 71 of Schedule 3 of PA 10_0138.

The MCCM construction activities can be subdivided into three domains: Infrastructure, Water Management and Construction Disturbance.


The Infrastructure Domain consists of buildings, structures and hardstand areas that will be used throughout the life of the MCCM. The key rehabilitation objective for this domain will primarily to enable the stabilisation of the batters and slopes surrounding this infrastructure to a stable landform minimising erosion concerns for the downstream waterways.

The Water Management Domain is situated immediately adjacent to the Infrastructure Domain and Construction Disturbance Domain and will store and manage water runoff from these areas (potentially contaminated with sediment) and water used during the construction activities for dust suppression and other purposes. The primary objective for this domain will be to ensure that the Water Management Structures are constructed and quickly stabilised to ensure that MCC's environmental requirements are complied with.

The Construction Disturbance Domain includes areas beyond the Infrastructure Domain that will be disturbed by the construction activities, however will not form part of the infrastructure or water management system. During the construction phase, the primary rehabilitation objective for this domain will be to stabilise and temporarily revegetate areas that will not be utilised for substantial periods of time. A significant proportion of this domain will ultimately be disturbed by mining operations. However, it has been identified that temporary revegetation will be required to these areas minimise air quality and water impacts.

5.1 Rehabilitation of Disturbed Land

No rehabilitation of MCCM disturbance areas, landforms, buildings or other infrastructure was conducted during the 2013 reporting period. Rehabilitation trials and research have not yet commenced, but will do so when suitable trial areas are available within the construction and mining areas.

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5.2 Rehabilitation Monitoring and Performance

A Rehabilitation Management Plan (RMP) has been prepared for the MCCM in accordance with Condition 73 of Schedule 3 of PA 10_0138. The objectives of the RMP are to:

- ensure compliance with the requirements of all relevant environmental legislation, conditions of any applicable licence, approval or permit;
- provide specific rehabilitation management and mitigation procedures for site personnel;
- establish a clear set of indicators and rehabilitation completion criteria;
- rehabilitate the site to a safe and stable condition;
- establish progressive and interim rehabilitation procedures which can be used for evaluating the performance of rehabilitation and trigger remedial actions if required;
- establish a monitoring program;
- ensure that rehabilitation of the site is integrated with the implementation of the BMP;
- revegetate the post mine landscape with native vegetation, comprising a mixture of native grassy woodland, shrubby woodland / open forest vegetation types and Box-Gum Woodland with fauna habitat for threatened species to encourage the re-establishment of pre-mining biodiversity values; and
- ensure the sustainability of the post mining ecological values of the landscape.

The RMP covers rehabilitation of all operational activities and associated infrastructure being undertaken as part of the MCCM. Construction activities requiring rehabilitation at the MCCM are managed via the CMOP with guidance from the RMP.

Rehabilitation objectives in the short term are to:


- progressively reshape and stabilise disturbed areas;
- provide short-term erosion control measures;
- manage soil to ensure suitability and beneficial reuse during rehabilitation;
- ameliorate wastes and soils as necessary to address physical and chemical constraints to revegetation and erosion stability; and
- refine rehabilitation methods.

Rehabilitation objectives in the medium term will focus on:

- establishment of the functionally important and structurally dominant species from the relevant native vegetation communities;
- demonstrating rehabilitation succession in comparison with analogue sites; and
- reducing reliance on structural drainage and erosion control methods.

The long terms rehabilitation objectives are to:

- monitor rehabilitation areas to ensure succession of planted native vegetation with functionality trending toward analogue native vegetation communities;
- apply adaptive management measures if natural succession is not occurring; and
- demonstrating rehabilitation performance.

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5.2.1 Rehabilitation Monitoring

Monitoring of rehabilitation areas and analogue sites will be undertaken by specialist independent consultants on an annual basis using a modified Landscape Function Analysis (LFA) monitoring program and the assessment of other indicators. Rehabilitation monitoring will:

- obtain data from the analogue sites to provide a range of indicator values from replicated examples of similar vegetation communities;
- compare rehabilitation areas to analogue sites that best represent the final land use vegetation community and management conditions to which they will be subject; and
- recognise the dynamic nature of ecosystems and account for:
 - seasonal variations;
 - changing climatic conditions;
 - changing management practices; and
 - unexpected disturbance events.

Outcomes of the annual rehabilitation inspections are to be recorded and any mitigation actions that are identified as part of the inspection are to be entered into the MCCM Document Control recording system for implementation. Where necessary, rehabilitation procedures will be amended accordingly with the aim to continually improve rehabilitation standards.

As a minimum under the long-term rehabilitation, monitoring will allow for adaptive management by reviewing substandard performance from a rehabilitation area and evaluate the probability of an event occurring; evaluating the consequence; and using a risk-based approach to determine trigger levels (both upper and lower) where response or action is required. A Trigger Action Response Plan (TARP) will be developed and implemented to respond in the event of poor rehabilitation performance or unexpected result.


5.2.2 Exploration Activities

All drill sites cleared for the groundwater monitoring program during the 2013 reporting period are required for ongoing monitoring purposes and are therefore not fully rehabilitated as would be the case for exploration boreholes. Rehabilitation measures undertaken at each borehole requires the completion of the following activities:

- reshaping and revegetation of the drilling area; and
- removal of temporary site structures used during drilling activities and use of any topsoil stockpiles to rehabilitate those portions of the site no longer required during monitoring activities;

Inspections of rehabilitation areas are undertaken periodically to ensure the establishment of vegetation and to confirm there are no other environmental issues. Should there be a presence of any issues such as the occurrence of weeds, erosion and sedimentation from site, and poor germination, then appropriate measures are implemented to resolve these issues. Weed spraying is undertaken as required to ensure that the rehabilitated areas regenerate to previous conditions in the absence of invasive weeds. Weed management works are conducted at regular periods and audited to ensure weed management has been completed effectively.


Monitoring of the drill-site rehabilitation process is undertaken during the groundwater monitoring program, with regular inspections at each of the sites (typically monthly). A review of the rehabilitation process will take place after sufficient data has been collected.

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5.2.3 Construction Activities


No rehabilitation of construction areas occurred during the 2013 reporting period.

During 2014, topsoils (and in some cases) subsoils will be stripped for later use in rehabilitation; either on construction areas once construction is completed or in rehabilitation of the mining areas. The management of topsoils and subsoils is detailed in the Soil Management Protocol. Areas disturbed during construction that are outside the MCCM open cut areas and OEA areas are to be rehabilitated during and at the end of construction. Areas for rehabilitation include topsoil spreading and revegetation of temporary stockpile areas, construction access tracks and laydown areas, batters, and drainage channels. Revegetation of topsoil includes initial surface preparation, topsoiling, fertilising, sowing of seed and watering. Hydro seeding and straw mulching will be undertaken in other areas where required.


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6.0 DEFINITIONS

Abbreviation	Description
Aston Coal 2 Pty Limited	100% owned by Whitehaven Coal Limited
CCC	Community Consultative Committee
CEEC	Critically Endangered Ecological Community
CHPP	Coal Handling and Preparation Plant
CL	Coal Lease
CMHS Act	<i>Coal Mines Health and Safety Act 2002</i>
CMOP	Construction Mining Operations Plan
CRIA	Country Rail Infrastructure Authority
dBA	The peak sound pressure level, expressed as decibels (dB) and scales on the 'A-weighted' scale, which attempts to closely approximate the frequency response of the human ear
DEWHA	Commonwealth Department of Environment, Water, Heritage and the Arts (now Department of Sustainability, Environment, Water, Population and Communities)
DG	Director General
DP&E	NSW Department of Planning and Environment (formerly Department of Planning and Infrastructure, Department of Planning, DIPNR, Planning NSW and DUAP)
DRE	NSW Trade & Investment-Division of Resources & Energy
DTIRIS	Department of Trade and Investment, Regional Infrastructure and Services
EA	Environmental Assessment
EC	Electrical Conductivity
EL	Exploration Lease
EMP	Environmental Monitoring Program
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EP&A Regulation	<i>Environmental Planning and Assessment Regulation 2000</i>
EPA	NSW Environment Protection Authority
EPBC Act	<i>Environmental Protection and Biodiversity Conservation Act 1999</i> (Commonwealth)
EPL	Environmental Protection Licence
Forestry Act	<i>Forestry Act 1916</i>
GSC	Gunnedah Shire Council
ha	Hectare
Hansen Bailey	Hansen Bailey Environmental Consultants
km	Kilometre
LGA	Local Government Area
m	Metre
MCC	Maules Creek Coal Pty Limited, a joint venture between Aston Coal 2 Pty Limited (75%), ITOCHU Coal Resources Australia, Maules Creek Pty Ltd (ICRA MC) (15%) and J-Power Australia Pty Limited (J-Power) (10%).
MCCCC	Maules Creek Community Consultative Committee
MCCM	Maules Creek Coal Mine
MIA	Mine Infrastructure Area
Mining Act	<i>Mining Act 1992</i>
ML	Megalitre
MLA	Mining Lease Application
mm	Millimetre
MNES	Matter of National Environmental Significance
MOP	Mining Operations Plan
Mt	Million tonnes
Mtpa	Million tonnes per annum
Namoi CMA	Namoi Catchment Management Authority
NOW	NSW Office of Water
NSC	Narrabri Shire Council


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Abbreviation	Description
OEA	Overburden Emplacement Area
OEH	Office of Environment and Heritage
PAC	Planning Assessment Commission
PM10	Particulate Matter <10 microns
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
PA	<i>Project Approval under Part 3A of the EP&A Act</i>
Project Boundary	Project Application Boundary
RMS	Roads and Maritime Services
ROM	Run of Mine
SEWPaC	Department of Sustainability, Environment, Water, Population and Communities (formerly Commonwealth Department of Environment, Water, Heritage and the Arts)
T	Tonne
TSC Act	<i>Threatened Species Conservation Act 1995</i>
TSS	Total suspended Solids
Whitehaven / WHC	Whitehaven Coal Limited


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- *Managing Urban Stormwater: Soils and Construction – Volume 2E Mines and Quarries*, June 2008.
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APPENDIX A PROJECT APPROVAL

Project Approval

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

As delegate of the Minister for Planning and Infrastructure, the Planning Assessment Commission of NSW approves 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.

Dr Neil Shepherd AM
Member of the Commission

Mr David Johnson
Member of the Commission

Sydney

23 October 2012

SCHEDULE 1

Application Number:	10_0138
Proponent:	Aston Coal 2 Pty Limited
Approval Authority:	Minister for Planning and Infrastructure
Land:	See Appendix 1
Project:	Maules Creek Coal Project

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DEFINITIONS

Annual review	The review required by condition 4 of schedule 5
ARTC	Australian Rail Track Corporation
BCA	Building Code of Australia
Biodiversity offset strategy	The conservation and enhancement strategy described in the EA, required by condition 44/45 of schedule 3 of this consent and depicted conceptually in the figures in Appendix 7
Blast misfire	The failure of one or more holes in a blast pattern to initiate
Boggabri rail spur line	The railway line between the Narrabri-Werris Creek railway line and the Boggabri coal mine, as depicted in Figures 1 and 3 in Appendix 2
CCC	Community Consultative Committee
CHPP	Coal handling and preparation plant
Conditions of this approval	Conditions contained in schedules 1 to 5 inclusive
Construction	The construction works for the project as described in the EA. Construction work does not include surveys, acquisitions, fencing, investigative drilling or excavation, minor clearing, minor roads, minor adjustments to services/utilities, works which allow isolation of the site so that access for construction can be provided (including service relocations) and establishing temporary facilities for construction (including for example an office and amenities compounds, temporary water and communications, construction compounds, materials storage compounds, maintenance workshops, testing laboratory or material stockpile areas).
Council	Narrabri Shire Council
CPI	Australian Bureau of Statistics Consumer Price Index (General)
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
DIDO	Drive in drive out
Director-General	Director-General of the Department, or nominee
DPI	Department of Primary Industries
DRE	Division of Resources and Energy (within the Department of Trade and Investment, Regional Infrastructure and Services)
EA	Environmental Assessment titled <i>Maules Creek Coal Project Environmental Assessment</i> dated July 2011 (5 volumes), including the Response to Submissions
EEC	Endangered ecological community, as defined under the <i>Threatened Species Conservation Act 1995</i>
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
Executive Director Mineral Resources	The Executive Director of Mineral Resources within DRE, or equivalent position
Feasible	Feasible relates to engineering considerations and what is practical to build or carry out
FIFO	Fly in fly out
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>
Incident	A set of circumstances that: <ul style="list-style-type: none"> causes or threatens to cause material harm to the environment; and/or breaches or exceeds the limits or performance measures/criteria in this approval
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
Leard Forest mining precinct	The area incorporating the existing and proposed coal mining operations centred around Leard Community Conservation Area (CCA) 4, including the Maules Creek Coal Mine, Boggabri Coal Mine and Tarrawonga Coal Mine
Material harm to the environment	Actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial
Maules Creek rail spur line	The railway line from the Boggabri rail spur line to the Maules Creek coal mine as depicted in Figures 1 and 3 in Appendix 2

Mine Water	Water that accumulates within, or drains from, active mining areas, coal reject emplacement areas, tailings dams and infrastructure areas, synonymous with dirty water
Mining operations	Includes the removal of overburden and extraction, processing, handling, storage and transportation of coal on site and on the rail spur line (including both the Boggabri and Maules Creek rail spur lines)
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
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 within the Department of Premier and Cabinet
Operational Noise	Operational noise includes noise from the mining operations and the use of private roads and rail spurs
PAC	Planning Assessment Commission
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
Privately-owned land	Land that is not owned by a public agency or a mining company (or its subsidiary)
Project	The development as described in the EA
Proponent	Aston Coal 2 Pty Limited, or any person who seeks to carry out the development approved under this approval
Public infrastructure	Linear and related infrastructure that provides services to the general public, such as roads, railways, water supply, drainage, sewerage, gas supply, electricity, telephone, telecommunications, etc.
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
Rehabilitation	The restoration of land disturbed by the project to a good condition and for the purpose of establishing a safe, stable and non-polluting environment
Response to submissions	The Proponent's responses to issues raised in submissions titled <i>Maules Creek Coal Project Response to Submissions</i> dated December 2011 (2 volumes), and <i>Maules Creek Coal Project Response to Subsidiary Submissions</i> dated March 2012
RFS	Rural Fire Service
RMS	Roads and Maritime Services
ROM coal	Run-of-mine coal
SEWPaC	Commonwealth Department of Sustainability, Environment, Water, Populations and Communities.
Site	The land described in Appendix 1
Statement of commitments	The Proponent's commitments in Appendix 5
TSC Act	<i>Threatened Species Conservation Act 1995</i>
VPA	Voluntary Planning Agreement

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 Proponent shall implement all reasonable and feasible measures to prevent and/or minimise any material harm to the environment that may result from the construction, operation, or rehabilitation of the development.

TERMS OF APPROVAL

2. The Proponent shall carry out the project generally in accordance with the:
 - (a) EA;
 - (b) statement of commitments;
 - (c) documents titled *Maules Creek Coal Mine Project Approval Modification Environmental Assessment* dated April 2013, including the response to submissions dated June 2013; and
 - (d) 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 reports, strategies, plans, programs, reviews, audits 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 the end of December 2034.

Note: Under this approval, the Proponent is required to rehabilitate the site and carry out additional undertakings to the satisfaction of both the Director-General and the Executive Director Mineral Resources. Consequently, this 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

6. The Proponent shall not extract more than 13 million tonnes of ROM coal from the site in any calendar year.

Vegetated Buffer Corridor

7. The Proponent shall not clear native vegetation from any land within 250 metres of the adjoining Boggabri Coal Mine mining lease boundary, unless:
 - (a) the Proponent has provided an alternative area of equal or better habitat value for the purpose of providing a fully effective east-west movement corridor for native fauna;
 - (b) the alternative area is capable of delivering this outcome before clearing commences within 250 m of the lease boundary;
 - (c) the alternative area is under tenure arrangements that ensure its maintenance for biodiversity purposes in perpetuity, or there is an enforceable commitment to deliver this outcome; and
 - (d) the alternative area has been endorsed by the OEH and subsequently approved by the Director-General.

Notes:

- *The alternative area may be provided by way of offset or by way of suitable rehabilitated land within the Boggabri Coal Project site or the Maules Creek Coal Project site.*
- *The alternative area may be provided by the Proponent or the Proponent in conjunction with the Proponent of the Boggabri Coal Project.*

Coal Transport

8. The Proponent shall only transport coal from the site by rail.

Note: All coal is to be transported from site via the Maules Creek rail spur line, and the shared portion of the Boggabri Coal rail spur line. The separate rail crossing over the Namoi River, as mentioned in at least one part of the EA, does not form part of the project and is not approved under this project approval.

9. The Proponent shall not:
- (a) transport more than 12.4 million tonnes of product coal from the site in any calendar year; and
 - (b) dispatch more than 7 laden trains from the site in a day when averaged over a calendar year; or
 - (c) dispatch more than 10 laden trains from the site in a day.

Note: For the purposes of this condition, a day refers to the 24 hours from midnight to midnight the next day.

SURRENDER OF EXISTING DEVELOPMENT CONSENT

10. By the end of 2013, or as otherwise agreed by the Director-General, the Proponent shall surrender the existing development consent (ie. DA85/1819) for mining on the site in accordance with Section 104A of the EP&A Act.

Prior to the surrender of this development consent, the conditions of this approval shall prevail to the extent of any inconsistency with the conditions of the development consent.

STRUCTURAL ADEQUACY

11. 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.*

12. The Proponent shall ensure that the Maules Creek rail spur line and ancillary infrastructure are designed and constructed in accordance with the relevant requirements of the current ARTC infrastructure standards, or as otherwise approved by the Director-General.

DEMOLITION

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

PROTECTION OF PUBLIC INFRASTRUCTURE

14. Unless the Proponent and the applicable authority agree otherwise, the Proponent shall:
- (a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by the project; and
 - (b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the project.

OPERATION OF PLANT AND EQUIPMENT

15. The Proponent shall ensure that all the plant and equipment used on 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.

STAGED SUBMISSION OF STRATEGIES, PLANS AND PROGRAMS

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

Notes:

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

COMMUNITY ENHANCEMENT

17. By the end of March 2013, unless the Director-General agrees otherwise, the Proponent shall enter into a planning agreement with Council in accordance with:
- (a) Division 6 of Part 4 of the EP&A Act; and
 - (b) the terms of the Proponent's offer in Appendix 3.
-

SCHEDULE 3 ENVIRONMENTAL PERFORMANCE CONDITIONS

ACQUISITION ON REQUEST

1. Upon receiving a written request for acquisition from the owner(s) of the land listed in Table 1, the Proponent shall acquire the land in accordance with the procedures in conditions 8-9 of schedule 4.

Table 1: Land subject to acquisition upon request

Acquisition Basis	Land
Noise & Air	110-114
Noise	61-66, 108-109, 117-120, 123-124, 125-131, 132-140, 141-148, 149-155, 236, 256-263
Air	279-280

However, this condition does not apply if the Proponent has an agreement with the owner(s) of the relevant properties to generate higher noise levels, and the Proponent has advised the Department in writing of the terms of this agreement.

Notes:

1. To interpret the locations referred to in Table 1 see the applicable figure(s) in Appendix 4.
2. The Proponent is only required to acquire property 279-280 if the owner of the land no longer has acquisition rights under any planning approval for the Boggabri mine and/or Tarrawonga mine.
3. For the purposes of acquisition under this condition, parcels of land that are in close proximity and operated as a single agricultural enterprise should be included as part of the land to be acquired. Where the Proponent and the owner(s) cannot agree on whether non-contiguous parcels of land should be included, either party may refer the matter to the Director-General for resolution. The Director-General's decision as to the lands to be included for acquisition under the procedures in conditions 8 and 9 of Schedule 4 shall be final.

NOISE AND VIBRATION

Noise Affected Residences

2. For privately-owned residences within the project's 35dB(A) noise impact contour (see Table 2 and Appendix 4A) the owner(s) can make a written request to the Proponent for one of the following:
 - (a) mitigation (such as double glazing, insulation and air conditioning) at the residence in consultation with the owner(s). These measures must be reasonable and feasible and directed towards reducing the noise impacts of the project on the residence. If within 3 months of receiving this request from the owner(s), the Proponent and owner(s) cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Director-General for resolution; or
 - (b) acquisition of the residence and land in accordance with the procedures in conditions 8-9 of Schedule 4.

Table 2: Residences subject to acquisition or noise mitigation on request

Residences
61, 108, 118, 120, 126, 134, 236, 256 and 259

Upon receiving a written request from the owner(s), the Proponent must undertake whichever option has been requested by the owner(s).

However, this condition does not apply if the Proponent has an agreement with the owner(s) of the relevant residence to generate higher noise levels, and the Proponent has advised the Department in writing of the terms of this agreement.

Notes:

1. To interpret the locations referred to in Table 2 see the applicable figure(s) in Appendix 4.
2. For the purposes of this condition a privately-owned residence is defined as a residence not owned by a mining company that: is regularly occupied; or is an existing residence that is not regularly occupied but for which a valid development consent exists; or is a proposed residence for which a development application has been lodged with the relevant authority prior to the date of this approval.
3. For the purposes of acquisition under this condition, parcels of land that are in close proximity and operated as a single agricultural enterprise should be included as part of the land to be acquired. Where the Proponent and the owner(s) cannot agree on whether non-contiguous parcels of land should be included, either party may refer the matter to the Director-General for resolution. The Director-General's decision as to the lands to be included for acquisition under the procedures in conditions 8 and 9 of Schedule 4 shall be final.

Maximum predicted noise levels

3. Where the owner(s) of a residence included in Table 2 of this schedule have opted for either an agreement to generate higher noise levels or noise mitigation under condition 2, and the owner(s) have reason to believe that the noise impacts at the residence are more than 3 dB(A) above the predicted noise levels for that residence (see Table 3), the owner(s) can request an independent noise impact assessment for the residence. The request shall be made in writing to the Director-General. If the Director-General considers that a noise impact assessment is warranted, then the Proponent shall commission the assessment.

If the noise impact assessment determines that the noise generated by the project causes sustained exceedances, or is likely to cause sustained exceedances, of the predicted noise levels by more than 3 dB(A), the owner(s) may require the Proponent to acquire the residence and land in accordance with the procedures in conditions 8-9 of Schedule 4.

Table 3: Maximum Predicted Noise Levels

Location Property/ID	Day (L_{Aeq} (15 min))	Evening (L_{Aeq} (15 min))	Night (L_{Aeq} (15 min))	Night (L_{A1} (1 min))
61	35	43	43	53
108, 120	35	39	39	45
118	40	44	44	45
126	45	48	48	53
134, 236	35	36	36	45
256	35	40	40	50
259	35	39	39	49

Notes:

- To interpret the locations referred to in Table 3, see the applicable figure in Appendix 4
- The noise assessment must be undertaken by a suitably qualified, experienced and independent person, whose appointment has been approved by the Director-General and include either:
 - sufficient monitoring at the affected residence to allow for assessment of the impacts under a range of meteorological conditions (including adverse conditions) likely to be experienced at the residence; or
 - sufficient monitoring to allow reliable prediction of the likely impacts under the range of meteorological conditions (including adverse conditions) likely to be experienced at the residence.
- Monitoring should be conducted in accordance with the requirements of the NSW Industrial Noise Policy.
- Where predictions of likely impacts is to be used, either in substitution for, or in conjunction with, direct measurement of noise impacts at the residence, it must be based on sufficient monitoring data to provide a reliable estimate of the impacts (including under adverse meteorological conditions) and be derived using standard noise modelling techniques accepted by the EPA.
- The Proponent shall ensure that the requested noise impact assessment is submitted to the Director-General within 3 months of the Director-General's decision that the assessment was warranted. The Proponent shall also provide a copy of the assessment to the owner(s) of the residence at the same time it is submitted to the Director-General.
- Note 3 to condition 1 of this Schedule applies to acquisition under this condition.

Construction Noise and Vibration Criteria – Maules Creek and Boggabri Shared Rail Spur Lines

4. During the hours of:
- 7 am to 6 pm Monday to Fridays, inclusive;
 - 8 am to 1 pm on Saturdays; and
 - at no time on Sundays or public holidays,
- noise from activities associated with the construction and/or upgrade of the Maules Creek rail spur line and shared section of the Boggabri rail spur line shall meet the criteria in Table 4.

Table 4: Rail spur line construction noise criteria dB(A)

Location Property/ID	Construction Noise Criteria
	Day dB(A) $L_{Aeq}(15 \text{ min})$
256	50
259	45
All other privately-owned residences	40

Note: To interpret the locations referred to in Table 4, see the applicable figure in Appendix 4.

5. Vibration from activities associated with the construction and/or upgrade of the Maules Creek rail spur line and shared section of the Boggabri rail spur line shall comply with the following:
 - (a) for structural damage, the vibration limits set out in the German Standard *DIN 4150-3: Structural Vibration - effects of vibration on structures*; and
 - (b) for human exposure, the acceptable vibration values set out in the *Environmental Noise Management Assessing Vibration: A Technical Guideline* (Department of Environment and Conservation, 2006).
6. If the Proponent proposes to undertake any construction works associated with the Maules Creek rail spur line (and shared section of the Boggabri rail spur line) outside the hours specified above, then the Proponent must prepare and implement an Out of Hours Work protocol for these works to the satisfaction of the Director-General. This protocol must be prepared in consultation with the EPA and the residents who would be affected by the noise generated by these works, and be consistent with the requirements of the *Interim Construction Noise Guideline* (Department of Environment and Climate Change, 2009). The Proponent shall not carry out any out of hours construction works before this protocol has been approved by the Director-General.

Note: For areas where construction noise from the Maules Creek rail spur line and shared section of the Boggabri rail spur line is predicted to be at or below 35 dB(A) and/ or below operational noise criteria at sensitive receptors, this is likely to provide sufficient justification for the need to operate outside of recommended standard hours as specified in the ICNG.

Noise Criteria

7. Except for the noise affected land in Table 1, the Proponent shall ensure that operational noise generated by the project does not exceed the criteria in Table 5.

Table 5: Noise criteria dB(A)

Land	Day/Evening/Night <i>L_{Aeq}(15 min)</i>	Night <i>L_{A1} (1 min)</i>
All privately-owned residences	35	45

Note:

- Noise generated by the project is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.
- Operational noise includes noise from the mining operations and the use of private roads and rail spurs.

However, these noise criteria do not apply if the Proponent has an agreement with the owner/s of the relevant residence or land to generate higher noise levels, and the Proponent has advised the Department in writing of the terms of this agreement.

Noise Acquisition Requirements - Residences

8. If the owner(s) of a privately-owned residence, which is not within the project's 35 dB(A) noise impact contour (see condition 2, Table 2 and Appendix 4A), have reason to believe that operational noise from the project is causing the criteria in Table 5 to be exceeded at the residence, the owner(s) can request an independent noise impact assessment for the residence. The request shall be made in writing to the Director-General. If the Director-General considers that a noise impact assessment is warranted, then the Proponent shall commission the assessment.

If the noise impact assessment determines that the noise generated by the project causes sustained exceedances, or is likely to cause sustained exceedances, of the criteria in Table 5, the owner(s) can make a written request to the Proponent for one of the following:

- (a) mitigation (such as double glazing, insulation and air conditioning) at the residence in consultation with the owner(s). These measures must be reasonable and feasible and directed towards reducing the noise impacts of the project on the residence. If within 3 months of receiving this request from the owner(s), the Proponent and owner(s) cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Director-General for resolution; or
- (b) acquisition of the residence and land in accordance with the procedures in conditions 8-9 of Schedule 4.

Upon receiving a written request from the owner(s), the Proponent must undertake whichever option has been requested by the owner(s).

However, this condition does not apply if the Proponent has an agreement with the owner(s) of the relevant residence to generate higher noise levels, and the Proponent has advised the Department in writing of the terms of this agreement.

Notes:

1. For the purposes of this condition a privately-owned residence is defined as a residence not owned by a mining company that: is regularly occupied; or is an existing residence that is not regularly occupied but for which a valid

- development consent exists; or is a proposed residence for which a development application has been lodged with the relevant authority prior to the date of this approval.
- For the purposes of acquisition under this condition, parcels of land that are in close proximity and operated as a single agricultural enterprise should be included as part of the land to be acquired. Where the Proponent and the owner(s) cannot agree on whether non-contiguous parcels of land should be included, either party may refer the matter to the Director-General for resolution. The Director-General's decision as to the lands to be included for acquisition under the procedures in conditions 8 and 9 of Schedule 4 shall be final.
 - Notes 2,3,4 and 5 of condition 3 apply to this condition.

Noise Acquisition Requirements - Land

- If the owner(s) of land containing a privately owned residence, which is not listed in Table 1, have reason to believe that operational noise from the project is causing noise levels to exceed 40 dB(A) $L_{Aeq}(15 \text{ min})$ over more than 25% of that land, the owner(s) can request an independent noise impact assessment for the land. The request shall be made in writing to the Director-General. If the Director-General considers that a noise impact assessment is warranted, then the Proponent shall commission the assessment.

If the noise impact assessment determines that the noise generated by the project causes sustained exceedances, or is likely to cause sustained exceedances, of the 40 dBA criteria, the owner(s) can make a written request to the Proponent for acquisition of the residence and land in accordance with the procedures in conditions 8-9 of Schedule 4.

Upon receiving a written request from the owner(s), the Proponent must purchase the residence and land in accordance with the procedures in conditions 8-9 of Schedule 4.

However, this condition does not apply if the Proponent has an agreement with the owner(s) of the relevant residence to generate higher noise levels, and the Proponent has advised the Department in writing of the terms of this agreement.

Notes:

- For the purposes of this condition a privately-owned residence is defined as a residence not owned by a mining company that is regularly occupied; or is an existing residence that is not regularly occupied but for which a valid development consent exists; or is a proposed residence for which a development application has been lodged with the relevant authority prior to the date of this approval.
- For the purposes of acquisition under this condition, parcels of land that are in close proximity and operated as a single agricultural enterprise should be included as part of the land to be acquired. Where the Proponent and the owner(s) cannot agree on whether non-contiguous parcels of land should be included, either party may refer the matter to the Director-General for resolution. The Director-General's decision as to the lands to be included for acquisition under the procedures in conditions 8 and 9 of Schedule 4 shall be final.
- Notes 2,3,4 and 5 of condition 3 apply to this condition.

Cumulative Noise Criteria

- Except for the land listed in Table 1, the Proponent shall ensure that the operational noise generated by the project combined with the noise generated by other mines does not exceed the criteria in Table 6 at any residence on privately-owned land.

Table 6: Cumulative noise criteria dB(A) L_{Aeq} (period)

Land	Day/Evening/Night L_{Aeq} (period)
All privately-owned land	40

Notes:

- Cumulative noise is to be measured in accordance with the relevant requirements, and exemptions (including certain meteorological conditions), of the NSW Industrial Noise Policy.
- Operational noise includes noise from the mining operations and the use of private roads and rail spurs.

Cumulative Noise Acquisition Requirements

- If the owner(s) of a privately-owned residence, which is not listed in Table 1, reasonably believes that the noise limits in Table 6 are being exceeded at the residence and that the exceedance is caused by operational noise from the project and one or more other mines (including use of private roads or rail spurs), the owner(s) can request an independent noise impact assessment for the residence. The request shall be made in writing to the Director-General. If the Director-General considers that a noise impact assessment is warranted, then the Proponent shall commission the assessment.

Where the noise impact assessment determines that the cumulative noise generated by the project combined with the noise from the other mine(s) causes, or is likely to cause, sustained exceedances of the criteria in Table 6, then the owner(s) can make a written request to the Proponent for one of the following:

- mitigation (such as double glazing, insulation and air conditioning) at the residence in consultation with the owner(s). These measures must be reasonable and feasible and directed towards reducing the noise impacts of the project on the residence. If within 3 months of receiving this request from

the owner(s), the Proponent and owner(s) cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Director-General for resolution; or

- (b) acquisition of the residence and land in accordance with the procedures in conditions 8-9 of Schedule 4.

Upon receiving a written request from the owner(s), the Proponent must undertake whichever option has been requested by the owner(s).

However, this condition does not apply if the Proponent has an agreement with the owner(s) of the relevant residence to generate higher noise levels, and the Proponent has advised the Department in writing of the terms of this agreement.

The Proponent may seek to recover an equitable share of the costs incurred from the other mines contributing to the cumulative impact. Unless otherwise agreed between the mines, the proportional contributions should be based on expert analysis of the monitoring results to assess relative contribution to the impact. In the event of a dispute between the mines the Proponent, or one of the contributing mines, may submit the matter to the Director-General for resolution. The Director-General's decision shall be final.

Notes:

1. *For the purposes of this condition a privately-owned residence is defined as a residence not owned by a mining company that: is regularly occupied; or is an existing residence that is not regularly occupied but for which a valid development consent exists; or is a proposed residence for which a development application has been lodged with the relevant authority prior to the date of this approval.*
2. *For the purposes of acquisition under this condition, parcels of land that are in close proximity and operated as a single agricultural enterprise should be included as part of the land to be acquired. Where the Proponent and the owner(s) cannot agree on whether non-contiguous parcels of land should be included, either party may refer the matter to the Director-General for resolution. The Director-General's decision as to the lands to be included for acquisition under the procedures in conditions 8 and 9 of Schedule 4 shall be final.*
3. *Notes 2,3,4 and 5 of condition 3 apply to this condition.*
4. *The noise impact assessment shall include assessment of the relative contribution of the mines to the impact at the residence.*

Attenuation of Plant

12. The Proponent shall:

- (a) ensure that:
- all mining trucks and water carts used on the site are commissioned as noise suppressed (or attenuated) units;
 - ensure that all equipment and noise control measures deliver sound power levels that are equal to or better than the sound power levels identified in the EA, and correspond to best practice or the application of the best available technology economically achievable;
 - where reasonable and feasible, improvements are made to existing noise suppression equipment as better technologies become available; and
- (b) monitor and report on the implementation of these requirements annually on its website.

13. The Proponent shall:

- (a) conduct an annual testing program of the attenuated plant on site to ensure that the attenuation remains effective;
- (b) restore the effectiveness of any attenuation if it is found to be defective; and
- (c) report on the results of any testing and/or attenuation work annually on its website.

Maules Creek Rail Spur Line – Noise impacts

14. The Proponent shall:

- (a) commission suitably qualified and experienced person/s to review the design of the Maules Creek rail spur line, and determine whether it incorporates all reasonable and feasible noise mitigation measures, including suitable measures to minimise low frequency noise;
- (b) implement the recommendations of this acoustic review;
- (c) undertake commissioning trials of the spur line to determine the optimal train speed to minimise noise impacts; and
- (d) following commissioning of the spur line, undertake targeted noise monitoring to determine the accuracy of predicted acoustic impacts and effectiveness of any noise reduction measures, including monitoring during adverse inversion conditions, to the satisfaction the Director-General.

Operating Conditions

15. The Proponent shall:

- (a) implement best management practice to minimise the construction, operational, low frequency, road and rail traffic noise of the project;
- (b) operate a comprehensive noise management system on site that uses a combination of predictive meteorological forecasting and real-time noise monitoring data to guide the day to day planning of

- mining operations and the implementation of both proactive and reactive noise mitigation measures to ensure compliance with the relevant conditions of this approval;
- (c) maintain the effectiveness of noise suppression equipment on plant at all times and ensure defective plant is not used operationally until fully repaired;
- (d) ensure that noise attenuated plant is deployed preferentially in locations relevant to sensitive receivers;
- (e) minimise the noise impacts of the project during meteorological conditions when the noise limits in this approval do not apply;
- (f) ensure that the Maules Creek rail spur line is only accessed by locomotives that are approved to operate on the NSW rail network in accordance with the noise limits in ARTC's EPL (No. 3142);
- (g) use its best endeavours to ensure that the rolling stock supplied by service providers on the rail spur line is designed, constructed and maintained to minimise noise;
- (h) ensure any new rail rolling stock manufactured specifically for the project is designed, constructed and maintained to minimise noise; and
- (i) co-ordinate the noise management on site with the noise management at other mines within the Leard Forest Mining Precinct to minimise the cumulative noise impacts of these mines, to the satisfaction of the Director-General.

Noise Management Plan

16. The Proponent shall prepare and implement a Noise Management Plan for the project to the satisfaction of the Director-General. This plan must:
 - (a) be prepared in consultation with the EPA, and submitted to the Director-General for approval prior to the commencement of construction;
 - (b) describe the measures that would be implemented to ensure:
 - best management practice is being employed;
 - the noise impacts of the project are minimised during meteorological conditions when the noise limits in this approval do not apply; and
 - compliance with the relevant conditions of this approval;
 - (c) describe the proposed noise management system in detail;
 - (d) include a risk/response matrix to codify mine operational responses to varying levels of risk resulting from weather conditions and specific mining activities;
 - (e) include commitments to provide summary reports and specific briefings at CCC meetings on issues arising from noise monitoring;
 - (f) include a monitoring program that:
 - uses a combination of real time and supplementary attended monitoring to evaluate the performance of the project;
 - adequately supports the proactive and reactive noise management system on site;
 - includes a protocol for determining exceedances of the relevant conditions of this approval;
 - includes monitoring of inversion strength at an appropriate sampling rate to determine compliance with noise limits;
 - evaluates and reports on the effectiveness of the noise management system on site; and
 - provides for the annual validation of the noise model for the project; and
 - (g) includes a Leard Forest Mining Precinct Noise Management Strategy that has been prepared in consultation with the other coal mines in the Precinct to minimise the cumulative noise impacts of all the mines within the precinct, and includes:
 - a description of the measures that would be implemented to ensure that the noise management of the mines is properly co-ordinated to ensure compliance with the relevant noise criteria;
 - a suitable monitoring network for the precinct;
 - protocols for data sharing; and
 - procedures for identifying and apportioning the source/s and contribution/s to cumulative noise impacts for the operating mines and other sources, using the noise and meteorological monitoring network and appropriate investigative tools.

Note: The Leard Forest Mining Precinct Noise Management Strategy can be developed in stages and will need to be subject to ongoing review dependent upon the determination and commencement of other mining projects in the area.

Noise Measurement

17. Where conditions in this approval refer to measurement of noise within the context of the NSW Industrial Noise Policy the inversion class to be applied to the project is Class G.

However, the Proponent may undertake an investigation to determine whether a proposal for change in this classification could be considered for approval by the Director-General. Any such investigation must be conducted in consultation with the EPA and be conducted by a suitably qualified person whose appointment has been endorsed by the EPA and approved by the Director-General. The report and recommendation must be submitted to the EPA for endorsement prior to submission to the Director-General. If the Director-General is satisfied that the recommendation is reasonable, then the Director-General may amend the inversion class applying to the project under this approval.

BLASTING

Blasting Criteria

18. The Proponent shall ensure that the blasting on the site does not cause exceedances of the criteria in Table 7.

Table 7: Blasting criteria

Location	Airblast overpressure (dB(Lin Peak))	Ground vibration (mm/s)	Allowable exceedance
Residence on privately owned land	120	10	0%
	115	5	5% of the total number of blasts over a period of 12 months
All public infrastructure	-	50 (or alternatively a specific limit determined to the satisfaction of the Director-General by the structural design methodology in AS 2187.2-2006, or its latest version)	0%

However, these criteria do not apply if the Proponent has a written agreement with the relevant owner or infrastructure provider/owner, and the Proponent has advised the Department in writing of the terms of this agreement.

Blasting Hours

19. The Proponent shall only carry out blasting on the site between 9 am and 5 pm Monday to Saturday inclusive. No blasting is allowed on Sundays, public holidays, or at any other time without the written approval of the Director-General.

Blasting Frequency

20. The Proponent may carry out a maximum of:
- (a) 1 blast a day; unless an additional blast is required following a blast misfire; and
 - (b) 4 blasts a week, averaged over a calendar year; for the project.

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

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

Property Inspections

21. If the Proponent receives a written request from the owner of any privately-owned land within 2 kilometres of the approved open cut mining pit on site, for a property inspection to establish the baseline condition of any buildings and/or structures on his/her land, or to have a previous property inspection report updated, then within 2 months of receiving this request the Proponent shall:
- (a) commission a suitably qualified, experienced and independent person, whose appointment is acceptable to both parties, to:
 - establish the baseline condition of any buildings and/or structures on the land, or update the previous property inspection report; and
 - identify any measures that should be implemented to minimise the potential blasting impacts of the project on these buildings and/or structures; and
 - (b) give the landowner a copy of the new or updated property inspection report.

If there is a dispute over the selection of the suitably qualified, experienced and independent person, or the Proponent or landowner disagrees with the findings of the independent property investigation, then either party may refer the matter to the Director-General for resolution.

Property Investigations

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

- (a) commission a suitably qualified, experienced and independent person, whose appointment is acceptable to both parties, to investigate the claim; and
- (b) give the landowner a copy of the property investigation report.

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

If there is a dispute over the selection of the suitably qualified, experienced and independent person, or the Proponent or landowner disagrees with the findings of the independent property investigation, then either party may refer the matter to the Director-General for resolution.

Operating Conditions

- 23. During mining operations on site, the Proponent shall:
 - (a) implement best management practice to:
 - protect the safety of people and livestock in the surrounding area;
 - protect public or private infrastructure/property in the surrounding area from any damage; and
 - minimise the dust and fume emissions of any blasting; and
 - minimise blasting impacts on heritage items in the vicinity of the site;
 - (b) co-ordinate the timing of blasting on site with the timing of blasting at other mines within the Leard Forest Mining Precinct to minimise the cumulative blasting impacts of these mines; and
 - (c) operate a suitable system to enable the public to get up-to-date information on the proposed blasting schedule on site, to the satisfaction of the Director-General.
- 24. The Proponent shall not undertake blasting on-site within 500 metres of:
 - (a) any public road without the approval of Council; or
 - (b) any land outside the site that is not owned by the Proponent, unless:
 - the Proponent has a written agreement with the relevant landowner to allow blasting to be carried out closer to the land, and the Proponent has advised the Department in writing of the terms of this agreement, or
 - the Proponent has:
 - demonstrated to the satisfaction of the Director-General that the blasting can be carried out closer to the land without compromising the safety of the people or livestock on the land, or damaging the buildings and/or structures on the land; and
 - updated the Blast Management Plan to include the specific measures that would be implemented while blasting is being carried out within 500 metres of the land.

Blast Management Plan

- 25. The Proponent shall prepare and implement a Blast Management Plan for the project to the satisfaction of the Director-General. This plan must:
 - (a) be submitted to the Director-General for approval prior to undertaking any blasting activities on the site;
 - (b) be prepared in consultation with the EPA and interested members of the local community potentially affected by blasting operations;
 - (c) propose and justify any alternative ground vibration limits for public infrastructure in the vicinity of the site;
 - (d) describe the measures that would be implemented to ensure:
 - best management practice is being employed; and
 - compliance with the relevant conditions of this approval;
 - (e) include a road closure management plan for blasting within 500 metres of a public road, that has been prepared in consultation with Council;
 - (f) include a specific blast fume management protocol to demonstrate how emissions will be minimised including risk management strategies if blast fumes are generated;
 - (g) include a monitoring program for evaluating the performance of the project including:
 - compliance with the applicable criteria; and
 - minimising fume emissions from the site; and
 - (h) include a Leard Forest Mining Precinct Blast Management Strategy that has been prepared in consultation with the other mines within the Leard Forest Mining Precinct to minimise the cumulative blasting impacts of all the mines within the precinct.

Note: The Leard Forest Mining Precinct Blast Management Strategy can be developed in stages and will need to be subject to ongoing review dependent upon the determination of and commencement of other mining projects in the area.

AIR QUALITY & GREENHOUSE GAS

Odour

26. Unless otherwise authorised by an EPL, the Proponent shall ensure that no offensive odours are emitted from the site, as defined under the POEO Act.

Greenhouse Gas Emissions

27. 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.

Additional Air Quality Mitigation Upon Request

28. Upon receiving a written request from the owner(s) of any residence on the land listed in Table 1 (on the basis of air quality) or the land listed in Table 8, the Proponent shall implement additional air quality mitigation measures (such as air filters, a first flush roof water drainage system and/or air conditioning) at the residence in consultation with the owner. These measures must be reasonable and feasible and directed towards reducing the air quality impacts of the project on the residence.

If within 3 months of receiving this request from the owner, the Proponent and the owner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Director-General for resolution.

Table 8: Land subject to additional air quality mitigation measures upon request

Mitigation Basis	Land
Air	108-109, 115-116, 121-122

Note: To interpret the locations referred to in Table 8, see the applicable figure(s) in Appendix 4.

Air Quality Criteria

29. Except for the air quality affected land in Table 1, 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 cause exceedances of the criteria listed in Table 9, Table 10 and Table 11 at any residence-on privately-owned land or on more than 25 percent of any privately-owned land.

Table 9: Long-term criteria for particulate matter

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

Table 10: Short-term criteria for particulate matter

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

Table 11: Long-term criteria for deposited dust

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

Notes to Table 9, Table 10 and Table 11:

^a Total impact (ie incremental increase in concentrations due to the project plus background concentrations due to all other sources);

^b Incremental impact (ie incremental increase in concentrations due to the project on its own);

^c Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method.

^d Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents or any other activity agreed by the Director-General.

'reasonable and feasible avoidance and mitigation measures' includes, but is not limited to, the operational requirements in condition 33 and the requirements in conditions 33 and 34 to develop and implement a real-time air quality management system that ensures effective operational responses to the risks of exceedance of the criteria.

Mine-Specific Air Quality Criteria

30. The Proponent shall ensure that except for the air quality affected land in Table 1 (and subject to note 1 below for properties listed in Table 8), particulate matter emissions generated by the project do not exceed the criteria listed in Table 12 at any residence on privately-owned land or on more than 25 percent of any privately-owned land.

Table 12: Short-term criteria for particulate matter

Pollutant	Averaging Period	Criterion
Particulate matter < 10 µm (PM ₁₀)	24 hour	50 µg/m ³

Notes:

- The properties listed in Table 8 are each predicted to be impacted by an exceedance of the criteria in Table 12 on one occasion in one modelled year. For each of these properties a maximum of 5 exceedances of the criteria in Table 12 is allowed over the period covered by this approval. These allowed exceedances are limited to the project-specific emission predictions for each property and to a single exceedance for each property in any one year.
- As provided by the EP&A Act, the criterion in Table 12 (and the exceptions in note 1) may be amended to a more stringent criterion in an EPL, after the first review of the EPL under section 78 of the POEO Act.

Mine-owned Land

31. The Proponent shall ensure that particulate matter emissions generated by the project do not exceed the criteria listed in Table 9, Table 10 and Table 11 at any occupied residence on any mine-owned land (including land owned by adjacent mines) unless:
- the tenant and landowner has been notified of health risks in accordance with the notification requirements under schedule 4 of this approval;
 - the tenant on project owned land can terminate their tenancy agreement without penalty, subject to giving reasonable notice, and the Proponent uses its best endeavours to provide assistance with relocation and sourcing of alternative accommodation;
 - air mitigation measures such as air filters, a first flush roof water drainage system and/or air conditioning) are installed at the residence, if requested by the tenant and landowner (where owned by another mine other than the Proponent);
 - particulate matter air quality monitoring is undertaken to inform the tenant and landowner of potential health risks; and
 - monitoring data is presented to the tenant in an appropriate format, for a medical practitioner to assist the tenant in making an informed decision on the health risks associated with occupying the property,
- to the satisfaction of the Director-General.

Air Quality Acquisition Criteria

32. If particulate matter emissions generated by the project exceed the criteria, or contribute to an exceedance of the relevant cumulative criteria, in Table 13, Table 14 or Table 15, at any residence on privately-owned land or on more than 25 percent of any privately-owned land, then upon receiving a written request for acquisition from the landowner the Proponent shall acquire the land in accordance with the procedures in conditions 8-9 of schedule 4.

Table 13: Long-term land acquisition criteria for particulate matter

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

Table 14: Short-term land acquisition criteria for particulate matter

Pollutant	Averaging period	^d Criterion
Particulate matter < 10 µm (PM ₁₀)	24 hour	^a 150 µg/m ³
Particulate matter < 10 µm (PM ₁₀)	24 hour	^b 50 µg/m ³

Table 15: Long-term land acquisition criteria for deposited dust

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

Notes to Table 13, Table 14 and Table 15:

^a Total impact (ie incremental increase in concentrations due to the project plus background concentrations due to all other sources);

^b Incremental impact (ie incremental increase in concentrations due to the project on its own);

^c Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method;

^d Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents, or any other activity agreed by the Director-General.

Operating Conditions

33. The Proponent shall:
- implement best management practice to minimise the off-site odour, fume and dust emissions of the project, including best practice coal loading and profiling and other measures to minimise dust emissions from coal transportation by rail;
 - operate a comprehensive air quality management system on site that uses a combination of predictive meteorological forecasting, predictive and real time air dispersion modelling and real-time air quality monitoring data to guide the day to day planning of mining operations and implementation of both proactive and reactive air quality mitigation measures (such as relocate, modify and/or suspend operations) to ensure compliance with the relevant conditions of this approval;
 - manage PM_{2.5} levels in accordance with any requirements of an EPL;
 - minimise the air quality impacts of the project during adverse meteorological conditions and extraordinary events (see note d in condition 29);
 - minimise any visible off-site air pollution;
 - minimise the surface disturbance of the site generated by the project; and
 - co-ordinate the air quality management on site with the air quality management at other mines within the Leard Forest Mining Precinct to minimise the cumulative air quality impacts of the mines, to the satisfaction of the Director-General.

Air Quality and Greenhouse Gas Management Plan

34. The Proponent shall prepare and implement an Air Quality and Greenhouse Gas Management Plan for the project to the satisfaction of the Director-General. This plan must:
- be prepared in consultation with the EPA, and be submitted to the Director-General for approval prior to the commencement of construction;
 - describe the measures that would be implemented to ensure:
 - best management practice is being employed;
 - the air quality impacts of the project are minimised during adverse meteorological conditions and extraordinary events; and
 - compliance with the relevant conditions of this consent.
 - describe the proposed air quality management system;
 - include a risk/response matrix to codify mine operational responses to varying levels of risk resulting from weather conditions and specific mining activities;
 - include commitments to provide summary reports and specific briefings at CCC meetings on issues arising from air quality monitoring;
 - include an air quality monitoring program that:
 - uses a combination of real-time monitors and supplementary monitors to evaluate the performance of the project;
 - adequately supports the proactive and reactive air quality management system;
 - includes PM_{2.5} monitoring;
 - includes monitoring of occupied project-related residences and residences on air quality-affected land listed in Table 1 and Table 8, subject to the agreement of the tenant and/or landowner;
 - evaluates and reports on the effectiveness of the air quality management system;
 - includes sufficient random audit of operational responses to the real time air quality management system to determine the ongoing effectiveness of these responses in maintaining the project within the relevant criteria in this Schedule and the requirements of conditions 29 and 30 above; and
 - includes a protocol for determining any exceedances of the relevant conditions in this approval; and

- (g) includes a Leard Forest Mining Precinct Air Quality Management Strategy that has been prepared in consultation with other coal mines in the Precinct to minimise the cumulative air quality impacts of all mines within the Precinct, that includes:
- systems and processes to ensure that all mines are managed to achieve their air quality criteria;
 - a shared environmental monitoring network and data sharing protocol;
 - control monitoring site(s) to provide real time data on background air quality levels (ie not influenced by mining from the Leard Forest Mining Precinct and representative of regional air quality);
 - a shared predictive and real time air dispersion model covering the Leard Forest Mining Precinct to be used for assessment of cumulative impacts, optimising location of the shared real time monitoring network, validation of air predictions and optimising mitigation measures; and
 - procedures for identifying and apportioning the source/s and contribution/s to cumulative air impacts for both mines and other sources, using the air quality and meteorological monitoring network and appropriate investigative tools such as modelling of post incident plume dispersion, dual synchronised monitors and chemical methods of source apportionment (where possible).

Notes:

- *The requirement for regionally based control sites can be further reviewed if a regional air monitoring network is implemented and operated by the EPA as recommended in the draft Strategic Regional Land Use Plan for New England North West.*
- *The Leard Forest Mining Precinct Air Quality Management Strategy can be developed in stages and will need to be subject to ongoing review dependent upon the determination of and commencement of other mining projects in the area.*
- *The management plan should be consistent with the EPA's guidance on Best Management Practice reporting and Reactive Particulate Management Strategies.*

METEOROLOGICAL MONITORING

35. For the life of the project, the Proponent shall ensure that there is a meteorological station 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 Director-General following consultation with the EPA.

SOIL AND WATER

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

Water Supply

36. The Proponent shall ensure that it has sufficient water for all stages of the project, and if necessary, adjust the scale of mining operations on site, to match its available water supply to the satisfaction of the Director-General.

Compensatory Water Supply

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

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

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

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

Surface Water Discharges

38. The Proponent shall ensure that any surface water discharges of mine water from the site:
- (a) are of equal or better quality than the receiving waters; and

- (b) comply with the discharge limits (both volume and quality) set for the project in any EPL.

Note: The project is based on a zero discharge basis for mine water in all modelled meteorological events, however the Department acknowledges that discharge of treated water may be required to be undertaken following very extraordinary events outside modelled data, if approved under an EPL.

Operating Conditions

39. The Proponent shall:

- (a) develop a detailed soil management protocol that identifies procedures for:
 - comprehensive soil surveys prior to soil stripping;
 - assessment of top-soil and sub-soil suitability for mine rehabilitation; and
 - annual soil balances to manage soil handling including direct resspreading and stockpiling;
- (b) maximise the salvage of suitable top-soils and sub-soils and biodiversity habitat components such as bush rocks, tree hollows and fallen timber for rehabilitation of disturbed areas within the site and for enhancement of biodiversity offset areas;
- (c) ensure that coal reject or any potentially acid forming interburden materials are not emplaced at elevations within the pit shell or out of pit emplacement areas where they may promote acid or sulphate species generation and migration beyond the pit shell or out of pit emplacement areas;
- (d) ensure that no water can drain from an out of pit emplacement area to any watercourse or to any land beyond the lease boundary; and
- (e) ensure that the coal barrier between the final void and any future surrounding mining operations minimises exchange of any contained groundwaters in the pit shell.

Water Management Plan

40. The Proponent shall prepare and implement a Water Management Plan for the project to the satisfaction of the Director-General. This plan must be prepared in consultation with OEH, NOW and Namoi CMA, by suitably qualified and experienced person/s whose appointment has been approved by the Director-General, and be submitted to the Director-General for approval prior to the commencement of construction.

In addition to the standard requirements for management plans (see condition 3 of schedule 5), this plan must include:

- (a) a Site Water Balance, that:
 - includes details of:
 - sources and security of water supply, including contingency for future reporting periods;
 - water use on site;
 - water management on site;
 - any off-site water discharges;
 - reporting procedures, including the preparation of a site water balance for each calendar year;
 - a program to validate the surface water model, including monitoring discharge volumes from the site and comparison of monitoring results with modelled predictions; and
 - describes the measures that would be implemented to minimise clean water use on site;
- (b) a Surface Water Management Plan, which includes:
 - detailed baseline data on surface water flows and quality in the water-bodies that could potentially be affected by the project;
 - detailed baseline data on hydrology across the downstream drainage system of the Namoi River floodplain from the mine site to the Namoi River;
 - a detailed description of the water management system on site, including the:
 - clean water diversion systems;
 - erosion and sediment controls (dirty water system);
 - mine water management systems;
 - discharge limits in accordance with EPL requirements;
 - water storages;
 - mine access road and Maules Creek rail spur line;
 - detailed plans, including design objectives and performance criteria for:
 - design and management of final voids;
 - design and management for the emplacement of reject materials, sodic and dispersible soils and acid or sulphate generating materials;
 - design and management for construction and operation of the rail spur line and mine access road;
 - reinstatement of drainage lines on the rehabilitated areas of the site; and
 - control of any potential water pollution from the rehabilitated areas of the site;
 - performance criteria for the following, including trigger levels for investigating any potentially adverse impacts associated with the project:
 - the water management system;

- downstream surface water quality;
 - downstream flooding impacts, including flood impacts due to the construction and operation of the rail spur line and mine access road, and flooding along Back Creek; and
 - stream and riparian vegetation health, including the Namoi River;
 - a program to monitor:
 - the effectiveness of the water management system; and
 - surface water flows and quality in the watercourses that could be affected by the project;
 - downstream flooding impacts; and
 - reporting procedures for the results of the monitoring program;
 - a plan to respond to any exceedances of the performance criteria, and mitigate and/or offset any adverse surface water impacts of the project; and
- (c) a Groundwater Management Plan, which includes:
- detailed baseline data of groundwater levels, yield and quality in the region, and privately-owned groundwater bores including a detailed survey/schedule of groundwater dependent ecosystems (including stygo-fauna and Melaleuca riparian forest communities), that could be affected by the project;
 - the monitoring and testing requirements specified in the PAC recommendations for groundwater management as set out in Appendix 6;
 - detailed plans, including design objectives and performance criteria, for the design and management of:
 - the proposed final void; and
 - coal reject and potential acid forming material emplacement;
 - groundwater assessment criteria including trigger levels for investigating any potentially adverse groundwater impacts;
 - a program to monitor and assess:
 - groundwater inflows to the open cut mining operations;
 - the seepage/leachate from water storages, emplacements, backfilled voids and the final void;
 - interconnectivity between the alluvial and bedrock aquifers;
 - background changes in groundwater yield/quality against mine-induced changes;
 - the impacts of the project on:
 - regional and local (including alluvial) aquifers;
 - groundwater supply of potentially affected landowners;
 - groundwater dependent ecosystems (including potential impacts on stygo-fauna and Melaleuca riparian forest communities) and riparian vegetation;
 - a program to validate the groundwater model for the project, including an independent review of the model every 3 years, and comparison of monitoring results with modelled predictions; and
 - a plan to respond to any exceedances of the performance criteria; and
- (d) a Leard Forest Mining Precinct Water Management Strategy that has been prepared in consultation with other mines within the Precinct to:
- minimise the cumulative water quality impacts of the mines;
 - review opportunities for water sharing/water transfers between mines;
 - co-ordinate water quality monitoring programs as far as practicable;
 - undertake joint investigations/studies in relation to complaints/exceedances of trigger levels where cumulative impacts are considered likely; and
 - co-ordinate modelling programs for validation, re-calibration and re-running of the groundwater and surface water models using approved mine operation plans.

Note: The Leard Forest Mining Precinct Water Management Strategy can be developed in stages and will need to be subject to ongoing review dependent upon the determination of and commencement of other mining projects in the area.

BIODIVERSITY

Leard Forest Mining Precinct Regional Biodiversity Strategy

41. The Proponent shall commission and fund the preparation of a Leard Forest Mining Precinct Regional Biodiversity Strategy, jointly with all other coal mines within the Precinct. The Strategy shall be co-ordinated through the Department (refer condition 42 below) and be prepared by suitably qualified, experienced and independent person/s whose appointment has been endorsed by OEH and subsequently approved by the Director-General, in the following stages:

Stage 1 – Scoping Stage

A scoping report for development of the Strategy must be submitted, by the end of January 2013, for endorsement by OEH and subsequent approval by the Director-General. The Director-General may extend this period with the agreement of OEH. The scoping report must:

- (a) include terms of reference, scope and objectives for the Strategy, including recommendations for the

- Strategy's geographic extent;
- (b) identify the ongoing functions and members of the working group (see condition 42 below);
 - (c) include a project management plan of the Strategy, with a time schedule, indicative dates for working group meetings, review and milestones for completion;
 - (d) include a funding program for the development of the Strategy, including provision of adequate resources for the participation of working group members; and
 - (e) include a consultation/communications program for the Strategy.

Note: The broad terms of reference must be guided by the Planning Assessment Commission (PAC) merit reviews for the Boggabri Coal Mine (February 2012) and Maules Creek Coal Mine (March 2012) – Recommendation 1 for the development of a regional biodiversity strategy.

Stage 2 – Strategy Development

The Strategy must be developed in accordance with the approved Scoping Stage report and be submitted, by the end of January 2014, for endorsement by OEH and subsequent approval by the Director-General. The Director-General may extend this period with agreement of OEH.

Stage 3 – Strategy Review

The Strategy must be reviewed by the end of December 2018, following completion of audits of the rehabilitation and Biodiversity Offset Areas required to be undertaken under approvals for coal mines within the Precinct. The review shall be conducted by suitably qualified, experienced and independent person/s whose appointment has been endorsed by OEH and subsequently approved by the Director-General. Any modifications to the Strategy arising from the review must be endorsed by OEH prior to approval by the Director-General.

42. The Strategy shall be prepared in collaboration with a working group containing (subject to the outcomes of the Stage 1 – Scoping Stage) representatives of the Department, OEH, DRE, Namoi CMA, Council and SEWPaC and the other Leard Forest Mining Precinct mines; which shall be chaired by a suitably qualified, experienced and independent person whose appointment has been approved by the Director-General.
43. The cost of preparing the Strategy, including the independent chairperson and a co-ordinator to be employed by the Department shall be shared equitably between the coal mines in the Leard Forest Mining Precinct on the basis of the approved clearing of remnant vegetation (including native grassland) by the mines, based on the following arrangements:
 - (a) Stage 1 is to be initially funded by Boggabri Coal, with appropriate compensation from the Proponent made following the determination of the Maules Creek Coal and Tarrawonga Coal Projects and as per approved funding arrangements finalised under the Stage 1 Scoping Report;
 - (b) Stage 2 is to be funded by all Leard Forest Mining Precinct mines based on the arrangements approved under the Stage 1 Scoping Report; and
 - (c) Stage 3 is to be funded by all Leard Forest Mining Precinct mines based on recommendations in the approved Stage 2 Leard Forest Mining Precinct Regional Biodiversity Strategy.

Note: Based on predicted clearing of native vegetation provided in the EA documents for the three projects within the Leard Forest Mining Precinct, the proposed funding split would equate to total contributions of 36% from Boggabri (clearing of 1,385 ha), 54% from Maules Creek (clearing of 2,078ha) and 10% from Tarrawonga (clearing of 397 ha). This funding arrangement may change depending upon the determination outcomes of individual projects and can be further refined in the Stage 1 Scoping Stage.

Biodiversity Offset Strategy

44. The Proponent shall implement the biodiversity offset strategy described in the EA, summarised in Table 16 and shown conceptually in Appendix 7, to the satisfaction of the Director-General.

Table 16: Summary of the Biodiversity Offset Strategy

Area	Offset Type	Minimum Size (hectares)
Northern Offset Area currently owned or under option by Proponent	<p>Existing native woodland / forest of 4,286 ha to be protected and enhanced.</p> <p>Additional native vegetation to be established with the restoration of at least 1,470 ha of derived native grassland including 1,396 ha of derived native grassland Box Gum Woodland EEC as listed under the TSC Act.</p> <p>Additional targeted restoration of up to 58 ha of low diversity derived native grassland, pasture improved and cultivated land to provide buffer to offset and connectivity between remnant vegetation.</p> <p><i>Note: the final area of restoration of low diversity derived native grassland, pasture improved and cultivated land is subject to completion of the revised offset strategy required in condition 45.</i></p>	5,756

Area	Offset Type	Minimum Size (hectares)
Eastern Offset Area currently owned or under option by Proponent	<p>Existing native woodland / forest of 190 ha to be protected and enhanced.</p> <p>Additional targeted restoration of up to 319 ha of adjacent low diversity derived native grassland, pasture improved and cultivated land to provide buffer to offset and connectivity between remnant vegetation.</p> <p><i>Note: the final area of restoration of low diversity derived native grassland, pasture improved and cultivated land is subject to completion of the revised offset strategy required in condition 45.</i></p>	190
Western Offset Area including 50% Joint Venture property currently owned or under option by Proponent	<p>Existing native woodland / forest of 891 ha to be protected and enhanced.</p> <p>Additional native vegetation to be established with the restoration of at least 148 ha of derived native grassland including 90 ha of derived native grassland Box Gum Woodland EEC as listed under the TSC Act and existing 7ha of Belah Woodland on property 'Velyama' to be enhanced with restoration of at least 5ha of surrounding derived native grassland to Belah Woodland.</p> <p>Additional targeted restoration of up to 368 ha of adjacent low diversity derived native grassland, pasture improved and cultivated land to provide buffer to offset and connectivity between remnant vegetation.</p> <p><i>Note: the final area of restoration of low diversity derived native grassland, pasture improved and cultivated land is subject to completion of the revised offset strategy required in condition 45.</i></p>	1,039
Eastern Offset Area identified in the zone of affectation	<p>Existing native woodland / forest of 336 ha to be protected and enhanced.</p> <p>Additional targeted restoration of 768 ha of adjacent low diversity derived native grassland, pasture improved and cultivated land to provide buffer to offset and connectivity between remnant vegetation.</p> <p><i>Note: the final area of restoration of low diversity derived native grassland, pasture improved and cultivated land is subject to completion of the revised offset strategy required in condition 45.</i></p>	336
Western Offset Area identified in the zone of affectation	<p>Existing native woodland / forest of 343 ha to be protected and enhanced.</p> <p>Additional targeted restoration of 156 ha of adjacent low diversity derived native grassland, pasture improved and cultivated land to provide buffer to offset and connectivity between remnant vegetation.</p> <p><i>Note: the final area of restoration of low diversity derived native grassland, pasture improved and cultivated land is subject to completion of the revised offset strategy required in condition 45.</i></p>	343
Additional offset areas required to be included by the Proponent –	<p>Additional remnant native vegetation of moderate to good condition native forest / woodland and derived native grassland to provide habitat for impacted threatened species, targeting EEC or highly cleared vegetation communities impacted by the project.</p> <p><i>Note: Location and type of offset subject to final approval as part of revised Biodiversity Strategy to be prepared by Proponent under condition 45.</i></p>	1,000

Area	Offset Type	Minimum Size (hectares)
Rehabilitation Area.	Except for the area of the minimised final void, pre-mining native vegetation communities to be re-established (including 544 ha of Box Gum Woodland EEC) for a biodiversity conservation land use objective, with the area subject to finalisation of the rehabilitation management plan as required under this approval. <i>Note: the final mix and area of native vegetation communities is subject to the approved Biodiversity Management Plan.</i>	2,078 (less the area of the minimised void approved under the closure plan required under this approval)

Revised Biodiversity Offset Strategy

45. The Proponent shall prepare and implement a revised biodiversity offset strategy for the identified offset areas in Table 16 to the satisfaction of the Director-General. The revised Strategy must:
- not reduce the size or quality of the proposed offset areas;
 - be consistent (as far as is possible) with the recommendations and objectives of the Leard Forest Mining Precinct Regional Biodiversity Strategy;
 - be prepared in consultation with OEH, Namoi CMA, CCC, DPI Catchments and Lands and SEWPaC;
 - identify the additional low diversity derived native grassland, cultivated land and pasture improved land to be included in the offset to provide a buffer and connectivity between core remnant habitat;
 - identify the additional offset land within the zone of affectation in the Eastern and Western offset areas that has been secured by the Proponent and where properties have not been secured identify substitute areas that would provide an equivalent increase in biodiversity values;
 - avoid inclusion of any strategic agricultural land (as defined in the final *New England North West Strategic Regional Land Use Plan*) in the offset areas, unless it is demonstrated that the inclusion would not have any adverse impacts on agricultural production;
 - identify a minimum additional 1,000 ha of offset area targeting habitat for threatened species affected by the project which includes restoration of habitat to provide an improvement in biodiversity values; and
 - be submitted to the Director-General for approval within 30 months of the date of this approval, or within 6 months of the approval of Stage 2 of the Leard Forest Mining Precinct Regional Biodiversity Strategy (whichever is sooner) for endorsement by OEH and subsequent approval by the Director-General.

Agricultural Production in Offset Areas

46. Offset areas are to be managed primarily for the purposes of compensating for biodiversity impacts of the project, and improving regional biodiversity outcomes. However, to the extent that limited agricultural production on the lots purchased for offsets is compatible with these objectives, the Biodiversity Management Plan and other conditions of this approval, the Proponent shall:
- include in the Biodiversity Management Plan (see condition 52 below) an agricultural suitability assessment of surplus land on the offset properties, in particular for proposed corridor enhancement zones; and
 - maintain the agricultural productivity of the surplus areas.

Vegetated Corridor between Boggabri and Maules Creek Coal Projects

47. For the vegetated buffer corridor required to be retained and protected under condition 7 of schedule 2 of this approval, the Proponent shall:
- use its best endeavours to work cooperatively with the Proponent of the Boggabri Coal Project to enhance the functioning of the area as a biodiversity corridor; and
 - include in the Biodiversity Management Plan (see condition 52 below) the details as to how impacts on the corridor are to be minimised, to the satisfaction of the Director-General.

Threatened Species

48. For the White Box – Yellow Box – Blakely's Red Gum Grassy Woodland Endangered Ecological Community the Proponent shall:
- ensure that the Biodiversity Offset Strategy and site Rehabilitation Strategy is focused on protection rehabilitation, re-establishment and long-term maintenance of viable stands of this community;
 - investigate in consultation with OEH and the Namoi CMA, all factors likely to enhance or impede the effective long term restoration of degraded remnants of this EEC in offset areas or regeneration of this EEC on disturbed areas (both offset areas and the site);
 - within 24 months of the date of this approval (and if possible in conjunction with Stage 2 of the Leard Forest Mining Precinct Regional Biodiversity Strategy), submit a report of this investigation

- and provide an implementation plan to maximise the prospects for rehabilitation and regeneration of this EEC on the offset areas and the site, for approval by the Director-General; and
- (d) incorporate the approved implementation plan into the revised Biodiversity Management Plan, required under condition 52.

49. For all threatened species on site, the Proponent shall ensure that the Biodiversity Offset Strategy and Rehabilitation Strategy are focused on protection, rehabilitation and long-term maintenance of viable stands of suitable habitat for these species.

Note: the threatened fauna species on site include: Regent Honeyeater, Fork Tailed Swift, White Throated Needletail, Rainbow Bee-eater, Satin Flycatcher, Speckled Warbler, Swift Parrot, Brown Treecreeper, Diamond Firetail, Grey-crowned Babbler, Hooded Robin, Little Lorikeet, Varied Sittella, White-browed Woodswallow, Black Chinned Honeyeater, Painted Honeyeater, Little Eagle, Spotted Harrier, Black Necked Stork, Square Tailed Kite, Turquoise Parrot, Barking Owl, Masked Owl, Eastern False Pipistrelle, Greater Long-eared Bat, Yellow-bellied Sheath Tail Bat, Eastern Cave Bat, Eastern Bent-wing Bat, Little Pied Bat and Koala.

50. The Proponent shall:

- (a) investigate, in consultation with OEH and the Namoi CMA, all factors likely to enhance or impede the effective long term provision of suitable habitat(s) for the following species: Regent Honeyeater, Speckled Warbler, Brown Treecreeper, Diamond Firetail, Grey-crowned Babbler, Hooded Robin, Little Lorikeet, Varied Sittella, Black Chinned Honeyeater, Painted Honeyeater, Little Eagle, Spotted Harrier, Turquoise Parrot, Barking Owl, Masked Owl, Eastern False Pipistrelle, Greater Long-eared Bat, Yellow-bellied Sheath Tail Bat and Little Pied Bat;
- (b) within 24 months of the date of this approval (and if possible, in conjunction with Stage 2 of the Leard Forest Mining Precinct Regional Biodiversity Strategy), submit a report of this investigation and provide an implementation plan to ensure delivery of suitable areas of viable habitat for the species included in (a) above, for approval by the Director-General; and
- (c) incorporate the approved implementation plan into the revised Biodiversity Management Plan, required under condition 52.

Note: the species listed in (a) are those identified in the Director-General's Assessment Report as likely to be significantly impacted by the project.

Aquatic habitat

51. Prior to the design and construction of the permanent Namoi water pipeline and pump station, the Proponent must consult with DPI Fisheries regarding the general operation and design of the pump station and screens to minimise entrainment of fish. The Proponent must implement all reasonable and feasible recommendations from DPI Fisheries to the satisfaction of the Director-General.

Biodiversity Management Plan

52. 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 prepared in consultation with OEH, SEWPaC, CCC, and the Namoi CMA, and be submitted to the Director-General for approval prior to commencement of construction;
 - (b) describe how the implementation of the biodiversity offset strategy would be integrated with the overall rehabilitation of the site;
 - (c) describe the short, medium, and long term measures that would be implemented to:
 - manage the remnant vegetation and habitat on the site and in the offset area/s (if and when applicable); and
 - implement the biodiversity offset strategy (if and when applicable), including detailed performance and completion criteria;
 - (d) include detailed performance and completion criteria for evaluating the performance of the biodiversity offset strategy, and triggering remedial action (if necessary);
 - (e) include a detailed description of the measures that would be implemented including the procedures to be implemented for:
 - enhancing the quality of existing vegetation and fauna habitat;
 - restoring native vegetation and fauna habitat on the biodiversity areas and rehabilitation area through focusing on assisted natural regeneration, targeted vegetation establishment and the introduction of naturally scarce fauna habitat features;
 - maximising the salvage of resources within the approved disturbance area – including vegetative, top and sub-soils and cultural heritage resources – for beneficial reuse in the enhancement of the biodiversity areas or rehabilitation area;
 - collecting and propagating seed;
 - minimising the impacts on fauna on site, including undertaking pre-clearance surveys;
 - improving the connectivity and corridor function of the offset areas to provide an east/west corridor to the Namoi River and demonstrating that this corridor is enhanced and maintained;
 - managing any potential conflicts between the proposed restoration works in the biodiversity

- areas and any Aboriginal heritage values (both cultural and archaeological);
 - managing salinity;
 - controlling weeds and feral pests;
 - controlling erosion;
 - managing grazing and agriculture on site, including detailed assessment of the suitability of grazing for conservation management outcomes;
 - controlling access; and
 - bushfire management;
- (f) include a seasonally-based program to monitor and report on the effectiveness of these measures, and progress against the detailed performance and completion criteria;
- (g) identify the potential risks to the successful implementation of the biodiversity offset strategy, and include a description of the contingency measures that would be implemented to mitigate against these risks; and
- (h) include details of who would be responsible for monitoring, reviewing, and implementing the plan.

Note: The Biodiversity Management Plan and Rehabilitation Management Plan need to be substantially integrated for achieving biodiversity objectives for the rehabilitated mine-site.

53. The Proponent shall revise the Biodiversity Management Plan within 30 months of the date of this approval or within 6 months after the completion of Stage 2 of the Leard Forest Mining Precinct Regional Biodiversity Strategy, whichever is sooner. The revised plan must:
- (a) be prepared in consultation with OEH, SEWPaC, Forests NSW, DPI Catchments and Lands, the CCC and the Namoi CMA;
 - (b) demonstrate consistency with the findings of Leard Forest Mining Precinct Regional Biodiversity Strategy; and
 - (c) include any implementation plans arising from the studies required under conditions 48 and 50 of this approval,
- to the satisfaction of the Director-General.

Long Term Security of Offset

54. The Proponent shall make suitable arrangements to provide appropriate long-term security for the offset areas:
- (a) for the offsets in Table 16 that are not subject to final approval as part of the revised Biodiversity Offset Strategy, the long-term security shall be provided by way of:
 - the Proponent entering into a conservation agreement or agreements pursuant to section 69B of the *National Parks and Wildlife Act 1974*, recording the obligations assumed by the Proponent under the conditions of this approval in relation to these offset areas, and registering the agreement(s) pursuant to section 69F of the *National Parks and Wildlife Act 1974*; or
 - a tenure of higher conservation status such as a National Park, or Nature Reserve, under the *National Parks and Wildlife Act 1974*,

The conservation agreement(s) must be registered by December 2014 unless agreed otherwise by the Director-General after consultation with OEH. The conservation agreements must remain in force in perpetuity;
 - (b) within 12 months of the approval of Stage 2 of the Leard Forest Mining Precinct Regional Biodiversity Strategy, unless otherwise agreed by the Director-General, for the offsets in Table 16 identified as subject to final approval as part of the revised Biodiversity Offset Strategy; and
 - (c) by the end of December 2034, unless otherwise agreed by the Director-General, for the Rehabilitation Area identified in Table 16,
- to the satisfaction of the Director-General.

Conservation Bond

55. Within 36 months of the date of this approval, or within 6 months of the approval of the revised Biodiversity Management Plan required under condition 52 above (whichever is sooner), the Proponent shall lodge a Conservation and Biodiversity Bond with the Department to ensure that the biodiversity offset strategy is implemented in accordance with the performance and completion criteria of the Biodiversity Management Plan. The sum of the bond shall be determined by:
- (a) calculating the full cost of implementing the biodiversity offset strategy (other than land acquisition costs); and
 - (b) employing a suitably qualified quantity surveyor to verify the calculated costs
- to the satisfaction of the Director-General.

If the offset strategy is completed generally in accordance with the completion criteria in the Biodiversity Management Plan to the satisfaction of the Director-General, the Director-General will release the bond.

If the offset strategy is not completed generally in accordance with the completion criteria in the Biodiversity Management Plan, the Director-General will call in all or part of the conservation bond, and arrange for the satisfactory completion of the relevant works.

With the agreement of the Director-General, this bond may be combined with rehabilitation security deposit administered by DRE.

Note: Alternative funding arrangements for long term management of the Biodiversity Offset Strategy, such as provision of capital and management funding as agreed by OEH as part of a Biobanking Agreement or transfer to conservation reserve estate can be used to reduce the liability of the conservation and biodiversity bond.

Biodiversity Audit

56. By the end of December 2017 and then every 5 years, unless the Director-General agrees otherwise, the Proponent shall commission suitably qualified, experienced and independent person/s, whose appointment has been approved by the Director-General, to undertake an audit of the revegetation of the rehabilitation area, management and restoration within the Biodiversity Offset Strategy areas to the satisfaction of the Director-General. This audit must:
- (a) include consultation with OEH, Namoi CMA, DPI Catchments and Lands, SEWPaC, CCC and DRE;
 - (b) assess the performance of the revegetation in the rehabilitation area completed to date against the completion criteria in the Rehabilitation Management Plan;
 - (c) assess the performance of management and restoration in the off-site Biodiversity Offset Strategy areas completed to date against the completion criteria in the Biodiversity Management Plan;
 - (d) identify any measures that should be implemented to improve the performance of rehabilitation, management and restoration within the rehabilitation and biodiversity offset areas; and
 - (e) if the completion criteria have not been met, or are not adequately trending towards being met, determine the likely ecological value of the rehabilitation and restoration once completed, and recommend additional measures to augment the Biodiversity Offset Strategy to ensure that it adequately offsets the project's impacts on biodiversity.

If the audit recommends the implementation of additional measures to augment the Biodiversity Offset Strategy in accordance with (e) above, then within 6 months of the completion of the audit the Proponent shall revise the Biodiversity Offset Strategy, in consultation with the Department, OEH and SEWPaC, and to the satisfaction of the Director-General.

HERITAGE

Aboriginal Heritage Conservation Strategy

57. The Proponent shall prepare and implement an Aboriginal Heritage Conservation Strategy for the project and the Biodiversity Offset Strategy areas to the satisfaction of the Director-General. This Strategy must enhance and conserve the Aboriginal cultural heritage values (both cultural and archaeological) and provide for their long-term protection and management. The Strategy must:
- (a) be prepared by suitably qualified and experienced person/s whose appointment has been endorsed by the Director-General;
 - (b) be prepared in consultation with OEH, the local Aboriginal community and other mines within the Leard Forest Mining Precinct, and submitted to the Director-General for approval within 18 months from the date of project approval;
 - (c) identify the Aboriginal cultural heritage values of the Biodiversity Offset Strategy areas;
 - (d) identify areas of high Aboriginal cultural heritage significance within both the site and the Leard Forest Mining Precinct;
 - (e) identify a range of options for enhancing and conserving Aboriginal cultural heritage values, with specific consideration of the potential for the long-term protection and management of significant sites within either the site, the Biodiversity Offset Strategy areas or other lands within the Leard Forest Mining Precinct identified as having high cultural heritage significance to the Aboriginal community; and
 - (f) consider cumulative impacts and potential for developing joint initiatives with other mines within the Leard Forest Mining Precinct for enhancing and conserving Aboriginal cultural heritage values.

Notes: Known Aboriginal sites are shown on the plans in Appendix 8.

Heritage Management Plan

58. 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 by suitably qualified and experienced person/s whose appointment has been endorsed by the Director-General;
 - (b) be prepared in consultation with the OEH, Namoi CMA and the local Aboriginal stakeholders (in relation to the management of Aboriginal heritage values);

- (c) be submitted to the Director-General for approval prior to any development that may impact heritage items, unless the Director-General agrees otherwise;
- (d) include the following for the management of Aboriginal heritage:
 - a detailed plan for the implementation of the approved Aboriginal Heritage Conservation Strategy;
 - a detailed archaeological salvage program for Aboriginal sites/objects within the approved disturbance area, including methodology and procedures/protocols for:
 - sub-surface testing;
 - staged salvage, based on anticipated mine planning;
 - if relevant, historic heritage salvage at the Lawler's Waterhole site;
 - pre-disturbance monitoring;
 - site assessment and reporting;
 - research objectives to inform knowledge of Aboriginal occupation;
 - protection, storage and management of salvaged Aboriginal objects;
 - addressing relevant statutory requirements under the *National Parks and Wildlife Act 1974*; and
 - long term protection of salvaged Aboriginal objects;
 - a description of the measures that would be implemented for:
 - protecting, monitoring and managing Aboriginal sites on the site which are outside of the approved disturbance area;
 - maintaining and managing reasonable access for Aboriginal stakeholders to heritage items on the site and within the Biodiversity Offset Strategy areas;
 - 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 of the local Aboriginal stakeholders in the conservation and management of Aboriginal cultural heritage both on-site and within any Aboriginal heritage conservation areas;
 - ensuring any 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;
 - a strategy for the storage and management of any heritage items salvaged on site, both during the project and long term;
- (e) include the following for the management of historic heritage:
 - a detailed plan of management measures for maintaining or enhancing the heritage values of heritage items on project-related land which are outside of the approved disturbance area;
 - a description of the measures that would be implemented for:
 - managing the discovery of human remains or previously unidentified heritage items on site; and
 - ensuring workers on site receive suitable heritage inductions prior to carrying out any development on site, and that suitable records are kept of these inductions.

Note: The Department acknowledges that the initial Heritage Management Plan may not include a detailed plan for the implementation of the Aboriginal Heritage Conservation Strategy. If this occurs, the Proponent will be required to update the plan as soon as practicable following the Director-General's approval of the Aboriginal Heritage Conservation Strategy.

TRANSPORT

Road Upgrade and Maintenance

Note: Under the Roads Act 1993, the Proponent may require separate approvals from RMS, NSW Forests and/or Council as the appropriate roads authorities prior to construction of, closure of or conducting mining operations within public roads.

- 59. The Proponent shall construct, operate and maintain the rail bridge over the Kamilaroi Highway for the shared section of the Boggabri rail spur line to the satisfaction of RMS, and shall make all necessary contributions to the costs associated with construction, maintenance and decommissioning of this bridge to the satisfaction of the Director-General.

Note: all costs should be shared on an equitable basis with the proponent of the Boggabri Coal Project.

- 60. The Proponent shall meet RMS's requirements for road intersection upgrades for all State roads used by the project, including upgrading the intersection of Manilla Road and the Kamilaroi Highway to provide a channelised right turn in accordance with Austroads guidelines.

Note: Any upgrades should be undertaken on an equitable basis with the proponent of the Boggabri Coal Project.

- 61. The Proponent shall upgrade and seal the unsealed section of Manilla Road between its intersections with the Tarrawonga Coal mine access road and Barbers Lagoon Road, to the satisfaction of RMS.

62. The Proponent shall ensure that there is no substantial access of heavy vehicles for construction activity to the site prior to the upgrade referred to in condition 61 above, to the satisfaction of the Director-General. However, the Director-General may approve heavy vehicle access to the site prior to or during this upgrade, subject to the Proponent demonstrating that dust impacts can be minimised in accordance with an approved Traffic Management Plan.

Shuttle Bus System for Construction and Mine Workers

63. The Proponent shall ensure that construction and operational employees are predominantly transported to the site by shuttle bus, consistent with the assumptions used in the traffic study undertaken for the EA.

Note: The EA assumed that 90% of construction employees and 90% of operational workers based on peak travel movements would be transported to the site by shuttle bus from Boggabri township. However, the shuttle bus service could also operate from Gunnedah and Narrabri.

Traffic Management Plan

64. The Proponent shall prepare and implement a Traffic Management Plan for the project to the satisfaction of the Director-General. This plan must:
- (a) be prepared in consultation with the RMS, Council and Gunnedah Council;
 - (b) be submitted to the Director-General for approval prior to the commencement of construction;
 - (c) propose an appropriate program and schedule for works required under conditions 59 - 61 above; and
 - (d) include:
 - a code of conduct for drivers of heavy vehicles;
 - nominated heavy vehicle access routes for construction and operational stages, including details on volumes and nature of heavy, over size and/or over mass vehicles;
 - measures to minimise traffic impacts at school bus pick up and drop off times;
 - consideration of measures to minimise dust from unsealed roads that may be used for access to the mine site;
 - proposed program for implementing the findings of the road safety audit identified in the EA; and
 - a monitoring program to audit vehicle movements against predictions in the EA.

Monitoring of Coal Transport

65. The Proponent shall:
- (a) keep records of the:
 - amount of coal transported from the site (on a monthly basis); and
 - date and time of each train movement generated by the project; and
 - (b) make these records available on its website at the end of each calendar year.

Rail Transport

66. Within 12 months of the completion of the Gunnedah Traffic Study, the Proponent shall:
- (a) liaise with Gunnedah Shire Council regarding the study recommendations, including mitigating impacts of coal transportation by rail on road safety and congestion in the Gunnedah LGA due to closures of rail level crossings; and
 - (b) provide a report of the outcomes of this liaison and identify reasonable and feasible proposals recommended by the Proponent and/or the Gunnedah Shire Council towards implementing the Study's recommendations, to the satisfaction of the Director-General.

Note: Any contribution by the Proponent should be on an equitable basis with other coal project rail users.

VISUAL

Operating Conditions

67. The Proponent shall:
- (a) implement all reasonable and feasible measures to minimise the visual and off-site lighting impacts of the project;
 - (b) ensure no outdoor lights shine above the horizontal;
 - (c) wherever possible, ensure that mobile equipment is appropriately designed and/or retrofitted to prevent light being directed above the horizontal;
 - (d) ensure that all external lighting associated with the project complies with *Australian Standard AS4282 (INT) 1997 – Control of Obtrusive Effects of Outdoor Lighting* or its latest version;
 - (e) provide for the establishment of trees and shrubs and/or the construction of mounding or bunding:
 - along the access road to the mine site;
 - along the Maules Creek rail spur line;

- around the water storage dams; and
 - at other areas identified as necessary for the maintenance of satisfactory visual amenity;
- (f) ensure that the visual appearance of all buildings, structures, facilities or works (including paint colours and specifications) is aimed at blending as far as possible with the surrounding landscape, to the satisfaction of the Director-General.

Additional Visual Impact Mitigation

68. Upon receiving a written request from the owner of any residence on privately-owned land which has, or would have, significant direct views of the mining operations and infrastructure on site during the project, the Proponent shall implement additional visual impact mitigation measures (such as landscaping treatments or vegetation screens) to reduce the visibility of these mining operations and infrastructure from the residences on their properties.

These mitigation measures must be reasonable and feasible, and must be implemented within a reasonable timeframe.

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

Notes:

- *The additional visual impact mitigation measures must be aimed at reducing the visibility of the mining operations on site from significantly affected residences, and do not require measures to reduce the visibility of the mining operations from other locations on the affected properties.*
- *The additional visual impact mitigation measures do not necessarily have to include the implementation of measures on the affected property itself (i.e. the additional measures could involve the implementation of measures outside the affected property boundary that provide an effective reduction in visual impacts).*
- *Except in exceptional circumstances, the Director-General will not require additional visual impact mitigation to be undertaken for residences that are more than 7.5 kilometres from the mining operations.*

BUSHFIRE MANAGEMENT

69. 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, NSW Forests, emergency services and National Parks and Wildlife Services as much as possible if there is a fire in the surrounding area.

WASTE

70. The Proponent shall:
- (a) implement all reasonable and feasible measures to minimise the waste (including coal reject) generated by the project;
 - (b) ensure that the waste generated by the project is appropriately stored, handled and disposed of; and
 - (c) monitor and report on the effectiveness of the waste minimisation and management measures in the Annual Review.

REHABILITATION

Rehabilitation Objectives

71. The Proponent shall rehabilitate the site 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 17.

Table 17: Rehabilitation Objectives

Feature	Objective
Mine site	Safe, stable and non-polluting Constructed landforms drain to the natural environment.
Final void	Minimise the size and depth of the final void as far as is reasonable and feasible Minimise the drainage catchment of the final void as far as is reasonable and feasible
Surface infrastructure	To be decommissioned and removed, unless the Executive Director Mineral Resources agrees otherwise.
All land, other than the final void	Restore ecosystem function, including maintaining or establishing self-sustaining ecosystems comprised of:

Feature	Objective
	<ul style="list-style-type: none"> • local native plant species; and • a landform consistent with the surrounding environment, in accordance with the Revised Biodiversity Offset Strategy (see condition 45) and Biodiversity Management Plan (see condition 53).
Community	<p>Ensure public safety</p> <p>Minimise the adverse socio-economic effects associated with mine closure</p>

Note: Appropriate non-native sterile plants may be used for stabilisation and dust suppression purposes on a temporary basis, if required.

Progressive Rehabilitation

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

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

Rehabilitation Management Plan

73. The Proponent shall prepare and implement a Rehabilitation Management Plan to the satisfaction of the Executive Director Mineral Resources. This plan must:
- be prepared in consultation with the Department, Forests NSW, NOW, OEH, Namoi CMA and Council;
 - be submitted to the Executive Director Mineral Resources within 6 months from the date of this approval;
 - be prepared in accordance with any relevant DRE guideline;
 - describe how the rehabilitation of the site would be integrated with the implementation of the biodiversity management plan;
 - include detailed performance and completion criteria for evaluating the performance of the rehabilitation of the site, and triggering remedial action (if necessary);
 - describe the measures that would be implemented to ensure compliance with the relevant conditions of this approval, and address all aspects of rehabilitation including mine closure, final landform, and final land use;
 - include interim rehabilitation where necessary to minimise the area exposed for dust generation;
 - include a program to monitor, independently audit and report on the effectiveness of the measures, and progress against the detailed performance and completion criteria; and
 - build to the maximum extent practicable on the other management plans required under this approval.

Note: In particular the Biodiversity Management Plan and Rehabilitation Management Plan need to be substantially integrated for achieving biodiversity objectives for the rehabilitated mine-site.

Final Void Design and Closure

74. The Proponent shall prepare and implement an updated Final Void and Mine Closure Plan (as a component of the overall Rehabilitation Management Plan required under condition 73 of schedule 3) to the satisfaction of the Executive Director Mineral Resources, following consultation with the Director-General. A draft plan must be prepared and submitted to the Executive Director Mineral Resources by the end of December 2020, and a final plan must be prepared and submitted to the Executive Director Mineral Resources by the end of December 2026. Each version of the plan must:
- be subject to independent review and verification by suitably qualified, experienced and independent person/s (including a groundwater expert) whose appointment has been approved by the Director-General;
 - identify and consider:
 - options for continued mining beyond current project life;
 - interactions with the final landform of adjoining mines (including any direct or indirect interaction between final voids);
 - opportunities for integrated mine planning with adjoining mines to minimise environmental impacts of the mines' final landforms;
 - all reasonable and feasible landform options for the final void (including filling);
 - predicted stability of the proposed landforms; and

- predicted hydrochemistry and hydrogeology (including long-term groundwater recovery and void groundwater quality);
- (c) include a detailed proposed landform design; and
- (d) demonstrate that the proposed final landform:
 - satisfies the relevant objectives in Table 17;
 - minimises the extent of any resulting pit lake;
 - avoids salt scalding;
 - maximises the capacity of emplaced spoil to drain to the natural environment; and
 - ensures that drained waters do not adversely affect the downstream environment.

SOCIAL

Agricultural Property on Project Owned Land

75. The Proponent shall use its best endeavours to ensure that the agricultural productivity of land that is project related (including remaining agricultural land on properties forming the biodiversity offset area) is maintained or enhanced.

Note: This does not include land where disturbance is permitted under the conditions of this approval, or land that forms part of the biodiversity offset area. However, the additional low diversity derived native grassland, cultivated land and pasture improved land that forms part of the Biodiversity Offset Area for corridor enhancement will need to be further assessed for agricultural suitability and management may include both agricultural and conservation outcomes identified as part of an approved biodiversity management plan.

Agricultural Production on land acquired due to impacts on residential receivers

76. The Proponent shall ensure that any properties primarily used for agricultural production that are acquired by the Proponent due to impacts on residential receivers continue to be operated and maintained for sustainable agricultural production, unless they have been incorporated into an approved biodiversity offset area. This condition ceases to have effect if the Proponent disposes of the property.

Construction Workforce Accommodation

77. Prior to construction activities commencing, the Proponent shall prepare and implement a Construction Workforce Accommodation Plan, in consultation with Council, and to the satisfaction of the Director-General. The plan must:
- (a) provide details of the construction workforce numbers throughout all stages of construction including local vs. non-local hiring; and
 - (b) demonstrate that the construction workforce can be suitably housed in approved accommodation facilities.

Social Impact Management Plan

78. The Proponent shall prepare and implement a Social Impact Management Plan for the project to the satisfaction of the Director-General to manage the potential impacts of the project. This plan must:
- (a) be prepared by suitably qualified and experienced person/s whose appointment has been endorsed by the Director-General;
 - (b) be prepared in consultation with Council, Gunnedah Shire Council, the CCC, Aboriginal stakeholders and other relevant Government agencies and service providers, other mine operators in the Leard Forest Mining Precinct and submitted to the Director-General for approval within 12 months of project approval;
 - (c) take into consideration relevant actions related to social impacts identified in the Strategic Regional Land Use Plan for New England North West;
 - (d) identify the social impacts resulting from the various stages of the project (including construction, operational and decommissioning stages) in both the local and regional context, including but not limited to:
 - soft infrastructure such as housing, medical, education, childcare and emergency services;
 - hard infrastructure such as local and regional roads and rail;
 - economic/business development;
 - workforce demand/supply factors, such as training needs; and
 - labour availability impacts on other sectors, such as agricultural enterprises;
 - (e) identify proposed initiatives for promoting workforce opportunities for residing in the area/region as opposed to FIFO/DIDO;
 - (f) include a management and mitigation program to minimise and/or mitigate social impacts which at a minimum incorporates the socio-economic mitigation initiatives identified in the EA, and
 - (g) include a monitoring program, incorporating key performance indicators and a review and reporting protocol, including reporting in the annual review.

SCHEDULE 4 ADDITIONAL PROCEDURES

NOTIFICATION OF LANDOWNERS/TENANTS

1. Within 3 months of the date of this approval, the Proponent shall:
 - (a) notify in writing the owners of:
 - the land listed in Table 1 of schedule 3 that they have the right to require the Proponent to acquire their land at any stage during the project;
 - any residence on the land listed in Table 1 and 2 of schedule 3 that they have the right to request the Proponent to ask for additional noise and/or air quality mitigation measures to be installed at their residence at any stage during the project; and
 - any privately-owned land within 2 kilometres of the approved open cut mining pit/s that they are entitled to ask for an inspection to establish the baseline condition of any buildings or structures on their land, or to have a previous property inspection report updated;
 - (b) notify the tenants of any mine-owned land of their rights under this approval; and
 - (c) send a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time) to the owners and/or existing tenants of any land (including mine-owned land) where the predictions in the EA identify that dust emissions generated by the project are likely to be greater than the relevant air quality criteria in schedule 3 at any time during the life of the project.
2. Prior to entering into any tenancy agreement for any land owned by the Proponent that is predicted to experience exceedances of the recommended dust and/or noise criteria, or for any of the land listed in Table 1 that is subsequently purchased by the Proponent, the Proponent shall:
 - (a) advise the prospective tenants of the potential health and amenity impacts associated with living on the land, and give them a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time);
 - (b) advise the prospective tenants of the rights they would have under this approval; and
 - (c) request the prospective tenants consult their medical practitioner to discuss the air quality monitoring data and predictions and health impacts arising from this information, to the satisfaction of the Director-General.
3. As soon as practicable after obtaining monitoring results showing:
 - (a) an exceedance of the relevant criteria in schedule 3, the Proponent shall notify the affected landowner in writing of the exceedance, and provide regular monitoring results to each of these parties until the project is complying with the relevant criteria again; and
 - (b) an exceedance of the relevant air quality criteria schedule 3, the Proponent shall send to the affected landowners and/or existing tenants of the land (including the tenants of any mine-owned land) a copy of:
 - the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time); and
 - the monitoring data, in an appropriate format so that a medical practitioner can assist the resident in making an informed decision on the health risks associated with occupation of the property.

INDEPENDENT REVIEW

Landowners

4. If an owner of privately-owned land considers the project to be exceeding the 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 expert, 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 impact assessment criteria in schedule 3; and
 - if the project is not complying with these criteria then:
 - i. determine if the more than one mine is responsible for the exceedance, and if so the relative share of each mine towards the impact on the land;
 - ii. identify the measures that could be implemented to ensure compliance with the relevant criteria; and
- (b) give the Director-General and landowner a copy of the independent review.

5. If the independent review determines that the 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 criteria, 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 expert, 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.

If the independent review determines that the project is not complying with the relevant acquisition criteria, and that the project is primarily responsible for this non-compliance, then upon receiving a written request from the landowner, the Proponent shall acquire all or part of the landowner's land in accordance with the procedures in condition 8-9 below.

6. If the independent review determines that the relevant criteria are being exceeded, but that more than one mine is responsible for this exceedance, then together with the relevant mine/s the Proponent shall:
- (a) implement all reasonable and feasible mitigation measures, in consultation with the landowner and appointed independent expert, and conduct further monitoring until there is compliance with the relevant criteria; or
 - (b) secure a written agreement with the landowner and other relevant mine/s to allow exceedances of the relevant impact assessment criteria, to the satisfaction of the Director-General.

If the independent review determines that the project is not complying with the relevant acquisition criteria in schedule 3, but that more than one mine is responsible for this non-compliance, then upon receiving a written request from the landowner, the Proponent shall acquire all or part of the landowner's land on as equitable a basis as possible with the relevant mine/s, in accordance with the procedures in conditions 8-9 below.

Biodiversity & Heritage

7. If a person has good reason to believe the Proponent is not implementing the biodiversity and/or heritage conditions in schedule 3 satisfactorily, then he/she may ask the Director-General in writing for an independent review of the matter.

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 person and/or any relevant agencies;
 - investigate the person's complaints/claims;
 - review the environmental performance of the Proponent;
 - determine whether the Proponent's performance is satisfactory or not; and if necessary
 - recommend measures to improve the Proponent's performance; and
- (b) give the Director-General and complainant a copy of the independent review.

LAND ACQUISITION

8. Within 3 months of receiving a written request from a landowner with acquisition rights, the Proponent shall make a binding written offer to the landowner based on:
- (a) the current market value of the landowner's interest in the land at the date of this written request, as if the land was unaffected by the project, having regard to the:
 - existing and permissible use of the land, in accordance with the applicable planning instruments at the date of the written request; and
 - presence of improvements on the land and/or any approved building or structure which has been physically commenced at the date of the landowner's written request, and is due to be completed subsequent to that date, but excluding any improvements that have resulted from the implementation of the additional mitigation measures required under condition 2 of schedule 3;
 - (b) the reasonable costs associated with:
 - relocating within the Tamworth, Narrabri, Gunnedah or Moree local government area, or to any other local government area determined by the Director-General; and
 - obtaining legal advice and expert advice for determining the acquisition price of the land, and the terms upon which it is to be acquired; and
 - (c) reasonable compensation for any disturbance caused by the land acquisition process.

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

Upon receiving such a request, the Director-General shall request the President of the NSW Division of the Australian Property Institute to appoint a qualified independent valuer to:

- consider submissions from both parties;
- determine a fair and reasonable acquisition price for the land and/or the terms upon which the land is to be acquired, having regard to the matters referred to in paragraphs (a)-(c) above;
- prepare a detailed report setting out the reasons for any determination; and
- provide a copy of the report to both parties.

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

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

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

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

9. The Proponent shall pay all reasonable costs associated with the land acquisition process described in condition 8 above, including the costs associated with obtaining Council approval for any plan of subdivision (where permissible), and registration of this plan at the Office of the Registrar-General.
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**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. The strategy must:
 - (a) be submitted to the Director-General for approval prior to the commencement of construction;
 - (b) provide the strategic framework for 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 consent; and
 - a clear plan depicting all the monitoring to be carried out in relation to the project.

Adaptive Management

2. 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 courses of action; and
- (c) implement remediation measures as directed by the Director-General, to the satisfaction of the Director-General.

Management Plan Requirements

3. The Proponent shall ensure that the management plans required under this consent are prepared in accordance with any relevant guidelines, and include:
 - (a) detailed baseline data;
 - (b) a description of:
 - the relevant statutory requirements (including any relevant consent, licence or lease conditions);
 - any relevant limits or performance measures/criteria;
 - the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;
 - (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;
 - (f) a program to investigate and implement ways to improve the environmental performance of the project 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.

Annual Review

4. By the end of March each year, the Proponent shall review the environmental performance of the project for the previous calendar year 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 current calendar year;
 - (b) include a comprehensive review of the monitoring results and complaints records of the project over the past year, which includes a comparison of these results against the:
 - relevant statutory requirements, limits or performance measures/criteria;
 - monitoring results of previous years; and
 - relevant predictions in the EA;
 - (c) identify any non-compliance over the last 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 the submission of an:
 - (a) annual review under condition 4 above;
 - (b) incident report under condition 8 below;
 - (c) audit under condition 10 below; or
 - (d) any modification to the conditions of this approval,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.

Management of Cumulative Impacts

6. In conjunction with the owners of the nearby mines in the Leard Forest Mining Precinct, the Proponent shall use its best endeavours to minimise the cumulative impacts of the project on the surrounding area to the satisfaction of the Director-General.

Community Consultative Committee

7. The Proponent shall establish and operate a Community Consultative Committee (CCC) for the project to the satisfaction of the Director-General. This CCC must be operated in general accordance with the *Guidelines for Establishing and Operating Community Consultative Committees for Mining Projects* (Department of Planning, 2007, or its latest version), and be operating within 6 months of the date of this approval.

The CCC must include at least one member representing the Maules Creek community, one member from Aboriginal stakeholder groups, and seek to include some joint membership with CCCs for other operating coal mines within the Leard Forest Mining Precinct, unless otherwise agreed by the Director-General.

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 Department's guideline, the CCC should be comprised on an independent chair and appropriate representation from the Proponent, Council, recognised environmental groups and the local community.*

REPORTING

Incident Reporting

8. 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 incident 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

9. 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.

AUDITING

Independent Environmental Audit

10. By the end of June 2015 and every 3 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 other relevant approvals, relevant EPL/s and/or Mining Lease (including any assessment, plan or program required under these approvals);
 - (d) assess whether the Proponent is implementing best noise, blasting and air quality management practice;
 - (e) investigate and report on the measures taken to minimise the noise and air quality impacts of the project during meteorological conditions and/or extraordinary events when the relevant noise and air quality limits in this approval do not apply, including:
 - the effectiveness of these measures in maintaining impacts within the relevant criteria in this approval and/or the limits in the relevant EPL; and
 - any additional measures available to mitigate impacts under such conditions;
 - (f) review the adequacy of any approved strategy, plan or program required under the abovementioned approvals; and
 - (g) recommend measures or actions to improve the environmental performance of the project and/or any strategy, plan or program required under these approvals.

Note: This audit team must be led by a suitably qualified auditor, and include experts in noise, air quality, ecology and any other fields specified by the Director-General.

11. Within 3 months of commissioning 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

12. The Proponent shall:
 - (a) within 3 months of the date of this approval, make the following information publicly available on its website:
 - the EA;
 - all current statutory approvals for the project;
 - approved strategies, plans and programs required under the conditions of this consent;
 - a comprehensive summary of the monitoring results of the project, which have been reported in accordance with the various plans and programs approved under the conditions of this consent;
 - a complaints register, which is to be updated on a monthly basis;
 - minutes of CCC meetings;
 - the last five annual reviews;
 - any independent environmental audit, 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.

Online Communication of Onsite Activities and Monitoring of Noise and Air Quality

13. The Proponent shall, within 3 months of the date of this approval:
 - (a) make the following information for the project publicly available on its website, on a daily basis and in a clearly understandable form:
 - daily weather forecasts for the coming week;
 - proposed operational responses to these weather forecasts;
 - real-time noise and air quality monitoring data (subject to any necessary caveats); and
 - any operational responses that were taken in response to the noise and air quality monitoring data, and

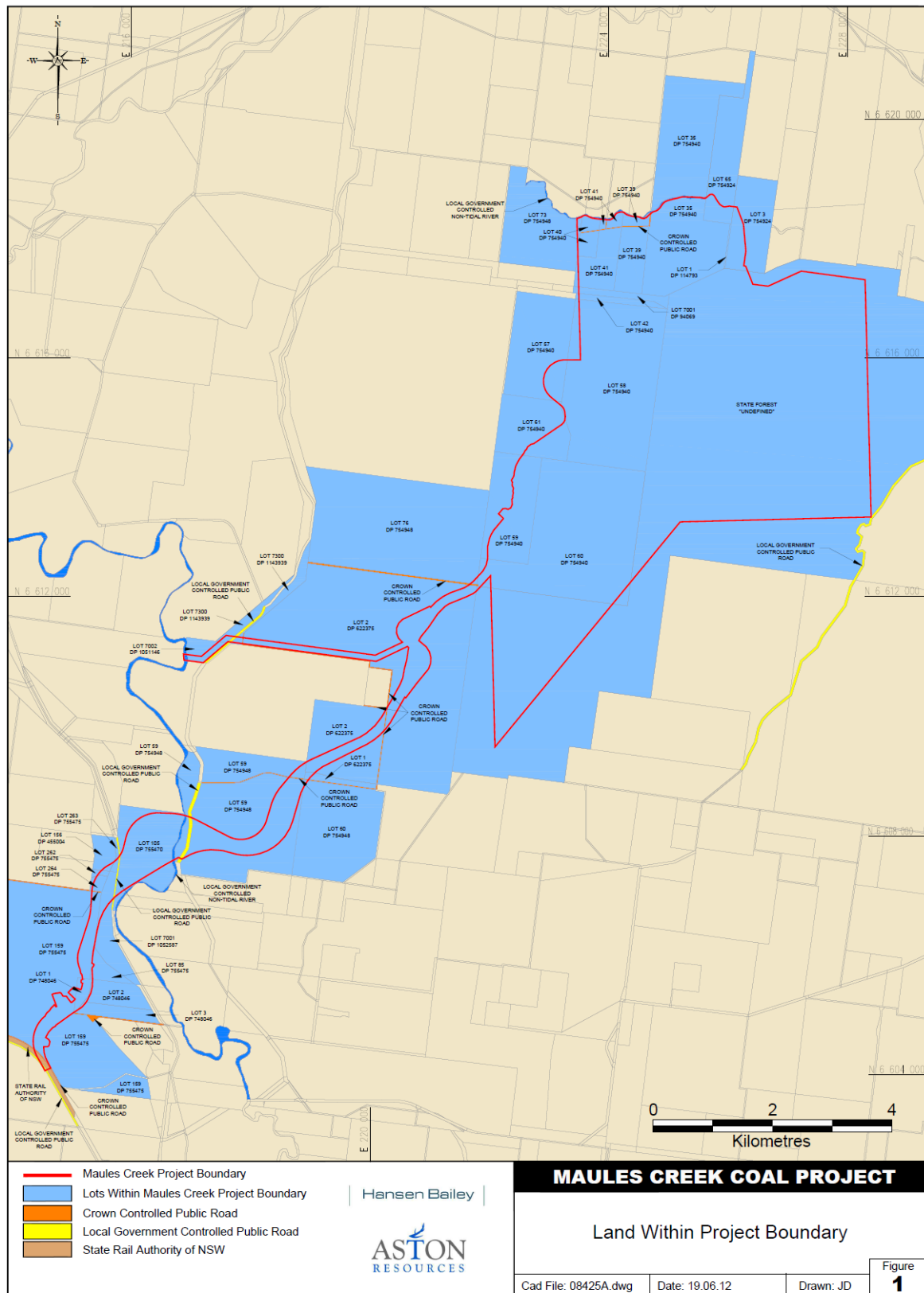
(b) make provision on its website for the provision of on-line and/or email comments by members of the community regarding this information, to the satisfaction of the Director-General.

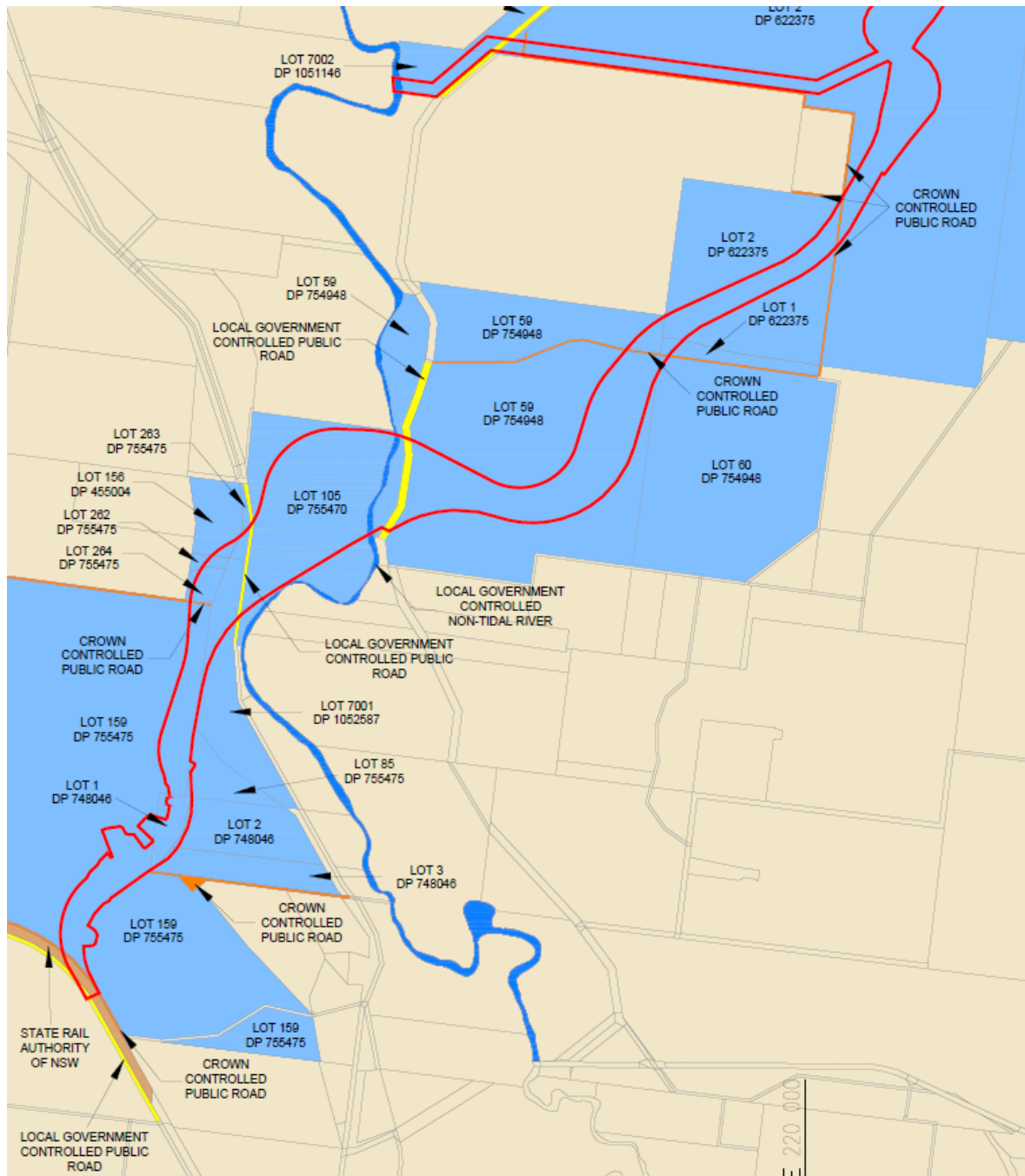
**APPENDIX 1
SCHEDULE OF LAND**

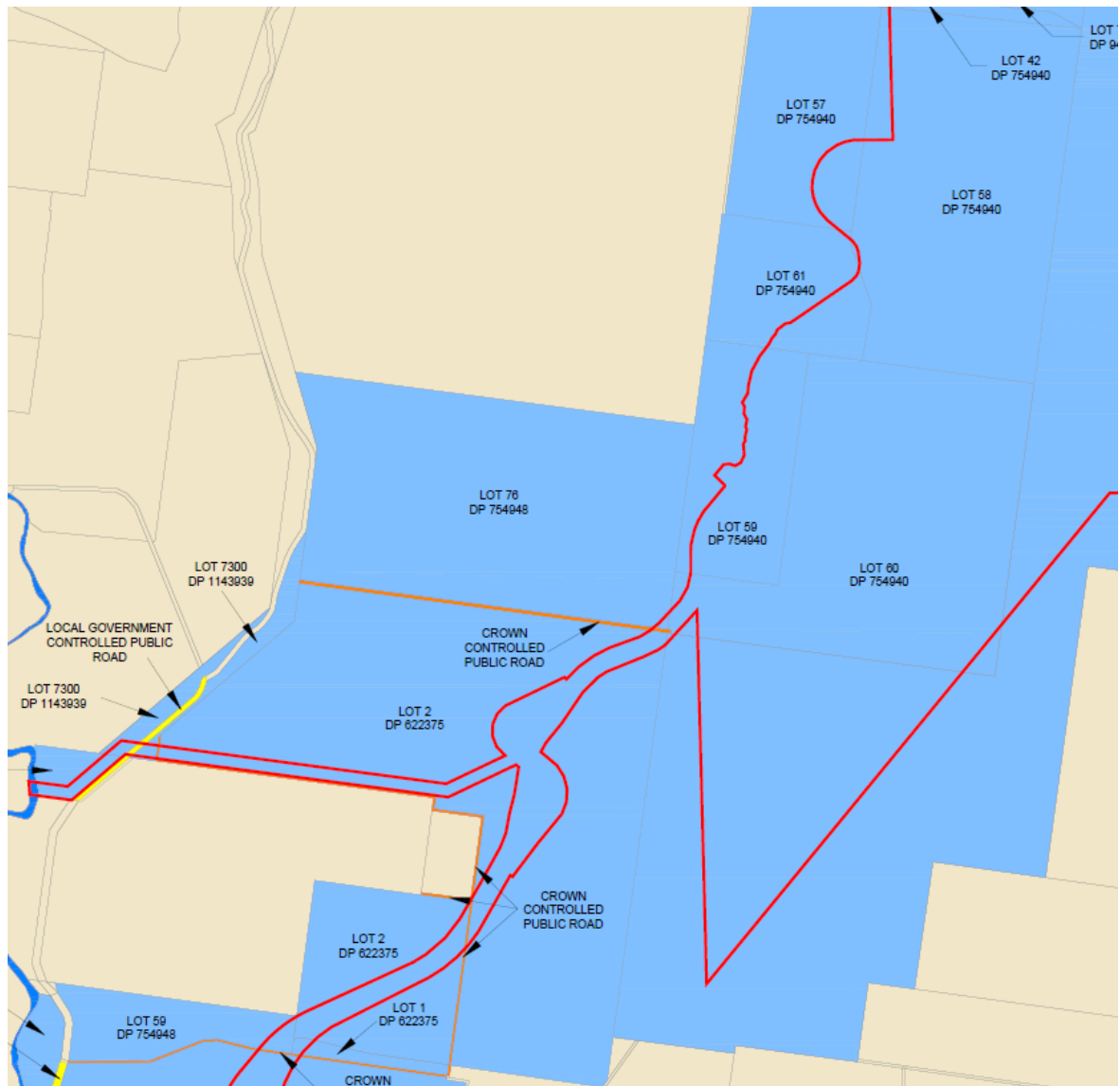
Lot	DP	Lot	DP
7001	94069	76	754948
156	455004	105	755470
1	622375	85	755475
2	622375	159	755475
1	748046	262	755475
2	748046	263	755475
3	748046	264	755475
3	754924	7002	1051146
65	754924	7001	1052587
57	754940	7300	1143939
58	754940	1	114793
59	754940	Werris Creek Mungindi Railway	
60	754940	Kamilaroi Highway	
61	754940	Namoi River	
39	754940	Therribri Road	
40	754940	NSW State Forest	
41	754940	Undefined Road 1	
42	754940	Undefined Road 2	
35	754940	Undefined Road 3	
59	754948	Undefined Road 4	
60	754948	Undefined Road 5	
73	754948	Undefined Road 6	

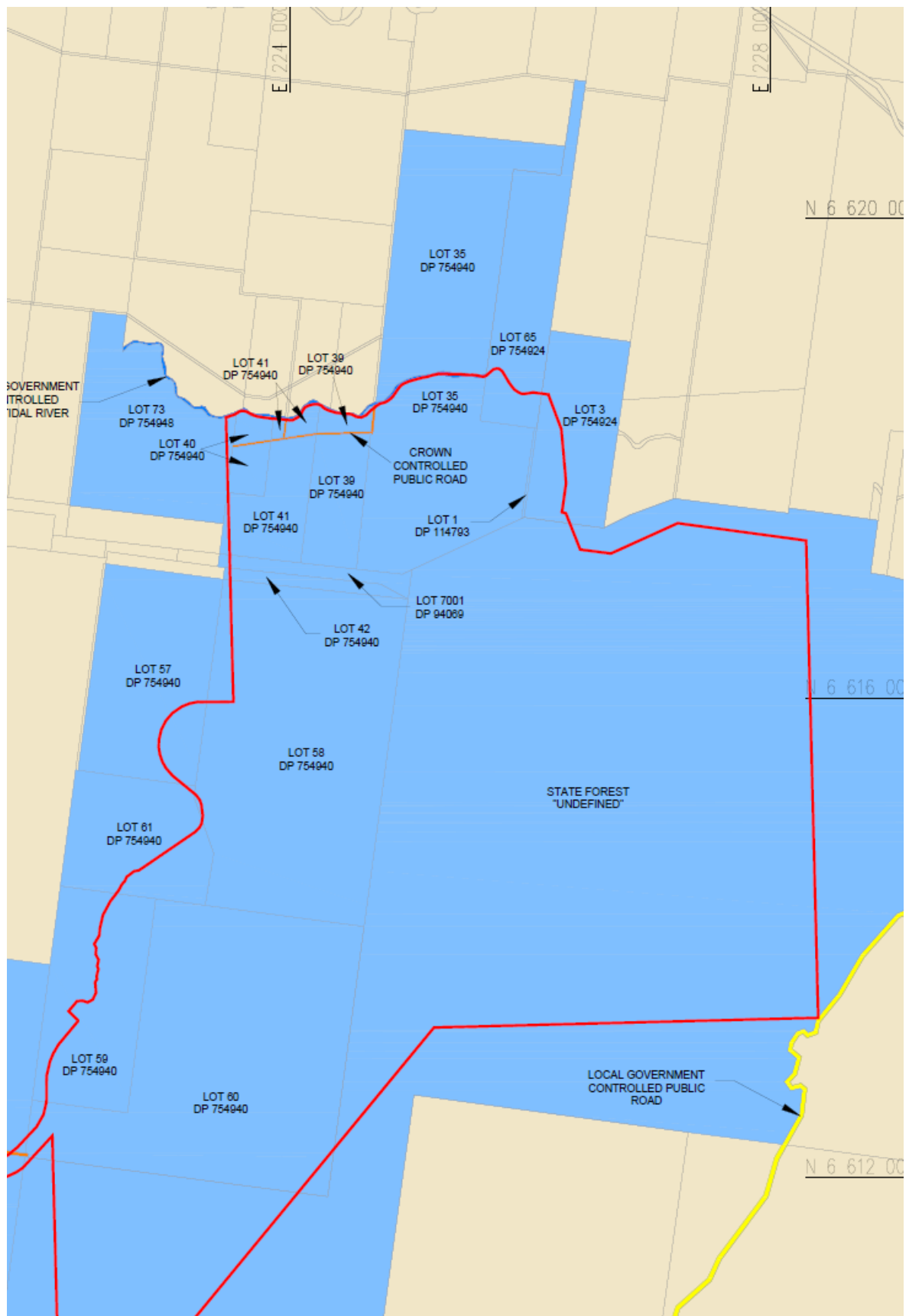
Notes:

1. The cadastral information for the lands to which the Project Application applies was sourced from the NSW LPI records database in June 2010.









APPENDIX 2 PROJECT LAYOUT PLAN

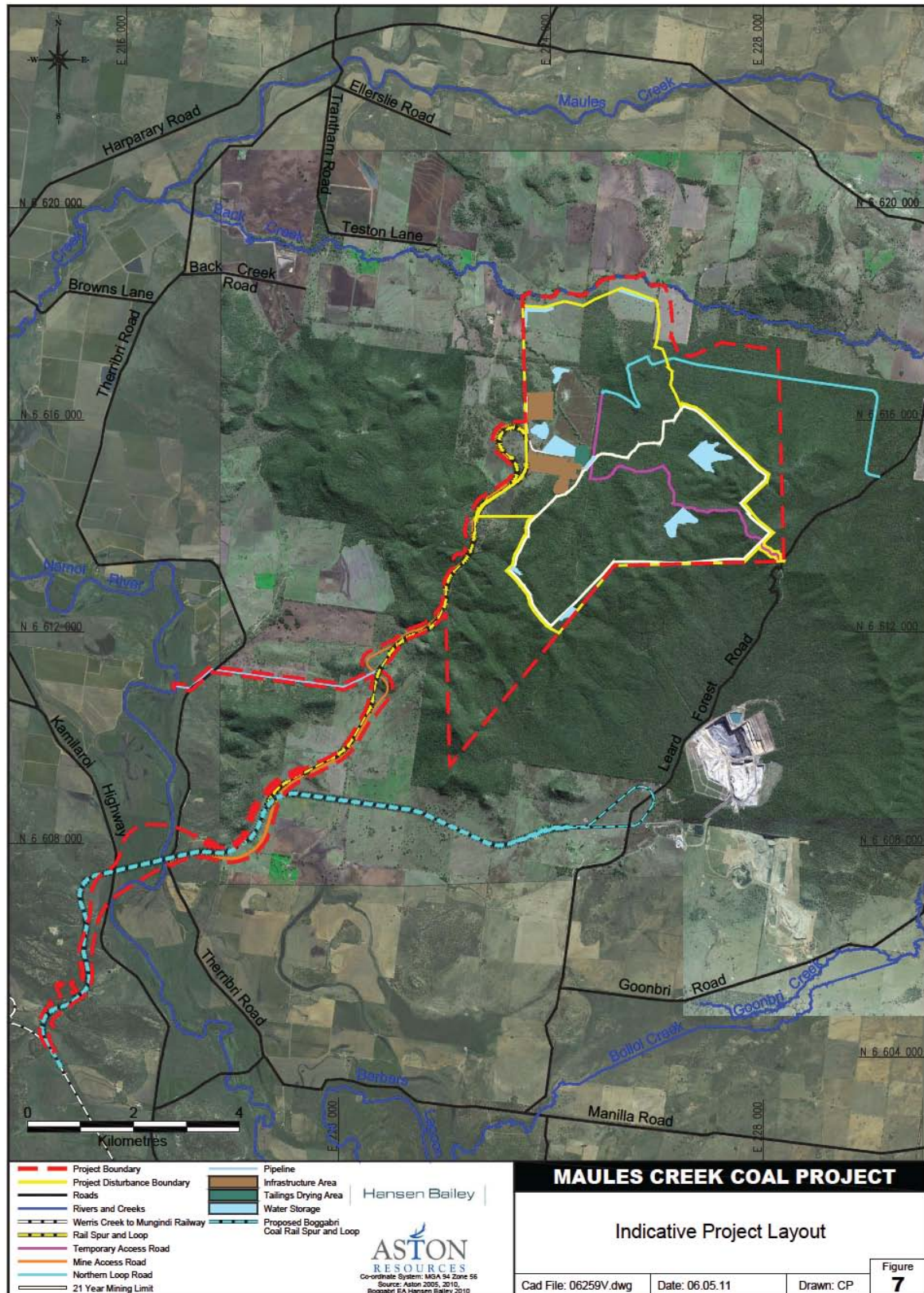


Figure 1: Mine Site Location

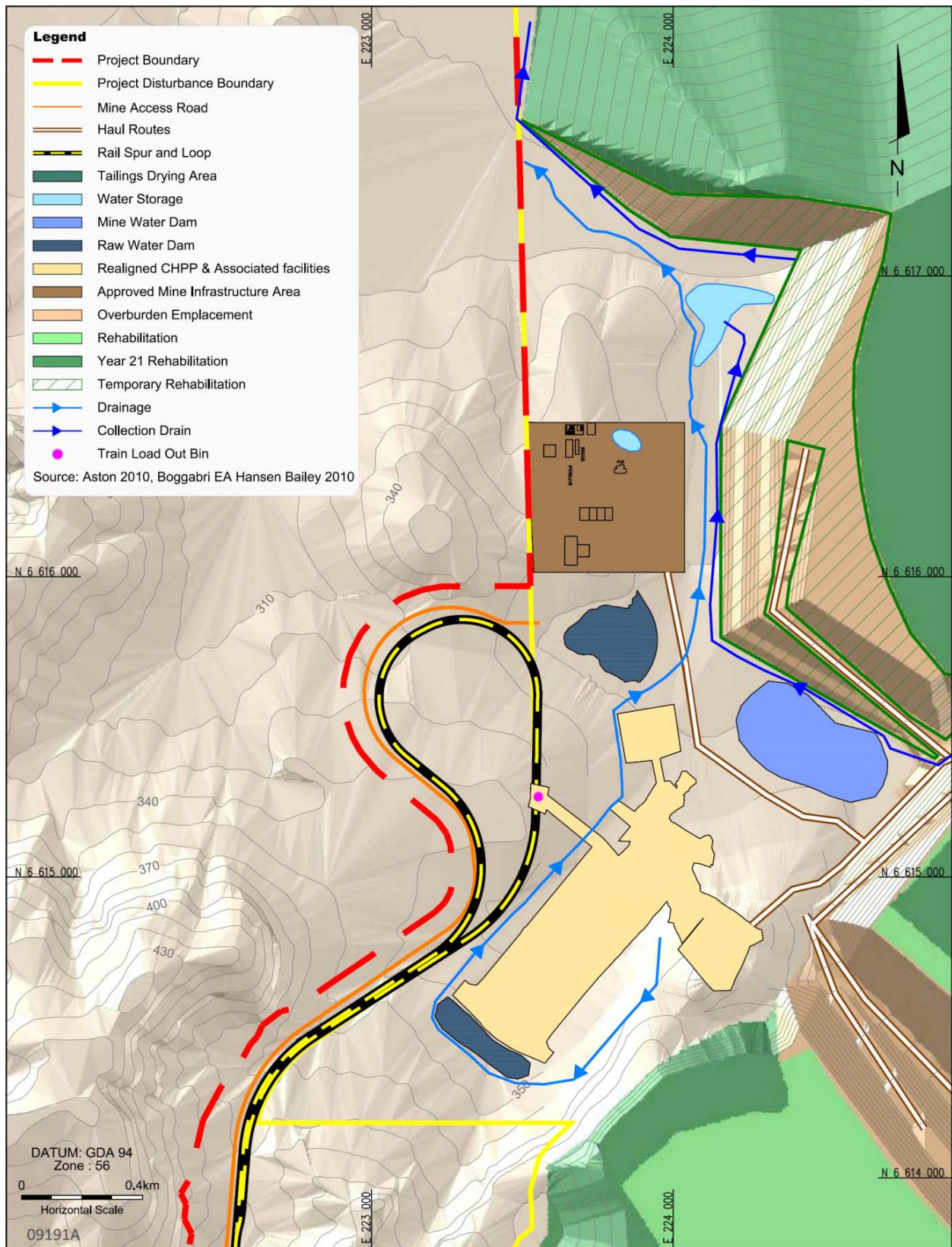


Figure 2: Infrastructure Area

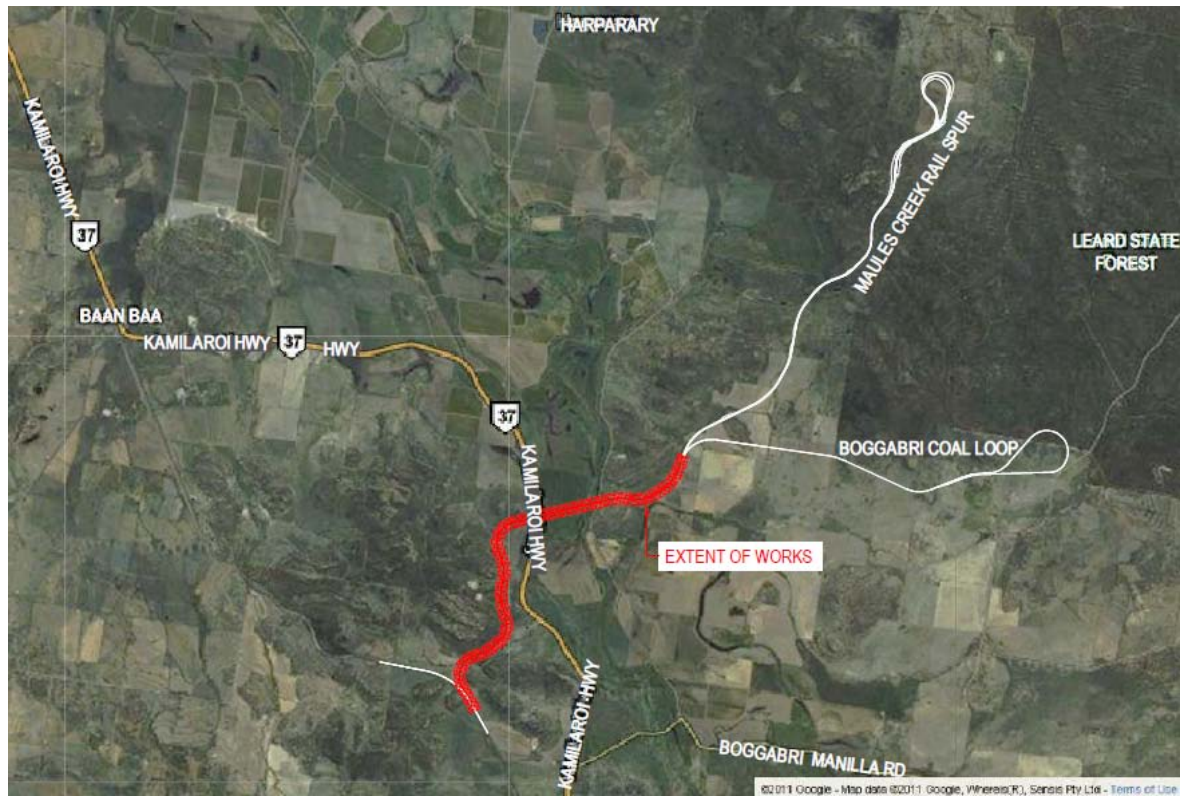


Figure 3: Maules Creek Coal Mine Rail Spur Line connecting into the shared spur line (in red) and Boggabri Coal Mine Rail Spur Line.

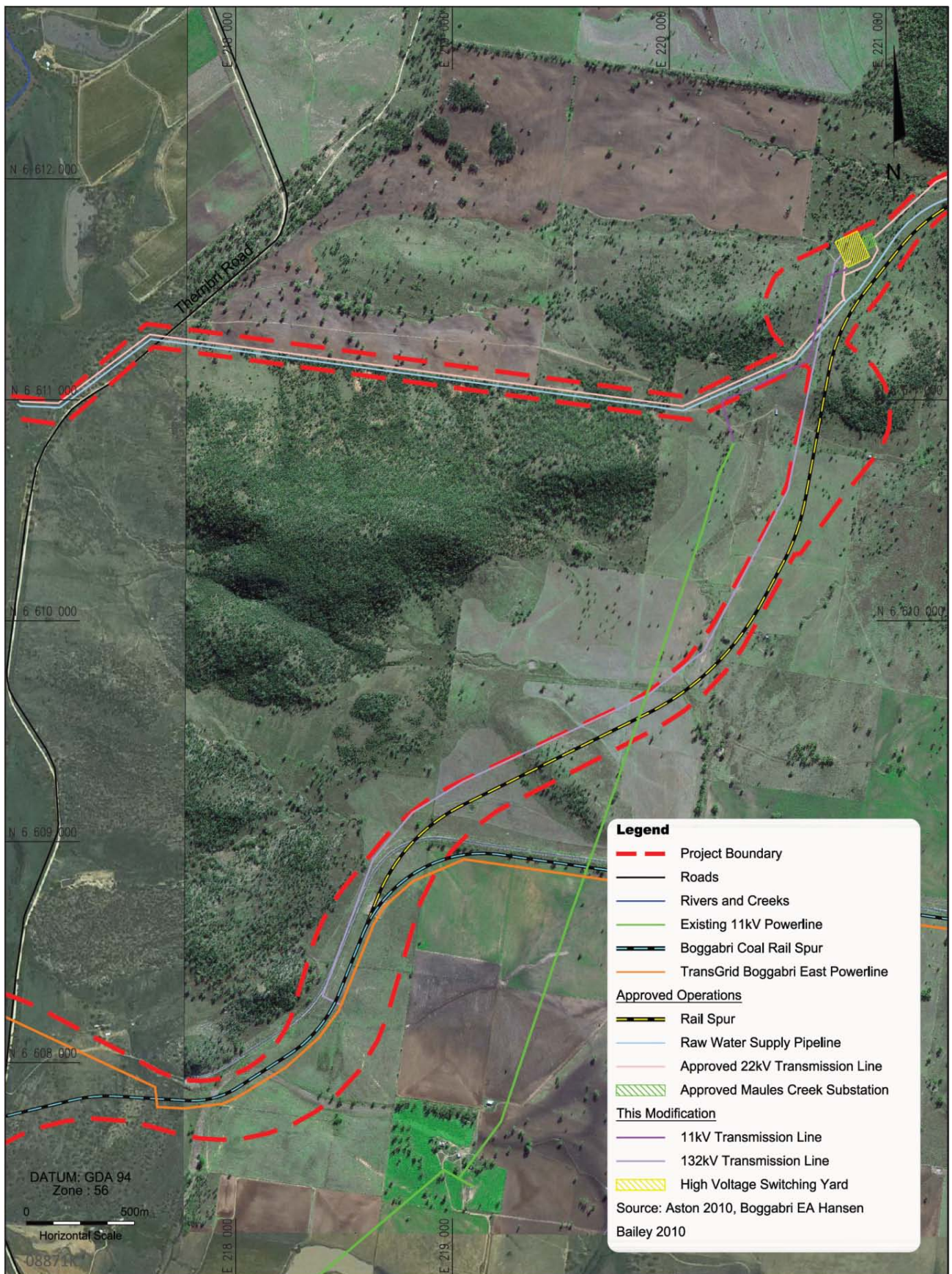


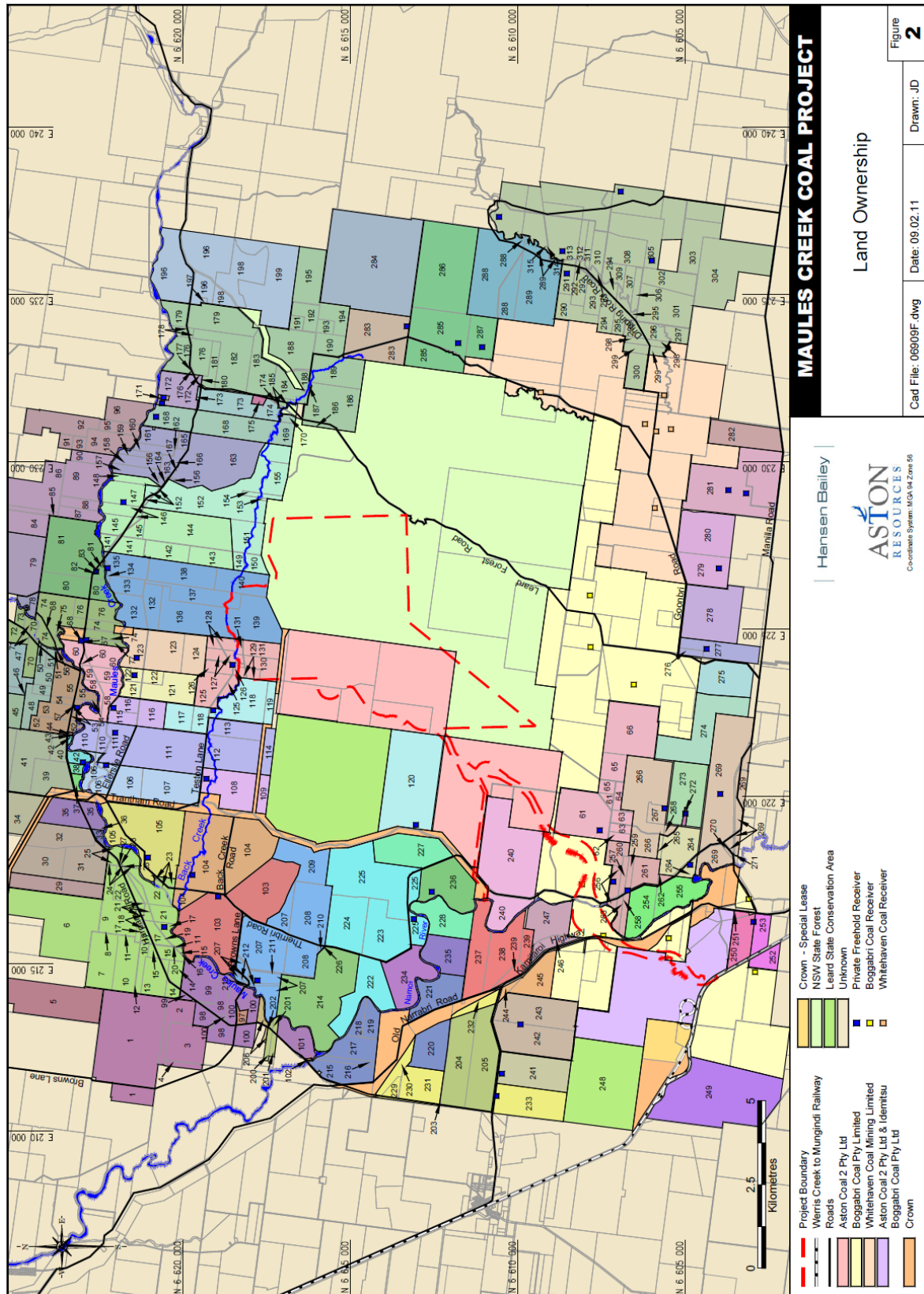
Figure 4: Transmission Lines and Switching Station

APPENDIX 3 GENERAL TERMS OF PLANNING AGREEMENT

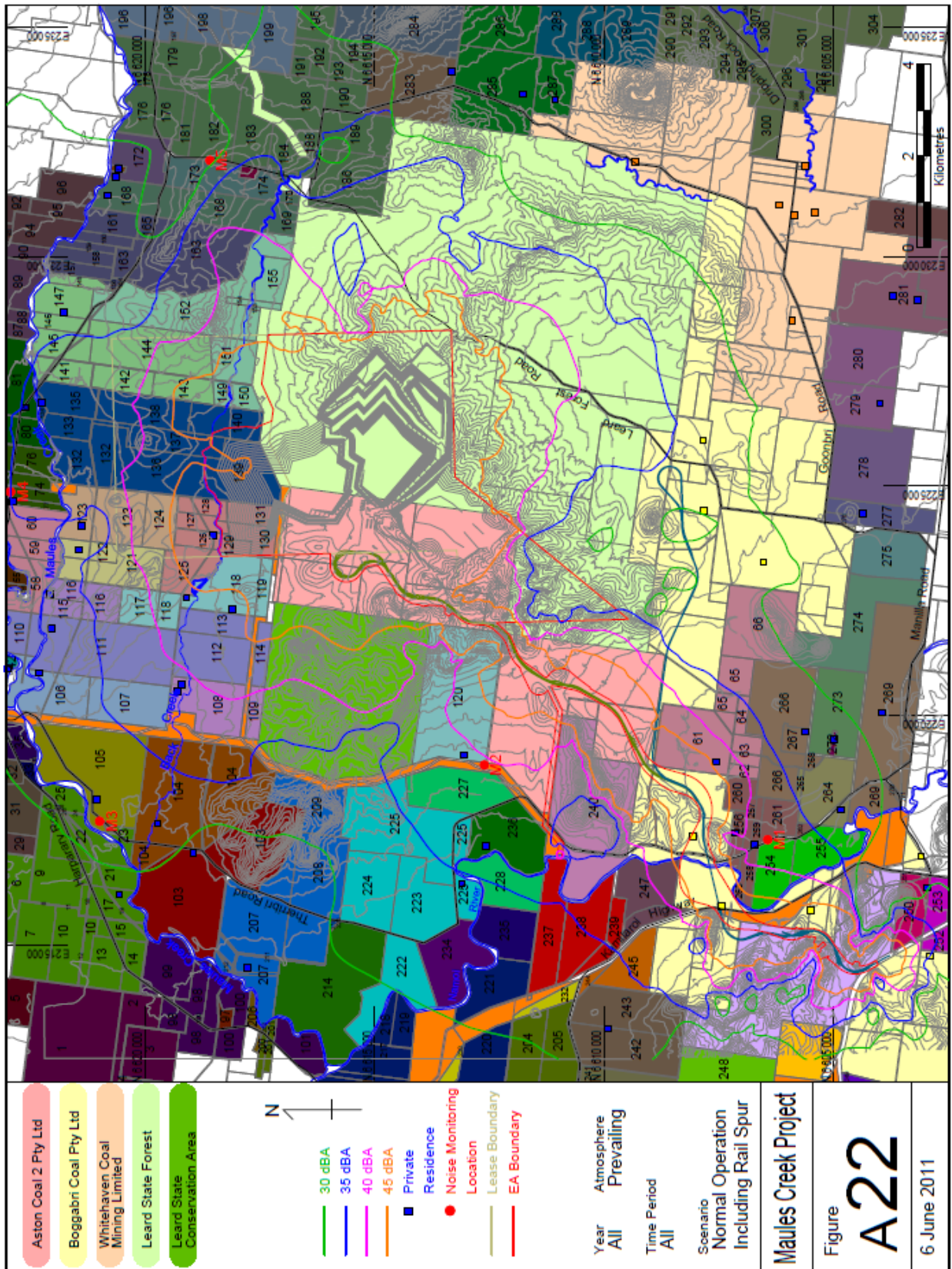
AMOUNT	TIMELINE FOR PAYMENT	DESCRIPTION
\$6,000,000	<p>\$3,000,00 3 months after receipt of all necessary approvals to commence construction of the mine.</p> <p>\$1,500,000 12 months after the first payment</p> <p>\$1,500,000 24 months after the first payment</p> <p>*Note: Maules Creek Coal will commit funds out of the first \$3,000,000 to the upgrade of Therribri Road.</p>	Funds to be utilised on the upgrade of infrastructure and road including Therribri Road and Tarrorio Bridge.
\$5,000,000	<p>\$1,000,000 3 months after receipt of all necessary approvals to commence construction of the mine.</p> <p>Each 12 months thereafter \$1,000,000</p>	Funds to be utilised on the upgrade of the Narrabri Airport.
\$800,000	To be distributed in consultation with Narrabri Shire Council (NSC) and the Boggabri Community. The funds will be where possible equally distributed over a 3 year period commencing 3 months after receipt of all necessary approvals to commence construction of the mine.	Funds to be utilised on various projects within the township of Boggabri and its surrounds.
\$275,000	To be distributed in consultation with Narrabri Shire Council (NSC) and the Maules Creek Community. The funds will be where possible equally distributed over a 3 year period commencing 3 months after receipt of all necessary approvals to commence construction of the mine..	Funds to be contributed to the Maules Creek Community.
\$1,250,000	<p>\$250,000 3 months after receipt of all necessary approvals to commence construction of the mine.</p> <p>\$500,000 12 Months after the first payment</p> <p>\$500,000 24 Months after the first payment</p>	Funds to be utilised on CBD upgrades in the Narrabri Shire
\$100,000	At Aston's discretion.	<p>Funds to be held in trust for "Environment" projects and to be administered by the Community Consultative Committee (CCC)</p> <p>The aim is to set up a "pool of funds" with all current and future mines being compelled to contribute \$100,000 as a once only upfront fee to commence the fund.</p> <p>The Council through gaining a Consumer Price Index (CPI) increase on the tonnes produced will allocate 1.5% of the increase each and every year to supplement the fund.</p> <p>The Council and MCC will work through the CCC to administer the funds with the criteria to support a grant application to be completed by the 30th June 2013. The first round of applications will be called in the financial year 2013/14.</p>
\$0.075 per saleable tonne + CPI		The cents per saleable tonne to mirror the calculation per saleable tonne paid to the NSW State Government and payable monthly.

		<p>The cents per saleable tonne to commence from the start of production and to be utilised on infrastructure projects (including environmental) at Council's discretion.</p> <p>The Consumer Price Index is to be calculated as follows:</p> <p>Price Indexes published by the Australian Bureau of Statistics (ABS)</p> <p>CPI to be based upon the weighted average of eight capital cities for the previous 12 months and to commence from the start of production.</p> <p>The first review to be undertaken and applied in the first instance and based on the prior 12 months CPI.</p>
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APPENDIX 4: LAND OWNERSHIP



APPENDIX 4A: 35 dB(A) noise contour marked in blue



**APPENDIX 5
STATEMENT OF COMMITMENTS**

**MAULES CREEK COAL PROJECT
CONSOLIDATED STATEMENT OF COMMITMENTS**

In addition to conditions of Project Approval, Maules Creek Coal commits to the operational controls outlined in the Environmental Assessment (EA) for all activities associated with the Project. The below consolidated Statement of Commitments (SoC) summarises the major aspects of the Project as described throughout the EA dated July 2011, the Response to Submissions Report dated December 2011 and the Response to Subsidiary Submissions Report dated March 2012 and summarises the key proposed management and mitigation measures.

The aim of this SoC is to ensure that any potential environmental impacts resulting from the Project are minimised and managed by implementing relevant environmental management, mitigation and monitoring strategies.

Ref	Commitment	Section
Mining Operations		
1.	Maules Creek Coal will extract coal at a rate of up to 13 Mtpa for 21 years, generally in accordance with this EA.	Section 3 of the Maules Creek Coal Project EA
2.	Maules Creek Coal will seek the appropriate licences and approvals as relevant to the Project and listed in Table 9 .	Section 4.8 of the Maules Creek Coal Project EA
3.	Maules Creek Coal shall surrender its existing development consent DA 85/1819 following the grant of the Project Approval.	Section 4 of the Maules Creek Coal Project EA
Environmental Management		
4.	<p>The proponent will develop a staged EMS in consultation with relevant regulators (and the Aboriginal community where relevant) to the approval of DP&I which shall comprise:</p> <ul style="list-style-type: none"> • Environmental Management Strategy; • Environmental Monitoring Program (incorporating air quality, noise, blasting, ecology, Aboriginal heritage, surface water and groundwater); • Construction Management Plan; • Air Quality Management Plan; • Noise Management Plan; • Flora and Fauna Management Plan (including Land Disturbance Protocol); • Biodiversity Offsets Management Plan; • Rehabilitation Management Plan; • Aboriginal Archaeology and Cultural Heritage Management Plan; • Water Management Plan (including groundwater and surface water); • Traffic and Transport Management Plan; • Bushfire Management Plan; and • Hazardous Materials Management Plan. 	Section 7 of the Maules Creek Coal Project EA
5.	Maules Creek Coal will continue to consult with the Namoi CMA in relation to the preparation and implementation of the environmental management plans for the Project.	Section 4.4.2 of the Response to Submissions Report
Air Quality		
6.	Maules Creek Coal will utilise leading practice technologies and initiatives as required to seek to achieve the air quality outcomes described in this EA.	Section 7.1.4 of the Maules Creek Coal Project EA
7.	Maules Creek Coal will undertake regular monitoring of greenhouse gas emissions and energy	Section 7.2.4 of the

Ref	Commitment	Section
	efficiency initiatives to ensure that Scope 1 greenhouse gas emissions per tonne of product coal are kept to the minimum practicable level.	Maules Creek Coal Project EA
8.	Maules Creek Coal will install a real time air quality monitoring network in consultation with OEH. Consultation will also occur with Boggabri and Tarrawonga Coal Mines in an attempt to develop an holistic network for the region.	Section 7.1.4 of the Maules Creek Coal Project EA
9.	Maules Creek Coal will install a real time meteorological monitoring system with predictive air quality modelling software capabilities at locations selected in consultation with OEH. Consultation will also occur with Boggabri and Tarrawonga Coal Mines in an attempt to develop an holistic network for the region. The monitoring component of this system will include a PM _{2.5} monitor at a location representative of the receivers located within the Maules Creek Community.	
Noise and Blasting		
10.	Maules Creek Coal will implement the necessary noise control and management measures as required to seek to ensure that the EA predicted noise levels at private receivers as listed in Table 23 are not exceeded.	Section 7.3.4 of the Maules Creek Coal Project EA
11.	Maules Creek Coal will install a real time noise monitoring system at locations selected in consultation with OEH. Consultation will also occur with Boggabri and Tarrawonga Coal Mines in an attempt to develop an holistic network for the region.	Section 7.3.4 of the Maules Creek Coal Project EA

Visual		
12.	Should a landholder within 7.5 km of the active mining area consider they are experiencing high visual impact as a result of the Project, Maules Creek Coal will carry out a specific visual assessment from the residence and develop any management and mitigation measures required in consultation with the landholder and DP&I.	Section 7.5.4 of the Maules Creek Coal Project EA
13.	Night time operations will be undertaken behind barriers, particularly in exposed areas to reduce direct night lighting impacts to neighbouring receivers.	
14.	Infrastructure lighting will consist of horizontal lights with hoods and louvers in elevated and exposed areas utilising low brightness lights to the level necessary for operational and safety requirements to minimise adverse night lighting impacts.	
Ecology		
15.	Maules Creek Coal will design and construct the CHPP, MIA and water storages within the Project Disturbance Boundary to minimise impacts upon CEEC within the constraints of cost effective engineering practicality.	Section 7.6.4 of the Maules Creek Coal Project EA
16.	Maules Creek Coal will progressively rehabilitate mined areas with a focus on the reestablishment of existing forest and woodland communities.	
17.	Maules Creek Coal will establish the Biodiversity Offset Strategy as described in this EA to initially maintain and ultimately improve the ecological values of the Bioregion.	Section 7.7 of the Maules Creek Coal Project EA
Aboriginal Archaeology and Cultural Heritage		
18.	The salvage and the protection of all known Aboriginal objects within the Project Boundary will be managed in accordance with an Aboriginal Archaeology and Cultural Heritage Management Plan to be developed in consultation with the local Aboriginal community and OEH.	Section 7.8.3 of the Maules Creek Coal Project EA
19.	Maules Creek Coal will consult with Boggabri Coal Mine and contribute to the establishment and ongoing funding of a keeping place for the purpose of housing salvaged Aboriginal artefacts from the local area.	
20.	Maules Creek Coal will provide the opportunity for one representative of the Aboriginal community to be a member of the Maules Creek CCC.	

Ref	Commitment	Section
21.	Maules Creek Coal will offer training packages to members of the Red Chief Local Aboriginal Lands Council in relation to site recording, artefact recording and basic analysis.	
Non Indigenous Heritage		
22.	Maules Creek Coal will compile an Oral History report for any landowners which are identified to be adversely impacted by the Project and who are acquired in accordance with conditions of Project Approval.	Section 7.9.3 of the Maules Creek Coal Project EA
23.	Maules Creek Coal will ensure that the Heritage items located on its landholdings will be adequately managed and preserved in accordance with the requirements under the Heritage Act.	
Water Resources		
24.	Maules Creek Coal will continue to monitor groundwater ingress and impacts on surrounding privately owned bores. In the unlikely event that it is demonstrated that water levels in existing landholder bores decline as a consequence of the Project, leading to an adverse impact on water supply, the supply will be substituted by Maules Creek Coal in consultation with the landholder either by deepening the bore, construction of a new bore or providing comparable water from an external source.	Section 7.11.4 of the Maules Creek Coal Project EA
25.	Maules Creek Coal will use reasonable endeavours to, in consultation with Boggabri Coal Mine and Tarrawonga Mine, develop a groundwater monitoring network to monitor the predicted groundwater impacts from mining.	
26.	Maules Creek Coal will conduct water quality monitoring of the seepage / runoff from the OEAs.	Section 7.10.4 of the Maules Creek Coal Project EA
27.	Maules Creek Coal will use reasonable endeavours to obtain water access licence allocation to account for the capture and use of water from the various Water Sharing Plans that apply to the Project in accordance with the provisions of the WM Act and its Regulations.	Section 4.7.1 of the Response to Submissions Report
Geochemical		
28.	PAF coal rejects materials and the roof and floor of these PAF coal seams will be co-disposed with overburden in pit or within encapsulated cells within the Northern OEA.	Section 7.12.4 of the Maules Creek Coal Project EA
Traffic		
29.	Reasonable endeavours will be made to ensure that Project related traffic does not utilise the following public roads unless they are travelling to a specific destination along that route (such as residence, monitoring location, near neighbour etc.): Harparary Road from Leard Forest Road to the Kamilaroi Highway; Leard Forest Road between Northern Loop Road and Harparary Road; Therribri Road between the Mine Access Road and Harparary Road and the entire length of Browns Lane.	Section 7.14.4 of the Maules Creek Coal Project EA
30.	Maules Creek Coal will use reasonable endeavours to work with other Gunnedah Basin coal projects and the relevant roads authorities in managing safety issues on the road network related to mining within the Narrabri and Gunnedah LGAs.	Section 7.14.4 of the Maules Creek Coal Project EA & Section 4.13.1 of the Response to Submissions Report
31.	Maules Creek Coal will use reasonable endeavours to work with other Gunnedah Basin coal miners and the ARTC to encourage management strategies to ensure that the rail network can continue to handle the forecast additional rail movements.	Section 7.14.4 of the Maules Creek Coal Project EA
32.	Prior to the construction of the rail spur overpass within the easement of the Kamilaroi Highway, Maules Creek Coal will consult with all relevant regulatory authorities and will	Section 7.14.4 of the Maules Creek Coal

Ref	Commitment	Section
	develop a Construction Management Plan for the works (including traffic control and management) in consultation with the RTA.	Project EA
Community		
33.	Maules Creek Coal will implement the management strategies as described within Section 7.20.9 of this EA, in order to monitor and address the possible impacts of the Project upon the socioeconomic environment.	Section 7.20.9 of the Maules Creek Coal Project EA
34.	Maules Creek Coal offers to enter into an appropriate VPA on terms it will seek to agree with NSC and GSC.	Section 7.20.9 of the Maules Creek Coal Project
35.	Maules Creek Coal will maintain the agricultural productivity of its landholdings that are not utilised for mining or biodiversity offsets.	Section 7.15.4 of the Maules Creek Coal Project EA
Reporting		
36.	Maules Creek Coal will prepare an Annual Review (which summarises monitoring results and reviews performance) and distribute it to the relevant regulatory authorities and the Maules Creek CCC.	Section 5.5 of the Maules Creek Coal Project EA

APPENDIX 6
PLANNING ASSESSMENT COMMISSION – GROUNDWATER

RECOMMENDATIONS FOR GROUNDWATER AND HYDRO-CHEMICAL MONITORING

1. The proposed 17 additional monitoring bores be equipped with water level or pore pressure monitoring transducers installed at vertical separations such that the future impacts of strata depressurisation can be adequately measured and mapped.
2. Core tests to be conducted to assess the distribution and variability of hydraulic conductivities of (unfractured) interburden at sufficient number of bore locations to quantify porous groundwater flow and storage contributions associated with interburden.
3. XRD-XRF analyses to be undertaken on core samples obtained at a sufficient number of bore locations to establish mineralogy of interburden likely to be exposed to pit re-saturation.
4. Hydrochemical modelling to be undertaken in order to determine the long term void water quality. This study should include batch reaction (full saturation) trials on waste interburden (spoils) to confirm hydrochemical modelling outcomes.

APPENDIX 7 BIODIVERSITY OFFSET STRATEGY

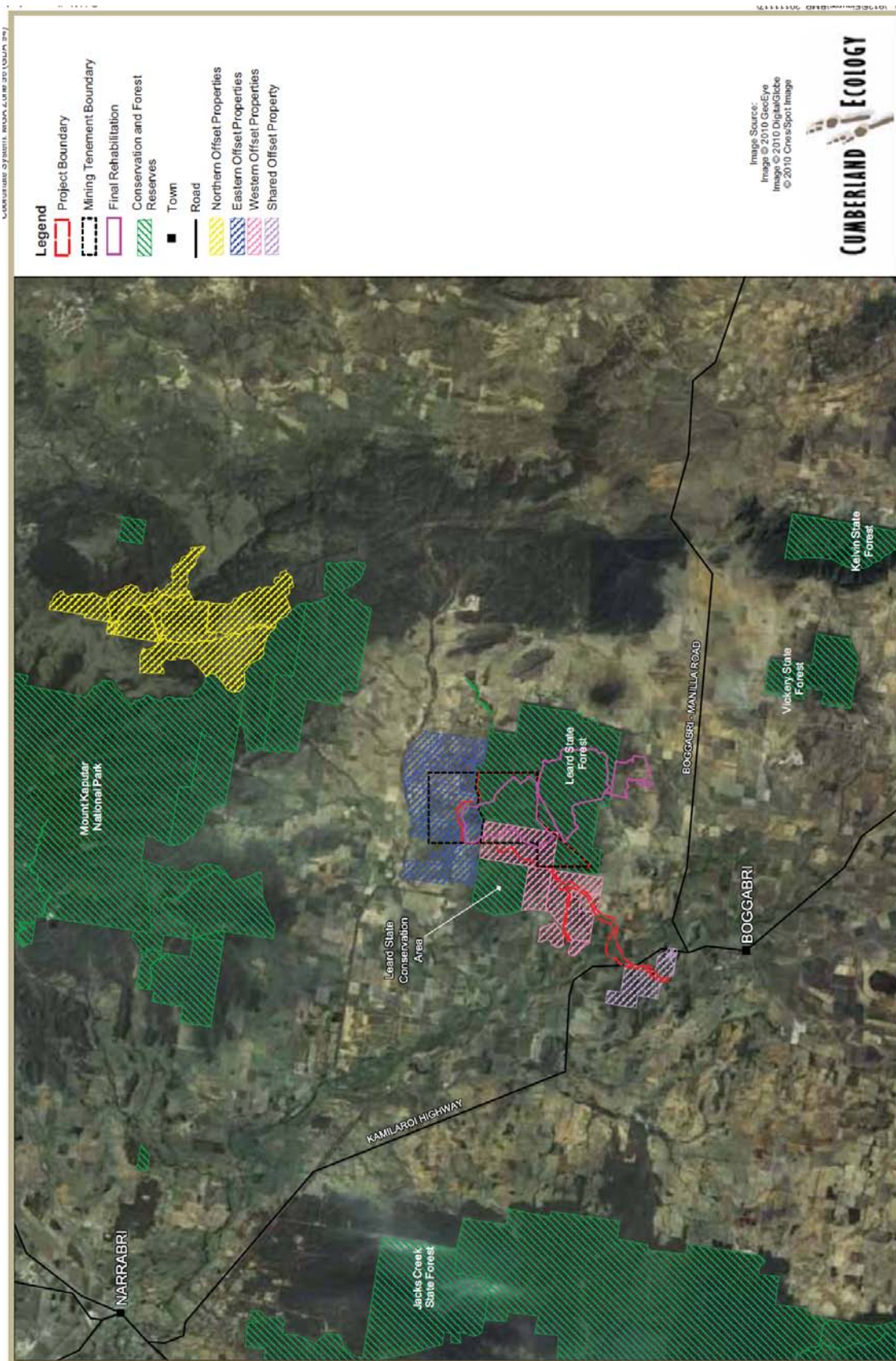


Figure 1: Proposed biodiversity offset strategy properties

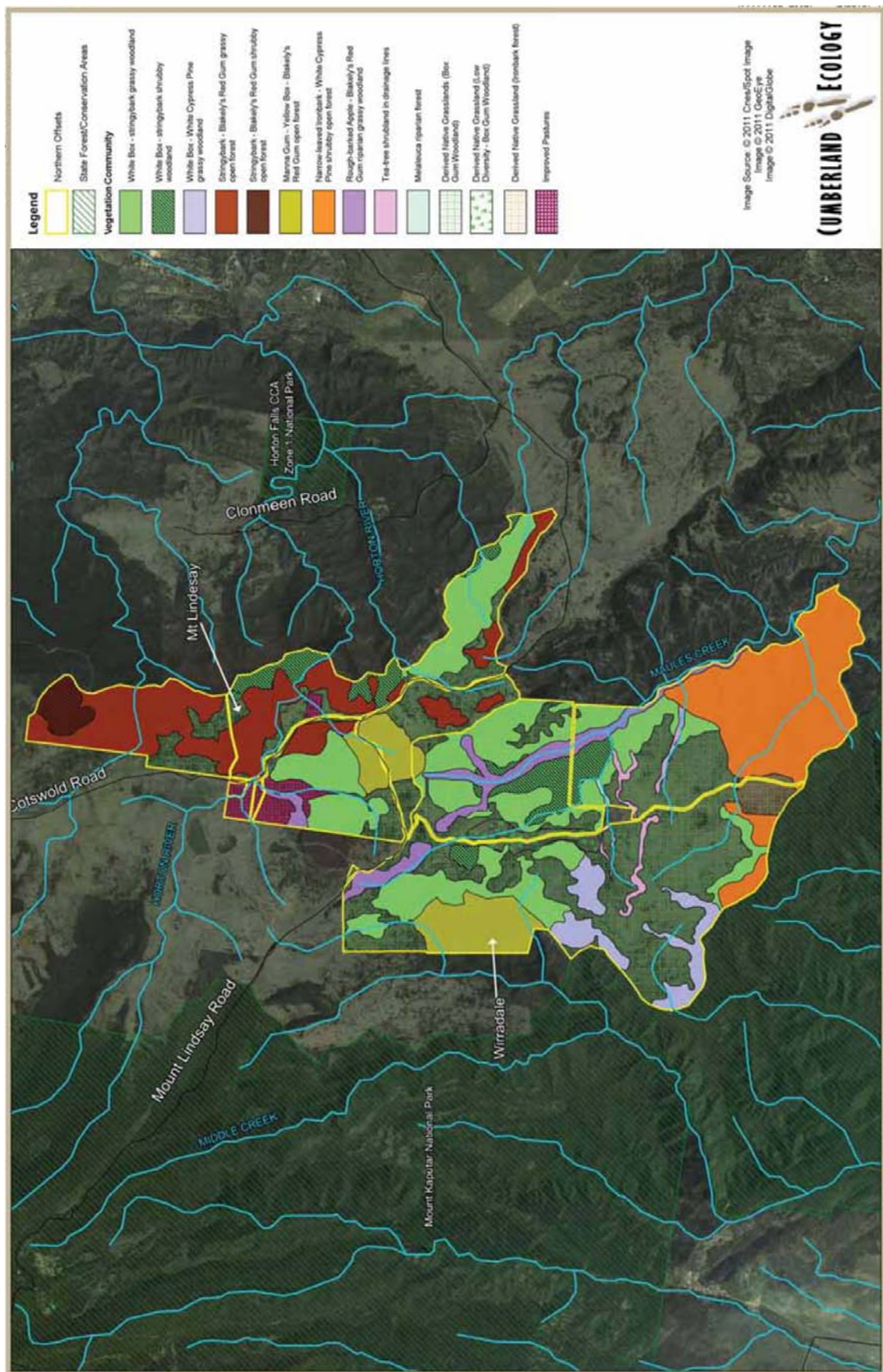
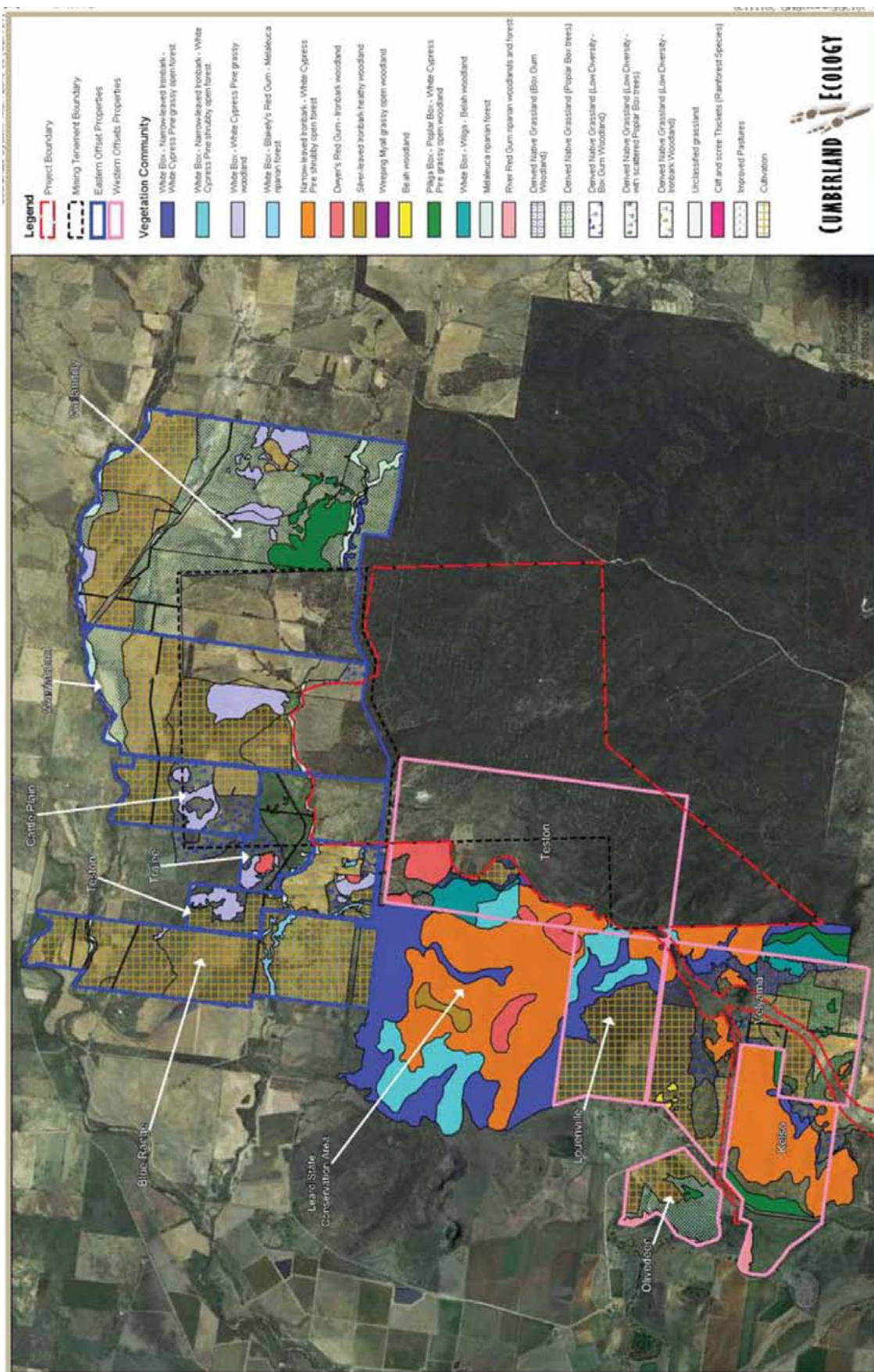


Figure 2: Vegetation Communities on Northern Offset Properties



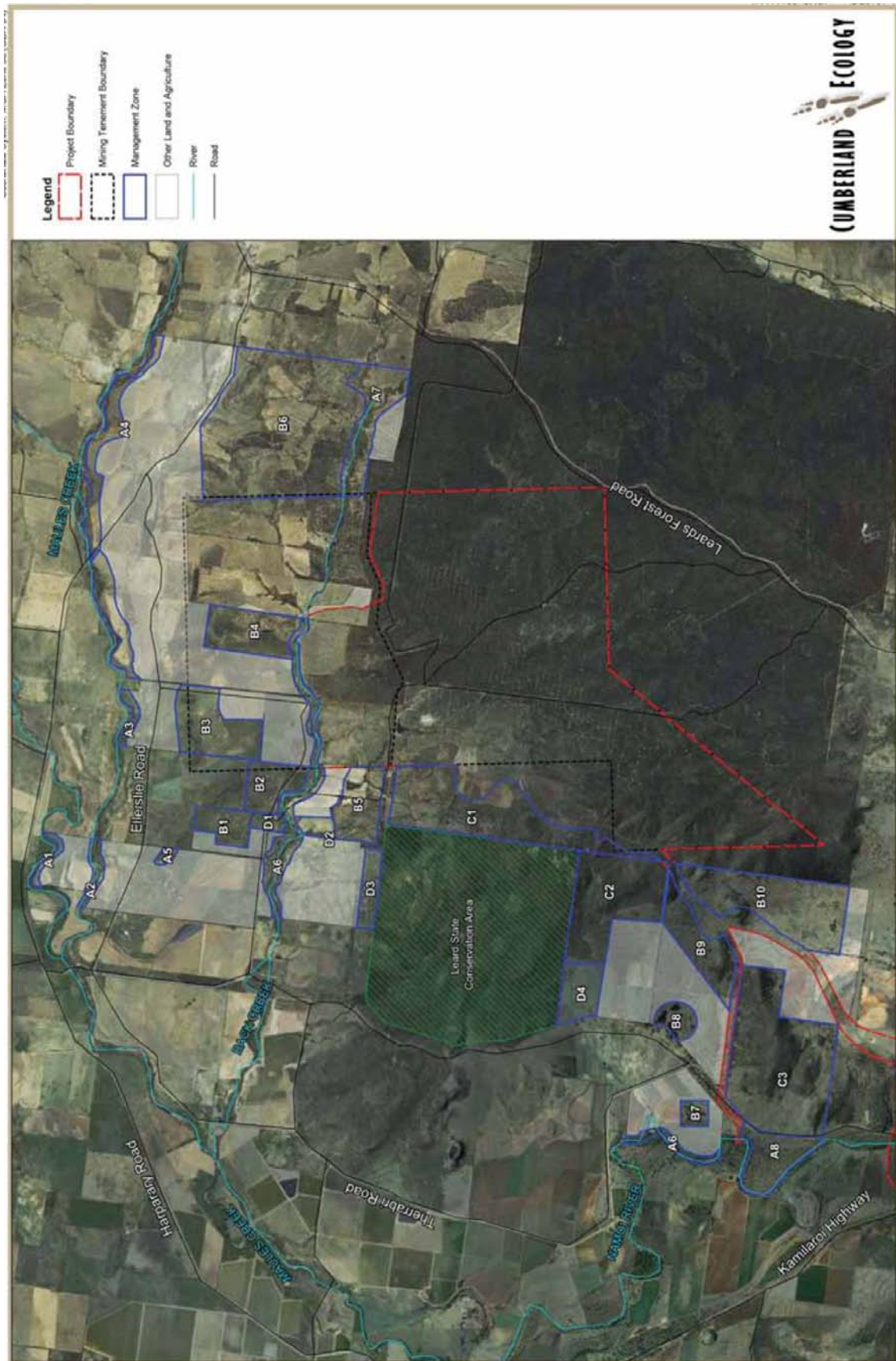


Figure4: Identified Offset Areas within Eastern and Western Offset Properties

Table 1: Summary of Vegetation Communities by Proposed Offset Properties

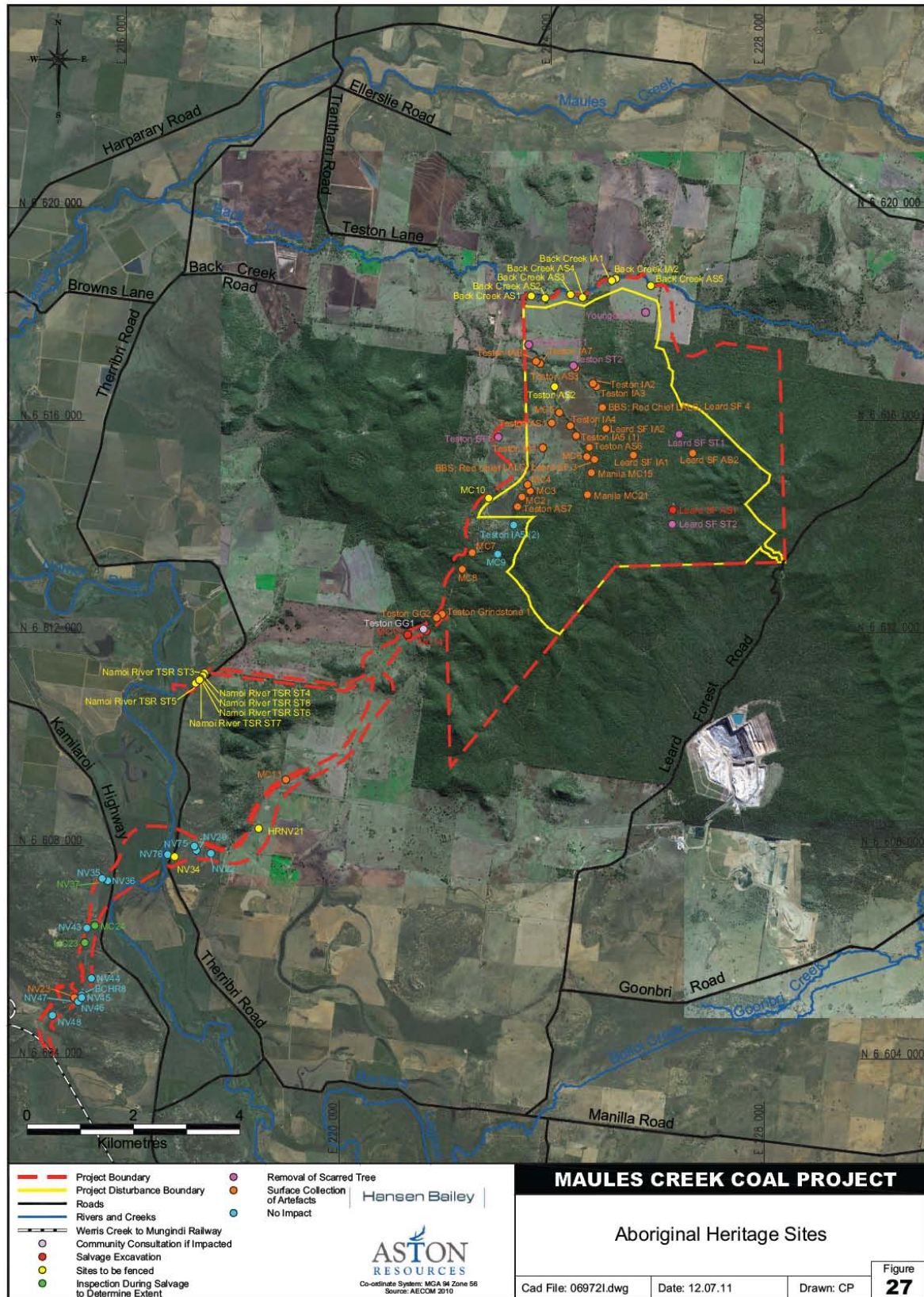
Vegetation Communities	Eastern Properties						Northern Properties		Shared Property	Western Properties					SubTotal (ha)
	Blue Range	Cattle Plain	Teston North	Tralee	Wallandilly	Warriahdool	Mt Lindessay	Wirradale	Shared Offset	Kelso	Louenville	Olivedeen	Teston South	Velyama	
Cliff and scree Thickets (Rainforest Species)											0.53				0.53
Manna Gum - Yellow Box - Blakely's Red Gum open forest							139.68	245.85							385.53
Melaleuca riparian forest	9.04	2.68	6.18	14.63	66.55	35.16		4.61							138.85
Narrow-leaved Ironbark - Brown Bloodwood - White Cypress Pine shrubby open forest													0.00		0.00
Narrow-leaved Ironbark - White Cypress Pine shrubby open forest								853.61		270.42	33.70		416.12	79.36	1653.21
River Red Gum riparian woodlands and forests										11.89		8.30			20.19
Stringybark - Blakely's Red Gum grassy open forest							770.30								770.30
Stringybark - Blakely's Red Gum shrubby open forest							84.94								84.94
White Box - Blakely's Red Gum - Melaleuca riparian forest	19.74		10.23	4.49					11.09				4.82		50.37
White Box - Narrow-leaved Ironbark - White Cypress Pine grassy open forest			0.05	0.01	53.29	58.32				16.49	151.10		185.79	23.23	488.28
White Box - Narrow-leaved Ironbark - White Cypress Pine shrubby open forest						0.75			369.43		0.28		34.93	4.13	409.52
Belah woodland													4.21	6.94	11.15
Dwyer's Red Gum - Ironbark woodland			2.84	8.62							3.09		211.64		226.19
Dwyer's Red Gum woodland									176.73				3.59		180.32
Pilliga Box - Poplar Box - White Cypress Pine grassy open woodland				1.75	161.61	16.05				44.01		4.95		6.50	234.87
Regrowth - White Cypress Pine									10.70						10.70
Rough-barked Apple - Blakely's Red Gum riparian grassy woodland							25.34	223.22							248.56
Silver-leaved ironbark heathy woodland							42.47		69.42						111.89
Weeping Myall grassy open woodland														0.15	0.15
White Box - stringybark grassy woodland							553.72	881.39							1435.11
White Box - stringybark shrubby woodland							139.21	192.30							331.51
White Box - White Cypress Pine grassy woodland	2.26	35.98	48.74	16.96	99.27	91.14		226.75							521.10
White Box - White Cypress Pine grassy woodland (low condition)									72.56						72.56
White Box - Wilga - Belah woodland													85.75	18.26	104.01
Yellow Box - Blakely's Red Gum grassy woodland					0.02										0.02
Total Forest and Woodland	31.04	38.66	68.04	46.46	380.74	243.89	1713.19	2627.73	709.93	342.81	188.70	13.25	946.85	138.57	7489.86
Tea-tree shrubland in drainage lines								69.61							69.61
Total Shrubland	0.00	0.00	0.00	0.00	0.00	0.00	0.00	69.61	0.00	0.00	0.00	0.00	0.00	0.00	69.61
Derived Native Grassland (Box Gum Woodland)							577.56	1406.40					105.90	71.62	2161.48
Derived Native Grassland (Non-threatened)								74.09							94.10
Total Derived Native Grassland	0.00	0.00	0.00	0.00	0.00	0.00	577.56	1480.49	0.00	0.00	0.00	0.00	105.90	165.72	2329.67
Derived Native Grassland (Low Diversity - Box Gum Woodland)		103.09	51.69	69.48	0.43	74.87		87.94	2.44	22.12			101.41	126.13	639.60
Improved Pastures							131.98						37.14	62.61	231.73
Low Diversity Native/Exotic Grassland and Cultivation	692.05	139.19	170.77	224.18	1471.60	687.11				134.31	270.19	177.90	81.22	426.16	4474.68
Total Other Grassland	692.05	242.28	222.46	293.66	1472.03	761.98	131.98	87.94	2.44	156.43	270.19	177.90	219.77	614.90	5346.01
Total Vegetation in each Property (ha)	723.09	280.94	290.50	340.12	1852.77	1005.87	2422.73	4265.77	712.37	499.24	458.89	191.15	1272.52	919.19	15235.15
Total Box Gum Woodland (remnant vegetation and derived native grassland) (ha)	22.00	35.98	59.02	21.46	152.58	149.46	2066.60	2983.61	11.09	16.49	151.10	0.00	382.26	113.11	6164.76
Total Vegetation to be protected in Conservation Management Zones (ha)	127.42	154.27	204.53	103.17	822.53	202.52	2277.55	3536.06	356.18	499.24	303.62	45.08	302.76	398.77	9333.70
Total Box Gum Woodland (remnant vegetation and derived native grassland) in Conservation Management Zones (ha)	21.65	35.95	57.84	17.19	98.29	64.46	2035.89	2335.79	5.54	16.49	151.04	0.00	82.04	109.40	5031.57
% Total Vegetation to be conserved from each property	17.62	54.91	70.41	30.33	44.39	20.13	94.01	82.89	50.00	100.00	66.16	23.58	23.79	43.38	61.26
% Total Box Gum Woodland (remnant vegetation and derived native grassland) to be conserved from each property (ha)	98.41	99.92	98.00	80.10	64.42	43.13	98.51	78.29	49.95	100.00	99.96	N/A	21.46	96.72	81.62

Vegetation Communities	Eastern Properties						Northern Properties		Shared Property	Western Properties					SubTotal (ha)
	Blue Range	Cattle Plain	Teston North	Tralee	Wallandilly	Warriahdool	Mt Lindesay	Wirradale	Shared Offset	Kelso	Louenville	Oliveleen	Teston South	Velyama	
Cliff and scree Thickets (Rainforest Species)											0.53				0.53
Manna Gum - Yellow Box - Blakely's Red Gum open forest							139.68	245.85							385.53
Melaleuca riparian forest	9.04	2.68	5.47	9.30	56.17	25.19		4.61							112.46
Narrow-leaved Ironbark - White Cypress Pine shrubby open forest								853.37		270.42	33.70		54.18	56.96	1268.63
River Red Gum riparian woodlands and forests										11.89		8.30			20.19
Stringybark - Blakely's Red Gum grassy open forest							770.30								770.30
Stringybark - Blakely's Red Gum shrubby open forest							84.94								84.94
White Box - Blakely's Red Gum - Melaleuca riparian forest	19.39		10.23	0.23					5.54						35.39
White Box - Narrow-leaved Ironbark - White Cypress Pine grassy open forest			0.05	0.00	10.54					16.49	151.04		10.60	21.69	210.41
White Box - Narrow-leaved Ironbark - White Cypress Pine shrubby open forest									184.71		0.28		28.88	0.85	214.72
Belah woodland														6.94	6.94
Dwyer's Red Gum - Ironbark woodland			2.84	8.62								3.09	81.46		96.01
Dwyer's Red Gum woodland									88.37						88.37
Pilliga Box - Poplar Box - White Cypress Pine grassy open woodland					112.25					44.01		4.95		3.50	164.71
Regrowth - White Cypress Pine									5.35						5.35
Rough-barked Apple - Blakely's Red Gum riparian grassy woodland							1.91	223.22							225.13
Silver-leaved Ironbark heathy woodland									34.71						34.71
White Box - stringybark grassy woodland							546.69	843.02							1389.71
White Box - stringybark shrubby woodland							139.21	192.30							331.51
White Box - White Cypress Pine grassy woodland	2.26	35.95	47.56	16.96	87.75	64.46		205.02							459.96
White Box - White Cypress Pine grassy woodland (low condition)									36.28						36.28
White Box - Wilga - Belah woodland													52.85	16.09	68.94
Total Forest and Woodland	30.69	38.63	66.15	35.11	266.71	89.65	1682.73	2567.39	354.96	342.81	188.64	13.25	227.97	106.03	6010.72
Tea-tree shrubland in drainage lines								35.96							35.96
Total Shrubland	0.00	0.00	0.00	0.00	0.00	0.00	0.00	35.96	0.00	0.00	0.00	0.00	0.00	0.00	35.96
Derived Native Grassland (Box Gum Woodland)							577.31	818.68					18.59	71.62	1486.20
Derived Native Grassland (Non-threatened)								73.96						57.65	131.61
Total Derived Native Grassland	0.00	0.00	0.00	0.00	0.00	0.00	577.31	892.64	0.00	0.00	0.00	0.00	18.59	129.27	1617.81
Derived Native Grassland (Low Diversity - Box Gum Woodland)		101.59	51.69	38.78				40.07	1.22	22.12				40.36	296.83
Improved Pastures							17.51						36.59	19.87	73.97
Low Diversity Native/Exotic Grassland and Cultivation	96.73	14.05	86.69	29.28	555.82	112.87				134.31	114.98	31.83	19.61	103.24	1299.41
Total Other Grassland	96.73	115.64	138.38	68.06	555.82	112.87	17.51	40.07	1.22	156.43	114.98	31.83	56.20	163.47	1669.21
Total Vegetation to be protected in Conservation Management Zones (ha)	127.42	154.27	204.53	103.17	822.53	202.52	2277.55	3536.06	356.18	499.24	303.62	45.08	302.76	398.77	9333.70
Total Box Gum Woodland (remnant vegetation and derived native grassland) in Conservation Management Zones (ha)	21.65	35.95	57.84	17.19	98.29	64.46	2035.89	2335.79	5.54	16.49	151.04	0.00	82.04	109.40	5031.57

Notes:


- Properties Teston North, Tralee, Warriahdool, Louenville, Oliveleen, Teston South, Velyama and Shared (Joint Venture) Property owned or under option by Proponent
- Properties Blue Range, Cattle Plain, Wallandilly and Kelso at the time of the approval were not currently owned or under option by Proponent but within zone of affectation and subject to acquisition rights – if not secured by Proponent additional offset areas will be required as part of development of the Revised Biodiversity Offset Strategy as required under the approval.
- Vegetation communities identified as "Total Other Grassland" require further assessment as part of the revised Biodiversity Offset Strategy to finalise the areas that are incorporated into the biodiversity offset area for corridor enhancement and connectivity in the Eastern and Western Offset areas.

APPENDIX 8 ABORIGINAL HERITAGE SITES



SITE TYPE	SITE NAME	SCIENTIFIC SIGNIFICANCE	PROJECT IMPACT	MANAGEMENT
Artefact Scatter	Leard SF AS1	High	Open Pit	Salvage Excavation
	MC13	High	Rail Spur	Salvage Excavation
	MC14	High	Rail Spur	Salvage Excavation
	Manila MC21	Moderate	Open Pit	Surface Collection of Artefacts
	MC5	Moderate	Overburden Area	Surface Collection of Artefacts
	Leard SF AS2	Low	Open Pit	Surface Collection of Artefacts
	Teston AS3	Low	Overburden Area	Surface Collection of Artefacts
	Teston AS6	Low	Overburden Area	Surface Collection of Artefacts
	Teston AS1	Low	Project Disturbance Boundary	Surface Collection of Artefacts
	NV23	Low	Rail Spur	Surface Collection of Artefacts
	MC11	Low	Rail Spur	Surface Collection of Artefacts
	MC8	Moderate	Rail Spur	Surface Collection of Artefacts
	MC7	Moderate	Rail Spur Option	Surface Collection of Artefacts
	Manila MC15	Moderate	Open Pit	Surface Collection of Artefacts
	Teston AS2	Low	Project Disturbance Boundary	Site to be fenced
	MC10	Low	Rail Spur	Site to be fenced
	HRNV21	Low	Rail Spur Option	Site to be fenced
	Back Creek AS1	Moderate	Not Impacted	Site to be fenced
	Back Creek AS2	Moderate	Not Impacted	Site to be fenced
	Back Creek AS3	High	Not Impacted	Site to be fenced
	Back Creek AS4	Low	Not Impacted	Site to be fenced
	Back Creek AS5	Low	Not Impacted	Site to be fenced
	Back Creek AS6	High	Not Impacted	Site to be fenced
	MC23	Low	Rail Spur	Inspection during salvage to determine extent
	MC24	Low	Rail Spur	Inspection during salvage to determine extent
	MC4	Moderate	Project Disturbance Boundary	Surface Collection of Artefacts
	MC6	Low	Project Disturbance Boundary	Surface Collection of Artefacts
	MC2	Low	Project Disturbance Boundary	Surface Collection of Artefacts
	MC3	Low	Project Disturbance Boundary	Surface Collection of Artefacts
	Teston AS7	Low	Project Disturbance Boundary	Surface Collection of Artefacts
	MC22	Moderate	Not Impacted	No Impact – No Further Requirements
	MC25	High	Not Impacted	No Impact – No Further Requirements
	NV20	Low	Not Impacted	No Impact – No Further Requirements
	NV22	Low	Not Impacted	No Impact – No Further Requirements
	NV43	Low	Not Impacted	No Impact – No Further Requirements
	NV 44	Low	Not Impacted	No Impact – No Further Requirements
	NV45	Low	Not Impacted	No Impact – No Further Requirements
	NV46	Low	Not Impacted	No Impact – No Further Requirements
	NV47	Low	Not Impacted	No Impact – No Further Requirements
	NV48	Low	Not Impacted	No Impact – No Further Requirements
	NV75	Low	Not Impacted	No Impact – No Further Requirements
	Teston AS4	Moderate	Not Impacted	No Impact – No Further Requirements
	Teston AS5	Low	Not Impacted	No Impact – No Further Requirements
	Velyama AS1	Low	Not Impacted	No Impact – No Further Requirements
	Velyama AS2	Low	Not Impacted	No Impact – No Further Requirements
	Velyama AS3	Low	Not Impacted	No Impact – No Further Requirements
	Velyama AS4	Low	Not Impacted	No Impact – No Further Requirements
	Velyama AS5	Low	Not Impacted	No Impact – No Further Requirements

SITE TYPE	SITE NAME	SCIENTIFIC SIGNIFICANCE	PROJECT IMPACT	MANAGEMENT
	Velyama AS6	Low	Not Impacted	No Impact – No Further Requirements
	Velyama AS7	Low	Not Impacted	No Impact – No Further Requirements
	MC12	Moderate	Not Impacted	No Impact – No Further Requirements
	MC9	Low	Not Impacted	No Impact – No Further Requirements
Isolated Artefact	Leard SF IA1	Low	Open Pit	Surface Collection of Artefacts
	Leard SF 4	Low	Overburden Area	Surface Collection of Artefacts
	Leard SF IA2	Low	Overburden Area	Surface Collection of Artefacts
	Teston IA2	Low	Overburden Area	Surface Collection of Artefacts
	Teston IA3	Low	Overburden Area	Surface Collection of Artefacts
	Teston IA4	Low	Overburden Area	Surface Collection of Artefacts
	Teston IA5 (1)	Low	Overburden Area	Surface Collection of Artefacts
	Leard SF 3	Low	Project Disturbance Boundary	Surface Collection of Artefacts
	Teston IA1	Low	Project Disturbance Boundary	Surface Collection of Artefacts
	Teston IA6	Low	Project Disturbance Boundary	Surface Collection of Artefacts
	Teston IA7	Low	Project Disturbance Boundary	Surface Collection of Artefacts
	Back Creek IA1	Low	Not Impacted	Site to be fenced
	Back Creek IA2	Low	Not Impacted	Site to be fenced
	Teston IA5 (2)	Low	Not Impacted	No Impact – No Further Requirements
	Teston IA8	Low	Not Impacted	No Impact – No Further Requirements
	Teston IA9	Low	Not Impacted	No Impact – No Further Requirements
	Velyama IA1	Low	Not Impacted	No Impact – No Further Requirements
	Velyama IA2	Low	Not Impacted	No Impact – No Further Requirements
	Velyama IA3	Low	Not Impacted	No Impact – No Further Requirements
	Velyama IA4	Low	Not Impacted	No Impact – No Further Requirements
	Velyama IA5	Low	Not Impacted	No Impact – No Further Requirements
Scarred Tree	Teston ST2	Moderate	Overburden Area	Removal of Scarred Tree
	Leard SF ST1	High	Open Pit	Removal of Scarred Tree
	Leard SF ST2	Moderate	Open Pit	Removal of Scarred Tree
	Teston ST1	Moderate	Rail Spur	Removal of Scarred Tree
	Younger ST1	Moderate	Overburden Area	Removal of Scarred Tree
	Watsons ST1	Moderate	Project Disturbance Boundary	Removal of Scarred Tree
	NV37	TBD	Rail Spur	Inspection during salvage to determine extent
	NV34	High	Rail Spur Option	Site to be fenced
	Namoi River TSR ST3	High	Water Pipeline	Site to be fenced
	Namoi River TSR ST4	High	Water Pipeline	Site to be fenced
	Namoi River TSR ST5	High	Water Pipeline	Site to be fenced
	Namoi River TSR ST6	High	Water Pipeline	Site to be fenced
	Namoi River TSR ST7	High	Water Pipeline	Site to be fenced
	Namoi River TSR ST8	High	Water Pipeline	Site to be fenced
	NV36	Moderate	Not Impacted	No Impact – No Further Requirements
	Namoi River ST1	High	Not Impacted	No Impact – No Further Requirements
	Namoi River TSR ST1	High	Not Impacted	No Impact – No Further Requirements
	Namoi River TSR ST2	High	Not Impacted	No Impact – No Further Requirements
	Namoi River TSR ST9	High	Not Impacted	No Impact – No Further Requirements
	Velyama ST1	High	Not Impacted	No Impact – No Further Requirements
	NV76	Moderate	Not Impacted	No Impact – No Further Requirements
Grinding Groove	Teston Grindstone 1	High	Rail Spur	Surface Collection of Artefacts
	Teston GG2	High	Rail spur Option	Surface Collection of Artefacts
	Teston GG1	Moderate	Rail spur Option	Community Consultation if Impacted

	MAULES CREEK	Document Owner:	Env. Manager
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APPENDIX B

EPL

Environment Protection Licence

Licence - 20221

Licence Details

Number:	20221
Anniversary Date:	02-May

Licensee

MAULES CREEK COAL PTY LTD

PO BOX 56

BOGGABRI NSW 2382

Premises

MAULES CREEK COAL MINE

TERRIBRI ROAD

BOGGABRI NSW 2382

Scheduled Activity

Coal Works

Crushing, Grinding or Separating

Mining for Coal

Fee Based Activity

Scale

Coal works	0-2000000 T handled
Crushing, grinding or separating	> 100000-500000 T processed
Mining for coal	0-500000 T produced

Region

North - Armidale

Ground Floor, NSW Govt Offices, 85 Faulkner Street
ARMIDALE NSW 2350

Phone: (02) 6773 7000

Fax: (02) 6772 2336

PO Box 494 ARMIDALE

NSW 2350

Environment Protection Licence

Licence - 20221



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Environment Protection Licence

Licence - 20221



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Environment Protection Licence

Licence - 20221



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).

Environment Protection Licence

Licence - 20221



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:

MAULES CREEK COAL PTY LTD
PO BOX 56
BOGGABRI NSW 2382

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 development work listed below at the premises listed in A2:
Construction of mine related infrastructure.
- A1.2 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
Crushing, Grinding or Separating	Crushing, grinding or separating	> 100000 - 500000 T processed
Mining for Coal	Mining for coal	0 - 500000 T produced

A2 Premises or plant to which this licence applies

- A2.1 The licence applies to the following premises:

Premises Details
MAULES CREEK COAL MINE
TERRIBRI ROAD
BOGGABRI
NSW 2382
THE LAND BOUND WITHIN THE "MAULES CREEK PROJECT BOUNDARY" IDENTIFIED IN THE MAP TITLED "FIGURE 1: LAND WITHIN PROJECT BOUNDARY" OF APPENDIX 1 OF THE PROJECT APPROVAL (APPLICATION NUMBER 10_0138) DATED 23 OCTOBER 2012 (DOC13/87403).

Note: The Lot and DP details of the shared rail spur have been excluded from the licence as they are included on environment protection licence no. 12407.

A3 Other activities

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

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Ancillary Activity
Chemical storage
Concrete works
Crushing, grinding and separating of rock for construction activities
Railway systems activities
Sewage treatment system

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 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.
- 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.

Water and land

EPA Identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description
1	Wet Weather Discharge Discharge water quality monitoring	Wet Weather Discharge Discharge water quality monitoring	Dam located in the northern portion of Mine Infrastructure Area (from Year 1) labelled "SD1" on "Figure 4: EPL Discharge Points" submitted with the licence application form dated 4/02/13 (DOC13/3326).

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2	Wet Weather Discharge Discharge water quality monitoring	Wet Weather Discharge Discharge water quality monitoring	Dam located on the western side of the central/ northern Overburden Emplacement Area (from Year 1) labelled "SD2" on "Figure 4: EPL Discharge Points" submitted with the licence application form dated 4/02/13 (DOC13/3326).
3	Wet Weather Discharge Discharge water quality monitoring	Wet Weather Discharge Discharge water quality monitoring	Dam located on the north western corner of the northern rehabilitation area (from approx Year 5) labelled "SD3" on "Figure 4: EPL Discharge Points" submitted with the licence application form dated 4/02/13 (DOC13/3326).
4	Wet Weather Discharge Discharge water quality monitoring	Wet Weather Discharge Discharge water quality monitoring	Dam located on the northern boundary of the eastern rehabilitation area (from approx Year 5) labelled "SD4" on "Figure 4: EPL Discharge Points" submitted with the licence application form dated 4/02/13 (DOC13/3326).
5	Wet Weather Discharge Discharge water quality monitoring	Wet Weather Discharge Discharge water quality monitoring	Dam located on the north western side of the southern Overburden Emplacement Area (from approx Year 5) labelled "SD5" on "Figure 4: EPL Discharge Points" submitted with the licence application form dated 4/02/13 (DOC13/3326).
6	Wet Weather Discharge Discharge water quality monitoring	Wet Weather Discharge Discharge water quality monitoring	Dam located on the north western side of the southern Overburden Emplacement Area (from approx Year 5) labelled "SD6" on "Figure 4: EPL Discharge Points" submitted with the licence application form dated 4/02/13 (DOC13/3326).
7	Wet Weather Discharge Discharge water quality monitoring	Wet Weather Discharge Discharge water quality monitoring	Dam located on the south western corner of the open cut mining operation (from approx Year 10-15) labelled "SD7" on "Figure 4: EPL Discharge Points" submitted with the licence application form dated 4/02/13 (DOC13/3326).
8	Discharge to waters Discharge water quality monitoring	Discharge to waters Discharge water quality monitoring	The outlet from sediment basins referred to in condition P1.3 of this licence.

P1.3 For the purpose of this licence the discharge point referred to as EPA identification no. 8 in Conditions P1.1 and P1.2 of this licence are those from sediment basins identified in the aerial map provided to the EPA from Whitehaven Coal Limited dated 12 April 2013 (DOC13/15439).

P1.4 The licensee, in commissioning a new sediment basin, may only vary the discharge point locations identified in Condition P1.3 as EPA identification no. 8 if it provides the EPA with a copy of the revised document/s identified at Condition P1.3 of this licence, at least 7 days prior to the commissioning on the premises.

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P1.5 The licensee, in decommissioning an existing sediment basin, may only vary the discharge point locations identified in Condition P1.3 as EPA identification no. 8 if it provides the EPA with a copy of the revised document/s identified at Condition P1.3 of this licence, at least 21 days prior to the decommissioning on the premises.

Note: Project Approval Conditions (PA 10_0138) requires a Water Management Plan be prepared prior to commencement of construction. The EPA intends to add new water monitoring points to the licence to monitor groundwater, mine void water and ambient surface water once the Water Management Plan has been approved.

P1.6 The following point(s) in the table are identified in this licence for the purpose of the monitoring of weather parameters at the point.

EPA Identification number	Type of Monitoring Point	Description of Location
W1	Weather analysis	Maules Creek Coal Met Station.

Note: Project Approval Conditions (PA 10_0138) requires an Air Quality and Greenhouse Gas Management Plan be prepared prior to commencement of construction. The EPA intends to add new air monitoring points to the licence to monitor deposited dust, PM10 and TSP once the Air Quality and Greenhouse Gas Management Plan has been approved.

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.

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

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POINT 1,2,3,4,5,6,7,8

Pollutant	Units of Measure	50 Percentile concentration limit	90 Percentile concentration limit	3DGM concentration limit	100 percentile concentration limit
Oil and Grease	milligrams per litre				10
pH	pH				6.5- 8.5
Total suspended solids	milligrams per litre	20	35		50

L2.5 The Total Suspended Solids concentration limits specified for Points 1, 2, 3, 4, 5, 6, 7 and 8 may be exceeded for water discharged provided that:

- (a) the discharge occurs solely as a result of rainfall measured at the premises that exceeds 38.4 millimetres over any consecutive 5 day period immediately prior to the discharge occurring; and
- (b) all practical measures have been implemented to dewater all sediment dams within 5 days of rainfall such that they have sufficient capacity to store run off from a 38.4 millimetre, 5 day rainfall event.

Note: 38.4 mm equates to the 5 day 90%ile rainfall depth for Gunnedah sourced from Table 6.3a Managing Urban Stormwater: Soils and Construction Volume 1: 4th edition, March 2004.

L3 Noise limits

L3.1 Noise generated at the premises must not exceed the noise limits in the table below.

Locality and Location	Day- LAeq (15 minute)	Evening- LAeq (15 minute)	Night- LAeq (15 minute)	Night- LA1 (1 minute)
All privately owned residences	35	35	35	45

L3.2 The noise limits identified in the above table do not apply at privately owned residences that are:

- a) identified as residences subject to acquisition or noise mitigation on request within the Project Approval Conditions (PA 10_0138); or
- b) subject to a private agreement, relating to the noise levels, between the licensee and the land owner.

L3.3 For the purpose of the table above:

- a) Day is defined as the period from 7am to 6pm Monday to Saturday and 8am to 6pm Sundays and Public Holidays;
- b) Evening is defined as the period from 6pm to 10pm;
- c) Night is defined as the period from 10pm to 7am Monday to Saturday and 10pm to 8am Sundays and Public Holidays.

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L3.4 Determining Compliance

To determine compliance:

- a) with the Leq(15 minute) noise limits in the Noise Limits table, the noise measurement equipment must be located:
 - i) approximately on the property boundary, where any dwelling is situated 30 metres or less from the property boundary closest to the premises; or
 - ii) within 30 metres of a dwelling façade, but not closer than 3m, where any dwelling on the property is situated more than 30 metres from the property boundary closest to the premises; or, where applicable
 - iii) within approximately 50 metres of the boundary of a National Park or a Nature Reserve.
- b) with the LA1(1 minute) noise limits in the Noise Limits table, the noise measurement equipment must be located within 1 metre of a dwelling façade.
- c) with the noise limits in the Noise Limits table, the noise measurement equipment must be located:
 - i) at the most affected point at a location where there is no dwelling at the location; or
 - ii) at the most affected point within an area at a location prescribed by part (a) or part (b) of this condition.

- L3.5 The noise limits set out in the Noise Limits table apply under all meteorological conditions except for the following:

- a) Wind speeds greater than 3 metres/second at 10 metres above ground level.

For the purposes of this condition:

- a) Data recorded by the meteorological station identified as EPA Identification Point(s) W1 must be used to determine meteorological conditions; and
- b) Temperature inversion conditions (stability category) are to be determined by the sigma-theta method referred to in Part E4 of Appendix E to the NSW Industrial Noise Policy.

- L3.6 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.

L4 Blasting

- L4.1 The overpressure level from blasting operations at the premises must not exceed 120dB (Lin Peak) at any time and at any point within 30 metres of any non project related residential building or other noise sensitive location. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.
- L4.2 The overpressure level from blasting operations at the premises must not exceed 115dB (Lin Peak) for more than five per cent of the total number of blasts over each reporting period at any time and at any point within 30 metres of any non-project related residential building or other noise sensitive location. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.
- L4.3 Ground vibration peak particle velocity from the blasting operations at the premises must not exceed 10mm/sec at any time and at any point within 3.5 metres of any non project related residential building or other noise sensitive location. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.
- L4.4 Ground vibration peak particle velocity from the blasting operations at the premises must not exceed

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5mm/sec for more than five per cent of the total number of blasts over each reporting period at any point within 3.5 metres of any non project related residential building or other noise sensitive location. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.

- L4.5 Blasting operations on the premises must only be carried out between the hours 9am to 5pm, Monday to Saturday, inclusive.
- L4.6 The hours of operation for blasting operations specified in condition L4.5 may be varied if the EPA, having regard to the effect that the proposed variation would have on the amenity of the residents in the locality, gives written consent to the variation.
- L4.7 Blasting at the premises is limited to 1 blast on each day on which blasting is permitted.

Note: Additional blasts are permitted where it is demonstrated to be necessary for safety reasons and the EPA and neighbours have been notified of the intended blast prior to the additional blast being fired.

- L4.8 Condition L4.7 does not apply to blasts that generate ground vibration of 0.5 mm/s or less at any residence on privately- owned land, or to blasts required to ensure the safety of the mine or its workers.

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

L5 Other limit conditions

- L5.1 Noise from activities associated with the construction and/ or upgrade of the Maules Creek rail spur line must not exceed the noise limits in the table below.

Location	Construction Noise Criteria Day LAeq (15 minute)
256	50
259	45
All privately owned residences	40

Note: The noise limits identified in the above table do not apply at privately owned residences that are subject to a private agreement, relating to the noise levels, between the licensee and the land owner.

- L5.2 Activities associated with the construction and/ or upgrade of the Maules Creek rail spur line may only be carried on between:
 - a) 7:00am to 6:00pm Monday to Friday;
 - b) 8:00am to 1:00pm Saturdays; and,
 - c) At no time on Sundays or public holidays.
- L5.3 The above hours of operation specified in condition L5.2 may be varied if the EPA, having regard to the effect that the proposed variation would have on the amenity of the residents in the locality, gives written consent to the variation.

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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.

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 All operations and activities occurring at the premises must be carried out in a manner that will minimise the emission of dust from the premises.

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

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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 Water and/ or Land Monitoring Requirements

POINT 1,2,3,4,5,6,7,8

Pollutant	Units of measure	Frequency	Sampling Method
Conductivity	microsiemens per centimetre	Special Frequency 1	Grab sample
Oil and Grease	milligrams per litre	Special Frequency 1	Grab sample
pH	pH	Special Frequency 1	Grab sample
Total suspended solids	milligrams per litre	Special Frequency 1	Grab sample

M2.3 For the purposes of the table(s) above Special Frequency 1 means the collection of samples as soon as practicable after a discharge from points 1, 2, 3, 4, 5, 6, 7 and 8 commences and in any case not more than 12 hours after a discharge commences.

M2.4 For the purposes of condition M2.1, this licence acknowledges that points 3, 4, 5, 6 and 7 are to be constructed from approximately Year 5 onwards. Consequently, monitoring from these points is not required until the relevant sediment dam has been constructed. The licensee is deemed to have not breached condition M2.1 of this licence where the licensee is unable to obtain the monitoring data due to the relevant sediment dam not being constructed.

M3 Testing methods - concentration limits

M3.1 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 Weather monitoring

M4.1 For each monitoring point specified in the table below the licensee must monitor (by sampling and obtaining results by analysis) the parameters specified in Column 1. The licensee must use the sampling method, units of measure, averaging period and sample at the frequency, specified opposite in the other columns.

Point W1

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Parameter	Units of Measure	Frequency	Averaging Period	Sampling Method
Temperature @ 2 metres	°C	Continuous	15 minute	AM-4
Wind direction @ 10 metres	°	Continuous	15 minute	AM-2 & AM-4
Wind speed @ 10 metres	m/s	Continuous	15 minute	AM-2 & AM-4
Sigma theta @ 10 metres	°	Continuous	15 minute	AM-2 & AM-4
Rainfall	mm/h	Continuous	1 hour	AM-4
Solar Radiation	W/m2	Continuous	15 minute	AM-4
Temperature @ 10 metres	°C	Continuous	15 minute	AM-4
Additional requirements - Siting - Measurement				AM-1 & AM-4 AM-2 & AM-4

M4.2 The meteorological weather station must be maintained so as to be capable of continuously monitoring the parameters specified in this section.

M5 Recording of pollution complaints

M5.1 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.

M5.2 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.

M5.3 The record of a complaint must be kept for at least 4 years after the complaint was made.

M5.4 The record must be produced to any authorised officer of the EPA who asks to see them.

M6 Telephone complaints line

M6.1 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.

M6.2 The licensee must notify the public of the complaints line telephone number and the fact that it is a

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complaints line so that the impacted community knows how to make a complaint.

M6.3 The preceding two conditions do not apply until 60 days after

a) the date of the issue of this licence or

b) if this licence is a replacement licence within the meaning of the Protection of the Environment Operations (Savings and Transitional) Regulation 1998, the date on which a copy of the licence was served on the licensee under clause 10 of that regulation.

M7 Other monitoring and recording conditions

Note: Project Approval Conditions (PA 10_0138) requires a Noise Management Plan be prepared prior to commencement of construction. The EPA intends to add new noise monitoring points to the licence to monitor ambient noise once the Noise Management Plan has been approved.

Note: Project Approval Conditions (PA 10_0138) requires a Blast Management Plan be prepared prior to undertaking any blasting activities on the site. The EPA intends to add new blast monitoring points to the licence to monitor airblast overpressure and ground vibration once the Blast Management Plan has been approved.

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.

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

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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.
- R1.8 A person who has been given written approval to certify a certificate of compliance under a licence issued under the Pollution Control Act 1970 is taken to be approved for the purpose of this condition until the date of first review of this licence.

R2 Notification of environmental harm

- R2.1 Notifications must be made by telephoning the Environment Line service on 131 555.

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.

- R2.2 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.

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.

8 Special Conditions

E1 Particulate Matter Control Best Practice Implementation – Wheel Generated

- E1.1 The Licensee must achieve and maintain a dust control efficiency of 85% or more on all active haul roads once coal operations commence (ie post construction phase).

Control efficiency is calculated as:

$$CE = \frac{E \text{ (uncontrolled)} - E \text{ (controlled)}}{E \text{ (uncontrolled)}} \times 100$$

Where E = the emission rate of the activity

- E1.2 The Licensee must prepare a Monitoring Program to assess its compliance with Condition E1.1 under varying meteorological conditions. The Monitoring Program must detail the following:
 - the parameters to be monitored;
 - methods to be used to monitor each parameter;
 - locations where each parameter will be monitored;
 - frequency at which each parameter will be monitored;
 - Key Performance Indicators that will be used to determine compliance with Condition E1.1; and
 - detailed justification for each parameter and Key Performance Indicator selected.

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As a guide, the EPA anticipates that the following parameters will be monitored:

- moisture and silt contents of haul roads;
- frequency, duration, rate and quantity of water applied to haul roads;
- frequency, duration, rate and quantity of suppressant applied to haul roads in comparison to manufacturer's specifications;
- vehicle kilometres travelled;
- haul truck weight;
- haul truck speed;
- number of vehicle movements;
- meteorological conditions; and
- dust levels on haul roads.

The Monitoring Program must be submitted by the Licensee to the Environment Protection Authority Regional Manager Armidale, at PO Box 494, ARMIDALE by **28 June 2013**.

The EPA intends to require the licensee to implement the Monitoring Program once it is approved by the EPA.

- E1.3 The Licensee must submit a written report to the EPA providing the results of the Monitoring Program. The report must include an assessment of the dust control effectiveness, dust levels and the Licensee's compliance with Condition E1.1. The report must be submitted by the Licensee to the Environment Protection Authority Regional Manager Armidale, at PO Box 494, ARMIDALE within 12 months of operations commencing (ie post construction phase).

E2 Particulate Matter Control Best Practice Implementation – Disturbing and Handling Overburden under Adverse Weather Conditions

- E2.1 The licensee must alter or cease the use of equipment on overburden and the loading and dumping of overburden during adverse weather conditions to minimise the generation of particulate matter once coal operations commence (ie post construction phase).
- E2.2 The Licensee must prepare a Monitoring Program to assess its compliance with Condition E2.1. The Monitoring Program must detail the following:
- parameters to be monitored;
 - methods to be used to monitor each parameter;
 - locations where each parameter will be monitored;
 - frequency at which each parameter will be monitored;
 - way in which changes to operational activities will be documented;
 - Key Performance Indicators that will be used to determine compliance with Condition E2.1; and
 - detailed justification for each parameter and Key Performance Indicator selected.

As a guide, the EPA anticipates that the following parameters will be monitored:

- wind speed and direction;
- temperature;
- rainfall/humidity;
- evaporation rate;
- solar radiation;

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- operational activities; and
- dust levels.

The Monitoring Program must be submitted by the Licensee to the Environment Protection Authority Regional Manager Armidale, at PO Box 494, ARMIDALE by **28 June 2013**.

The EPA intends to require the licensee to implement the Monitoring Program once it is approved by the EPA.

- E2.3 The Licensee must submit a written report to the EPA providing the results of the Monitoring Program. The report must detail the following:
- weather conditions during which activities were ceased or altered;
 - changes made to operational activities as a result of adverse weather; and
 - resultant dust levels when activities were altered or ceased.

The report must be submitted by the Licensee to the Environment Protection Authority Regional Manager Armidale, at PO Box 494, ARMIDALE within 12 months of operations commencing (ie post construction phase).

E3 Particulate Matter Control Best Practice Implementation – Trial of Best Practice Measures for Disturbing and Handling Overburden

- E3.1 The Licensee must submit a report documenting an investigation and trial of best practice measures for the control of particulate matter from the use of equipment on overburden and the loading and dumping of overburden. Best practice measures may include, but should not be limited to, the following:
- use of foggers;
 - use of water sprays; and
 - reduction of drop heights.

The report must document the investigation and trial of each best practice measure. It must quantify the particulate matter control effectiveness and discuss the practicability of each best practice measure.

The report must be submitted by the Licensee to the Environment Protection Authority Regional Manager Armidale, at PO Box 494, ARMIDALE within 12 months of operations commencing (ie post construction phase).

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Dictionary

General Dictionary

3DGM [in relation to a concentration limit]	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
Act	Means the Protection of the Environment Operations Act 1997
activity	Means a scheduled or non-scheduled activity within the meaning of the Protection of the Environment Operations Act 1997
actual load	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
AM	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> .
AMG	Australian Map Grid
anniversary date	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.
annual return	Is defined in R1.1
Approved Methods Publication	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
assessable pollutants	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
BOD	Means biochemical oxygen demand
CEM	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> .
COD	Means chemical oxygen demand
composite sample	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.
cond.	Means conductivity
environment	Has the same meaning as in the Protection of the Environment Operations Act 1997
environment protection legislation	Has the same meaning as in the Protection of the Environment Administration Act 1991
EPA	Means Environment Protection Authority of New South Wales.
fee-based activity classification	Means the numbered short descriptions in Schedule 1 of the Protection of the Environment Operations (General) Regulation 2009.
general solid waste (non-putrescible)	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997

Environment Protection Licence

Licence - 20221



flow weighted composite sample	Means a sample whose composites are sized in proportion to the flow at each composites time of collection.
general solid waste (putrescible)	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
grab sample	Means a single sample taken at a point at a single time
hazardous waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
licensee	Means the licence holder described at the front of this licence
load calculation protocol	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
local authority	Has the same meaning as in the Protection of the Environment Operations Act 1997
material harm	Has the same meaning as in section 147 Protection of the Environment Operations Act 1997
MBAS	Means methylene blue active substances
Minister	Means the Minister administering the Protection of the Environment Operations Act 1997
mobile plant	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
motor vehicle	Has the same meaning as in the Protection of the Environment Operations Act 1997
O&G	Means oil and grease
percentile [in relation to a concentration limit of a sample]	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.
plant	Includes all plant within the meaning of the Protection of the Environment Operations Act 1997 as well as motor vehicles.
pollution of waters [or water pollution]	Has the same meaning as in the Protection of the Environment Operations Act 1997
premises	Means the premises described in condition A2.1
public authority	Has the same meaning as in the Protection of the Environment Operations Act 1997
regional office	Means the relevant EPA office referred to in the Contacting the EPA document accompanying this licence
reporting period	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.
restricted solid waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
scheduled activity	Means an activity listed in Schedule 1 of the Protection of the Environment Operations Act 1997
special waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
TM	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> .

Environment Protection Licence



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


Mr Robert O'Hern

Environment Protection Authority

(By Delegation)

Date of this edition: 02-May-2013

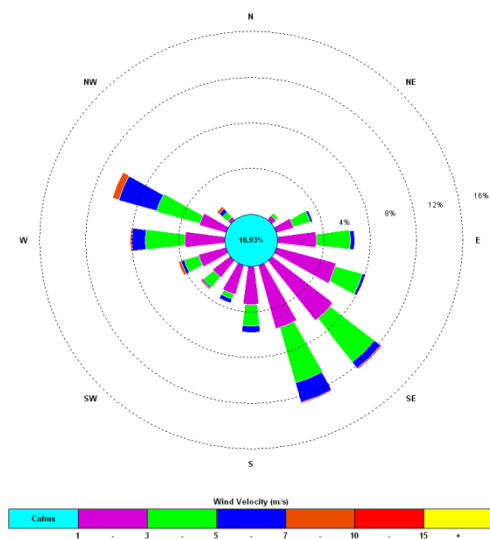
End Notes
2 Licence varied by notice 1518351 issued on 05-Feb-2014

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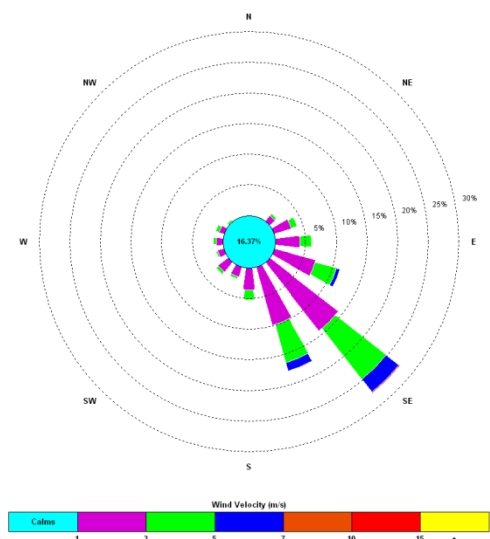
APPENDIX C

METEOROLOGY

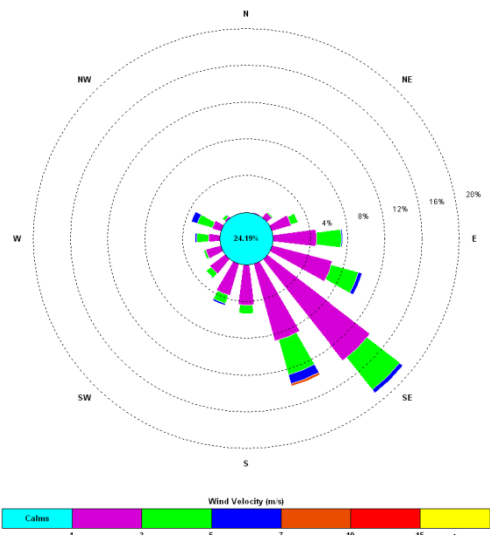
MCC METEOROLOGICAL STATION - WIND ROSETTES 2013



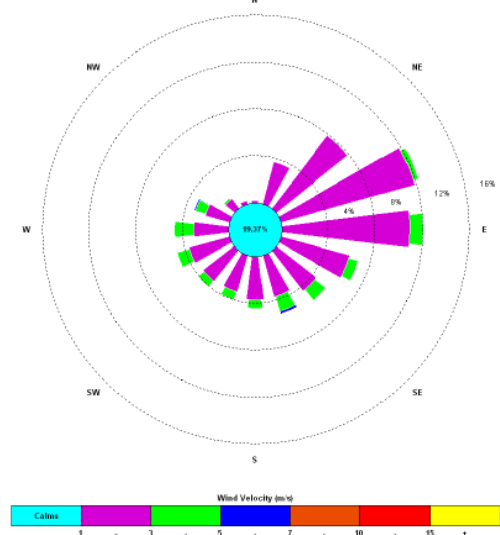
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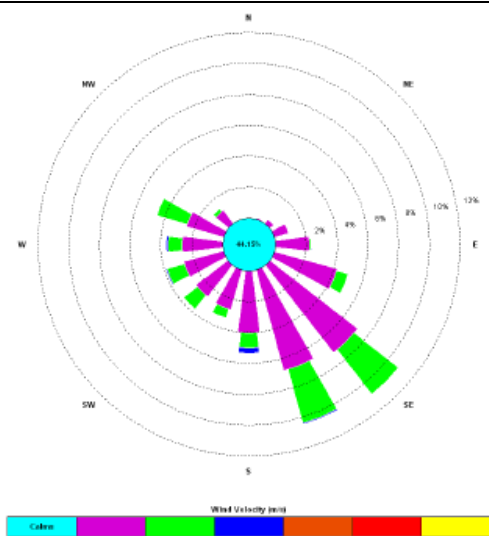
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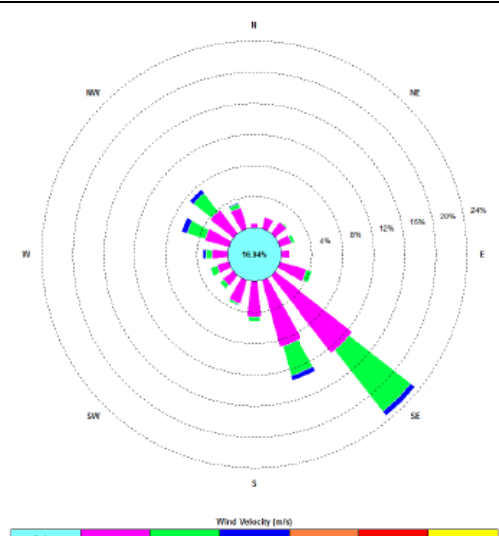
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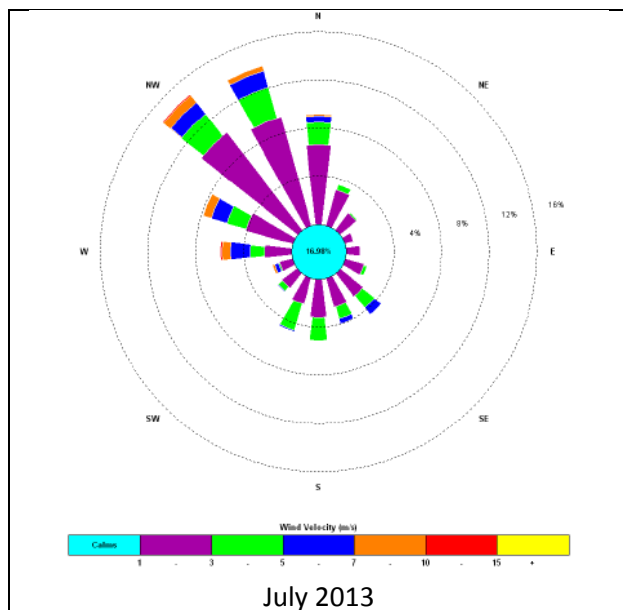
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APPENDIX D

AIR QUALITY

MCC DUST DEPOSITION
MONTHLY SUMMARIES

MC1							
Month	On Date	Off Date	Insoluble Solids g/m ² .month	Rolling Annual Average	Ash Residue g/m ² .month	Combustible Matter g/m ² .month	%(AR/IS)
Jan-13	12/19/2012	1/18/2013	2.6	2.60	1.4	1.2	54
Feb-13	1/19/2013	2/19/2013	1.1	1.85	0.9	0.2	82
Mar-13	2/19/2013	3/18/2013	1.2	1.63	0.9	0.3	75
Apr-13	3/18/2013	4/18/2013	2.4	1.83	1.5	0.9	63
May-13	4/18/2013	5/24/2013	0.7	1.60	0.5	0.2	71
Jun-13	5/24/2013	6/21/2013	1.0	1.50	0.6	0.4	60
Jul-13	6/21/2013	7/19/2013	1.0	1.43	0.9	0.1	90
Aug-13	7/19/2013	8/23/2013	3.6	1.70	1.8	1.8	50
Sep-13	8/23/2013	9/19/2013	1.0	1.62	0.7	0.3	70
Oct-13	9/19/2013	10/22/2013	1.0	1.56	0.6	0.4	60
Nov-13	10/22/2013	11/22/2013	1.1	1.52	0.5	0.6	45
Dec-13	11/22/2013	12/19/2013	10.1c	1.52	3.3c	6.8	

MC2							
Month	On Date	Off Date	Insoluble Solids g/m ² .month	Rolling Annual Average	Ash Residue g/m ² .month	Combustible Matter g/m ² .month	%(AR/IS)
Jan-13	12/19/2012	1/18/2013	3.3	3.30	1.5	1.8	45
Feb-13	1/19/2013	2/19/2013	2.9	3.10	1.8	1.1	62
Mar-13	2/19/2013	3/18/2013	6.7c	3.10	2.1c	4.6	
Apr-13	3/18/2013	4/18/2013	2.9	3.03	1.6	1.3	55
May-13	4/18/2013	5/24/2013	1.8	2.73	1.4	0.4	78
Jun-13	5/24/2013	6/21/2013	3.8	2.94	2.3	1.5	61
Jul-13	6/21/2013	7/19/2013	8.7c	2.94	5.4c	3.3	
Aug-13	7/19/2013	8/23/2013	4.9c	2.94	1.2c	3.7	
Sep-13	8/23/2013	9/19/2013	1.2	2.65	0.7	0.5	58
Oct-13	9/19/2013	10/22/2013	4.6c	2.65	2.2c	2.4	
Nov-13	10/22/2013	11/22/2013	10.1c	2.65	2.3c	7.8	
Dec-13	11/22/2013	12/19/2013	28.5c	2.65	7.1c	21.4	

Results in bold are contaminated by bird droppings or decomposed insects and vegetable matter.(Field sheet descriptions).

Only uncontaminated results are included in YTD mean.

All results are g/m².month

MCC DUST DEPOSITION
MONTHLY SUMMARIES


MC3							
Month	On Date	Off Date	Insoluble Solids g/m ² .month	Rolling Annual Average	Ash Residue g/m ² .month	Combustible Matter g/m ² .month	%(AR/IS)
Jan-13	12/19/2012	1/18/2013	1.9	1.90	1.3	0.6	68
Feb-13	1/19/2013	2/19/2013	2.6	2.25	1.9	0.7	73
Mar-13	2/19/2013	3/18/2013	1.5	2.00	0.9	0.6	60
Apr-13	3/18/2013	4/18/2013	0.9	1.73	0.6	0.3	67
May-13	4/18/2013	5/24/2013	1.1	1.60	0.9	0.2	82
Jun-13	5/24/2013	6/21/2013	5.1	2.18	3.3	1.8	65
Jul-13	6/21/2013	7/19/2013	1.6	2.10	1.1	0.5	69
Aug-13	7/19/2013	8/23/2013	0.5	1.90	0.4	0.1	80
Sep-13	8/23/2013	9/19/2013	0.7	1.77	0.4	0.3	57
Oct-13	9/19/2013	10/22/2013	1.7	1.76	1.1	0.6	65
Nov-13	10/22/2013	11/22/2013	0.8	1.67	0.6	0.2	75
Dec-13	11/22/2013	12/19/2013	1.1	1.63	0.6	0.5	55

MC4							
Month	On Date	Off Date	Insoluble Solids g/m ² .month	Rolling Annual Average	Ash Residue g/m ² .month	Combustible Matter g/m ² .month	%(AR/IS)
Jan-13	12/19/2012	1/18/2013	1.2	1.20	1.0	0.2	83
Feb-13	1/19/2013	2/19/2013	2.2	1.70	1.6	0.6	73
Mar-13	2/19/2013	3/18/2013	0.6	1.33	0.4	0.2	67
Apr-13	3/18/2013	4/18/2013	1.3	1.33	0.9	0.4	69
May-13	4/18/2013	5/24/2013	1.0	1.26	0.8	0.2	80
Jun-13	5/24/2013	6/21/2013	0.7	1.17	0.6	0.1	86
Jul-13	6/21/2013	7/19/2013	0.4	1.06	0.2	0.2	50
Aug-13	7/19/2013	8/23/2013	0.8	1.03	0.7	0.1	88
Sep-13	8/23/2013	9/19/2013	1.0	1.02	0.7	0.3	70
Oct-13	9/19/2013	10/22/2013	1.3	1.05	0.8	0.7	62
Nov-13	10/22/2013	11/22/2013	0.9	1.04	0.7	0.2	78
Dec-13	11/22/2013	12/19/2013	0.6	1.00	0.3	0.3	50

Results in bold are contaminated by bird droppings or decomposed insects and vegetable matter.(Field sheet descriptions).

Only uncontaminated results are included in YTD mean.

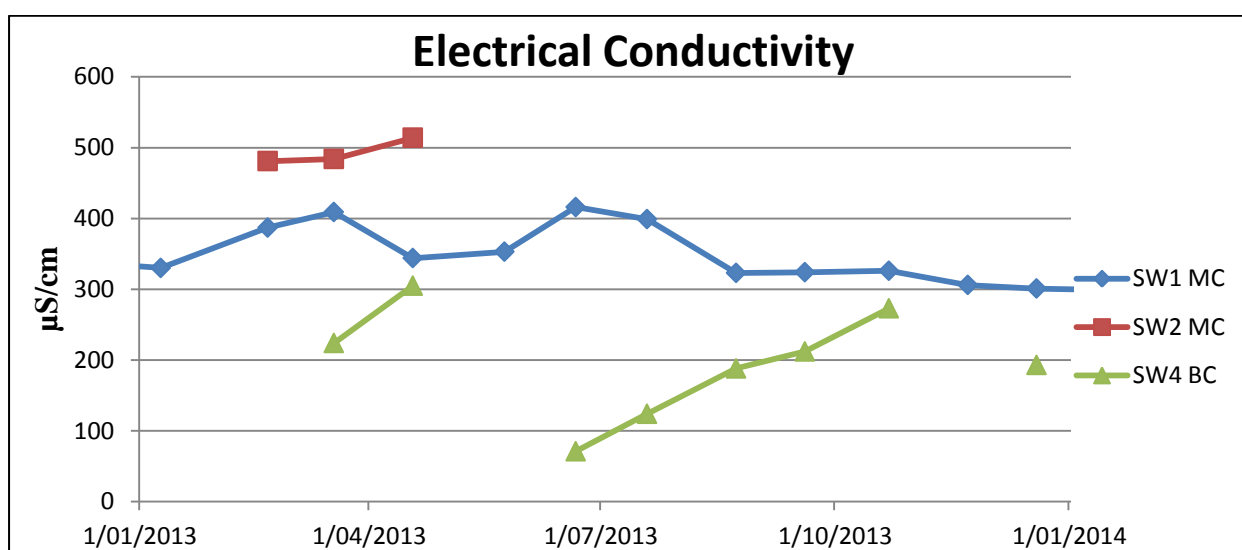
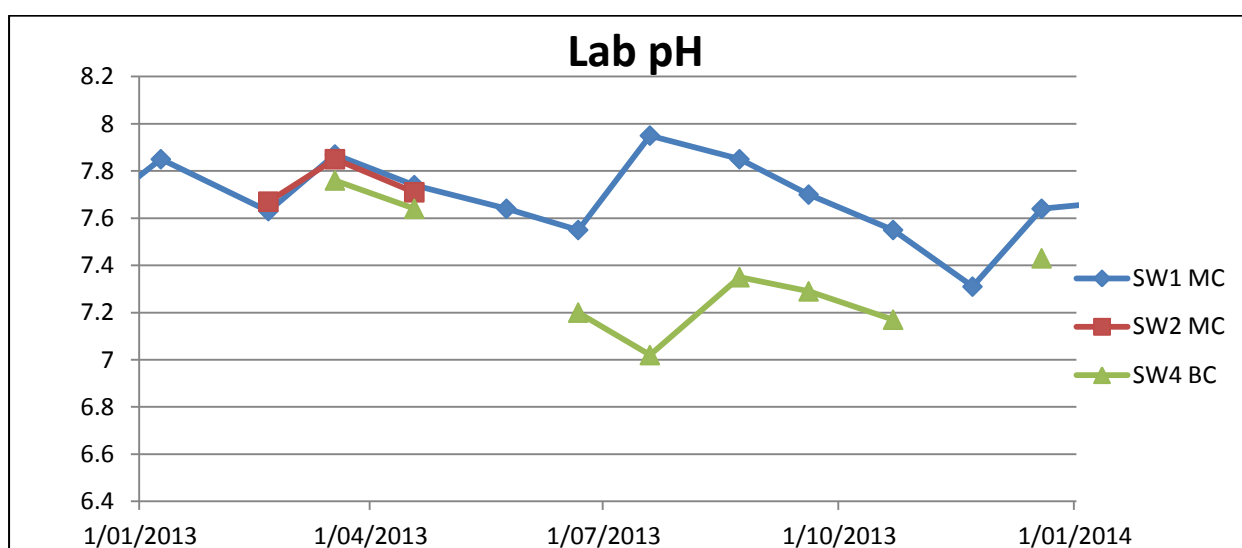
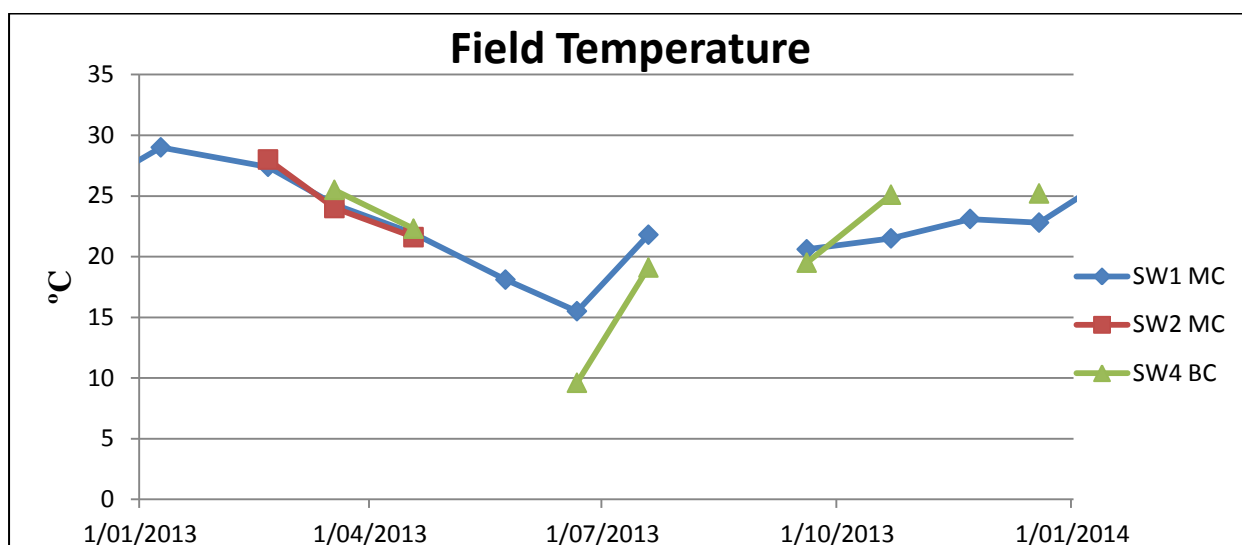
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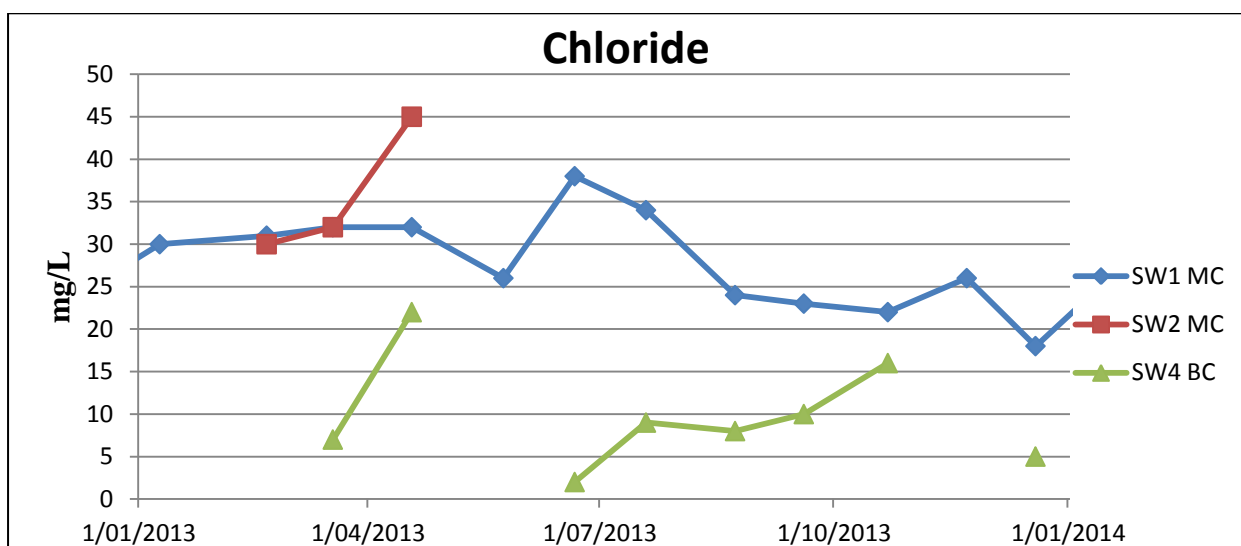
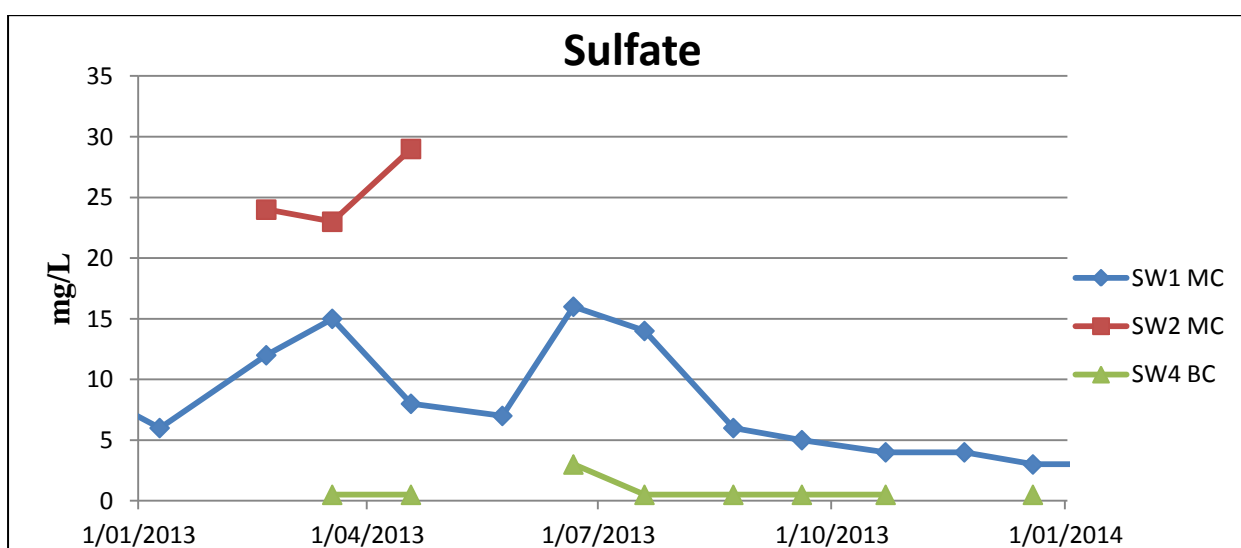
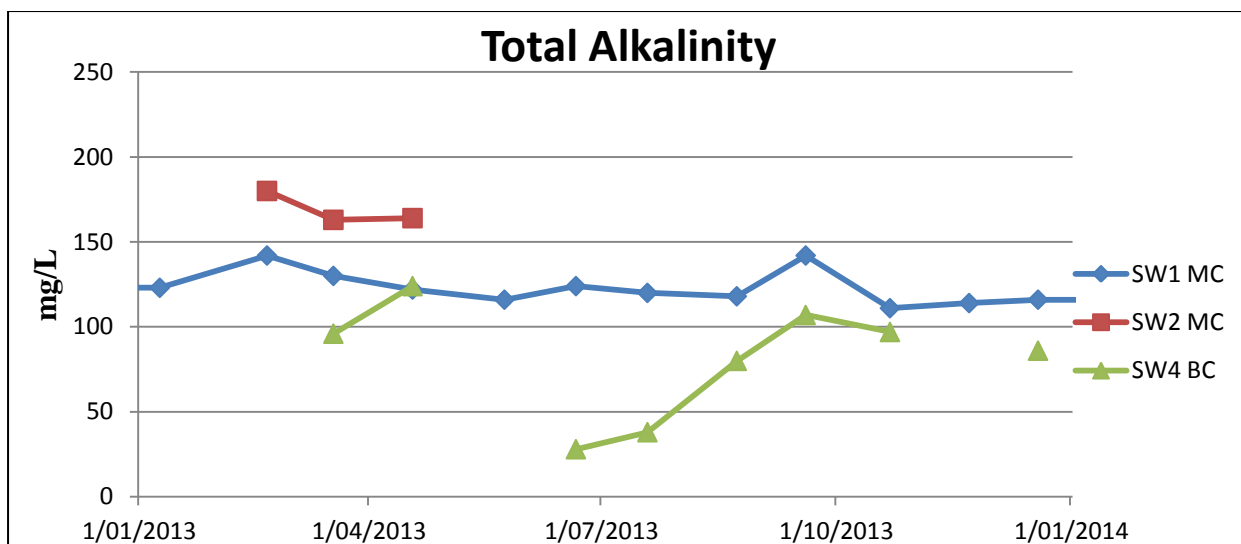
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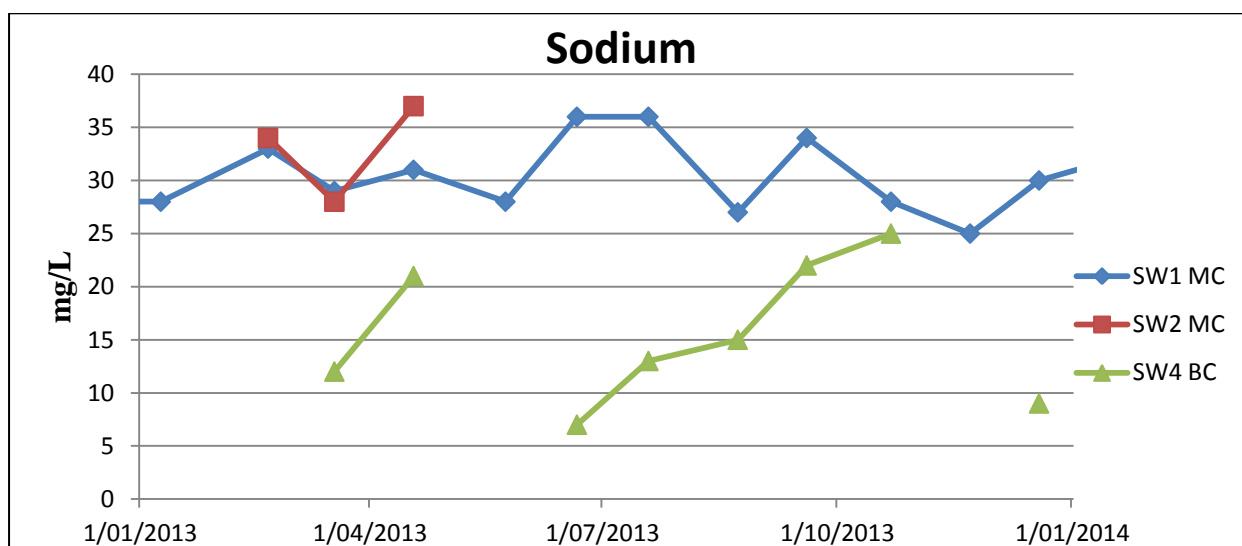
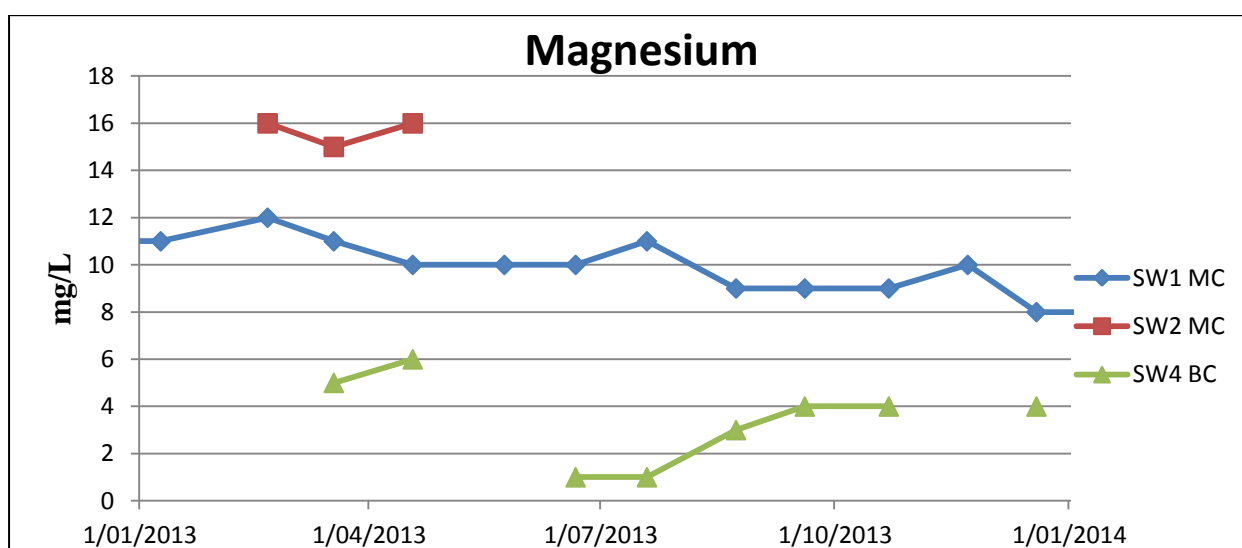
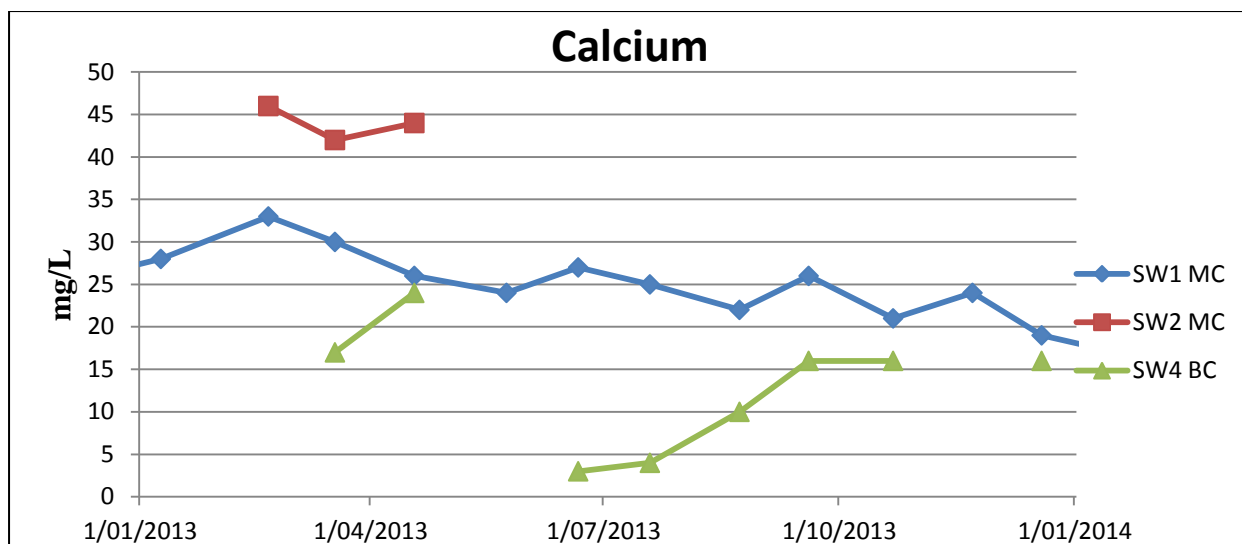
APPENDIX E

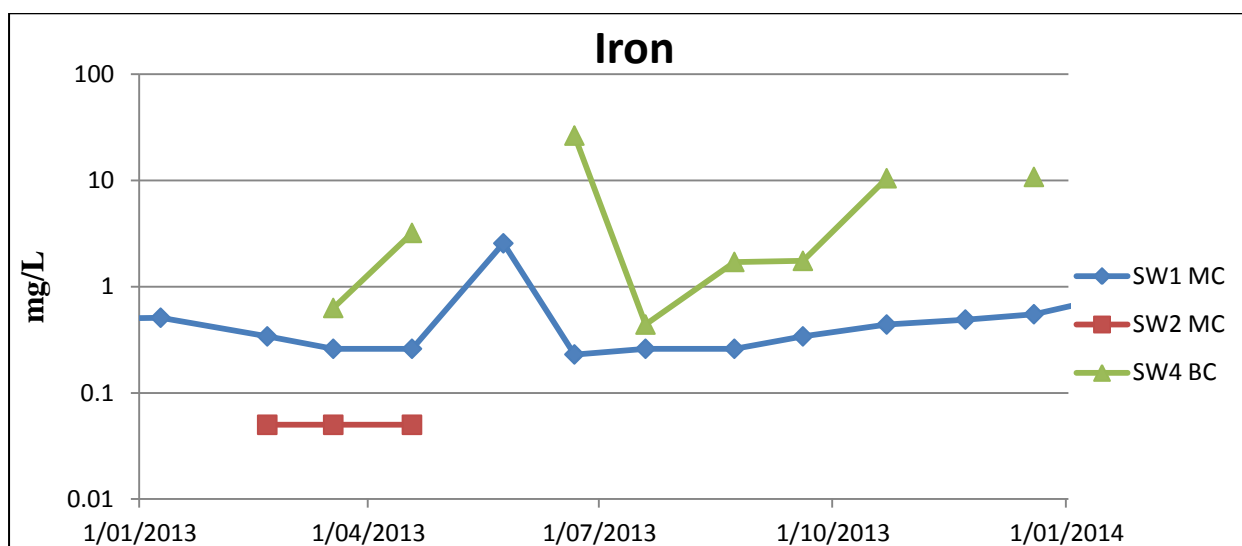
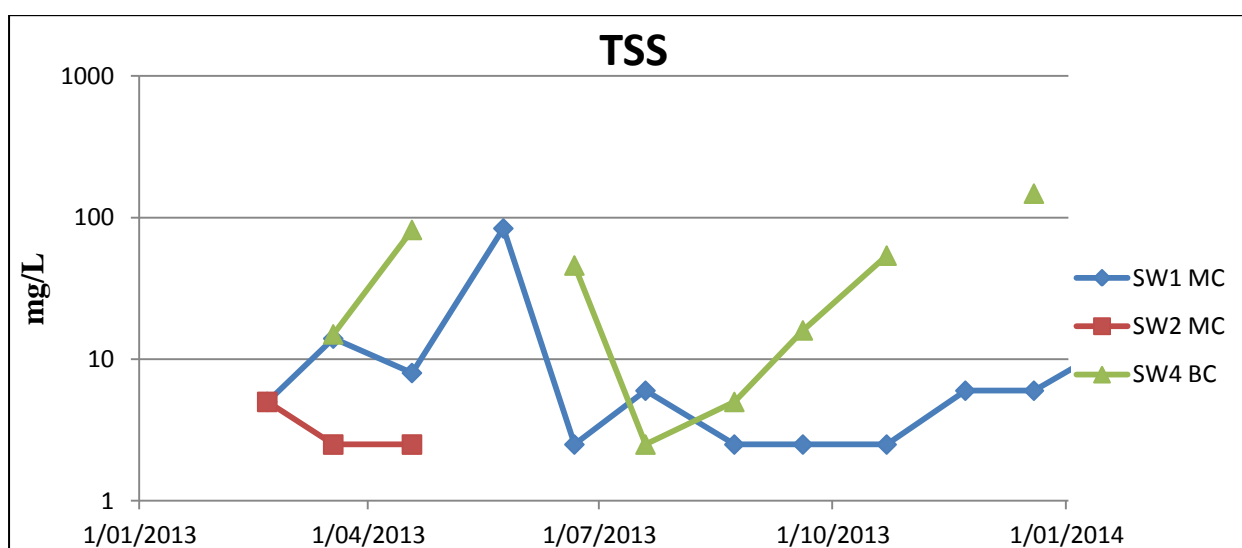
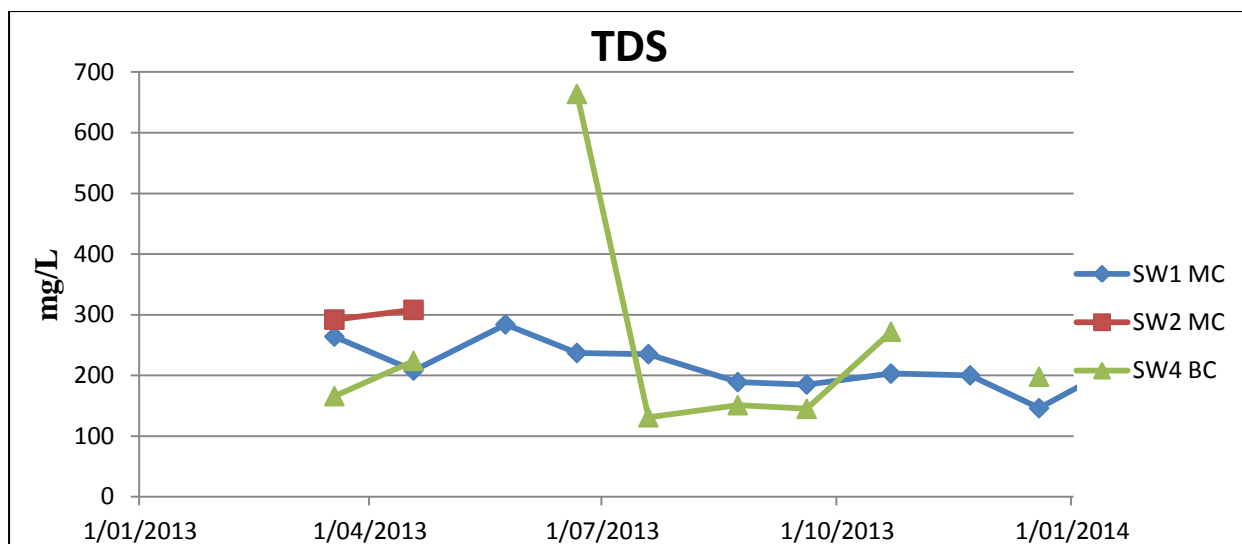
SURFACE WATER

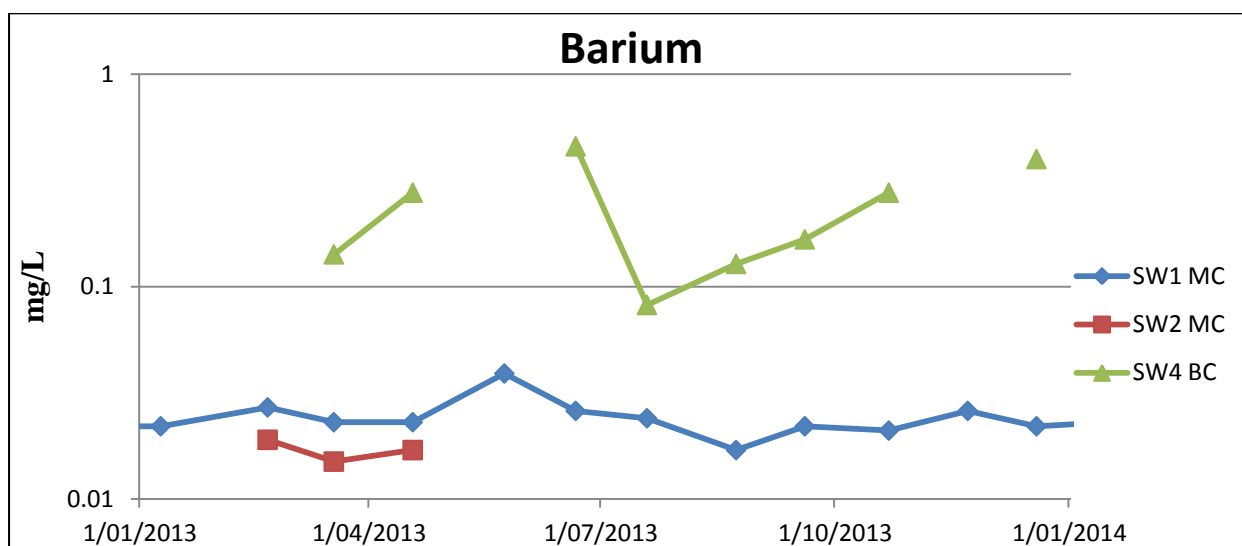
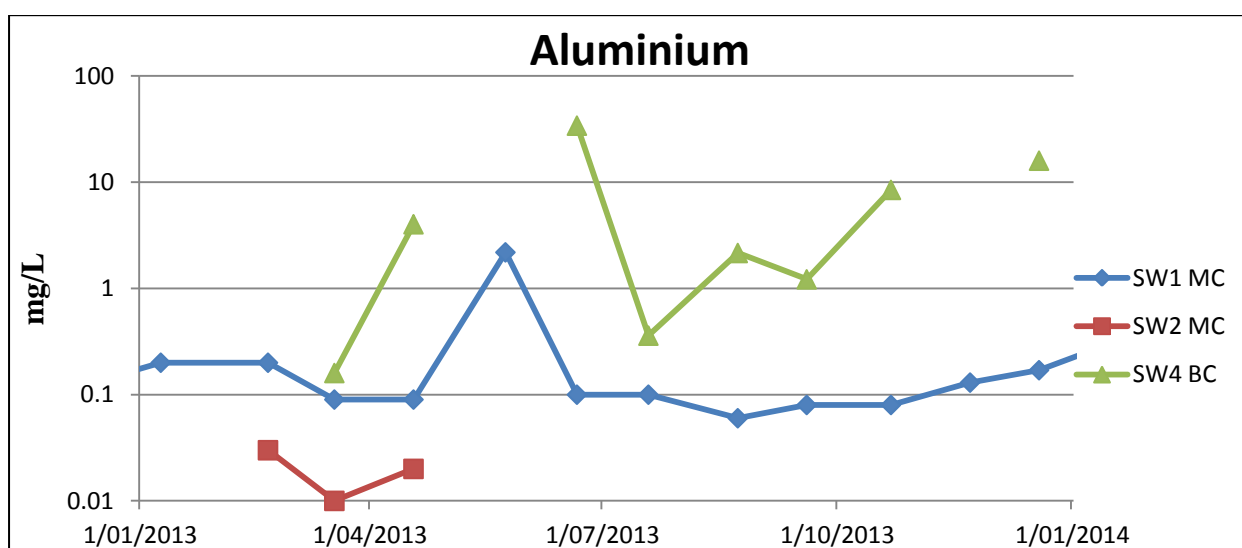
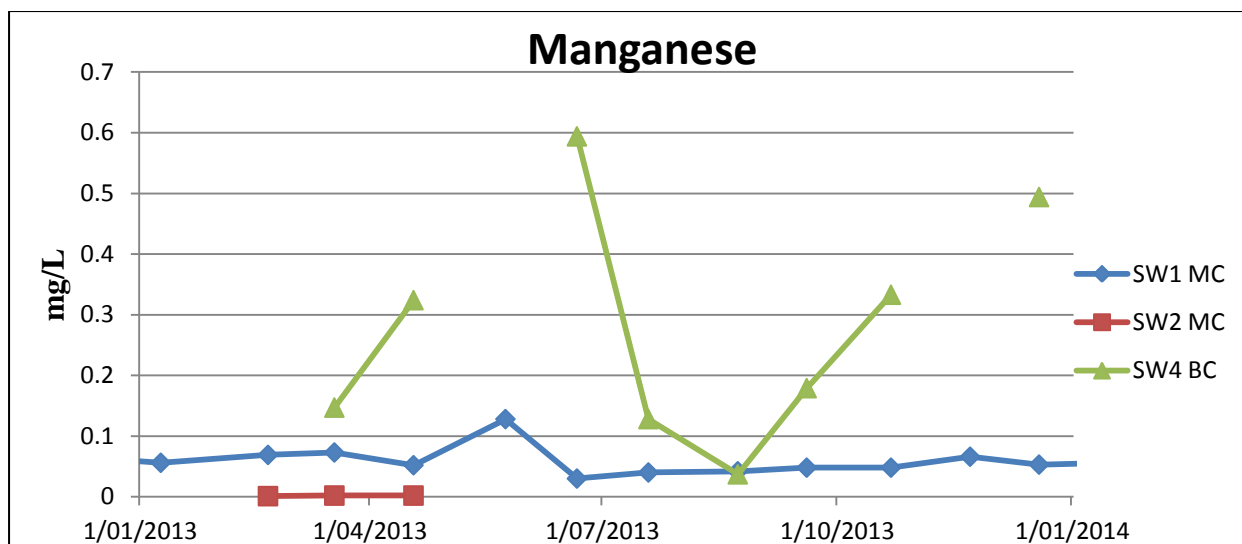
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MAULES CREEK AND BACK CREEK SAMPLING

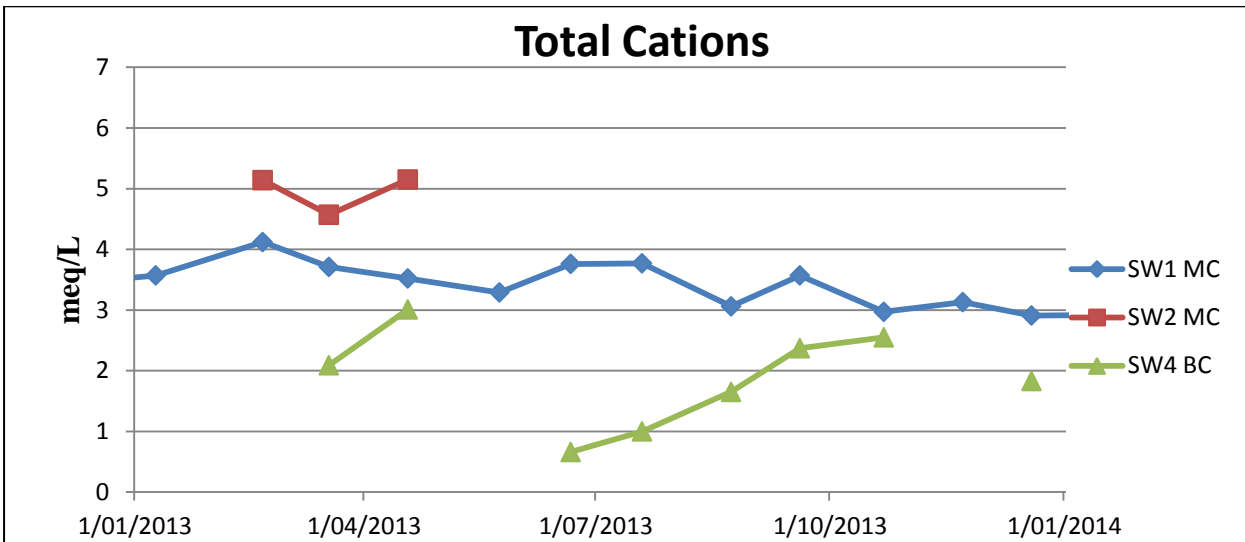
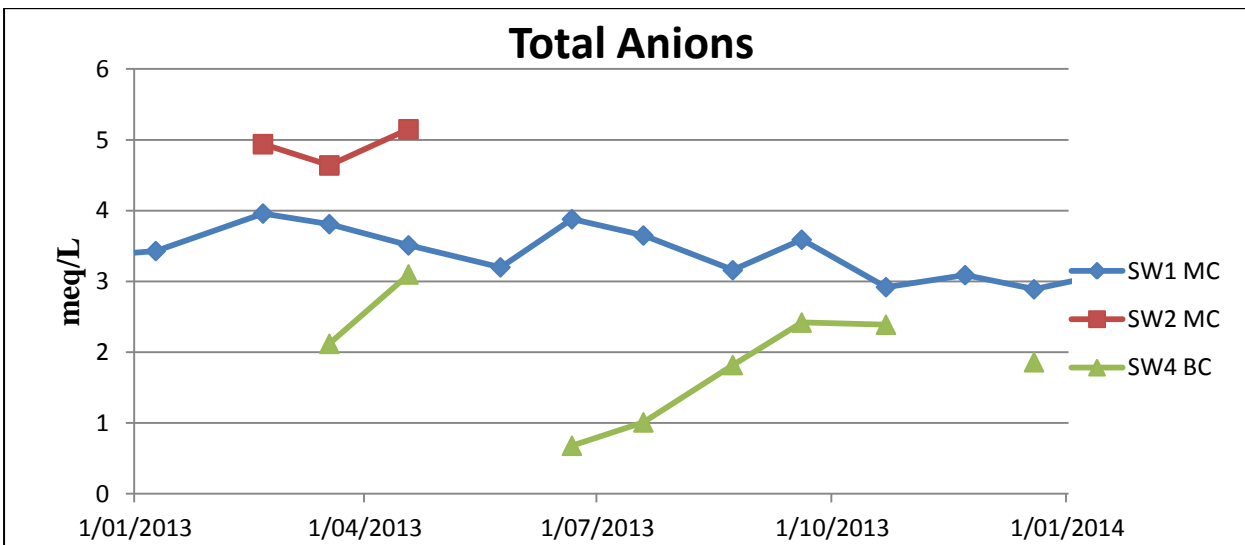
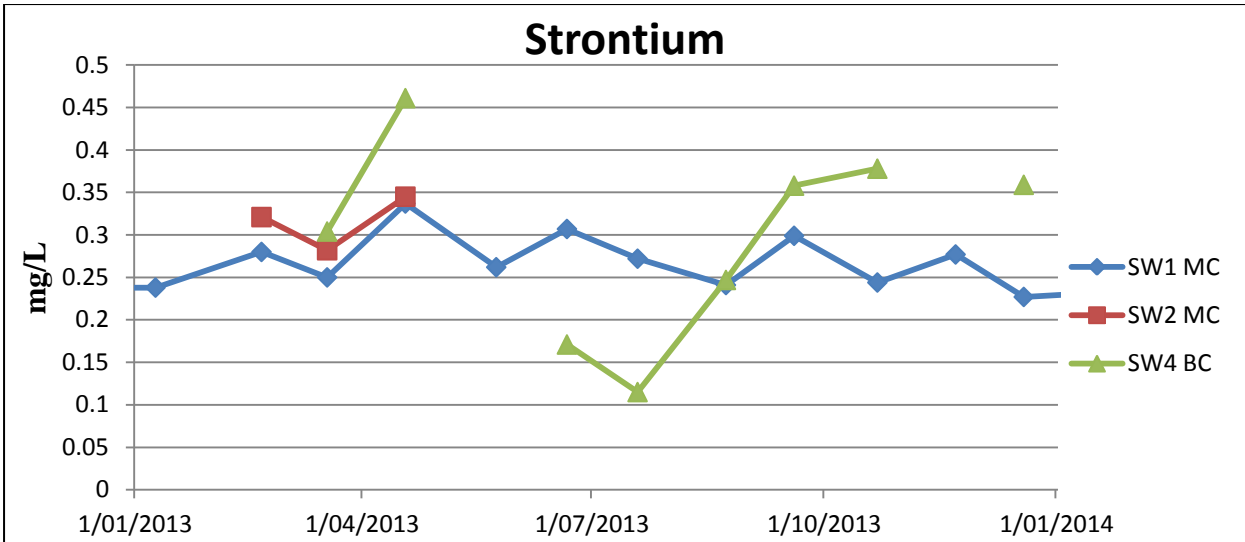


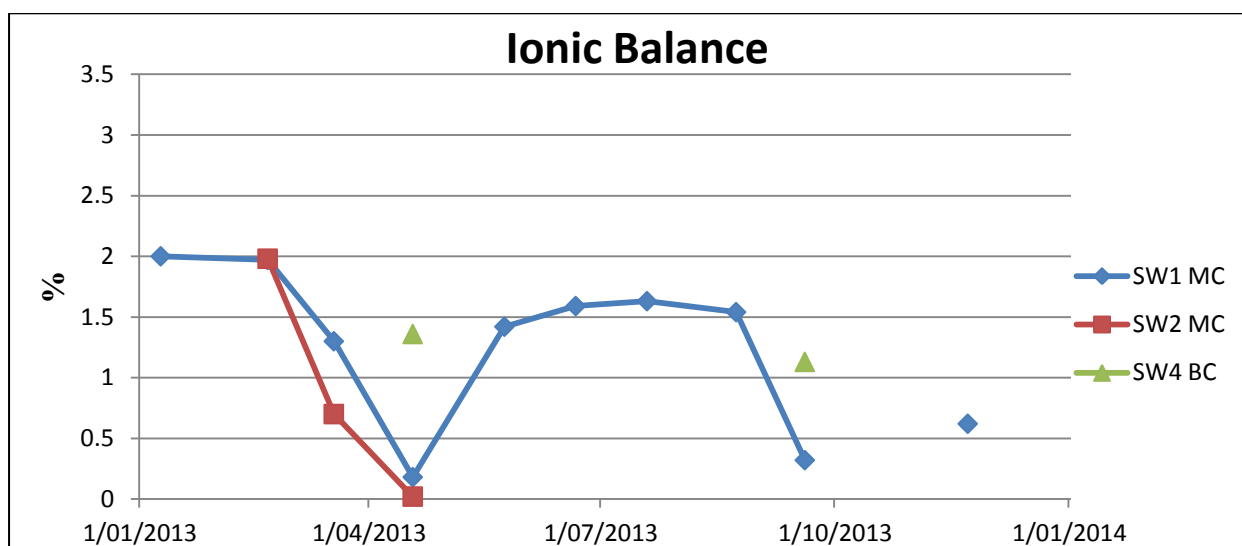
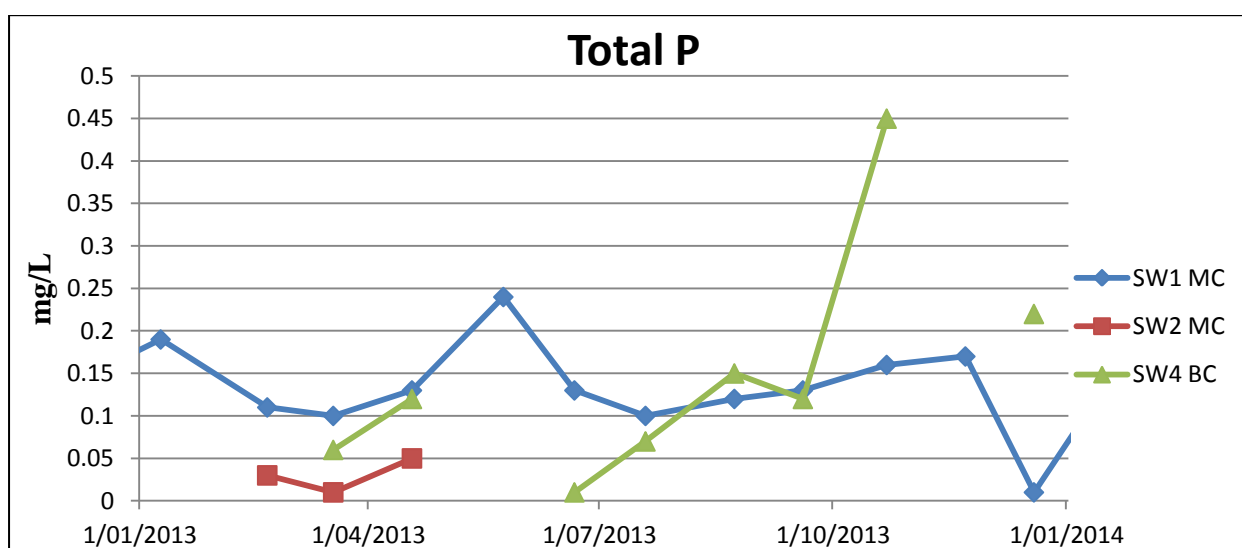
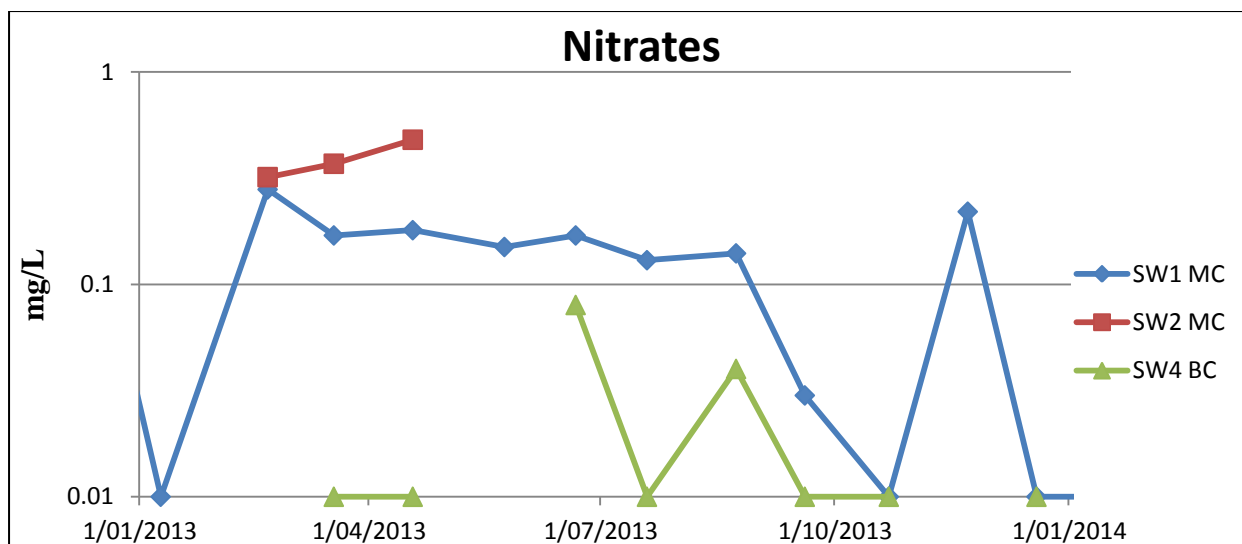









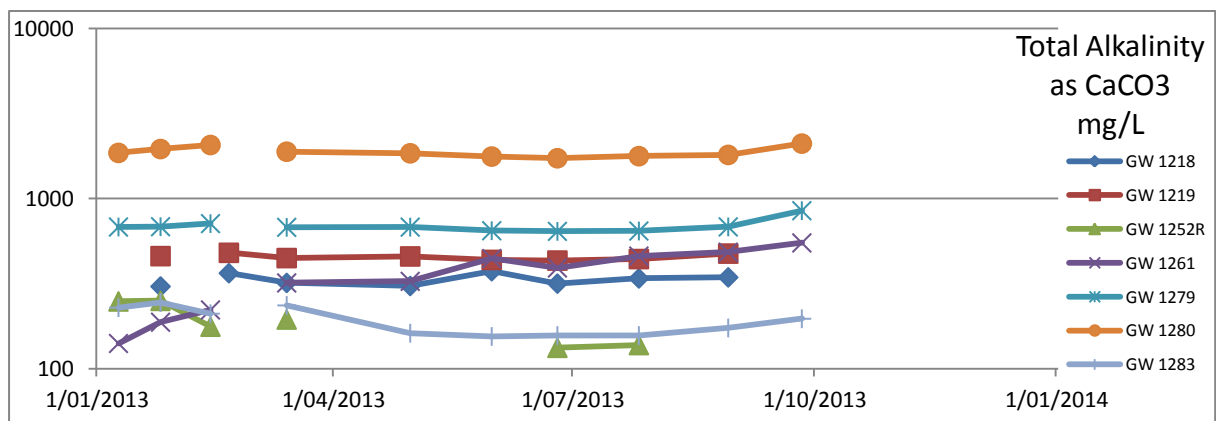
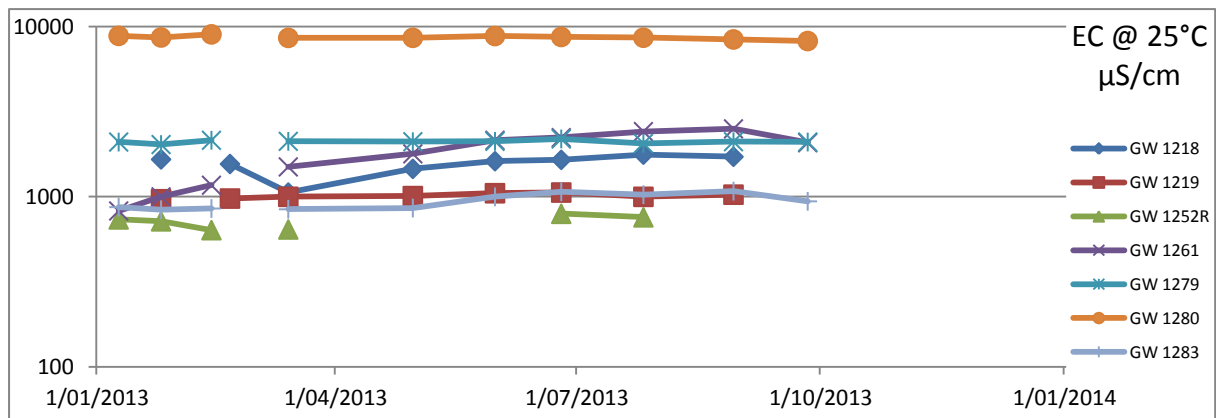
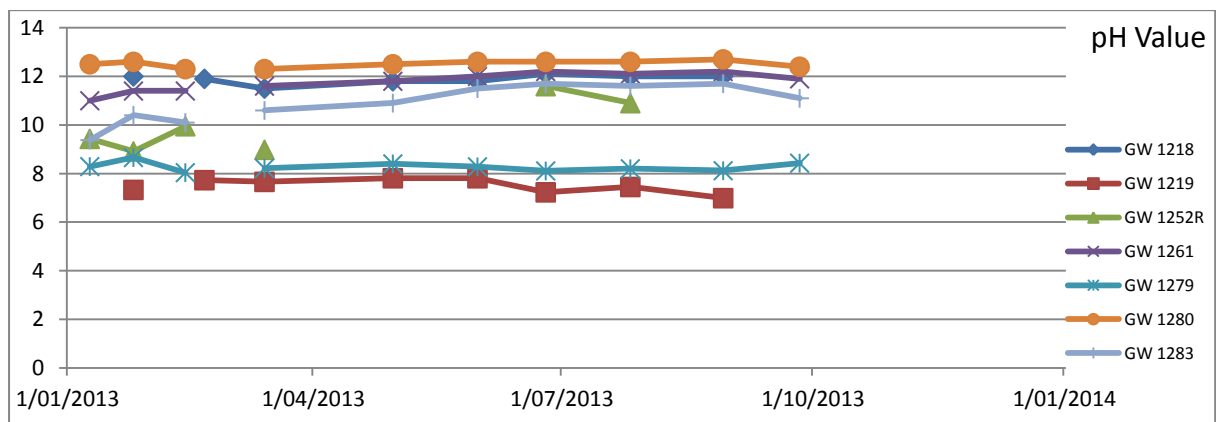
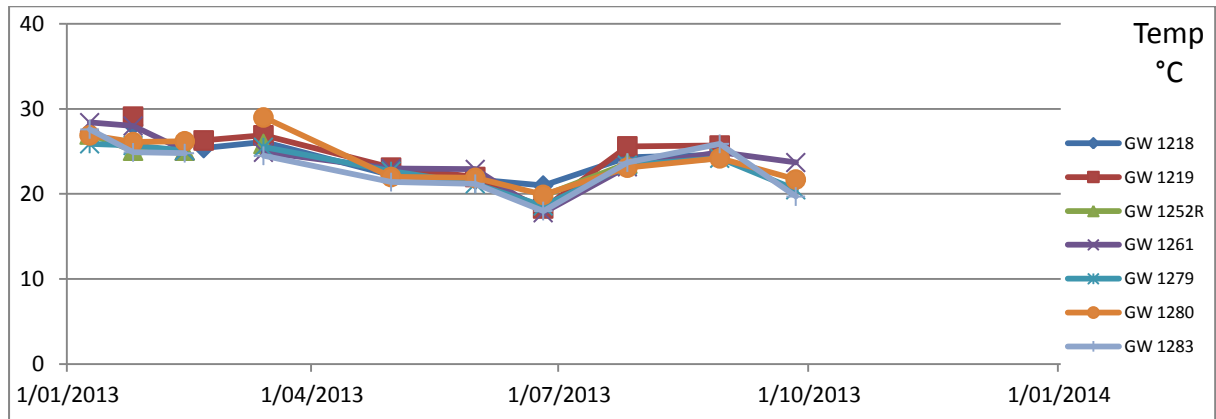




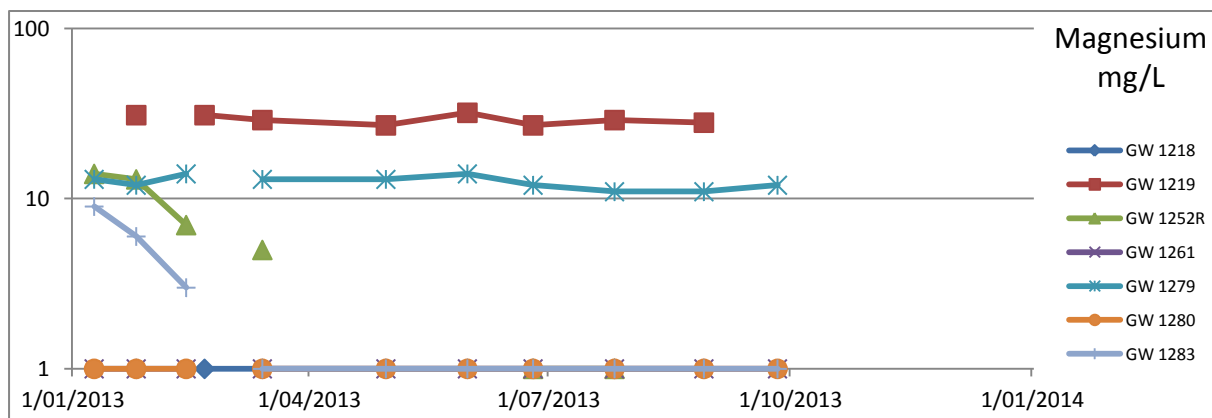
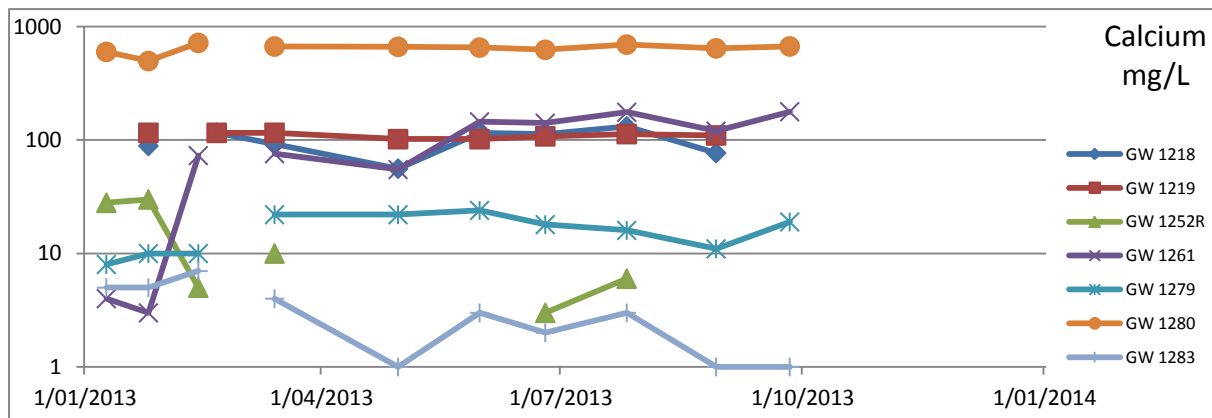
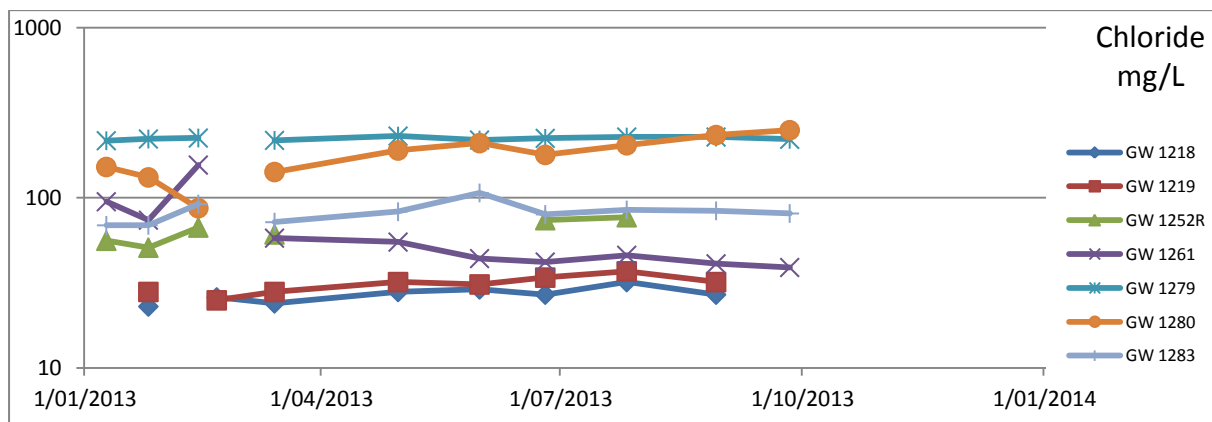
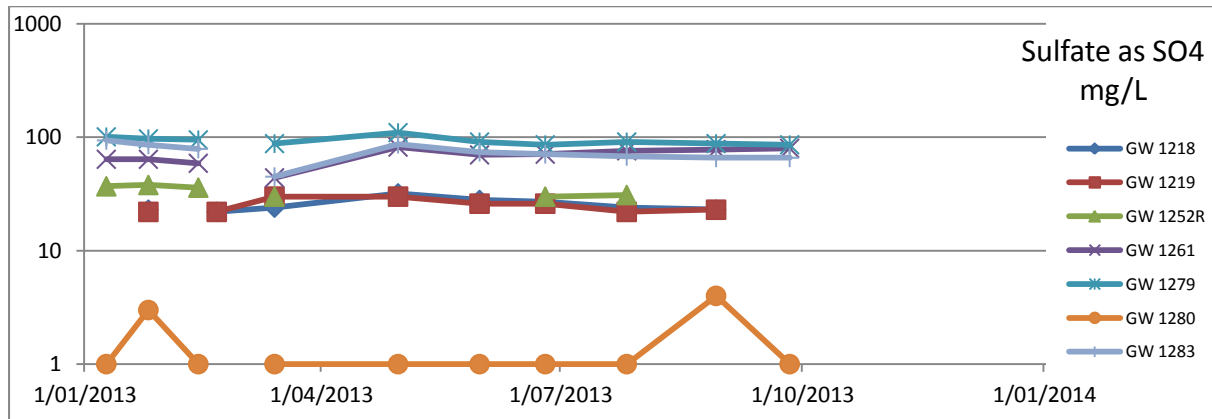
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APPENDIX F **GROUNDWATER**

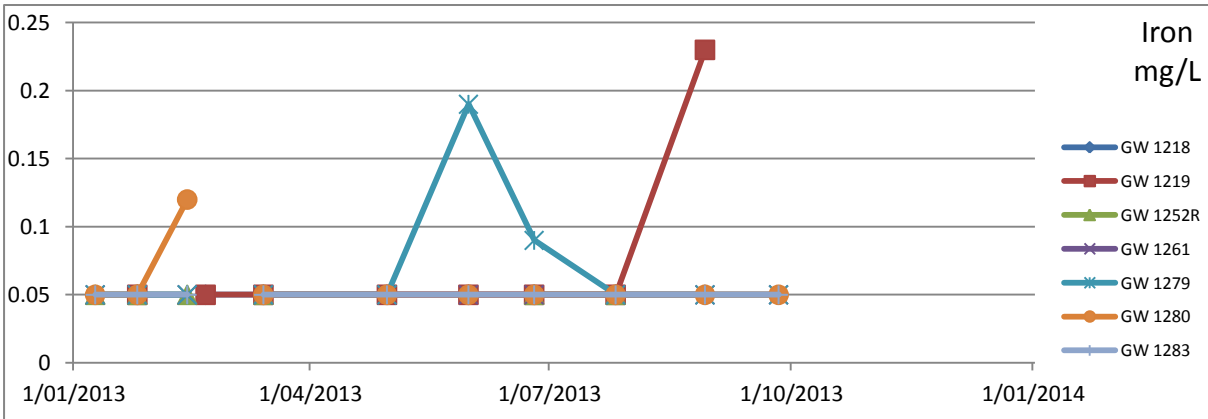
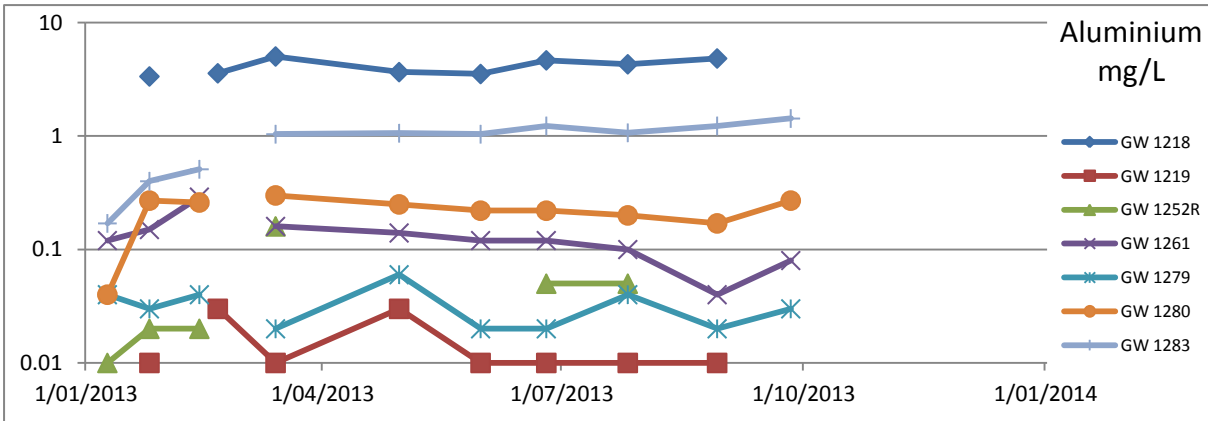
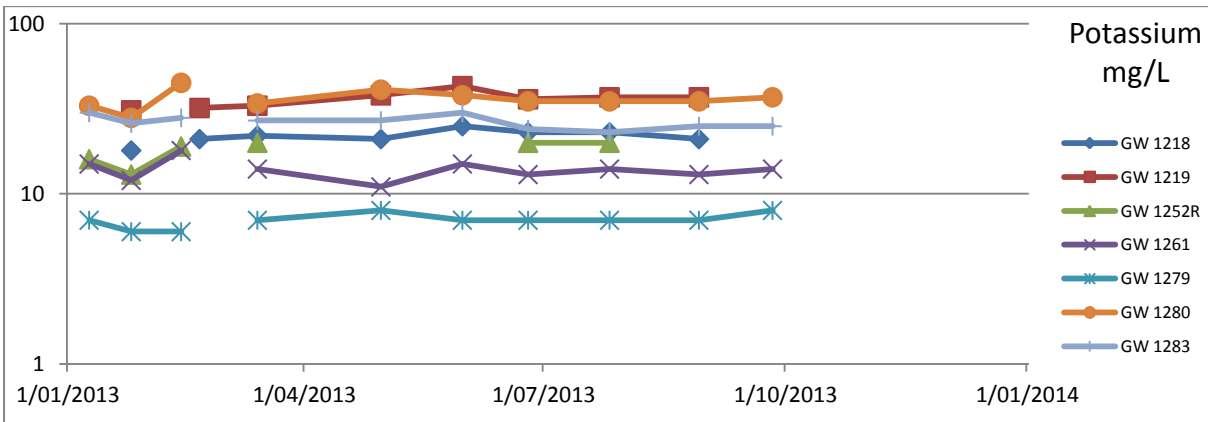
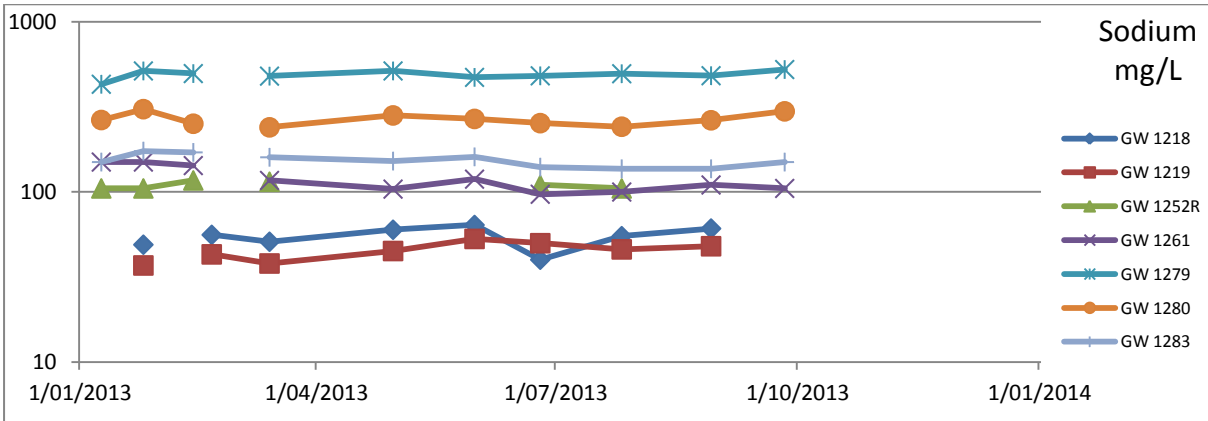
APPENDIX F – MCC GROUNDWATER MONITORING GEOCHEMICAL PARAMETERS



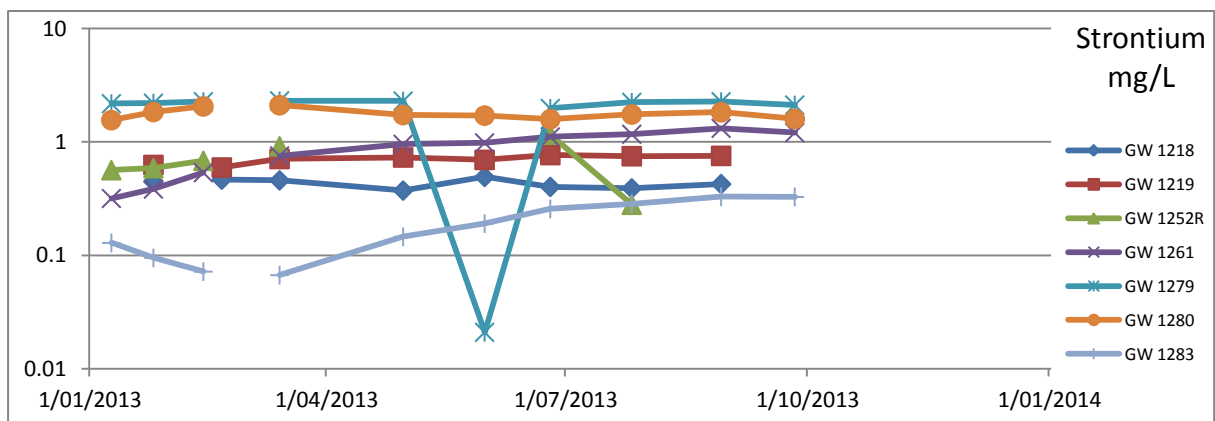
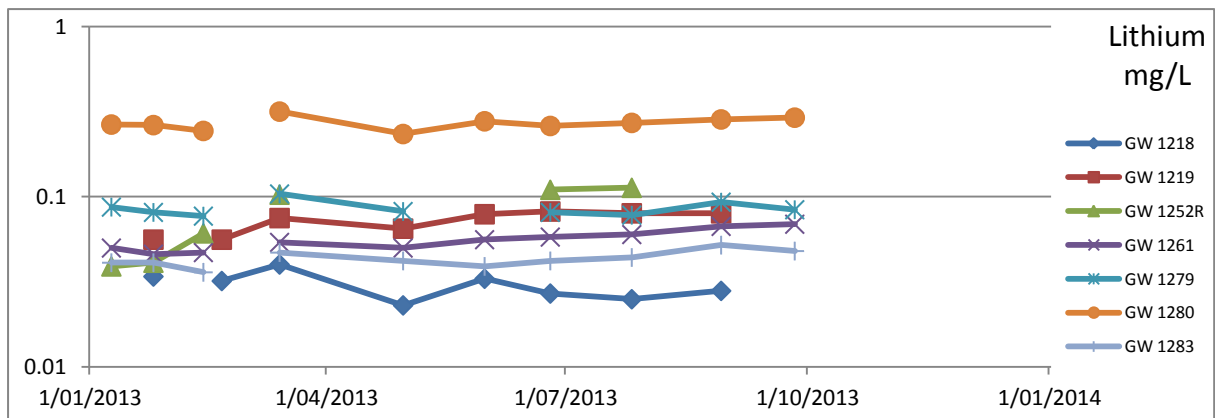
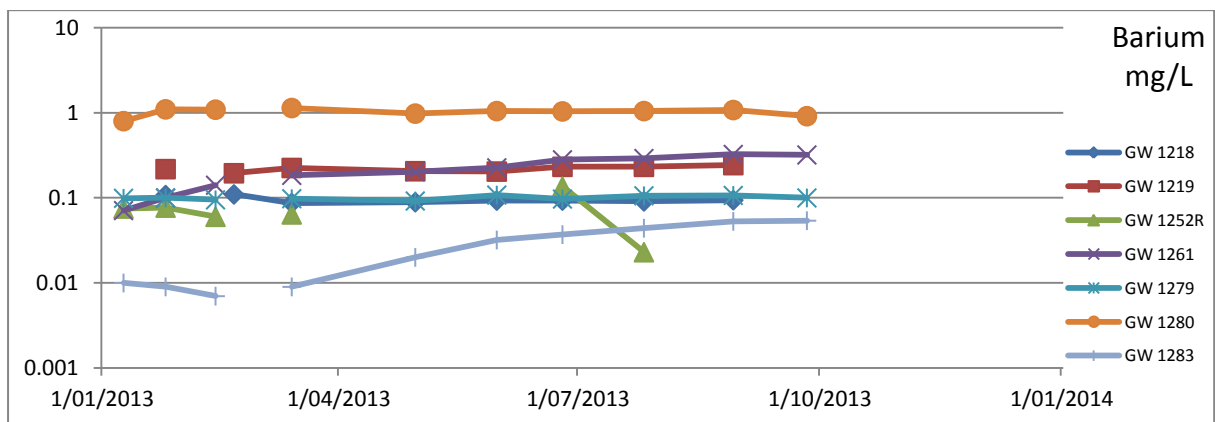
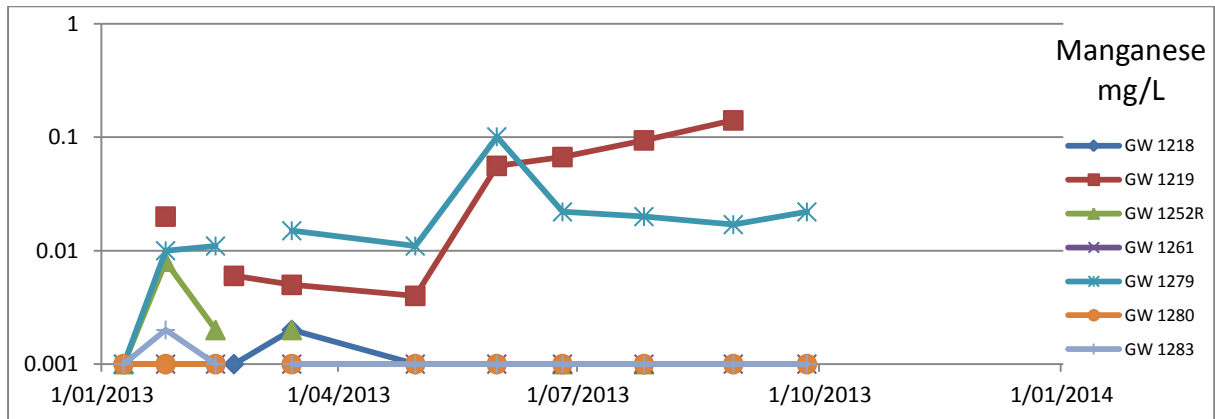
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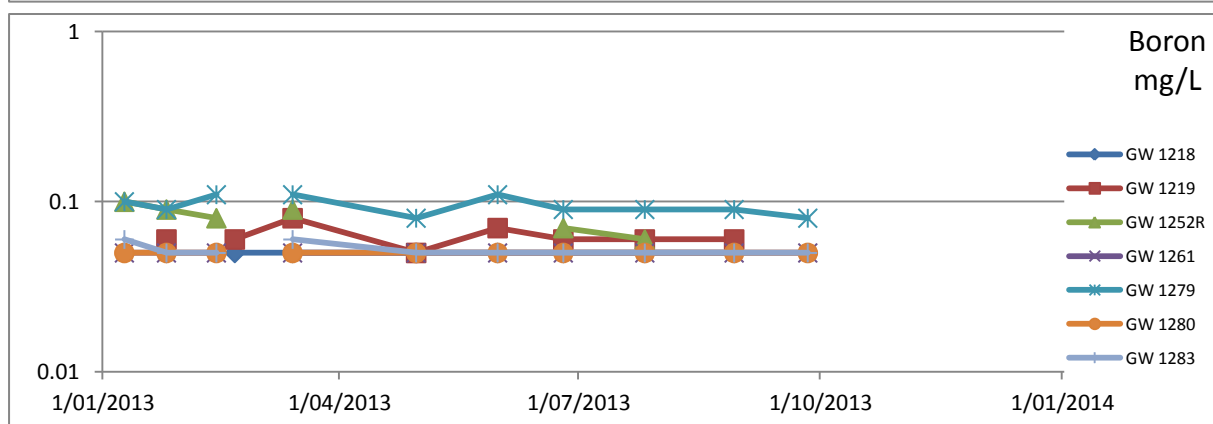
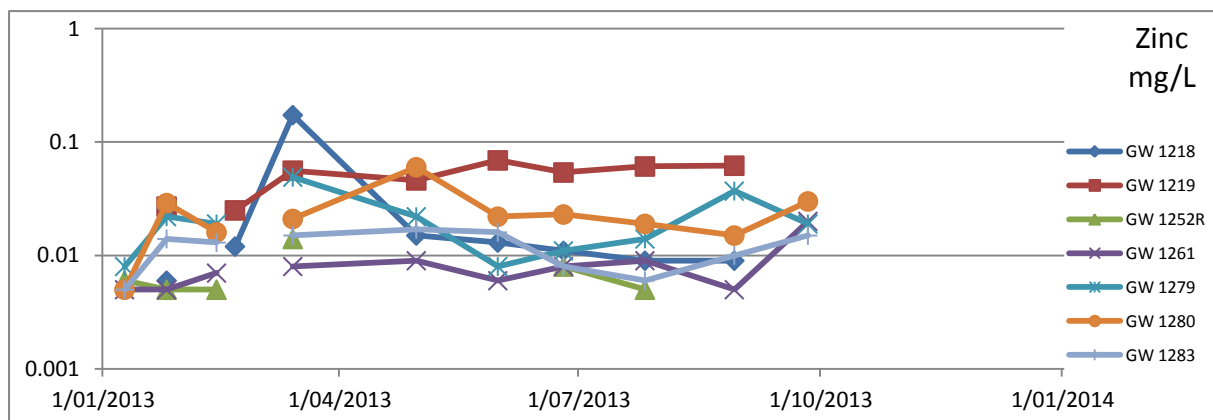
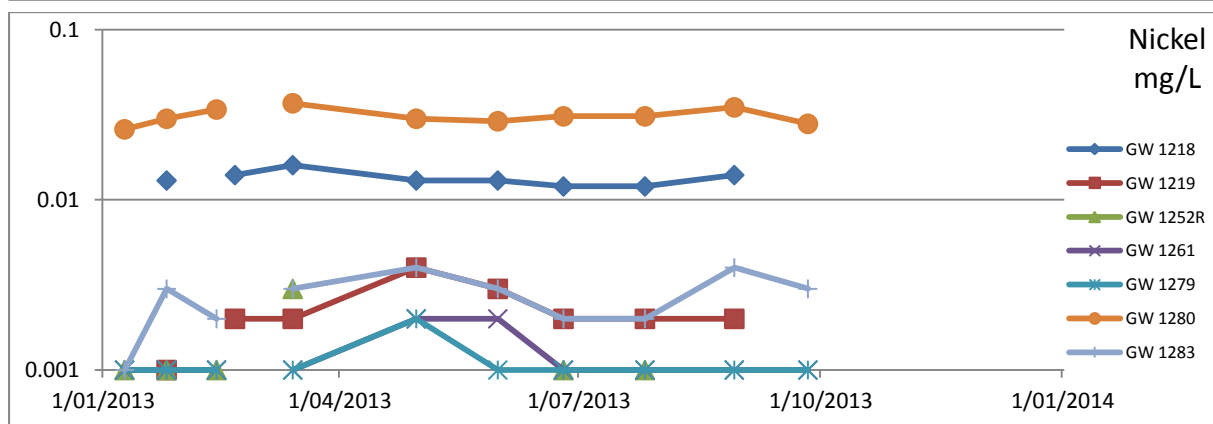
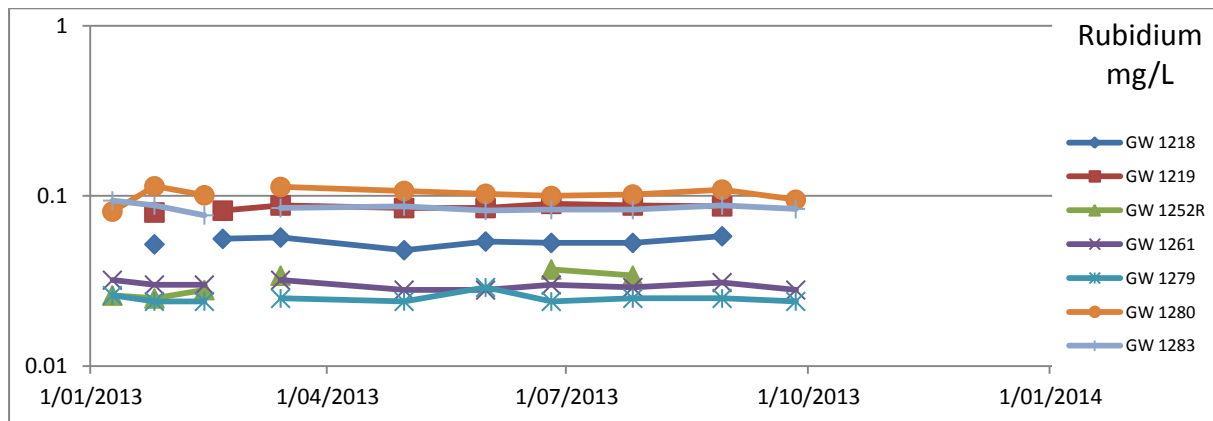
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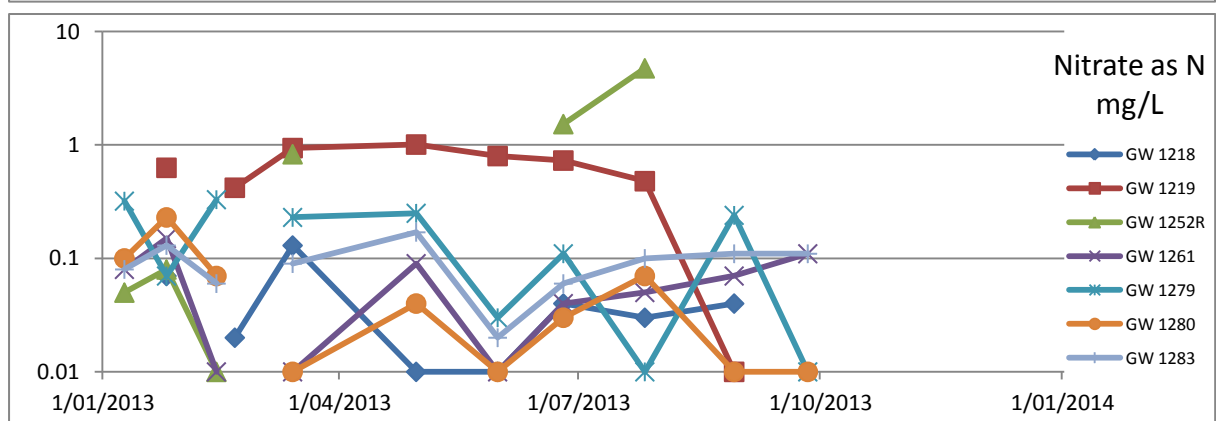
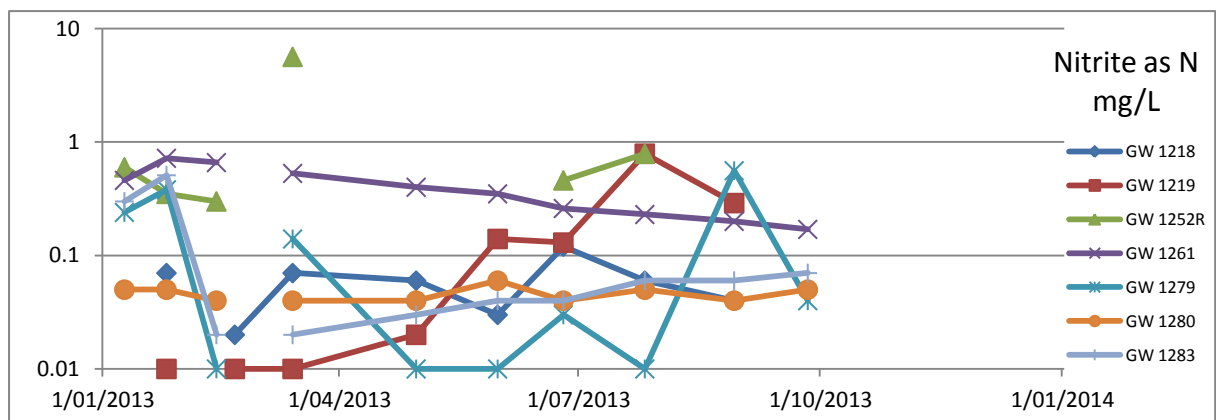
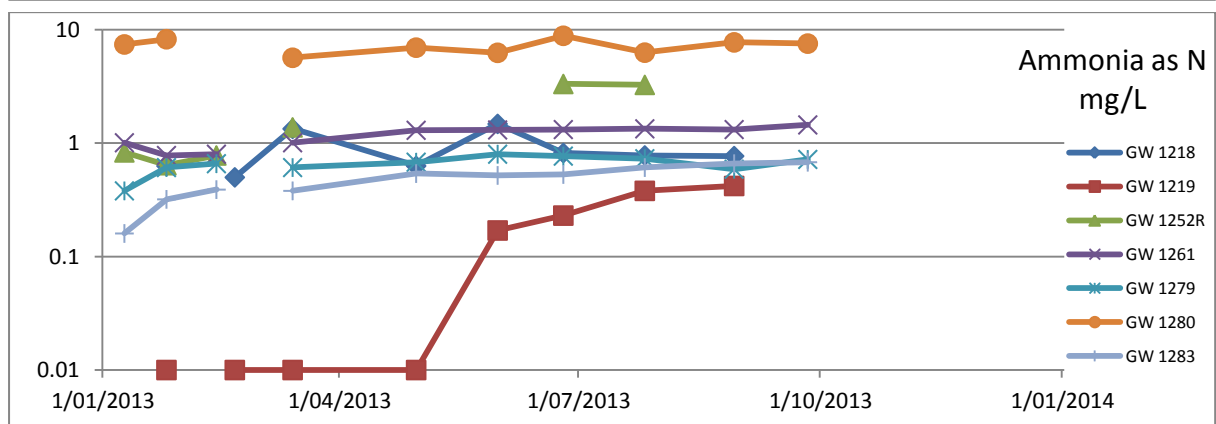
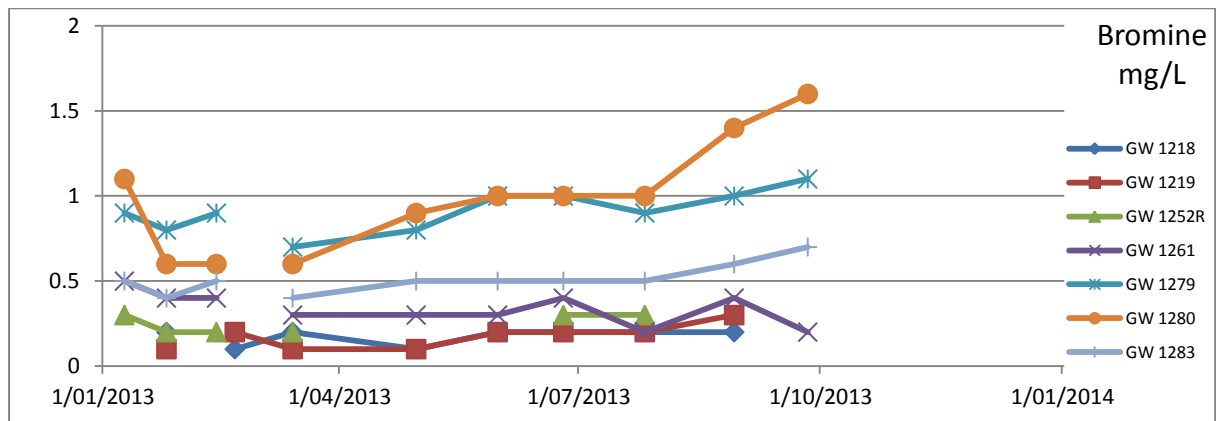
APPENDIX F – MCC GROUNDWATER MONITORING GEOCHEMICAL PARAMETERS



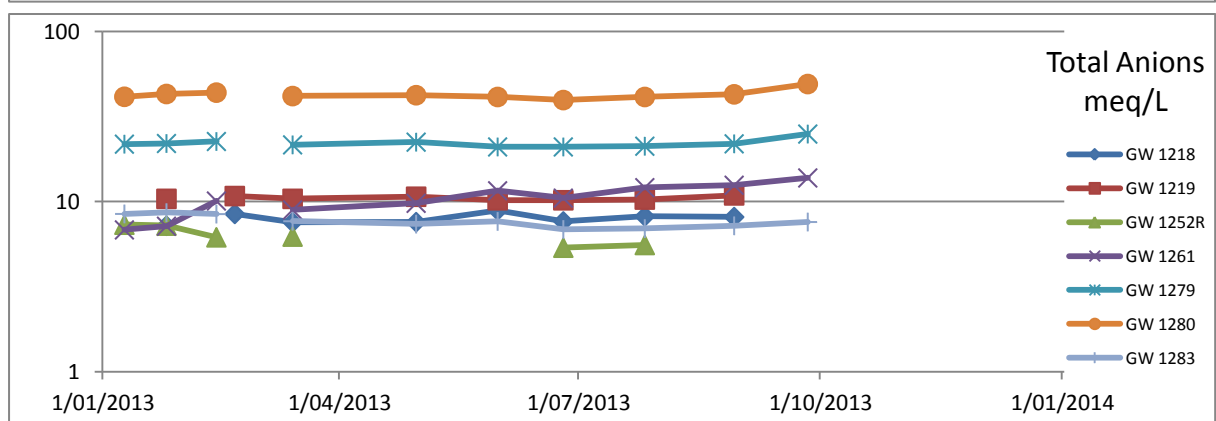
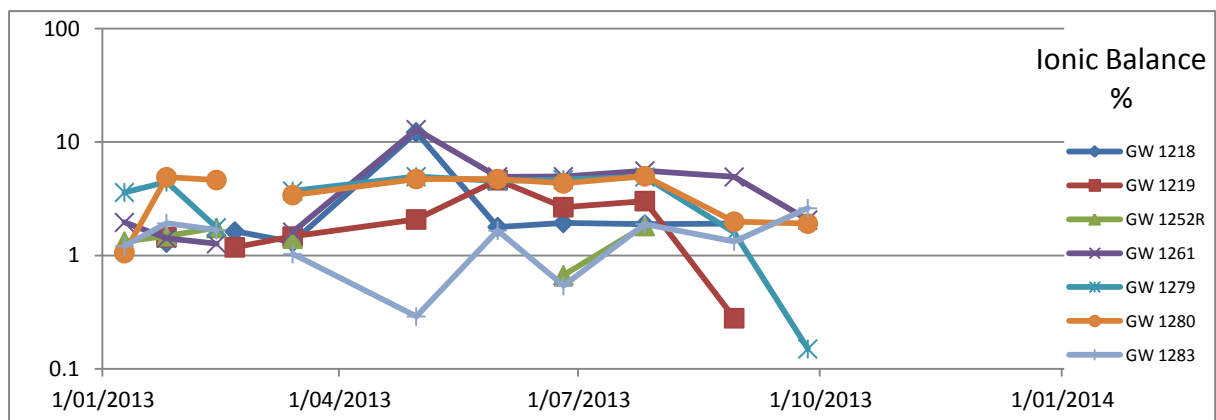
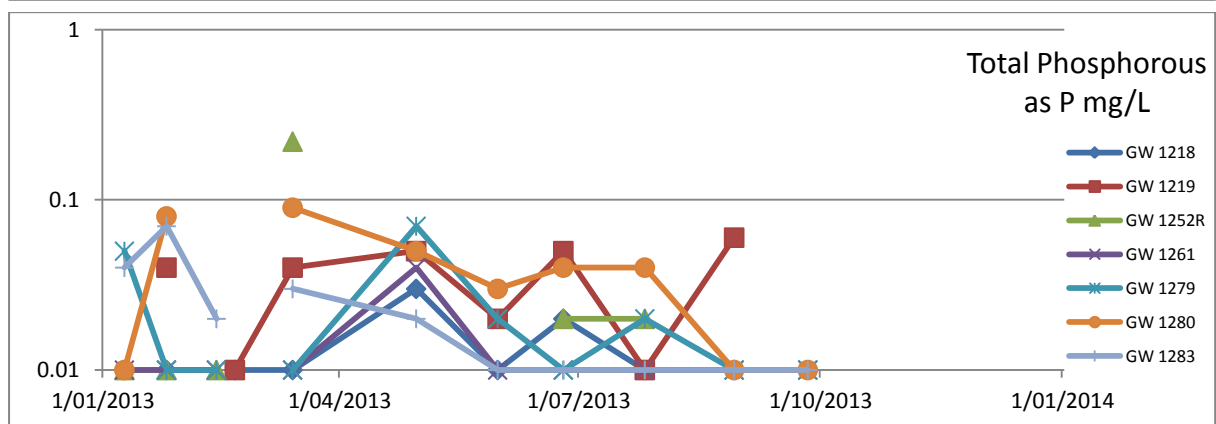
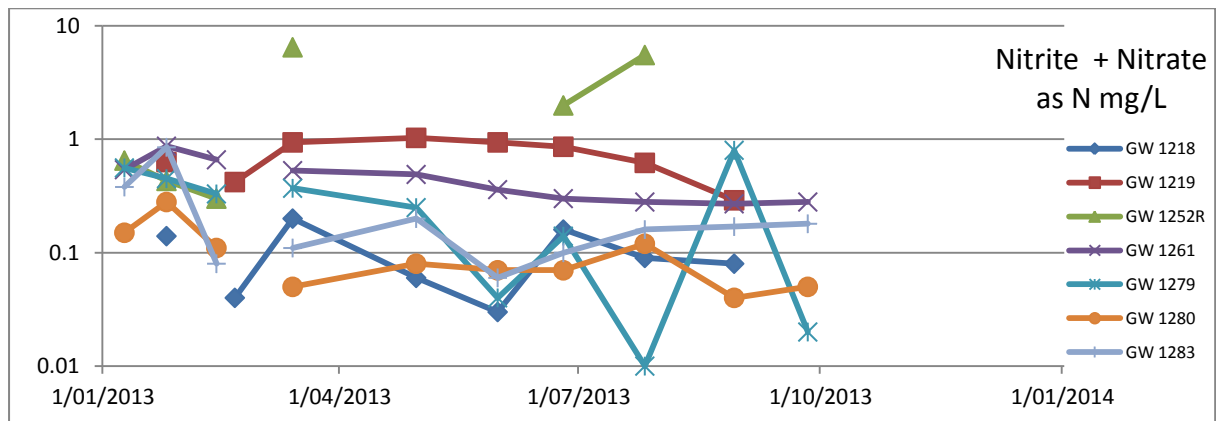
APPENDIX F – MCC GROUNDWATER MONITORING GEOCHEMICAL PARAMETERS



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