Centennial Coal

CENTENNIAL COAL

LIDSDALE SIDING

ANNUAL REVIEW

January 2017 to December 2017

February 2018

Centennial Coal Environment Matters

Name of Operation	Lidsdale Siding
Name of Operator	Ivanhoe Coal Pty Ltd
Development Consent/ Project Approval #	Lidsdale Siding Upgrade Project 08-0223
Name of holder project approval	Ivanhoe Coal Pty Ltd
Mining Lease #	N/A
Name of Holder of Mining Lease	N/A
Water License #	WAL25774
Name of Holder of Water License	Ivanhoe Coal Pty Ltd
MOP/RMP Start Date	N/A
MOP/RMP End Date	N/A
Annual Review Start Date	1 January 2017
Annual Review End Date	31 December 2017

I, [Andrew Myors[1]], certify that this audit report is a true and accurate record of the compliance status of Lidsdale Siding for the period 2017 and that I am authorized to make this statement on behalf of Ivanhoe Coal Pty Ltd.

Note:

a) *The Annual Review is an 'environmental audit' for the purposes of s122B (2) of the Environmental Planning and Assessment Act 1979. Section 122E provides that a person must not include false or misleading information (or provide information for inclusion) in an audit report produced to the Minister in connection with an environmental audit if the person knows that the information is false or misleading in a material respect. The maximum penalty is, in the case of a corporation, $1 million and for an individual, $250,000.*

b) *The Crimes Act 1900 contains other offences relating to false and misleading information: section 192G (intention to defraud by false or misleading statement – maximum penalty 5 years imprisonment); sections 307A, 307B and 307C (False or misleading applications/information/documents –maximum penalty 2 years imprisonment or $22, 000, or both).*

Name of Authorised Reporting Officer	ANDREW MYORS
Title of Authorised Reporting Officer	Executive General Manager Technical and Business Support
Signature of Authorised Reporting Officer	A. J. Myors
Date	28/02/2018

[1] An **Authorised Reporting Officer** for the purposes of this Annual Review is a director of the subsidiary with the management responsibility of the operation for which this review has been generated.

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1. STATEMENT OF COMPLIANCE

Table 1-1 provides a statement of compliance with the relevant approval during the reporting period.

Table 1-1 – Statement of Compliance

Were all conditions of the relevant approval(s) complied with?	
Project Approval 08_0223	No
Environmental Protection Licence 5129	No
Water Access Licences 24362 & 25774	Yes

Table 1-2 provides a list of conditions that were not complied with during the reporting period.

Table 1-2 – Non-Compliances

Relevant Approval	**Condition #**	**Condition summary**	**Compliance Status**	**Comment**	**Section addressed in report**
Project Approval 08_0223	Schedule 3, Condition 2-7	Noise generated by the project does not exceed the project criteria	Non-compliant	Conveyor and locomotive continuum and loading into wagons during the night periods has resulted in noise exceedances	Section 6.2 and Appendix D
EPL 5129	L4.1	Noise generated at the premises must not exceed the noise limits in EPL 5129	Non-compliant	Conveyor and locomotive continuum and loading into wagons during the night periods has resulted in noise exceedances	Section 6.2 and Appendix D

Table 1-3 – Compliance Status Key for Table 2

Risk Level	**Colour Code**	**Description**
High		Non-compliance with potential for significant environmental consequences, regardless of the likelihood of occurrence
Medium		Non-compliance with: • Potential for serious environmental consequences, but is unlikely to occur; or • Potential for moderate environmental consequences, but is likely to occur
Low		Non-compliance with: • Potential for moderate environmental consequences, but is unlikely to occur; or • Potential for low environmental consequences, but is likely to occur
Administrative		Only to be applied where the non-compliance does not result in any risk of environmental harm (e.g. submitting a report to government later than required under approval conditions)

2. INTRODUCTION

Ivanhoe Coal Pty Ltd (Centennial Ivanhoe) operates the Lidsdale Siding Rail Loading Facility, located approximately 12 kilometres northwest from the city of Lithgow, NSW. Lidsdale Siding is situated approximately 150 kilometres west of Sydney adjacent to the township of Wallerawang.

The Lidsdale Siding Environmental Monitoring Sites (Water & Air Quality) map (Appendix A) illustrates the following:

- The regional context of the project
- The project boundary (superimposed on aerial photography of the site)
- Water and air quality monitoring locations (dust and noise monitoring locations are also provided in Appendix A)
- The area of willow removal and control outside the operational area
- The area of hydrocarbon contamination under study.

The Lidsdale Siding Upgrade Project Environmental Assessment (EA) was submitted to the Department of Planning and Infrastructure (DP&I), now Department of Planning and Environment (DP&E) in August 2012. The Lidsdale Siding Upgrade Project was approved on 3 May 2013 by the Minister for Planning and Infrastructure, via the Planning Assessment Commission.

The upgrade project at Lidsdale Siding ensures the improvement of operational efficiency and increases its throughput overall capacity to approximately 6.3 million tonnes per annum. The upgraded train loading process is automated by establishing a coal stockpile with underground reclaimers feeding a conveyor leading to a train loading bin with a total stockpile capacity of approximately 50,000 tonnes.

This Annual Review relates solely to the reporting period 1 January 2017 to 31 December 2017.

Table 2-1 provides the names and contact details of the key personnel who are responsible for the environmental management of the operation.

Table 2-1 – Environmental Management Contact Details

Name	Position	Email	Contact Details
Anthony Brown	Manager Springvale Coal Services	anthony.brown@centennialcoal.com.au	02 6355 9508
Neil Thompson	Environment and Community Coordinator	neil.thompson@centennialcoal.com.au	02 6355 9509
Community Contact Number	N/A	N/A	02 6355 9500

3. APPROVALS

A summary of the environmental approvals held by Lidsdale Siding is provided in Table 3-1 below.

Table 3-1 – Lidsdale Siding Approvals

Approval/ Title/ Licence/ Permit	Description	Issued By	Expiry Date	Any changes during reporting period
Project Approval 08_0223	Approval to carry out coal handling and train loading operations on the site until 31 December 2042.	DPE	31/12/2042	No
Environment Protection Licence 5129	The licence authorises the operation of the coal loading facility with a maximum capacity of 5 Mt per annum.	EPA	N/A	No
Site Lease	Memorandum of Lease (4/11/1978). Signed between Public Transport Commission of NSW and Austen and Butta Limited. NSW Rail land, but there is a lease in place between the managers of the site (John Holland Group) and Centennial Ivanhoe. The original lease was signed by the owners of the site (former Department of Public Transport Commission of NSW) and Austen and Butta Limited.	Public Transport Commission of NSW	30/04/2025	No
Water Management Act 2000 WAL 25774 WAL 24362	Lidsdale Siding currently holds two water access licences (WALs) for the extraction of surface water and groundwater to supplement water supply to the site. The WALs include specific extraction, monitoring, recording and reporting requirements. WAL 25774 licenses the extraction of up to 1 ML/year of surface water from Pipers Flat Creek; however this water source is not currently used. WAL 24362 licensed the extraction of up to 8.5 ML/year of groundwater from a production bore.	Water NSW	N/A	No
Monitoring Bore Licence 10BL605720	Additional water monitoring bores installed at Lidsdale Siding during 2015.	Water NSW	N/A	No

3.1 Changes Made To Approvals during the Reporting Period

Nil changes were amended to any Lidsdale Siding approvals as listed in Table 3-1 above during the reporting period

3.1.1 Development Consent/Project Approval

Refer Table 3-1 above.

3.1.2 Mining Authorisations

Nil mining authorisations are in place for Lidsdale Siding.

3.1.3 Environment Protection Licence

Refer Table 3-1 above,

3.1.4 Other Approvals

Refer Table 3-1 above.

3.2 Annual Review Requirements

The Annual Review has been developed to satisfy the reporting requirements of the approvals listed in Table 3-2.

Table 3-2 – Annual Review Requirements

Approval	Condition No	Requirement	Where addressed in Annual Review
Project Approval 08_0223	Schedule 5 Condition 4	By the end of February 2014, and annually thereafter, the Proponent shall review the environmental performance of the project to the satisfaction of the Director-General. This review must:	This review
		(a) describe the development (including any rehabilitation) that was carried out in the past calendar year, and the development that is proposed to be carried out over the next year;	Section 7 and Section 8
		(b) include a comprehensive review of the monitoring results and complaints records of the project over the past calendar year, which includes a comparison of these results against the: i. relevant statutory requirements, limits or performance measures/criteria; ii. requirements of any plan or program required under this approval; iii. monitoring results of previous years; and iv. relevant predictions in the EA;	Section 6.2, Section 6.3, Section 6.6, Appendix D, Appendix E, Appendix H and Appendix O
		(c) identify any non-compliance over the past year, and describe what actions were (or are being) taken to ensure compliance;	Appendix Q

Approval	Condition No	Requirement	Where addressed in Annual Review
		(d) identify any trends in the monitoring data over the life of the development;	Appendix D, Appendix E, Appendix H and Appendix O
		(e) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and	Section 6.2 and Section 6.3
		(f) describe what measures will be implemented over the next year to improve the environmental performance of the project.	Section 8

4. OPERATIONS SUMMARY

Table 4-1 – Production Summary

Material	Approved Limit (Project Approval 08_0223)	Previous Reporting Period (2016) (Actual)	This Reporting Period (2017) (Actual)	Next Reporting Period (2018) (Forecast)
Saleable product	Receive 6.3 million tonnes per annum	Received from SCSO via conveyor: 1,032,586 tonnes Railed from site: 1,032,586 tonnes	Received from SCSO via conveyor: 573,603 tonnes Railed from site: 573,603 tonnes	Received from SCSO via conveyor: 472,600 tonnes Railed from site: 472,600 tonnes
Transport (rail)	All coal to be transported to the site by conveyor and transported from the site by rail	Rail transport only	Rail transport only	Rail transport only
	No more than 7 laden trains leave the site per day	Maximum of 3 trains per day	Maximum of 3 trains per day	Maximum of 3 trains per day
	No more than 5 laden trains leave the site each day when averaged per annum	Less than 2 trains per day	Average 0.46 trains per day (typically 1 train per day)	Less than 2 trains per day

Table 4-2 – Operations Summary

Limits	Approved Limit (and source)	Previous Reporting Period (Actual)	This Reporting Period (Actual)	Comment
Hours of operation	24 hours per day, 7 days per week until 31/12/2042	24 hours per day, 7 days per week	24 hours per day, 7 days per week	Compliant

5. CHANGE MANAGEMENT

Table 5-1 – Change Management

Activity with potential to impact the environment	Change Management Processes	Action Required
Exploration	Nil	Nil
Expansion/modification/ intensification	Nil	Nil
Mine design/method	Nil	Nil
Introduction of new equipment	Nil	Nil
Construction	Nil	Nil
Insert any other activity with potential to impact the environment	Nil	Nil

There is no material change planned for the Lidsdale Siding Coal Loading operation for the next reporting period. The facility will continue to be used for the distribution of coal from the Springvale Colliery to the ports on the NSW Coast via the Main Western Railway line with coal volumes and train movements remaining within approved limits.

6. PROJECT PERFORMANCE

Table 6-1 – Summary of Monitoring Requirements

Monitoring Type	Overview of Monitoring Requirements	Requirement of Approval/Management Plan	Annual Review Section
Air quality and Greenhouse Gas	7 x dust gauges (DGs) – Monthly 1 x Real Time – Continuous	Western Region Air Quality and Greenhouse Gas Management Plan Project Approval 08_0223 EPL 5129	Section 6.3 and Appendix E
Biodiversity	Annual	Lidsdale Siding Biodiversity Management Plan	Section 6.7
Heritage	As required	Western Region Historic Heritage Management Plan	Section 6.8
Meteorological Monitoring	1 x weather station - Continuous	Project Approval 08_0223 EPL 5129	Section 6.4 and Appendix F
Noise	Monthly	Western Region Noise Management Plan Project Approval 08_0223 EPL 5129	Section 6.2 and Appendix D

Monitoring Type	Overview of Monitoring Requirements	Requirement of Approval/Management Plan	Annual Review Section
Rehabilitation	Not required until rehabilitation areas established	Lidsdale Siding Rehabilitation and Closure Plan	Section 6.12 and Appendix N
Water	Surface Water Volume and Quality – Monthly during discharge	Lidsdale Siding Water Management Plan Project Approval 08_0223 EPL 5129	Section 6.6 and Appendix H

6.1 Acquisition on Request

During the reporting period, Acquisition on Request at Lidsdale Siding complied with Project Approval 08_0223, Schedule 3, Condition 1.

Actions undertaken during the reporting period are detailed in Section 7.

Relevant information is presented in Appendix C.

6.2 Noise

During the reporting period, noise at Lidsdale Siding was:

- Managed in accordance with the Western Region Noise Management Plan (WRNMP).
- Monitored in compliance with the WRNMP.
- Non-compliant with Project Approval 08_0223, Schedule 3, Condition 2-7 (refer Appendix D and Appendix Q).

Actions undertaken during the reporting period are detailed in Section 7.

Relevant noise information is presented in Appendix D.

Performance against Environmental Assessment

The Environmental Assessment stated the Project would provide a significant reduction in noise emissions compared to the historical operations.

During the 2017 reporting period, noise exceedances were recorded at R8 and R9 in January 2017.

The noise levels for the current operation are significantly reduced when compared to the pre-approval noise environment.

Table 6-2 below provides the existing noise limits and exceedances against modelled pre-project approval noise levels.

This table demonstrates the reduction between pre-project approval noise levels and existing levels for

monitoring locations R1 to R7.

Table 6-2 – Comparison of existing noise limits against modelled pre-project approval levels and 2017 exceedances

Location	Existing Day, Evening and Night LAeq (15min)	Existing Night LA1 (1min)	Pre project approval range	Exceedance range (2017) LAeq (15min)
R1 Lot 2 Main Street, Wallerawang	50	55	62-74	-
R2 Black Gold Cabins, Main Street, Wallerawang	46	49	62-74	-
R3 "Killarney" Brays Lane, Wallerawang	47	56	62-74	-
R4 Fairview" Brays Lane, Wallerawang	43	54	59-71	-
R5 Duncan Street, Lidsdale	46	57	56-68	-
R6 Old Castlereagh Highway, Wallerawang	43	56	48-60	-
R7 Royal Hotel, Main Street, Wallerawang	41	49	55-69	-
R8 Corner Heel Street & Cripps Avenue Wallerawang	40	45	ND	44
R9 Corner Cripps Avenue & Pindari Place Wallerawang	39	45	ND	40
R10 Brays Lane, South Wallerawang	45	50	ND	-
R11 "Tara" Brays Lane, Wallerawang	45	51	ND	-
R12 Brays Lane Corner, Wallerawang	43	51	ND	-

6.3 Air Quality and Greenhouse Gas

During the reporting period, air quality at Lidsdale Siding was:

- Managed in accordance with the Western Region Air Quality and Greenhouse Gas Management Plan (WRAQGGMP).
- Monitored in compliance with the WRAQGGMP.
- Complied with Project Approval 08_0223, Schedule 3, Condition 8-10.

Actions undertaken during the reporting period are detailed in Section 7.

Relevant air quality information is presented in Appendix E.

Performance against Environmental Assessment

The Lidsdale Siding Environmental Assessment calculated the Predicted Annual Average concentrations at the site for depositional dust, total suspended particulate matter (TSP), PM10 and PM2.5.

Of these parameters, depositional dust and PM10 are monitored on an ongoing basis to assess compliance against project approval and EPL limits.

Table 6-3 below shows a comparison of 2017 monitored depositional dust against modelled pre-project approval levels.

Trends for 2013 to 2017 are presented in Figure 8-7 in Appendix E.

Table 6-3 – Comparison of 2017 dust data against modelled pre-project approval levels

Dust Monitor	Approval Criteria	Predicted cumulative range	Performance During Reporting Period
DG1	2 g/m^2/month Max Annual Average Increase	Not modelled	0.04 g/m^2/month
	4 g/m^2/month Total Annual Average	Not modelled	0.33 g/m^2/month
DG6	2 g/m^2/month Max Annual Average Increase	0.14–0.18	0.08 g/m^2/month
	4 g/m^2/month Total Annual Average	3.9–4.0	0.92 g/m^2/month
DG7	2 g/m^2/month Max Annual Average Increase	0.48	0.22 g/m^2/month
	4 g/m^2/month Total Annual Average	4.3	0.93 g/m^2/month
DG8	2 g/m^2/month Max Annual Average Increase	Not modelled	0.47 g/m^2/month
	4 g/m^2/month Total Annual Average	Not modelled	2.22 g/m^2/month
DG9	2 g/m^2/month Max Annual Average Increase	Not modelled	0.13 g/m^2/month
	4 g/m^2/month Total Annual Average	3.8–4.3	1.25 g/m^2/month
DG10	2 g/m^2/month Max Annual Average Increase	0.08–0.09	0.05 g/m^2/month
	4 g/m^2/month Total Annual Average	3.9	0.44 g/m^2/month
DG11	2 g/m^2/month Max Annual Average Increase	Not modelled	0.20 g/m^2/month
	4 g/m^2/month Total Annual Average	Not modelled	2.06 g/m^2/month
BAM (PM10)	30 µg/m^3 Annual Average (Long Term PM10)	17.1–23.3 µg/m^3	14.11 µg/m^3
	50 µg/m^3 24Hr Average (Short Term PM10)	Not modelled	39.83 µg/m^3 (Max 24 Hr result)
TSP	µg/m^3	34 – 45.1	Calculated at 35.28 µg/m^3

Dust Monitor	Approval Criteria	Predicted cumulative range	Performance During Reporting Period
PM2.5	µg/m^3	0.7 – 2.0	Not measured

At all surrounding sites a consistent TSP to PM10 ratio has been established using HVAS data over several annual cycles. This ratio is used to estimate the TSP concentration, based on measured PM10 concentrations.

The ratio between TSP and PM10 concentrations has been calculated from long term monitoring data:

- Western Coal Services ratio = 0.43
- Springvale ratio = 0.45

- Angus Place ratio = 0.44
- Clarence Colliery ratio = 0.40.

For Lidsdale Siding, the most conservative ratio of 0.40 is used to calculate compliance with the TSP criteria from the PM10 data.

The measured PM10 annual average is divided by 0.40 to estimate the annual average TSP concentration.

Note that the predicted cumulative range for deposited dust and PM10 relate to an annual average.

The observed range for this reporting period relates to monthly measurements for deposited dust and daily measurements for PM10 so the values are not directly comparable.

Current annual averages for PM10 and deposited dust are within or below the predicted ranges and remain compliant with limits in the project approval and EPL.

6.4 Meteorological Monitoring

During the reporting period, meteorological monitoring at Lidsdale Siding was:

- Monitored in compliance with the *Approved Methods for Sampling of Air Pollutants in New South Wales* guideline.
- Complied with Project Approval 08_0223, Schedule 3, Condition 11.

Actions undertaken during the reporting period are detailed in Section 7.

Relevant meteorological measurements are presented in Appendix F.

6.5 Transport

During the reporting period, transport at Lidsdale siding complied with Project Approval 08_0223, Schedule 3, Conditions 12-14.

Actions undertaken during the reporting period are detailed in Section 7.

Relevant transport information is presented in

Section 4 and Appendix G.

Performance against Environmental Assessment

The Traffic and Rail Impact Assessment concluded that the impact of the Project on the existing environment was primarily for the construction phase and recommended the road line marking on Main Street to be upgraded.

The construction phase of the project was completed in June 2014 and road line marking was upgraded by the end of February 2014 to comply with *AS1742.7-2007, Manual of Uniform Traffic Control, Part 7: Railway Crossings.*

All transport activities at Lidsdale Siding have complied with the Lidsdale Siding Environmental Assessment.

6.6 Soil and Water

During the reporting period, water quality at Lidsdale Siding was:

- Managed in accordance with the Lidsdale Siding Water Management Plan (LSWMP).
- Monitored in compliance with the LSWMP.
- Complied with Project Approval 08_0223, Schedule 3, Condition 15-21.
- Complied with EPL 5129, Condition

Actions undertaken during the reporting period are detailed in Section 7.

Relevant water quality information is presented in Appendix H.

Performance against Environmental Assessment

The recommended mitigation measures stated in the Environmental Assessment have been implemented and complied with.

The following activities were undertaken during the reporting period at Lidsdale Siding to comply with ongoing recommendations discussed in the Environmental Assessment:

- Storage and use of contaminated water – Maintenance checks were conducted and higher grades of mechanical equipment were utilised across the facility to reduce downtime and increase the efficiency of the water management system. The water management system is compliant with the Managing Urban Stormwater: treatment techniques (DECCW/EPA) and Managing Urban Stormwater: source control (DECCW) handbooks.
- Discharge of treated water from site – The installation of a weir in 2012 and automated sampling and/or notification equipment at the discharge point (LDP004).
- Use of groundwater from the production bore (PB1) – Routine quarterly water quality monitoring in the main pollution control pond and representative samples from the production bore (PB1).
- Storage and use of chemicals/ fuel on site – The management of chemicals, fuel and potential spills was undertaken in accordance with Technical Guidelines: Bunding and Spill Management (DECCW). Routine monitoring of water in the Triangle Pond was undertaken as per water quality monitoring schedule.
- Coal stockpiles and compacted coal reject – Sprinklers and water carts were used when necessary to manage dust impacts and excess water was used to maintain the water balance to reduce the incidence of licensed
  discharge.

- Coal spillage on ground (north-west side of rail) – The ground was maintained in a 'clean' state to enable raw water runoff. A low bund and drain inside the boundary fence diverts water into two or more small sediment detention basins strategically located in low-lying areas near each end and the contoured ground allowed water to drain under the railway line and over/under the internal road towards the main pollution control pond.
- The removal of invasive species (willows) – Poisoning and removal of willows was undertaken.
- Visual/acoustic bunds around site – Drainage lines were maintained.
- Ponds and Sediment Detention Basins were maintained in accordance with the LSWMP.

6.7 Biodiversity

During the reporting period, biodiversity at Lidsdale Siding was:

- Managed in accordance with the Lidsdale Siding Biodiversity Management Plan (LSBMP)
- Monitored in compliance with the LSBMPP.
- Complied with Project Approval 08_0223, Schedule 3, Condition 22.

Actions undertaken during the reporting period are detailed in Section 7.

Relevant biodiversity information is presented in Appendix I.

Performance against Environmental Assessment

The Environmental Assessment stated the operation would unlikely have a significant impact on the existing ecological value of the site and surrounds. The low potential for impact is due to the habitats of the Project area being heavily disturbed, providing limited opportunities for those threatened species considered to have potential to occur within the broader study area. The Project also includes progressive removal of invasive Willow species and other noxious weeds to assist in maintaining the ecological value of the surrounding area.

The recommended mitigation measures stated in the Environmental Assessment have been implemented and complied with. The following activities were undertaken during the reporting period to comply with ongoing recommendations discussed in the Environmental Assessment:

- Minimal clearing, particularly within those areas that contain *E. aggregata*.
- Appropriate measures utilising *Managing Urban Stormwater: Soils and Construction* (Landcom) were implemented to minimise erosion and sedimentation impacts upon waterways and associated vegetation resulting during construction.
- Weed monitoring was undertaken and potential weed infestations were appropriately managed to ensure surrounding communities were protected from invasive species.
- Improvement of the clean water diversions around the site and collection of all site waters within the site.
- Progressive removal of willow trees within the section of Pipers Flat Creek which passes through the site.

6.8 Heritage

During the reporting period, heritage at

Lidsdale Siding was:

- Managed in accordance with the Western Region Aboriginal Cultural Heritage Management Plan (WRACHMP).
- Monitored in compliance with the WRACHMP.
- Complied with Project Approval 08_0223, Schedule 3, Conditions 23 and 24.

Actions undertaken during the reporting period are detailed in Section 7.

Relevant heritage information is presented in Appendix J.

Performance against Environmental Assessment

No Indigenous or Non-Indigenous heritage items are located within the Lidsdale Siding site. The Environmental Assessment states that five artefact scatters and isolated finds are located within the broader study area. During the reporting period, the following recommendations discussed in the Environmental Assessment were complied with:

- Artefact scatters and isolated finds to be protected by visible protection fencing in consultation with the Indigenous communities involved in the Cultural Heritage Assessment and included in any site inductions as necessary. The condition of the visible protection fencing will be monitored and maintained for the duration of the works.
- In the event that any work is to occur where the five identified sites are located, and there is no possibility of avoiding harm to the sites, a Section 90 Aboriginal Heritage Impact Permit (AHIP) will be sought to salvage the artefacts.
- Should a Section 90 permit be granted, the salvage program is to be undertaken by an experienced heritage consultant with the participation of Aboriginal stakeholder group representatives. The nominated keeping place for the salvaged artefacts is to be nominated by the Aboriginal stakeholder groups, but should be kept at a safe holding place (e.g. Lidsdale Siding) until a permanent storage facility is determined.
- Whilst impact on the five sites identified is not anticipated, a due diligence approach should be adopted to ensure sites would not be inadvertently impacted.

6.9 Visual

During the reporting period, visual impacts at Lidsdale Siding complied with Project Approval 08_223, Schedule 3, Condition 25.

Actions undertaken during the reporting period are detailed in Section 7.

Relevant visual information is presented in Appendix K.

Performance against Environmental Assessment

The
recommended
mitigation

measures stated in the Environmental Assessment have been implemented and complied with.

The following ongoing visual impact management and mitigation measures discussed in the Environmental Assessment were undertaken during the reporting period:

- Progressive removal of willows along the existing and previous alignment of Pipers Flat Creek. Where these willows provide visual screening of the existing or future facilities, they will only be removed once replacement tree screening has been completed and is developing.

6.10 Waste

During the reporting period, waste at Lidsdale Siding complied with Project Approval 08_0223, Schedule 3, Condition 26.

Actions undertaken during the reporting period are detailed in Section 7.

Relevant waste information is presented in Appendix L.

Performance against Environmental Assessment

Lidsdale Siding does not process coal or otherwise generate or dispose of coal waste. Waste generation is typical of a small workshop and office consisting of used oils, empty drums, packaging, scrap metal and office wastes.

Lidsdale Siding operates in accordance with a Waste Management Plan which provides for the correct handling, disposal and minimising of waste generation.

6.11 Bushfire Management

During the reporting period, bushfire management at Lidsdale Siding complied with Project Approval 08_223, Schedule 3, and Condition 27.

Actions undertaken during the reporting period are detailed in Section 7.

Relevant bushfire management information is presented in Appendix M.

Performance against Environmental Assessment

Bushfire was identified as a hazard for the Lidsdale Siding site in the Environmental Assessment but was considered a low risk due to the existing separation between vegetated areas to the north of the site.

There is also adequate separation between the facility and other industrial uses along Main Street. No additional mitigation strategies were considered warranted.

6.12 Rehabilitation

During the reporting period, rehabilitation at

Lidsdale Siding was:

- Managed in accordance with the Lidsdale Siding Rehabilitation and Closure Plan (LSRCP).
- Monitored in compliance with the LSRCP (Monitoring is not required until the establishment of rehabilitation areas).
- Complied with Project Approval 08_223, Schedule 3, Condition 28-31.

Actions undertaken during the reporting period are detailed in Section 7.

Relevant rehabilitation information is presented in Appendix N.

Performance against Environmental Assessment

The Environmental Assessment stated that should no further use of the Lidsdale Siding site be found when operations cease, the site would be closed, decommissioned and rehabilitated.

Rehabilitation measures include:

- Removal of the rail spur line and shunt
- Removal of all infrastructure
- Removal of carbonaceous and contaminated materials
- Filling the reclaim tunnel and other physical features of the siding
- Rehabilitation of the remaining disturbed areas.

None of the above measures applied during the reporting period and will be implemented at closure.

6.13 Community

During the reporting period, community and social impacts at Lidsdale Siding were:

- Managed in accordance with the *Guidelines for Establishing and Operating Community Consultative Committees for Mining Projects*.
- Monitored in compliance with the *Guidelines for Establishing and Operating Community Consultative Committees for Mining Projects*.
- Complied with Project Approval 08_223, Schedule 5, Condition 6.

Actions undertaken during the reporting period are detailed in Section 7.

Relevant community information is presented in Appendix O.

Performance against Environmental Assessment

The social impacts discussed in the Environmental Assessment include noise, dust and visual impacts. These are addressed in their respective sections in this report.

6.14 Independent Audit

No audits were undertaken during the reporting period.

Refer to Appendix P for the updates of actions from the 2015 IEA.

6.15 Incidents and Non-Compliances

Refer to Appendix Q for a summary of incidents and non-compliances during the reporting period.

7. ACTIONS UNDERTAKEN DURING REPORTING PERIOD

Table 7-1 below provides a summary of actions from the 2016 Annual Review, the action taken and where it is addressed in this Annual Review.

Table 7-1 – Actions Undertaken During Reporting Period

Condition	Requested By	Action Required from 2016 Annual Review	Action Undertaken During Reporting Period
Noise	DPE	• Complete a detailed review of the source of noise and Centennials' subsequent ability to feasibly and practically manage and mitigate these sources in the Lidsdale/Wallerawang area. • Noise mitigation works to be undertaken in accordance with the operational management and technical measures proposed in the detailed works plan. • Reduction of operational noise at Lidsdale Siding to achieve compliance with consented noise limits.	• Investigations completed to reduce noise impacts from train loading operations. • Train loading scheduled in day periods only. • Stockpile volumes maintained to remove requirement to assist automated train loading using mobile equipment • Responses, actions, and reporting in accordance with the Draft Order (31/01/17) from DPE in relation to exceedance of noise criteria in Project Approval 08_0223.

Condition	Requested By	Action Required from 2016 Annual Review	Action Undertaken During Reporting Period
Air Quality and Greenhouse Gas	Nil	Nil	• Managed in accordance with the Western Region Air Quality and Greenhouse Gas Management Plan (WRAQGGMP). • Monitoring in compliance with the WRAQGGMP. • Operations undertaken in compliance with Project Approval 08_0223, Schedule 3, Condition 8-10.
Meteorological Monitoring	Nil	Nil	• Meteorological monitoring in compliance with Project Approval 08_0223, Schedule 3, Condition 11.
Transport	Nil	Nil	• Operations undertaken in compliance with Project Approval 08_0223, Schedule 3, Conditions 12-14.
Soil and Water	EPA	• Stage 3 report recommendations and development of an Environmental Management Plan (EMP) to direct the monitoring and management of ecological risks associated with the potential offsite migration of hydrocarbon impacts. • Submission to the EPA proposed following internal Centennial review and approval.	• Managed in accordance with the Lidsdale Siding Water Management Plan (LSWMP). • Monitored in compliance with the LSWMP. • Operations undertaken in compliance with Project Approval 08_0223, Schedule 3, Condition 15-21. • LSWMP Review undertaken. • Limited Phase 2 Environmental Site Assessment completed
Biodiversity	• DPE • EPA	• Replace Lidsdale Siding Biodiversity Management plan with a Centennial Coal Western Regional Biodiversity Management Plan (BMP). • Maintenance of existing screening vegetation. • Continuation of willow control works. • Identify opportunities to partner with agencies to implement additional improvements for tree planting and habitat restoration.	• Managed in accordance with the Lidsdale Siding Biodiversity Management Plan (LSBMP) • Monitored in compliance with the LSBMPP. • Operations undertaken in compliance with Project Approval 08_0223, Schedule 3, Condition 22. • The Western Biodiversity Management Plan was submitted to DPE in 2016 with approval (and subsequent implementation) pending. • Weeds and nuisance vegetation were cleared adjacent Pipers Flat Creek and planted with *Eucalyptus aggregata* and associated ecosystem species seedlings in partnership with NSW government Local Land Services. • Poisoned willows removed from Pipers Flat Creek • Maintenance of existing screening vegetation

Condition	Requested By	Action Required from 2016 Annual Review	Action Undertaken During Reporting Period
Heritage	Nil	Nil	• Managed in accordance with the Western Region Aboriginal Cultural Heritage Management Plan (WRACHMP). • Monitored in compliance with the WRACHMP. • Operations undertaken in compliance with Project Approval 08_0223, Schedule 3, Conditions 23 and 24. • No surface activities have been undertaken at Lidsdale Siding. • No AHIMS sites are recorded in the vicinity of the willow removal.
Visual	Nil	Nil	• Operations undertaken in compliance with Project Approval 08_0223, Schedule 3, Condition 25.
Waste	Nil	Nil	• Operations undertaken in compliance with Project Approval 08_0223, Schedule 3, Condition 26.
Bushfire Management	Nil	Nil	• Operations undertaken in compliance with Project Approval Project Approval 08_223, Schedule 3, and Condition 27.
Rehabilitation	Nil	Nil	• Managed in accordance with the Lidsdale Siding Rehabilitation and Closure Plan (LSRCP). • Operations undertaken in compliance with Project Approval 08_223, Schedule 3, Condition 28-31.

Condition	Requested By	Action Required from 2016 Annual Review	Action Undertaken During Reporting Period
Community	Nil	Nil	• Managed in accordance with the *Guidelines for Establishing and Operating Community Consultative Committees for Mining Projects*. • Monitored in compliance with the *Guidelines for Establishing and Operating Community Consultative Committees for Mining Projects*. • Operations undertaken in compliance with Project Approval 08_223, Schedule 5, Condition 6. • No complaints were received relating to operations at Lidsdale Siding during the reporting period. • A community information line is available for Lidsdale Siding to receive calls from the local community. Lidsdale Siding's community information line (6355 9500) operates 24 hours a day, 7 days a week. • Community Consultative Committee meeting held in April and October and an Extraordinary Meeting held in August 2017. • Various meetings and site inspections with NSW Local Land Services Groups regarding land, weed and *E. aggregate* management initiatives.
Independent Audit	Nil	Nil	• No IEA was undertaken during the reporting period. • Progression of actions identified for completion from previous audit.

8. PROPOSED ACTIONS FOR NEXT REPORTING PERIOD

Table 8-1 – Proposed Actions for Next Reporting Period

Condition	Proposed Action
Noise	• Conduct operations and activities in accordance with Western Region Noise Management Plan (WRNMP). • Conducted operations and activities in compliance with Project Approval 08_0223, Schedule 3, Condition 2-7
Air Quality and Greenhouse Gas	• Conduct operations and activities in accordance with the Western Region Air Quality and Greenhouse Gas Management Plan (WRAQGGMP). • Conduct operations undertaken in compliance with Project Approval 08_0223, Schedule 3, and Condition 8-10. • Install bird deterrent spikes on Depositional Dust Gauge 8 or revise its location via amendment of the WRAQGGMP.
Meteorological Monitoring	• Conduct meteorological monitoring in compliance with Project Approval 08_0223, Schedule 3, Condition 11.

Condition	Proposed Action
Transport	• Conduct operations undertaken in compliance with Project Approval 08_0223, Schedule 3, and Conditions 12-14.
Soil and Water	• Conduct operations and activities in accordance with the Lidsdale Siding Water Management Plan (LSWMP). • Undertake operations in compliance with Project Approval 08_0223, Schedule 3, Condition 15-21. • Finalise LSWMP Review undertaken and provide to DPE. • Finalise and implement EMP from Limited Phase 2 Environmental Site Assessment completed. • Review and increase storage capacity of onsite water structures
Biodiversity	• Conduct operational activities in accordance with the Lidsdale Siding Biodiversity Management Plan (LSBMP) • Conduct operational activities in compliance with Project Approval 08_0223, Schedule 3, Condition 22. • Continue maintenance of existing screening vegetation • Continue maintenance of planted *Eucalyptus aggregata* and associated ecosystem species seedlings in partnership with NSW government Local Land Services. • Continue poisoning and removals of willows from Pipers Flat Creek
Heritage	• Conduct operational activities accordance with the Western Region Aboriginal Cultural Heritage Management Plan (WRACHMP). • Conduct operational activities in compliance in compliance with Project Approval 08_0223, Schedule 3, Conditions 23 and 24.
Visual	• Conduct operational activities in compliance with Project Approval 08_0223, Schedule 3, Condition 25.
Waste	• Conduct operational activities in compliance with Project Approval 08_0223, Schedule 3, Condition 26.
Bushfire Management	• Conduct operational activities in compliance with Project Approval Project Approval 08_223, Schedule 3, and Condition 27.
Rehabilitation	• Conduct operational activities in accordance with the Lidsdale Siding Rehabilitation and Closure Plan (LSRCP). • Conduct operational activities in compliance with Project Approval 08_223, Schedule 3, Condition 28-31.
Community	• Conduct activities in accordance with the *Guidelines for Establishing and Operating Community Consultative Committees for Mining Projects*. • Conduct operational activities in compliance with Project Approval 08_223, Schedule 5, Condition 6. • Maintain the community information line for Lidsdale Siding to receive calls from the local community.
Independent Audit	• Progression of actions identified for completion from previous audit.

Appendices

Appendix A – Lidsdale Siding Environmental Monitoring Sites

DG 9
DG3
LDP007
Piper Flat Creek U/S
BFBR
LDP004
Triangle Dam
BFBR
MW 4
AWS & BAM
BFBR
Dirty Water Dam
MW 7
MW 8
DG 7
MW 5
MW 1
DG 8
MW 3
MW 6
DG 6
DG 1
DG 10
Wang STP Monitoring Point
DG 11

Lithgow Locality

Sydney

LEGEND:

- Surface Water Monitoring
- Ground Water Monitoring
- Dust Monitoring Stations
- Willow Control Areas
- Hyrocarbon Study Area
- Regional Aquatic Monitoring
- Operational Area
- EIS Study Area
- Weather Station and BAM Unit

NOTES:
LDP007and DG3 shown on this Plan are Monitored for Compliance under Western Coal Services Project.

DRAWN: Brett Haddon	DATE: 20 March 2017
PLAN No: SVY04259	INFORMATION SUPPLIED BY:
COMPUTER PATH: N:\Z_Western Coal Services\Plans\TLO facility and Locality.dwg	
SCALE: As Shown	A3V Sheet 1 of 1

SPRINGVALE MINE

TITLE:

Lidsdale Siding

Environmental Monitoring

Water and Air Quality

SpringvaleCoal
SPRINGVALE MINE
Castlereagh HWY
Lidsdale NSW 2790
PO Box 198
Wallerawang NSW 2845
Phone: 02-63501600
Fax: 02-63551052

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Appendix B – Lidsdale Siding Phase 2 Environmental Site Assessment Works

Summary

A Phase 2 Environmental Site Assessment (ESA) in support of further contaminated site characterisation at the site was finalised in 2017.

The objective of the limited ESA was to investigate the extent of hydrocarbon contamination identified on the Site, particularly as it pertains to impacts sourced from the former above ground diesel storage tank (AST). The purpose of the limited ESA was to address data gaps in previous site assessments to the extent practicable within the scope in order to satisfy consent conditions issued by the Department of Planning and Infrastructure to the extent practicable.

Additional monitoring and investigative works were completed in 2017 including

- Report updated to include additional works completed January2017.
- Additional works appended to include additional intrusive works for delineation and consideration of the proposed expansion of the dirty water dam.
- Report updated to include GME results completed June 2017.
- Additional works appended. Report restructured to incorporate additional works programs rather than consecutive addendums.
- Report finalised December 2017.

Conclusions and Recommendations

The limited ESA scope included installation and sampling of soil bores and groundwater wells, groundwater monitoring, sediment and surface water sampling, purpose and objectives of the limited have been met, within the limitations of the scope completed.

Hydrocarbon impacts in the vicinity of the former AST are:

- not considered to pose a risk to Human Health in any of the matrices investigated;
- exceed ecological screening and Site Management Limits in soil; and
- are not currently migrating beyond the site boundary.

The limited ESA report recommends development of an EMP for the Site and remediation of the site is not considered required to meet the NSW DPI conditions of consent for the proposed upgrade of the site.

The objective of the EMP is to establish the general operation controls required for effective environmental management of the site. The EMP will be based on the results of previous investigations prepared by other consultants and updated as additional results become available i.e. after annual groundwater monitoring events. The EMP will document the following:

- Identification of all responsible parties and their corresponding requirements;
- Identification of site contamination issues;
- Monitoring / inspection locations;
- Frequency of monitoring /inspections;
- Methodology of monitoring / inspection;
- Any pre-determined trigger levels for action;
- Frequency of reporting; and
- Parties to be reported to.

The EMP will be developed in general accordance with the 'Guideline for the preparation of Environmental Management Plans' (2004) and implemented in 2018.

The full report can be provided on requested to regulatory groups.

Due to its size (426 pages, 37MB) it is too large to insert fully in this Annual Review for sending to regulatory parties.

Appendix C – Acquisition on Request Information

No activity undertaken in period.

Appendix D – Noise Information

Noise exceedances at Lidsdale Siding during the reporting period are detailed in Table 8-2 and Table 8-3.

Table 8-2 – Noise Exceedances – $L_{Aeq,15min}$ dB

Location	Start Date and Time	Period	Criterion dB	$L_{Aeq,15min}$ dB	Exceedance dB	Cause
R8	16/01/2017 23:53	Night	40	44	4	Conveyor and locomotive continuum and loading into wagons
R9	16/01/2017 23:31	Night	39	40	1	Conveyor and locomotive continuum and loading into wagons

Table 8-3 – Noise Exceedances – $L_{A1,1min}$ dB

Location	Start Date and Time	Period	Criterion dB	$L_{Aeq,15min}$ dB	Exceedance dB	Cause
R8	16/01/2017 23:53	Night	45	46	1	Loading into wagons
R9	16/01/2017 23:31	Night	45	49	4	Loading into wagons

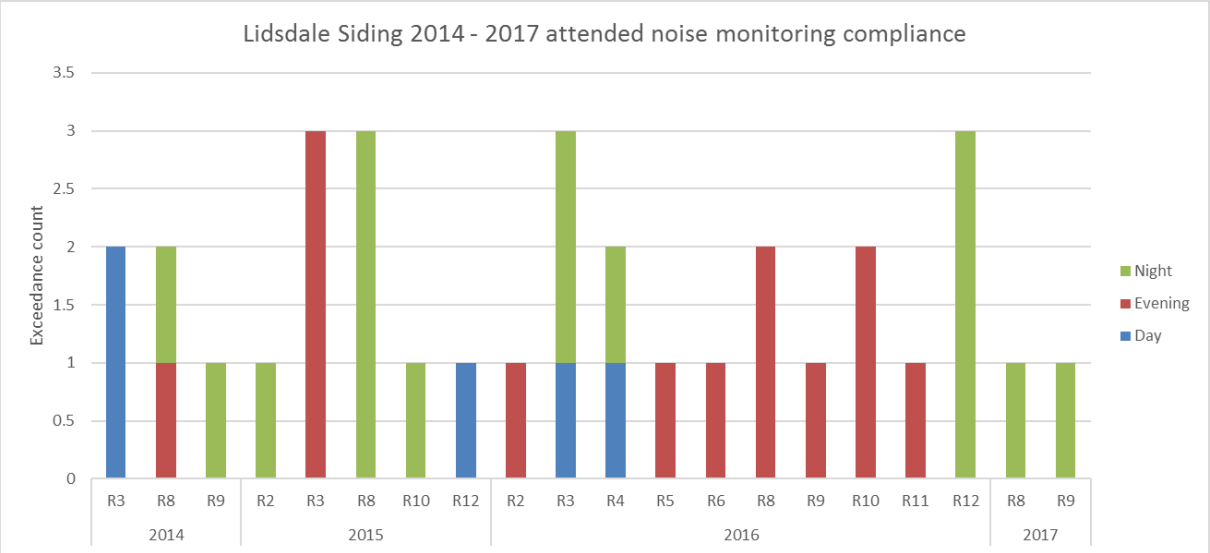

Figure 8-1 – 2014-2017 Lidsdale Siding attended noise monitoring compliance summary

Appendix E – Air Quality and Greenhouse Gas Information

The short-term (24 hour) PM10 criteria is 50 µg/m^3 at any residence on private land.

The long term (annual) PM10 criteria is 30 µg/m^3 and TSP criteria is 90 µg/m^3 at any residence on private land. The 2017 results are summarised in Table 8-4 below.

Table 8-4 – 2017 Lidsdale Siding Air Quality Summary

	Criteria	Maximum	Mean
24hr PM10 (Short Term PM10)	50 µg/m^3	39.83	14.11
TSP	90 µg/m^3	-	35.28[2]
PM10 (Long Term PM10)	30 µg/m^3	-	14.11

24 hour PM10 (Short Term PM10)

The short term PM10 mass concentration for January 2017 to December 2017 is presented in Figure 8-2 below. Activities at Lidsdale Siding complied with the project approval air quality assessment criteria limits during all continuous PM10 monitoring undertaken. An air intake pump failure resulted in a lack of data for the 11, 12 and 23-28 February.

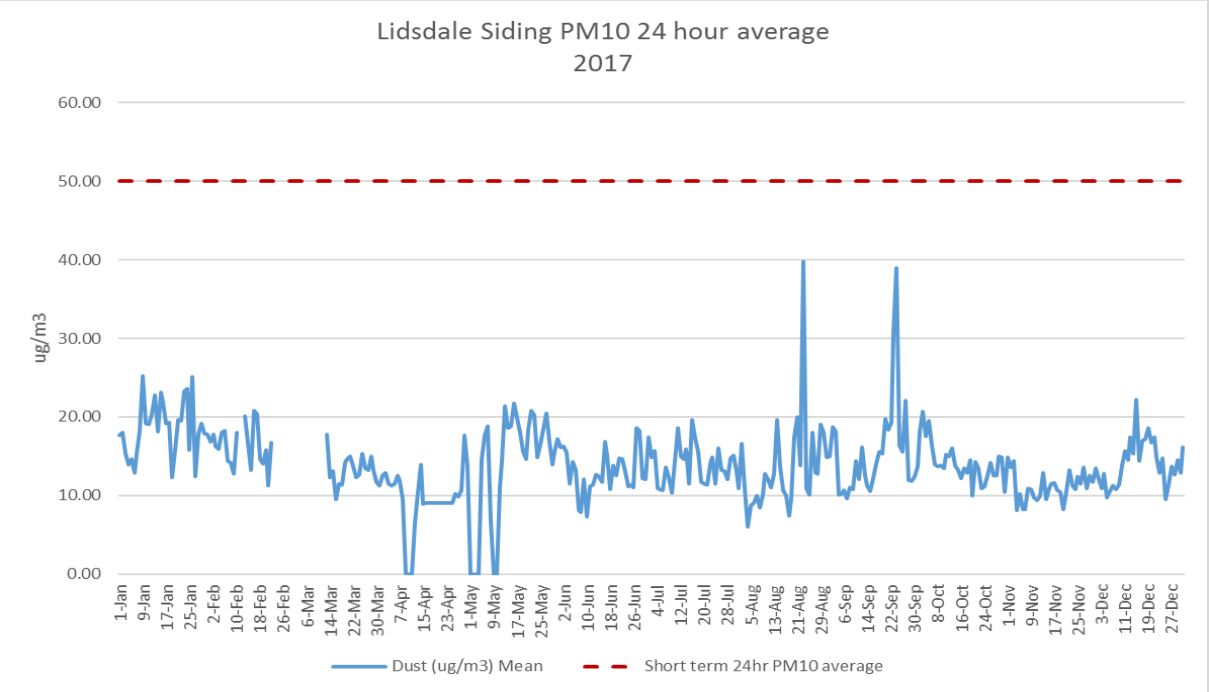

Figure 8-2 –2017 PM10 24 hour average[3]

[2] At all surrounding sites a consistent TSP to PM10 ratio has been established using HVAS data over several annual cycles. This ratio is used to estimate the TSP concentration, based on measured PM10 concentrations. The ratio between TSP and PM10 concentrations has been calculated from long term monitoring data:
Western Coal Services ratio = 0.43; Springvale ratio = 0.45; Angus Place ratio = 0.44; Clarence Colliery ratio = 0.40.
For Lidsdale Siding, the most conservative ratio of 0.40 is used to calculate compliance with the TSP criteria from the PM10 data. The measured PM10 annual average would therefore be divided by 0.40 to estimate the annual average TSP concentration.

Long Term PM10

The long term annual average for onsite PM10 was 14.11 µg/m^3 in 2017, 17.84 µg/m^3 in 2016 and 22.76 µg/m^3 in 2015, below the long term criterion of 30 µg/m^3. The results are presented in Figure 8-3 below.

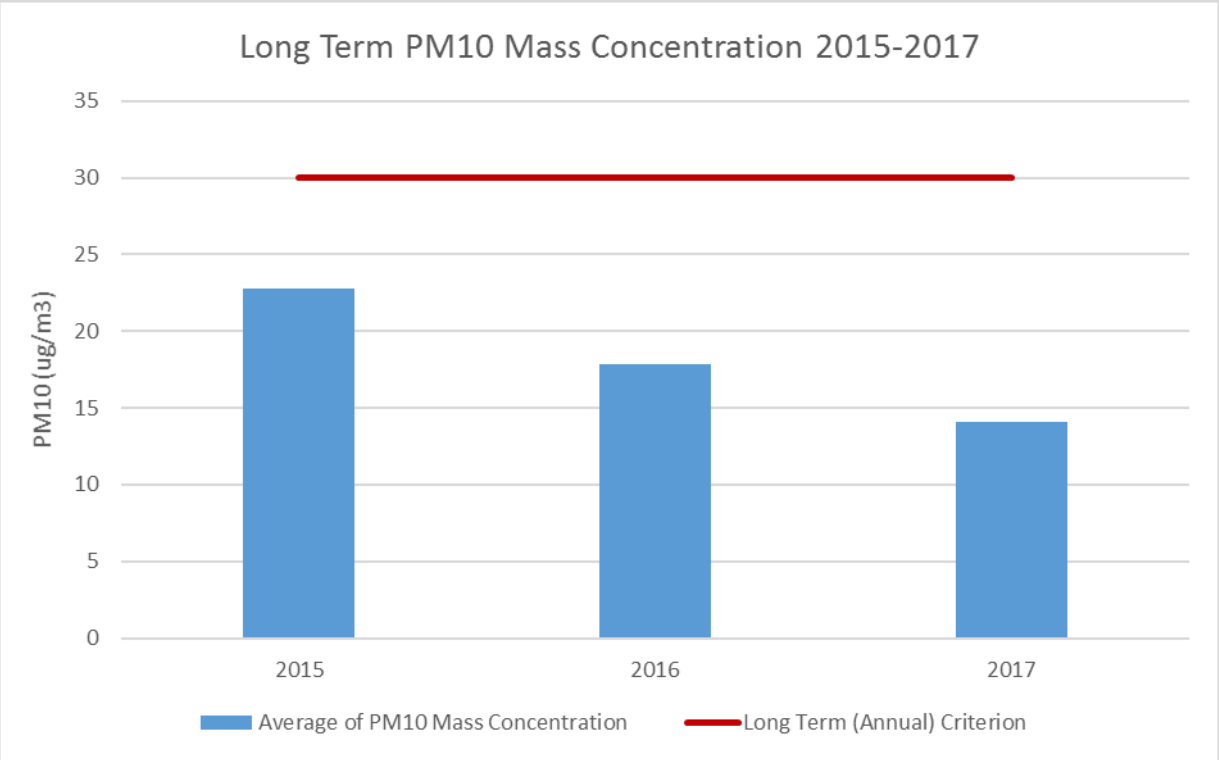

Figure 8-3 – Long term PM10 Mass Concentration (2015-2017)[4]

Depositional Dust

The deposited dust limit is 4 g/m^2/month at any residence on private land averaged annually. Centennial use daily dust forecast reports to determine the frequency of watering unsealed area and to schedule dust suppression activities and operational mitigation.

Depositional dust emissions were below the annual average trigger (4 g/m^2/month) at all dust gauges (Table 8-5).

Table 8-5 –2017 depositional dust summary

	LSDG1	LSDG6	LSDG7	LSDG8	LSDG9	LSDG10	LSDG11
Min	<0.1	0.5	0.2	0.2	0.4	0.2	0.1
Max	0.6	2.3	3.1	6.6	2.7	1.0	4.4
Average	**0.4**	**1.1**	**1.0**	**2.1**	**1.3**	**0.5**	**2.0**

[3] The methodology for calculating results against the long term criteria is as follows: Calculations are performed on the 10 minute interval data recorded by the Beta Attenuation Monitor (BAM) installed at Lidsdale Siding. Only data of a specific quality is included in the calculations. All data points recorded during the reporting period were 'good continuous records'.

[4] Long term averages are taken of all data of appropriate quality between 12:00 am 1 January and 11:50 pm 31 December per calendar year period.

The summary of 2017 depositional dust monitoring is shown in Figure 8-4.

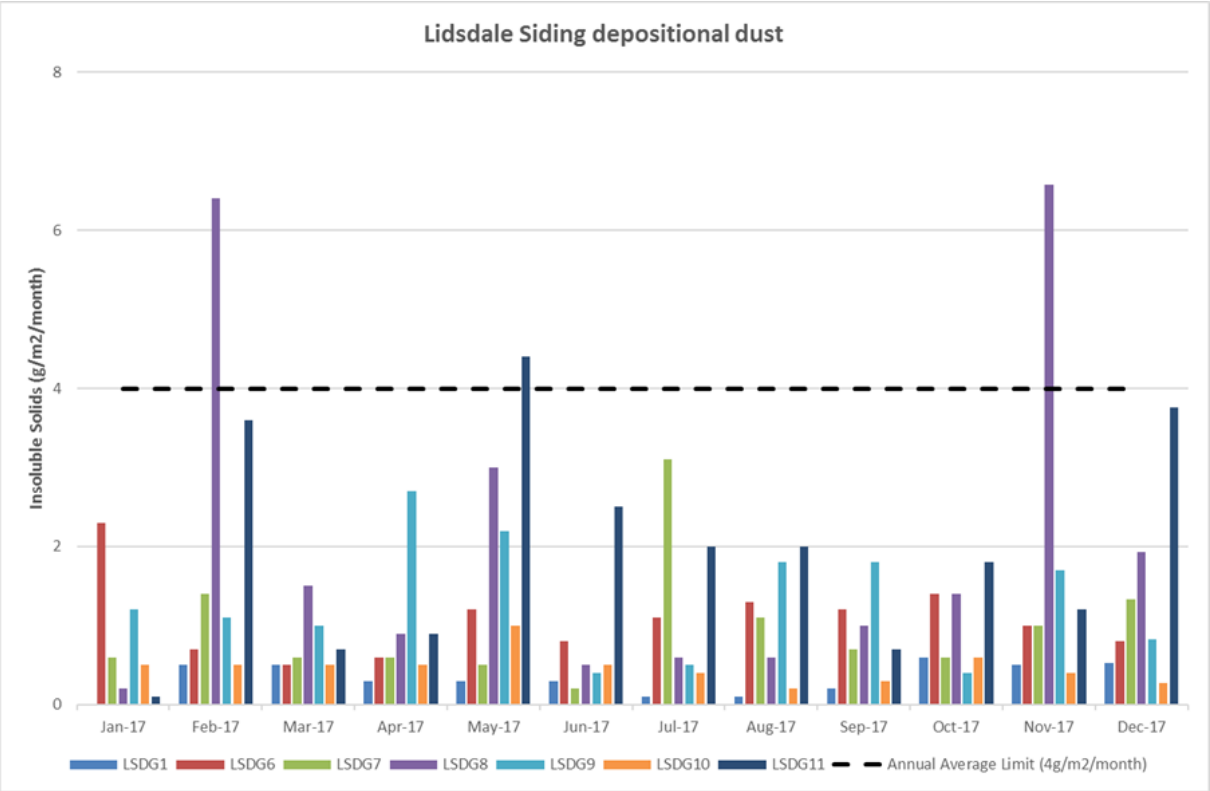

Figure 8-4 –2017 depositional dust summary

A comparison of the annual average of depositional dust for Lidsdale Siding from 2011 to 2017 is shown in Figure 8-5 below.

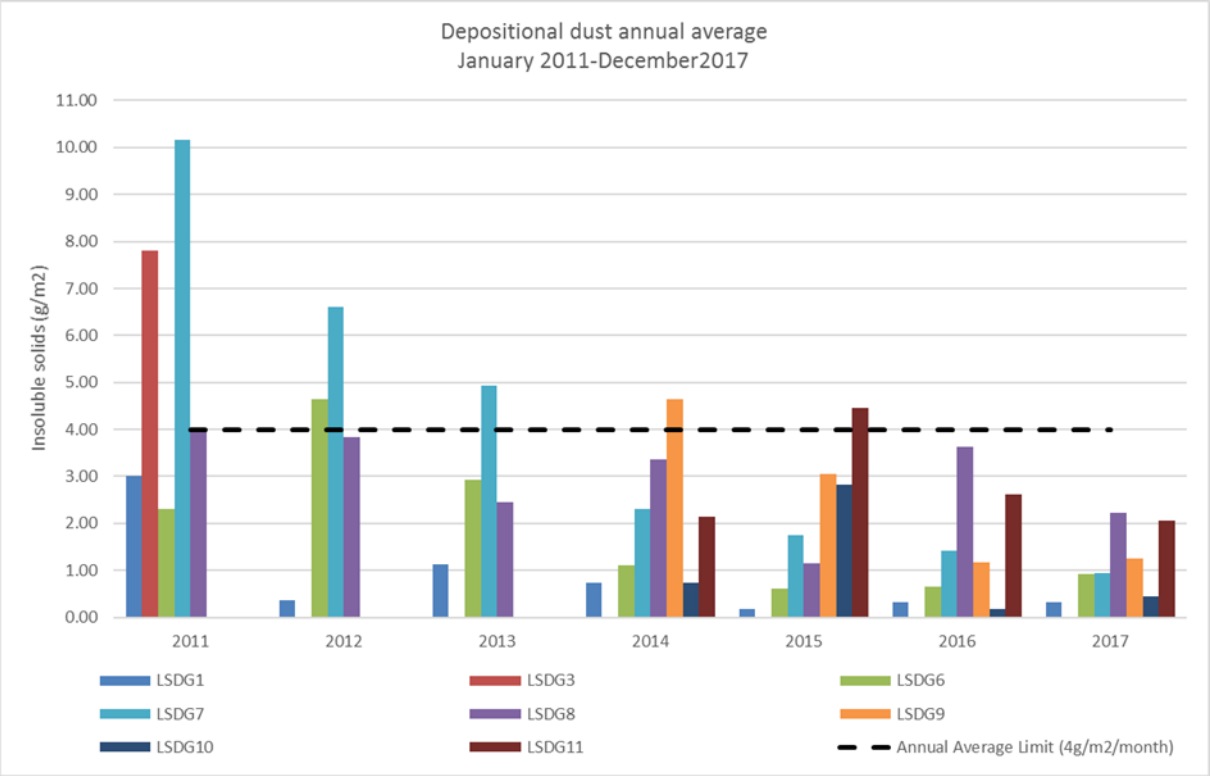

Figure 8-5

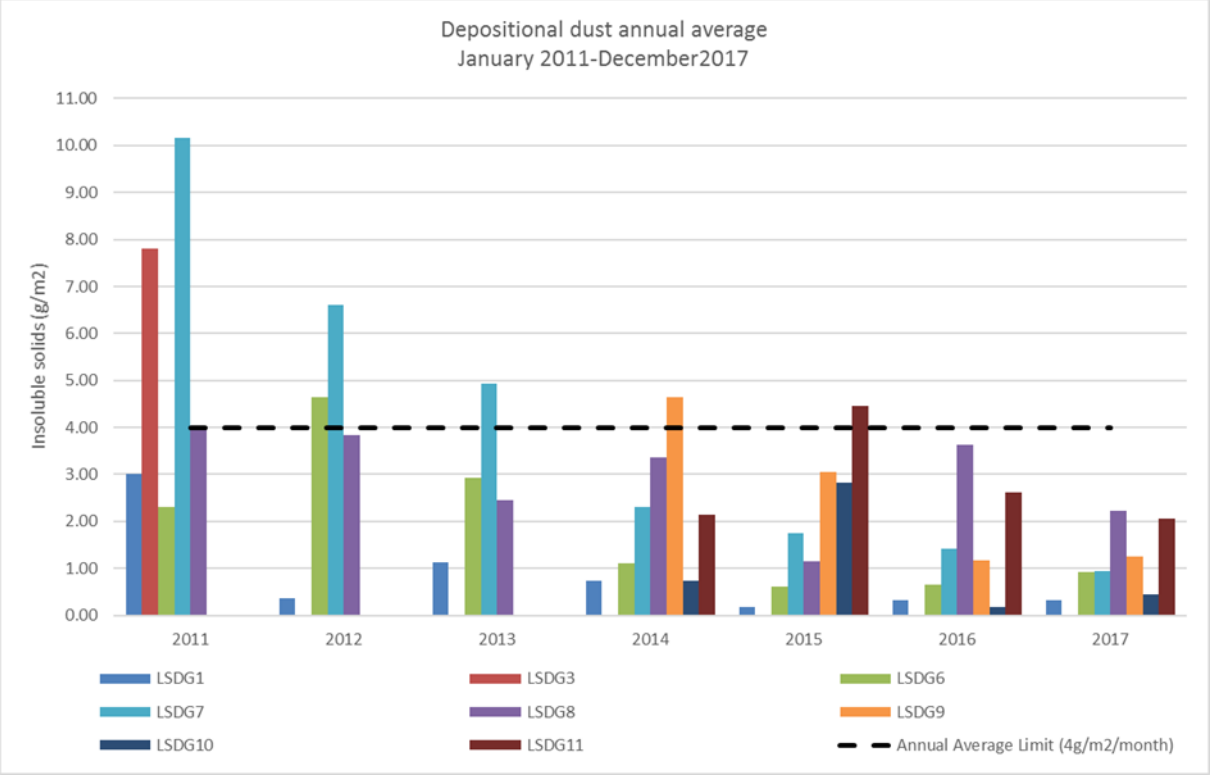

Figure 8-5 – Historical depositional dust summary – January 2011 to December 2017

The rolling average for depositional dust uses 12 months of data from February 2016 to January 2017 to generate the graph commencing January 2017 as shown in Figure 8-6.

There were no exceedances of the 12-month rolling average during the reporting period.

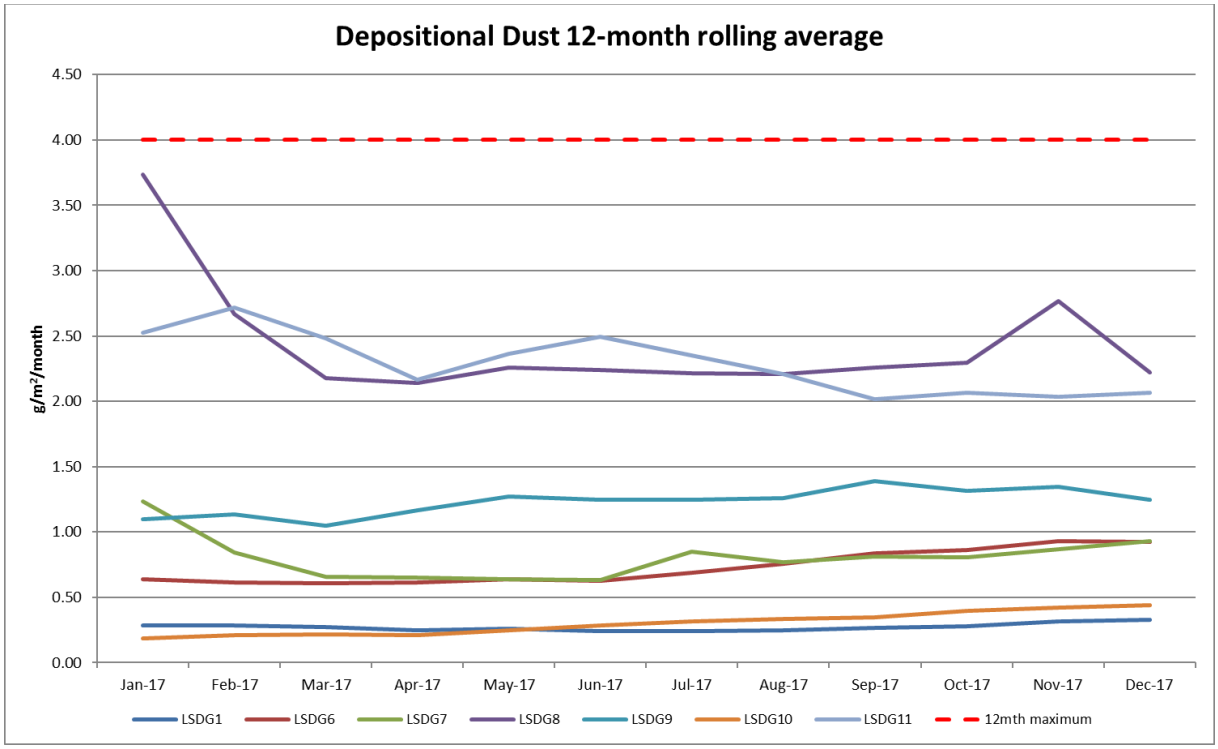

Figure 8-6 – Depositional dust 12-month rolling average

The historical rolling average for depositional dust uses 12 months of data from May 2013 to generate the graph commencing April 2014 as shown in Figure 8-7.

Historically, LSDG7, LSDG9 and LSDG11 have exceeded the 12-month rolling average limit of 4 g/m^2/month but have remained under the limit since July 2014, August 2015 and July 2016 respectively.

All other dust gauges have remained under the 4 g/m^2/month limit since April 2014.

The historical rolling average for depositional dust uses 12 months of data from May 2013 to generate the graph commencing April 2014 as shown in Figure 8-7.

Historically, LSDG7, LSDG9 and LSDG11 have exceeded the 12-month rolling average limit of 4 g/m^2/month but have remained under the limit since July 2014, August 2015 and July 2016 respectively.

All other dust gauges have remained under the 4 g/m^2/month limit since April 2014.

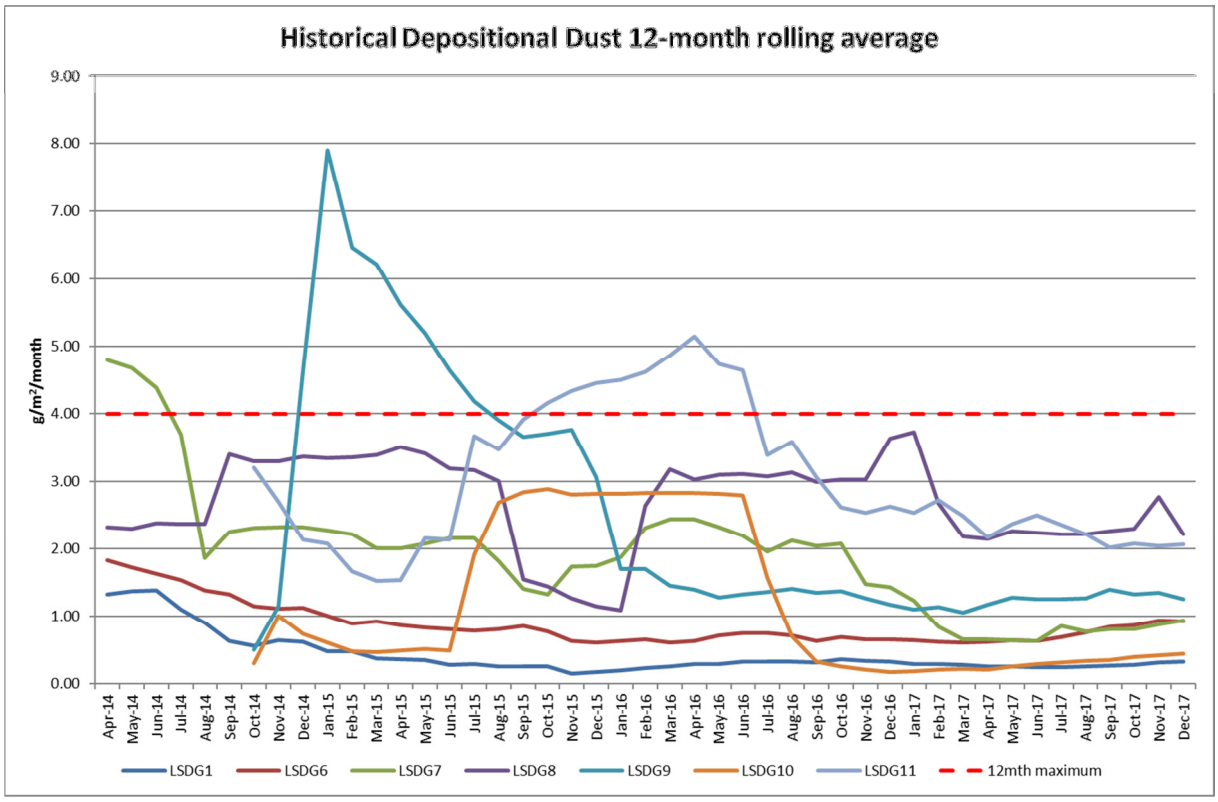

Figure 8-7 – May 2014 to December 2017 depositional dust 12-month rolling average

Greenhouse Gas

Table 8-6 –Total GHG emissions from site

Emissions Summary (CO_2-Et) July 2016 to June 2017	**Total**
Electricity	274.3
Diesel	34.7
Petroleum Based Oils and Greases (PBOG)	-
SF6	-
Fugitives – CH_4	-
Fugitives – CO_2	-
Surface Fugitive – Post Mining	-
TOTAL	**309.0**

Appendix F – Meteorological Information

Rainfall

The total monthly rainfall at the Lidsdale Siding site for the 2017 reporting period is summarised in Table 8-7 and Figure 8-8.

Table 8-7 – Monthly Rainfall Summary

Month	Total Rainfall (mm)[5]	Average (mm)[6]
January 2017	27.4	85.2
February 2017	14.0	77.0
March 2017	128.8	66.5
April 2017	16.0	43.5
May 2017	26.2	48.7
June 2017	20.0	50.6
July 2017	12.2	50.8
August 2017	33.0	63.6
September 2017	3.0	52.7
October 2017	89.4	67.8
November 2017	23.2	71.5
December 2017	88.2	73.8
Total	**481.4**	

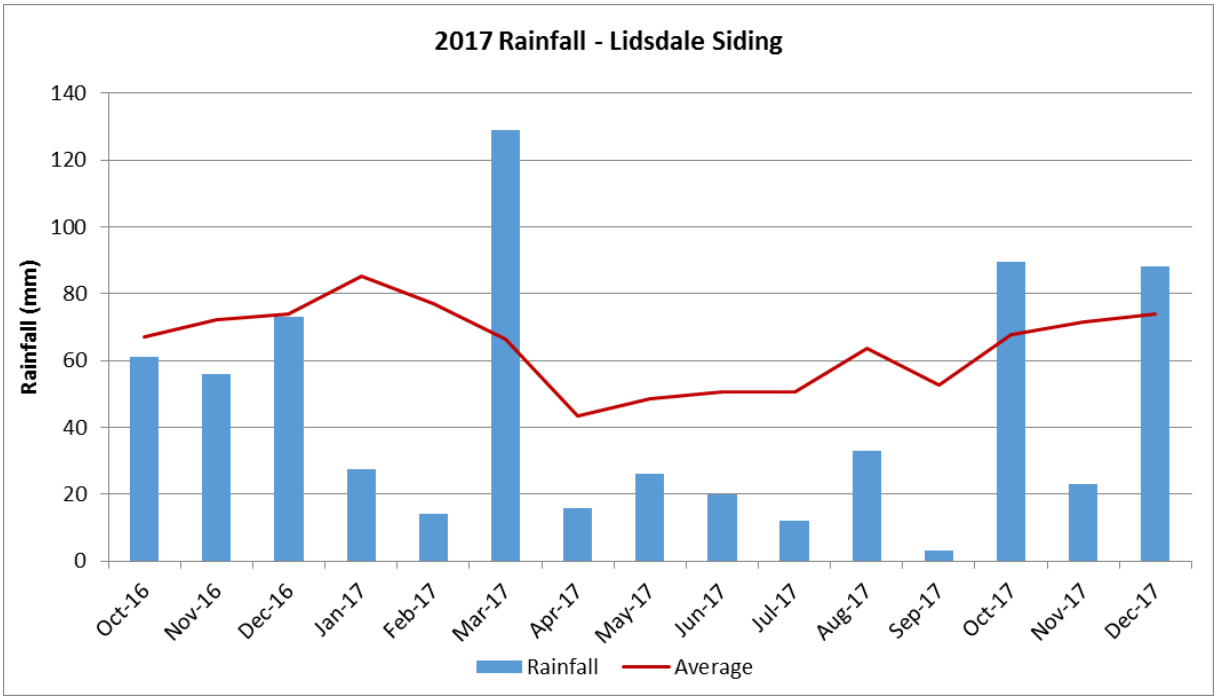

Figure 8-8 – Monthly Rainfall Summary

[5] LS AWS
[6] BOM station 063132 Lidsdale (Maddox Lane) 1959-2017

Temperature

The minimum and maximum monthly temperature for Lidsdale Siding for the 2017 reporting period is summarised in Table 8-8 and Figure 8-9.

Table 8-8 – Monthly Temperature Summary[7]

Month	Min	Max
January 2017	11.3	36.9
February 2017	1.6	40.0
March 2017	5.6	30.0
April 2017	-1.4	22.1
May 2017	-5.7	19.2
June 2017	-6.7	17.0
July 2017	-10.3	19.9
August 2017	-5.9	19.9
September 2017	-6.7	29.5
October 2017	-2.0	27.7
November 2017	0.5	28.2
December 2017	7.5	33.7

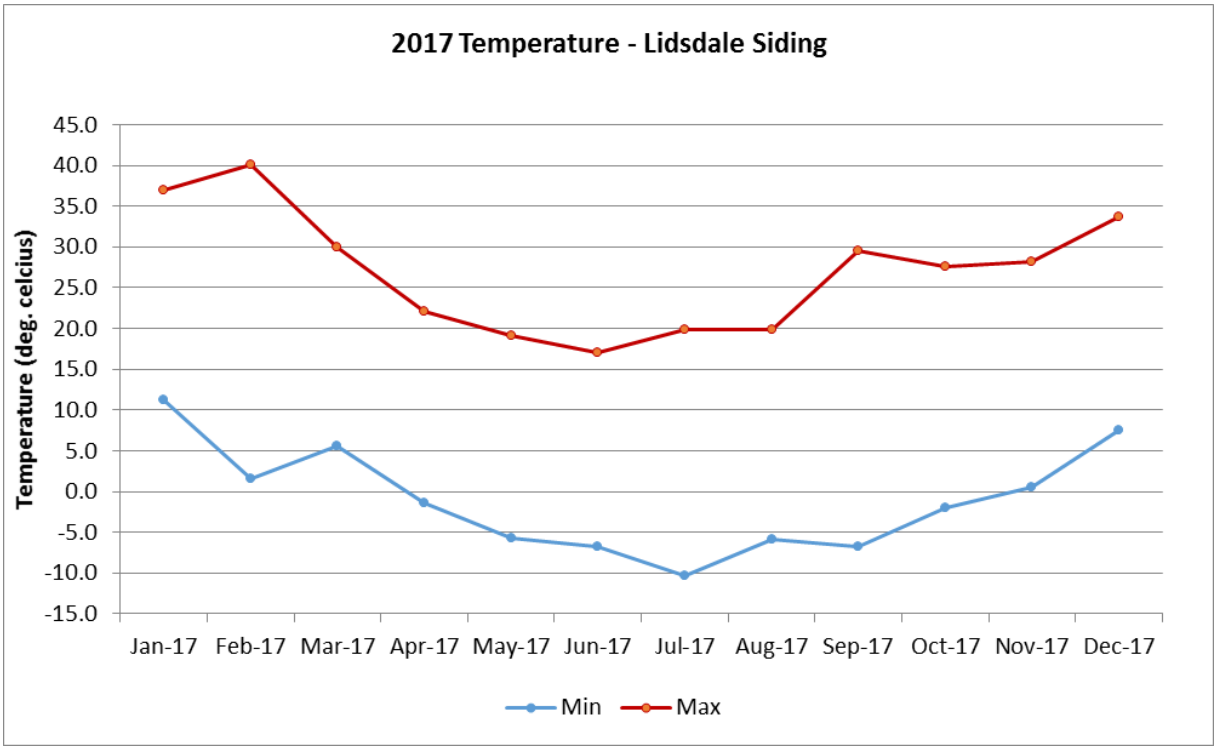

Figure 8-9 – Monthly Temperature Summary

[7] LS AWS

Appendix G – Transport Information

Table 8-9 – Records of coal transported from site 2017 by Month.

	Jan 17	Feb 17	Mar 17	Apr 17	May 17	Jun 17	Jul 17	Aug 17	Sep 17	Oct 17	Nov 17	Dec 17	Total
Coal transported from site Tonnes	118759	30484	0	0	0	0	90657	60697	78131	116708	71470	6697	573603
Number of Trains Deaprting Site	34	9	0	0	0	0	27	18	23	33	21	2	167

- Maximum number of trains per day = 3
- Average trains per day = 0.46

Appendix H – Water Quality Information

Water quality is monitored monthly during discharge as per the requirements of EPL 5129 at Licenced Discharge Point (LDP) LDP004 (see Appendix A for the location of LDP004). The water is tested for pH, Total Suspended Solids (TSS), Electrical Conductivity (EC) and Oil and Grease.

LDP004 discharged once during the reporting period. The results are summarised in Table 8-10.

Table 8-10 – LDP004 Water Quality Summary[8]

Parameter	Unit of Measure	No. of samples required by the licence	No. of samples collected	Lowest sample value	Mean of sample	Highest sample value	EPL limit
pH	pH units	1	1	7.4	7.4	7.4	6.5-8.5
TSS	mg/L	1	1	27	27	27	30
EC	µS/cm	1	1	558	558	558	#
Oil & Grease	mg/L	1	1	<5	<5	<5	10

The flow summary for the 2017 reporting period for LDP004 is presented in Table 8-11 and Figure 8-10.

Table 8-11 – LDP004 2017 Flows

Unit of Measure	Frequency	No. of measurements made	Lowest result	Mean result	High result	Total discharge
Megalitres per day	Daily during any discharge	2	0.00028	0.00096	0.00163	0.00191

[8] Water was released once from LDP004 during the reporting period on 6 December 2017.

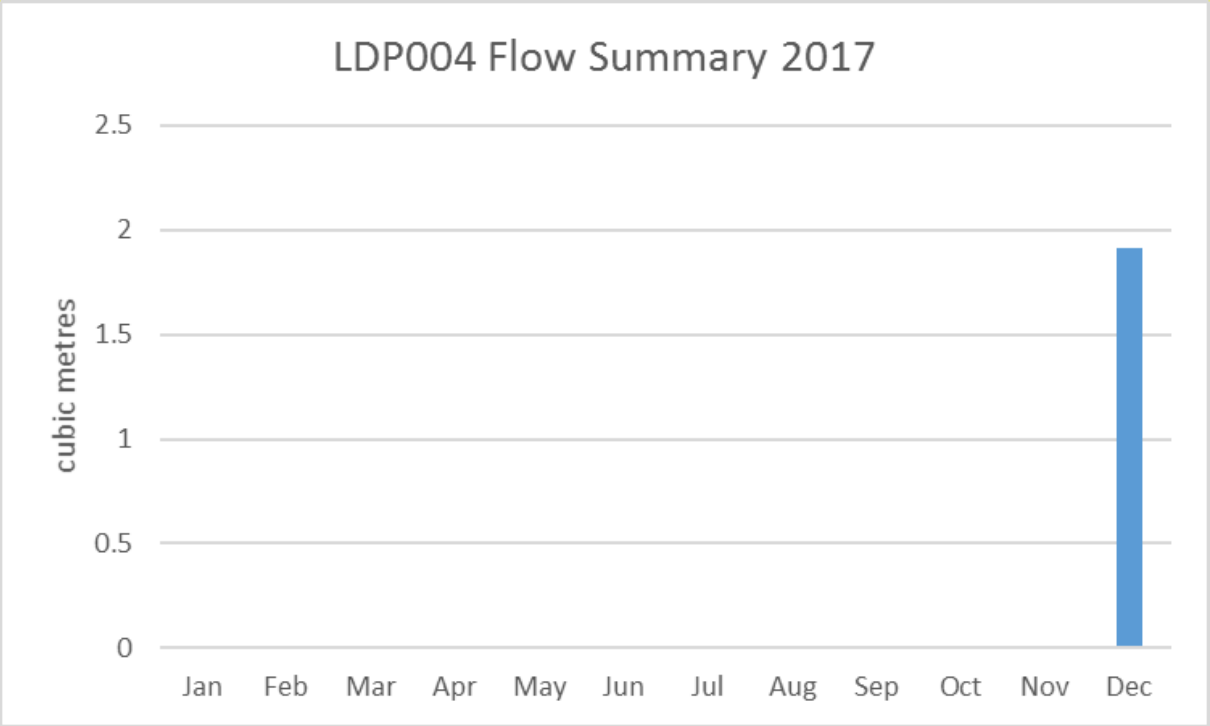

Figure 8-10 – 2017 flow summary for LDP004

Table 8-12 reports on the 'Water Year'. The Water Year is from 1 July to 30 June, not the calendar year.

Lidsdale Siding currently holds two water access licences (WALs) for the extraction of surface water and groundwater to supplement water supply to the site.

The WALs include specific extraction, monitoring, recording and reporting requirements.

WAL 25774 licenses the extraction of up to 1 ML/year of surface water from Pipers Flat Creek, however this water source is not currently used.

WAL 24362 licenses the extraction of up to 8.5 ML/year of groundwater from a production bore.

Table 8-12 – Water Take (ML)

Licence Number	Water Sharing Plan, source & management zone (as applicable)	Entitlement (ML)	Passive take/inflows (ML)	Active pumping (ML)[9]	TOTAL (ML)
WAL 24362 (Work Approval 10WA116403 Groundwater (Production Bore)	Sydney Basin Coxs River Groundwater Source	8.5	0	3.312	3.312
WAL 25774 (Work Approval 10WA102993) Surface water	Upper Nepean And Upstream Warragamba Water Source	1.0	0	0	0

Reporting Period 1/07/2016-30/06/2017

[9] Based on calculation over reporting period. Actual measurements commenced August 2016

Water Quality Data Representation and Analysis

The Lidsdale Siding Coal Loader Project Environmental Assessment undertaken in 2012 did not involve any significant changes to the site in terms of surface water drainage.

Water management on site remains broadly similar to before the upgrade with existing water control systems being adequate to cater for the current operations.

Water quality data for LDP004 is presented in the following graphs with trend analysis and interpretation provided for the reporting period and historical 3 year period.

- The results for pH (Figure 8-11), total suspended solids (Figure 8-12), electrical conductivity (Figure 8-13) and oil and grease (Figure 8-14) were compliant with EPL limits during the 2017 reporting period.
- All other results for the last three years have been below the EPL limit of 30 mg/L.
- The water quality is monitored regularly and treatment of the pond initiated if required.

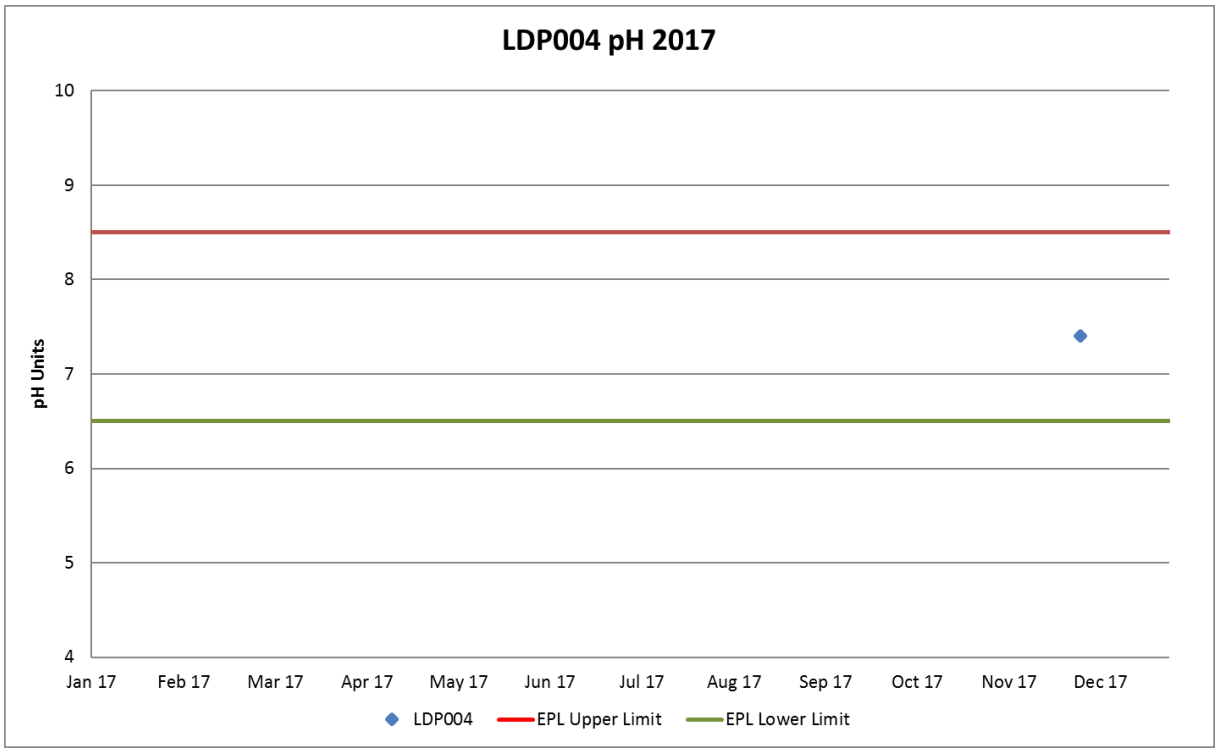

Figure 8-11 – Lidsdale Siding 2017 LDP004 pH

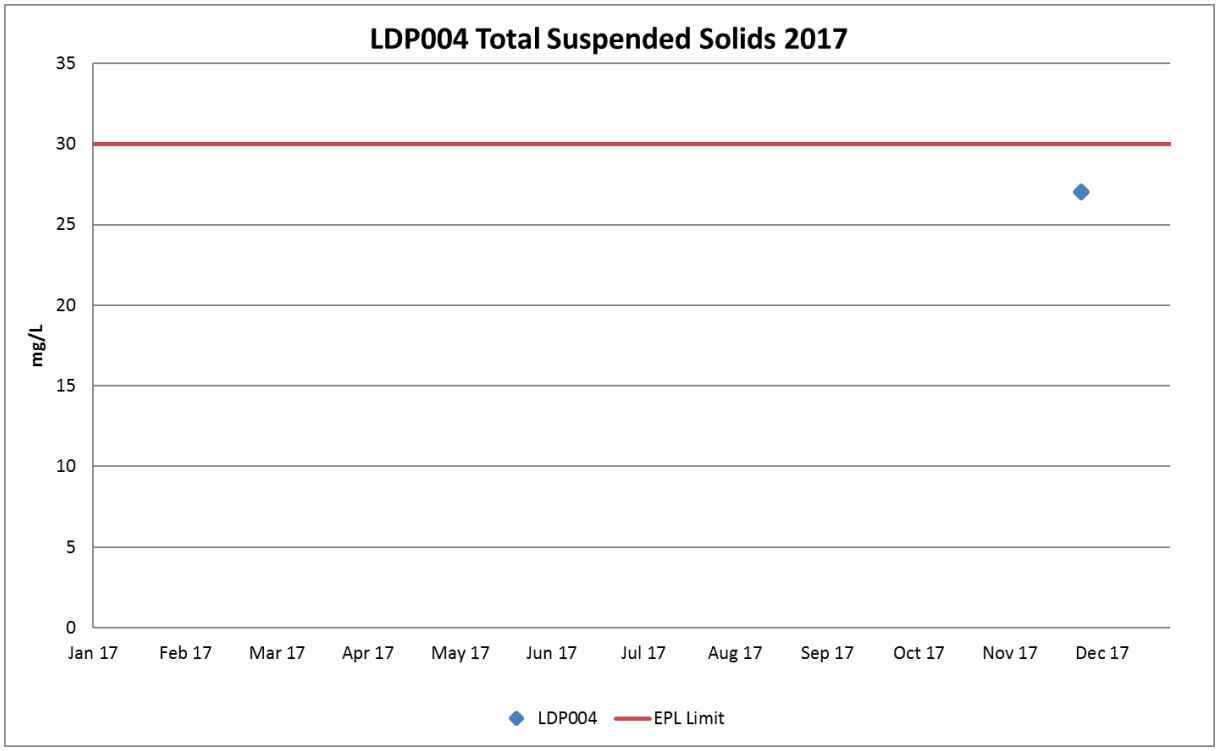

Figure 8-12 – Lidsdale Siding 2017 LDP004 Total Suspended Solids

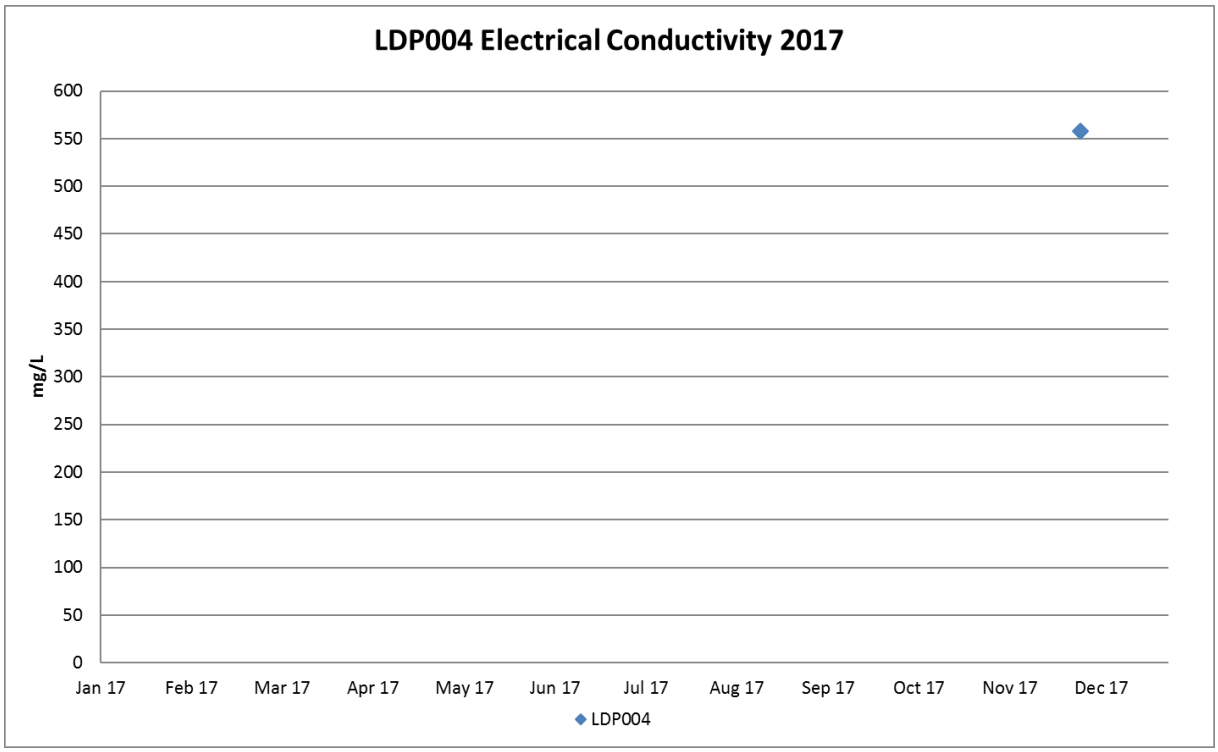

Figure 8-13 – Lidsdale Siding 2017 LDP004 Electrical Conductivity

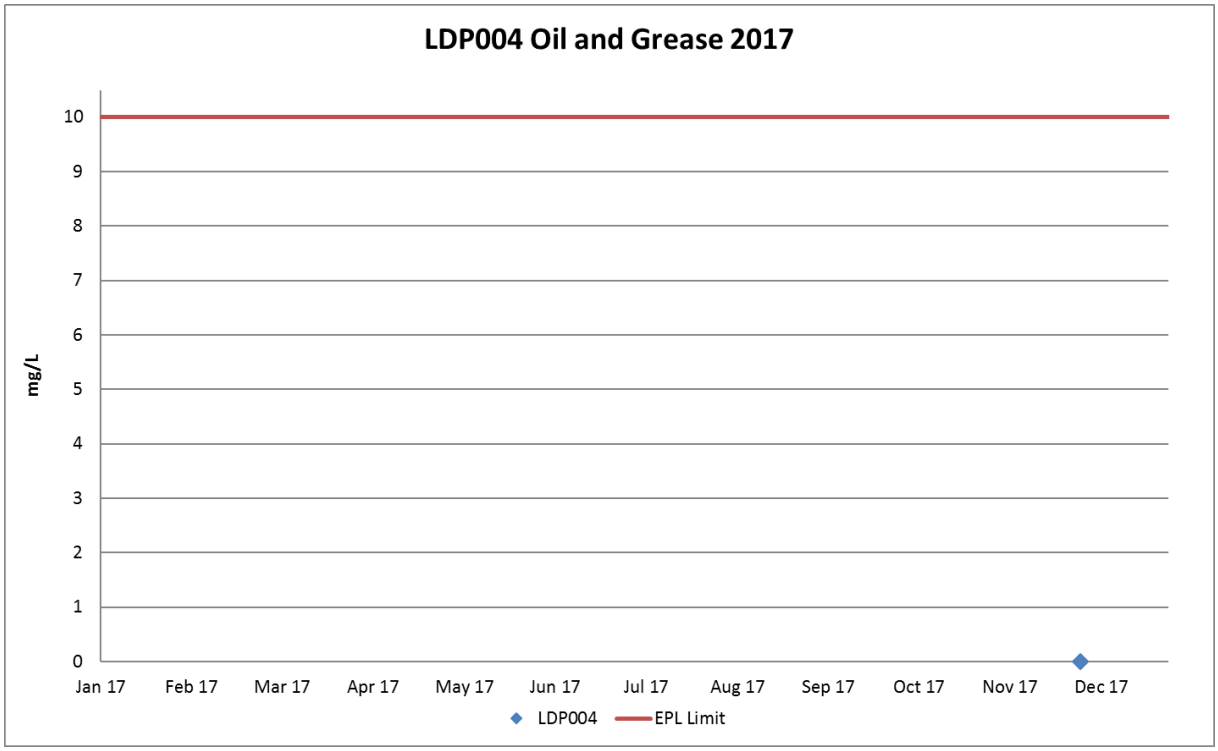

Figure 8-14 – Lidsdale Siding 2017 LDP004 Oil and Grease

Figure 8-15 to Figure 8-18 show the results for pH, total suspended solids, electrical conductivity and oil and grease from 2014 to 2017. Trends remain static across the period. Data graphed is reflective of a site discharge event.

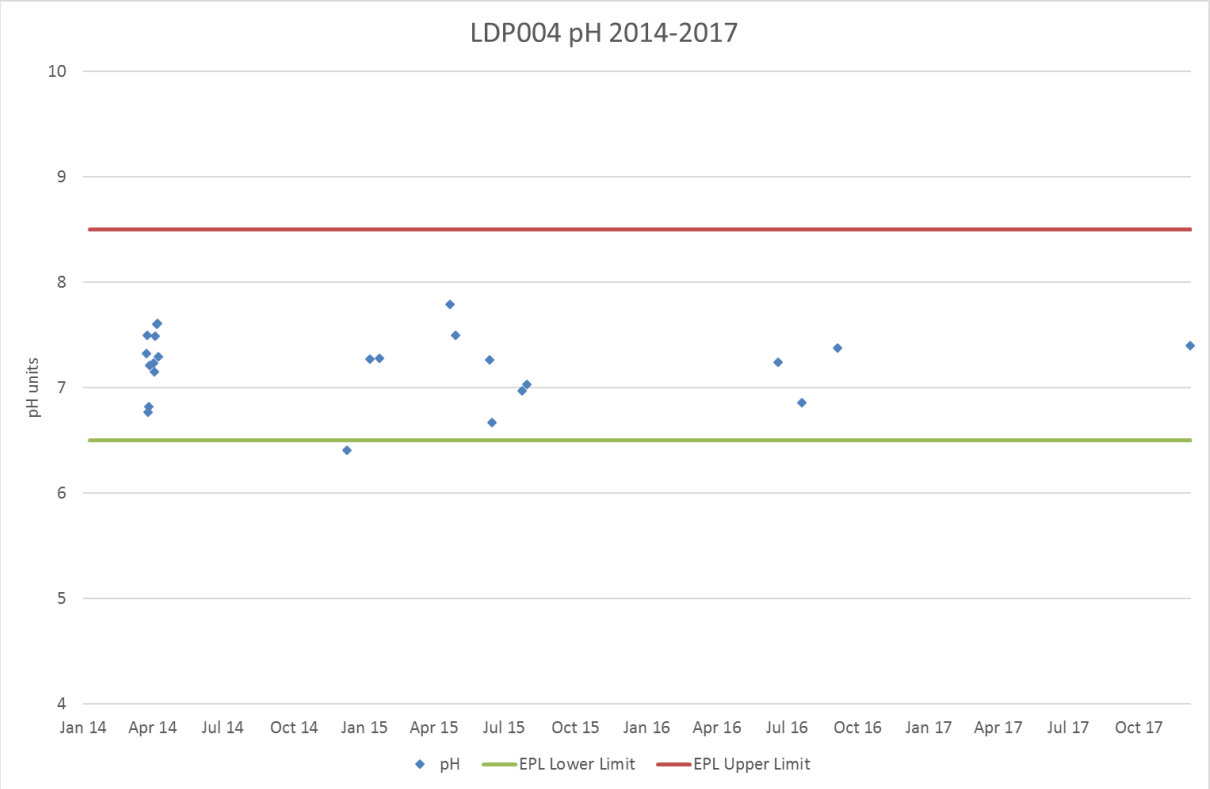

Figure 8-15 – Lidsdale Siding 2017 LDP004 pH 2014-2017

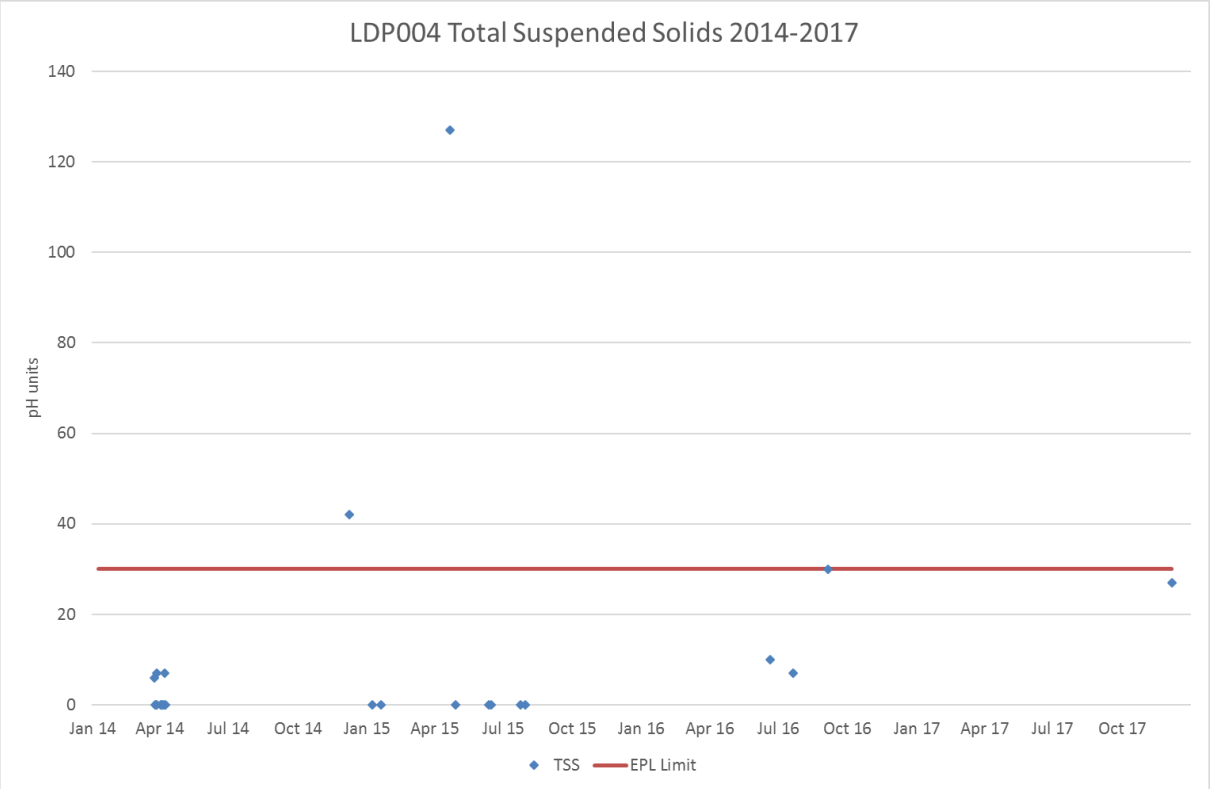

Figure 8-16 – Lidsdale Siding 2017 LDP004 Total Suspended Solids 2014-2017

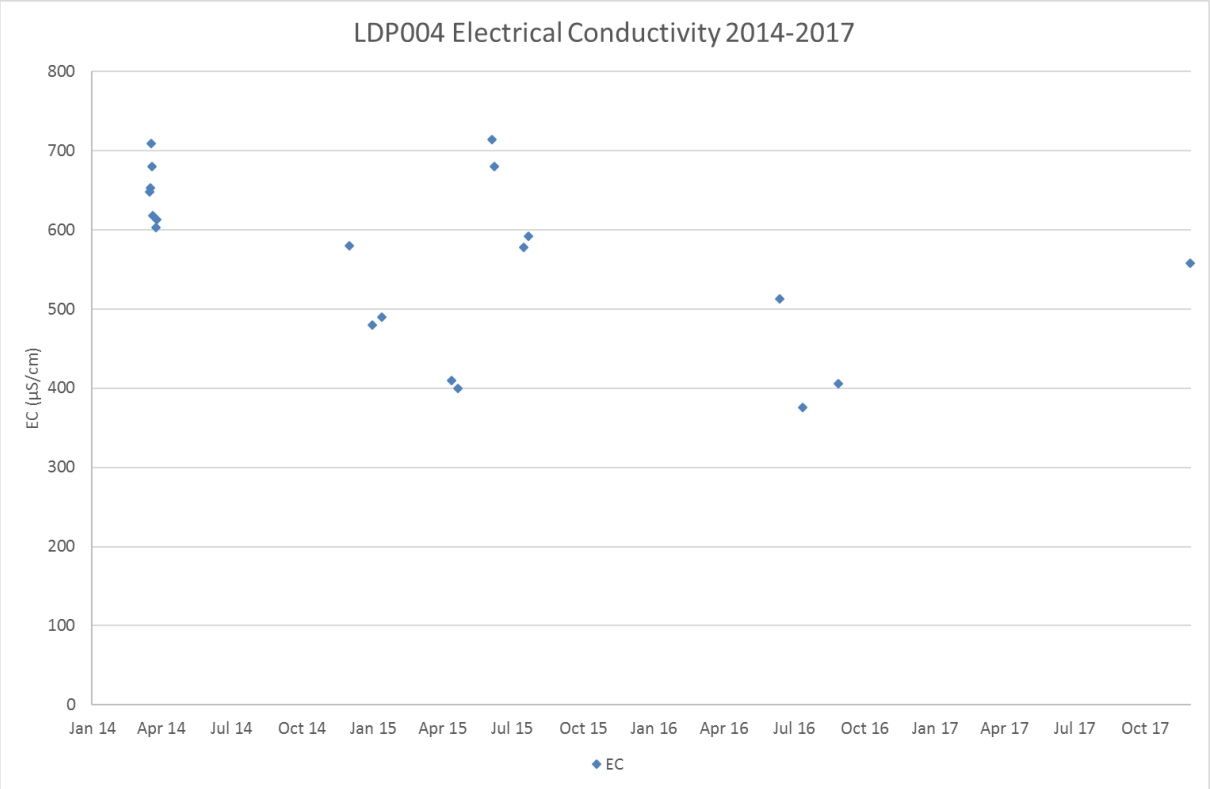

Figure 8-17 – Lidsdale Siding 2017 LDP004 Electrical Conductivity 2014-2017

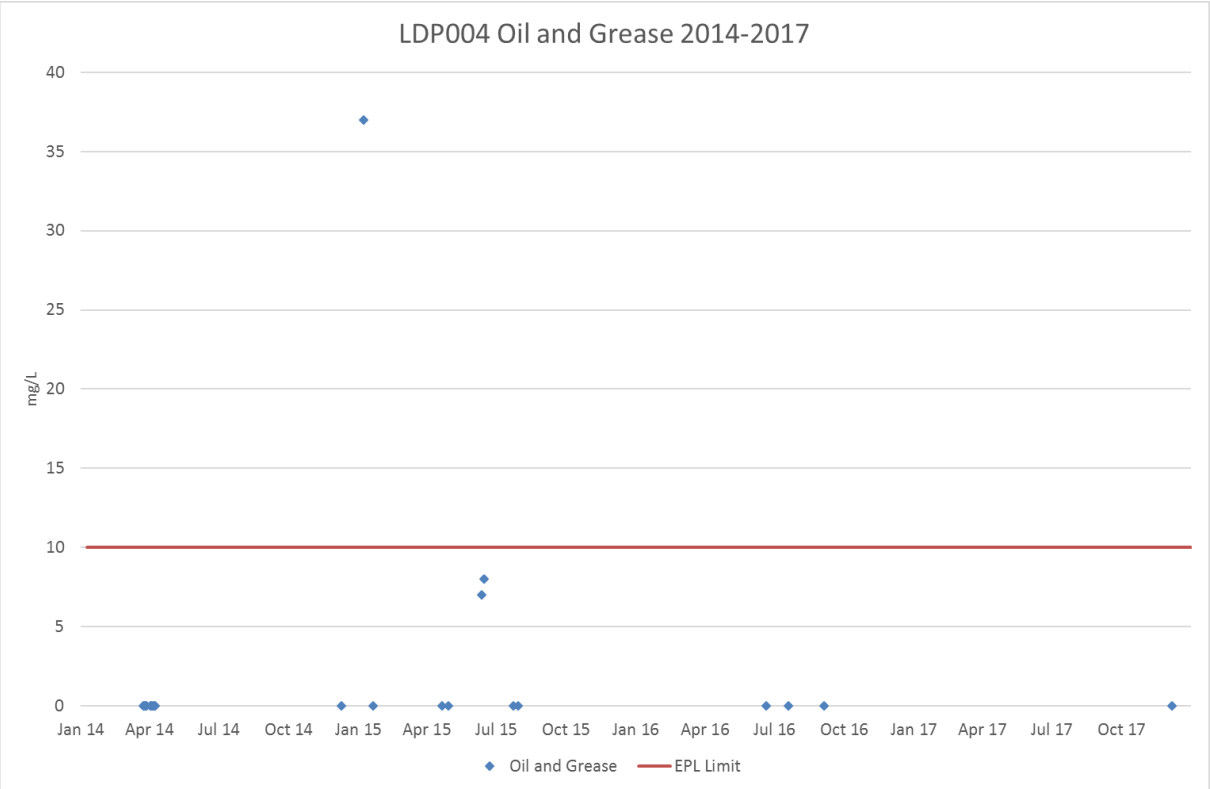

Figure 8-18 – Lidsdale Siding 2017 LDP004 Oil and Grease 2014-2017

Appendix I – Biodiversity Information

Upper Coxs River Catchment Aquatic Ecology 2017

The Coxs River catchment is a highly modified environment following historical and current primary production and industrial activities.

In 2017, a coordinated, catchment-wide approach was implemented to understand the overall health of the Upper Coxs River Catchment. The monitoring program suffices the monitoring requirements of Centennial operations and the Springvale Upper Coxs River Action and Monitoring Program.

The monitoring program allows for impacts (positive and negative) within the catchment to be identified.

Future monitoring reports will include outcomes of ecological restoration activities undertaken by Centennial in the Coxs River catchment.

The results of macroinvertebrate sampling conducted in 2017 are preliminary and will be interpreted along with water quality results and a historical review of results from the Coxs River in the Annual Report to be available in March 2018.

Macroinvertebrate samples were collected by GHD during autumn 2017 (09/06/17-13/06/17) and spring 2017 (16/11/17-20/11/17) at the sites indicated in Table 8-13, as part of an integrated Upper Coxs River monitoring program.

Table 8-13 – Macroinvertebrate monitoring locations

Site	Easting MGA 56H	Northing MGA 56H	Description	Site Type	Dates Sampled
Coxs River					
CR0	229753	6309404	Upstream of all Centennial LDPs.	Background	09/06/17 18/11/17
CR1	229828	6307311	Upstream of all Centennial LDPs.	Background	13/06/17 20/11/17
CR4	228339	6302781	Located at the Maddox Lane road crossing downstream of Angus Place LDP001, Springvale LDP9 and SCSS LDP6.	Background	09/06/17 17/11/17
CR5	228521	6300768	Located at the Main Street road crossing downstream of Angus Place LDP001 and Springvale LDP9, upstream of Pipers Flat Creek.	Impact	09/06/17 16/11/17
CR6	228512	6297751	Coxs River downstream monitoring site located below Lake Wallace, on the downstream side of Rocky Waterhole Drive. Downstream of Pipers Flat Creek.	Recovery	09/06/17 19/11/17
CR7	228926	6292637	Located in the Lidsdale State Forest approximately 5 km downstream of the Lake Wallace dam wall.	Recovery	12/06/17 19/11/17

Site	Easting MGA 56H	Northing MGA 56H	Description	Site Type	Dates Sampled
Pipers Flat Creek					
PFup	227730	6300755	Located around 650 m upstream of the confluence with the Coxs River.	Reference	10/06/17 18/11/17
PFdn	228172	6300993	Located 90 m upstream of the confluence with Coxs River, where Lidsdale Siding LDP4 discharges into Pipers Flat Creek.	Impact	11/06/17 18/11/17

The following macroinvertebrate metrics were calculated:

- **Taxa richness –** the number of different families/groups collected in a sample
- **EPT richness –** the number of families belonging to the Ephemeroptera, Plecoptera and Trichoptera groups
- **SIGNAL-2 Biotic Index –** pollution sensitivity of the macroinvertebrates collected in a sample, expressed as an average. 1 = greatest pollution tolerance, 10 = greatest pollution sensitivity.

A graphical presentation of results is provided in Figure 8-19 to Figure 8-24.

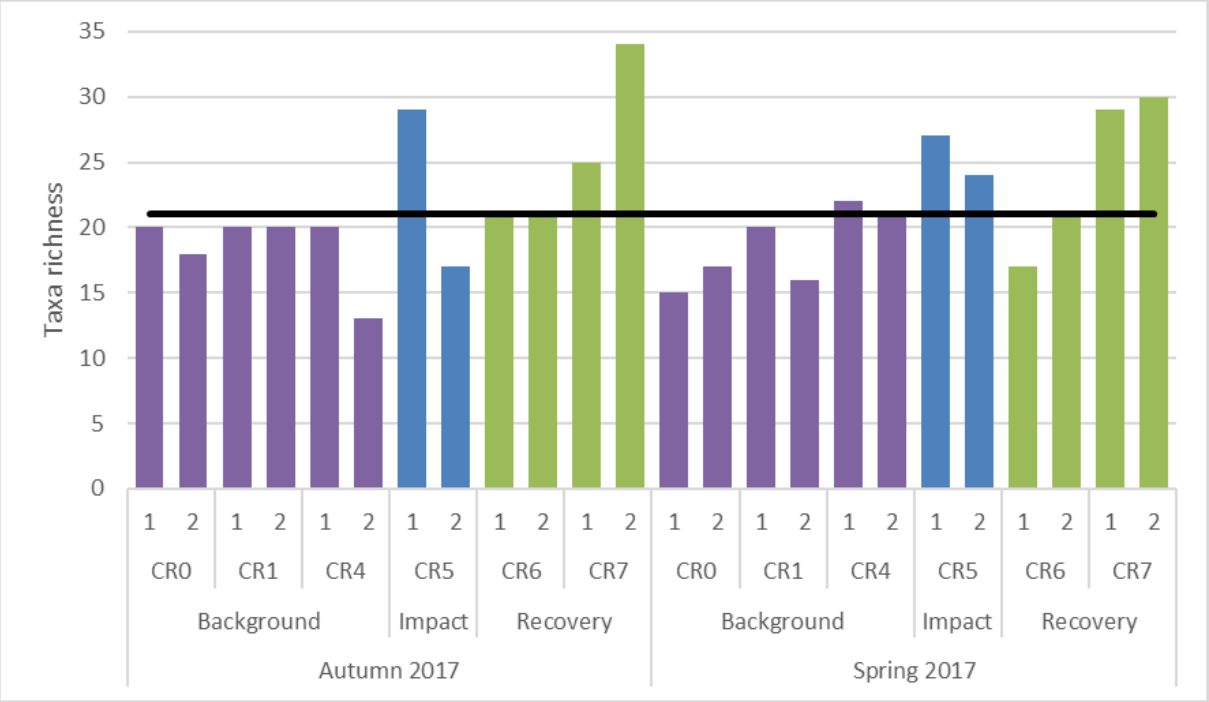

Figure 8-19 – Taxa richness in Coxs River samples associated with Lidsdale Siding in 2017

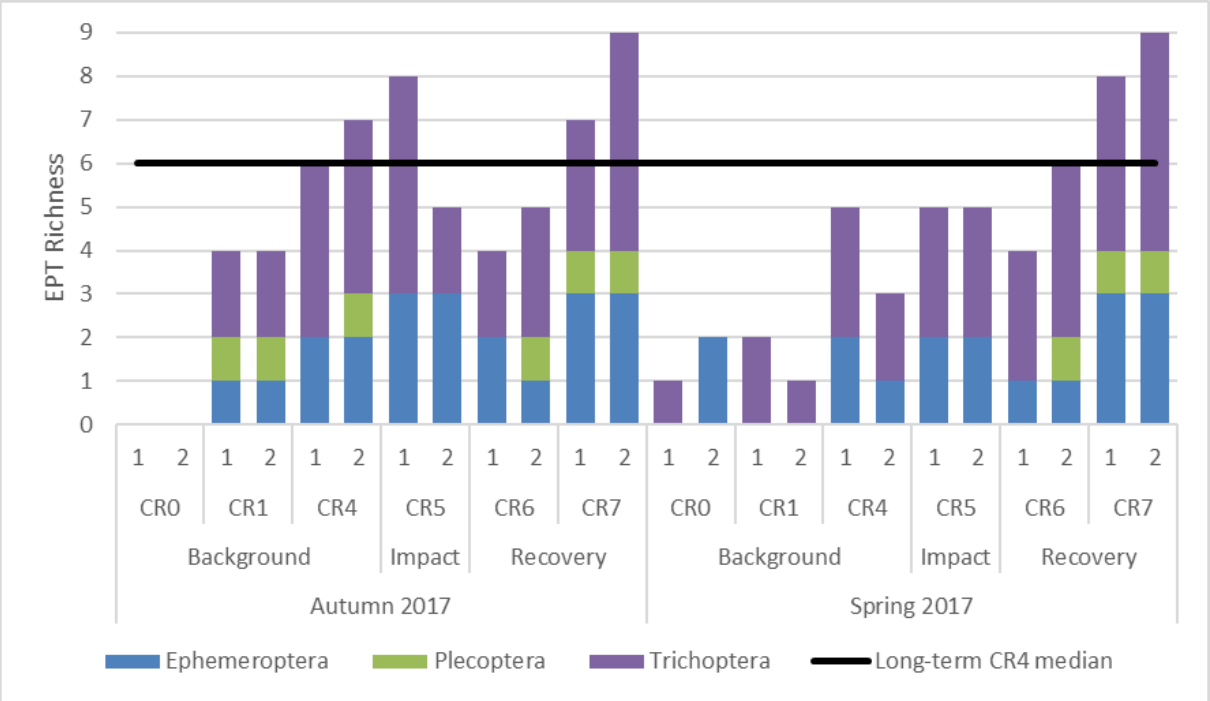

Figure 8-20 – EPT richness in Coxs River samples associated with Lidsdale Siding in 2017

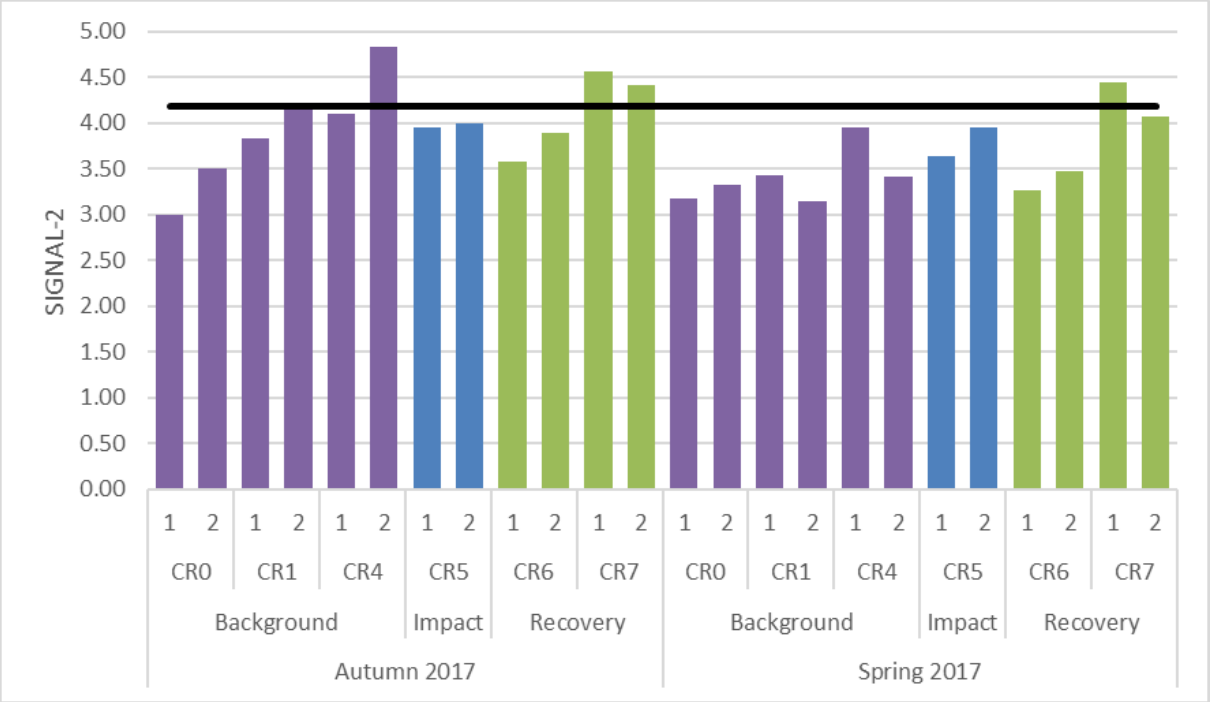

Figure 8-21 – SIGNAL-2 in Coxs River samples associated with Lidsdale Siding in 2017

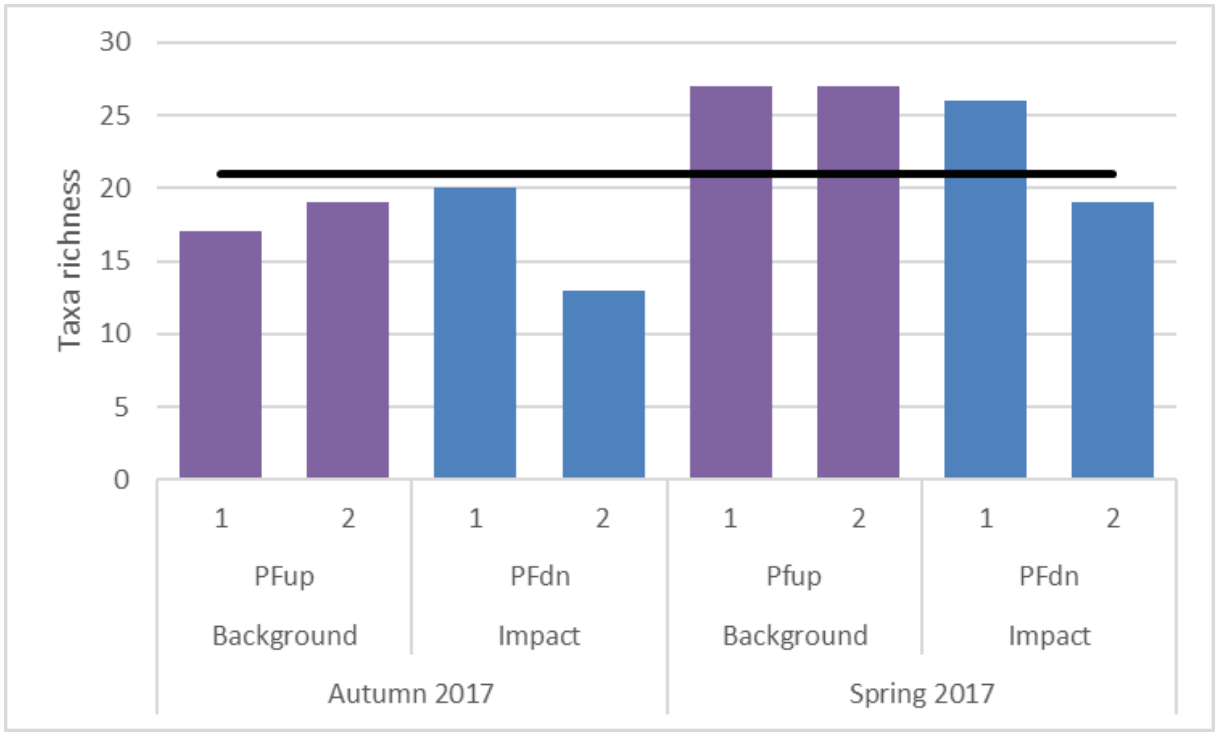

Figure 8-22 – Taxa richness in Pipers Flat Creek in 2017

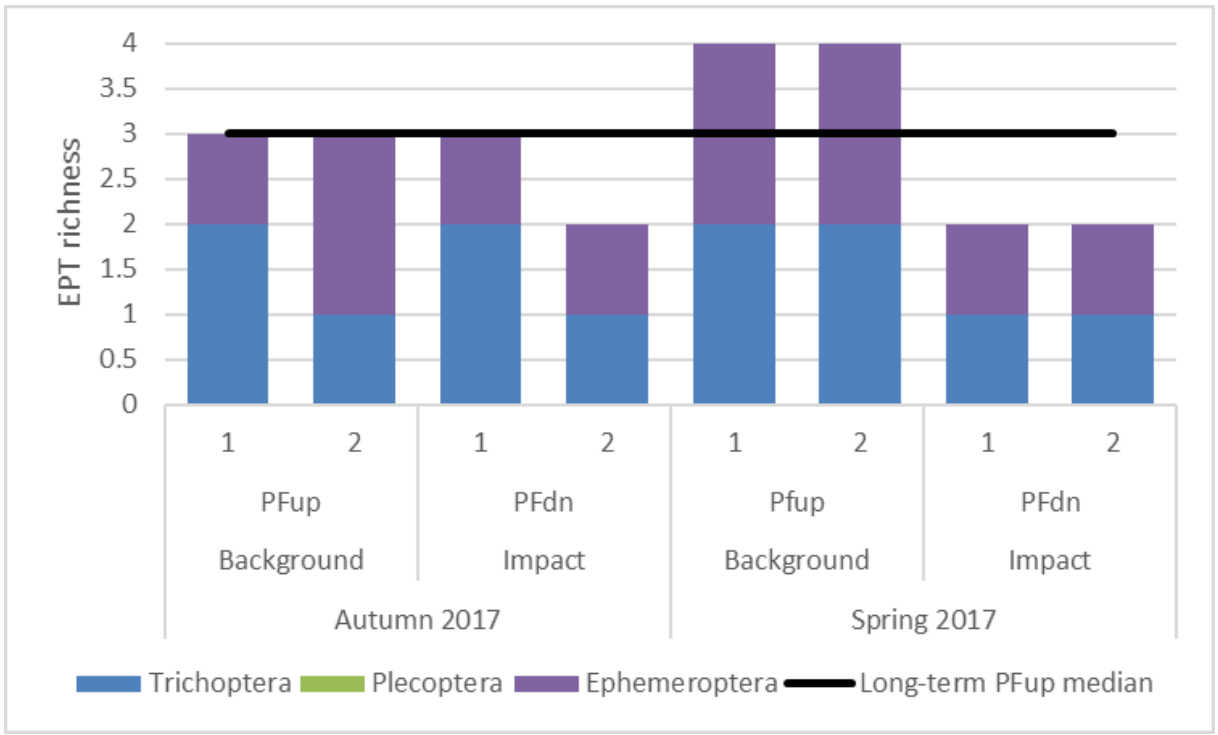

Figure 8-23 – EPT richness in Pipers Flat Creek in 2017

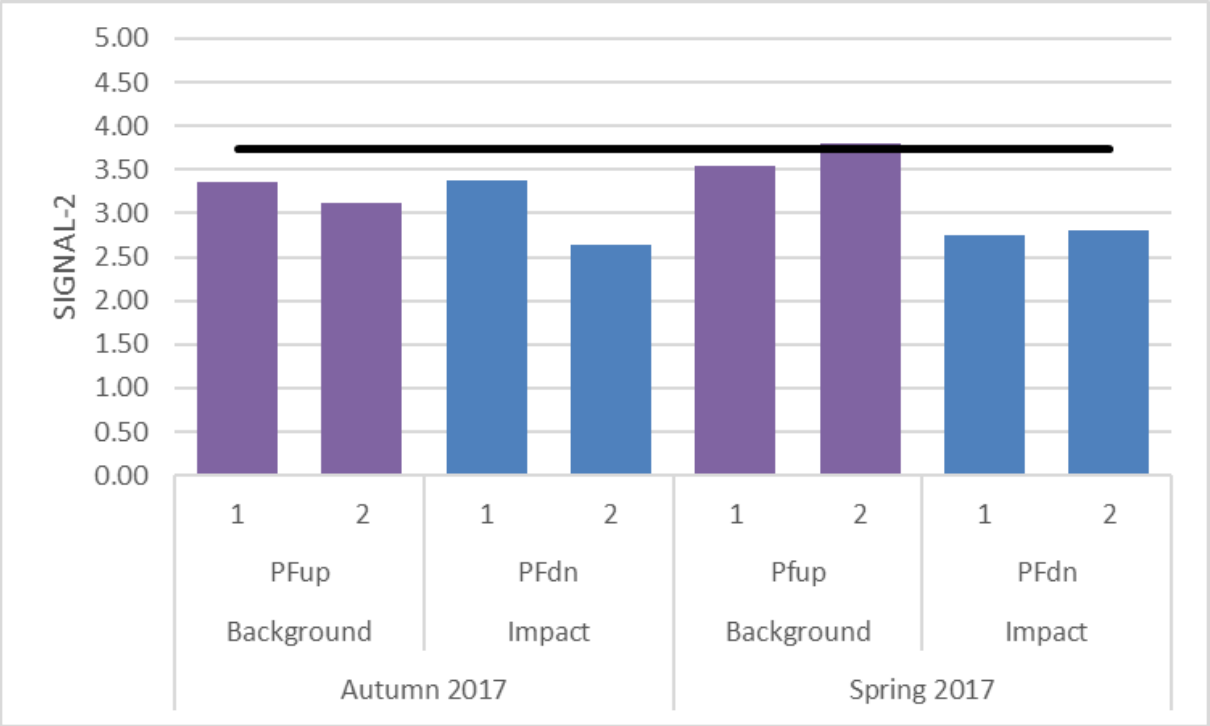

Figure 8-24 – SIGNAL-2 in Pipers Flat Creek in 2017

Within the Coxs River, taxa richness was generally higher at CR5, located downstream of the Pipers Flat Creek confluence, than at background site CR4. Taxa richness as CR5 exceeded the long-term CR4 median in three of the four samples collected in 2017. EPT richness at impact site CR5 was generally consistent with EPT richness at CR4 in 2017 but lower than the long-term median in all but one sample. SIGNAL-2 at impact site CR5 was lower than at background CR4 in autumn 2017 but SIGNAL-2 was similar between the two sites in spring 2017. SIGNAL-2 at CR5 in 2017 was below the long-term CR4 median.

Within Pipers Flat Creek, taxa richness at impact site PFdn was generally consistent with background site PFup in 2017 but below the long-term PFup median for three of four samples. EPT richness and SIGNAL-2 at impact site PFdn in 2017 was lower than at PFup and the long-term PFup median in three of the four samples.

Recovery sites showed similar or improved macroinvertebrate metrics compared with the median value, indicating that there was no impact on the aquatic ecology of the Coxs River.

Willow Control and Blackgum Planting Works.

Refer attached reports and correspondence below.

Centennial Coal

16 March 2017

Clare Kerr
Land Services Officer
Central Tablelands Local Land Services
66 Corporation Avenue (PO Box 20)
Bathurst NSW 2795
Via email: clare.kerr@lls.nsw.gov.au

Dear Clare

RE: Partner Project for Black Gum Revegetation – Pipers Flat Creek

Thank you for the opportunity to partner with the Central Tablelands Local Land Services on the revegetation of Black Gum in the Pipers Flat Creek area adjacent to Centennial's Lidsdale Siding Operation.

Further to preliminary discussion between parties at a meeting at Springvale Coal Services Operations (SCSO) site on 06/02/17, and subsequent to your correspondence received 14/02/17, SCSO would like to provide the following information and advise as detailed below with regards to partnering on the revegetation of Black Gum (*Eucalyptus aggregata*) habitat and associated tree planting with the Central Tablelands Local Land Services.

Background - Related commitments and approval conditions for Centennial within Pipers Creek study area adjacent to the Lidsdale Siding Site.

The Lidsdale Siding Project approval EIS Statement of Commitments proposed the following;

- *Progressive removal of Willows within the section of Pipers Flat Creek which passes through the study area – a 5 year program of works following completion of construction*

The study area is illustrated in Attachment 1 below.

The Lidsdale Siding Upgrade Project approval 08_0221 requires Centennial to ensure that an approved Biodiversity Management Plan for the project includes a detailed description of measures that would be implemented over the life of the project to protect and conserve biodiversity specific to this proposed partner arrangement including;

- *Management and enhancement of retained native vegetation, (particularly Eucalyptus aggregata) and habitat on site;*
- *A detailed program (both proposed works and timetable) for the removal of Willow trees from Pipers Flat Creek; and*
- *Measures to manage and control weeds.*

Centennial has a current approved Biodiversity Management Plan for the project, and is currently revising the plan to be incorporated into a Centennial Western Region Biodiversity Management Plan.

Both plans meet the above EIS and project approval requirements.

Willow Control Works Completed in Pipers Flat Creek

Activity commenced in July 2016, involves the poisoning of willows in Pipers Flat Creek. The work entailed controls using chainsaws cutting in to the willow trunks and injecting with Roundup Biactive® Herbicide. Centennial engaged an experienced contractor to complete this initial work with the removal of the willows originally proposed to take place in November and December 2016 after confirmation that the willows had been killed. The proposed method of removal was to involve cutting,

removal from creek, chipping, and transport of Willows from the study area. The continued poisoning of Willow specimens from the study area is again proposed in 2017. Table 1 below presents the existing proposed timing of the willow control program.

Table 1 - Existing proposed timing of the willow control program

Stage	Item	Timing
1	Poison willows	July/August 2016
2	Cut, remove, chip and transport willows*	November/December 2016
3a	Poison remaining willows	April/May 2017
3b	Cut, remove and chip remaining willows*	October/November 2017

**Under review – refer below*

Following poisoning works completed in 2016, investigations and risk assessment for the proposed removal activity identified the following risks associated with the requirements to use heavy machinery to remove Willow specimens, the inundated site conditions, and displacement of vegetation were identified;

- *High potential for damage to riparian vegetation from the physical removal of treated Willow specimens;*
- *High potential for damage to stream bed and banks from the physical removal of treated Willow specimens;*
- *High potential for damage and mortality of existing Eucalyptus aggregata habitat and specimens from the physical removal of treated Willow specimens;*
- *High potential for the establishment of other weed species via the displacement of Willow Specimens; and*
- *High potential to identify a net beneficial alternative environmental outcome from the consideration of alternatives for Willow specimen removal via planting of suitable species via tube stock revegetation.*

As a result stage 2, and 3b works as identified in Table 1 above have been suspended pending an appropriate identification of options for a net beneficial environmental outcome that would prevent damage to the stream and riparian areas, and ensure protection of existing *Eucalyptus aggregata* specimens and habitat located in the study area in compliance with all legislative and project approval requirements.

Works for the control of Willows in the Pipers Flat Creek study area are proposed to continue for another 3 years (including 2017). This includes the once off removal of adult trees (*where safe to do so and where no environmental damage will occur*), and ongoing maintenance annually to prevent re-establishment. The objective within this management area is to undertake actions that control Willow in the study that prevent Willow seedlings from re-establishing.

Black Gum Revegetation Project and identified Partner Synergies.

Centennial has identified the following synergies with the proposed Black Gum Revegetation Project and Willow control works as discussed between parties;

- *Assisting the control of weeds that inhibit regeneration of Eucalyptus aggregata;*
- *Reducing small-scale clearing pressures on Eucalyptus aggregata;*
- *Encouraging enhancement plantings around remnants of Eucalyptus aggregata (using local-provenance seed sources);*
- *Establishing and improving Eucalyptus aggregata habitat;*
- *Providing normalised creek flow to the environment;*
- *Assist in securing Eucalyptus aggregata conservation status;*
- *Improve recruitment rates for Eucalyptus aggregata;*
- *Providing ongoing net benefit outcome alternatives as opposed to simple removal of Willow specimens that allow for other weed establishment; and*
- *Minimise and reduce the establishment of weed species in study area.*

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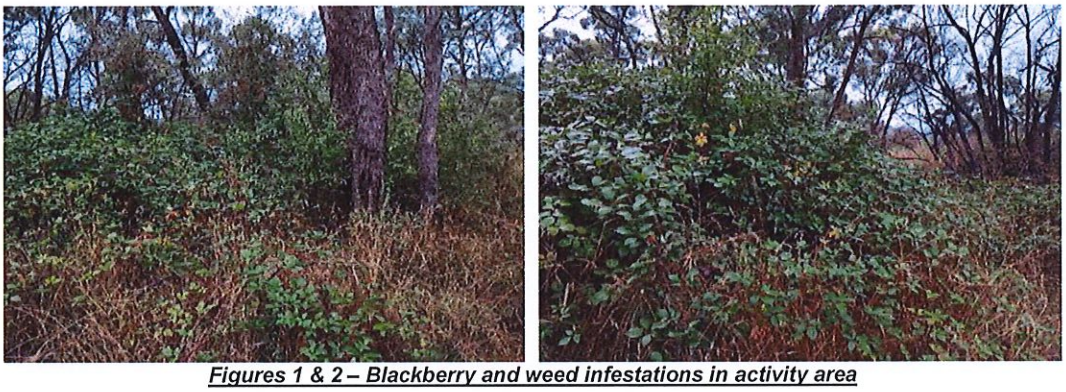
Proposed 2017 Black Gum Revegetation Project Activities.

Proposed Activity Area

A proposed marked up area for tube stock planting in 2017 is identified in Attachment 2. This area has been selected for works for the following reasons;

- *All weather formed road access to the site;*
- *Willow poisoning works completed in this area in 2016;*
- *Easily demarcated zone for management and future monitoring;*
- *Achievability in program for staged habitat restoration;*
- *Extensive existing Eucalyptus aggregata specimens and native vegetation habitat stands located in the site; and*
- *Logical commencement point for replanting works following Willow control program work direction.*

The proposed activity area is heavily overgrown with a range of invasive and nuisance weeds requiring control as per figures 1 & 2 below.



Figures 1 & 2 – Blackberry and weed infestations in activity area

Proposed Scope of Work Activity.

Proposed works have been divided into 4 x stages as summarised below.

Stage 1- Site Preparation – Preliminary Weed Control

- Weed control is required to ensure success with the planned *Eucalyptus aggregata* tube stock plantings. The
- Spraying will be in accordance with the recommendations of the local weed authority regarding the herbicide use close to the waterway

Stage 2- Site Preparation – Vegetation Management and Maintenance

- Management of treated Blackberry and Hawthorne vegetation following Stage 1 works is required to allow suitable planting locations to be prepared and identified.
- Management undertaken via mechanical means to cut / slash / remove nuisance vegetation and treated weeds.
- Timing of this work must allow adequate time after the spraying occurs for the herbicide application to be effective.
- *Eucalyptus aggregata* and other native species will be protected during the vegetation management process.

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Wallerawang NSW 2845
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Stage 3 – Revegetation Planting of *Eucalyptus aggregata* seedlings.

- Plant up to 2000 *Eucalyptus aggregata* tube-stock seedlings in the study area;
- Tube-stock planting will incorporate the following;
  - Hole dug to plant specifications using powered auger;
  - Supply and install tube-stock;
  - Supply and install tree guard green corflute 1 Hardwood Stake;
  - Supply and install soil conditioner;
  - Supply and install weed mat;
  - Supply and install water crystals (expanded prior to planting to reduce mortality);
  - Supply and install fertiliser tablet 10g;
- Planting will occur following basic site preparation (stages 1 & 2 above) completed within the site.

Stage 4 - Revegetation Maintenance, Monitoring and Reporting

- Follow up maintenance and reporting including;
  - Weed Control - Weeding & Spraying as required
  - Tree Guard Maintenance
  - Establishment and survival watering
  - Photographs & Reporting (*period TBA*)
  - Rabbit control (*TBC*)

Proposed Contractor Arrangements for Works.

SCSO utilises a preferred local contractor ***New Era - Mine Site Revegetation*** (New Era) for the majority of our site weed control and rehabilitation services across both our sites and a range of tasks and will be the contractor engaged for willow control works

We are proposing to utilise New Era as the sole provider for these works in accordance with our existing engagement arrangements for 2017 weed control and rehabilitation program for SCSO sites, and specifically in alignment with our committed 2017 Willow control works.

Engagement of additional contractors to work on our site for the proposed activities services creates a burden of pre-approval work, the requirement for specific induction and competency assessments, medical approvals, chemical usage approvals, work permitting approval, and other related Centennial requirements to be undertaken prior to engagement for works. These activities are typically on charged to Centennial and in this instance could potentially result in a significant erosion of the proposed joint funding value.

New Era have successfully undertaken tube stock native tree plantings and weed control for SCSO and other Centennial sites in the region, and have provided estimate costings for the proposed scope of works stages based on agreed commercial Schedule of Rates for activities undertaken through our general business relationship.

New Era staff are SCSO site inducted and familiar with compliance activities related to the HSEC requirements for undertaking works for Centennial in accordance with our project approvals and legislative compliance requirements.

New Era are determined to help their clients restore the landscape and environment to its original or natural format with their services aimed at providing sustainable outcomes for our clients through the provision of best practice approach to weed management and revegetation.

SCSO and New Era have a strong business relationship with excellent qualitative and measurable results delivered and reported from completed works under agreed scheduled rates. As stated above our preference is for New Era to be engaged as the sole provider for these works.

SCSO will provide supervision and management of all New Era activities undertaken for proposed activities in accordance with our existing commercial and WHS contractor management processes and systems.

New Era Company details and a web address are provided below.

Business Owner and Manager *Miss Annika Kowalski* is open to contact form yourself should you wish to discuss any component of their engagement of provision of services as proposed and as per their inherent capability.

It is proposed that the Central Tablelands Local Land Services will enter into their own commercial agreement with New Era for funding payment for completed services.

Company Details
Owner/Manager: Annika Kowalski
Mobile: 0400 424 848
Email: annika@neweramsr.com.au
Website: neweramsr.com.au

Proposed Resource Sourcing

The following is proposed for the resource sourcing of materials and equipment for the project activities;

- *Eucalyptus aggregata plants sourced from both New Era and the Lithgow Community Nursery.* *(New Era has indicated they will have 1000 Eucalyptus aggregata tube stock plants ready for planting. It is proposed that Central Tablelands Local Land Services will engage the Lithgow Community Nursery for the supply of the balance of 1000 Eucalyptus aggregata tube stock plants in accordance with previous funding for seed collection and propagation to support Black Gum revegetation activities undertaken provided by Central Tablelands Local Land Services)*

- *If the supply of tube stock numbers cannot be achieved by either party it is proposed that an alternative will be agreed between parties.*

- *All other equipment, consumables, poisons, and materials to be provided by New Era.*

Proposed Activity Costs and Expense Partnering.

As communicated, a $10,000.00 funding grant is available this financial year for revegetation and is the current proposed partnering amount from the Central Tablelands Local Land Services. Centennial is committed not only to matching this value but also covering additional costs for the completion of proposed activities. Quotes have been received from New Era for the works as outlined above with details provided in Table 2 below. Copies of the quotes are provided in Attachment 3.

Table 2 – Proposed Black Gum Revegetation 2017 project activity costs

Stage	Item	Projected Cost (ex GST)	Funding Source
1	Site Preparation – Preliminary Weed Control	$4670.00	Centennial Coal
2	Site Preparation – Vegetation Management and Maintenance	$2900.00	Centennial Coal
3	Revegetation Planting of *Eucalyptus aggregata* seedlings.	$17500.00*	$10,000 = CTTS $7500 = Centennial Coal
3	Revegetation Maintenance, Monitoring and Reporting	$5400.00**	Centennial Coal ** Rabbit control costs TBA
	SUB TOTAL	$30,470.00	
	Contingency for variable site conditions & unidentified issues (15%)	$4570.50	Centennial Coal
	ESTIMATED TOTAL PROJECT COSTS	**$35045.50**	

Centennial Coal

** Scope for additional tree plantings (i.e. greater than 2000 units) exists as the New Era rate for planting 1 x unit = $7.95 ex GST includes supply of the Eucalyptus aggregata plant. Tube stock sourced from the Lithgow Community Nursery may or may not attract additional cost. It is also envisaged that provisioned contingency amounts could be expended on additional tree planting units pending site conditions and any unidentified issues.*

Summary & Scheduling

An opportunity for Centennial Coal – SCSO to partner with the Central Tablelands Local Land Services on the revegetation of Black Gum (*Eucalyptus aggregata)* in the Pipers Flat Creek area adjacent to Centennial's Lidsdale Siding Operation has been identified that can provide a positive net environmental outcome complimenting existing Centennial commitments to control Willows in the area.

Preliminary discussion between parties was undertaken at a meeting at the SCSO site on 06/02/17, and correspondence and information exchanged as detailed above with regards to partnering for activities.

An explanation of the works proposed, justifications for sole source provisioning, and estimated project costs with allocated funding sources has been provided as requested to the Central Tablelands Local Land Services as detailed above and in attachments to this correspondence.

To commence formal scheduling of these works, written formal agreement is sought from the Central Tablelands Local Land Services that supports the proposed activities, funding arrangements, and supports the notion that revegetation of *Eucalyptus aggregata* to provide a beneficial environmental outcome from the removals of Willow specimen removal (and the prevention of subsequent establishment of other weed species) via planting of suitable native species of tube stock via targeted revegetation is a viable and achievable outcome.

SCSO is pursing formal agreement to continue and expand on activities undertaken in 2016 in regards to Willow control with the relevant landholders, however considering this was granted last year this is perceived as an administrative process to be completed that is unlikely to prevent works commencing.

SCSO is proposing to commence activities in the very near term to allow a suitable period for site spraying and preparation to be undertaken that would still allow seedling planting within the autumn seasonal period.

If you have any questions, comments or wish to provide feedback or advice regarding any of the enclosed report, please contact myself via email at neil.thompson@centennialcoal.com.au.

Yours sincerely

Neil Thompson
Environmental & Community Coordinator
Springvale Coal Services
Centennial Coal

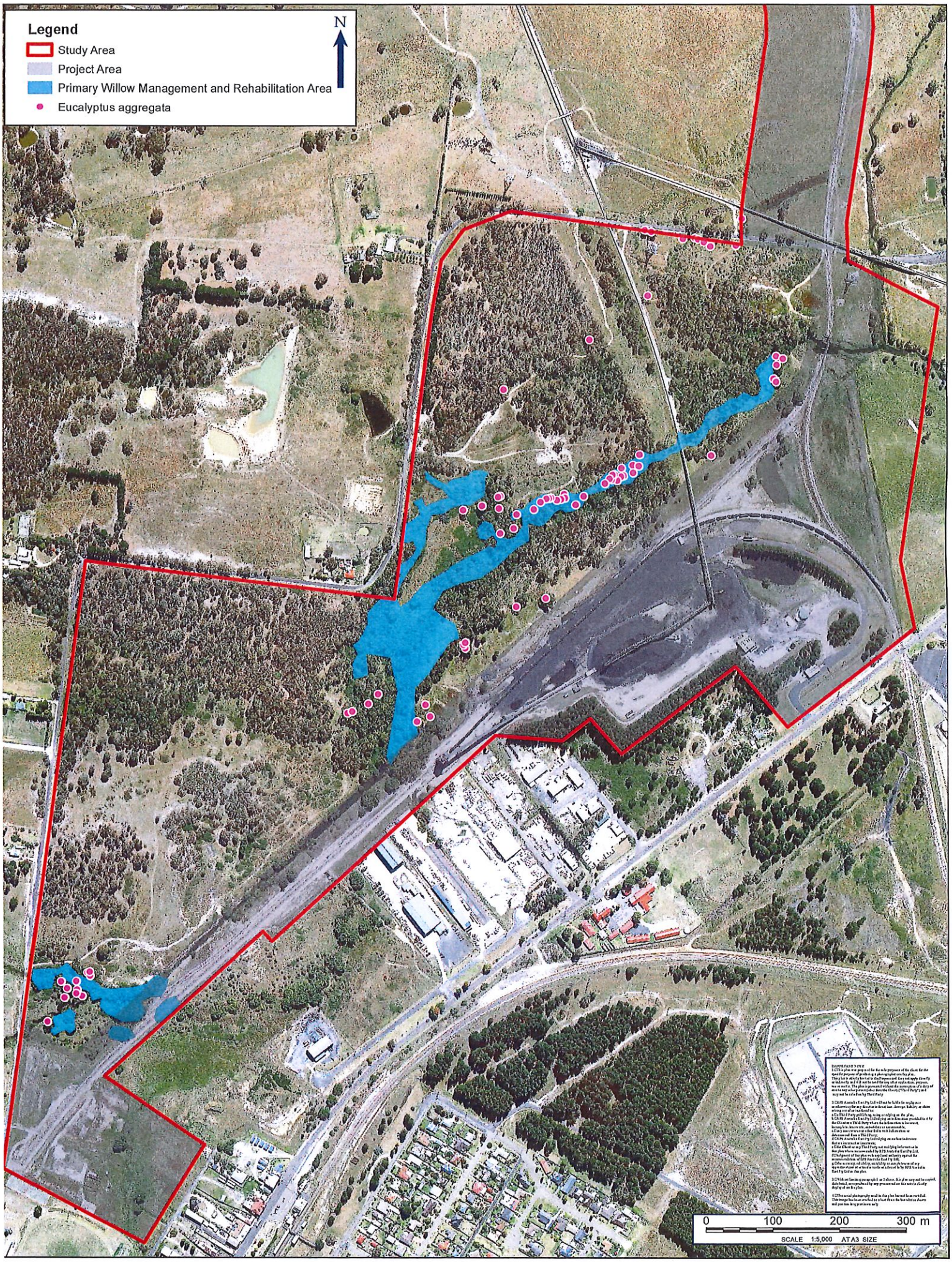
Centennial Coal

Attachment 1

Springvale Coal Pty Limited ABN 39 052 096 769

140 Main Street
Wallerawang NSW 2845
PO Box 198
Wallerawang NSW 2845 **Australia**

T 61 2 6355 9508
F 61 2 6355 1569
W www.centennialcoal.com.au



TITLE : **FIGURE 1: MANAGEMENT AREAS AND E. AGGREGATA LOCATIONS**

LOCATION : **LIDSDALE SLIDING**

DATUM:GDA 1994

PROJECTION: GDA 1994 MGA Zone 56

DATE : **5/24/2016**

PURPOSE: **ECOLOGY**

VERSION (PLAN BY):A A3 (amy.obrien)

CLIENT: **CENTENNIAL COAL**

JOB REF: **PR131268**

RPS AUSTRALIA EAST PTY LTD (ABN 44 140 292 762)
241 DENISON STREET BROADMEADOW PO BOX 428 HAMILTON NSW 2303
T: 02 4940 4200 F: 02 4961 6794 www.rpsgroup.com.au

RPS

PATH: J:\JOBS\Centennial\All Jobs\131268 Springvale Willow Tree Management\10 - Drafting\ArcGis Map Documents\Eco\131268 Designated Management Areas 20160524.mxd

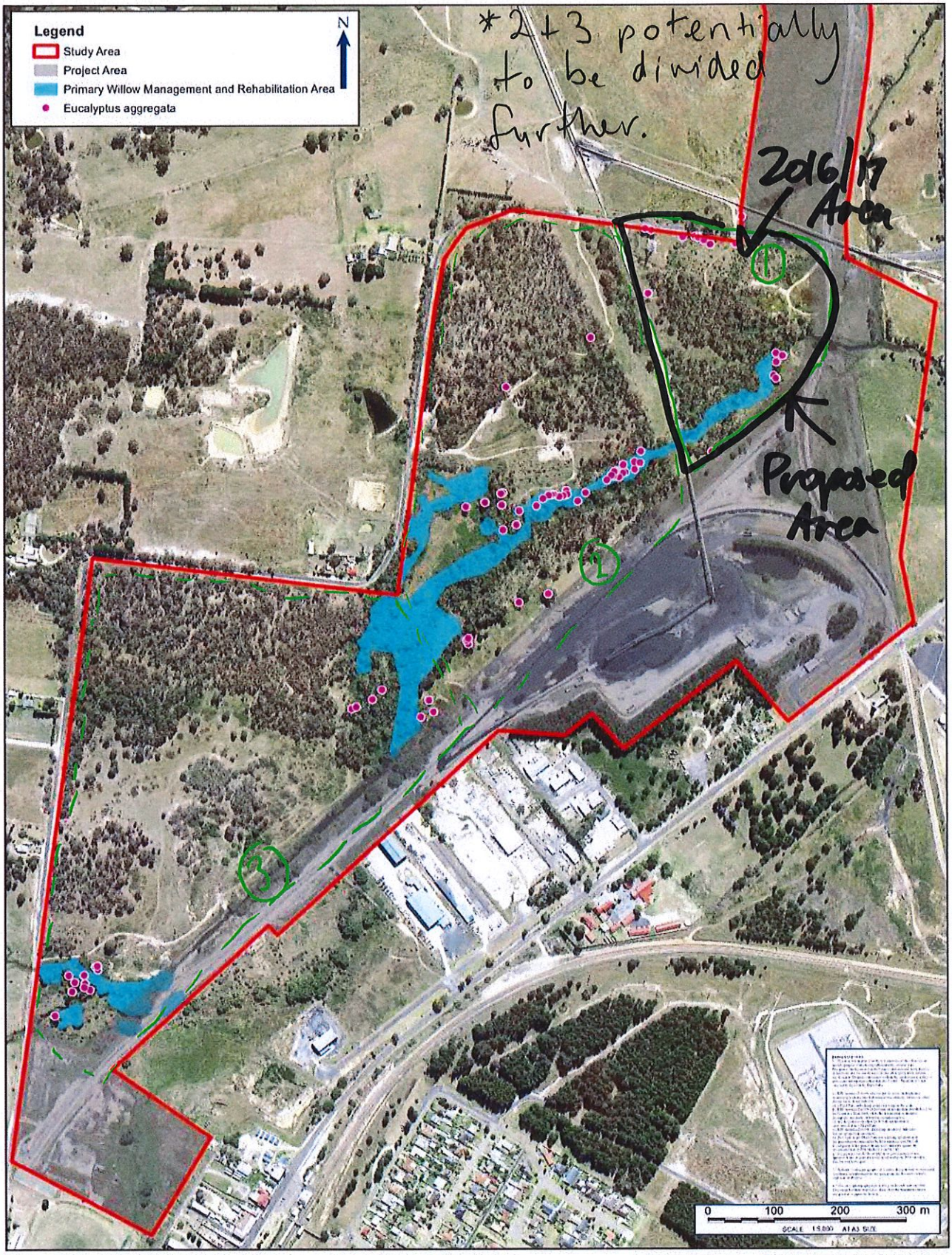
Centennial Coal

Attachment 2

Springvale Coal Pty Limited ABN 39 052 096 769

140 Main Street
Wallerawang NSW 2845
PO Box 198
Wallerawang NSW 2845 **Australia**

T 61 2 6355 9508
F 61 2 6355 1569
W www.centennialcoal.com.au



TITLE : FIGURE 1: MANAGEMENT AREAS AND E. AGGREGATA LOCATIONS	LOCATION : LIDSDALE SLIDING	DATUM:GDA 1994 PROJECTION: GDA 1994 MGA Zone 56	DATE : 5/24/2016 PURPOSE: ECOLOGY	VERSION (PLAN BY):A A3 (amy.obrien)

CLIENT: CENTENNIAL COAL
JOB REF: PR131268

RPS AUSTRALIA EAST PTY LTD (ABN 44 140 292 762)
241 DENISON STREET BROADMEADOW PO BOX 428 HAMILTON NSW 2303
T: 02 4940 4200 F: 02 4961 6794 www.rpsgroup.com.au

RPS

PATH: J:\JOBS\Centennial\All areas\131268 Spongwater Willow Tree Management\19 - Drafting\Arcgis Map Documents\Eco\131268 Designated Management Areas 20160524.mxd

Centennial Coal

Attachment 3

Springvale Coal Pty Limited ABN 39 052 096 769

140 Main Street
Wallerawang NSW 2845
PO Box 198
Wallerawang NSW 2845 **Australia**

T 61 2 6355 9508
F 61 2 6355 1569
W www.centennialcoal.com.au

New Era Mine Site Revegetation
ABN 51606710687
10 Lime Street
PORTLAND, NSW 2847
Tel. 0400424848

Neil Thompson
Centennial Springvale Coal Pty Ltd.
Locked Bag 1002
WALLERAWANG NSW 2845

CUSTOMER QUOTATION NO. 1243

Site: Springvale Coal Services
Date: 06/02/2017
Valid For: 30 Day(s)

Price per plant for tubestock planting, this can be adapted to suit each job.

Included in tubestock planting is

- Hole dug to plant specifications using powered auger
- Supply and install tubestock
- Supply and install tree guard green corfulte 1 Hardwood Stake/Black mesh Kangaroo guards also available at additional cost
- Supply and install soil conditioner
- Supply and install weed mat
- Supply and install water crystals
- Supply and install fertiliser tablet 10g

Item	Quantity	Unit Price	Total
Guard Set Installation (Per Guard)	1.00	$0.80	$0.80
Soil Conditioner Application (Per Plant)	1.00	$0.05	$0.05
Tubestock Planting (Per Tree)	1.00	$1.40	$1.40
Weed mat Installation (Per Weed mat)	1.00	$0.70	$0.70
Tubestock Assorted	1.00	$2.20	$2.20
Tree Guard Green Corfulte with 1 Hardwood Stake	1.00	$1.85	$1.85
Water Crystals	1.00	$0.05	$0.05
Fertiliser Tablets 10g	1.00	$0.30	$0.30
Weed Mats	1.00	$0.60	$0.60

Thank you.

Sub-Total ex GST	$7.95
GST	$0.80
Total inc GST	$8.75

New Era Mine Site Revegetation
ABN 51606710687
10 Lime Street
PORTLAND, NSW 2847
Tel. 0400424848

Neil Thompson
Centennial Ivanhoe Pty Ltd
Locked Bag 1002
WALLERAWANG NSW 2845

CUSTOMER QUOTATION NO. 1294

Site: Lidsdale Siding
Date: 16/03/2017
Valid For: 30 Day(s)

Stage 1. Blackberry Control

- 2 x Days of spraying = 40 hours of labour
- Herbicide 20L (Woody)
- Reporting

Item	Quantity	Unit Price	Total
Hourly Rate - Weed Control Services (inclusive of vehicle, 2 qualified operators, specialised spray unit, fully OH&S compliant PPE as required by WorkCover).	20.00	$200.00	$4,000.00
Hourly Rate - Specialist Consulting and Reporting	2.00	$90.00	$180.00
Herbicide 20L (Woody)	1.00	$490.00	$490.00

Thank you.

Sub-Total ex GST	$4,670.00
GST	$467.00
Total inc GST	$5,137.00

This is a Claim Under the Construction Contracts Act 2002

How To Pay

QUOTATION NO. 1294

Direct Deposit

Bank	**ANZ**
Acc. Name	**New Era MSR**
BSB	**012520**
Acc. No.	**295172124**

New Era Mine Site Revegetation
ABN 51606710687
10 Lime Street
PORTLAND, NSW 2847
Tel. 0400424848

Neil Thompson
Centennial Ivanhoe Pty Ltd
Locked Bag 1002
WALLERAWANG NSW 2845

CUSTOMER QUOTATION NO. 1295

Site: Lidsdale Siding
Date: 16/03/2017
Valid For: 30 Day(s)

Stage 2 - Vegetation Management and Removal of Blackberries

- 2 x Days of Bobcat and Operator = 20 hours of labour with bobcat
- 2 x Days of specialized slasher and operator = 20 hours of labour with slasher

Item	Quantity	Unit Price	Total
Hourly Rate - Diesel Tracked Bobcat (inclusive of operator & fuel)	20.00	$95.00	$1,900.00
Daily Rate - Specialist Slasher (inclusive of operator & fuel)	2.00	$500.00	$1,000.00

Thank you.

Sub-Total ex GST	$2,900.00
GST	$290.00
Total inc GST	$3,190.00

This is a Claim Under the Construction Contracts Act 2002

How To Pay

QUOTATION NO. 1295

Direct Deposit

Bank	**ANZ**
Acc. Name	**New Era MSR**
BSB	**012520**
Acc. No.	**295172124**

New Era Mine Site Revegetation
ABN 51606710687
10 Lime Street
PORTLAND, NSW 2847
Tel. 0400424848

Neil Thompson
Centennial Ivanhoe Pty Ltd
Locked Bag 1002
WALLERAWANG NSW 2845

CUSTOMER QUOTATION NO. 1296

Site: Lidsdale Siding
Date: 16/03/2017
Valid For: 30 Day(s)

Stage 4 - Follow Up Maintenance

Carry out monthly maintenance includes -
- 10 hours of Labour Per Month
- Weed Control - Weeding & Spraying as required
- Tree Guard Maintenance
- Watering
- Photographs & Reporting

Item	Quantity	Unit Price	Total
Follow Up Maintenance Labour	10	$60.00	$600.00

Thank you.

Sub-Total ex GST	$600.00
GST	$60.00
Total inc GST	$660.00

This is a Claim Under the Construction Contracts Act 2002

How To Pay

QUOTATION NO. 1296

Direct Deposit

Bank	**ANZ**
Acc. Name	**New Era MSR**
BSB	**012520**
Acc. No.	**295172124**

Local Land Services
Central Tablelands

31 May 2017

Centennial Coal
c/- Neil Thompson
140 Main Street
Wallerawang NSW 2845

RE: Partner project for Black Gum Revegetation – Pipers Flat Creek

Dear Neil

In response to your letter dated 16 March 2017, Central Tablelands Local Land Services supports the proposed activities and funding arrangements outlined in your proposal.

Central Tablelands Local Land Services supports the notion that revegetation of Black Gum *(Eucalyptus aggregata)* is a viable and achievable environmental outcome along Pipers Flat Creek following your work to control willows.

Planting of suitable native species tube stock via targeted revegetation is a best practice restoration approach after willow and weed removal. Introducing competition from native species and ongoing monitoring and treatment of infestations should assist in preventing subsequent establishment of other weed species.

We also support the willow poisoning control method described in your letter as damage to mature Black Gum trees, riparian vegetation, stream bed and stream banks is a risk if an excavator was to be used to remove established willows.

We are pleased that weed control and revegetation works have progressed significantly and look forward to working on a second stage of the Black Gum revegetation project with you in the 2017-18 financial year.

Kind regards,

Clare Kerr

Acting Project Manager – Targeted Ecosystems

Central Tablelands Local Land Services
66 Corporation Avenue
Bathurst NSW 2795
Tel: 02 6333 2300

CENTENNIAL COAL-Ivanhoe Pty Ltd

Quality Assurance Report

Maintenance #1

Date: 03/08/2017

Brief: Revegetation and maintenance for Willow Control areas and Black Gum plantings and habitat.

Purchase Order: IV102696

Quote Number: 1296

Job Number: 2405

Invoice Number: 4364

1.0 Work completed in this report includes the following:

1.1 Guard maintenance was completed. Minimal guards required replacing or maintenance.

1.2 Monitoring of all plants was set up and labelled with metal tags stating the quantity of plants in each row and how many fatalities there were with the date.

Black Gum Stage 1 – PLANT MONITORING #1

MOUND	EXISTING PLANTS	DEAD PLANTS
1	88	8
2	18	0
3	60	4
4	63	1
5	55	1
6	24	1
7	71	0
8	31	0

ROW	EXISTING PLANTS	DEAD PLANTS	ROW	EXISTING PLANTS	DEAD PLANTS
1	33	4	**19**	48	8
2	30	2	**20**	49	9
3	31	2	**21**	44	15
4	27	2	**22**	47	8
5	29	3	**23**	40	8
6	28	1	**24**	44	4
7	28	0	**25**	71	4
8	29	0	**26**	26	2
9	33	1	**27**	25	5
10	31	2	**28**	26	4
11	31	0	**29**	26	4
12	33	1	**30**	26	2
13	36	0	**31**	24	2
14	24	0	**32**	21	1
15	39	1	**33**	21	2
16	35	2	**34**	30	2
17	42	0	**35**	21	1
18	45	1	**36**	22	0
TOTAL PLANT FATALITIES = 118					

2.0 Project Photographs

Figures 1 & 2: Original plants planted 6 weeks ago

Figures 3 & 8: Current growth of plants after 6 weeks

Figures 9 - 14: Before and after guard replacements

3.0 Summary

3.1 The job was completed in accordance with all Safe Operating Procedures, Job Safety Analysis, and OHS policies. No incidents occurred and work in the project areas is completed with a high standard of work.

4.0 Work Signed Off By:

Annika Kowalski Kowalski

Date:

9th August, 2017

CENTENNIAL COAL-Ivanhoe Pty Ltd

Quality Assurance Report

Maintenance #2

Date: 14/09/2017

Brief: Revegetation and maintenance for Willow Control areas and Black Gum plantings and habitat.

Purchase Order: IV102696

Quote Number: 1296

Job Number: 2443

Invoice Number: 4380

1.0 Work completed in this report includes the following:

1.1 All plants were checked and watered. The results of the monitoring are recorded on the following page.

1.2 191 plants were found to be unsuccessful, these were replaced.
Most of the unsuccessful plants were guarded with the black kangaroo guards indicating these potentially were frosted due to the guards not providing the level of protection that the green guards provide.
3 green guards were replaced and kangaroo guard stakes were fixed as required, with additional stakes added for strength.
It was noted that the hardwood stakes on many of the kangaroo guards had been removed from site. These were replaced.

1.3 All plant numbers were added to the metal tags stating the quantity of fatalities found with the date.

A total of 9000L water was applied to the trees.

Weed and grass growth was observed to be minimal due to the dry weather and severe frosts.

Any plants with some green leaves were left as they may reshoot if more desirable conditions occur.

Black Gum Stage 1 –
PLANT MONITORING #2

MOUND	EXISTING PLANTS	DEAD PLANTS		
		Aug	Sep	TOTAL
1	88	8	2	10
2	18	0	0	0
3	60	4	2	6
4	63	1	0	1
5	55	1	0	1
6	24	1	0	1
7	71	0	1	1
8	31	0	0	0

ROW	EXISTING PLANTS	DEAD PLANTS			ROW	EXISTING PLANTS	DEAD PLANTS		
		Aug	Sep	TOTAL			Aug	Sep	TOTAL
1	33	4	1	5	**19**	48	8	0	8
2	30	2	3	5	**20**	49	9	2	11
3	31	2	3	5	**21**	44	15	14	29
4	27	2	0	2	**22**	47	8	13	21
5	29	3	2	5	**23**	40	8	3	11
6	28	1	0	1	**24**	44	4	7	11
7	28	0	0	0	**25**	71	4	3	7
8	29	0	0	0	**26**	26	2	0	2
9	33	1	0	1	**27**	25	5	0	5
10	31	2	1	3	**28**	26	4	4	8
11	31	0	0	0	**29**	26	4	1	5
12	33	1	1	2	**30**	26	2	2	4
13	36	0	0	0	**31**	24	2	2	4
14	24	0	0	0	**32**	21	1	2	3
15	39	1	1	2	**33**	21	2	0	2
16	35	2	0	2	**34**	30	2	1	3
17	42	0	2	2	**35**	21	1	0	1
18	45	1	0	1	**36**	22	0	0	0
TOTAL PLANT FATALITIES							**118**	**73**	**191**

2.0 Project Photographs

July

August

September

Before and After sticks removed from plants

Before and After weeds were removed from pants

Before and after kangaroo guard stakes were replaced

Before and after green guard were replaced

New Era Worker ready to plant tube stock

Fertilising tablet being placed in hole

3.0 Summary

3.1 The job was completed in accordance with all Safe Operating Procedures, Job Safety Analysis, and OHS policies. No incidents occurred and work in the project areas is completed with a high standard of work.

4.0 Work Signed Off By:

Annika Kowalski Kowalski

Date:

27/09/2017

CENTENNIAL COAL-Ivanhoe Pty Ltd

Quality Assurance Report

Maintenance #3

Date: 10/10/2017

Brief: Revegetation and maintenance for Willow Control areas and Black Gum plantings and habitat.

Purchase Order: IV102696

Quote Number: 1296

Job Number: 2466

Invoice Number: 4380

1.0 Work completed in this report includes the following:

1.1 All plants were checked, weeded, guards were maintained, and plants were well watered. The results of the monitoring are recorded on the following page. During this maintenance no plants were replaced, some plants were found to be showing signs of stress and will be replaced at the next maintenance if required. A total of 10,800L of water was applied to the trees.

Weed growth had increased in the area, and brush cutting and mowing around the trees will be incorporated into the future maintenances.

Any plants with some green leaves were left as they may reshoot if more desirable conditions occur.

Black Gum
Monitoring #3

MOUND	EXISTING PLANTS	DEAD PLANTS			
		Aug	Sep	Oct	TOTAL
1	88	8	2	0	10
2	18	0	0	0	0
3	60	4	2	0	6
4	63	1	0	0	1
5	55	1	0	0	1
6	24	1	0	0	1
7	71	0	1	0	1
8	31	0	0	0	0

ROW	EXISTING PLANTS	DEAD PLANTS				ROW	EXISTING PLANTS	DEAD PLANTS			
		Aug	Sep	Oct	TOTAL			Aug	Sep	Oct	TOTAL
1	33	4	1	0	5	**19**	48	8	0	0	8
2	30	2	3	0	5	**20**	49	9	2	0	11
3	31	2	3	0	5	**21**	44	15	14	0	29
4	27	2	0	0	2	**22**	47	8	13	0	21
5	29	3	2	0	5	**23**	40	8	3	0	11
6	28	1	0	0	1	**24**	44	4	7	0	11
7	28	0	0	0	0	**25**	71	4	3	0	7
8	29	0	0	0	0	**26**	26	2	0	0	2
9	33	1	0	0	1	**27**	25	5	0	0	5
10	31	2	1	0	3	**28**	26	4	4	0	8
11	31	0	0	0	0	**29**	26	4	1	0	5
12	33	1	1	0	2	**30**	26	2	2	0	4
13	36	0	0	0	0	**31**	24	2	2	0	4
14	24	0	0	0	0	**32**	21	1	2	0	3
15	39	1	1	0	2	**33**	21	2	0	0	2
16	35	2	0	0	2	**34**	30	2	1	0	3
17	42	0	2	0	2	**35**	21	1	0	0	1
18	45	1	0	0	1	**36**	22	0	0	0	0
	TOTAL PLANT FATALITIES							**118**	**73**	**0**	**191**

2.0 Project Photographs

August

September

July

October

All plants were well watered with the use of the Hydromulcher tank and watering wand

All guards were maintained and reinstated were required

All plants were weeded within their guards

All plants were weeded within their guards

All guards were maintained and reinstated were required

All plants were weeded within their guards were maintained and reinstated were required

3.0 Summary

3.1 The job was completed in accordance with all Safe Operating Procedures, Job Safety Analysis, and OHS policies. No incidents occurred and work in the project areas is completed with a high standard of work.

4.0 Work Signed Off By:

Annika Kowalski Kowalski

Date:
10/10/2017

CENTENNIAL COAL IVANHOE

Quality Assurance Report

Piper's Flat Creek Willow Control **NOVEMBER REPORT**

Date: November 2017

Brief: Willow Control along Piper's Flat Creek, Lidsdale - 2017 Q4 Program October 2017

Purchase Order: IV102796

Quote Number: N/A

Job Number: #2480

Invoice Number: #4417

1.0 Location:

The work area extended approximately 1km along Pipers' Flat Creek. Starting at the TLO Stockpile, running parallel to the railway tracks at Lidsdale siding for several hundred meters between the confines of Brays Lane with worksites on both sides of the riverbank.

2.0 Scope of Works:

The purpose of this project was to eliminate invasive Willow trees completely from the river bank parallel to Lidsdale Siding. The primary goal of the project was to drastically reduce the population of Willow within approximately a one-month period. Secondary goals included: Clearing access to willow trees for the purpose treatment and subsequent inspection; Tagging and Cataloguing trees which have been treated; Tagging and cataloguing trees which cannot be reached by foot; Identifying suitable locations for tree planting.

3.0 Work completed in this report includes the following:

Systematic tree injection of Willow trees along the Piper's Flat Creek, adjacent to Lidsdale Siding as part of the Black Gum Project.

Treated trees have been identified, recorded and injected.

Any trees which were not accessible have been recorded and will be revisited later.

GPS Coordinates have been logged and are included in appendix of report.

Brush cutting was carried out as required to gain access to the areas.

A total of 1054 Willow trees have been injected.

4.0 Project Photographs

Full PPE worn at all times

Some branches & trees which are not accesible will be controlled at a later date.

Signs of dieback within days of injection

The team used various marking techniques on the trees to ensure completeness

Tree trunk after injection

These areas are to be slashed to gain access to the last of the willows

October Time Log

Total = 340 hours completed in Nov

Pending Schedule to be completed before commencing December Schedule

Total = 110 hours to be made up

Grand total = 450 hours

5.0 Summary

5.1 The job was completed in accordance with all Safe Operating Procedures, Job Safety Analysis, and OHS policies. No incidents occurred and work in the project areas is completed with a high standard of work.

6.0 Work Signed Off By:

Annika Kowalski Kowalski

Date:

5th December 2017

Appendix

GPS Coordinates:

Willow No	South	East	Elevation
WP1	34.1098	-117.8260	901.0005
WP10	-33.4020	150.0695	877.0007
WP100	-33.4009	150.0696	886.0006
WP1000	-33.4042	150.0646	891.7001
WP1001	-33.4042	150.0644	901.4008
WP1002	-33.4042	150.0644	901.0005
WP1003	-33.4042	150.0644	900.0008
WP1004	-33.4043	150.0644	894.8009
WP1005	-33.4042	150.0643	895.0001
WP1006	-33.4042	150.0643	894.9005
WP1007	-33.4042	150.0643	895.0005
WP1008	-33.4042	150.0643	895.1005
WP1009	-33.4042	150.0643	895.1007
WP101	-33.4009	150.0696	886.0006
WP1010	-33.4042	150.0643	895.2002
WP1011	-33.4042	150.0643	895.0003
WP1012	-33.4042	150.0643	895.1007
WP1013	-33.4043	150.0641	890.0006
WP1014	-33.4043	150.0641	891.0002
WP1015	-33.4043	150.0641	891.0001
WP1016	-33.4043	150.0641	889.6004
WP1017	-33.4043	150.0641	889.5008
WP1018	-33.4043	150.0641	889.3007
WP1019	-33.4042	150.0641	888.6006
WP102	-33.4009	150.0696	886.0009
WP1020	-33.4042	150.0641	887.8002
WP1021	-33.4042	150.0641	887.6009
WP1022	-33.4042	150.0642	885.6001
WP1023	-33.4042	150.0641	884.5001
WP1024	-33.4042	150.0641	884.3005
WP1025	-33.4042	150.0641	884.2001
WP1026	-33.4042	150.0641	884.1008
WP1027	-33.4042	150.0641	884.0002
WP1028	-33.4042	150.0641	884.2005
WP1029	-33.4042	150.0641	884.3001
WP103	-33.4009	150.0696	888.500
WP1030	-33.4042	150.0641	884.320
WP1031	-33.4042	150.0641	884.360
WP1032	-33.4042	150.0641	884.420
WP1033	-33.4042	150.0641	884.430
WP1034	-33.4042	150.0641	884.500
WP1035	-33.4042	150.0641	884.550
WP1036	-33.4042	150.0641	884.550
WP1037	-33.4042	150.0641	884.505
WP1038	-33.4042	150.0641	884.508
WP1039	-33.4042	150.0641	884.508
WP104	-33.4020	150.0696	884.807
WP1040	-33.4042	150.0641	884.507
WP1041	-33.4042	150.0641	884.504
WP1042	-33.4042	150.0642	880.904
WP1043	-33.4042	150.0642	881.803
WP1044	-33.4042	150.0642	882.404
WP1045	-33.4041	150.0642	882.007
WP1046	-33.4041	150.0642	882.903
WP1047	-33.4041	150.0642	883.604
WP1048	-33.4041	150.0642	883.806
WP1049	-33.4041	150.0642	883.009
WP105	-33.4020	150.0696	884.906
WP1050	-33.4041	150.0645	893.605
WP1051	-33.4041	150.0645	893.503
WP1052	-33.4041	150.0645	893.005
WP1053	-33.4043	150.0650	886.606
WP106	-33.4020	150.0696	885.003
WP107	-33.4020	150.0696	882.906
WP108	-33.4020	150.0696	882.907
WP109	-33.4020	150.0696	882.909
WP11	-33.4020	150.0695	878.007
WP110	-33.4020	150.0696	883.001
WP111	-33.4020	150.0695	883.008
WP112	-33.4020	150.0695	883.008
WP113	-33.4020	150.0695	883.008
WP114	-33.4020	150.0696	879.306
WP115	-33.4019	150.0696	890.803
WP116	-33.4019	150.0696	889.607
WP117	-33.4018	150.0695	883.409
WP118	-33.4018	150.0695	883.407
WP119	-33.4019	150.0695	876.002
WP12	-33.4020	150.0695	878.806

WP120	-33.4019	150.0695	876.101
WP121	-33.4019	150.0695	876.306
WP122	-33.4019	150.0695	876.604
WP123	-33.4019	150.0695	876.806
WP124	-33.4019	150.0695	876.900
WP125	-33.4019	150.0695	877.007
WP126	-33.4019	150.0695	877.204
WP127	-33.4019	150.0695	877.308
WP128	-33.4018	150.0695	876.603
WP129	-33.4018	150.0695	876.802
WP13	-33.4020	150.0695	879.000
WP130	-33.4023	150.0690	0
WP131	-33.4018	150.0696	875.85
WP132	-33.4018	150.0696	875.85
WP133	-33.4018	150.0696	875.84
WP134	-33.4018	150.0696	875.84
WP135	-33.4018	150.0696	875.86
WP136	-33.4018	150.0696	875.91
WP137	-33.4018	150.0696	875.95
WP138	-33.4018	150.0696	876.02
WP139	-33.4018	150.0696	876.11
WP14	-33.4020	150.0695	880.10
WP140	-33.4018	150.0696	876.15
WP141	-33.4018	150.0696	876.23
WP142	-33.4018	150.0696	876.30
WP143	-33.4018	150.0696	876.37
WP144	-33.4018	150.0696	876.43
WP145	-33.4018	150.0696	876.50
WP146	-33.4018	150.0696	876.55
WP147	-33.4018	150.0696	876.60
WP148	-33.4018	150.0696	876.63
WP149	-33.4018	150.0696	876.45
WP15	-33.4020	150.0695	880.50
WP150	-33.4018	150.0696	876.64
WP151	-33.4018	150.0696	877.96
WP152	-33.4018	150.0695	878.77
WP153	-33.4018	150.0697	873.07
WP154	-33.4019	150.0696	885.68
WP155	-33.4019	150.0696	885.63
WP156	-33.4019	150.0696	885.57
WP157	-33.4019	150.0696	885.56
WP158	-33.4019	150.0696	885.57
WP159	-33.4019	150.0696	885.59
WP16	-33.4020	150.0695	880.60
WP160	-33.4017	150.0698	890.79
WP161	-33.4017	150.0698	890.75
WP162	-33.4017	150.0698	890.69
WP163	-33.4017	150.0699	884.20
WP164	-33.4017	150.0701	896.89
WP165	-33.4017	150.0700	887.70
WP166	-33.4017	150.0700	889.50
WP167	-33.4015	150.0700	890.76
WP168	-33.4015	150.0700	890.71
WP169	-33.4015	150.0700	890.67
WP17	-33.4020	150.0695	880.70
WP170	-33.4015	150.0700	890.63
WP171	-33.4015	150.0700	890.59
WP172	-33.4015	150.0700	885.30
WP173	-33.4015	150.0700	886.40
WP174	-33.4015	150.0701	882.40
WP175	-33.4015	150.0701	881.30
WP176	-33.4015	150.0701	881.03
WP177	-33.4014	150.0701	886.40
WP178	-33.4014	150.0701	885.70
WP179	-33.4014	150.0700	885.40
WP18	-33.4020	150.0695	880.90
WP180	-33.4014	150.0701	883.91
WP181	-33.4014	150.0701	883.89
WP182	-33.4014	150.0701	883.87
WP183	-33.4014	150.0701	883.85
WP184	-33.4014	150.0701	883.84
WP185	-33.4014	150.0701	883.83
WP186	-33.4013	150.0702	891.55
WP187	-33.4013	150.0702	891.55
WP188	-33.4013	150.0702	891.55
WP189	-33.4013	150.0702	891.55
WP19	-33.4020	150.0694	881.20
WP190	-33.4012	150.0702	886.35
WP191	-33.4012	150.0701	886.51
WP192	-33.4012	150.0701	887.45
WP193	-33.4012	150.0701	887.50
WP194	-33.4012	150.0701	887.57
WP195	-33.4012	150.0702	884.40
WP196	-33.4012	150.0702	884.53
WP197	-33.4012	150.0702	888.80
WP198	-33.4012	150.0702	888.65
WP199	-33.4012	150.0702	888.76
WP2	34.1098	-117.826	0
WP20	-33.4021	150.0694	881.40
WP200	-33.4012	150.0702	889.05
WP201	-33.4012	150.0702	889.30
WP202	-33.4012	150.0702	889.59
WP203	-33.4012	150.0702	889.85
WP204	-33.4012	150.0702	890.15

WP205	-33.4012	150.0702	891.35
WP206	-33.4012	150.0702	885.80
WP207	-33.4025	150.0684	887.60
WP208	-33.4025	150.0684	885.00
WP209	-33.4025	150.0684	884.75
WP21	-33.4021	150.0694	882.20
WP210	-33.4025	150.0684	884.49
WP211	-33.4025	150.0684	884.45
WP212	-33.4025	150.0684	884.36
WP213	-33.4026	150.0684	884.03
WP214	-33.4026	150.0684	883.69
WP215	-33.4026	150.0684	883.41
WP216	-33.4026	150.0684	883.15
WP217	-33.4026	150.0684	883.00
WP218	-33.4026	150.0684	882.97
WP219	-33.4026	150.0684	882.89
WP22	-33.4021	150.0694	882.30
WP220	-33.4025	150.0682	877.04
WP221	-33.4025	150.0682	876.76
WP222	-33.4026	150.0682	877.10
WP223	-33.4026	150.0682	877.15
WP224	-33.4026	150.0682	877.25
WP225	-33.4026	150.0682	877.42
WP226	-33.4026	150.0682	877.61
WP227	-33.4026	150.0682	877.87
WP228	-33.4026	150.0682	878.09
WP229	-33.4026	150.0682	878.23
WP23	-33.4020	150.0695	887.51
WP230	-33.4026	150.0682	878.40
WP231	-33.4026	150.0682	878.58
WP232	-33.4026	150.0682	878.83
WP233	-33.4026	150.0682	879.12
WP234	-33.4026	150.0682	881.40
WP235	-33.4026	150.0682	881.62
WP236	-33.4026	150.0682	882.08
WP237	-33.4026	150.0682	882.17
WP238	-33.4026	150.0682	888.31
WP239	-33.4026	150.0682	888.29
WP24	-33.4020	150.0695	887.51
WP240	-33.4026	150.0682	888.28
WP241	-33.4027	150.0681	881.30
WP242	-33.4027	150.0681	881.00
WP243	-33.4027	150.0681	880.88
WP244	-33.4027	150.0681	880.85
WP245	-33.4027	150.0681	880.90
WP246	-33.4027	150.0681	880.94
WP247	-33.4027	150.0681	880.97
WP248	-33.4027	150.0681	881.01
WP249	-33.4027	150.0681	881.25
WP25	-33.4020	150.0695	887.52
WP250	-33.4027	150.0681	881.35
WP251	-33.4027	150.0681	881.39
WP252	-33.4027	150.0681	881.44
WP253	-33.4027	150.0681	881.42
WP254	-33.4027	150.0681	880.30
WP255	-33.4027	150.0681	879.88
WP256	-33.4027	150.0681	879.88
WP257	-33.4027	150.0681	882.42
WP258	-33.4027	150.0681	882.35
WP259	-33.4027	150.0681	882.32
WP26	-33.4020	150.0695	887.52
WP260	-33.4027	150.0681	882.30
WP261	-33.4027	150.0681	882.25
WP262	-33.4027	150.0681	882.23
WP263	-33.4027	150.0681	882.22
WP264	-33.4027	150.0681	882.19
WP265	-33.4027	150.0681	882.16
WP266	-33.4027	150.0681	882.12
WP267	-33.4027	150.0681	882.10
WP268	-33.4027	150.0681	882.08
WP269	-33.4027	150.0678	877.88
WP27	-33.4019	150.0695	883.67
WP270	-33.4027	150.0678	877.75
WP271	-33.4027	150.0678	877.97
WP272	-33.4027	150.0679	878.14
WP273	-33.4028	150.0680	879.00
WP274	-33.4029	150.0679	883.80
WP275	-33.4029	150.0679	883.55
WP276	-33.4029	150.0679	883.38
WP277	-33.4029	150.0679	883.35
WP278	-33.4029	150.0679	878.20
WP279	-33.4029	150.0679	878.10
WP28	-33.4019	150.0695	883.67
WP280	-33.4029	150.0679	878.20
WP281	-33.4029	150.0679	878.33
WP282	-33.4029	150.0679	878.42
WP283	-33.4029	150.0678	881.20
WP284	-33.4029	150.0678	881.48
WP285	-33.4029	150.0678	881.66
WP286	-33.4029	150.0678	881.73
WP287	-33.4029	150.0678	881.82
WP288	-33.4029	150.0678	881.87
WP289	-33.4029	150.0678	881.96
WP29	-33.4019	150.0695	883.66

WP290	-33.4029	150.0678	881.98
WP291	-33.4029	150.0678	881.95
WP292	-33.4031	150.0675	881.42
WP293	-33.4031	150.0675	881.39
WP294	-33.4033	150.0675	882.86
WP295	-33.4033	150.0675	883.67
WP296	-33.4034	150.0674	879.33
WP297	-33.4034	150.0674	879.54
WP298	-33.4034	150.0674	879.71
WP299	-33.4034	150.0674	880.09
WP3	-33.4016	150.0696	871.58
WP30	-33.4019	150.0695	883.69
WP300	-33.4034	150.0674	881.85
WP301	-33.4035	150.0673	882.15
WP302	-33.4034	150.0672	877.80
WP303	-33.4032	150.0676	877.38
WP304	-33.4032	150.0676	877.46
WP305	-33.4032	150.0676	877.54
WP306	-33.4032	150.0676	877.61
WP307	-33.4032	150.0676	877.73
WP308	-33.4032	150.0676	877.84
WP309	-33.4032	150.0676	877.93
WP31	-33.4005	150.0702	887.55
WP310	-33.4032	150.0676	878.00
WP311	-33.4032	150.0676	878.05
WP312	-33.4032	150.0676	878.08
WP313	-33.4032	150.0676	878.12
WP314	-33.4032	150.0676	878.39
WP315	-33.4031	150.0677	885.73
WP316	-33.4031	150.0677	885.75
WP317	-33.4031	150.0677	885.74
WP318	-33.4031	150.0677	885.67
WP319	-33.4031	150.0677	885.61
WP32	-33.4005	150.0702	887.64
WP320	-33.4031	150.0677	885.56
WP321	-33.4031	150.0677	885.54
WP322	-33.4031	150.0677	885.51
WP323	-33.4031	150.0677	885.50
WP324	-33.4031	150.0677	885.47
WP325	-33.4030	150.0678	884.34
WP326	-33.4030	150.0678	884.36
WP327	-33.4030	150.0678	884.36
WP328	-33.4030	150.0678	884.36
WP329	-33.4030	150.0677	887.69
WP33	-33.4005	150.0702	886.34
WP330	-33.4030	150.0677	887.78
WP331	-33.4030	150.0677	887.83
WP332	-33.4030	150.0677	887.83
WP333	-33.4029	150.0682	878.21
WP334	-33.4030	150.0682	888.80
WP335	-33.4030	150.0682	888.70
WP336	-33.4030	150.0682	888.75
WP337	-33.4030	150.0682	888.96
WP338	-33.4030	150.0682	888.75
WP339	-33.4029	150.0683	885.98
WP34	-33.4005	150.0702	886.48
WP340	-33.4029	150.0683	886.13
WP341	-33.4029	150.0683	886.15
WP342	-33.4029	150.0683	886.17
WP343	-33.4029	150.0683	886.19
WP344	-33.4029	150.0683	886.21
WP345	-33.4029	150.0679	885.77
WP346	-33.4029	150.0679	885.52
WP347	-33.4030	150.0679	872.30
WP348	-33.4030	150.0679	872.75
WP349	-33.4030	150.0679	872.76
WP35	-33.4005	150.0702	886.65
WP350	-33.4030	150.0679	872.94
WP351	-33.4030	150.0679	873.05
WP352	-33.4030	150.0679	873.28
WP353	-33.4025	150.0687	891.50
WP354	-33.4025	150.0687	890.52
WP355	-33.4025	150.0687	889.91
WP356	-33.4025	150.0686	888.51
WP357	-33.4025	150.0686	888.26
WP358	-33.4025	150.0686	887.91
WP359	-33.4025	150.0686	887.71
WP36	-33.4005	150.0702	886.67
WP360	-33.4025	150.0686	886.67
WP361	-33.4025	150.0686	886.38
WP362	-33.4011	150.0701	883.01
WP363	-33.4011	150.0701	883.00
WP364	-33.4011	150.0701	883.08
WP365	-33.4011	150.0701	883.10
WP366	-33.4044	150.0660	881.50
WP367	-33.4044	150.0658	883.82
WP368	-33.4044	150.0658	883.83
WP369	-33.4044	150.0658	883.83
WP37	-33.4004	150.0702	886.35
WP370	-33.4045	150.0659	880.37
WP371	-33.4044	150.0658	875.42
WP372	-33.4044	150.0658	875.49
WP373	-33.4044	150.0659	880.20
WP374	-33.4044	150.0659	880.70

WP375	-33.4044	150.0659	881.20
WP376	-33.4044	150.0657	870.53
WP377	-33.4044	150.0657	871.70
WP378	-33.4044	150.0657	871.88
WP379	-33.4044	150.0657	872.96
WP38	-33.4005	150.0702	883.70
WP380	-33.4044	150.0657	884.70
WP381	-33.4044	150.0657	885.55
WP382	-33.4045	150.0659	879.57
WP383	-33.4045	150.0659	879.64
WP384	-33.4045	150.0659	879.66
WP385	-33.4045	150.0659	879.67
WP386	-33.4045	150.0659	879.69
WP387	-33.4045	150.0659	879.71
WP388	-33.4045	150.0659	879.73
WP389	-33.4046	150.0656	877.38
WP39	-33.4005	150.0702	883.79
WP390	-33.4046	150.0656	877.35
WP391	-33.4046	150.0656	877.34
WP392	-33.4047	150.0656	879.59
WP393	-33.4047	150.0657	880.80
WP394	-33.4047	150.0655	890.09
WP395	-33.4047	150.0657	881.09
WP396	-33.4044	150.0651	876.00
WP397	-33.4044	150.0651	875.83
WP398	-33.4044	150.0651	875.87
WP399	-33.4044	150.0651	876.03
WP4	-33.4017	150.0694	882.30
WP40	-33.4005	150.0702	883.79
WP400	-33.4044	150.0651	876.33
WP401	-33.4043	150.0651	879.10
WP402	-33.4043	150.0651	879.72
WP403	-33.4043	150.0651	883.16
WP404	-33.4043	150.0651	883.42
WP405	-33.4043	150.0651	883.63
WP406	-33.4043	150.0651	883.98
WP407	-33.4043	150.0651	884.37
WP408	-33.4044	150.0659	874.81
WP409	-33.4044	150.0659	875.63
WP41	-33.4005	150.0702	883.70
WP410	-33.4044	150.0659	870.36
WP411	-33.4045	150.0659	873.61
WP412	-33.4045	150.0659	875.90
WP413	-33.4045	150.0659	877.36
WP414	-33.4045	150.0659	887.42
WP415	-33.4047	150.0657	880.94
WP416	-33.4047	150.0657	880.76
WP417	-33.4047	150.0656	884.20
WP418	-33.4047	150.0656	884.50
WP419	-33.4047	150.0657	882.31
WP42	-33.4005	150.0702	883.67
WP420	-33.4044	150.0657	881.30
WP421	-33.4044	150.0657	880.00
WP422	-33.4044	150.0657	879.33
WP423	-33.4044	150.0657	879.23
WP424	-33.4044	150.0657	878.31
WP425	-33.4044	150.0657	878.45
WP426	-33.4044	150.0657	878.54
WP427	-33.4044	150.0657	878.85
WP428	-33.4044	150.0658	880.45
WP429	-33.4043	150.0661	882.79
WP43	-33.4005	150.0702	883.71
WP430	-33.4043	150.0661	882.64
WP431	-33.4043	150.0661	882.57
WP432	-33.4043	150.0661	882.41
WP433	-33.4043	150.0661	882.37
WP434	-33.4043	150.0661	882.33
WP435	-33.4044	150.0659	874.70
WP436	-33.4044	150.0659	874.58
WP437	-33.4043	150.0660	879.75
WP438	-33.4043	150.0660	879.67
WP439	-33.4043	150.0660	880.90
WP44	-33.4005	150.0701	885.16
WP440	-33.4043	150.0660	881.17
WP441	-33.4043	150.0660	881.33
WP442	-33.4043	150.0661	879.59
WP443	-33.4044	150.0660	877.84
WP444	-33.4044	150.0660	877.96
WP445	-33.4046	150.0658	879.73
WP446	-33.4046	150.0658	879.74
WP447	-33.4046	150.0658	879.88
WP448	-33.4046	150.0658	880.10
WP449	-33.4046	150.0658	880.26
WP45	-33.4006	150.0701	887.50
WP450	-33.4046	150.0658	880.72
WP451	-33.4046	150.0657	885.47
WP452	-33.4047	150.0658	884.39
WP453	-33.4047	150.0658	884.50
WP454	-33.4047	150.0657	885.06
WP455	-33.4047	150.0657	885.00
WP456	-33.4047	150.0657	884.96
WP457	-33.4047	150.0657	884.94
WP458	-33.4047	150.0657	884.93
WP459	-33.4047	150.0657	884.93

WP46	-33.4006	150.0701	887.88
WP460	-33.4047	150.0657	884.94
WP461	-33.4047	150.0657	884.94
WP462	-33.4047	150.0657	884.95
WP463	-33.4047	150.0657	884.37
WP464	-33.4046	150.0661	0
WP465	-33.4046	150.0657	883.96
WP466	-33.4046	150.0657	883.95
WP467	-33.4046	150.0657	883.93
WP468	-33.4046	150.0657	884.03
WP469	-33.4046	150.0657	884.09
WP47	-33.4006	150.0701	889.10
WP470	-33.4046	150.0657	884.17
WP471	-33.4046	150.0657	884.30
WP472	-33.4046	150.0657	887.20
WP473	-33.4046	150.0657	886.34
WP474	-33.4046	150.0657	885.66
WP475	-33.4045	150.0657	882.17
WP476	-33.4045	150.0657	881.98
WP477	-33.4045	150.0657	881.28
WP478	-33.4045	150.0656	881.27
WP479	-33.4045	150.0656	881.57
WP48	-33.4007	150.0701	888.30
WP480	-33.4045	150.0656	882.14
WP481	-33.4045	150.0656	882.36
WP482	-33.4045	150.0656	882.42
WP483	-33.4045	150.0656	882.57
WP484	-33.4046	150.0656	887.20
WP485	-33.4046	150.0656	886.80
WP486	-33.4046	150.0656	886.53
WP487	-33.4046	150.0656	886.70
WP488	-33.4046	150.0656	886.70
WP489	-33.4046	150.0656	886.71
WP49	-33.4007	150.0701	888.26
WP490	-33.4046	150.0656	885.80
WP491	-33.4046	150.0656	885.45
WP492	-33.4046	150.0657	884.03
WP493	-33.4047	150.0657	883.30
WP494	-33.4047	150.0657	883.15
WP495	-33.4047	150.0657	883.12
WP496	-33.4047	150.0657	882.85
WP497	-33.4047	150.0657	882.70
WP498	-33.4047	150.0657	882.65
WP499	-33.4047	150.0657	882.62
WP5	-33.4021	150.0689	877.60
WP50	-33.4007	150.0701	888.15
WP500	-33.4047	150.0657	882.45
WP501	-33.4047	150.0657	882.39
WP502	-33.4047	150.0657	882.76
WP503	-33.4047	150.0657	883.29
WP504	-33.4047	150.0657	883.37
WP505	-33.4047	150.0657	883.48
WP506	-33.4047	150.0657	883.70
WP507	-33.4047	150.0657	881.36
WP508	-33.4047	150.0657	881.41
WP509	-33.4046	150.0655	879.93
WP51	-33.4007	150.0701	887.94
WP510	-33.4046	150.0655	880.39
WP511	-33.4046	150.0655	883.35
WP512	-33.4046	150.0655	883.37
WP513	-33.4046	150.0655	883.39
WP514	-33.4046	150.0655	884.30
WP515	-33.4046	150.0655	884.31
WP516	-33.4046	150.0655	884.34
WP517	-33.4046	150.0655	884.38
WP518	-33.4046	150.0655	884.35
WP519	-33.4046	150.0656	883.79
WP52	-33.4007	150.0701	887.61
WP520	-33.4045	150.0655	883.22
WP521	-33.4045	150.0655	882.97
WP522	-33.4045	150.0655	882.45
WP523	-33.4045	150.0655	882.24
WP524	-33.4045	150.0653	882.80
WP525	-33.4045	150.0653	882.99
WP526	-33.4045	150.0653	883.36
WP527	-33.4045	150.0654	884.86
WP528	-33.4045	150.0654	880.27
WP529	-33.4047	150.0657	880.40
WP53	-33.4006	150.0700	889.80
WP530	-33.4047	150.0657	880.27
WP531	-33.4047	150.0655	883.94
WP532	-33.4046	150.0657	887.69
WP533	-33.4046	150.0657	888.14
WP534	-33.4047	150.0657	891.70
WP535	-33.4044	150.0651	881.37
WP536	-33.4044	150.0651	881.33
WP537	-33.4044	150.0651	881.32
WP538	-33.4044	150.0651	881.32
WP539	-33.4044	150.0651	881.33
WP54	-33.4006	150.0700	890.08
WP540	-33.4044	150.0651	881.39
WP541	-33.4044	150.0651	881.41
WP542	-33.4044	150.0651	881.43
WP543	-33.4044	150.0651	881.59

WP544	-33.4044	150.0651	881.74
WP545	-33.4044	150.0651	881.89
WP546	-33.4044	150.0651	882.09
WP547	-33.4044	150.0651	882.26
WP548	-33.4044	150.0651	882.44
WP549	-33.4044	150.0651	882.61
WP55	-33.4006	150.0700	890.24
WP550	-33.4044	150.0651	882.81
WP551	-33.4044	150.0650	884.20
WP552	-33.4045	150.0653	884.87
WP553	-33.4045	150.0653	885.20
WP554	-33.4045	150.0653	885.53
WP555	-33.4045	150.0653	886.27
WP556	-33.4045	150.0653	886.67
WP557	-33.4044	150.0653	891.48
WP558	-33.4044	150.0653	887.40
WP559	-33.4044	150.0653	887.29
WP56	-33.4006	150.0700	890.42
WP560	-33.4044	150.0653	887.19
WP561	-33.4044	150.0653	887.12
WP562	-33.4045	150.0653	884.85
WP563	-33.4045	150.0653	884.76
WP564	-33.4045	150.0653	884.75
WP565	-33.4045	150.0653	885.14
WP566	-33.4045	150.0653	885.27
WP567	-33.4045	150.0653	886.40
WP568	-33.4045	150.0653	886.44
WP569	-33.4045	150.0653	886.51
WP57	-33.4006	150.0700	890.47
WP570	-33.4045	150.0653	886.86
WP571	-33.4045	150.0654	872.05
WP572	-33.4045	150.0654	872.60
WP573	-33.4045	150.0654	883.83
WP574	-33.4045	150.0654	884.59
WP575	-33.4045	150.0655	885.67
WP576	-33.4045	150.0655	885.74
WP577	-33.4045	150.0655	886.29
WP578	-33.4045	150.0655	882.26
WP579	-33.4045	150.0654	886.13
WP58	-33.4006	150.0700	890.48
WP580	-33.4045	150.0655	882.42
WP581	-33.4045	150.0655	882.59
WP582	-33.4046	150.0655	886.53
WP583	-33.4046	150.0655	886.51
WP584	-33.4046	150.0655	886.53
WP585	-33.4047	150.0654	883.41
WP586	-33.4047	150.0654	883.42
WP587	-33.4047	150.0654	883.59
WP588	-33.4047	150.0654	883.81
WP589	-33.4047	150.0654	884.34
WP59	-33.4006	150.0700	890.50
WP590	-33.4047	150.0654	884.13
WP591	-33.4047	150.0654	884.04
WP592	-33.4047	150.0654	884.11
WP593	-33.4047	150.0654	884.20
WP594	-33.4046	150.0655	883.90
WP595	-33.4046	150.0655	884.25
WP596	-33.4046	150.0655	884.81
WP597	-33.4047	150.0655	885.40
WP598	-33.4047	150.0655	885.55
WP599	-33.4047	150.0655	885.78
WP6	-33.4019	150.0695	868.63
WP60	-33.4006	150.0700	891.20
WP600	-33.4047	150.0656	888.30
WP601	-33.4047	150.0656	888.20
WP602	-33.4047	150.0656	888.07
WP603	-33.4047	150.0656	888.03
WP604	-33.4047	150.0656	888.04
WP605	-33.4046	150.0656	888.01
WP606	-33.4046	150.0656	887.90
WP607	-33.4046	150.0656	887.80
WP608	-33.4046	150.0656	887.66
WP609	-33.4046	150.0657	887.27
WP61	-33.4006	150.0700	891.20
WP610	-33.4046	150.0657	887.69
WP611	-33.4046	150.0657	887.60
WP612	-33.4045	150.0656	882.24
WP613	-33.4046	150.0656	887.90
WP614	-33.4046	150.0656	887.80
WP615	-33.4046	150.0656	887.76
WP616	-33.4046	150.0656	887.70
WP617	-33.4045	150.0656	889.50
WP618	-33.4045	150.0656	889.65
WP619	-33.4045	150.0656	879.63
WP62	-33.4006	150.0700	891.20
WP620	-33.4045	150.0655	883.90
WP621	-33.4045	150.0655	884.20
WP622	-33.4045	150.0655	884.15
WP623	-33.4045	150.0655	880.70
WP624	-33.4045	150.0655	880.45
WP625	-33.4045	150.0656	888.10
WP626	-33.4045	150.0656	888.18
WP627	-33.4046	150.0656	885.34
WP628	-33.4046	150.0656	885.25

WP629	-33.4046	150.0655	884.89
WP63	-33.4006	150.0700	891.15
WP630	-33.4047	150.0654	887.48
WP631	-33.4047	150.0654	887.53
WP632	-33.4047	150.0654	888.65
WP633	-33.4010	150.0701	879.47
WP634	-33.4010	150.0701	880.72
WP635	-33.4005	150.0703	886.00
WP636	-33.4005	150.0703	892.99
WP637	-33.4004	150.0701	905.27
WP638	-33.4004	150.0701	905.23
WP639	-33.4004	150.0701	905.18
WP64	-33.4005	150.0700	889.90
WP640	-33.4004	150.0701	905.02
WP641	-33.4005	150.0701	894.02
WP642	-33.4006	150.0701	885.30
WP643	-33.4006	150.0701	885.70
WP644	-33.4006	150.0701	887.10
WP645	-33.4007	150.0701	887.40
WP646	-33.4007	150.0701	888.37
WP647	-33.4007	150.0701	888.53
WP648	-33.4007	150.0701	888.40
WP649	-33.4006	150.0700	883.58
WP65	-33.4005	150.0700	889.70
WP650	-33.4006	150.0700	883.95
WP651	-33.4006	150.0700	884.06
WP652	-33.4006	150.0700	884.35
WP653	-33.4006	150.0700	884.64
WP654	-33.4006	150.0700	884.91
WP655	-33.4006	150.0700	885.24
WP656	-33.4006	150.0700	888.40
WP657	-33.4006	150.0700	888.50
WP658	-33.4005	150.0700	887.90
WP659	-33.4005	150.0700	887.85
WP66	-33.4005	150.0700	889.75
WP660	-33.4005	150.0700	887.92
WP661	-33.4005	150.0700	888.05
WP662	-33.4005	150.0700	888.01
WP663	-33.4012	150.0701	875.45
WP664	-33.4012	150.0701	875.84
WP665	-33.4012	150.0701	876.61
WP666	-33.4012	150.0701	880.05
WP667	-33.4012	150.0701	880.42
WP668	-33.4014	150.0700	881.49
WP669	-33.4013	150.0701	880.30
WP67	-33.4005	150.0700	889.90
WP670	-33.4013	150.0701	881.17
WP671	-33.4012	150.0701	881.77
WP672	-33.4005	150.0699	875.23
WP673	-33.4005	150.0699	875.72
WP674	-33.4004	150.0699	877.76
WP675	-33.4004	150.0699	878.44
WP676	-33.4004	150.0699	878.91
WP677	-33.4009	150.0697	876.60
WP678	-33.4009	150.0697	877.70
WP679	-33.4009	150.0697	878.05
WP68	-33.4005	150.0700	890.13
WP680	-33.4009	150.0697	878.20
WP681	-33.4009	150.0696	880.04
WP682	-33.4016	150.0697	884.30
WP683	-33.4016	150.0697	884.08
WP684	-33.4017	150.0694	880.89
WP685	-33.4017	150.0694	881.05
WP686	-33.4021	150.0689	884.55
WP687	-33.4021	150.0689	884.16
WP688	-33.4021	150.0689	883.98
WP689	-33.4006	150.0698	885.58
WP69	-33.4005	150.0700	890.29
WP690	-33.4006	150.0698	885.68
WP691	-33.4006	150.0700	886.33
WP692	-33.4013	150.0702	883.40
WP693	-33.4013	150.0700	882.88
WP694	-33.4015	150.0699	888.91
WP695	-33.4015	150.0699	888.79
WP696	-33.4015	150.0699	888.50
WP697	-33.4015	150.0699	885.30
WP698	-33.4015	150.0700	885.10
WP699	-33.4015	150.0700	885.02
WP7	-33.4019	150.0695	868.69
WP70	-33.4005	150.0700	890.38
WP700	-33.4015	150.0700	884.94
WP701	-33.4015	150.0700	884.89
WP702	-33.4015	150.0700	884.79
WP703	-33.4016	150.0699	880.90
WP704	-33.4017	150.0699	882.30
WP705	-33.4017	150.0698	884.60
WP706	-33.4017	150.0699	884.70
WP707	-33.4017	150.0699	884.00
WP708	-33.4019	150.0695	882.60
WP709	-33.4025	150.0686	874.20
WP71	-33.4006	150.0700	887.50
WP710	-33.4025	150.0686	874.22
WP711	-33.4025	150.0686	874.33
WP712	-33.4025	150.0686	874.38

WP713	-33.4025	150.0686	874.96
WP714	-33.4025	150.0686	875.05
WP715	-33.4025	150.0686	875.17
WP716	-33.4028	150.0683	874.94
WP717	-33.4028	150.0683	875.20
WP718	-33.4028	150.0683	875.37
WP719	-33.4028	150.0683	875.63
WP72	-33.4006	150.0700	887.70
WP720	-33.4028	150.0683	875.89
WP721	-33.4028	150.0683	876.15
WP722	-33.4029	150.0681	877.80
WP723	-33.4029	150.0681	877.47
WP724	-33.4029	150.0681	877.42
WP725	-33.4029	150.0681	877.55
WP726	-33.4029	150.0681	877.79
WP727	-33.4030	150.0679	876.53
WP728	-33.4030	150.0681	883.05
WP729	-33.4030	150.0681	883.01
WP73	-33.4006	150.0700	887.99
WP730	-33.4030	150.0681	883.05
WP731	-33.4030	150.0681	884.10
WP732	-33.4030	150.0679	885.77
WP733	-33.4030	150.0679	885.75
WP734	-33.4030	150.0679	885.74
WP735	-33.4030	150.0679	885.73
WP736	-33.4030	150.0678	880.54
WP737	-33.4030	150.0678	881.08
WP738	-33.4030	150.0678	881.08
WP739	-33.4030	150.0678	881.07
WP74	-33.4006	150.0700	888.31
WP740	-33.4031	150.0677	881.50
WP741	-33.4031	150.0677	881.60
WP742	-33.4031	150.0677	881.60
WP743	-33.4031	150.0677	881.58
WP744	-33.4031	150.0677	881.53
WP745	-33.4031	150.0677	881.48
WP746	-33.4031	150.0677	881.55
WP747	-33.4031	150.0677	881.59
WP748	-33.4031	150.0677	881.66
WP749	-33.4031	150.0677	881.74
WP75	-33.4006	150.0700	886.08
WP750	-33.4031	150.0677	881.79
WP751	-33.4031	150.0677	881.81
WP752	-33.4032	150.0676	876.13
WP753	-33.4032	150.0676	876.28
WP754	-33.4032	150.0676	876.43
WP755	-33.4032	150.0676	876.50
WP756	-33.4034	150.0673	881.85
WP757	-33.4034	150.0673	879.25
WP758	-33.4034	150.0673	879.11
WP759	-33.4034	150.0673	879.02
WP76	-33.4006	150.0700	885.91
WP760	-33.4034	150.0673	878.91
WP761	-33.4034	150.0673	878.84
WP762	-33.4034	150.0673	874.07
WP763	-33.4034	150.0673	874.05
WP764	-33.4034	150.0673	874.04
WP765	-33.4034	150.0673	874.05
WP766	-33.4034	150.0674	873.82
WP767	-33.4034	150.0674	874.31
WP768	-33.4033	150.0676	879.25
WP769	-33.4033	150.0676	879.19
WP77	-33.4006	150.0700	885.77
WP770	-33.4033	150.0676	879.14
WP771	-33.4033	150.0676	879.11
WP772	-33.4032	150.0676	879.08
WP773	-33.4032	150.0676	879.03
WP774	-33.4032	150.0676	878.60
WP775	-33.4032	150.0676	878.47
WP776	-33.4032	150.0676	878.34
WP777	-33.4034	150.0672	876.80
WP778	-33.4029	150.0678	882.44
WP779	-33.4029	150.0678	882.77
WP78	-33.4006	150.0699	882.00
WP780	-33.4029	150.0678	883.32
WP781	-33.4029	150.0678	883.06
WP782	-33.4031	150.0676	876.60
WP783	-33.4031	150.0676	876.61
WP784	-33.4032	150.0676	876.72
WP785	-33.4032	150.0676	880.78
WP786	-33.4043	150.0659	881.43
WP787	-33.4043	150.0660	881.57
WP788	-33.4044	150.0659	882.15
WP789	-33.4044	150.0659	882.47
WP79	-33.4006	150.0699	882.00
WP790	-33.4044	150.0657	880.80
WP791	-33.4015	150.0697	886.20
WP792	-33.4049	150.0647	888.38
WP793	-33.4049	150.0647	888.59
WP794	-33.4049	150.0647	888.73
WP795	-33.4049	150.0646	888.84
WP796	-33.4047	150.0646	887.10
WP797	-33.4047	150.0646	887.65
WP798	-33.4047	150.0646	888.64

WP799	-33.4047	150.0646	888.71
WP8	-33.4019	150.0695	868.79
WP80	-33.4006	150.0699	882.26
WP800	-33.4050	150.0639	886.18
WP801	-33.4050	150.0639	886.14
WP802	-33.4050	150.0639	886.13
WP803	-33.4050	150.0639	886.07
WP804	-33.4050	150.0639	885.86
WP805	-33.4050	150.0639	885.88
WP806	-33.4050	150.0639	885.93
WP807	-33.4050	150.0639	885.94
WP808	-33.4050	150.0639	885.95
WP809	-33.4050	150.0639	885.99
WP81	-33.4004	150.0699	881.50
WP810	-33.4050	150.0639	886.00
WP811	-33.4050	150.0639	886.02
WP812	-33.4050	150.0639	886.00
WP813	-33.4050	150.0639	885.93
WP814	-33.4050	150.0639	885.94
WP815	-33.4050	150.0639	885.94
WP816	-33.4050	150.0639	885.93
WP817	-33.4050	150.0639	885.93
WP818	-33.4050	150.0639	885.91
WP819	-33.4050	150.0639	885.91
WP82	-33.4004	150.0699	882.16
WP820	-33.4050	150.0639	885.91
WP821	-33.4050	150.0639	885.91
WP822	-33.4050	150.0639	885.94
WP823	-33.4050	150.0639	885.96
WP824	-33.4050	150.0639	886.02
WP825	-33.4050	150.0639	886.03
WP826	-33.4050	150.0639	886.04
WP827	-33.4049	150.0639	886.07
WP828	-33.4049	150.0639	886.02
WP829	-33.4049	150.0639	885.70
WP83	-33.4004	150.0699	882.72
WP830	-33.4049	150.0639	885.69
WP831	-33.4049	150.0639	885.70
WP832	-33.4049	150.0639	885.72
WP833	-33.4049	150.0653	883.00
WP834	-33.4049	150.0653	883.60
WP835	-33.4049	150.0654	884.16
WP836	-33.4049	150.0654	884.27
WP837	-33.4049	150.0654	884.36
WP838	-33.4049	150.0654	884.59
WP839	-33.4049	150.0654	884.53
WP84	-33.4004	150.0699	882.97
WP840	-33.4049	150.0654	883.55
WP841	-33.4049	150.0655	895.21
WP842	-33.4049	150.0655	895.29
WP843	-33.4049	150.0655	895.33
WP844	-33.4049	150.0655	895.34
WP845	-33.4049	150.0655	895.36
WP846	-33.4049	150.0655	895.36
WP847	-33.4049	150.0655	895.36
WP848	-33.4049	150.0655	895.36
WP849	-33.4049	150.0655	895.34
WP85	-33.4004	150.0699	883.24
WP850	-33.4049	150.0655	895.27
WP851	-33.4049	150.0655	891.33
WP852	-33.4049	150.0655	891.14
WP853	-33.4049	150.0655	890.93
WP854	-33.4049	150.0655	889.30
WP855	-33.4049	150.0655	889.50
WP856	-33.4049	150.0655	889.58
WP857	-33.4049	150.0655	889.73
WP858	-33.4049	150.0655	889.80
WP859	-33.4049	150.0655	889.80
WP86	-33.4004	150.0699	883.31
WP860	-33.4049	150.0655	889.73
WP861	-33.4049	150.0644	884.90
WP862	-33.4048	150.0643	885.47
WP863	-33.4048	150.0643	884.77
WP864	-33.4048	150.0643	884.57
WP865	-33.4047	150.0643	884.08
WP866	-33.4047	150.0643	883.80
WP867	-33.4022	150.0688	881.46
WP868	-33.4022	150.0688	881.52
WP869	-33.4024	150.0685	884.91
WP87	-33.4004	150.0700	883.38
WP870	-33.4024	150.0685	884.90
WP871	-33.4024	150.0685	884.88
WP872	-33.4024	150.0685	884.88
WP873	-33.4024	150.0685	884.81
WP874	-33.4025	150.0684	876.74
WP875	-33.4025	150.0684	876.73
WP876	-33.4025	150.0684	876.73
WP877	-33.4025	150.0684	876.66
WP878	-33.4025	150.0684	876.63
WP879	-33.4025	150.0684	876.81
WP88	-33.4009	150.0697	887.00
WP880	-33.4025	150.0684	876.91
WP881	-33.4025	150.0684	876.96
WP882	-33.4025	150.0683	877.52

WP883	-33.4025	150.0683	877.58
WP884	-33.4025	150.0683	877.77
WP885	-33.4025	150.0683	877.82
WP886	-33.4025	150.0683	877.97
WP887	-33.4026	150.0682	879.27
WP888	-33.4026	150.0682	879.84
WP889	-33.4026	150.0683	880.01
WP89	-33.4009	150.0697	887.47
WP890	-33.4026	150.0682	881.62
WP891	-33.4026	150.0682	881.63
WP892	-33.4026	150.0682	881.64
WP893	-33.4026	150.0682	881.72
WP894	-33.4026	150.0682	881.75
WP895	-33.4026	150.0682	881.75
WP896	-33.4026	150.0682	881.70
WP897	-33.4026	150.0682	881.67
WP898	-33.4026	150.0682	881.66
WP899	-33.4026	150.0682	880.96
WP9	-33.4020	150.0695	877.90
WP90	-33.4009	150.0697	887.52
WP900	-33.4026	150.0682	880.92
WP901	-33.4026	150.0682	880.90
WP902	-33.4026	150.0682	880.88
WP903	-33.4026	150.0682	881.03
WP904	-33.4027	150.0682	880.10
WP905	-33.4027	150.0682	879.77
WP906	-33.4027	150.0682	879.72
WP907	-33.4027	150.0682	878.24
WP908	-33.4027	150.0682	878.22
WP909	-33.4027	150.0682	878.22
WP91	-33.4009	150.0697	887.54
WP910	-33.4027	150.0682	878.21
WP911	-33.4027	150.0681	878.18
WP912	-33.4027	150.0681	878.15
WP913	-33.4027	150.0681	878.50
WP914	-33.4027	150.0681	878.69
WP915	-33.4027	150.0681	878.51
WP916	-33.4027	150.0681	877.68
WP917	-33.4027	150.0681	877.68
WP918	-33.4027	150.0681	877.77
WP919	-33.4027	150.0681	877.84
WP92	-33.4009	150.0697	887.48
WP920	-33.4027	150.0681	878.26
WP921	-33.4027	150.0681	878.47
WP922	-33.4027	150.0681	878.92
WP923	-33.4027	150.0681	879.30
WP924	-33.4027	150.0681	879.35
WP925	-33.4027	150.0681	879.37
WP926	-33.4027	150.0681	879.44
WP927	-33.4027	150.0681	879.44
WP928	-33.4027	150.0681	879.47
WP929	-33.4027	150.0681	879.61
WP93	-33.4009	150.0696	887.18
WP930	-33.4027	150.0681	879.65
WP931	-33.4027	150.0681	879.70
WP932	-33.4027	150.0681	879.70
WP933	-33.4027	150.0681	879.71
WP934	-33.4028	150.0680	878.40
WP935	-33.4027	150.0680	878.50
WP936	-33.4027	150.0680	878.60
WP937	-33.4027	150.0680	879.05
WP938	-33.4028	150.0679	880.28
WP939	-33.4028	150.0679	880.28
WP94	-33.4009	150.0696	886.94
WP940	-33.4028	150.0679	880.39
WP941	-33.4029	150.0679	881.23
WP942	-33.4029	150.0679	881.24
WP943	-33.4029	150.0679	881.29
WP944	-33.4041	150.0645	892.20
WP945	-33.4041	150.0645	891.46
WP946	-33.4041	150.0645	891.95
WP947	-33.4041	150.0645	891.65
WP948	-33.4041	150.0645	890.16
WP949	-33.4041	150.0645	890.01
WP95	-33.4009	150.0696	885.89
WP950	-33.4042	150.0645	882.25
WP951	-33.4042	150.0644	885.79
WP952	-33.4042	150.0644	885.82
WP953	-33.4042	150.0644	885.83
WP954	-33.4042	150.0644	885.84
WP955	-33.4041	150.0644	881.17
WP956	-33.4041	150.0644	881.24
WP957	-33.4041	150.0644	881.27
WP958	-33.4041	150.0644	881.35
WP959	-33.4041	150.0644	881.50
WP96	-33.4009	150.0696	885.75
WP960	-33.4043	150.0651	885.59
WP961	-33.4043	150.0651	885.51
WP962	-33.4043	150.0651	884.98
WP963	-33.4043	150.0651	884.26
WP964	-33.4043	150.0651	884.02
WP965	-33.4043	150.0651	884.05
WP966	-33.4043	150.0650	886.40
WP967	-33.4043	150.0650	886.43

WP968	-33.4043	150.0650	886.51
WP969	-33.4042	150.0649	885.41
WP97	-33.4009	150.0696	885.56
WP970	-33.4042	150.0649	885.37
WP971	-33.4043	150.0649	883.97
WP972	-33.4043	150.0649	883.87
WP973	-33.4043	150.0649	883.84
WP974	-33.4043	150.0649	883.90
WP975	-33.4042	150.0649	884.04
WP976	-33.4042	150.0648	883.19
WP977	-33.4042	150.0648	883.23
WP978	-33.4042	150.0648	883.25
WP979	-33.4042	150.0648	883.28
WP98	-33.4009	150.0696	885.73
WP980	-33.4042	150.0648	883.59
WP981	-33.4042	150.0648	883.76
WP982	-33.4042	150.0648	883.76
WP983	-33.4041	150.0646	883.13
WP984	-33.4041	150.0646	883.27
WP985	-33.4041	150.0646	883.88
WP986	-33.4041	150.0646	885.31
WP987	-33.4041	150.0646	885.33
WP988	-33.4041	150.0646	885.35
WP989	-33.4042	150.0647	887.86
WP99	-33.4009	150.0696	886.04
WP990	-33.4043	150.0647	884.61
WP991	-33.4043	150.0647	885.22
WP992	-33.4043	150.0648	886.36
WP993	-33.4042	150.0646	883.38
WP994	-33.4042	150.0646	885.80
WP995	-33.4042	150.0646	886.20
WP996	-33.4042	150.0646	886.40
WP997	-33.4042	150.0646	886.80
WP998	-33.4042	150.0646	886.97
WP999	-33.4042	150.0646	890.57

Centennial Coal

21 November 2017

Huw Evans
Senior Land Services Officer
Central Tablelands Local Land Services
3 Ordnance Avenue Lithgow 2790 |

Via email: huw.evans@lls.nsw.gov.au

Dear Huw

RE: Partner Project for Black Gum Revegetation – Pipers Flat Creek

Thank you for the opportunity to partner with the Central Tablelands Local Land Services on the continued revegetation of Black Gum in the Pipers Flat Creek area adjacent to Centennial's Lidsdale Siding Operation.

Further to works completed for Stage 1 earlier in 2017, and further discussion between parties Springvale Coal Services operations (SCSO) would like to provide the following information and advise as detailed below with regards to partnering on Stage 2 works for the revegetation of Black Gum (*Eucalyptus aggregata*) habitat and associated tree planting with the Central Tablelands Local Land Services (LLS).

Background - Related commitments and approval conditions for Centennial within Pipers Creek study area adjacent to the Lidsdale Siding Site.

The Lidsdale Siding Project approval EIS Statement of Commitments proposed the following;

- *Progressive removal of Willows within the section of Pipers Flat Creek which passes through the study area – a 5 year program of works following completion of construction*

The study area is illustrated in Attachment 1 below.

The Lidsdale Siding Upgrade Project approval 08_0221 requires Centennial to ensure that an approved Biodiversity Management Plan for the project includes a detailed description of measures that would be implemented over the life of the project to protect and conserve biodiversity specific to this proposed partner arrangement including;

- *Management and enhancement of retained native vegetation, (particularly Eucalyptus aggregata) and habitat on site;*
- *A detailed program (both proposed works and timetable) for the removal of Willow trees from Pipers Flat Creek; and*
- *Measures to manage and control weeds.*

Centennial has a current approved Biodiversity Management Plan for the project, and is currently revising the plan to be incorporated into a Centennial Western Region Biodiversity Management Plan.

Both plans meet the above EIS and project approval requirements.

Willow Control Works Completed in Pipers Flat Creek

Activity commenced in July 2016, involves the poisoning of willows in Pipers Flat Creek. The work entailed controls using chainsaws cutting in to the willow trunks and injecting with Roundup Biactive® Herbicide. Centennial engaged an experienced contractor to complete this work with the removal of the willows completed earlier in 2017. The method of removal involved the cutting, removal from

creek, chipping, and transport of Willows from the study area. The continued poisoning of Willow specimens from the study area has continued in 2017.

Table 1 below presents the existing proposed timing of the willow control program.

Table 1 - Existing proposed timing of the willow control program

ITEM	Item	Timing
1	Poison willows	July & August 2016
2	Cut, remove, chip and transport willows	March & April 2017
3	Poison remaining willows	October to December 2017
4	Cut, remove and chip remaining willows	January to July 2018

Following poisoning works completed in 2016, investigations and risk assessment for the proposed removal activity identified the following risks associated with the requirements to use heavy machinery to remove Willow specimens, the inundated site conditions, and displacement of vegetation were identified;

- *High potential for damage to riparian vegetation from the physical removal of treated Willow specimens;*
- *High potential for damage to stream bed and banks from the physical removal of treated Willow specimens;*
- *High potential for damage and mortality of existing Eucalyptus aggregata habitat and specimens from the physical removal of treated Willow specimens;*
- *High potential for the establishment of other weed species via the displacement of Willow Specimens; and*
- *High potential to identify a net beneficial alternative environmental outcome from the consideration of alternatives for Willow specimen removal via planting of suitable species via tube stock revegetation.*

As a result Items 2, and 3 works as identified in Table 1 above were suspended pending an appropriate identification of options for a net beneficial environmental outcome that would prevent damage to the stream and riparian areas, and ensure protection of existing *Eucalyptus aggregata* specimens and habitat located in the study area in compliance with all legislative and project approval requirements.

Works for the control of Willows in the Pipers Flat Creek study area are proposed to continue for another 3 years (including 2017). This includes the once off removal of adult trees (*where safe to do so and where no environmental damage will occur*), and ongoing maintenance annually to prevent re-establishment.

The objective within this management area is to undertake actions that control Willow in the study that prevent Willow seedlings from re-establishing.

Black Gum Revegetation Project and identified Partner Synergies.

Centennial has identified the following synergies with the proposed Black Gum Revegetation Project and Willow control works as discussed between parties;

- *Assisting the control of weeds that inhibit regeneration of Eucalyptus aggregata;*
- *Reducing small-scale clearing pressures on Eucalyptus aggregata;*
- *Encouraging enhancement plantings around remnants of Eucalyptus aggregata (using local-provenance seed sources);*
- *Establishing and improving Eucalyptus aggregata habitat;*
- *Providing normalised creek flow to the environment;*
- *Assist in securing Eucalyptus aggregata conservation status;*
- *Improve recruitment rates for Eucalyptus aggregata;*

- *Providing ongoing net benefit outcome alternatives as opposed to simple removal of Willow specimens that allow for other weed establishment; and*
- *Minimise and reduce the establishment of weed species in study area.*

2017 Black Gum Revegetation Project Activities – Stage 1

Stage 1 Activity Area

An area for tube stock planting was identified in conjunction with LLS in 2017 and selected for works for the following reasons;

- *All weather formed road access to the site;*
- *Willow poisoning works completed in this area in 2016;*
- *Easily demarcated zone for management and future monitoring;*
- *Achievability in program for staged habitat restoration;*
- *Extensive existing Eucalyptus aggregata specimens and native vegetation habitat stands located in the site; and*
- *Logical commencement point for replanting works following Willow control program work direction.*

The proposed activity area was heavily overgrown with a range of invasive and nuisance weeds requiring control.

Scope of Work Activity.

Works were divided into 4 x stages as summarised below.

Site Preparation – Preliminary Weed Control (Completed)

- Weed control is required to ensure success with the planned *Eucalyptus aggregata* tube stock plantings. The
- Spraying will be in accordance with the recommendations of the local weed authority regarding the herbicide use close to the waterway

Site Preparation – Vegetation Management and Maintenance (Completed)

- Management of treated Blackberry and Hawthorne vegetation following weed control works was required to allow suitable planting locations to be prepared and identified.
- Management undertaken via mechanical means to cut / slash / remove nuisance vegetation and treated weeds.
- Timing of this allowed for adequate time after the spraying occurs for the herbicide application to be effective.
- *Eucalyptus aggregata* and other native species were protected during the vegetation management process.

Revegetation Planting of *Eucalyptus aggregata* seedlings. (Completed)

- Planted 2000 *Eucalyptus aggregata* tube-stock seedlings in the study area;
- Tube-stock planting incorporated the following;
    - Hole dug to plant specifications using powered auger;
    - Supply and install tube-stock;
    - Supply and install tree guard green corflute 1 Hardwood Stake;
    - Supply and install soil conditioner;
    - Supply and install weed mat;
    - Supply and install water crystals (expanded prior to planting to reduce mortality);
    - Supply and install fertiliser tablet 10g;
- Planting occurred following basic site preparation above within the site.

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Revegetation Maintenance, Monitoring and Reporting (Ongoing)

- Follow up maintenance and reporting including;
  - Weed Control - Weeding & Spraying as required
  - Tree Guard Maintenance
  - Establishment and survival watering
  - Photographs & Reporting (*period TBA*)

Stage 2 Activity Area

An area for tube stock planting was identified in conjunction with LLS in 2017 and selected for works for the following reasons;

- *All weather formed road access to the site;*
- *Willow poisoning works completed in this area in 2016 and 2017*
- *Easily demarcated zone for management and future monitoring;*
- *Achievability in program for staged habitat restoration;*
- *Logical commencement point for replanting works following Willow control program work direction following on from Stage 1 area.*

The proposed activity area is heavily overgrown with a range of invasive and nuisance weeds requiring control.

Scope of Work Activity.

Works have again been divided into 4 x stages as summarised below.

Site Preparation – Preliminary Weed Control

- Weed control is required to ensure success with the planned tube stock plantings.
- Spraying will be in accordance with the recommendations of the local weed authority regarding the herbicide use close to the waterway

Site Preparation – Vegetation Management and Maintenance

- Management of treated Blackberry and Hawthorne vegetation following site preparation works is required to allow suitable planting locations to be prepared and identified.
- Management undertaken via mechanical means to cut / slash / remove nuisance vegetation and treated weeds.
- Timing of this work must allow adequate time after the spraying occurs for the herbicide application to be effective.
- *N*ative species will be protected during the vegetation management process.

Revegetation Planting of *Eucalyptus aggregata* seedlings.

- Plant up to 1500 *Eucalyptus aggregata* tube-stock and complimentary native tube stock species seedlings* in the study area;
- Tube-stock planting will incorporate the following;
  - Hole dug to plant specifications using powered auger;
  - Supply and install tube-stock;
  - Supply and install tree guard green corflute 1 Hardwood Stake;
  - Supply and install soil conditioner;
  - Supply and install weed mat;
  - Supply and install water crystals (expanded prior to planting to reduce mortality);
  - Supply and install fertiliser tablet 10g;
- Planting will occur following basic site preparation (above) completed within the site.

** Complimentary Native tube stock are considered to be species found in the associated vegetation type TABLELAND HOLLOWS BLACK GUM – BLACK SALLY GRASSY OPEN FOREST*

Revegetation Maintenance, Monitoring and Reporting

- Follow up maintenance and reporting including;
  - Weed Control - Weeding & Spraying as required
  - Tree Guard Maintenance
  - Establishment and survival watering
  - Photographs & Reporting (*period TBA*)

Contractor Arrangements for Works.

As per Stage 1 works completed, SCSO utilises preferred local contractor ***New Era - Mine Site Revegetation*** (New Era) for the majority of our site weed control and rehabilitation services across both our sites and a range of tasks and will be the contractor engaged for willow control works

New Era were engaged as the sole provider for the Stage 1 works in accordance with our existing engagement arrangements for 2017 weed control and rehabilitation program for SCSO sites, and specifically in alignment with our committed 2017 Willow control works.

Engagement of additional contractors to work on our site for the proposed activities services creates a burden of pre-approval work, the requirement for specific induction and competency assessments, medical approvals, chemical usage approvals, work permitting approval, and other related Centennial requirements to be undertaken prior to engagement for works. These activities are typically on charged to Centennial and in this instance could potentially result in a significant erosion of the proposed joint funding value.

New Era have successfully undertaken tube stock native tree plantings and weed control for SCSO and other Centennial sites in the region, and have provided estimate costings for the proposed scope of works stages based on agreed commercial Schedule of Rates for activities undertaken through our general business relationship.

New Era successfully delivered on the completion of Stage 1 works within budget and without any WHS or Environmental recordable or reportable internal or external incidents.

New Era staff are SCSO site inducted and familiar with compliance activities related to the HSEC requirements for undertaking works for Centennial in accordance with our project approvals and legislative compliance requirements.

New Era are determined to help their clients restore the landscape and environment to its original or natural format with their services aimed at providing sustainable outcomes for our clients through the provision of best practice approach to weed management and revegetation.

SCSO and New Era have a strong business relationship with excellent qualitative and measurable results delivered and reported from completed works under agreed scheduled rates. As stated above our preference is for New Era to be engaged as the sole provider for these works.
SCSO provide supervision and management of all New Era activities undertaken for proposed activities in accordance with our existing commercial and WHS contractor management processes and systems.

New Era Company details and a web address are provided below.

Business Owner and Manager *Miss Annika Kowalski* is open to contact form yourself should you wish to discuss any component of their engagement of provision of services as proposed and as per their inherent capability.

It is proposed that the Central Tablelands Local Land Services will enter into their own commercial agreement with New Era for funding payment for completed services.

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Company Details
Owner/Manager: Annika Kowalski
Mobile: 0400 424 848
Email: annika@neweramsr.com.au
Website: neweramsr.com.au

Proposed Resource Sourcing

The following is proposed for the resource sourcing of materials and equipment for the project activities;

- *Eucalyptus aggregata plants and complimentary native tube stock sourced from New Era and*
- *If the supply of tube stock numbers cannot be achieved by either party it is proposed that an alternative will be agreed between parties.*
- *All other equipment, consumables, poisons, and materials to be provided by New Era.*

Proposed Activity Costs and Expense Partnering.

As communicated, a $10,000.00* funding grant is available this financial year for revegetation and is the current proposed partnering amount from the Central Tablelands Local Land Services.

Centennial is committed not only to matching this value but also covering additional costs for the completion of proposed activities and has also committed to expenditure of an additional $70k of funds towards willow control within Pipers flat Creek study area to be completed in 2017 (currently at approx. 70% completion).

Quotes have been received from New Era for the works as outlined above with details provided in Table 2 below.

Table 2 – Proposed Black Gum Revegetation 2017 project activity costs

Stage	Item	Projected Cost (ex GST)	Funding Source
1	Site Preparation – Preliminary Weed Control	$4670.00	Centennial Coal
2	Site Preparation – Vegetation Management and Maintenance	$2900.00	Centennial Coal
3	*Revegetation Planting of Eucalyptus aggregata seedlings.*	*$17500.00*	*$10,000 = CTLLS** *$7500 = Centennial Coal*
3	Revegetation Maintenance, Monitoring and Reporting	$5400.00	Centennial Coal
	SUB TOTAL	$30,470.00	
	Contingency for variable site conditions & unidentified issues (15%)	$4570.50	Centennial Coal
	ESTIMATED TOTAL PROJECT COSTS	**$35045.50**	

**** 10,000 grant amount to be confirmed by LLS***

Summary & Scheduling

An opportunity for Centennial Coal – SCSO to continue to partner with the Central Tablelands Local Land Services on the revegetation of Black Gum (*Eucalyptus aggregata)* in the Pipers Flat Creek area adjacent to Centennial's Lidsdale Siding Operation can provide a positive net environmental outcome complimenting existing Centennial commitments to control Willows in the area.

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An explanation of the works proposed, justifications for sole source provisioning, and estimated project costs with allocated funding sources has been provided as requested to the Central Tablelands Local Land Services as detailed above and in attachments to this correspondence.

To commence formal scheduling of these works, written formal agreement is sought from the Central Tablelands Local Land Services that supports the proposed activities, funding arrangements, and supports the notion that revegetation of *Eucalyptus aggregata* to provide a beneficial environmental outcome from the removals of Willow specimen removal (and the prevention of subsequent establishment of other weed species) via planting of suitable native species of tube stock via targeted revegetation is a viable and achievable outcome.

SCSO is pursing formal agreement to continue and expand on activities undertaken in 2016 in regards to Willow control with the relevant landholders, however considering this was granted last year this is perceived as an administrative process to be completed that is unlikely to prevent works commencing.

SCSO is proposing to commence activities in the very near term to allow a suitable period for site spraying and preparation to be undertaken that would still allow seedling planting within the autumn seasonal period.

If you have any questions, comments or wish to provide feedback or advice regarding any of the enclosed report, please contact myself via email at neil.thompson@centennialcoal.com.au.

Yours sincerely

Neil Thompson
Environmental & Community Coordinator
Springvale Coal Services
Centennial Coal

Centennial Coal

Attachment 1

Springvale Coal Pty Limited ABN 39 052 096 769

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Wallerawang NSW 2845
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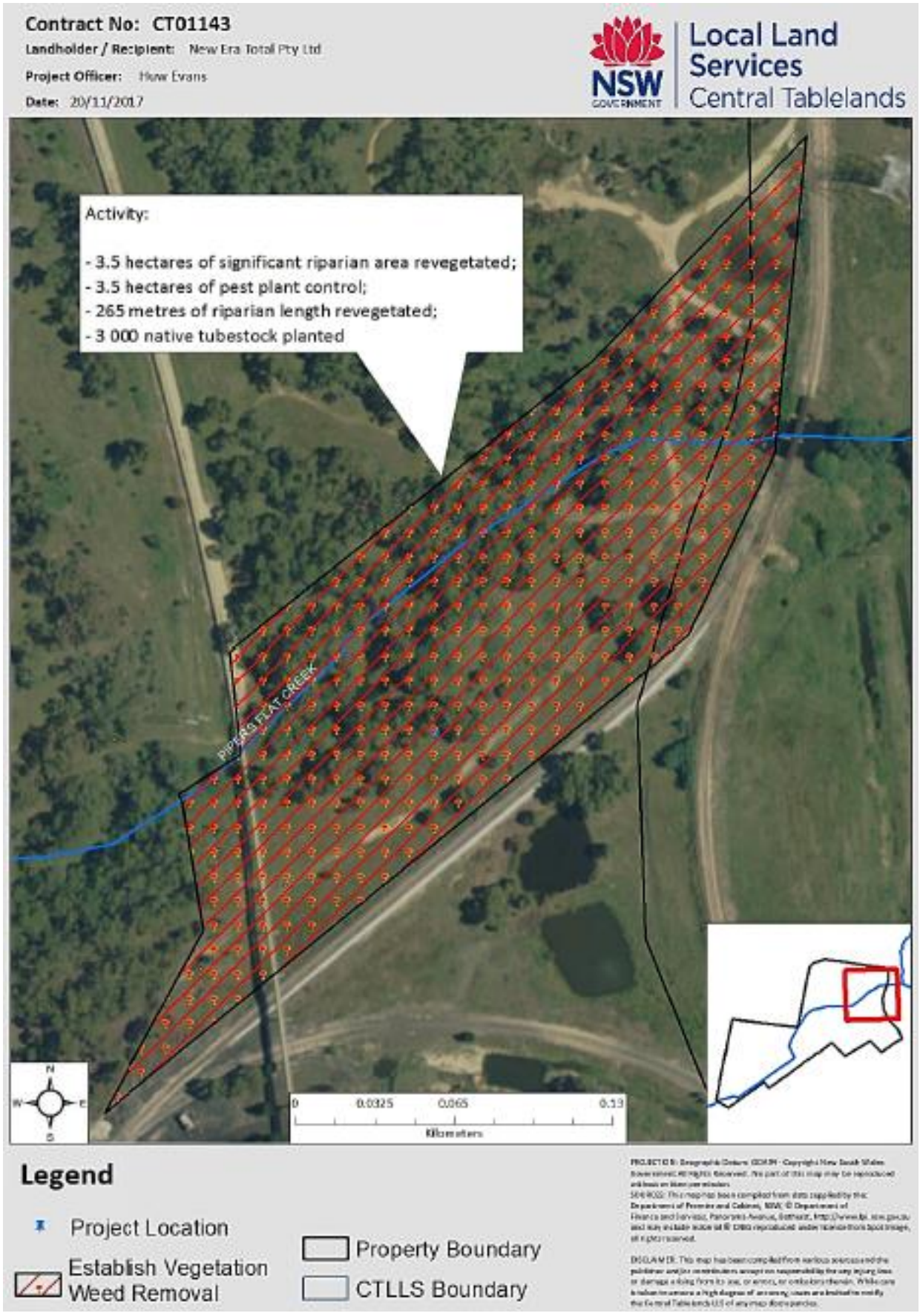
Attachment 2



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LOCAL LAND SERVICES & CENTENNIAL COAL

Follow-Up Report

Black Gum Planting Project – Lidsdale Siding

Date: April 2017 – March 2018

Brief:

Summary of Black Gum Planting Project carried out at Lidsdale Siding to date.

Centennial Coal, Central Tablelands Local Land Services, & New Era Total have formed a Collaborative partnership with the goal of improving the local environmental surrounding the Lidsdale Siding Site and meeting the required commitments for approval. Centennial Coal & Local Land Services are to be commended on their continued commitment to this project and the local community.
New Era Total is proud to be involved in this wonderful initiative and future programs and are committed to continual improvement in all areas.

OVERVIEW OF PROJECT:

(Section 1)

Stage 1 – Spray all weeds throughout area to prepare for slashing
Stage 2 – Slash area with New Era industrial slasher and skid steer
Stage 3 – Planting of 2000 tube stock *Eucalyptus aggregata*
Stage 4 – 8 months revegetation and maintenance

Stage 1

Stage 2

Stage 3

STAGE 1 – Piper's Flat Creek Spraying:

- *Rubus fruticosus* control to ensure success for future planting of *Eucalyptus aggregata*.
- Mature *Rosa rubiginosa* and *Pyracantha* were not sprayed due to the high volume of spray drift that would occur from spraying at the heights of these mature plants. These were left to be brush-cut in stage, immature plants were sprayed.
- Special attention was carried out whilst spraying near the existing *Eucalyptus aggregata* and *Eucalyptus pauciflora*.
- All waterway spraying was done with the recommendations of the local weed authority (Upper Macquarie County Weeds Council) regarding the herbicide use close to the waterway.

Blackberry infestations & control

STAGE 2 – Piper's Flat Creek Vegetation Removal:

- Vegetation management control.
- Removal of *Rubus fruticosus* and *Pyracantha*.
- Slashing of vegetation including tussock for Stage 3 planting of native tubestock.
- Access road was barricade off to unauthorised persons and vehicles while Bobcat/Slasher was in use.

Before and progress photos of the site preparation works.

STAGE 3 – Planting of 2000 Tube Stock Eucalyptus aggregata:

- Holes dug to plant specifications using powered auger
- Supply and install *Eucalyptus aggregata* tubestock - 2000
- Supply and install tree guard green corflute 1 Hardwood Stake (1700)
- Supply and install tree guard black mesh guards (300)
- Supply and install soil conditioner – Water crystals and fertiliser – Water Crystals, 'Agriform' plant pills and 'Terraferma' were used. The water crystals and 'Terraferma' were applied in their absorbed state.
- All trees were watered in after planting (Not included in quote, no extra charge)
- Supply and install weed mat

MOUND	EXISTING PLANTS	DEAD PLANTS								
		Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	TOTAL
1	88	8	2	0	22	39				
2	18	0	0	0	1	1				
3	60	4	2	0	6	10				
4	63	1	0	0	8	15				
5	55	1	0	0	3	4				
6	24	1	0	0	1	5				
7	71	0	1	0	4	3				
8	31	0	0	0	2	2				

STAGE 4 – 8 months Revegetation and Maintenance:

Black Gum Stage 1
PLANT MONITORING

ROW	EXISTING PLANTS	DEAD PLANTS									ROW	EXISTING PLANTS	DEAD PLANTS								
		A	S	O	N	D	J	F	M	TOTAL			A	S	O	N	D	J	F	M	TOTAL
1	33	4	1	0	4	4					**19**	48	8	0	0	10	11				
2	30	2	3	0	7	2					**20**	49	9	2	0	16	23				
3	31	2	3	0	5	3					**21**	44	15	14	0	23	12				
4	27	2	0	0	5	0					**22**	47	8	13	0	0	15				
5	29	3	2	0	1	0					**23**	40	8	3	0	0	20				
6	28	1	0	0	2	0					**24**	44	4	7	0	0	11				
7	28	0	0	0	1	1					**25**	71	4	3	0	0	8				
8	29	0	0	0	4	13					**26**	26	2	0	0	0	12				
9	33	1	0	0	1	1					**27**	25	5	0	0	7	11				
10	31	2	1	0	1	0					**28**	26	4	4	0	3	4				
11	31	0	0	0	3	1					**29**	26	4	1	0	6	5				
12	33	1	1	0	8	7					**30**	26	2	2	0	1	4				
13	36	0	0	0	9	11					**31**	24	2	2	0	6	5				
14	24	0	0	0	3	3					**32**	21	1	2	0	5	4				
15	39	1	1	0	7	10					**33**	21	2	0	0	4	2				
16	35	2	0	0	7	6					**34**	30	2	1	0	8	4				
17	42	0	2	0	8	8					**35**	21	1	0	0	3	2				
18	45	1	0	0	7	11					**36**	22	0	0	0	0	11				
																				TOTAL PLANT FATALITIES	

The January watering carried out did not include replacement of unsuccessful plants, therefore numbers have not been inserted into the final columns. Due to the extreme weather conditions, all labour was allocated to watering only and it is anticipated replacements can be carried out in the coming months.
At the time of completing this report, it is estimated approximately 270 plants remain to be replaced in this stage, equating to 86.5% survival rate.

SECTION 2 – Black Gum Revegetation (Part 2) – Pipers Flat Creek:

Part 2 of the Black Gum project was developed on an area on the Lidsdale Siding side of the Piper's Flat Creek. 2 areas were developed – one on either side of the Lidsdale Siding boundary fence, adjacent to the railway track.

- New Era supplied & installed 1500 trees along both sides of Lidsdale Siding with tree guards & weed mats. Species including a high percentage of *Eucalyptus aggregata (approximately 70%)* and a mixture of the following species (30%); *Acacia dealbata, Acacia melanoxylon, Eucalyptus dives, Eucalyptus pauciflora, Eucalyptus rubida, Eucalyptus stellulata, Eucalyptus viminalis, Poa labillardierei*
- Absorbed water crystals were installed at the base of each hole along with 1 *Agriform* native fertiliser tablet.
- All plants were watered in using approximately 2 litres per plant. Follow up watering was then undertaken in the weeks following, including replacements of unsuccessful plants. **All replacements were supplied free of charge by New Era, and there was no charge for labour to carry out these replacements.**
  150 plants have been replaced, with further watering and maintenance scheduled to continue in the coming months.

Before Photos

During & After the planting

PART 3– Black Gum Revegetation Stage 3 – Pipers Flat Creek (Future):

Future work will continue along the Piper's Flat Creek, including willow removal of treated willow trees when located in suitable areas where disturbance will be kept to a minimum, follow up stem injection of 'difficult access' willows, establishment of a third planting section, with similar specifications to the previous plantings. Watering and maintenance of all plantings will continue monthly or on a as required basis.

Summary

All work was completed in accordance with all Safe Operating Procedures, Job Safety Analysis, and OHS policies. No incidents occurred and work in the project areas is completed with a high standard of work.

Appendix J – Heritage Information

Western Region Aboriginal Cultural Heritage Committee

Centennial hosted two Western Regional Aboriginal Cultural Heritage Committee meetings on 29 April and 27 September 2017.

This meetings provide a forum for discussion on Indigenous heritage management that relate to the Lidsdale and Wallerawang area from Centennial operations including Lidsdale Siding, Western Coal Services, Springvale Mine and Angus Place Mine.

No specific issues or management actions were identified for Lidsdale Siding by the committee.

Appendix K – Visual Information

Field measurements and assessment undertaken in 2017 identified that illuminance at all viewpoints were well within the allowable criteria and that operations are meeting the requirements of the AS.4282.

Appendix L – Waste Information

The monthly waste graphs for Lidsdale Siding for the reporting period are shown in Figure 8-25 to Figure 8-35.

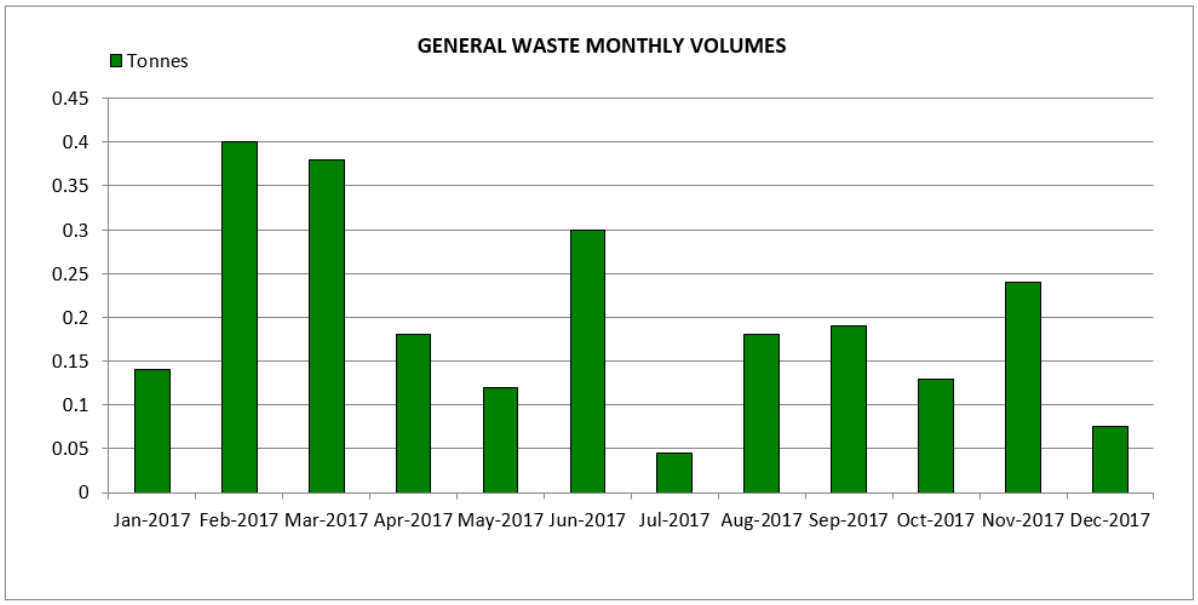

Figure 8-25 – Lidsdale Siding General Waste Monthly Volumes for 2017

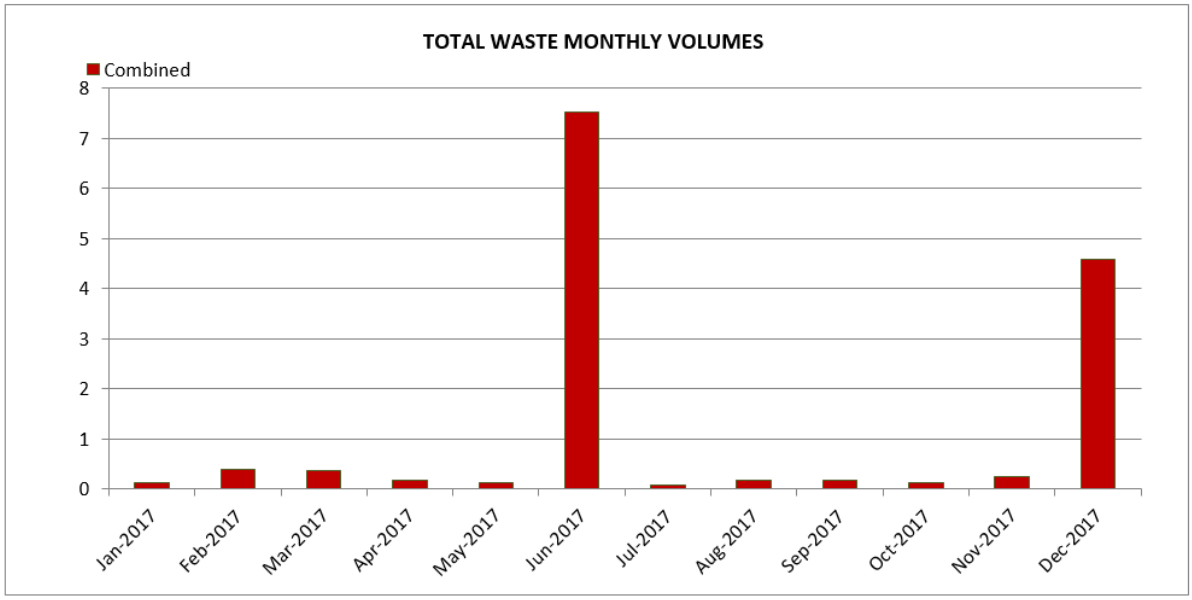

Figure 8-26 – Lidsdale Siding Total Waste Monthly Volumes for 2017

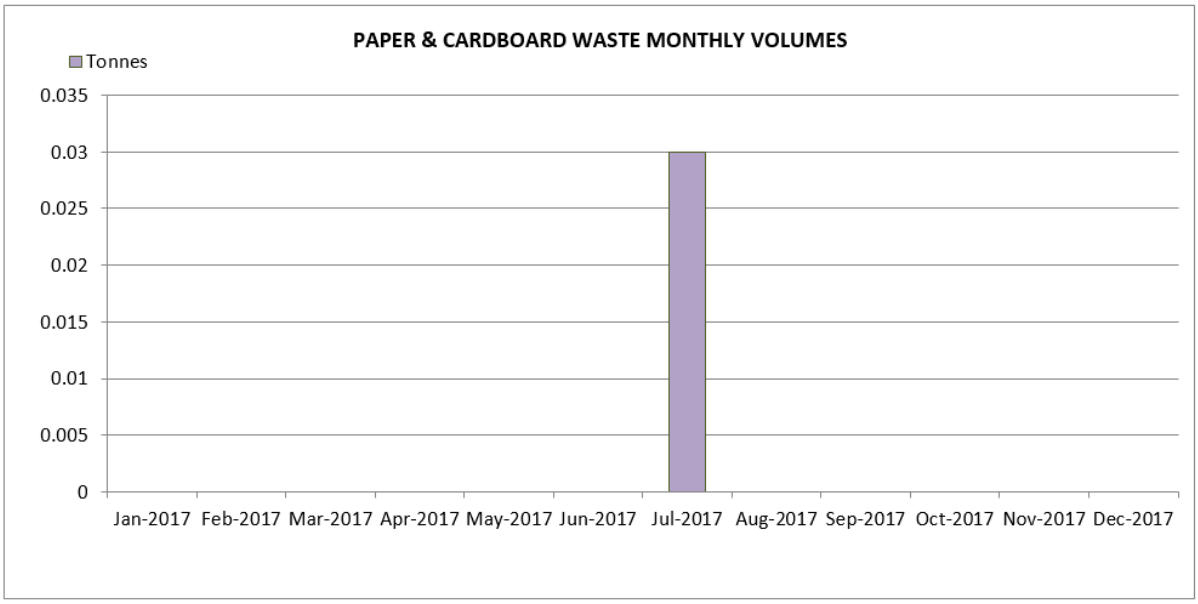

Figure 8-27 – Lidsdale Siding Paper and Cardboard Monthly Volumes for 2017

Figure 8-28 – Lidsdale Siding Other Recycling Waste Monthly Volumes for 2017

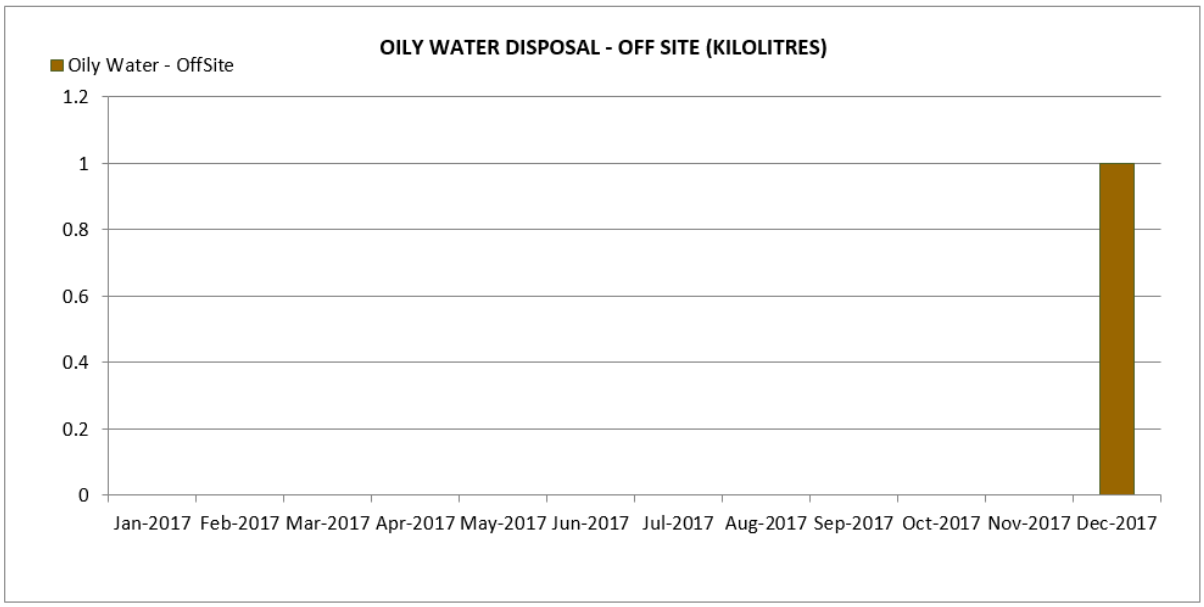

Figure 8-29 – Lidsdale Siding Oily Water Disposal – Off Site (KL) for 2017

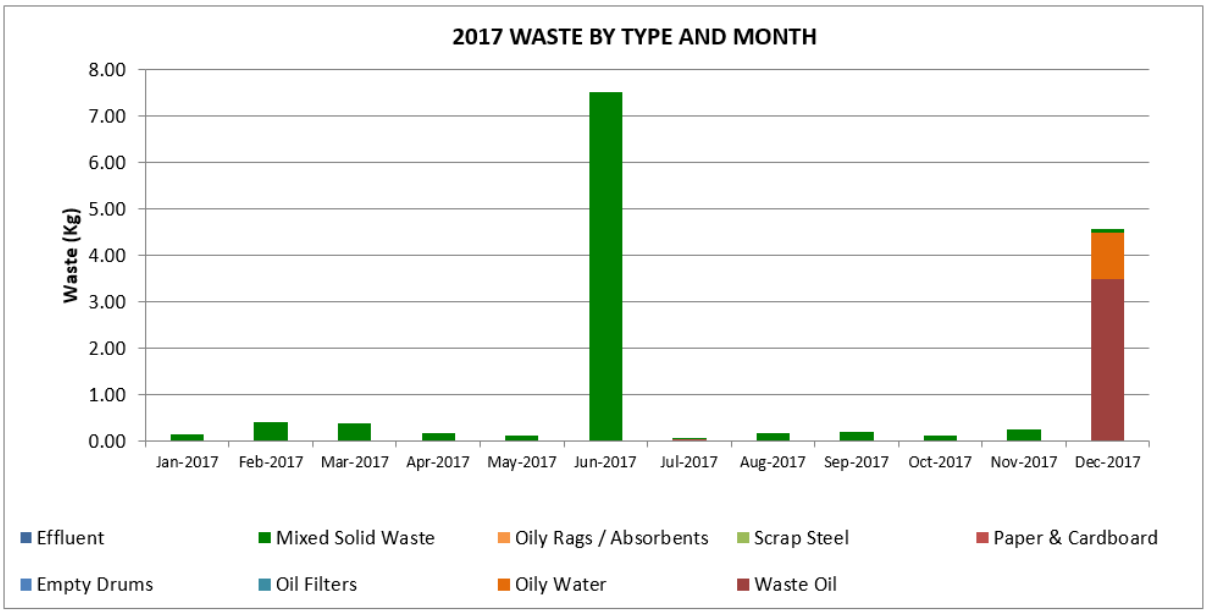

Figure 8-30 – Lidsdale Siding Waste by Type and Month for 2017

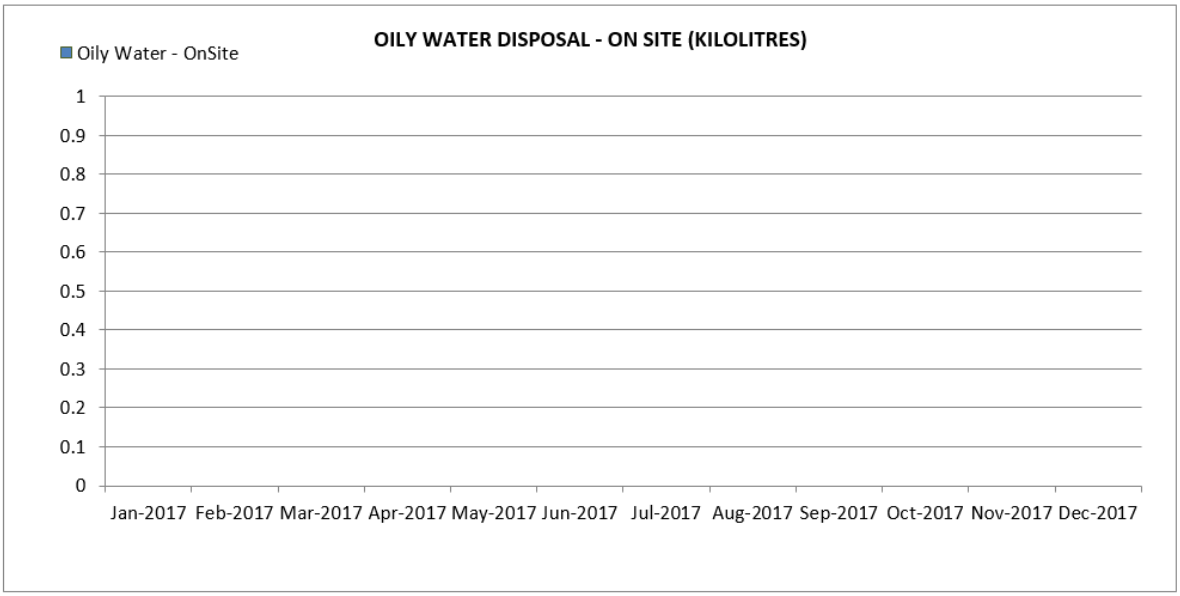

Figure 8-31 – Lidsdale Siding Oily Water Disposal – On Site (KL) for 2017

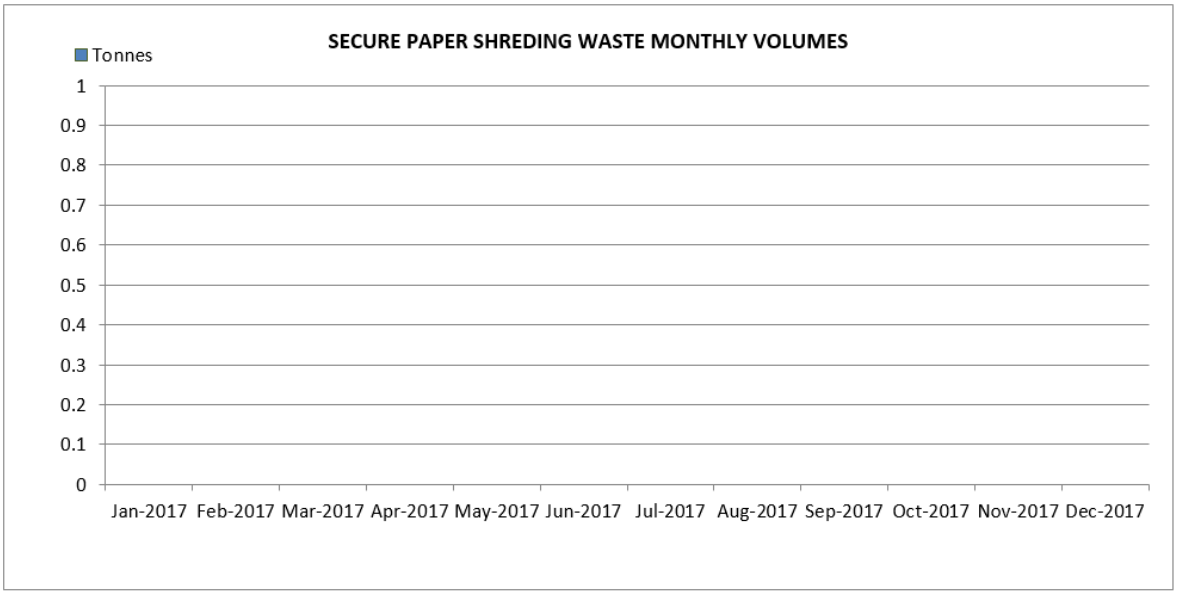

Figure 8-32 – Lidsdale Siding Secure Paper Shredding Waste Monthly Volumes for 2017

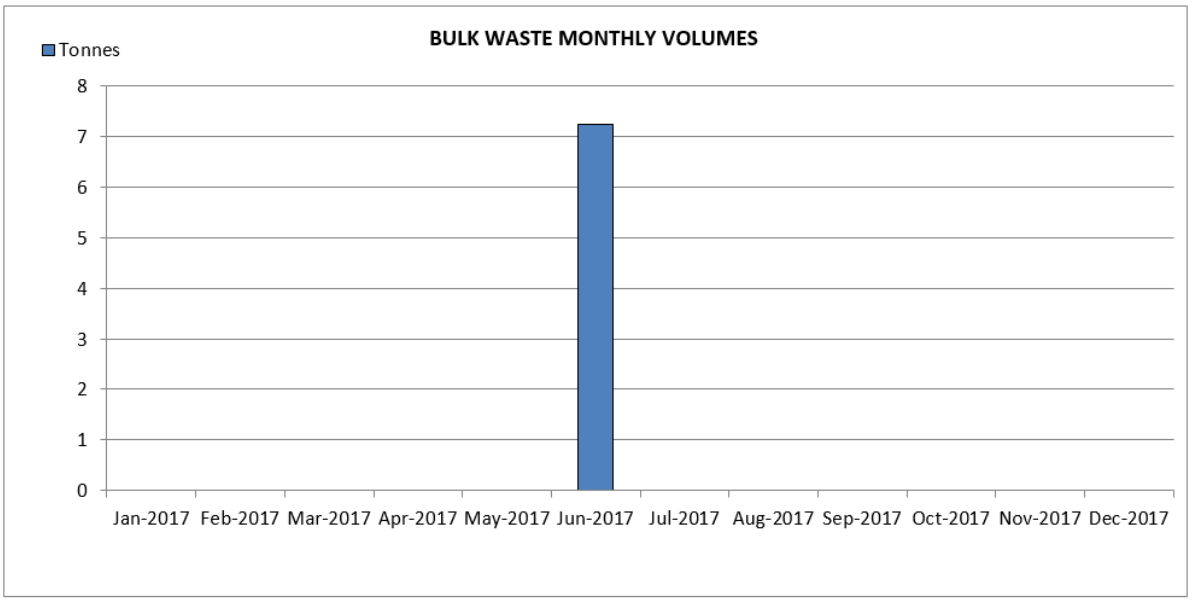

Figure 8-33 – Lidsdale Siding Bulk Waste Monthly Volumes for 2017

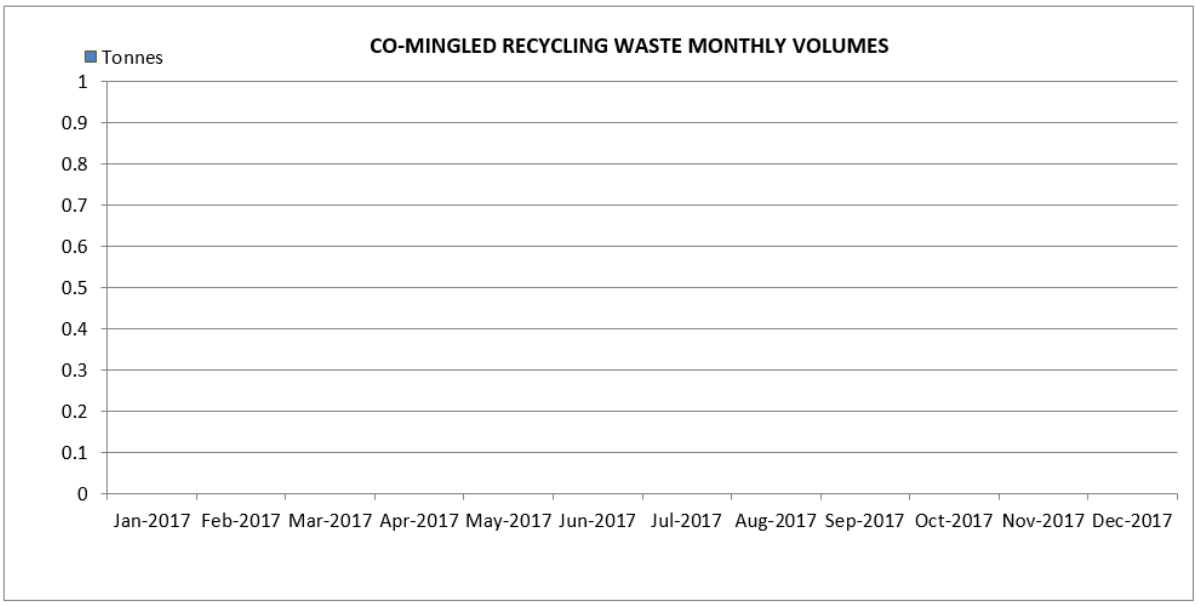

Figure 8-34 – Lidsdale Siding Co-Mingled Recycling Waste Monthly Volumes for 2017

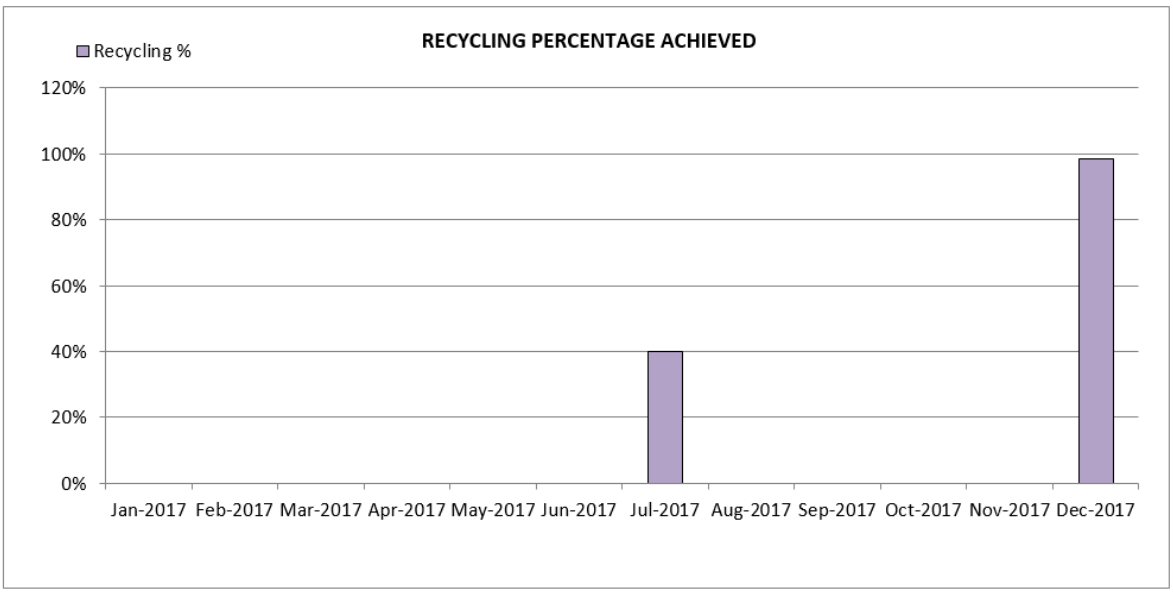

Figure 8-35 – Lidsdale Siding Recycling Percentage Received for 2017

Table 8-14 below outlines the Centennial Coal Western Disposal locations.

Table 8-14 – Centennial Coal Western Disposal Locations

REFERENCE	WASTE TYPE	TRANSPORT / DISPOSAL/ TREATMENT FACILITY
DL01	20L and 205L Drums/Aerosol Cans	Renewable Oil Services - Transport License: 12991 - Facility License: 13092
DL01	Hydraulic Hoses	Renewable Oil Services - Transport License: 12991 - Facility License: 13092
DL01	Oily Rags/Absorbents	Renewable Oil Services - Transport License: 12991 - Facility License: 13092
DL01	Acids/Solvents/Paints/Degreaser	Renewable Oil Services - Transport License: 12991 - Facility License: 13092
DL01	Hydrocarbons (Oil / Grease)	Renewable Oil Services - Transport License: 12991 - Facility License: 13092
DL01	Adhesives/Resins	Renewable Oil Services - Transport License: 12991 - Facility License: 13092
DL02	Batteries	Renewable Oil Services will transport to SIM's Metal for Recycling - Transport License: 12991 - SIMS Metal Recyclers Facility License: 11264
DL03	E-Waste	Matthews Metal Management - 20132
DL03	Cardboard	JR Richards & Sons - Transport Licence: L10415 Ophir Road Resource Recovery Centre - Facility License: 5956
DL03	Co-mingled Recyclables	JR Richards & Sons - Transport Licence: L10415 Ophir Road Resource Recovery Centre - Facility License: 5956
DL03	Paper	JR Richards & Sons - Transport Licence: L10415 Ophir Road Resource Recovery Centre - Facility License: 5956
DL03	Glass	JR Richards & Sons - Transport Licence: L10415 Ophir Road Resource Recovery Centre - Facility License: 5956
DL03	Plastic Packaging	JR Richards & Sons - Transport Licence: L10415 Ophir Road Resource Recovery Centre - Facility License: 5956
DL03	Asbestos	JR Richards & Sons - Transport Licence: L10415 Lithgow City Council Landfill Facility - Facility Licence: 6004
DL03	Contaminated Soil	Renewable Oil Services - Transport License: 12991 - Facility License: 13092
DL04	Chemicals	Renewable Oil Services will transport to a licensed facility for disposal - Transport License 12991 - Hazmat Services Facility License: 13255
DL04	Radioactive Material	Antso - Australian Nuclear Science & Technology Organisation
DL05	Effluent	Bettergrow PTY LTD. Licence: 12529
DL05	Drilling Mud	Bettergrow PTY LTD. Licence: 12529
DL05	Oily Water	Bettergrow PTY LTD. Licence:12529
DL05	Wash Bay Sludge	Bettergrow PTY LTD. Licence:12529
DL05	Waste Coolant	Renewable Oil Services - Transport License: 12991 - Facility License: 13092
DL06	Green Waste	JR Richards & Sons - Transport Licence: L10415 Lithgow City Council Landfill Facility - Facility License: 6004
DL07	Medical/ Sanitary	ISS Washroom Facilities -
DL08	Oil Filters	Renewable Oil Services - Transport License: 11399 - Facility License: 11658
DL09	Printer Toner Cartridges	Close the Loop Recycling Services
DL10	Putrescible Waste	JR Richards & Sons - Transport Licence: L10415 Lithgow City Council Landfill Facility - Facility License: 6004
DL10	Wooden Pallets	JR Richards & Sons - Transport Licence: L10415 Lithgow City Council Landfill Facility - Facility License: 6004
DL11	Putrescible Waste	JR Richards & Sons - Transport Licence: L10415 Lithgow City Council Landfill Facility - Facility License: 6004
DL12	Scrap Metal	Sims Metal - Facility License : 11264
DL13	Secure Documents	Iron Mountain Secure Document destruction
DL14	Fluro Tubes	Dolomatrix Australia (Chemsal) - Facility License No: 12628
DL15	Tyres	C&R Tyre Recycling - Facility License No: 11686
DL16	Concrete	Dencol Sand & Soil Centre - Licence No: 20298
DL16	Conveyor Belt	Andromeda Industries
DL16	Diesel Particulate Filters - Contaminated	JR Richards & Sons - Transport Licence: L10415 Suez Resource Recovery Centre Kemps Creek - Facility Licence: 4068

Appendix M – Bushfire Management Information

Firebreaks were maintained at Lidsdale Siding in 2017 as part of normal grounds maintenance activities.

Fire control equipment was inspected monthly as part of normal operational maintenance.

No fires occurred in the surrounding area that the Rural Fire Services and emergency services required assistance for.

No other activities related to bushfire management were undertaken in the period.

Appendix N – Rehabilitation Information

The rehabilitation and closure objective for the site is to create stable, non-polluting post closure landforms that allow the achievement of the post closure land use. A final rehabilitation and closure plan will be completed at least three years prior to the planned completion of the operations. Lidsdale Siding has approval to carry out coal handling and train loading operations on the site until 31 December 2042.

Lidsdale Siding Rehabilitation status information is detailed in Table 8-15 below.

Table 8-15 – Lidsdale Siding Rehabilitation Status

Mine Area Type	Previous Reporting Period (Actual)	This Reporting Period (Actual)	Next Reporting Period (Forecast)
	2015 (ha)	2016 (ha)	2017 (ha)
Total mine footprint[10]	108	108	108
Total active disturbance[11]	17	17	17
Land being prepared for rehabilitation[12]	0	0	0
Land under active rehabilitation[13]	2.1	2.1	2.1
Completed rehabilitation[14]	0	0	0

[10] **Total Mine Footprint:** includes all areas within a mining lease that either have at some point in time or continue to pose a rehabilitation liability due to mining and associated activities. As such it is the sum of total active disturbance, decommissioning, landform establishment, growth medium development, ecosystem establishment, ecosystem development and relinquished lands (as defined in the DRE MOP/RMP Guidelines). Please note that subsidence remediation areas are excluded.
[11] **Total Active Disturbance:** includes all areas requiring rehabilitation
[12] **Land being prepared for rehabilitation:** includes the sum of mine disturbed land that is under the following rehabilitation phases – decommissioning, landform establishment and growth medium development (as defined in DRE MOP/RMP Guidelines)
[13] **Land under active rehabilitation:** includes areas under rehabilitation and being managed to achieve relinquishment – includes 'ecosystem and land use establishment' and 'ecosystem and land use sustainability (as defined under the DRE MOP/RMP Guidelines)
[13] **Completed rehabilitation:** requires formal sign off from DRE that the area has successfully net the rehabilitation land use objectives or completion criteria

Appendix O – Community Information

Community Information Line

A community information line is available for Lidsdale Siding to receive calls from the local community. Lidsdale Siding's community information line (6355 9500) operates 24 hours a day, 7 days a week.

Community Consultation Committee Meetings

Community Consultation Committee meetings were held in April and October and an Extraordinary Meeting held in August 2017.

Community Consultation Committee Meetings provide a forum for discussion on issues of interest to the community that relate to the Lidsdale and Wallerawang area from Centennial operations including Lidsdale Siding, Western Coal Services, Springvale Mine and Angus Place Mine, including a review of community complaints in the period.

No specific issues action or management actions were identified for Lidsdale Siding by the committee.

Community Consultation Committee meeting minutes for 2017 are uploaded to the Centennial Coal website and can be viewed at https://data.centennialcoal.com.au/domino/centennialcoal/cc205.nsf/Published.xsp?site=Lidsdale%20Siding&type=Community%20Consultative%20Committee&date=All

Community Complaints

In accordance with Schedule 5, Condition 11a, Ivanhoe Coal Pty Ltd is required to make a complaints register available monthly on the Centennial Coal website. Figure 8-36 graphically presents community complaints from May 2013 to December 2017 (Project Approval 08_0223 received 3 May 2013).

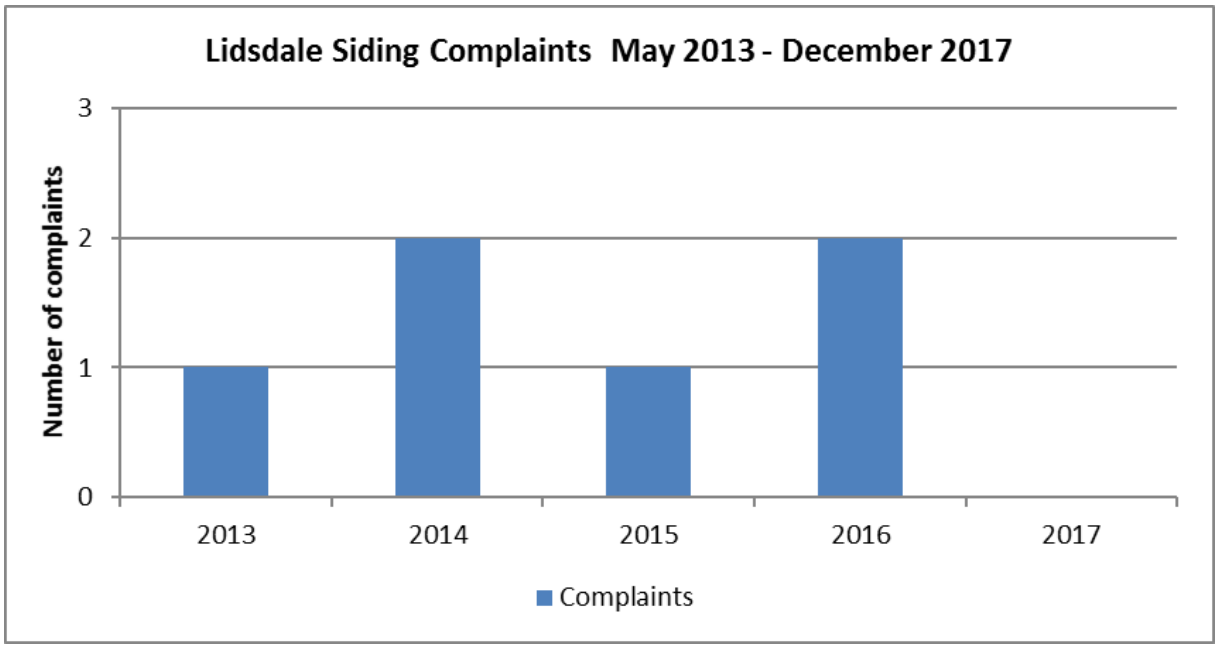

Figure 8-36 – Lidsdale Siding Historical Complaints

The community complaints register is provided in Table 8-16 and can be viewed at https://data.centennialcoal.com.au/domino/centennialcoal/cc205.nsf/Published.xsp?site=Lidsdale%20Siding&type=Community%20Complaints%20Register&date=All.

Table 8-16 – Lidsdale Siding Community Complaints Register

Period	Complaint Reference Number	Complaint Date	Complaint Information	Springvale Coal PTY Limited Response
May 2013	-	-	Nil complaints received	-
June 2013	-	-	Nil complaints received	-
July 2013	-	-	Nil complaints received	-
August 2013	-	-	Nil complaints received	-
September 2013	-	-	Nil complaints received	-
October 2013	4/2013/ccapp1000087	16/10/2013	3 large "booms' awoke resident followed by a single "boom" a few minutes later.	A Pacific National train was being loaded (and "booms" were rail wagon collisions from wagon bunching while shunting by PN train driver. Formal written complaint lodged with Pacific National.
November 2013	-	-	Nil complaints received	-
December 2013	-	-	Nil complaints received	-
January 2014	-	-	Nil complaints received	-
February 2014	-	-	Nil complaints received	-
March 2014	-	-	Nil complaints received	-
April 2014	-	-	Nil complaints received	-

Period	Complaint Reference Number	Complaint Date	Complaint Information	Springvale Coal PTY Limited Response
May 2014	5/2014/ccapp1000142	20/05/2014	2 x Noise complaints reported to EPA for weekend 17-18/05/2014 from same complainant with no details provided around noise sources or complainant. A third complaint reported to EPA 20th May from same complainant identifying "humming" and reversing alarm from Lidsdale Siding. EPA reported complaint to Ivanhoe Coal PTY Limited on 20/05/2014.	Investigation of potential surrounding area and identified several noise sources that were potential noise sources that were not associated with Lidsdale Siding operations. EPA notified of investigations results.
June 2014	-	-	Nil complaints received	-
July 2014	-	-	Nil complaints received	-
August 2014	-	-	Nil complaints received	-
September 2014	-	-	Nil complaints received	-
October 2014	-	-	Nil complaints received	-
November 2014	4/2014/ccapp1000176	17/11/2014	Complainant advising of alarm sounding throughout weekend	The site Fire Water Tank was empty due to decommissioning of Production Bore, resulting in alarm sounding at Lidsdale Siding. Fire Water was supplied by town water until new Production Bore was installed and commissioned. Audible component of alarm was silenced with a tank volume alert provided to control room via CITECT/PLC.
December 2014	-	-	Nil complaints received	-
January 2015	-	-	Nil complaints received	-
February 2015	-	-	Nil complaints received	-
March 2015	-	-	Nil complaints received	-
April 2015	-	-	Nil complaints received	-

Period	Complaint Reference Number	Complaint Date	Complaint Information	Springvale Coal PTY Limited Response
May 2015	-	-	Nil complaints received	-
June 2015	-	-	Nil complaints received	-
July 2015	-	-	Nil complaints received	-
August 2015	-	-	Nil complaints received	-
September 2015	4/2015/ccapp1000261	22/09/2015	A resident alleged the lights at the Lidsdale Siding Train Loading Facility were left on over night.	At the time of the complaint, work process was that lights at the siding were manually operated during train loading events and manually turned off once the train loading completed. On this date the lights were not switched off following train loading. Automated lighting and automatic switching off for lighting was implemented.
October 2015	-	-	Nil complaints received	-
November 2015	-	-	Nil complaints received	-
December 2015	-	-	Nil complaints received	-
January 2016	4/2016/ccapp1000275	21/01/2016	A complaint was received that lights at Lidsdale Siding were left on overnight.	Automated lighting systems failed with a fault identified in the lighting control system that was repaired and corrected.

Period	Complaint Reference Number	Complaint Date	Complaint Information	Springvale Coal PTY Limited Response
February 2016	4/2016/ccapp1000291	15/02/2016	A resident complained of a train blowing its horn at approximately 10pm on the 15 February 2016. The resident also complained of light spill from the Lidsdale Siding Train Loading facility.	The resident was advised it is standard safety operating requirement practice for trains drivers to use the horn prior to entering the Wallerawang Main Street crossing and also prior to reversing into the rail loading facility. A joint inspection with the complainant determined the source of the light spill was the gantry lights to the train loading bin. The gantry lights were temporarily disabled whilst additional programming completed to improve automated lighting control systems and reduce timing periods. Gantry lighting at the TLO is automated to switch off one hour after completion of loading.
March 2016	-	-	Nil complaints received	-
April 2016	-	-	Nil complaints received	-
May 2016	-	-	Nil complaints received	-
June 2016	-	-	Nil complaints received	-
July 2016	-	-	Nil complaints received	-
August 2016	-	-	Nil complaints received	-
September 2016	-	-	Nil complaints received	-
October 2016	-	-	Nil complaints received	-
November 2016	-	-	Nil complaints received	-
December 2016	-	-	Nil complaints received	-
January 2017	-	-	Nil complaints received	-
February 2017	-	-	Nil complaints received	-
March 2017	-	-	Nil complaints received	-

Period	Complaint Reference Number	Complaint Date	Complaint Information	Springvale Coal PTY Limited Response
April 2017	-	-	Nil complaints received	-
May 2017	-	-	Nil complaints received	-
June 2017	-	-	Nil complaints received	-
July 2017	-	-	Nil complaints received	-
August 2017	-	-	Nil complaints received	-
September 2017	-	-	Nil complaints received	-
October 2017	-	-	Nil complaints received	-
November 2017	-	-	Nil complaints received	-
December 2017	-	-	Nil complaints received	-

Appendix P – Independent Audit Information

MCW Environmental was engaged by Ivanhoe Coal Pty Ltd to carry out an independent environmental audit of the Lidsdale Siding facility. An update on performance is provided in Table 8-17.

Table 8-17 – Independent Audit Summary

Condition Number	Condition	Compliance Status	Status at 31 December 2017
DA 08_0223 C2.9	Within 12 months of the date of this approval, or as otherwise agreed by the Director-General, the Proponent shall surrender all existing development consents for the site in accordance with Section 104A of the EP&A Act.	**Compliant**	Surrender was made to Lithgow City Council on 28 November 2016, with acceptance of surrender by Council on 2 December 2016.
DA 08_0223 C3.2	The Proponent shall ensure that the noise generated by the project does not exceed the criteria in Table 1 (Condition 2 Schedule 3.)	**Non-Compliant**	A complete and detailed review of the sources of noise, and Centennial's subsequent ability to feasibly and practically manage and mitigate these sources in the Lidsdale / Wallerawang area has been a priority for Centennial in 2017 and will remain so in 2018 and beyond. Noise mitigation at Lidsdale Siding will continue to receive attention at the highest level in Centennial, with the committed, experienced and resourced project team continuing to be engaged to drive the noise mitigation work in accordance with the operational management and technical measures proposed in the detailed works plan and correspondence submitted to DPE on Feb 17 2017. The Work Plan sets out Centennial's current proposal for ensuring that its operations at Lidsdale Siding reduce their noise and achieve compliance with consented noise limits.

Condition Number	Condition	Compliance Status	Status at 31 December 2017
DA 08_0223 C3.14	Within 6 months of the date of this approval, the Proponent shall upgrade the rail level crossings of Main Street and Brays Lane, Wallerawang, unless the Director-General directs otherwise, by: (a)installing additional signage and line marking on Main Street Wallerawang; (b) installing upgraded safety measures at the Brays Lane level crossing in accordance with the relevant Australian standard.	**Non-Compliant**	The required rail level crossing upgrade works have been completed. The outstanding correspondence with Council and the rail authority has not been obtained in 2017.
DA 08_0223 C3.17	The Proponent shall ensure that all surface water discharges from the site comply with the discharge limits(both volume and quality) set for the project in any EPL.	**Compliant**	All discharges in 2017 complied with all approval and licence conditions.
DA 08_0223 C3.18	Within 6 months of the date of this approval, unless otherwise agreed by the Director-General, the Proponent shall undertake a Phase 2 Contamination Assessment for the site and implement any necessary remediation within 18 months of this approval in accordance with the requirements of the Contaminated Land Management Act 1997, to the satisfaction of the EPA.	**Non-Compliant**	A Phase 2 Environmental Site Assessment I (ESA) in support of further contaminated site characterisation at the site was completed in October 2016 to meet the intent of the action and RAP. Additional monitoring and investigative works were completed in 2017 including - Report updated to include additional works completed January2017. - Additional works appended to include additional intrusive works for delineation and consideration of the proposed expansion of the dirty water dam. - Report updated to include GME results completed June 2017. - Additional works appended. Report restructured to incorporate additional works programs rather than consecutive addendums. - Report finalised December 2017. Additional information is provided in Appendix B above.

Condition Number	Condition	Compliance Status	Status at 31 December 2017
DA 08_0223 C3.30	Within 12 months of the date of this approval, the Proponent shall lodge a rehabilitation bond for the project with the Director-General. The sum of the bond shall be calculated in accordance with the current publicly-available version of methodology and calculation spreadsheets utilised by DRE for the purpose of determining rehabilitation liabilities for mine sites, to the satisfaction of the Director-General. The Proponent shall pay the Department's reasonable costs in engaging experts to review the adequacy of the calculated sum of the bond.	**Compliant**	Centennial completed an annual revision in 2017 in accordance with approval requirements.
EPL 5129 L2.1	L2.1 For each monitoring/discharge point or utilisation area specified in the table\s 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.	**Compliant**	All discharges in 2017 complied with all approval and licence conditions.

Condition Number	Condition	Compliance Status	Status at 31 December 2017
EPL 5129 L4.1	Noise generated at the premises must not exceed the noise limits presented in the table below.	**Non-Compliant**	A complete and detailed review of the sources of noise, and Centennial's subsequent ability to feasibly and practically manage and mitigate these sources in the Lidsdale / Wallerawang area has been a priority for Centennial in 2017 and will remain so in 2018 and beyond. Noise mitigation at Lidsdale Siding will continue to receive attention at the highest level in Centennial, with the committed, experienced and resourced project team continuing to be engaged to drive the noise mitigation work in accordance with the operational management and technical measures proposed in the detailed works plan and correspondence submitted to DPE on Feb 17 2017. The Work Plan sets out Centennial's current proposal for ensuring that its operations at Lidsdale Siding reduce their noise and achieve compliance with consented noise limits.
EPL 5129 L4.4	For the purpose of condition L4.3, the meteorological data to be used for determining meteorological conditions is the data recorded by the meteorological weather station identified as EPA identification Point 9 in condition P1.1.	**Compliant**	The Lidsdale siding weather station installed in 2015 remained operational in 2016 as per as EPA identification Point 9 in condition P1.1.

Condition Number	Condition	Compliance Status	Status at 31 December 2017
EPL 5129 L4.5	To determine compliance: a) With the Leq(15 minute) noise limits in condition L4.1, 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; orii) within 30 metres of a dwelling façade, but not closer than 3 metres where any dwelling on the property is situated more than 30 metres from the property boundary closest to the premises.b) With the LA1(1 minute) noise limits in condition L4.1, the noise measurement equipment must be located within 1 metre of a dwelling façade.c) With the noise limits in condition L4.1, the noise measurement equipment must be located:i) at the most affected point at a location where there is no dwelling at the location; orii) at the most affected point within an area at a location prescribed by conditions L4.5(a) or L4.5(b).	**Compliant**	All attended noise monitoring reports have been revised accordingly with all monitoring undertaken in compliance with all licence and approvals conditions.
EPL 5129 L4.6	A non-compliance of condition L4.1 will still occur where noise generated from the premises in excess of the appropriate limit is measured:a) at a location other than an area prescribed by conditions L4.5(a) and L4.5(b); and/or b) at a point other than the most affected point at a location.	**Compliant**	All attended noise monitoring reports have been revised accordingly with all monitoring undertaken in compliance with all licence and approvals conditions.
EPL 5129 U1.2	All stockpiled soil and fill material excavated as part of the Lidsdale Rail Siding upgrade project must be characterised prior to reuse on-site or disposal off-site. The characterisation must be undertaken in accordance with the industrial land use criteria summarised in Appendix II of "Guidelines for the NSW Site Auditor Scheme" (DEC, 2006).	**Compliant**	No changes to previous reported information.

Condition Number	Condition	Compliance Status	Status at 31 December 2017
SoC-1	Sound power levels from all new plant and equipment will meet the specified levels as described in the Noise Impact Assessment prepared by Hatch 2012.	**Non-Compliant**	Trends for noise monitoring data over the life of the project continue to show exceedances above the noise criteria within the approval and 2012 Hatch Noise assessment.

Appendix Q – Incidents and Non-Compliances

Table 8-18 contains a summary for each incident and/or non-compliance during the Annual Review reporting period.

Table 8-18 – Incident/Non-Compliance Summary

Nature of the incident/non-compliance	**Project Approval 08_0223, Condition 3.2** **EPL 5129, L4.1** Exceedance of noise limits
Date of incident/ non-compliance (if known; if not known state not known)	R8 16/01/2017 23:53 R9 16/01/2017 23.31
The location of the incident/ non-compliance (include a figure if appropriate), if known	As above
Detail the cause of the incident/non-compliance, including investigation findings	The exceedance of the noise criteria is related to conveyor and locomotive continuum and loading into wagons during the night period.
Detail action that has been, or will be, taken to mitigate any adverse effects of the incident/ non-compliance	A complete and detailed review of the sources of noise, and Centennial's subsequent ability to feasibly and practically manage and mitigate these sources in the Lidsdale/Wallerawang area has been a priority for Centennial in 2017 and will remain so in 2018 and beyond. Centennial provided the DPE with a detailed work plan identifying operational management and technical measures undertaken to date and proposed in the detailed works plan and correspondence submitted to DPE on 17 February 2017.
Detail action that has been, or will be, taken to prevent recurrence of the incident/ non-compliance	A complete and detailed review of the sources of noise, and Centennial's subsequent ability to feasibly and practically manage and mitigate these sources in the Lidsdale/Wallerawang area has been a priority for Centennial in 2017 and will remain so in 2018 and beyond. Noise mitigation at Lidsdale Siding will continue to receive attention at the highest level in Centennial, with the committed, experienced and resourced project team continuing to be engaged to drive the noise mitigation work in accordance with the operational management and technical measures proposed in the detailed works plan and correspondence submitted to DPE on 17 February 2017. The Work Plan sets out Centennial's current proposal for ensuring that its operations at Lidsdale Siding reduce their noise and achieve compliance with consented noise limits.
Consultation with relevant agency (who, when and the response), or agencies if more than one	-

Table 8-19 – Summary of Regulatory Actions

Compliance Type	Agency	Reference	Response
Caution Notices	DPE	31 January 2017 - Official Caution and Draft Order in relation to noise exceedances of the Lidsdale Siding Upgrade Project.	A complete and detailed review of the sources of noise, and Centennial's subsequent ability to feasibly and practically manage and mitigate these sources in the Lidsdale/Wallerawang area has been a priority for Centennial in 2017 and will remain so in 2018 and beyond. Noise mitigation at Lidsdale Siding will continue to receive attention at the highest level in Centennial, with the committed, experienced and resourced project team continuing to be engaged to drive the noise mitigation work in accordance with the operational management and technical measures proposed in the detailed works plan and correspondence submitted to DPE on 17 February 2017. The Work Plan sets out Centennial's current proposal for ensuring that its operations at Lidsdale Siding reduce their noise and achieve compliance with consented noise limits.
Warning Letters		Nil	
Penalty Notices		Nil	
Prosecutions		Nil	

Note: This table includes actions taken by DPE, DRE and the EPA during the reporting period.

Centennial Coal