Warrell Creek to Nambucca Heads – Pacific Highway Upgrade Project

ENVIRONMENT PROTECTION AUTHORITY MONTHLY REPORT

- April 2016

Pacifico Project Number: WC2NH

A team consisting of RMS and Pacifico (ACCIONA Ferrovial JV)
to upgrade the Pacific Highway at Warrell Creek to Nambucca Heads

Contents

1. Introduction

Environmental Protection Licence (EPL) 20533 was issued to ACCIONA Infrastructure for the Warrell Creek to Nambucca Heads Pacific Highway Upgrade project on the 16th December 2014. Condition R1.8 of the EPL requires the licensee to provide the EPA with a monthly report containing the following information:

a) details of all non-compliances with the conditions of this licence and measures taken, or proposed, to prevent a recurrence of such a non-compliance; and
b) details of all discharges from the sediment basins where the water quality results exceed the limits prescribed by Condition L2.4 including the results of rainfall measurements to demonstrate compliance with Condition L2.5; and
c) details of results of any acoustic investigation made in relation to Condition L4.2d); and

The report referred to in this condition must be received by the EPA within 10 working days of the end of each month.

This document has been prepared to fulfil the requirements of Condition R1.8.

1.1 Description of Works

The project's construction activities during April 2016 were limited to the following:

- Clearing and Grubbing
- Topsoil stripping
- Earthworks including crushing
- Production blasting
- Continuing bridge works including piling, headstock construction, pile caps, girder placement, deck unit installation and temporary work platforms
- Installation of permanent boundary fencing
- Fauna fence installation
- Installation of monitoring instruments – extensometers, inclinometers and piezometers
- Continuing culvert installation
- Scour rock installation
- Landscaping works
- Continuing utility works
- Batter stabilisation using hydromulch (permanent design seed mix)
- Girder deliveries to Nursery Road
- Site Survey
- Topsoil placement
- Sheet Piling Nursery Road
- Topsoil Amelioration and Blending
- Concrete Lined Drains
- Sealing
- Basin Decommissioning
- Girder Production

- Concrete Production

Works scheduled for next month include

- Clearing and grubbing
- Topsoil stripping
- Earthworks including crushing
- Production blasting
- Continuing bridge works including piling, headstock construction, pile caps, girder placement, deck unit installation and temporary work platforms
- Installation of permanent boundary fencing
- Fauna fence installation
- Landscaping works
- Continuing culvert installation
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- Concrete Lined Drains
- Sealing
- Basin Decommissioning
- Girder Production
- Concrete Production

1.2 Consultation Activities

The project's consultation activities during April 2016 included the following:

Table 1 – Consultation Activities

Groups	Date	Key Topics
Environmental Review Group	12/04/16	Construction Progress, Design Update, Upcoming works, EWMS discussion, Environmental Update, Monitoring update, Out of Hours Works, Incidents and Community Complaints
Community Information Sessions	07/04/16	Drop-in session - North facing ramps at Macksville

Other Consultation Activities:

- PACIFICO stand at the annual Macksville Show on the 8th and 9th of April 2016.
- Ongoing girder delivery notifications

- Extensive email to RMS database of submissions regarding modification to North Facing Ramps

At House Noise Treatments

The At House noise treatment program is currently being managed by RMS and is not part of the ACCIONA (Pacifico) Scope of Works and Technical Criteria.

Upcoming Community and stakeholder activities:

- Quarterly community information sessions will be held in 2016
- School visits including construction personnel and RMS representatives

2. Weather

2.1 Discussion

The automatic recording weather stations at the main site compounds (north and south) records rainfall totals daily at 9AM. The total rainfall received for the month is as follows:-

Table 2 - Precipitation

Month	Total monthly rainfall	Location
01/4/16 – 30/4/16	90.8mm	Northern Compound
01/4/16 – 30/4/16	79.8mm	Albert Drive Compound

The site experienced a total of 16 rain days throughout the month of April 2016.

During April, rainfall received on site was lower than the April monthly average of 171.5mm. A summary of weather conditions recorded over the month for Smoky Cape by the Bureau of Meteorology is detailed below in Table 2.3.

The daily summaries for rainfall received in April at the Albert Drive Compound and Northern Compound are shown below in Table 2.1 and 2.2.

Table 2.1 – Rainfall recorded at Albert Drive Southern Compound Automated Weather Station

Date	Time	TOTAL Rain Gauge (mm)
1/04/2016	9:00:00	0
2/04/2016	9:00:00	0
3/04/2016	9:00:00	0
4/04/2016	9:00:00	12.8
5/04/2016	9:00:00	0
6/04/2016	9:00:00	0

Date	Time	TOTAL Rain Gauge (mm)
7/04/2016	9:00:00	0
8/04/2016	9:00:00	0
9/04/2016	9:00:00	4.2
10/04/2016	9:00:00	6.4
11/04/2016	9:00:00	2.4
12/04/2016	9:00:00	0
13/04/2016	9:00:00	0
14/04/2016	9:00:00	15.2
15/04/2016	9:00:00	0
16/04/2016	9:00:00	0.2
17/04/2016	9:00:00	0
18/04/2016	9:00:00	1
19/04/2016	9:00:00	3.6
20/04/2016	9:00:00	0
21/04/2016	9:00:00	0
22/04/2016	9:00:00	0.2
23/04/2016	9:00:00	3.4
24/04/2016	9:00:00	1.4
25/04/2016	9:00:00	7.6
26/04/2016	9:00:00	10.4
27/04/2016	9:00:00	5.8
28/04/2016	9:00:00	4.6
29/04/2016	9:00:00	0.4
30/04/2016	9:00:00	0.2

Table 2.2 – Rainfall recorded at the Northern Compound Automated Weather Station

Date	Time	TOTAL Rain Gauge (mm)
1/04/2016	9:00:00	0.2
2/04/2016	9:00:00	0
3/04/2016	9:00:00	0
4/04/2016	9:00:00	4
5/04/2016	9:00:00	0.2
6/04/2016	9:00:00	0
7/04/2016	9:00:00	0
8/04/2016	9:00:00	0
9/04/2016	9:00:00	7.6
10/04/2016	9:00:00	6.2
11/04/2016	9:00:00	13
12/04/2016	9:00:00	0
13/04/2016	9:00:00	0.4
14/04/2016	9:00:00	3.2
15/04/2016	9:00:00	0

16/04/2016	9:00:00	0
17/04/2016	9:00:00	0
18/04/2016	9:00:00	1.4
19/04/2016	9:00:00	15
20/04/2016	9:00:00	0
21/04/2016	9:00:00	0.2
22/04/2016	9:00:00	0
23/04/2016	9:00:00	2.2
24/04/2016	9:00:00	1.8
25/04/2016	9:00:00	16.2
26/04/2016	9:00:00	6.4
27/04/2016	9:00:00	8.8
28/04/2016	9:00:00	3.4
29/04/2016	9:00:00	0.4
30/04/2016	9:00:00	0.2

Table 2.3: Weather conditions recorded in April 2016 at Smoky Cape by the Bureau of Meteorology.

April 2016

Date	Minimum temperature (°C)	Maximum temperature (°C)	Rainfall (mm)
1/04/2016	18.6	28.3	0
2/04/2016	20.5	29.1	0
3/04/2016	18.9	28.7	0
4/04/2016	22.2	29.5	0
5/04/2016	20.2	28.8	0
6/04/2016	20	27	0
7/04/2016	19.5	26.6	0
8/04/2016	19	25.9	0.8
9/04/2016	20.2	28	3
10/04/2016	19.5	29	0
11/04/2016	19.8	28	5
12/04/2016	18	27	0
13/04/2016	17.2	26.6	7.8
14/04/2016	17	26.6	0.6
15/04/2016	17.6	26.1	1
16/04/2016	18.4	27.1	0
17/04/2016	17.2	23.5	0
18/04/2016	16.5	25	4.6
19/04/2016	15.5	25.9	16
20/04/2016	17.2	27.1	0
21/04/2016	18.8	25.4	0
22/04/2016	18.9	27.8	11.2

Date	Minimum temperature (°C)	Maximum temperature (°C)	Rainfall (mm)
23/04/2016	16.6	24	0
24/04/2016	15	24	5
25/04/2016	15.5	24	9.4
26/04/2016	16	24.1	4.6
27/04/2016	16.5	25.5	5.4
28/04/2016	17.8	25.3	9.4
29/04/2016	18.5	26	1
30/04/2016	20.5	25.1	0

3. Surface Water Monitoring

Pacifico have been provided trigger levels for baseline monitoring from RMS, these will be compared against monthly data as well as between upstream and downstream sites to determine works impact.

Monthly sampling was undertaken by ACCIONA (Pacifico):

Wet Sampling Event

A "wet" sampling event was undertaken on the 4th of April, field tests and lab tests were undertaken. Results are available in Appendix A.

Dissolved oxygen (DO) levels noted to be below trigger values at:

Stony Creek upstream (4.03mg/L) and downstream (2.18mg/L) sites. It is noted that no works were being undertaken in the area which would have affected DO levels, site controls were verified to be in place. Water was being conveyed across the project alignment through the dedicated diversion channel.

Lower Warrell Creek upstream (2.95mg/L) and downstream (1.75mg/L) sites. It is noted that no works were being undertaken in the area which would have affected DO levels, site controls were verified to be in place.

Nambucca River upstream (4.3mg/L) and downstream (4.41mg/L) sites. It is noted that DO levels increased from upstream to downstream sites, and are thus unlikely to be attributed to construction impacts.

pH levels noted to be outside of trigger levels at:

Lower Warrell Creek upstream (7.88) and downstream (7.71) sites recorded elevated pH levels. It is noted that levels decreased from upstream to downstream with all controls in place and are unlikely therefore to be attributable to construction impacts.

Nambucca River upstream (7.92) and downstream (7.75) sites recorded elevated pH levels. It is noted that pH decreased form upstream to downstream sites, with controls verified to be in place and no work activities being undertaken that would

impact on pH levels. It is therefore unlikely to be attributed to construction impacts.

Turbidity levels noted to be elevated above trigger levels at:

Stony Creek downstream (19.3 NTU). It is noted that this was a minor exceedance of trigger level (17.16 NTU is the 80th %ile trigger level). All controls were verified to be in place and is thus unlikely to be generated from construction activities.

Nambucca River upstream (80 NTU) and downstream (82.1 NTU). It is noted that there was only a minor increase from upstream to downstream with elevated readings upstream. Site controls were verified to be in place, with no construction activities being undertaken that would impact on turbidity. The source of this increased turbidity is possibly due to the disturbance of sediment from the river bank as well as from other sources further upstream.

Metals noted to be above trigger levels at

Upper Warrell Creek for manganese upstream (0.472mg/L) and downstream (0.28mg/L). It is noted that these levels are within ANZECC criteria (1.9mg/L) and decreased after passing through the project alignment.

Lower Warrell Creek for arsenic (0.002mg/L downstream), manganese (0.811mg/L upstream, 2.85mg/L downstream), nickel (0.022mg/L upstream, 0.073mg/L downstream) and zinc (0.051mg/L upstream, 0.113mg/L downstream). No works were undertaken which would have impacted upon metals levels at the site, with all controls verified to be in place. The increase in metal concentrations from upstream to downstream does not appear to correlate with the minor decrease in pH upstream (7.88) and downstream (7.71).

Site received 12.8mm from 9am 3rd April – 9am 4th April. No further rain was received on 4th April 16 and no water was released from the sediment basin at Scotts Head Road.

Nutrients noted to be above trigger levels at:

Upper Warrell Creek for total nitrogen (1mg/L upstream, 0.6mg/L downstream). It is noted that these values decreased from upstream to downstream. Ammonia upstream (0.1mg/L) and downstream (0.1mg/L) were also elevated, it is noted that these levels are within ANZECC Criteria (0.7mg/L) and that values did not change after flowing through site.

Lower Warrell Creek upstream and downstream for nitrogen (1mg/L upstream, 2.7mg/L downstream) and nitrate (0.34mg/L upstream, 1.43mg/L). Downstream levels of nitrite (0.04mg/L) and ammonia (0.51mg/L) were also elevated. All controls were verified to be in place with no activities being undertaken that would impact on this site. No landscaping works have been undertaken within the immediate project site catchment north and south of Lower Warrell Creek at Scotts Head Road.

2nd Wet Sampling Event

A “wet” (>10mm in 24 hour period) sampling event was undertaken on 14th April, field tests were undertaken. Results are available in Appendix A.

Dissolved Oxygen (DO) levels noted to be below trigger levels at:

Lower Warrell Creek upstream (4.88mg/L) and downstream (4.72mg/L). It is noted that there was only a minor decrease from upstream to downstream sites, with no construction activities being undertaken which would have impacted on DO levels.

Nambucca River upstream (5.42mg/L) and downstream (5.61mg/L). It is noted that levels increased from upstream to downstream and no activities being undertaken that would impact on DO levels.

pH levels noted to be outside of trigger levels at:

Upper Warrell Creek upstream (5.79) and downstream (6.03) were below trigger levels. It is noted that levels increased from upstream to downstream sites, with controls verified to be in place and no activities being undertaken which would impact on pH levels.

Lower Warrell Creek upstream (6.96) and downstream (7.02) were above trigger levels. It is noted that these levels are within ANZECC Criteria (6.5-8.0), with only very minor increase from upstream to downstream. Controls were verified to be in place, with no activities being undertaken that would impact on pH.

Dry Sampling Event

A “dry” sampling event was undertaken on the 28th of April, field tests and lab sampling was undertaken. Results are available in Appendix A.

pH levels noted to be outside trigger levels at:

Nambucca River upstream (7.86) and downstream (7.97). It is noted that the trigger levels for pH 80th and 20th percentile is 7, with any other value being outside of the trigger levels. It is also noted that these levels are within ANZECC criteria (6.5-8.0).

Metals levels noted to be above trigger levels at:

Upper Warrell Creek for manganese upstream (0.249mg/L) and downstream (0.486mg/L). It is noted that these are well within ANZECC criteria (1.9mg/L). All controls were verified to be in place at this site.

Stony Creek downstream for zinc (0.007mg/L). It is noted that this value is within ANZECC criteria (0.008mg/L) and that all controls were in place at the site.

Lower Warrell Creek upstream (1.54mg/L) and downstream (0.282mg/L) for manganese. It is noted that the levels decreased from upstream to downstream, and that these values were within ANZECC criteria (1.9mg/L).

Nutrient levels noted to be above trigger levels at:

Upper Warrell Creek downstream for nitrate (0.06mg/L). It is noted that this value is well within ANZECC criteria (0.7mg/L) and that no activities were being undertaken which would have impacted upon nutrients.

Stony Creek upstream (0.07mg/L) and downstream (0.06mg/L). It is noted that these values decreased from upstream to downstream sites, and are therefore unlikely to be attributed to construction.

Nambucca River for ammonia upstream (0.14mg/L) and downstream (0.08mg/L). It is noted that these values are well within ANZECC criteria (0.9mg/L). Total phosphorus was also elevated downstream (0.05mg/L), it is noted that this is a minimal increased from upstream (0.04mg/L) and that it is within ANZECC criteria (0.05mg/L). It is also noted that controls were verified to be in place and that no works were being undertaken that would impact on nutrient levels within the waterway.

4. Sediment Basin Water Monitoring

Water was released from commissioned sediment basins between the 1st and 30th of April 2016 after rainfall. Water pumped into basins was kept below the design Sediment Storage Zone and was treated and released as soon as possible, especially if rainfall was predicted in the 5 day forecast. A statistical correlation has been developed which identified the relationship between Turbidity (NTU) and Total Suspended Solids (TSS) for water quality in the WC2NH Project sediment basins in order to determine the NTU equivalent of 50mg/L TSS. This statistical correlation has been developed to meet EPL Licence No 20533 Condition L2.7 to determine compliance with the Water and/or Land Concentration Limits Condition L2.4. A positive correlation has been calculated between Total Suspended Solids (TSS) and Turbidity (NTU) ($R^2 = 0.6095$, $p < 0.00001$, $n = 90$). The regression equation for the analytical results calculates a turbidity (NTU) value of 132.648 for a TSS value of 50mg/L. A safety factor of 30% has been applied to the NTU result of the correlation, providing a turbidity (NTU) value of 92.854, rounded to an NTU value of 90. To measure NTU in the field a Horiba U-52G multi-parameter water quality meter has been utilised, which is maintained and calibrated in accordance with manufacturer's specifications. TSS sampling was not undertaken during the month due to the lack of release events (<10), additional TSS sampling is being undertaken throughout April 2016 to ensure we maintain compliance with 1 in 10 sampling.

Table 3 below has the water quality results recorded for the water release events:

Table 3 – Water Release Register

Date	Basin ID	Oil and Grease (visible) (Limit = No Visible)	pH (6.5 – 8.5)	Turbidity (NTU) (Limit <90 ntu)	Total Suspended Solids mg/L (Limit <50mg/L)	Approx Volume Discharged (kL)

Date	Basin ID	Oil and Grease (visible) (Limit = No Visible)	pH (6.5 – 8.5)	Turbidity (NTU) (Limit <90 ntu)	Total Suspended Solids mg/L (Limit <50mg/L)	Approx Volume Discharged (kL)
1/04/2016	B49.67	N	7.74	49.1		350
1/04/2016	B49.1	N	6.92	7.8		100
1/04/2016	B49.1	N	6.92	7.8		100
5/04/2016	B47.15	N	6.61	55.2	19	400
5/04/2016	B44.44	N	6.92	18.2	14	350
6/04/2016	B43.37	N	7.72	46.5		46.5
7/04/2016	B49.1	N	7.21	25.4		400
7/04/2016	B43.37	N	8.31	38.2		350
7/04/2016	B49.1	N	7.21	25.4		400
11/04/2016	B55.3	N	7.98	25.2	7	20
11/04/2016	B56.4	N	8.21	30.4	11	150
11/04/2016	B49.67	N	6.52	63.7		750
11/04/2016	B48.3	N	6.72	49.3	21	75
12/04/2016	B49.67	N	7.38	45.1	20	600
18/04/2016	B55.8	N	7.23	33.8	10	400
19/04/2016	B54.7	N	8.47	54.4		900
19/04/2016	B48.2	N	7.29	43.4	15	350
19/04/2016	B49.2	N	6.89	1.2		600
20/04/2016	B55.8	N	8.21	22.1	6	200
20/04/2016	B59.25	N	8.26	19.3		200
20/04/2016	B55.18	N	8.42	24.3	7	50
20/04/2016	B49.67	N	6.6	33.2	17	800
20/04/2016	B47.96	N	6.68	13.3	7	800
21/04/2016	B49.67	N	6.58	20		900
22/04/2016	B53.03	N	7.85	64.4		100
22/04/2016	B49.67	N	6.58	24.2		500
26/04/2016	B60.30	N	8.37	54.7		150
26/04/2016	B59.50	N	8.15	16.3		200
27/04/2016	B47.14	N	6.94	20.3		600
27/04/2016	B48.3	N	6.62	37.8		200
28/04/2016	B61.28	N	7.38	6.4		100
28/04/2016	B55.5	N	8.16	11.7		200
28/04/2016	B60.8	N	6.94	31.2		400
29/04/2016	B59.78	N	7.81	62.3		200
29/04/2016	B60.6	N	7.96	13.8		70
29/04/2016	B61.28	N	7.62	21.3		50
29/04/2016	B43.75	N	7.29	22.2		300
29/04/2016	B49.2	N	6.71	3.1	10	500
29/04/2016	B42.8	N	8.41	32.5		600
30/04/2016	B60.50	N	8.03	55		250

Date	Basin ID	Oil and Grease (visible) (Limit = No Visible)	pH (6.5 – 8.5)	Turbidity (NTU) (Limit <90 ntu)	Total Suspended Solids mg/L (Limit <50mg/L)	Approx Volume Discharged (kL)
30/04/2016	B48.3	N	7.11	2.7		200
30/04/2016	B48.46	N	7.81	9.7		200

5. Noise Monitoring

Monthly routine construction noise monitoring was undertaken on the 6th and 29th of April 2016 at eight locations near to construction works. Monitoring results are available in Appendix A, Table 2.

All sites were within predicted levels for the activity being undertaken.

6. Vibration Monitoring

Vibration monitoring was undertaken as part of blasting works during April 2016. Monitoring Results are available in Appendix A, Table 5.

6.1 Blasting

Three (3) blasting events occurred in April 2016. No exceedances of overpressure or vibration limits occurred from this blast.

We are required to achieve less than 5% exceedance (of 5mm/s limit and 115dB (LinPeak)) within the reporting period for those sensitive receptors that have not agreed to the 25mm/s and 125dB limits. For the second reporting period commencing 16th December 2015, we have had eleven blasts (11) with no exceedances of these limits.

7. Dust Monitoring

Dust deposition gauges (DDG) were placed at nearby sensitive receivers from the 8th March to 6th April 2016. DDG results are available in Appendix A.

All dust deposition gauges were below the level of concern (4g/m2.month) during the monitoring period, with the exception of gauge DDG5, DDG5W and DDG6.

DDG5 and DDG5W

DDG5W was installed recently due to elevated results in previous months DDG5 despite little works being undertaken. DDG5 recorded Total Insoluble Matter at 218g/m2/month, Ash Content (AC) was slightly lower with a reading of

203g/m2.month. DDG5W recorded TIM of 239g/m2/month, with AC of 220g/m2/month. It was noted that DDG5E, on the other side of the alignment recorded significantly lower levels (2.9g/m2/month TIM, 2.3g/m2/month AC). It was noted during collection of the latest round of gauges (6th April 2016 to 4th May 2016) that, while results have not yet been obtained, the gauges (DDG5 and DDG5W) appeared to have clumps of dirt within them, which would be unlikely to be attributable to wind-blown dust from construction.

As agreed in the ERG 24 on 12/04/2016, the project community team has discussed issues around the gauges with the closest resident whose property the two dust gauges are located within to inform them that the gauges are there to provide information to the project and agencies that they can act upon. The extreme nature of the results given the level of construction works and controls render the information useless. Community has asked to be informed if any persons are seen tampering with gauges to contact Pacifico regarding the matter immediately.

DDG6

DDG6 recorded elevated TIM (9.2g/m2/month) level and the AC (8.1g/m2/month). The AC portion of TIM can be contributable to construction sources. The performance criteria of 4g/m2/month is the performance criteria.

It is noted that this property has been vacated due to the upcoming Northern Access Ramps construction. Due to the lack of maintenance the grass around the gauge has come to approximately the same level as the top of the gauge.

Due to the upcoming North Facing Ramps, this gauge has been moved to its original location (the gauge was moved to its current location to respond to complaints from the original resident). Additionally, the original location was selected due to being closer to the current worksite and will thus be a better indication of worksite impacts.

Surfactant additives have been utilised and will continue to be utilised onsite in water carts to assist with dust mitigation. Water cart usage outside of standard construction hours has been utilised to assist with reducing dust emissions from the project, during public holidays on Sundays throughout the Project. We are progressively stabilising cuts and fills that have reached their final profile.

8. Groundwater Monitoring

ACCIONA (Pacifico) have undertaken groundwater monitoring on the 27th of April 2016. The results from the groundwater monitoring is available in Table 4 of Appendix A.

The groundwater monitoring results have been provided to RMS to provide advice on the trigger levels determined during the baseline sampling. The finalised groundwater report from the baseline sampling has not been issued from RMS to Pacifico including groundwater triggers.

9. Acoustic Investigations

Acoustic Investigations (modelling) have been conducted and approved for several Out of Hours Works proposed to model impact on residents during the month of April 2016. A summary of these approvals is below in Table 4.

Acoustic Investigation (Field Monitoring) of Out of Hours works has been undertaken for crane mobilisation in April 2016, with results in Appendix A - Table 6.

Table 4 – April Out of Hours Works Acoustic Investigation (Modelled)

OOH Request Title	>5dB(A) above background	Approval Date
Girder lift PCY/BHR	N	1/4/2016
Pump around Scotts Head Rd	N	1/4/2016
Old Coast Road Central Tie-In	N	13/4/2016
Quarry Access Realignment	N	19/4/2016
Span 21 Lift	N	28/4/2016
Shotcreting Cut 10*	N	29/4/2016

* This activity was completed prior to 1pm Saturday

10. Complaints

10.1 Summary of Complaints for the month

The following is a brief summary of environmental complaints received in April 2016.

Event Date	Stakeholders	Location	Issue	Team Response
5/04/2016	Anita Wood	Mattick Road	Dust	A water truck was immediately dispatched to suppress the dust in the area. Close out date 05/04/2016
6/04/2016	Mick Trisley	Pacific Highway Warrell Creek	Clay mud on driveway	Clay lying on the driveway was scraped off prior to finishing for the day. Some road base was spread in the worst area. Close out date 06/04/2016

8/04/2016	Eddie George	Old Coast Rd	Dust impacting health	Email to Mr George noting information he provided about his and his wife's health issues. He was advised that Pacifico was working hard to mitigate any potential dust impacts in the vicinity. Ongoing dust monitoring on property and regular visits from RMS's Joe Barrett going forward. Close out date 08/04/2016
22/04/2016	Barry McIlwain	River St Macksville	Diesel fumes/odour	Traffic control was alerted and immediately turned off the engine. B. Miller will follow up with traffic company to toolbox workers. Close out date 22/04/2016

11. Non-Compliance

11.1 Summary of Non-compliances

No Non Compliances against the ACCIONA Environmental Protection Licence (EPL) 20533 occurred in April 2016.

Appendix A – Monitoring Results

Table 1a - Surface Water Sampling Results April 2016 – 1st Wet Event

Surface Water Results -April 2016 - Wet | Weather: | Fine | Low Tide: | 2:02 PM

				SW01						SW03			SW04			SW05			SW06			SW07			SW08			SW09			SW10			SW11		
Location	Units	Levels of Concern		Upper Warrell Creek			Upper Warrell Creek			Stony Creek			Stony Creek			Lower Warrell Creek			Lower Warrell Creek			Unnamed Creek Gumma West			Unnamed Creek Gumma East			Unnamed Creek Gumma North			Nambucca River South			Nambucca River South		
				Upstream			Downstream			Upstream			Downstream			Upstream			Downstream			Upstream			Upstream			Downstream			Upstream			Downstream		
Freshwater / Estuarine		ANZECC 2000 95% species protected		Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Estuarine			Estuarine		
Date of Sampling				4-Apr-16			4-Apr-16			4-Apr-16			4-Apr-16			4-Apr-16			4-Apr-16			4-Apr-16			4-Apr-16			4-Apr-16			4-Apr-16			4-Apr-16		
Time of Sampling		Freshwater	Marine	12:05 PM			12:00 PM			12:50 PM			12:30 PM			4:00 PM			3:45 PM			1:45 PM			1:30 PM			1:20 PM			3:10 PM			3:00 PM		
Type		ANZECC 2000 95%		80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result
Comments																													Unable to sample - water level too low			Wind chop - sediment stirred up			Wind chop - sediment stirred up		
Laboratory data																																				
Metals																																				
Aluminium	mg/L	0.055	-	0.244	0.0162	<0.01	0.194	0.016	<0.01	0.098	0.02	<0.01	0.114	0.01	<0.01	0.28	0.01	0.02	0.28	0.01	0.03	0.25	0.02	0.04	0.25	0.02	0.04	0.25	0.02	-	0.11	0.01	<0.10	0.11	0.01	<0.10
Arsenic	mg/L	0.024	0.0023	0.001	0.001	<0.001	0.001	0.001	<0.001	0.002	0.001	0.001	0.002	0.001	<0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.001	0.003	0.002	0.001	0.001	0.002	0.001	-	0.002	0.001	<0.010	0.002	0.001	<0.010
Cadmium	mg/L	0.0002	0.0055	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	0.0002	0.0001	0.0002	0.0002	0.0001	0.0002	-	-	<0.0001	-	-	<0.0001	-	-	-	-	-	<0.0010	-	-	<0.0010
Chromium	mg/L	0.001	0.0044	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001			<0.001			<0.001	-	-	<0.001	-	-	<0.001	-	-	-	-	-	<0.010	-	-	<0.010
Copper	mg/L	0.0014	0.0013	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001			<0.001			<0.001	0.001	0.001	<0.001	0.001	0.001	<0.001	0.001	0.001	-	0.001	0.001	<0.010	0.001	0.001	<0.010
Lead	mg/L	0.0034	0.0044	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001			<0.001			<0.001	-	-	<0.001	-	-	<0.001	-	-	-	-	-	<0.010	-	-	<0.010
Manganese	mg/L	1.9	0.08	0.3	0.01	0.472	0.158	0.0178	0.28	0.0726	0.0218	0.094	0.083	0.0164	0.076	0.35	0.087	0.811	0.35	0.087	2.85	0.49	0.011	0.361	0.49	0.011	0.184	0.49	0.011	-	0.076	0.006	0.026	0.076	0.006	0.034
Nickel	mg/L	0.011	0.07	-	-	<0.001	-	-	0.002	-	-	<0.001	-	-	0.001	0.0034	0.001	0.022	0.0034	0.001	0.073	0.002	0.001	0.002	0.002	0.001	0.001	0.002	0.001	-	-	-	<0.010	-	-	<0.010
Selenium	mg/L	11	-	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	-	-	-	<0.10	-	-	<0.10
Silver	mg/L	0.00005	0.0014	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	-	-	-	<0.010	-	-	<0.010
Zinc	mg/L	0.008	0.015	0.007	0.005	0.007	0.0062	0.0042	<0.005	0.0064	0.005	<0.005	0.006	0.005	<0.005	0.018	0.005	0.051	0.018	0.005	0.113	0.011	0.005	0.006	0.011	0.005	0.008	0.011	0.005	-	0.005	0.005	<0.050	0.005	0.005	<0.050
Iron	mg/L	-	-	1.38	0.48	0.4	0.99	0.366	0.17	1.4	0.41	0.54	1.48	0.35	<0.05	0.52	0.05	<0.05	0.52	0.05	0.31	1.65	0.37	0.46	1.65	0.37	0.48	1.65	0.37	-	0.26	0.05	<0.50	0.26	0.05	<0.50
Mercury	mg/L	0.0006	0.0004	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001			<0.0001			<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	-	-	-	<0.0001	-	-	<0.0001
Total Recoverable Hydrocarbons																																				
Naphthalene	µg/L	16	50	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	50		NA	50		NA
C6 - C10 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
C6 - C10 Fraction minus BTEX (F1)	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
>C10 - C16 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
>C16 - C34 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
>C34 - C40 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
>C10 - C40 Fraction (sum)	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
>C10 - C16 Fraction minus Naphthalene (F2)	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
BTEX																																				
Benzene	µg/L	950	700	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	700		NA	700		NA
Toluene	µg/L	180	180	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA
Ethylbenzene	µg/L	80	5	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	5		NA	5		NA
m&p-Xylenes	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
o-Xylene	µg/L	350	350	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA
Xylenes - Total	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
Sum of BTEX	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
Nutrients																																				
Total Phosphorus	mg/L	0.05	0.03	0.05	0.02	0.09	0.044	0.016	0.03	0.03	0.016	0.02	0.034	0.01	0.02	0.04	0.01	0.02	0.04	0.01	0.02	0.11	0.03	0.34	0.11	0.03	0.03	0.11	0.03	-	0.07	0.02	0.09	0.07	0.02	0.1
Phosphate (reactive phosphorus)	mg/L	-	-	0.01	0.0034	<0.01	0.01	0.004	<0.01	0.018	0.0022	0.02	0.01	0.003	<0.01	0.011	0.006	<0.01	0.011	0.006	<0.01	0.013	0.005	<0.01	0.013	0.005	<0.01	0.013	0.005	-	0.029	0.01	0.01	0.029	0.01	<0.01
																														-						
Total Nitrogen	mg/L	0.5	0.3	0.56	0.3	1	0.52	0.2	0.6	0.48	0.2	0.4	0.63	0.2	0.4	0.54	0.31	1	0.54	0.31	2.7	3.1	0.9	4.5	3.1	0.9	1.2	3.1	0.9	-	0.46	0.2	<0.2	0.46	0.2	0.6
Total Kjeldahl Nitrogen	mg/L	-	-	0.5	0.3	1	0.5	0.2	0.6	0.34	0.2	0.3	0.6	0.2	0.3	0.5	0.2	0.6	0.5	0.2	1.2	2.8	0.8	4.5	2.8	0.8	1.1	2.8	0.8	-	0.3	0.2	<0.2	0.3	0.2	0.6
																														-						
Nitrate	mg/L	0.7	-	0.102	0.01	0.01	0.054	0.01	0.02	0.208	0.01	0.08	0.2	0.01	0.05	0.05	0.01	0.34	0.05	0.01	1.43	0.03	0.01	<0.01	0.03	0.01	0.05	0.03	0.01	-	0.04	0.01	<0.01	0.04	0.01	0.03
Nitrite	mg/L	-	-	-	-	<0.01	-	-	<0.01	-	-	<0.01	0.02	0.01	<0.01	0.02	0.01	0.02	0.02	0.01	0.04	0.02	0.01	<0.01	0.02	0.01	<0.01	0.02	0.01	-	0.02	0.01	<0.01	0.02	0.01	<0.01
Ammonia	mg/L	0.9	-	0.036	0.01	0.1	0.02	0.01	0.1	0.046	0.02	0.03	0.062	0.012	0.04	0.116	0.022	0.1	0.116	0.022	0.51	0.06	0.01	<0.01	0.06	0.01	0.06	0.06	0.01	-	0.15	0.024	0.07	0.15	0.024	0.06
TSS																																				
TSS	mg/L	<40	<10	19	5	6	12.8	5	<5	14.8	5	<5	8.7	5	6	25	5.5	10	25	5.5	<5	350	9	150	350	9	13	350	9	-	-	-	72	-	-	150
Field Physical data																																				
Temperature	°C	-	-	24.3	16.27	23.94	24.52	16.79	23.94	23.98	17.36	20.98	24.7	17.65	21.91	25.9	19.5	25.66	25.9	19.5	25.53	25.84	19.1	22.73	25.84	19.1	22.01	25.84	19.1	-	26.56	21.32	25.58	26.56	21.32	25.67
pH	pH	-	6.5-8	7.478	6.23	7	7.192	6.42	7.11	7.138	6.61	6.97	6.98	6.21	6.84	6.86	6.46	7.88	6.86	6.46	7.71	6.9	6.08	6.92	6.9	6.08	6.64	6.9	6.08	-	7.56	6.58	7.92	7.56	6.58	7.75
Conductivity	mS/cm	0.125-2.2	-	0.3204	0.20184	0.25	0.3242	0.19076	0.261	0.313	0.2024	0.277	0.309	0.20188	0.257	20.918	0.50928	12.7	20.918	0.50928	13.4	0.842	0.334	0.766	0.842	0.334	0.608	0.842	0.334	-	48.42	12.65	43.9	48.42	12.65	44.1
Turbidity	NTU	50	10	26.16	5.94	8.5	27.32	3.72	15.5	14.98	3.34	3	17.16	4.59	19.3	26.1	2.4	13	26.1	2.4	0.8	66.8	11.6	54.2	66.8	11.6	28.9	66.8	11.6	-	19.04	5.81	80	19.04	5.81	82.1
Dissolved Oxygen	mg/L	5	5	7.43	1.5	2.15	6.88	2.28	2.38	8.472	5.08	4.03	7.59	2.63	2.18	6.65	5.02	2.95	6.65	5.02	1.75	7.3	1.78	2.35	7.3	1.78	0.28	7.3	1.78	-	8.47	6.88	4.3	8.47	6.88	4.41
TDS	g/L	-	-	-		0.163	-		0.17	-		0.18	-		0.167	-		7.9	-		8.33	-		0.49	-		0.389	-		-	-		26.7	-		26.9

Taken from ANZECC guidelines 95% protected species levels where no 80/20 trigger values provided

Taken from alternative trigger levels provided in ANZECC Water Guidelines Volume 1 and Volume 2 where insufficient data was available for 95%

Exceedances of trigger values

Table 1b – Surface Water Monitoring Results April 2016 – 2nd Wet Event

Surface Water Results -April 2016 - Wet 2						Weather:	Fine									Low Tide:	10:47 AM																	
				SW01						SW03			SW04			SW05			SW06			SW07			SW08			SW09			SW10			SW11		
Location	Units	Levels of Concern		Upper Warrell Creek			Upper Warrell Creek			Stony Creek			Stony Creek			Lower Warrell Creek			Lower Warrell Creek			Unnamed Creek Gumma West			Unnamed Creek Gumma East			Unnamed Creek Gumma North			Nambucca River South			Nambucca River South		
				Upstream			Downstream			Upstream			Downstream			Upstream			Downstream			Upstream			Upstream			Downstream			Upstream			Downstream		
Freshwater / Estuarine		ANZECC 2000 95% species protected		Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Estuarine			Estuarine		
Date of Sampling				14-Apr-16			14-Apr-16			14-Apr-16			14-Apr-16			14-Apr-16			14-Apr-16			14-Apr-16			14-Apr-16			14-Apr-16			14-Apr-16			14-Apr-16		
Time of Sampling		Freshwater	Marine	9:20 AM			9:00 AM			10:15 AM			9:45 AM			1:00 PM			12:45 PM			11:00 AM			11:30 AM			10:45 AM			12:15 PM			12:00 PM		
Type		ANZECC 2000 95%		80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result
Comments																													Unable to sample - water level too low			Wind chop - sediment stirred up			Wind chop - sediment stirred up		
Field Physical data																																				
Temperature	°C	-	-	24.3	16.27	20.47	24.52	16.79	21.51	23.98	17.36	19.94	24.7	17.65	21.74	25.9	19.5	24.31	25.9	19.5	24.27	25.84	19.1	23.21	25.84	19.1	23.86	25.84	19.1	-	26.56	21.32	25.73	26.56	21.32	25.53
pH	pH	-	6.5-8	7.478	6.23	5.79	7.192	6.42	6.03	7.138	6.61	5.99	6.98	6.21	6.28	6.86	6.46	6.96	6.86	6.46	7.02	6.9	6.08	6.3	6.9	6.08	6.37	6.9	6.08	-	7.56	6.58	7.43	7.56	6.58	7.07
Conductivity	mS/cm	0.125-2.2	-	0.3204	0.20184	0.253	0.3242	0.19076	0.264	0.313	0.2024	0.276	0.309	0.20188	0.263	20.918	0.50928	14.6	20.918	0.50928	10	0.842	0.334	0.816	0.842	0.334	0.897	0.842	0.334	-	48.42	12.65	45.2	48.42	12.65	44.9
Turbidity	NTU	50	10	26.16	5.94	8.3	27.32	3.72	7.4	14.98	3.34	8.7	17.16	4.59	12.4	26.1	2.4	6.5	26.1	2.4	7.8	66.8	11.6	37.6	66.8	11.6	31.3	66.8	11.6	-	19.04	5.81	12.5	19.04	5.81	18.2
Dissolved Oxygen	mg/L	5	5	7.43	1.5	3.94	6.88	2.28	3.73	8.472	5.08	4.09	7.59	2.63	2.68	6.65	5.02	4.88	6.65	5.02	4.72	7.3	1.78	4.07	7.3	1.78	4.11	7.3	1.78	-	8.47	6.88	5.42	8.47	6.88	5.61
Dissolved Oxygen	%			-		44.9	-		43.3	-		46.3	-		31.3	-		62.2	-		59.2	-		48.8	-		49.8	-		-	-		80	-		82.6
TDS	g/L	-	-	-		0.165	-		0.172	-		0.179	-		0.171	-		9.03	-		6.24	-		0.522	-		0.574	-		-	-		27.6	-		27.4

Taken from ANZECC guidelines 95% protected species levels where no 80/20 trigger values provided

Taken from alternative trigger levels provided in ANZECC Water Guidelines Volume 1 and Volume 2 where insufficient data was available for 95%

Exceedances of trigger values

Table 1c - Surface Water Monitoring Results April 2016 – Dry Event

Surface Water Results -April 2016 - Dry | Weather: Fine | Low Tide: 8:38 AM

Location	Units	Levels of Concern		SW01 Upper Warrell Creek			SW02 Upper Warrell Creek			SW03 Stony Creek			SW04 Stony Creek			SW05 Lower Warrell Creek			SW06 Lower Warrell Creek			SW07 Unnamed Creek Gumma West			SW08 Unnamed Creek Gumma East			SW09 Unnamed Creek Gumma North			SW10 Nambucca River South			SW11 Nambucca River South		
				Upstream			Downstream			Upstream			Downstream			Upstream			Downstream			Upstream			Upstream			Downstream			Upstream			Downstream		
Freshwater / Estuarine		ANZECC 2000 95% species protected		Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Estuarine			Estuarine		
Date of Sampling				28-Apr-16			28-Apr-16			28-Apr-16			28-Apr-16			28-Apr-16			28-Apr-16			28-Apr-16			28-Apr-16			28-Apr-16			28-Apr-16			28-Apr-16		
Time of Sampling		Freshwater	Marine	1:20 PM			1:40 PM			3:20 PM			3:10 PM			9:45 AM			9:30 AM			12:45 PM			12:21 PM			12:30 PM			11:30 AM			11:35 AM		
Comments																													Unable to sample - water level low								
Type				80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile
Laboratory data																																				
Metals																																				
Aluminium	mg/L	0.055	-	0.06	0.01	<0.01	0.05	0.01	<0.01	0.05	0.01	<0.01	0.04	0.01	0.02	0.06	0.01	0.02	0.06	0.01	<0.01	0.1	0.01	<0.01	0.1	0.01	0.03	0.1	0.01	NA	0.02	0.01	<0.10	0.02	0.01	
Arsenic	mg/L	0.024	0.0023	-	-	<0.001	-	-	<0.001	-	-	<0.001	0.001	0.001	<0.001	0.001	0.001	0.001	0.001	0.001	<0.001	0.002	0.001	0.002	0.002	0.001	0.001	0.002	0.001	NA	0.002	0.001	<0.010	0.002	0.001	
Cadmium	mg/L	0.0002	0.0055	-	-	<0.0001	-	-	0.0002	-	-	<0.0001	-	-	<0.0001	0.0001	0.0001	<0.0001	0.0001	0.0001	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	NA	-	-	<0.0010	-	-	
Chromium	mg/L	0.001	0.0044	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	NA	-	-	<0.010	-	-	
Copper	mg/L	0.0014	0.0013	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	0.002	-	-	0.004	-	-	NA	0.001	0.001	0.026	0.001	0.001	
Lead	mg/L	0.0034	0.0044	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	NA	-	-	<0.010	-	-	
Manganese	mg/L	1.9	0.08	0.21	0.02	0.249	0.2	0.03	0.486	0.06	0.02	0.038	0.052	0.013	0.046	0.26	0.08	1.54	0.26	0.08	0.282	0.23	0.019	0.313	0.23	0.019	0.152	0.23	0.019	NA	0.03	0.002	0.046	0.03	0.002	
Nickel	mg/L	0.011	0.07	-	-	0.001	-	-	0.006	-	-	<0.001	-	-	0.002	0.001	0.001	0.048	0.001	0.001	<0.001	0.001	0.001	0.002	0.001	0.001	<0.001	0.001	0.001	NA	-	-	<0.010	-	-	
Selenium	mg/L	11	-	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	0.01	-	-	NA	-	-	<0.10	-	-	
Silver	mg/L	0.00005	0.0014	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	NA	-	-	<0.010	-	-	
Zinc	mg/L	0.008	0.015	-	-	<0.005	-	-	0.012	0.005	0.005	<0.005	0.005	0.005	0.007	0.006	0.005	0.079	0.006	0.005	0.006	0.005	0.005	<0.005	0.005	0.005	<0.005	0.005	0.005	NA	0.005	0.005	<0.050	0.005	0.005	
Iron	mg/L	-	-	0.99	0.46	0.23	0.93	0.31	0.1	0.82	0.42	<0.05	0.78	0.37	<0.05	0.83	0.05	0.58	0.83	0.05	0.05	2.01	0.25	0.21	2.01	0.25	0.37	2.01	0.25	NA	-	-	<0.50	-	-	
Mercury	mg/L	0.0006	0.0004	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001			<0.0001			<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	NA	-	-	<0.0001	-	-	
Total Recoverable Hydrocarbons																																				
Naphthalene	µg/L	16	50	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	50		NA	50		
C6 - C10 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		
C6 - C10 Fraction minus BTEX (F1)	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		
>C10 - C16 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		
>C16 - C34 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		
>C34 - C40 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		
>C10 - C40 Fraction (sum)	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		
>C10 - C16 Fraction minus Naphthalene (F2)	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		
BTEX																																				
Benzene	µg/L	950	700	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	700		NA	700		
Toluene	µg/L	180	180	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		
Ethylbenzene	µg/L	80	5	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	5		NA	5		
m&p-Xylenes	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		
o-Xylene	µg/L	350	350	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		
Xylenes - Total	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		
Sum of BTEX	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		
Nutrients																																				
Total Phosphorus	mg/L	0.05	0.03	0.04	0.01	<0.01	0.03	0.01	<0.01	0.04	0.01	<0.01	0.02	0.01	<0.01	0.04	0.01	<0.01	0.04	0.01	<0.01	0.12	0.03	<0.01	0.12	0.03	0.02	0.12	0.03	NA	0.04	0.02	0.04	0.04	0.02	
Phosphate (reactive phosphorus)	mg/L	-	-	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	0.01	0.0044	<0.01	0.01	0.0044	<0.01	0.01	0.005	<0.01	0.01	0.005	<0.01	0.01	0.005	NA	0.01	0.008	0.02	0.01	0.008	
																														NA						
Total Nitrogen	mg/L	0.5	0.3	0.62	0.2	0.4	0.6	0.2	0.5	0.3	0.1	0.2	0.41	0.1	0.3	0.5	0.2	0.9	0.5	0.2	0.3	2.8	1.1	0.8	2.8	1.1	0.9	2.8	1.1	NA	0.5	0.2	0.5	0.5	0.2	
Total Kjeldahl Nitrogen	mg/L	-	-	0.6	0.2	0.4	0.6	0.2	0.4	0.3	0.1	0.1	0.4	0.1	0.2	0.5	0.2	0.6	0.5	0.2	0.3	2.4	1	0.8	2.4	1	0.9	2.4	1	NA	0.5	0.2	0.5	0.5	0.2	
																														NA						
Nitrate	mg/L	0.7	-	0.04	0.01	0.01	0.03	0.01	0.06	0.03	0.01	0.07	0.03	0.01	0.06	0.04	0.01	0.32	0.04	0.01	0.01	0.04	0.01	<0.01	0.04	0.01	<0.01	0.04	0.01	NA	0.02	0.01	0.01	0.02	0.01	
Nitrite	mg/L	-	-	-	-	<0.01	0.01	0.01	<0.01	0.01	0.01	<0.01	0.01	0.01	<0.01	0.01	0.01	<0.01	0.01	0.01	<0.01	0.05	0.01	<0.01	0.05	0.01	<0.01	0.05	0.01	NA	0.02	0.01	<0.01	0.02	0.01	
Ammonia	mg/L	0.9	-	-	-	0.08	-	-	0.1	-	-	0.02	-	-	0.08	0.16	0.06	0.32	0.16	0.06	0.16	0.04	0.01	0.07	0.04	0.01	<0.01	0.04	0.01	NA	0.03	0.01	0.14	0.03	0.01	
TSS																																				
TSS	mg/L	<40	<10	14.8	5	8	8	5	13	9	5	<5	5.8	5	6	17.6	5	<5	17.6	5	<5	290	15	9	290	15	<5	290	15	NA	71	19	6	71	19	
Field Physical data																																				
Temperature	°C	-	-	24.86	14.99	21.67	25.1	16.3	21.79	24.4	16	21.06	26.46	15.94	20.05	27.9	18.4	19.91	27.9	18.4	19.82	26.5	16.3	24.44	26.5	16.3	22.01	26.5	16.3	NA	27.9	18.1	24.02	27.9	18.1	
pH	pH	-	6.5-8	7.25	6.48	7.23	7.3	6.4	6.82	7.5	6.6	6.72	7.33	6.26	6.68	7.02	6.57	7.32	7.02	6.57	7.02	7	6.1	6.97	7	6.1	6.71	7	6.1	NA	7	7	7.86	7	7	
Conductivity	mS/cm	0.125-2.2	-	0.316	0.232	0.217	0.348	0.227	0.267	0.348	0.227	0.273	0.3338	0.2168	0.27	20.946	0.679	7.16	20.946	0.679	14.3	0.808	0.4234	0.695	0.808	0.4234	1.01	0.808	0.4234	NA	47.32	29.44	39.9	47.32	29.44	
Turbidity	NTU	50	10	10.96	4	0	9.9	3.5	0	9.9	3.5	0	5.97	3.74	0	6.82	1.83	0.0	6.82	1.83	0	52.78	11.3	2.5	52.78	11.3	0	52.78	11.3	NA	19.3	6.7	5.8	19.3	6.7	
Dissolved Oxygen	mg/L	5	5	4.98	1.91	4.32	4.8	2.6	2.6	4.8	2.6	5.76	6.34	3.52	4.99	7.98	5.07	6.56	7.98	5.07	9.94	6.4	1.75	5.58	6.4	1.75	1.91	6.4	1.75	NA	9.1	7.4	10.97	9.1	7.4	
Dissolved Oxygen	%					50.3			29.2			66.5			56.6			75.7			117.4			68.3			22.5			NA			154	-	-	
TDS	g/L	-	-	-		0.141	-		0.174	-		0.178	-		0.176	-		4.49	-		8.8	-		0.445	-		0.645	-		NA	-		24.4	-		

Taken from ANZECC guidelines 95% protected species levels where no 80/20 trigger values provided

Taken from alternative trigger levels provided in ANZECC Water Guidelines Volume 1 and Volume 2 where insufficient data was available for 95%

Exceedances of trigger values

Table 2 – Noise Monitoring Results April 2016

Date	Time	Location	Rec ID	NCA	NML	Activity	Predicted levels for activity	LAeq	LAFMAX	LAFMIN	LCEQ	LAF05	LAF10	LAF50	LAF90	Principal sources/ operations	Measurements exceeding criteria, plant/ operations causing	Corrective actions	Notes
6/04/2016	5:00 PM	Albert Drive	74	1	50	Cut	62	55.3	70.3	48.3	71.8	58.7	57.6	54.3	51.4	Excavator, moxy, LV traffic	NA	NA	Within predicted levels for activity
6/04/2016	1:30 PM	Cockburns Lane	16	1	50	Cut	65	50.2	73	42.8	62.7	51.5	50.6	47.1	45.2	Hand tools	NA	NA	Within predicted levels for activity
29/04/2016	1:10 PM	Bald Hill Rd	197	3	50	Cut	72	57.5	81.8	47	69.9	59.1	57.6	54.7	51.3	Excavators + moxy being loaded	NA	NA	Within predicted levels for activity
29/04/2016	11:26 AM	Letitia Rd	406	4	59	Bridgeworks	55	45.5	63.5	37.5	62.9	48	46.2	43.2	41.1	Air compressor, crane	NA	NA	Within predicted levels for activity
29/04/2016	10:59 AM	Mattick Rd	442	6	44	Cut	62	55.6	69	45.9	62.6	60.6	58.9	53.1	49.9	Dozers, excavators	NA	NA	Within predicted levels for activity
29/04/2016	11:53 AM	Nursery Rd	415	4	59	NA	NA	57.6	81.4	39.7	65.7	54.5	50.6	46.7	44	NA	NA	NA	Construction not audible; other sources: highway + local traffic, boat
29/04/2016	12:42 PM	Wallace St	148	3	50	NA	NA	54.6	70.2	43	61.5	61.5	57.2	49.5	45	NA	NA	NA	Construction not audible; other sources: highway + local traffic
29/04/2016	12:18 PM	Gumma Rd	383	3	50	Bridgeworks	67	55.2	78.4	45.6	65.5	59.3	58	53.1	49.6	Concrete boom truck, crane	NA	NA	Within predicted levels for activity

Table 3 - Dust Monitoring Results March / April 2016

			DDG ID		DDG1	DDG2	DDG3	DDG4	DDG5	DDG5E	DDG5W	DDG6	DDG7	DDG8	DDG9E	DDG9NE	DDG A1	DDG A2
			Start date of sampling		8/03/2016	8/03/2016	8/03/2016	8/03/2016	8/03/2016	8/03/2016	8/03/2016	8/03/2016	8/03/2016	8/03/2016	8/03/2016	8/03/2016	8/03/2016	8/03/2016
			Finish date of sampling		6/04/2016	6/04/2016	6/04/2016	6/04/2016	6/04/2016	6/04/2016	6/04/2016	6/04/2016	6/04/2016	6/04/2016	6/04/2016	6/04/2016	6/04/2016	6/04/2016
Analyte	Time Period	Unit	Levels of Concern	LOR														
Ash Content	Current Month	g/m².month	4	0.1	0.5	0.6	0.7	0.9	203	2.3	220	8.1	1.2	NA	1	1.3	----	----
		mg	N/A	1	9	10	12	15	3470	39	3750	138	21	NA	17	22	----	----
	Previous Month	g/m².month			0.3	0.4	1.2	0.6	187	1.1	679	4.2	0.9	2.1	----	----	----	----
	Change	g/m².month	Increase of 2		0.2	0.2	-0.5	0.3	16	1.2	-459	3.9	0.3	NA	----	----	----	----
Combustible Matter	Current Month	g/m².month	N/A	0.1	0.4	0.4	0.4	0.5	14.9	0.6	19	1.1	0.4	NA	0.3	0.4	----	----
		mg	N/A	1	6	7	7	9	254	10	326	20	6	NA	6	7	----	----
Total Insoluble Matter (TIM)	Current Month	g/m².month	4	0.1	0.9	1	1.1	1.4	218	2.9	239	9.2	1.6	NA	1.3	1.7	----	----
		mg	N/A	1	15	17	19	24	3720	49	4080	158	27	NA	23	29	----	----
	Previous Month	g/m².month		0.1	0.4	0.5	1.3	0.8	218	1.4	751	8.1	1.2	2.7	----	----	----	----
	Change	g/m².month	Increase of 2	0.1	0.5	0.5	-0.2	0.6	0	0.9	-531	1.1	0.4	NA	----	----	----	----
Arsenic	Current Month	mg/L		0.001	----	----	----	----	----	----	----	----	----	----	----	----	<0.001	<0.001
Comments									Clumps of dirt in gauge		Clumps of dirt in gauge	Grass in gauge		Gauge broken				

Table 4 – Groundwater Monitoring Results April 2016

Location	Units	Groundwater Investigation Levels (GILs) from Interpretive Report	4BH007	4BH008	4BH010	4BH011	4BH021	4BH022	4BH025	4BH026	4BH037	4BH038	1BH49	4BH058	4BH061	4BH062
Cut/Fill			Cut 4	Cut 4	Cut 6	Cut 6	Cut 11	Cut 11	Cut 12	Cut 12	Fill 15	Fill 15	Cut 17	Cut 17	Cut 26	Cut 26
Date of Sampling			27/04/2016	27/04/2016	27/04/2016	27/04/2016	27/04/2016	27/04/2016	27/04/2016	27/04/2016	27/04/2016	27/04/2016	27/04/2016	27/04/2016	27/04/2016	27/04/2016
Comments			DRY	DRY		DRY				DRY			DRY		DRY	DRY
Laboratory data																
Metals																
Aluminium	mg/L	0.055	-	-	<0.01	-	<0.01	-	<0.01	-	<0.01	<0.01	-	<0.01	-	-
Arsenic	mg/L	0.024	-	-	<0.001	-	0.0010	-	<0.001	-	<0.001	<0.001	-	<0.001	-	-
Cadmium	mg/L	<LOR	-	-	<0.0001	-	<0.0001	-	<0.0001	-	<0.0001	<0.0001	-	<0.0001	-	-
Chromium	mg/L	0.001	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	<0.001	-	<0.001	-	-
Copper	mg/L	0.0014	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	<0.001	-	<0.001	-	-
Lead	mg/L	0.0034	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	<0.001	-	0.0090	-	-
Manganese	mg/L	-	-	-	0.3370	-	0.0180	-	0.0040	-	5.0700	1.5500	-	0.0160	-	-
Nickel	mg/L	0.011	-	-	<0.001	-	0.0060	-	<0.001	-	0.0030	0.0080	-	0.0020	-	-
Selenium	mg/L	-	-	-	<0.01	-	<0.01	-	<0.01	-	<0.01	<0.01	-	<0.01	-	-
Silver	mg/L	<LOR	-	-	<0.001	-	<0.001	-	<0.001	-	<0.001	<0.001	-	<0.001	-	-
Zinc	mg/L	0.008	-	-	<0.005	-	0.0100	-	0.0110	-	0.0180	0.0110	-	<0.005	-	-
Iron	mg/L	-	-	-	<0.05	-	0.3500	-	<0.05	-	55.2000	0.7600	-	<0.05	-	-
Mercury	mg/L	0.0006	-	-	<0.0001	-	<0.0001	-	<0.0001	-	<0.0001	<0.0001	-	<0.0001	-	-
Total Petroleum Hydrocarbons		-														
C6-C9 Fraction	µg/L or ppb	-	-	-	<20	-	<20	-	<20	-	<20	<20	-	<20	-	-
C10-C14 Fraction	µg/L or ppb	-	-	-	<50	-	<50	-	<50	-	290.0000	<50	-	<50	-	-
C15-C28 Fraction	µg/L or ppb	-	-	-	<100	-	<100	-	<100	-	<100	<100	-	<100	-	-
C29-C36 Fraction	µg/L or ppb	-	-	-	<50	-	<50	-	<50	-	<50	<50	-	<50	-	-
C10-C36 Fraction	µg/L or ppb	-	-	-	<50	-	<50	-	<50	-	290.0000	<50	-	<50	-	-
BTEX		-														
Benzene	µg/L or ppb	950	-	-	<1	-	<1	-	<1	-	<1	<1	-	<1	-	-
Toluene	µg/L or ppb	-	-	-	<2	-	<2	-	<2	-	<2	<2	-	<2	-	-
Ethylbenzene	µg/L or ppb	-	-	-	<2	-	<2	-	<2	-	<2	<2	-	<2	-	-
m+p-Xylene	µg/L or ppb	-	-	-	<2	-	<2	-	<2	-	<2	<2	-	<2	-	-
o-Xylene	µg/L or ppb	-	-	-	<2	-	<2	-	<2	-	<2	<2	-	<2	-	-
Naphthalene	µg/L or ppb	-	-	-	<5	-	<5	-	<5	-	<5	<5	-	<5	-	-
Nutrients		-														
Total Phosphorus	mg/L	-	-	-	0.0400	-	0.0800	-	0.0600	-	<0.01	0.2800	-	<0.01	-	-
Phosphate	mg/L	-	-	-	<0.01	-	<0.01	-	<0.01	-	<0.01	<0.01	-	<0.01	-	-
			-	-		-		-		-			-		-	-
Total Nitrogen	mg/L	-	-	-	1.8000	-	0.6000	-	1.1000	-	3.3000	1.1000	-	0.5000	-	-
Total Kjeldahl Nitrogen	mg/L	-	-	-	1.8000	-	0.6000	-	0.7000	-	3.3000	0.9000	-	0.2000	-	-
			-	-		-		-		-			-		-	-
Nitrate	mg/L	-	-	-	0.0400	-	0.0300	-	0.4000	-	0.0200	0.2000	-	0.3200	-	-
Nitrite	mg/L	-	-	-	<0.01	-	<0.01	-	<0.01	-	<0.01	<0.01	-	<0.01	-	-
Ammonia	mg/L	-	-	-	0.9500	-	0.4200	-	0.1600	-	1.2900	0.3400	-	0.1600	-	-
Major anions																
Chloride	mg/L	-	-	-	88.0000	-	14.0000	-	34.0000	-	976.0000	2300.0000	-	23.0000	-	-
Sulfate	mg/L	-	-	-	43.0000	-	6.0000	-	4.0000	-	1960.0000	2330.0000	-	13.0000	-	-
Bicarbonate	mg/L	-	-	-	165.0000	-	29.0000	-	14.0000	-	46.0000	911.0000	-	31.0000	-	-
Major cations																
Sodium	mg/L	-	-	-	69.0000	-	18.0000	-	28.0000	-	755.0000	1710.0000	-	32.0000	-	-
Potassium	mg/L	-	-	-	4.0000	-	1.0000	-	<1	-	43.0000	92.0000	-	<1	-	-
Calcium	mg/L	-	-	-	53.0000	-	1.0000	-	<1	-	197.0000	235.0000	-	1.0000	-	-
Magnesium	mg/L	-	-	-	11.0000	-	2.0000	-	<1	-	316.0000	521.0000	-	2.0000	-	-
Field Physical data																
Depth to standing water level from TOC	m	-	-	-	17.30	-	8.10	-	6.45	-	0.72	0.96	-	15.91	-	-
pH	pH	-	-	-	6.55	-	6.40	-	6.02	-	6.10	7.03	-	6.76	-	-
Conductivity	mS/cm	-	-	-	3.55	-	0.204	-	0.172	-	5.750	10.100	-	0.323	-	-
Temperature	○C	-	-	-	22.30	-	21.59	-	22.16	-	22.60	22.40	-	22.50	-	-

Table 5 – Blasting Monitoring Result April 2016

Vibration and Overblast Tracking Register for Production Blasting

Date	Blast no.	Cut	BCM	Monitor 1 (PPV)	Monitor 2 (PPV)	Monitor 3 (PPV)	Monitor 1 (dB)	Monitor 2 (dB)	Monitor 3 (dB)	EPA Exceedances (5mm/s)	EPA Exceedances (10mm/s)	EPA Exceedance (120dB)	EPA Exceedance (115dB) 5%	No. of Blasts
30-Jun	11-001	11	1008	5.46	2.67	2.67	106.00	108.40	101.90	1				1
07-Jul	11-002	11	1622	5.77	3.51	2.35	108.00	103.50	108.40	1				2
27-Jul	11-003	11	7002	6.17	3.96	0.00	104.20	103.50	0.00					3
03-Aug	11-004	11	3616	11.64	3.43	1.03	113.10	107.00	95.92					4
06-Aug	10-001	10	8319	6.08	0.73	0.00	118.20	107.00	0.00					5
10-Aug	11-005	11	7006	14.67	7.68	2.45	114.60	115.60	104.20					6
13-Aug	10-002	10	3500	4.35	1.20	0.47	117.09	103.50	109.90					7
17-Aug	11-006	11	5382	12.99	6.45	1.79	118.20	118.60	104.20					8
20-Aug	10-003	10	10263	4.46	1.35	1.45	107.50	112.10	103.50					9
25-Aug	11-007	11	16100	6.21	1.78	0.00	115.60	98.84	0.00					10
31-Aug	11-008	11	14430	10.07	5.18	5.37	113.50	111.50	106.50	1				11
7-Sep	10-004	10	10281	9.76	1.94	0.70	119.90	112.30	98.84					12
17-Sep	10-005	10	7901.25	16.940	5.520	3.533	119.400	114.800	114.200					13
25-Sep	10-006	10	13200	19.490	6.092	-	113.800	118.800	-					14
1-Oct	11-009	11	8190	5.173	2.831	1.426	110.600	110.200	88.000					15
1-Oct	10-007	10	4485	10.240	1.308	-	118.500	88.000	-					16
13-Oct	10-008	10	6563.75	24.150	6.717	-	117.500	117.900	-					17
16-Oct	11-010	11	4641.25	3.126	1.926	-	109.200	1.926	-					18
20-Oct	10-009	10	9034.375	5.337	1.442	-	116.100	107.000	-					19
27-Oct	10-010	10	12247.5	5.039	3.297	-	97.500	117.500	-					20
27-Oct	11-011	11	11708.75	2.973	1.295	1.308	104.900	107.500	98.840					21
3-Nov	10-011	10	14462.5	6.971	2.012	0.684	124.000	117.200	102.800					22
12-Nov	10-012	10		3.919	0.933	-	88.000	116.300	-					23
16-Nov	8-001	8		*	8.638	4.591	*	112.300	108.800					24
24-Nov	8-002	8		8.875	1.308	1.000	124.900	98.840	107.000					25
26-Nov	10-013	10		12.100	1.024	-	119.800	106.500	-					26
1-Dec	10-014	10		8.371	-	-	120.600	-	-					27
2-Dec	8-003	8		15.39**	1.332	-	106.500	95.120	-					28
8-Dec	10-015	10		8.951	1.157	-	113.800	116.600	-					29
15-Dec	10-016	10		20.120	6.275	3.295	117.200	118.500	112.300					30
17-Dec	10-017	10		4.879	1.301	-	106.000	109.500	-					31
14-Jan	10-018	10		5.180	2.010	-	113.100	105.500	-					32
28-Jan	10-019	10		16.410	-	-	115.200	-	-					33
9-Feb	10-020	10		8.716	8.344	-	124.000	119.800	-					34
3-Mar	9-001	9		-	1.198	-	-	122.10	-					35
3-Mar	10-021	10		16.760	4.195	1.212	113.30	113.50	102.80					36
16-Mar	10-022	10		16.500	3.056	1.092	115.70	110.60	88.00					37
31-Mar	10-023	10		5.887	4.773	2.879	114.200	110.600	88.000					38
7-Apr	10-024	10		14.290	5.62	1.178	118.600	114	88.000					39

27-Apr	9-002	9		2.518	-	-	115.200	-	-						40
27-Apr	8-004	8		4.519	2.976	0.568	91.480	91.480	114.800						41

Note

17 July blasting criteria increase approved by DP&E with signed agreements

16 December is Anniversary date of EPL

Monitor 3 is the only monitor where an agreement does not exist for 25mm/ from blast no. 3 onwards
DP&E Approval 26/02/16 to extend the duration of blasting up to 25mm/s and overpressure up to 125 dBA for cut 10 widening

Totals No of Exceedances	**3**
Current Percentage exceedance	**7.32%**
EPL Percentage exceedance at 16th December 2015	**10.00%**

EPL 2nd Reporting Period Exceedances **0**

* Flat Battery
** Power Pole

- Did not trigger

Table 6 – Acoustic Investigation (Field) April 2016.

								At monitoring location											
Permit #	**Description of Works**	**Date**	**Time**	**Location**	**Rec ID**	**NCA**	**NML**	**Laeq**	**LAFmax**	**LAFmin**	**Lceq**	**LAF05**	**LAF10**	**LAF50**	**LAF90**	**Distance to receiver**	**Actual Calculated level**	**Compliant**	**Principal sources/ operations**	**Notes**
52	Crane Mobilisation/Demobilisation Girders	1/04/2016	2:38 PM	Bald Hill Rd	197	3	38	70.1	78.9	55	86.5	71`.4	71.1	70	69.1	160	35.5	Y	Crane, power pack, truck	