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# Warrell Creek to Nambucca Heads – Pacific Highway Upgrade Project

## ENVIRONMENT PROTECTION AUTHORITY MONTHLY REPORT

- August 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 August 2016 were limited to the following:

- Bitumen sealing work
- Clearing and Grubbing
- Topsoil stripping
- Earthworks including crushing
- Continuing bridge works including piling, headstock construction, pile caps, girder placement, deck unit installation and temporary work platforms
- Installation of monitoring instruments – settlement plates
- Continuing culvert works
- Scour rock installation
- Continuing utility works
- Batter stabilisation using hydromulch (permanent design seed mix)
- Topsoil Amelioration and Blending
- Concrete Lined Drains
- Basin Decommissioning
- Basin Maintenance including dewatering
- Installation of Erosion and Sediment Controls
- Line marking (temporary in the south)
- Production Blasting

Works scheduled for next month include

- Earthworks including crushing
- Clearing and grubbing (North Facing Ramps)
- Topsoil Strip (North Facing Ramps)
- Installation of second concrete batch plant in the southern portion of the Project

- Continuing bridge works including piling, headstock construction, pile caps, girder placement, deck unit installation and temporary work platforms
- Landscaping works including early works planting
- Continuing culvert works
- Scour rock installation
- Continuing utility works
- Batter stabilisation using hydromulch (permanent design seed mix)
- Topsoil Amelioration and Blending
- Concrete Lined Drains
- Basin Decommissioning
- Basin Maintenance including dewatering and desilting
- Installation of Erosion and Sediment Controls
- Line marking (temporary in the south)

## 1.2 Consultation Activities

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

Table 1 – Consultation Activities

| Groups | Date | Key Topics |
|---|---|---|
| Environmental Review Group | 16/8/16 | Construction Progress, Design Update, Upcoming works, Environmental Update, Monitoring update, Out of Hours Works, Incidents and Community Complaints |
| Community Information Sessions | August 10 and 11 | Included special one-hour session on 10 August for North Facing Ramps. Sessions included community questions being answered by project personnel. |
| Toolboxes | Wednesdays each week | Workforce behavioural issues examined and impact management tips provided, as appropriate. Eg. Minimising truck noise including limiting air brakes near residences |
| University of the Third Age | August 15 | Safety Officer delivered presentation on high safety standards of project. |
| North Facing Ramps group | 10am Monday fortnightly | Two week look-ahead for construction activities |

Other Consultation Activities:

- Issue invitations to all stakeholders for upcoming quarterly Community Information Sessions
- Notifications delivered and agreements sought for OOHW for paving and saw-cutting
- Final notification for imminent traffic switch for opening of Old Coast Road central
- Ongoing and timely notification to stakeholders for full road closures on Gumma Road
- Ongoing and timely notifications and traffic alerts for night time girder deliveries through Macksville
- Final notifications for blasting program which was completed with two final blasts in Cut 10
- Notifications delivered and agreements sought for continuing OOHW for bridgeworks at Nambucca River

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:

- Start engagement with local community regarding construction of asphalt plant
- Start engagement with local community regarding second concrete batch plant
- School visits including construction personnel and RMS representatives likely last in quarter 2016

# 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 |
|---|---|---|
| 01/8/16 – 31/8/16 | 167.4mm | Northern Compound |
| 01/8/16 – 31/8/16 | 143.2mm | Albert Drive Compound |

The site experienced a total of 11 rain days throughout the month of August 2016.

During August, rainfall received on site was higher than the August monthly average of 78.7mm. 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 August 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) |
|---|---|---|
| 1/08/2016 | 9:00:00 | 0 |
| 2/08/2016 | 9:00:00 | 0 |
| 3/08/2016 | 9:00:00 | 12.2 |
| 4/08/2016 | 9:00:00 | 89.2 |
| 5/08/2016 | 9:00:00 | 6.4 |
| 6/08/2016 | 9:00:00 | 0.2 |
| 7/08/2016 | 9:00:00 | 0 |
| 8/08/2016 | 9:00:00 | 0 |
| 9/08/2016 | 9:00:00 | 0.2 |
| 10/08/2016 | 9:00:00 | 0 |
| 11/08/2016 | 9:00:00 | 0.2 |
| 12/08/2016 | 9:00:00 | 0 |
| 13/08/2016 | 9:00:00 | 0 |
| 14/08/2016 | 9:00:00 | 0 |
| 15/08/2016 | 9:00:00 | 0.4 |
| 16/08/2016 | 9:00:00 | 0 |
| 17/08/2016 | 9:00:00 | 0.4 |
| 18/08/2016 | 9:00:00 | 0 |
| 19/08/2016 | 9:00:00 | 0 |
| 20/08/2016 | 9:00:00 | 0 |
| 21/08/2016 | 9:00:00 | 0 |
| 22/08/2016 | 9:00:00 | 0 |
| 23/08/2016 | 9:00:00 | 2.8 |
| 24/08/2016 | 9:00:00 | 20.2 |
| 25/08/2016 | 9:00:00 | 11 |
| 26/08/2016 | 9:00:00 | 0 |
| 27/08/2016 | 9:00:00 | 0 |
| 28/08/2016 | 9:00:00 | 0 |
| 29/08/2016 | 9:00:00 | 0 |
| 30/08/2016 | 9:00:00 | 0 |
| 31/08/2016 | 9:00:00 | 0 |

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

| Date | Time | TOTAL Rain Gauge (mm) |
|---|---|---|
| 1/07/2016 | 9:00:00 | 0 |

| | | |
|---|---|---|
| 2/07/2016 | 9:00:00 | 0 |
| 3/07/2016 | 9:00:00 | 12.8 |
| 4/07/2016 | 9:00:00 | 107 |
| 5/07/2016 | 9:00:00 | 3.4 |
| 6/07/2016 | 9:00:00 | 0.2 |
| 7/07/2016 | 9:00:00 | 0 |
| 8/07/2016 | 9:00:00 | 0 |
| 9/07/2016 | 9:00:00 | 0 |
| 10/07/2016 | 9:00:00 | 0 |
| 11/07/2016 | 9:00:00 | 0 |
| 12/07/2016 | 9:00:00 | 0.2 |
| 13/07/2016 | 9:00:00 | 0 |
| 14/07/2016 | 9:00:00 | 0 |
| 15/07/2016 | 9:00:00 | 0.4 |
| 16/07/2016 | 9:00:00 | 0 |
| 17/07/2016 | 9:00:00 | 0.2 |
| 18/07/2016 | 9:00:00 | 0.2 |
| 19/07/2016 | 9:00:00 | 0 |
| 20/07/2016 | 9:00:00 | 0 |
| 21/07/2016 | 9:00:00 | 0 |
| 22/07/2016 | 9:00:00 | 0 |
| 23/07/2016 | 9:00:00 | 3.2 |
| 24/07/2016 | 9:00:00 | 27.2 |
| 25/07/2016 | 9:00:00 | 12.6 |
| 26/07/2016 | 9:00:00 | 0 |
| 27/07/2016 | 9:00:00 | 0 |
| 28/07/2016 | 9:00:00 | 0 |
| 29/07/2016 | 9:00:00 | 0 |
| 30/07/2016 | 9:00:00 | 0 |
| 31/07/2016 | 9:00:00 | 0 |

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

**August 2016**

| Date | Minimum temperature (°C) | Maximum temperature (°C) | Rainfall (mm) |
|---|---|---|---|
| 1/08/2016 | 15 | 24 | 0 |
| 2/08/2016 | 15.7 | 24.5 | 0 |
| 3/08/2016 | 14.9 | 16.5 | 76 |
| 4/08/2016 | 11 | | 72 |
| 5/08/2016 | | 18.6 | |
| 6/08/2016 | 10 | 20.2 | 12.4 |
| 7/08/2016 | 11.1 | 19.5 | 10.8 |

| Date | Minimum temperature (°C) | Maximum temperature (°C) | Rainfall (mm) |
|---|---|---|---|
| 8/08/2016 | 12 | 21 | 0 |
| 9/08/2016 | 12.9 | 21.2 | 0 |
| 10/08/2016 | 14.6 | 22.8 | 0 |
| 11/08/2016 | 16.2 | 21.9 | 0 |
| 12/08/2016 | 11.8 | 20.4 | 0 |
| 13/08/2016 | 12.6 | 20.7 | 0 |
| 14/08/2016 | 12.8 | 21.9 | 0 |
| 15/08/2016 | 13 | 22 | 0 |
| 16/08/2016 | 14.6 | 22.3 | 0 |
| 17/08/2016 | 12.8 | 22.3 | 0 |
| 18/08/2016 | 14.2 | 22.4 | 0 |
| 19/08/2016 | 14.8 | 21.9 | 0 |
| 20/08/2016 | 16.5 | 23.5 | 0 |
| 21/08/2016 | 10.5 | 19.9 | 0 |
| 22/08/2016 | 11.6 | 22.2 | 0 |
| 23/08/2016 | 14.8 | 20.7 | 2 |
| 24/08/2016 | 11 | 15.7 | 20 |
| 25/08/2016 | 10.7 | 19.6 | 14.2 |
| 26/08/2016 | 10 | 18.8 | 0 |
| 27/08/2016 | 9.8 | 19 | 0.6 |
| 28/08/2016 | 11 | 22.6 | 1.4 |
| 29/08/2016 | 12.9 | 23.6 | 0 |
| 30/08/2016 | 16 | 21.5 | 0 |
| 31/08/2016 | 16.6 | 20.2 | 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 (>10mm in 24 hours) was undertaken on the 5th of August 2016, lab sampling was undertaken (field testing was undertaken but data recorded was not able to be recovered). Results are available in Appendix A.

pH levels noted to be outside trigger levels at:

Upper Warrell Creek downstream (6.28). It is noted that this is only marginally below trigger levels (6.42). All controls were in place for the site.

Turbidity levels noted to be above trigger levels at:

Upper Warrell Creek upstream (94.1 NTU) and downstream (53.4 NTU). All controls were in place for the site, it is noted that levels decreased from upstream to downstream and are thus unlikely to be attributable to construction activity.

Stony Creek upstream (25.3 NTU) and downstream (38.5 NTU). All controls were in place, with no activities being undertaken within the waterway and are thus unlikely to be as a result of construction activity.

Lower Warrell Creek upstream (61.6 NTU) and downstream (56.5 NTU). All controls were in place for the site, it is also noted that levels decreased from upstream to downstream sites with no activity and are thus unlikely to be attributable to construction activity.

Metals noted to be outside of trigger levels at::

Upper Warrell Creek downstream recorded elevated levels of aluminium (0.32mg/L) and zinc (0.013mg/L). It is noted that aluminium was only marginally elevated from upstream (0.28mg/L). All controls were in place, with no works being undertaken in the waterway. The elevated levels are therefore unlikely to be attributed to construction activities.

Stony Creek downstream recorded elevated zinc (0.012mg/L). This was only a minor exceedance of trigger levels (0.006mg/L) and is likely to be natural variation. All controls were in place for the site, with no works being undertaken within the waterway.

Nutrients noted to be outside trigger levels at:

Upper Warrell Creek recorded elevated levels of phosphorus upstream (0.15mg/L) and downstream (0.05mg/L), nitrogen upstream (1.9mg/L) and downstream (1mg/L), nitrate upstream (0.16mg/L) and downstream (0.16mg/L). It is noted that levels decreased or remained consistent from upstream to downstream sites and are thus unlikely to be attributable to construction activities. Controls were in place for the site with no construction activity being undertaken within the waterway.

Stony Creek recorded elevated levels of phosphorus downstream (0.04mg/L), nitrogen upstream (0.8mg/L) and downstream (0.9mg/L) and nitrate upstream (0.35mg/L) and downstream (0.33mg/L). All controls were in place for the site, it is noted that levels were consistent between upstream and downstream sites and are thus unlikely to be due to construction impacts.

Lower Warrell Creek recorded elevated levels of phosphorus downstream (0.07mg/L), nitrogen upstream (0.9mg/L) and downstream (1.2mg/L), nitrate upstream (0.21mg/L) and downstream (0.21mg/L). It is noted that levels only increased slightly from upstream to downstream sites. No activities were being undertaken within the waterway, with all controls in place for the site. The levels are therefore unlikely to be attributable to construction impacts.

Nambucca River recorded elevated levels of nitrogen upstream (0.5mg/L) and downstream (0.5mg/L). Levels did not change between upstream and downstream sites and therefore are unlikely to be attributable to construction impacts.

TSS levels noted to be above trigger levels at:

Upper Warrell Creek upstream (110mg/L) and downstream (25mg/L) recorded elevated levels. It is noted that levels decreased from upstream to downstream sites and are therefore unlikely to be attributable to construction impacts. All controls for the site were in place.

Stony Creek upstream (32mg/L) and downstream (28mg/L) recorded elevated levels. It is noted that levels decreased from upstream to downstream sites and are therefore unlikely to be attributable to construction impacts. All controls for the site were in place.

2nd Wet Sampling Event

A second "wet" sampling event (>10mm rainfall in 24 hours) was undertaken on the 26th of August 2016, field testing was undertaken. Results are available in Appendix A.

pH levels noted to be outside trigger levels at:

Stony Creek downstream recorded elevated pH levels (7.13). It is noted that these were only slightly above upstream levels (6.83) and trigger levels (6.98). All controls were in place for the site, with no construction activities undertaken within the waterway. It is also noted that these levels are within ANZECC criteria (6.5-8.0).

Lower Warrell Creek recorded elevated pH levels upstream (8.0) and downstream (7.56). It is noted that levels decreased from upstream to downstream sites and are thus unlikely to be attributable to site impacts. All controls were in place for the site, with no activities undertaken within the waterway. It is also noted that these levels are within ANZECC criteria (6.5-8.0).

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

Lower Warrell Creek recorded low DO levels upstream (3.7mg/L) and downstream (3.78mg/L). It is noted that levels increased from upstream to downstream sites and are thus unlikely to be attributed to construction impacts. All controls were in place for the site, with no activities undertaken within the waterway.

Nambucca River recorded low DO levels upstream (4.24mg/L) and downstream (4.96mg/L). It is noted that levels increased from upstream to downstream sites and are thus unlikely to be attributed to construction impacts. All controls were in place for the site, with no activities undertaken within the waterway.

Dry Sampling Event

A "dry" sampling event was undertaken on the 30th August 2016, field testing was undertaken. Results are attached in Appendix A.

pH levels noted to be outside of trigger levels at:

Lower Warrell Creek recorded elevated levels upstream (7.24) and downstream (7.09). It is noted that levels increased from upstream to downstream sites and are thus unlikely to be attributed to construction impacts. All controls were in place for

the site, with no activities undertaken within the waterway. It is also noted that these levels are within ANZECC criteria (6.5-8.0).

Gumma Wetlands recorded elevated levels upstream (7.03) and downstream (7.34). All controls were in place, with no works being undertaken within the waterway. The elevated levels are thus unlikely to be attributable to construction activities. These results are also noted to be within ANZECC criteria (6.5-8.0)

Nambucca river recorded elevated levels upstream (7.87) and downstream (7.99). All controls were in place, with no works being undertaken within the waterway. The elevated levels are thus unlikely to be attributable to construction activities. It is noted that these results are within ANZECC criteria (6.5-8.0) and that the trigger levels for Nambucca River are ph 7, with anything outside of this result being outside of trigger levels.

Turbidity (NTU) noted to be above trigger levels at:

Stony Creek upstream (11.8 NTU) and downstream (6.1 NTU) sites. All controls were in place for the site. It is also noted that levels decreased form upstream to downstream and are thus unlikely to be attributable to construction activities.

Nambucca river recorded elevated levels downstream (33.3 NTU). All controls were verified to be in place for the site, with no activities being undertaken within the waterway. It was noted that wind chop was causing disturbance of sediment from the river bank, which may have contributed to the elevated levels at the site.

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

Lower Warrell Creek downstream (4.57mg/L). All controls were verified to be in place for the site, with no construction activities undertaken within the waterway. The reduced levels are attributed to decaying vegetative matter within the waterway.

Nambucca River upstream (5.71mg/L and downstream (5.37mg/L). All controls were verified to be in place for the site, with no activities being undertaken in the waterway. It is noted that these levels are above ANZECC criteria (5mg/L).

# 4. Sediment Basin Water Monitoring

Water was released from commissioned sediment basins after rainfall events on the 5th and 25th of August 2016. 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 is being undertaken to ensure compliance with 1 in 10 sampling to validate the correlation.

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) | TSS (mg/L) (Limit <50mg/L) | Approx Volume Discharged (kL) | Comments |
|---|---|---|---|---|---|---|---|
| 5/08/2016 | B45.5 | N | 6.56 | 80.3 | 24 | 800 | |
| 5/08/2016 | B45.64 | N | 6.54 | 35.7 | 8 | 800 | |
| 5/08/2016 | B47.14 | N | 6.55 | 13.8 | | 800 | |
| 5/08/2016 | B49.20 | N | 6.73 | 53.7 | | 800 | |
| 5/08/2016 | B53.00 | N | 7.62 | 56.2 | 25 | 2500 | |
| 5/08/2016 | B53.03 | N | 7.96 | 33.2 | | 140 | |
| 5/08/2016 | B53.9 | N | 7.32 | 22.1 | 18 | 1400 | |
| 6/08/2016 | B42.30 | N | 6.78 | 42.8 | | 1000 | |
| 6/08/2016 | B42.87 | N | 6.83 | 30.1 | 22 | | |
| 6/08/2016 | B44.55 | N | 6.73 | 12.4 | <5 | 400 | |
| 6/08/2016 | B47.96 | N | 6.62 | 35.7 | | 100 | |
| 6/08/2016 | B54.00 | N | 8.23 | 72.3 | | 1700 | |
| 6/08/2016 | B55.8 | N | 8.42 | 23.6 | | 800 | |
| 7/08/2016 | B43.21 | N | 6.75 | 39.7 | | 150 | |
| 7/08/2016 | B45.00 | N | 6.75 | 7.2 | 9 | 800 | |
| 7/08/2016 | B53.5 | N | 7.92 | 36.7 | | 2000 | |
| 7/08/2016 | B54.7 | N | 7.37 | 66.9 | | 1300 | |
| 7/08/2016 | B59.5 | N | 7.21 | 39.6 | | 200 | |
| 7/08/2016 | B60.1 | N | 8.21 | 72.3 | | 400 | |
| 7/08/2016 | B60.5 | N | 8.01 | 65.3 | | 400 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 7/08/2016 | B60.58 | N | 8.13 | 22.3 | | 200 | |
| 8/08/2016 | B42.30 | N | 6.64 | 40 | 12 | 700 | |
| 8/08/2016 | B43.21 | N | 6.79 | 22.5 | | 250 | |
| 8/08/2016 | B44.44 | N | 6.6 | 5.7 | 7 | 500 | |
| 8/08/2016 | B47.96 | N | 6.25 | 41.25 | | 200 | |
| 8/08/2016 | B49.67 | N | 7.44 | 55.8 | | 800 | |
| 8/08/2016 | B57.7 | N | 7.96 | 34.3 | | 700 | |
| 8/08/2016 | B59.6 | N | 7.65 | 12.1 | | 300 | |
| 8/08/2016 | B59.78 | N | 7.12 | 16.2 | 6 | 380 | |
| 8/08/2016 | B60.3 | N | 7.76 | 32.3 | <5 | 300 | |
| 8/08/2016 | B60.8 | N | 7.91 | 40.6 | 16 | 500 | |
| 8/08/2016 | B60.85 | N | 7.33 | 74.1 | 30 | 300 | |
| 9/08/2016 | B42.30 | N | 7.57 | 25.2 | | 50 | |
| 9/08/2016 | B43.37 | N | 7.06 | 25.1 | | 400 | |
| 9/08/2016 | B47.96 | N | 6.67 | 22.1 | | 150 | |
| 9/08/2016 | B48.46 | N | 7.17 | 66.8 | | 800 | |
| 9/08/2016 | B49.67 | N | 7.3 | 69.7 | | 700 | |
| 9/08/2016 | B55.00 | N | 8.2 | | | 1200 | IR12 Release – Land irrigation |
| 9/08/2016 | B55.17 | N | 8.25 | 66.4 | | 300 | |
| 9/08/2016 | B55.5 | N | 8.13 | 35.3 | | 400 | |
| 9/08/2016 | B56.5 | N | 8.36 | | | 300 | IR3 Release - Land irrigation |
| 9/08/2016 | B57.25 | N | 6.61 | 9.6 | | 650 | |
| 9/08/2016 | B58.03 | N | 8.32 | 29.6 | | 400 | |
| 9/08/2016 | B58.45 | N | 7.29 | 43.2 | | 1000 | |
| 9/08/2016 | B59.00 | N | 6.96 | 11.3 | | 600 | |
| 9/08/2016 | B59.24 | N | 7.16 | 43.2 | | 400 | |
| 10/08/2016 | B43.21 | N | 7.36 | 20 | | 100 | |
| 10/08/2016 | B45.00 | N | 6.79 | 32.7 | | 250 | |
| 10/08/2016 | B46.84 | N | 7.02 | 5.5 | | 100 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 10/08/2016 | B46.96 | N | 7.37 | 13.7 | | 350 | |
| 10/08/2016 | B53.80 | N | 6.85 | 10.1 | | 1500 | |
| 10/08/2016 | B54.3 | N | 8.11 | 13.3 | | 500 | |
| 10/08/2016 | B54.42 | N | 6.65 | 6 | | 300 | |
| 10/08/2016 | B57.75 | N | 7.44 | 52.3 | | 300 | |
| 10/08/2016 | B58.1 | N | 8.44 | 36.3 | 12 | 800 | |
| 10/08/2016 | B58.6 | N | 7.44 | 11.2 | 24 | 500 | |
| 10/08/2016 | B58.6 | N | 7.44 | 11.2 | | 500 | |
| 10/08/2016 | B59.85 | N | 7.1 | 12.1 | <5 | 800 | |
| 10/08/2016 | B61.25 | N | 7.92 | 54.7 | 12 | 800 | |
| 11/08/2016 | B44.55 | N | 44.55 | 6.5 | | 150 | Basin decommissioned in May 16 |
| 11/08/2016 | B46.80 | N | 6.74 | 7.9 | | 20 | Basin decommissioned in April 16 |
| 11/08/2016 | B46.96 | N | 6.89 | 13.7 | | 100 | Basin decommissioned in April 16 |
| 11/08/2016 | B53.00 | N | 7.69 | 31.2 | | 500 | Basin below sed storage level |
| 12/08/2016 | B53.00 | N | 8.31 | 10.1 | | 500 | Basin below sed storage level |
| 15/08/2016 | B46.35 | N | 6.54 | 9.6 | | 600 | Basin decommissioned on the 11/8 |
| 15/08/2016 | B53.00 | N | 8.45 | 25.2 | | 600 | Basin below sed storage level |
| 19/08/2016 | B58.03 | N | 8.32 | 29.6 | | 400 | Basin below sed storage level |
| 23/08/2016 | B56.4 | N | 6.62 | 24.3 | | 230 | Basin below sed storage level |
| 25/08/2016 | B45.50 | N | 6.51 | 18.2 | | 500 | |
| 25/08/2016 | B47.14 | N | 6.8 | 23.7 | | 700 | |
| 25/08/2016 | B48.30 | N | 6.96 | 15.1 | | 400 | |
| 25/08/2016 | B49.20 | N | 6.61 | 24.7 | | 600 | |
| 25/08/2016 | B53.9 | N | 7.71 | 15 | | 1000 | |
| 26/08/2016 | B43.37 | N | 7.02 | 44.5 | | 500 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 26/08/2016 | B53.00 | N | 8.45 | 25.2 | | 600 | |
| 26/08/2016 | B53.03 | N | 7.17 | 73.6 | | 140 | |
| 26/08/2016 | B53.8 | N | 7.42 | 43.6 | | 1500 | |
| 26/08/2016 | B55.8 | N | 7.26 | 43.9 | | 700 | |
| 26/08/2016 | B60.5 | N | 6.59 | 73.2 | | 400 | |
| 27/08/2016 | B53.5 | N | 6.81 | 33.6 | | 1000 | |
| 27/08/2016 | B56.50 | N | 7.71 | 73.2 | | 700 | |
| 27/08/2016 | B58.45 | N | 7.88 | 26.3 | | 900 | |
| 27/08/2016 | B58.6 | N | 7.01 | 46.3 | | 400 | |
| 27/08/2016 | B60.8 | N | 7.76 | 36.9 | | 490 | |
| 29/08/2016 | B50.3 | N | 6.83 | 17.2 | | 320 | |
| 29/08/2016 | B53.5 | N | 6.82 | 12.6 | | 500 | |
| 29/08/2016 | B54.42 | N | 7.32 | 10.3 | | 300 | |
| 29/08/2016 | B55.5 | N | 6.82 | 36.3 | | 300 | |
| 29/08/2016 | B59.00 | N | 7.91 | 23.2 | | 500 | |
| 29/08/2016 | B59.24 | N | 6.83 | 19.6 | | 355 | |
| 29/08/2016 | B59.85 | N | 7.71 | 13.2 | | 800 | |
| 29/08/2016 | B61.25 | N | 6.89 | 31.6 | | 796 | |

# 5. Noise Monitoring

Monthly routine construction noise monitoring was undertaken on the 22nd and 23rd of August 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 or were not audible from the nearest residence.

# 6. Vibration Monitoring

Vibration monitoring was undertaken as part of blasting works during August 2016. Monitoring results are contained in Table 5 Appendix A.

# 7. Dust Monitoring

Dust deposition gauges (DDG) were placed at nearby sensitive receivers from 5th July 2016 to 2nd August 2016. DDG results are available in Appendix A.

All dust deposition gauges were below the level of concern for Total Insoluble Matter (TIM) and Ash Content (AC) (4g/m2.month or increase of 2g/m2/month) during the monitoring period, with the exception of DDG 6, which recorded 7.2g/m2/month TIM and 6.1g/m2/month AC. Mitigation measures for the area include stabilisation of the nearby batters with hydromulch as well as using Surfactant additives in water carts to assist with dust mitigation.

The construction crew working in the vicinity of this location has been toolboxed on the importance of dust suppression during earthworks activities and three watercarts are currently utilised to control dust during the earthworks activities.

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. Pacifico is progressively stabilising cuts and fills that have reached their final profile. Pacifico is monitoring this area closely for dust, with residents located very close to the earthworks currently being undertaken in this area.

No complaints were received in this monitoring period regarding air quality.

# 8. Groundwater Monitoring

ACCIONA (Pacifico) have undertaken groundwater monitoring on the 19th, 23rd and 29th of August 2016. The results from the groundwater monitoring is available in Table 4 of Appendix A.

<u>pH levels noted to be outside of trigger levels at:</u>

4BH025 – Cut 12 (5.73). It is noted that this was only slightly below trigger levels (6.20).

<u>Conductivity noted to be outside of trigger levels at:</u>

4BH037 – Fill 15 (9.6mS/cm). It is noted that this bore had to be relocated from its original location due to it being within the construction footprint. Trigger levels from the original location therefore may not correspond with the new location entirely due to differences in groundwater quality.

# 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 August 2016. A summary of these approvals is below in Table 4.

Table 4 – August Out of Hours Works approved under L4.2 (d) Acoustic Investigation (Modelled)

| OOH Request Title | >5dB(A) above background | Approval Date |
|---|---|---|
| Upper Warrell Creek Concrete Finishing | N | 1/8/2016 |
| Quarry Access Linemarking | N | 4/8/2016 |
| Wet curing southern bridges | N | 9/8/2016 |
| Dewatering Lower Warrell Creek | N | 19/8/2016 |

Other works outside of standard construction hours already approved under section L4.2 (d) of the EPL that took place during August 2016 were:

- Pump diversion at Williamsons Creek
- Nambucca River Bridge concreting works
- Out of hours basin treatment

# 10. Complaints

## 10.1 Summary of Complaints for the month

24/08/16 - Resident advised that his mother had had a near miss with a truck turning out of Albert Drive that pulled out across in front of her. Truck drivers were re-toolboxed.

# 11. Non-Compliance

## 11.1 Summary of Non-compliances

One (1) Non Compliances against the ACCIONA Environmental Protection Licence (EPL) 20533 occurred in August 2016.
AFJV-NCR-000618

Description of Non Compliance
Sediment Basin B46.35 was not dewatered within the 5 day period after the cessation of rainfall in accordance with the EPL condition O5.9.

Possible Causes

A misunderstanding occurred between the site workforce and the Environmental Team regarding whether the sediment basin had been decommissioned. The notification to decommission the basin had not yet been submitted to the EPA and the basin had not been removed from the licence. A misunderstanding occurred with the site workforce in which the basin thought to have already been removed from the licence.

Remedial Action

Water in Sediment Basin B46.35 was tested and treated and released in accordance with the Sediment Basin Management and Dewatering Procedure.

Corrective Action

Submission is to be made to the EPA to remove this basin (B46.35) from the licence as soon as possible. A dispensation to reduce the 21 day decommissioning period for this basin will be sought. Signage has now been placed on decommissioned basins to ensure the misunderstanding does not happen again.

# Appendix A – Monitoring Results

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

| 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 | | | | 5-Aug-16 | | | 5-Aug-16 | | | 5-Aug-16 | | | 5-Aug-16 | | | 5-Aug-16 | | | 5-Aug-16 | | | 5-Aug-16 | | | 5-Aug-16 | | | Unable to sample - water level too low | | | 5-Aug-16 | | | 5-Aug-16 | | |
| Time of Sampling | | Freshwater | Marine | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 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 |
| 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 | 0.28 | 0.194 | 0.016 | 0.32 | 0.098 | 0.02 | 0.45 | 0.114 | 0.01 | 0.05 | 0.28 | 0.01 | 0.46 | 0.28 | 0.01 | 0.08 | 0.25 | 0.02 | 0.04 | 0.25 | 0.02 | 0.03 | 0.25 | 0.02 | - | 0.11 | 0.01 | 0.04 | 0.11 | 0.01 | 0.03 |
| 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 | <0.001 | 0.002 | 0.001 | <0.001 | 0.002 | 0.001 | 0.004 | 0.002 | 0.001 | - | 0.002 | 0.001 | <0.001 | 0.002 | 0.001 | <0.001 |
| Cadmium | mg/L | 0.0002 | 0.0055 | - | - | <0.0001 | - | - | <0.0001 | - | - | <0.0001 | - | - | <0.0001 | 0.0002 | 0.0001 | <0.0001 | 0.0002 | 0.0001 | <0.0001 | - | - | <0.0001 | - | - | 0.0004 | - | - | - | - | - | <0.0001 | - | - | <0.0001 |
| Chromium | mg/L | 0.001 | 0.0044 | - | - | <0.001 | - | - | <0.001 | - | - | <0.001 | - | - | <0.001 | | | <0.001 | | | <0.001 | - | - | <0.001 | - | - | <0.001 | - | - | - | - | - | <0.001 | - | - | <0.001 |
| Copper | mg/L | 0.0014 | 0.0013 | - | - | <0.001 | - | - | 0.002 | - | - | <0.001 | - | - | <0.001 | | | 0.001 | | | <0.001 | 0.001 | 0.001 | <0.001 | 0.001 | 0.001 | 0.002 | 0.001 | 0.001 | - | 0.001 | 0.001 | <0.001 | 0.001 | 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 | - | - | - | - | - | <0.001 | - | - | <0.001 |
| Manganese | mg/L | 1.9 | 0.08 | 0.3 | 0.01 | 0.029 | 0.158 | 0.0178 | 0.043 | 0.0726 | 0.0218 | 0.058 | 0.083 | 0.0164 | 0.081 | 0.35 | 0.087 | 0.092 | 0.35 | 0.087 | 0.079 | 0.49 | 0.011 | 0.051 | 0.49 | 0.011 | 0.338 | 0.49 | 0.011 | - | 0.076 | 0.006 | 0.066 | 0.076 | 0.006 | 0.063 |
| Nickel | mg/L | 0.011 | 0.07 | - | - | <0.001 | - | - | 0.003 | - | - | <0.001 | - | - | 0.001 | 0.0034 | 0.001 | 0.002 | 0.0034 | 0.001 | 0.002 | 0.002 | 0.001 | <0.001 | 0.002 | 0.001 | 0.006 | 0.002 | 0.001 | - | - | - | <0.001 | - | - | <0.001 |
| Selenium | mg/L | 11 | - | - | - | <0.01 | - | - | <0.01 | - | - | <0.01 | - | - | <0.01 | - | - | <0.01 | - | - | <0.01 | - | - | <0.01 | - | - | <0.01 | - | - | - | - | - | <0.01 | - | - | <0.01 |
| Silver | mg/L | 0.00005 | 0.0014 | - | - | <0.001 | - | - | <0.001 | - | - | <0.001 | - | - | <0.001 | - | - | <0.001 | - | - | <0.001 | - | - | <0.001 | - | - | <0.001 | - | - | - | - | - | <0.001 | - | - | <0.001 |
| Zinc | mg/L | 0.008 | 0.015 | 0.007 | 0.005 | <0.005 | 0.0062 | 0.0042 | 0.013 | 0.0064 | 0.005 | <0.005 | 0.006 | 0.005 | 0.012 | 0.018 | 0.005 | 0.012 | 0.018 | 0.005 | 0.016 | 0.011 | 0.005 | 0.007 | 0.011 | 0.005 | 0.023 | 0.011 | 0.005 | - | 0.005 | 0.005 | 0.014 | 0.005 | 0.005 | 0.005 |
| Iron | mg/L | - | - | 1.38 | 0.48 | 0.28 | 0.99 | 0.366 | 0.28 | 1.4 | 0.41 | 0.61 | 1.48 | 0.35 | 0.1 | 0.52 | 0.05 | 0.45 | 0.52 | 0.05 | 0.07 | 1.65 | 0.37 | 0.26 | 1.65 | 0.37 | 1.06 | 1.65 | 0.37 | - | 0.26 | 0.05 | 0.11 | 0.26 | 0.05 | 0.09 |
| 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 | 0.15 | 0.044 | 0.016 | 0.05 | 0.03 | 0.016 | 0.02 | 0.034 | 0.01 | 0.04 | 0.04 | 0.01 | 0.04 | 0.04 | 0.01 | 0.07 | 0.11 | 0.03 | 0.02 | 0.11 | 0.03 | 0.02 | 0.11 | 0.03 | - | 0.07 | 0.02 | 0.04 | 0.07 | 0.02 | 0.05 |
| Phosphate (reactive phosphorus) | mg/L | - | - | 0.01 | 0.0034 | <0.01 | 0.01 | 0.004 | <0.01 | 0.018 | 0.0022 | <0.01 | 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 | 0.02 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | - | | | | | | |
| Total Nitrogen | mg/L | 0.5 | 0.3 | 0.56 | 0.3 | 1.9 | 0.52 | 0.2 | 1 | 0.48 | 0.2 | 0.8 | 0.63 | 0.2 | 0.9 | 0.54 | 0.31 | 0.9 | 0.54 | 0.31 | 1.2 | 3.1 | 0.9 | 0.5 | 3.1 | 0.9 | 0.5 | 3.1 | 0.9 | - | 0.46 | 0.2 | 0.5 | 0.46 | 0.2 | 0.5 |
| Total Kjeldahl Nitrogen | mg/L | - | - | 0.5 | 0.3 | 1.7 | 0.5 | 0.2 | 0.8 | 0.34 | 0.2 | 0.4 | 0.6 | 0.2 | 0.6 | 0.5 | 0.2 | 0.7 | 0.5 | 0.2 | 1 | 2.8 | 0.8 | 0.5 | 2.8 | 0.8 | 0.5 | 2.8 | 0.8 | - | 0.3 | 0.2 | 0.4 | 0.3 | 0.2 | 0.4 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | - | | | | | | |
| Nitrate | mg/L | 0.7 | - | 0.102 | 0.01 | 0.16 | 0.054 | 0.01 | 0.16 | 0.208 | 0.01 | 0.35 | 0.2 | 0.01 | 0.33 | 0.05 | 0.01 | 0.21 | 0.05 | 0.01 | 0.21 | 0.03 | 0.01 | 0.04 | 0.03 | 0.01 | 0.01 | 0.03 | 0.01 | - | 0.04 | 0.01 | 0.08 | 0.04 | 0.01 | 0.07 |
| Nitrite | mg/L | - | - | - | - | <0.01 | - | - | <0.01 | - | - | <0.01 | 0.02 | 0.01 | <0.01 | 0.02 | 0.01 | <0.01 | 0.02 | 0.01 | <0.01 | 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 | <0.01 | 0.02 | 0.01 | <0.01 | 0.046 | 0.02 | <0.01 | 0.062 | 0.012 | 0.02 | 0.116 | 0.022 | 0.02 | 0.116 | 0.022 | 0.01 | 0.06 | 0.01 | <0.01 | 0.06 | 0.01 | 0.06 | 0.06 | 0.01 | - | 0.15 | 0.024 | 0.04 | 0.15 | 0.024 | 0.03 |
| TSS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TSS | mg/L | <40 | <10 | 19 | 5 | 110 | 12.8 | 5 | 25 | 14.8 | 5 | 8 | 8.7 | 5 | <5 | 25 | 5.5 | 32 | 25 | 5.5 | 28 | 350 | 9 | 23 | 350 | 9 | 79 | 350 | 9 | - | | | 9 | | | 9 |
| *Lab/ Physical data (no field data available)* | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| pH | pH | - | 6.5-8 | 7.478 | 6.23 | 6.42 | 7.192 | 6.42 | 6.28 | 7.138 | 6.61 | 6.59 | 6.98 | 6.21 | 6.63 | 6.86 | 6.46 | 6.61 | 6.86 | 6.46 | 6.52 | 6.9 | 6.08 | 6.65 | 6.9 | 6.08 | 6.45 | 6.9 | 6.08 | - | 7.56 | 6.58 | 6.96 | 7.56 | 6.58 | 7.09 |
| Conductivity | mS/cm | 0.125-2.2 | - | 0.3204 | 0.20184 | 0.099 | 0.3242 | 0.19076 | 0.097 | 0.313 | 0.2024 | 0.197 | 0.309 | 0.20188 | 0.212 | 20.918 | 0.50928 | 0.225 | 20.918 | 0.50928 | 0.222 | 0.842 | 0.334 | 0.298 | 0.842 | 0.334 | 0.37 | 0.842 | 0.334 | - | 48.42 | 12.65 | 12.8 | 48.42 | 12.65 | 15.8 |
| Turbidity | NTU | 50 | 10 | 26.16 | 5.94 | 94.1 | 27.32 | 3.72 | 53.4 | 14.98 | 3.34 | 25.3 | 17.16 | 4.59 | 38.5 | 26.1 | 2.4 | 61.6 | 26.1 | 2.4 | 56.5 | 66.8 | 11.6 | 50.4 | 66.8 | 11.6 | 105 | 66.8 | 11.6 | - | 19.04 | 5.81 | 16.6 | 19.04 | 5.81 | 13 |
| Dissolved Oxygen | mg/L | 5 | 5 | 7.43 | 1.5 | | 6.88 | 2.28 | | 8.472 | 5.08 | | 7.59 | 2.63 | | 6.65 | 5.02 | | 6.65 | 5.02 | | 7.3 | 1.78 | | 7.3 | 1.78 | | 7.3 | 1.78 | - | 8.47 | 6.88 | | 8.47 | 6.88 | |
| Dissolved Oxygen | % | | | - | | | - | | | - | | | - | | | - | | | - | | | - | | | - | | | - | | - | - | | | - | | |
| TDS | g/L | - | - | - | | 81 | - | | 84 | - | | 114 | - | | 139 | - | | 134 | - | | 138 | - | | 164 | - | | 254 | - | | - | - | | 7690 | - | | 9610 |

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 August 2016 – 2nd Wet Event

| 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 | | | | 26-Aug-16 | | | 26-Aug-16 | | | 26-Aug-16 | | | 26-Aug-16 | | | 26-Aug-16 | | | 26-Aug-16 | | | 26-Aug-16 | | | 26-Aug-16 | | | 26-Aug-16 | | | 26-Aug-16 | | | 26-Aug-16 | | |
| Time of Sampling | | Freshwater | Marine | 2:55 PM | | | 3:05 PM | | | 2:38 PM | | | 2:20 PM | | | 4:35 PM | | | 4:47 PM | | | 3:55 PM | | | 3:45 PM | | | 3:38 PM | | | 4:20 PM | | | 4:05 PM | | |
| 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 |
| Comments | | | | | | | | | | | | | | | | | | | | | | | | | | | | Unable to sample - water level too low | | | Wind chop - sediment stirred up | | | Wind chop - sediment stirred up | | |
| *Lab Physical data (no field data available)* | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Temperature | °C | - | - | 24.3 | 16.27 | 13.3 | 24.52 | 16.79 | 14.01 | 23.98 | 17.36 | 14.09 | 24.7 | 17.65 | 14.95 | 25.9 | 19.5 | 15.46 | 25.9 | 19.5 | 15.82 | 25.84 | 19.1 | 16.68 | 25.84 | 19.1 | 13.12 | 25.84 | 19.1 | 17.35 | 26.56 | 21.32 | 18.42 | 26.56 | 21.32 | 18.21 |
| pH | pH | - | 6.5-8 | 7.478 | 6.23 | 6.87 | 7.192 | 6.42 | 6.88 | 7.138 | 6.61 | 6.83 | 6.98 | 6.21 | 7.13 | 6.86 | 6.46 | 8 | 6.86 | 6.46 | 7.56 | 6.9 | 6.08 | 6.56 | 6.9 | 6.08 | 6.78 | 6.9 | 6.08 | 6.79 | 7.56 | 6.58 | 7.61 | 7.56 | 6.58 | 7.15 |
| Conductivity | mS/cm | 0.125-2.2 | - | 0.3204 | 0.20184 | 0.267 | 0.3242 | 0.19076 | 0.313 | 0.313 | 0.2024 | 0.231 | 0.309 | 0.20188 | 0.205 | 20.918 | 0.50928 | 0.674 | 20.918 | 0.50928 | 0.672 | 0.842 | 0.334 | 0.482 | 0.842 | 0.334 | 0.328 | 0.842 | 0.334 | 0.395 | 48.42 | 12.65 | 33.8 | 48.42 | 12.65 | 33.2 |
| Turbidity | NTU | 50 | 10 | 26.16 | 5.94 | 30 | 27.32 | 3.72 | 7.8 | 14.98 | 3.34 | 1.6 | 17.16 | 4.59 | 9.4 | 26.1 | 2.4 | 0.7 | 26.1 | 2.4 | 2 | 66.8 | 11.6 | 35.1 | 66.8 | 11.6 | 28.3 | 66.8 | 11.6 | 28.2 | 19.04 | 5.81 | 7.1 | 19.04 | 5.81 | 18.4 |
| Dissolved Oxygen | mg/L | 5 | 5 | 7.43 | 1.5 | 4.64 | 6.88 | 2.28 | 4.08 | 8.472 | 5.08 | 5.68 | 7.59 | 2.63 | 8.99 | 6.65 | 5.02 | 3.7 | 6.65 | 5.02 | 3.78 | 7.3 | 1.78 | 3.81 | 7.3 | 1.78 | 2.4 | 7.3 | 1.78 | 3.23 | 8.47 | 6.88 | 4.24 | 8.47 | 6.88 | 4.96 |
| Dissolved Oxygen | % | | | - | | 45.8 | - | | 41 | - | | 57.1 | - | | 92.1 | - | | 38.3 | - | | 39.5 | - | | 40.4 | - | | 23.6 | - | | 34.7 | - | | 52.5 | - | | 61.2 |
| TDS | g/L | - | - | - | | 0.181 | - | | 0.203 | - | | 0.15 | - | | 0.138 | - | | 0.431 | - | | 0.43 | - | | 0.32 | - | | 0.224 | - | | 0.267 | - | | 20.5 | - | | 20.6 |

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 August 2016 – Dry Event

| 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 | | | | 30-Aug-16 | | | 30-Aug-16 | | | 30-Aug-16 | | | 30-Aug-16 | | | 30-Aug-16 | | | 30-Aug-16 | | | 30-Aug-16 | | | 30-Aug-16 | | | 30-Aug-16 | | | 30-Aug-16 | | | 30-Aug-16 | | |
| Time of Sampling | | Freshwater | Marine | 5:05 PM | | | 4:55 PM | | | 5:25 PM | | | 5:15 PM | | | 2:55 PM | | | 2:50 PM | | | 4:15 PM | | | 4:39 PM | | | 4:00 PM | | | 3:30 PM | | | 3:20 PM | | |
| Comments | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Wind chop | | | Wind chop | | |
| 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 |
| *Field Physical data* | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Temperature | °C | - | - | 24.86 | 14.99 | 13.43 | 25.1 | 16.3 | 13.97 | 24.4 | 16 | 15.67 | 26.46 | 15.94 | 16.85 | 27.9 | 18.4 | 18.27 | 27.9 | 18.4 | 18.35 | 26.5 | 16.3 | 17.25 | 26.5 | 16.3 | 15.18 | 26.5 | 16.3 | 19.36 | 27.9 | 18.1 | 20.4 | 27.9 | 18.1 | 20.4 |
| pH | pH | - | 6.5-8 | 7.25 | 6.48 | 6.73 | 7.3 | 6.4 | 6.86 | 7.5 | 6.6 | 6.88 | 7.33 | 6.26 | 6.83 | 7.02 | 6.57 | 7.24 | 7.02 | 6.57 | 7.09 | 7 | 6.1 | 7.03 | 7 | 6.1 | 6.81 | 7 | 6.1 | 7.34 | 7 | 7 | 7.87 | 7 | 7 | 7.99 |
| Conductivity | mS/cm | 0.125-2.2 | - | 0.316 | 0.232 | 0.295 | 0.348 | 0.227 | 0.297 | 0.348 | 0.227 | 0.237 | 0.3338 | 0.2168 | 0.233 | 20.946 | 0.679 | 0.63 | 20.946 | 0.679 | 0.179 | 0.808 | 0.4234 | 0.522 | 0.808 | 0.4234 | 0.347 | 0.808 | 0.4234 | 0.413 | 47.32 | 29.44 | 28.2 | 47.32 | 29.44 | 27.4 |
| Turbidity | NTU | 50 | 10 | 10.96 | 4 | 1.7 | 9.9 | 3.5 | 1.9 | 9.9 | 3.5 | 11.8 | 5.97 | 3.74 | 6.1 | 6.82 | 1.83 | 10.5 | 6.82 | 1.83 | 22.5 | 52.78 | 11.3 | 15.9 | 52.78 | 11.3 | 15.2 | 52.78 | 11.3 | 31.5 | 19.3 | 6.7 | 13.1 | 19.3 | 6.7 | 33.3 |
| Dissolved Oxygen | mg/L | 5 | 5 | 4.98 | 1.91 | 3.48 | 4.8 | 2.6 | 3.93 | 4.8 | 2.6 | 3.7 | 6.34 | 3.52 | 5 | 7.98 | 5.07 | 5.60 | 7.98 | 5.07 | 4.57 | 6.4 | 1.75 | 2.59 | 6.4 | 1.75 | 1.11 | 6.4 | 1.75 | 3.02 | 9.1 | 7.4 | 5.71 | 9.1 | 7.4 | 5.37 |
| Dissolved Oxygen | % | | | - | - | 34.5 | - | - | 39.4 | - | - | 38.5 | - | - | 53.2 | - | - | 61.4 | - | - | 50.1 | - | - | 27.9 | - | - | 11.5 | - | - | 33.8 | - | - | 71.7 | - | - | 67.3 |
| TDS | g/L | - | - | - | | 0.92 | - | | 0.193 | - | | 0.154 | - | | 0.151 | - | | 0.403 | - | | 0.121 | - | | 0.334 | - | | 0.225 | - | | 0.272 | - | | 17.5 | - | | 17 |

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 August 2016

| Date | Time | Location | Rec ID | NCA | NML | Activity | Predicted levels for activity | LAeq | LAFMAX | LAFMIN | LAF10 | LAF50 | LAF90 | Principal sources/ operations | Measurements exceeding criteria, plant/ operations causing | Corrective actions | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 23/08/2016 | 3:07 PM | Albert Drive | 74 | 1 | 50 | Cut | 62 | 47.5 | 74.5 | 34.8 | 47.2 | 43.3 | 39.8 | Excavator | NA | NA | Other sources: highway, birds |
| 22/08/2016 | 7:45 AM | Cockburns Lane | 16 | 1 | 50 | Cut | 65 | 48.5 | 65.9 | 44.5 | 50.3 | 47.8 | 46.3 | Excavator | NA | NA | Other sources: mill, birds |
| 23/08/2016 | 2:30 PM | Bald Hill Rd | 197 | 3 | 50 | Cut | 72 | 54.2 | 76.8 | 45.1 | 53.7 | 50.6 | 47.9 | Excavator (rock breaker) | NA | NA | Other sources: highway, local traffic |
| 22/08/2016 | 9:14 AM | Letitia Rd | 406 | 4 | 59 | Cut | 74 | 63.3 | 80.5 | 43.8 | 68.4 | 54 | 48.9 | Scrapers loading + dumping | NA | NA | Other sources: Highway |
| 22/08/2016 | 8:41 AM | Mattick Rd | 442 | 6 | 44 | Cut | 62 | 51.7 | 77.4 | 44.3 | 54.3 | 49.9 | 47 | Moxy, excavator, grader | NA | NA | Other sources: Traffic |
| 22/08/2016 | 9:45 AM | Nursery Rd | 415 | 4 | 59 | Bridgeworks | NA | 57.4 | 77.8 | 41.6 | 51.1 | 45.6 | 43.1 | Concreting | NA | NA | Construction not audible |
| 22/08/2016 | 8:15 AM | Wallace St | 148 | 3 | 50 | Cut | NA | 59.6 | 74.2 | 48.8 | 63.3 | 54.1 | 51.4 | Excavators | NA | NA | Construction not audible |
| 22/08/2016 | 12:30 PM | Gumma Rd | 383 | 3 | 50 | Bridgeworks | 67 | 60 | 69.2 | 53.2 | 63.7 | 57.5 | 54.7 | Crane, hammer drill | NA | NA | Other sources: Traffic |

## Table 3 - Dust Monitoring Results July/August 2016

| | | | DDG ID | | DDG1 | DDG2 | DDG3 | DDG4 | DDG5 | DDG5E | DDG5W | DDG6 | DDG7 | DDG8 | DDG9N | DDG9NE | DDG A1 | DDG A2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Start date of sampling | | 5/07/2016 | 5/07/2016 | 5/07/2016 | 5/07/2016 | 5/07/2016 | 5/07/2016 | 5/07/2016 | 5/07/2016 | 5/07/2016 | 5/07/2016 | 5/07/2016 | 5/07/2016 | 5/07/2016 | 5/07/2016 |
| | | | Finish date of sampling | | 2/08/2016 | 2/08/2016 | 2/08/2016 | 2/08/2016 | 2/08/2016 | 2/08/2016 | 2/08/2016 | 2/08/2016 | 2/08/2016 | 2/08/2016 | 2/08/2016 | 2/08/2016 | 2/08/2016 | 2/08/2016 |
| Analyte | Time Period | Unit | Levels of Concern | LOR | | | | | | | | | | | | | | |
| Ash Content | Current Month | g/m².month | 4 | 0.1 | 0.1 | 0.3 | 0.8 | 0.1 | 0.7 | 0.2 | 0.2 | 6.1 | 0.4 | 0.3 | 0.8 | 0.3 | ---- | ---- |
| | | mg | N/A | 1 | 1 | 5 | 13 | 1 | 11 | 4 | 3 | 101 | 6 | 5 | 13 | 5 | ---- | ---- |
| | Previous Month | g/m².month | | | 0.1 | 0.4 | 1.8 | 0.5 | 0.4 | 1.1 | 0.7 | 19.7 | 0.2 | 0.1 | 1 | 0.4 | ---- | ---- |
| | Change | g/m².month | Increase of 2 | | 0 | -0.1 | -1 | -0.4 | 0.3 | -0.9 | -0.5 | -13.6 | 0.2 | 0.2 | -0.2 | -0.1 | ---- | ---- |
| Combustible Matter | Current Month | g/m².month | N/A | 0.1 | 0.1 | 0.1 | 0.8 | 0.3 | 0.2 | 0.2 | <0.1 | 1.1 | <0.1 | 0.2 | 0.2 | 0.1 | ---- | ---- |
| | | mg | N/A | 1 | 3 | 2 | 14 | 5 | 4 | 3 | 1 | 17 | <1 | 4 | 3 | 2 | ---- | ---- |
| Total Insoluble Matter (TIM) | Current Month | g/m².month | 4 | 0.1 | 0.2 | 0.4 | 1.6 | 0.4 | 0.9 | 0.4 | 0.2 | 7.2 | 0.4 | 0.5 | 1 | 0.4 | ---- | ---- |
| | | mg | N/A | 1 | 4 | 7 | 27 | 6 | 15 | 7 | 4 | 118 | 6 | 9 | 16 | 7 | ---- | ---- |
| | Previous Month | g/m².month | | 0.1 | 0.4 | 0.8 | 2.7 | 0.9 | 0.8 | 1.5 | 1 | 24.5 | 0.5 | 0.6 | 1.2 | 0.6 | ---- | ---- |
| | Change | g/m².month | Increase of 2 | 0.1 | -0.2 | -0.4 | -1.1 | -0.5 | 0.1 | -1.1 | -0.8 | -17.3 | -0.1 | -0.1 | -0.2 | -0.2 | ---- | ---- |
| Arsenic | Current Month | mg/L | | 0.001 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | <0.001 | 0.002 |
| Comments | | | | | | | Grass clipping in gauge | | | | Insects in gauge | | | | | | | |

## Table 4 – Groundwater Monitoring Results August 2016

| Location | Units | Groundwater Investigation Levels (GILs) | 4BH007 | | 4BH008 | | 4BH010 | | | 4BH011 | | 4BH021b | | | 4BH022c | | | 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 23 | | Cut 23 | |
| Date of Sampling | | | 19/08/2016 | | 19/08/2016 | | 23/08/2016 | | | 19/08/2016 | | 29/08/2016 | | | 29/08/2016 | | | 29/08/2016 | | | 19/08/2016 | | | 23/08/2016 | | | 23/08/2016 | | | 29/08/2016 | | | 29/08/2016 | | | 19/08/2016 | | 19/08/2016 | |
| | | | Trigger levels 80 / 20%ile | Results | Trigger levels 80 / 20%ile | Results | Trigger levels 80 / 20%ile | | Results | Trigger levels 80 / 20%ile | Results | Trigger levels 80 / 20%ile | | Results | Trigger levels 80 / 20%ile | | Results | Trigger levels 80 / 20%ile | | Results | Trigger levels 80 / 20%ile (from 4LDBH015) | | Results | Trigger levels 80 / 20%ile | | Results | Trigger levels 80 / 20%ile | | Results | Trigger levels 80 / 20%ile | | Results | Trigger levels 80 / 20%ile | | Results | Trigger levels 80 / 20%ile | Results | Trigger levels 80 / 20%ile | Results |
| Comments | | | | DRY | | DRY | | | | | DRY | | | | | | | | | | | | DRY | | | | | Unable to sample | | | Unable to sample | | | | | | DRY | | DRY |
| *Field Physical data* | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Depth to standing water level from TOC | m | - | - | - | - | - | 16.802 | | 15.60 | - | - | 8.7420 | | 6.81 | 16.0140 | | 1.32 | 8.4500 | | 6.32 | 14.4820 | | - | 1.2000 | | 0.49 | 1.3520 | | - | 17.4120 | | - | 13.8440 | | 14.93 | - | - | - | - |
| pH | pH | - | - | - | - | - | 6.264 | 4.736 | 6.01 | - | - | 6.7800 | 5.8100 | 6.44 | 7.0900 | | 5.8300 | 6.7780 | 6.2080 | 5.73 | 7.34 | 6.2600 | - | 6.5080 | 5.9220 | 6.19 | 7.3040 | 6.7680 | - | 6.9800 | 5.2400 | - | 6.3960 | 5.5620 | 5.9000 | - | - | - | - |
| Conductivity | mS/cm | - | - | - | - | - | 3630.000 | | 4.64 | - | - | 111.300 | | 0.131 | 231.000 | | 0.785 | 0.342 | | 0.218 | 322.000 | | - | 5.550 | | 9.6 | 8366.000 | | - | 121.100 | | - | 132.660 | | 0.124 | - | - | - | - |
| Temperature | ○C | - | - | - | - | - | 22.4420 | | 23.69 | - | - | 22.3600 | | 21.03 | 21.1500 | | 20.0300 | 22.6040 | | 21.06 | 21.3000 | | - | 25.9820 | | 20.82 | 22.5600 | | - | 22.8200 | | - | 23.1940 | | 20.8200 | - | - | - | - |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Exceedance of trigger level | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

## Table 5 – Blasting Monitoring Result August 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 |
| 3-May | 10-025 | 10 | | 7.699 | 5.974 | 2.910 | 111.800 | 111.500 | 91.480 | | | | | 42 |
| 2-Jun | 10-026 | 10 | | 2.345 | 1.809 | 1.000 | 93.980 | 108.000 | 104.200 | | | | | 43 |
| 24-Aug | 10-027 | 10 | | 6.223 | 2.231 | 1.651 | 116.100 | 113.100 | 113.300 | | | | | 44 |
| 30-Aug | 10-028 | 10 | | 10.670 | 1.905 | 1.905 | 121.200 | 104.900 | 88.000 | | | | | 45 |

**Note**

17 July 2015 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** | **6.98%** |
| **EPL Percentage exceedance at 16th December 2015** | **10.00%** |

**EPL 2nd Reporting Period Exceedances** **0**

* Flat Battery
** Power Pole

- Did not trigger

SoundAdvice™

Noise Prediction and Management Tool

# Noise Impact Assessment Report

## Report Details

| | | | |
|---|---|---|---|
| *Report Date:* | 4/08/2016 | *Report Reference:* | Quarry Access Line Ma |
| *Company:* | Pacifico | *Prepared by:* | N.Rutherford |

## Proposed Works

| | | | | |
|---|---|---|---|---|
| *Date of Proposed Works:* | 22/8-09/09 | *Time of Proposed Works:* | 6pm-7am | *Work Duration:* |
| *Description of Works* | | Linemarking removal and re-linemarking for lateral shift | | |

## Noise Prediction Details

**Expected Meteorological Conditions**

| | | | |
|---|---|---|---|
| *Wind Speed* | Strong (16 - 21) | *Wind Direction* | North East |
| *Cloud Cover* | Clear | *Temperature (Degrees C)* | 10 - 20 ° C |
| *Relative Humidity (%)* | < 55% | *Time of Day* | Night (7pm-6am M-F, 4 |

## Proposed Equipment

| *Location* | *Number of Plant* | *Equipment* | *Usage Factor* | *Total Sound Power* |
|---|---|---|---|---|
| Location 9 | 1 | Daymakers (Tower lights) | 1 | 93 |
| Location 12 | 1 | Daymakers (Tower lights) | 1 | 93 |
| Location 13 | 1 | Daymakers (Tower lights) | 1 | 93 |
| Location 14 | 2 | Daymakers (Tower lights) | 1 | 93 |
| Location 9 | 2 | Light Trucks | 0.75 | 99 |
| Location 9 | 1 | LV's | <25% | 75 |
| Location 9 | 1 | Asphalt Sprayer 13T | 0.75 | 91 |
| Location 9 | 1 | Street sweeper-Sweeping with dust suppression | 0.5 | 101 |
| Location 9 | 1 | Multi-Tyre Roller | 0.5 | 97 |

## Noise Predictions

| *Receiver ID* | *Criteria* | *Predicted LAeq* | *Exceedance / Risk* | *Magnitude - dB(A)* |
|---|---|---|---|---|
| --273 UPPER WARRELL CREEK ROAD, CONGARINN | 40.0 | 9.1 | No / Type 1 | |
| 74-73 ALBERT DRIVE, WARRELL CREEK NSW 2447 | 40.0 | 22.1 | No / Type 1 | |
| 81-40 ALBERT DRIVE, DONNELLYVILLE NSW 2447 | 40.0 | 30.8 | No / Type 1 | |
| 89-33 O'DELLS ROAD, DONNELLYVILLE NSW 2447 | 40.0 | 13.9 | No / Type 1 | |
| 93-8 MAIN STREET, DONNELLYVILLE NSW 2447 | 40.0 | 24.3 | No / Type 1 | |
| 97-4723 PACIFIC HIGHWAY, DONNELLYVILLE NSW | 40.0 | 32.4 | No / Type 1 | |
| 100-17 ALBERT DRIVE, DONNELLYVILLE NSW 2447 | 40.0 | 20.2 | No / Type 1 | |
| 101-DP1072289, HENRYS LANE, WARRELL CREEL N | 36.0 | 8.8 | No / Type 1 | |
| 103-11 ALBERT DRIVE, DONNELLYVILLE NSW 2447 | 40.0 | 34.5 | No / Type 1 | |
| 163-4 SCOTTS HEAD ROAD, WAY WAY NSW 2447 | 40.0 | 18.7 | No / Type 1 | |
| 115-35 MAIN STREET, DONNELLYVILLE NSW 2447 | 40.0 | 20.9 | No / Type 1 | |
| 151-72 SCOTTS HEAD ROAD, WAY WAY NSW 2447 | 40.0 | 7.9 | No / Type 1 | |
| 112-4 SCOTTS HEAD ROAD, WAY WAY NSW 2447 | 40.0 | 20.9 | No / Type 1 | |

**Risk:**

**Type 1 - Complies with assessment criteria**

**Type 2 - Low Risk - 0 to 2 dB(A) above assessment criteria**

**Type 3 - Moderate Risk - 2dB(A) to 5dB(A) above assessment criteria**

**Type 4 - High Risk - More than 5dB(A) above assessment criteria**

Notes:

***Name:***

***Date:***

***Signature:***

***Position:***

***Required Mitigation Measures:***

# SoundAdvice™

Noise Prediction and Management Tool

## Noise Impact Assessment Report

### Report Details

| | | | |
|---|---|---|---|
| *Report Date:* | 4/08/2016 | *Report Reference:* | Quarry Access Line Ma |
| *Company:* | Pacifico | *Prepared by:* | N.Rutherford |

### Proposed Works

| | | | | |
|---|---|---|---|---|
| *Date of Proposed Works:* | 22/8-09/09 | *Time of Proposed Works:* | 6pm-7am | *Work Duration:* |
| *Description of Works* | | Linemarking removal and re-linemarking for lateral shift | | |

### Noise Prediction Details

**Expected Meteorological Conditions**

| | | | |
|---|---|---|---|
| *Wind Speed* | Strong (16 - 21) | *Wind Direction* | North East |
| *Cloud Cover* | Clear | *Temperature (Degrees C)* | 10 - 20 ° C |
| *Relative Humidity (%)* | < 55% | *Time of Day* | Night (7pm-6am M-F, 4 |

### Proposed Equipment

| *Location* | *Number of Plant* | *Equipment* | *Usage Factor* | *Total Sound Power* |
|---|---|---|---|---|
| Location 9 | 1 | Daymakers (Tower lights) | 1 | 93 |
| Location 12 | 1 | Daymakers (Tower lights) | 1 | 93 |
| Location 13 | 1 | Daymakers (Tower lights) | 1 | 93 |
| Location 14 | 2 | Daymakers (Tower lights) | 1 | 93 |
| Location 13 | 1 | Light Trucks | 0.75 | 99 |
| Location 13 | 4 | LV's | <25% | 75 |
| Location 13 | 1 | Asphalt Sprayer 13T | 0.75 | 91 |
| Location 13 | 1 | Multi-tyred roller | 0.75 | 99 |
| Location 13 | 1 | Street sweeper-Sweeping with dust suppression | 0.5 | 101 |

### Noise Predictions

| *Receiver ID* | *Criteria* | *Predicted LAeq* | *Exceedance / Risk* | *Magnitude - dB(A)* |
|---|---|---|---|---|
| --273 UPPER WARRELL CREEK ROAD, CONGARINN | 40.0 | 7.4 | No / Type 1 | |
| 74-73 ALBERT DRIVE, WARRELL CREEK NSW 2447 | 40.0 | 16.5 | No / Type 1 | |
| 81-40 ALBERT DRIVE, DONNELLYVILLE NSW 2447 | 40.0 | 23.8 | No / Type 1 | |
| 89-33 O'DELLS ROAD, DONNELLYVILLE NSW 2447 | 40.0 | 7.3 | No / Type 1 | |
| 93-8 MAIN STREET, DONNELLYVILLE NSW 2447 | 40.0 | 14.2 | No / Type 1 | |
| 97-4723 PACIFIC HIGHWAY, DONNELLYVILLE NSW | 40.0 | 22.5 | No / Type 1 | |
| 100-17 ALBERT DRIVE, DONNELLYVILLE NSW 2447 | 40.0 | 13.5 | No / Type 1 | |
| 101-DP1072289, HENRYS LANE, WARRELL CREEL N | 36.0 | 4.4 | No / Type 1 | |
| 103-11 ALBERT DRIVE, DONNELLYVILLE NSW 2447 | 40.0 | 22.8 | No / Type 1 | |
| 163-4 SCOTTS HEAD ROAD, WAY WAY NSW 2447 | 40.0 | 23.6 | No / Type 1 | |
| 115-35 MAIN STREET, DONNELLYVILLE NSW 2447 | 40.0 | 12.6 | No / Type 1 | |
| 151-72 SCOTTS HEAD ROAD, WAY WAY NSW 2447 | 40.0 | 8.8 | No / Type 1 | |
| 112-4 SCOTTS HEAD ROAD, WAY WAY NSW 2447 | 40.0 | 21.7 | No / Type 1 | |

**Risk:**

**Type 1 - Complies with assessment criteria**

**Type 2 - Low Risk - 0 to 2 dB(A) above assessment criteria**

**Type 3 - Moderate Risk - 2dB(A) to 5dB(A) above assessment criteria**

**Type 4 - High Risk - More than 5dB(A) above assessment criteria**

Notes:

***Name:***

***Date:***

***Signature:***

***Position:***

***Required Mitigation Measures:***

# SoundAdvice™

Noise Prediction and Management Tool

## Noise Impact Assessment Report

### Report Details

| | | | |
|---|---|---|---|
| *Report Date:* | 4/08/2016 | *Report Reference:* | Quarry Access Line Ma |
| *Company:* | Pacifico | *Prepared by:* | N.Rutherford |

### Proposed Works

| | | | | |
|---|---|---|---|---|
| *Date of Proposed Works:* | 22/8-09/09 | *Time of Proposed Works:* | 6pm-7am | *Work Duration:* |
| *Description of Works* | | Linemarking removal and re-linemarking for lateral shift | | |

### Noise Prediction Details

**Expected Meteorological Conditions**

| | | | |
|---|---|---|---|
| *Wind Speed* | Strong (16 - 21) | *Wind Direction* | North East |
| *Cloud Cover* | Clear | *Temperature (Degrees C)* | 10 - 20 ° C |
| *Relative Humidity (%)* | < 55% | *Time of Day* | Night (7pm-6am M-F, 4 |

### Proposed Equipment

| *Location* | *Number of Plant* | *Equipment* | *Usage Factor* | *Total Sound Power* |
|---|---|---|---|---|
| Location 9 | 1 | Daymakers (Tower lights) | 1 | 93 |
| Location 12 | 1 | Daymakers (Tower lights) | 1 | 93 |
| Location 13 | 1 | Daymakers (Tower lights) | 1 | 93 |
| Location 14 | 2 | Daymakers (Tower lights) | 1 | 93 |
| Location 14 | 1 | Asphalt Sprayer 13T | 0.5 | 89 |
| Location 14 | 1 | Light trucks | 0.75 | 99 |
| Location 14 | 1 | LV's | <25% | 75 |
| Location 14 | 1 | Multi-tyred roller | 0.5 | 97 |
| Location 14 | 1 | Street sweeper-Sweeping with dust suppression | 0.25 | 98 |

### Noise Predictions

| *Receiver ID* | *Criteria* | *Predicted LAeq* | *Exceedance / Risk* | *Magnitude - dB(A)* |
|---|---|---|---|---|
| --273 UPPER WARRELL CREEK ROAD, CONGARINN | 40.0 | 8.0 | No / Type 1 | |
| 74-73 ALBERT DRIVE, WARRELL CREEK NSW 2447 | 40.0 | 16.1 | No / Type 1 | |
| 81-40 ALBERT DRIVE, DONNELLYVILLE NSW 2447 | 40.0 | 19.8 | No / Type 1 | |
| 89-33 O'DELLS ROAD, DONNELLYVILLE NSW 2447 | 40.0 | 5.6 | No / Type 1 | |
| 93-8 MAIN STREET, DONNELLYVILLE NSW 2447 | 40.0 | 13.0 | No / Type 1 | |
| 97-4723 PACIFIC HIGHWAY, DONNELLYVILLE NSW | 40.0 | 22.8 | No / Type 1 | |
| 100-17 ALBERT DRIVE, DONNELLYVILLE NSW 2447 | 40.0 | 12.4 | No / Type 1 | |
| 101-DP1072289, HENRYS LANE, WARRELL CREEL N | 36.0 | 4.0 | No / Type 1 | |
| 103-11 ALBERT DRIVE, DONNELLYVILLE NSW 2447 | 40.0 | 22.5 | No / Type 1 | |
| 163-4 SCOTTS HEAD ROAD, WAY WAY NSW 2447 | 40.0 | 25.3 | No / Type 1 | |
| 115-35 MAIN STREET, DONNELLYVILLE NSW 2447 | 40.0 | 10.1 | No / Type 1 | |
| 151-72 SCOTTS HEAD ROAD, WAY WAY NSW 2447 | 40.0 | 8.1 | No / Type 1 | |
| 112-4 SCOTTS HEAD ROAD, WAY WAY NSW 2447 | 40.0 | 28.8 | No / Type 1 | |

**Risk:**

**Type 1 - Complies with assessment criteria**

**Type 2 - Low Risk - 0 to 2 dB(A) above assessment criteria**

**Type 3 - Moderate Risk - 2dB(A) to 5dB(A) above assessment criteria**

**Type 4 - High Risk - More than 5dB(A) above assessment criteria**

Notes:

***Name:***

***Date:***

***Signature:***

***Position:***

***Required Mitigation Measures:***

SoundAdvice™

Noise Prediction and Management Tool

Pacific Highway Upgrade
Warrell Creek to Nambucca Heads
Chainage 45,100 - 46,200

# Noise Impact Assessment Report

## Report Details

| | | | |
|---|---|---|---|
| *Report Date:* | 8/08/2016 | *Report Reference:* | Wet curing rosewood road |
| *Company:* | AFJV | *Prepared by:* | JH |

## Proposed Works

| | | | | | |
|---|---|---|---|---|---|
| *Date of Proposed Works:* | 22/8-11/9 | *Time of Proposed Works:* | 6-8pm M-F, 1-3pm Sat, 9am-3pm S | *Work Duration:* | After deck pours |
| *Description of Works* | | Deck pours required to be kept wet during curing | | | |

## Noise Prediction Details

**Expected Meteorological Conditions**

| | | | |
|---|---|---|---|
| *Wind Speed* | Strong (16 - 21) | *Wind Direction* | North East |
| *Cloud Cover* | Clear | *Temperature (Degrees C)* | 10 - 20 ° C |
| *Relative Humidity (%)* | < 55% | *Time of Day* | Night (7pm-6am M-F, 4pm-7am Sat, all day Sunday ) |

## Proposed Equipment

| *Location* | *Number of Plant* | *Equipment* | *Usage Factor* | *Total Sound Power* |
|---|---|---|---|---|
| Location 1 | 2 | Daymakers (Tower lights) | 1 | 93 |
| Location 1 | 1 | Hand tools | 0.25 | 88 |
| Location 1 | 1 | Compressor | 0.75 | 92 |

## Noise Predictions

| *Receiver ID* | *Criteria* | *Predicted LAeq* | *Exceedance / Risk* | *Magnitude - dB(A)* |
|---|---|---|---|---|
| 28-425 UPPER WARRELL CREEK ROAD, CONGARIN | 40.0 | 11.0 | No / Type 1 | |
| 42-395 UPPER WARRELL CREEK ROAD, CONGARIN | 40.0 | 7.7 | No / Type 1 | |
| 48-13A SONNYS LANE, WARRELL CREEK NSW 2447 | 40.0 | 15.1 | No / Type 1 | |
| 51-196 ALBERT DRIVE, WARRELL CREEK NSW 2447 | 40.0 | 16.0 | No / Type 1 | |
| 55-4478 PACIFIC HIGHWAY, WARRELL CREEK NSW | 40.0 | 17.0 | No / Type 1 | |
| 57-153 ALBERT DRIVE, WARRELL CREEK NSW 2447 | 40.0 | 12.8 | No / Type 1 | |
| 58-19 ROSEWOOD ROAD, WARRELL CREEK NSW 2 | 40.0 | 16.6 | No / Type 1 | |
| 59-46 ROSEWOOD ROAD, WARRELL CREEK NSW 2 | 40.0 | 35.2 | No / Type 1 | |
| 61-124 ALBERT DRIVE, WARRELL CREEK NSW 2447 | 40.0 | 12.0 | No / Type 1 | |
| 63-115 ALBERT DRIVE, WARRELL CREEK NSW 2447 | 40.0 | 11.8 | No / Type 1 | |
| 64-69 ROSEWOOD ROAD, WARRELL CREEK NSW 2 | 36.0 | 40.2 | Yes / Type 3 | 4.2 |
| 68-91 ROSEWOOD ROAD, WARRELL CREEK NSW 2 | 36.0 | 26.7 | No / Type 1 | |
| 71-DP1150527, ROSEWOOD ROAD, WARRELL CREI | 36.0 | 19.0 | No / Type 1 | |
| 74-73 ALBERT DRIVE, WARRELL CREEK NSW 2447 | 40.0 | 9.2 | No / Type 1 | |
| 77-62 O'DELLS ROAD, WARRELL CREEK NSW 2447 | 36.0 | 14.2 | No / Type 1 | |
| 81-40 ALBERT DRIVE, DONNELLYVILLE NSW 2447 | 40.0 | 6.8 | No / Type 1 | |
| 89-33 O'DELLS ROAD, DONNELLYVILLE NSW 2447 | 40.0 | 6.2 | No / Type 1 | |
| 93-8 MAIN STREET, DONNELLYVILLE NSW 2447 | 40.0 | 5.8 | No / Type 1 | |
| 100-17 ALBERT DRIVE, DONNELLYVILLE NSW 2447 | 40.0 | 1.3 | No / Type 1 | |
| 111-12 PARKINS CLOSE, WARRELL CREEK NSW 244 | 36.0 | 2.9 | No / Type 1 | |

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**Risk:**

**Type 1 - Complies with assessment criteria**

**Type 2 - Low Risk - 0 to 2 dB(A) above assessment criteria**

**Type 3 - Moderate Risk - 2dB(A) to 5dB(A) above assessment criteria**

**Type 4 - High Risk - More than 5dB(A) above assessment criteria**

Notes:

Worst case wind direction

***Name:*** _____

***Date:*** _____

***Signature:*** _____

***Position:*** _____

***Required Mitigation Measures:***

SoundAdvice™

Noise Prediction and Management Tool

**Pacific Highway Upgrade**
**Warrell Creek to Nambucca Heads**
**Chainage 46,200 - 47,700**

# Noise Impact Assessment Report

## Report Details

| | | | |
|---|---|---|---|
| *Report Date:* | 30/10/2015 | *Report Reference:* | 6" Pump Williamsons Creek Diversion |
| *Company:* | AFJV | *Prepared by:* | Jack Henderson |

## Proposed Works

| | | | | | |
|---|---|---|---|---|---|
| *Date of Proposed Works:* | 1/11-31/12 | *Time of Proposed Works:* | 6pm-7am M-F, 1pm Sat-7am Mon | *Work Duration:* | Mon-Sun |
| *Description of Works* | | Pump required out of hours for diversion | | | |

## Noise Prediction Details

**Expected Meteorological Conditions**

| | | | |
|---|---|---|---|
| *Wind Speed* | Strong (16 - 21) | *Wind Direction* | North East |
| *Cloud Cover* | Clear | *Temperature (Degrees C)* | 10 - 20 ° C |
| *Relative Humidity (%)* | < 55% | *Time of Day* | Night (7pm-6am M-F, 4pm-7am Sat, all day Sunday ) |

## Proposed Equipment

| *Location* | *Number of Plant* | *Equipment* | *Usage Factor* | *Total Sound Power* |
|---|---|---|---|---|
| Location 9 | 1 | 6" Pump | <25% | 80 |

## Noise Predictions

| *Receiver ID* | *Criteria* | *Predicted LAeq* | *Exceedance / Risk* | *Magnitude - dB(A)* |
|---|---|---|---|---|
| --273 UPPER WARRELL CREEK ROAD, CONGARINNI | 40.0 | 1.1 | No / Type 1 | |
| 74-73 ALBERT DRIVE, WARRELL CREEK NSW 2447 | 40.0 | 2.8 | No / Type 1 | |
| 81-40 ALBERT DRIVE, DONNELLYVILLE NSW 2447 | 40.0 | 7.2 | No / Type 1 | |
| 89-33 O'DELLS ROAD, DONNELLYVILLE NSW 2447 | 40.0 | 1.3 | No / Type 1 | |
| 93-8 MAIN STREET, DONNELLYVILLE NSW 2447 | 40.0 | 3.3 | No / Type 1 | |
| 97-4723 PACIFIC HIGHWAY, DONNELLYVILLE NSW : | 40.0 | 8.6 | No / Type 1 | |
| 100-17 ALBERT DRIVE, DONNELLYVILLE NSW 2447 | 40.0 | 2.0 | No / Type 1 | |
| 101-DP1072289, HENRYS LANE, WARRELL CREEL N | 36.0 | 1.1 | No / Type 1 | |
| 103-11 ALBERT DRIVE, DONNELLYVILLE NSW 2447 | 40.0 | 10.3 | No / Type 1 | |
| 163-4 SCOTTS HEAD ROAD, WAY WAY NSW 2447 | 40.0 | 1.2 | No / Type 1 | |
| 115-35 MAIN STREET, DONNELLYVILLE NSW 2447 | 40.0 | 2.3 | No / Type 1 | |
| 151-72 SCOTTS HEAD ROAD, WAY WAY NSW 2447 | 40.0 | 1.2 | No / Type 1 | |
| 112-4 SCOTTS HEAD ROAD, WAY WAY NSW 2447 | 40.0 | 1.9 | No / Type 1 | |

**Risk:**

**Type 1 - Complies with assessment criteria**
**Type 2 - Low Risk - 0 to 2 dB(A) above assessment criteria**
**Type 3 - Moderate Risk - 2dB(A) to 5dB(A) above assessment criteria**
**Type 4 - High Risk - More than 5dB(A) above assessment criteria**

Notes:
Weather Aug-Apr from AQMP

***Name:*** _____
***Date:*** _____
***Signature:*** _____
***Position:*** _____
***Required Mitigation Measures:*** _____

# SoundAdvice™

Noise Prediction and Management Tool

**Pacific Highway Upgrade**
**Warrell Creek to Nambucca Heads**
**Chainage 47,700 - 49,300**

## Noise Impact Assessment Report

### Report Details

| | | | |
|---|---|---|---|
| *Report Date:* | 19/08/2016 | *Report Reference:* | LWC Pumping - sleep dist |
| *Company:* | AFJV | *Prepared by:* | JH |

### Proposed Works

| | | | | | |
|---|---|---|---|---|---|
| *Date of Proposed Works:* | 19/8-30/11/2016 | *Time of Proposed Works:* | 24 hours | *Work Duration:* | 7 days |
| *Description of Works* | | Dewatering of work areas for construction activities | | | |

### Noise Prediction Details

**Expected Meteorological Conditions**

| | | | |
|---|---|---|---|
| *Wind Speed* | Still (< 6) | *Wind Direction* | North |
| *Cloud Cover* | Clear | *Temperature (Degrees C)* | 10 - 20 ° C |
| *Relative Humidity (%)* | < 55% | *Time of Day* | Sleep Disturbance - LA1 |

### Proposed Equipment

| *Location* | *Number of Plant* | *Equipment* | *Usage Factor* | *Total Sound Power* |
|---|---|---|---|---|
| Location 3 | 1 | Submersible pump | 0.75 | 87 |
| Location 4 | 1 | Submersible pump | 0.75 | 87 |
| Location 3 | 1 | Generator - small | 1 | 94 |

### Noise Predictions

| *Receiver ID* | *Criteria* | *Predicted LAeq* | *Exceedance / Risk* | *Magnitude - dB(A)* |
|---|---|---|---|---|
| 112-4 SCOTTS HEAD ROAD, WAY WAY NSW 2447 | 50.0 | 22.3 | No / Type 1 | |
| 117-15 REID STREET, MACKSVILLE NSW 2447 | 49.0 | 16.2 | No / Type 1 | |
| 131-DP826440, HARRIMANS LANE, MACKSVILLE N: | 49.0 | 17.5 | No / Type 1 | |
| 148-1 REID STREET, MACKSVILLE NSW 2447 | 49.0 | 14.6 | No / Type 1 | |
| 151-72 SCOTTS HEAD ROAD, WAY WAY NSW 2447 | 50.0 | 34.6 | No / Type 1 | |
| 155-26 HARRIMANS LANE, MACKSVILLE NSW 2447 | 49.0 | 18.5 | No / Type 1 | |
| 163-4 SCOTTS HEAD ROAD, WAY WAY NSW 2447 | 50.0 | 39.3 | No / Type 1 | |
| 175-34 HARRIMANS LANE, NSW | 49.0 | 18.9 | No / Type 1 | |
| 180-58 HARRIMANS LANE, MACKSVILLE NSW 2447 | 49.0 | 20.3 | No / Type 1 | |
| 186-41 BALD HILL ROAD, MACKSVILLE NSW 2447 | 49.0 | 14.2 | No / Type 1 | |
| 192-38 KERR DRIVE, MACKSVILLE NSW 2447 | 49.0 | 8.3 | No / Type 1 | |
| 193-KERR DRIVE, MACKSVILLE NSW 2447 | 49.0 | 22.0 | No / Type 1 | |
| 194-DP1014123, KERR DRIVE, MACKSVILLE NSW 24 | 49.0 | 27.9 | No / Type 1 | |
| 197-54 BALD HILL ROAD, MACKSVILLE NSW 2447 | 49.0 | 20.2 | No / Type 1 | |
| 261-13 CONNORS CRESCENT, MACKSVILLE NSW 24 | 49.0 | 20.9 | No / Type 1 | |
| 266-2 AINSWORTH CLOSE, MACKSVILLE NSW 2447 | 49.0 | 18.9 | No / Type 1 | |
| 302-98 BALD HILL ROAD, MACKSVILLE NSW 2447 | 49.0 | 17.4 | No / Type 1 | |
| 342-228 SCOTTS HEAD ROAD, WAY WAY NSW 244 | 46.0 | 15.7 | No / Type 1 | |

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Risk:
Type 1 - Complies with assessment criteria
Type 2 - Low Risk - 0 to 2 dB(A) above assessment criteria
Type 3 - Moderate Risk - 2dB(A) to 5dB(A) above assessment criteria
Type 4 - High Risk - More than 5dB(A) above assessment criteria
Notes:
Worst case wind direction

***Name:*** _____
***Date:*** _____
***Signature:*** _____
***Position:*** _____
***Required Mitigation Measures:*** _____

# SoundAdvice™

**Noise Prediction and Management Tool**

**Pacific Highway Upgrade**
**Warrell Creek to Nambucca Heads**
**Chainage 47,700 - 49,300**

## Noise Impact Assessment Report

### Report Details

| | | | |
|---|---|---|---|
| *Report Date:* | 19/08/2016 | *Report Reference:* | LWC Pumping |
| *Company:* | AFJV | *Prepared by:* | JH |

### Proposed Works

| | | | | | |
|---|---|---|---|---|---|
| *Date of Proposed Works:* | 19/8-30/11/2016 | *Time of Proposed Works:* | 24 hours | *Work Duration:* | 7 days |
| *Description of Works* | | Dewatering of work areas for construction activities | | | |

### Noise Prediction Details

**Expected Meteorological Conditions**

| | | | |
|---|---|---|---|
| *Wind Speed* | Still (< 6) | *Wind Direction* | North |
| *Cloud Cover* | Clear | *Temperature (Degrees C)* | 10 - 20 ° C |
| *Relative Humidity (%)* | < 55% | *Time of Day* | Night (7pm-6am M-F, 4pm-7am Sat, all day Sunday ) |

### Proposed Equipment

| *Location* | *Number of Plant* | *Equipment* | *Usage Factor* | *Total Sound Power* |
|---|---|---|---|---|
| Location 3 | 1 | Submersible pump | 0.75 | 87 |
| Location 4 | 1 | Submersible pump | 0.75 | 87 |
| Location 3 | 1 | Generator - small | 1 | 94 |

### Noise Predictions

| *Receiver ID* | *Criteria* | *Predicted LAeq* | *Exceedance / Risk* | *Magnitude - dB(A)* |
|---|---|---|---|---|
| 112-4 SCOTTS HEAD ROAD, WAY WAY NSW 2447 | 40.0 | 11.4 | No / Type 1 | |
| 117-15 REID STREET, MACKSVILLE NSW 2447 | 39.0 | 7.6 | No / Type 1 | |
| 131-DP826440, HARRIMANS LANE, MACKSVILLE N | 39.0 | 8.3 | No / Type 1 | |
| 148-1 REID STREET, MACKSVILLE NSW 2447 | 39.0 | 6.9 | No / Type 1 | |
| 151-72 SCOTTS HEAD ROAD, WAY WAY NSW 2447 | 40.0 | 23.2 | No / Type 1 | |
| 155-26 HARRIMANS LANE, MACKSVILLE NSW 2447 | 39.0 | 8.8 | No / Type 1 | |
| 163-4 SCOTTS HEAD ROAD, WAY WAY NSW 2447 | 40.0 | 28.0 | No / Type 1 | |
| 175-34 HARRIMANS LANE, NSW | 39.0 | 9.1 | No / Type 1 | |
| 180-58 HARRIMANS LANE, MACKSVILLE NSW 2447 | 39.0 | 9.7 | No / Type 1 | |
| 186-41 BALD HILL ROAD, MACKSVILLE NSW 2447 | 39.0 | 6.3 | No / Type 1 | |
| 192-38 KERR DRIVE, MACKSVILLE NSW 2447 | 39.0 | 2.2 | No / Type 1 | |
| 193-KERR DRIVE, MACKSVILLE NSW 2447 | 39.0 | 11.2 | No / Type 1 | |
| 194-DP1014123, KERR DRIVE, MACKSVILLE NSW 24 | 39.0 | 16.6 | No / Type 1 | |
| 197-54 BALD HILL ROAD, MACKSVILLE NSW 2447 | 39.0 | 9.8 | No / Type 1 | |
| 261-13 CONNORS CRESCENT, MACKSVILLE NSW 24 | 39.0 | 10.4 | No / Type 1 | |
| 266-2 AINSWORTH CLOSE, MACKSVILLE NSW 2447 | 39.0 | 9.0 | No / Type 1 | |
| 302-98 BALD HILL ROAD, MACKSVILLE NSW 2447 | 39.0 | 8.2 | No / Type 1 | |
| 342-228 SCOTTS HEAD ROAD, WAY WAY NSW 244 | 36.0 | 6.7 | No / Type 1 | |

-

**Risk:**

Type 1 - Complies with assessment criteria

Type 2 - Low Risk - 0 to 2 dB(A) above assessment criteria

Type 3 - Moderate Risk - 2dB(A) to 5dB(A) above assessment criteria

Type 4 - High Risk - More than 5dB(A) above assessment criteria

Notes:

Worst case wind direction

***Name:*** _____

***Date:*** _____

***Signature:*** _____

***Position:*** _____

***Required Mitigation Measures:***

# SoundAdvice™

Noise Prediction and Management Tool

## Noise Impact Assessment Report

## Report Details

| | | | |
|---|---|---|---|
| *Report Date:* | 2/09/2016 | *Report Reference:* | Concreting Bridge Wor |
| *Company:* | Pacifico | *Prepared by:* | N.Rutherford |

## Proposed Works

| | | | | |
|---|---|---|---|---|
| *Date of Proposed Works:* | 03/09/16 - 31/12/16 | *Time of Proposed Works:* | 6am - 7am Mon - Fri and 7am - 8an | *Work Duration:* |
| *Description of Works* | Concreting for bridge works from Pier 7 North to existing Pacific Highway | | | |

## Noise Prediction Details

**Expected Meteorological Conditions**

| | | | |
|---|---|---|---|
| *Wind Speed* | Strong (16 - 21) | *Wind Direction* | West |
| *Cloud Cover* | Clear | *Temperature (Degrees C)* | 10 - 20 ° C |
| *Relative Humidity (%)* | < 55% | *Time of Day* | Extended Hours |

## Proposed Equipment

| *Location* | *Number of Plant* | *Equipment* | *Usage Factor* | *Total Sound Power* |
|---|---|---|---|---|
| Location 12 | 1 | Genie EWP | 0.25 | 87 |
| Location 12 | 1 | Crane - 50 -100T (160kW) | <25% | 94 |
| Location 14 | 1 | Concrete Pump + Cement Mixer Truck 8 t / 350 bar | 0.75 | 94 |
| Location 12 | 1 | Daymakers (Tower lights) | 1 | 93 |
| Location 12 | 2 | EWP | 0.5 | 86 |
| Location 12 | 7 | handtools | 1 | 94 |
| Location 14 | 1 | Concrete Agitator | 0.75 | 95 |

## Noise Predictions

| *Receiver ID* | *Criteria* | *Predicted LAeq* | *Exceedance / Risk* | *Magnitude - dB(A)* |
|---|---|---|---|---|
| 204-46 WALL STREET, MACKSVILLE NSW 2447 | 41.0 | 21.2 | No / Type 1 | |
| 233-95 EAST STREET, MACKSVILLE NSW 2447 | 41.0 | 22.7 | No / Type 1 | |
| 246-57 EAST STREET, MACKSVILLE NSW 2447 | 41.0 | 23.7 | No / Type 1 | |
| --73 EAST STREET, MACKSVILLE NSW 2447 | 41.0 | 23.9 | No / Type 1 | |
| 394-60 GUMMA ROAD, GUMMA NSW 2447 | 41.0 | 29.6 | No / Type 1 | |
| 386-32 GUMMA ROAD, MACKSVILLE NSW 2447 | 41.0 | 35.4 | No / Type 1 | |
| 383-75 RIVER STREET, MACKSVILLE NSW 2447 | 41.0 | 36.9 | No / Type 1 | |
| 366-65 RIVER STREET, MACKSVILLE NSW 2447 | 41.0 | 32.2 | No / Type 1 | |
| 339-55 RIVER STREET, MACKSVILLE NSW 2447 | 41.0 | 28.7 | No / Type 1 | |
| 355-15 BELLEVUE DRIVE, NORTH MACKSVILLE NSV | 48.0 | 28.7 | No / Type 1 | |
| 384-DP205344 BELLEVUE DRIVE, NORTH MACKSVI | 48.0 | 32.1 | No / Type 1 | |
| 385-47 NURSERY ROAD, NORTH MACKSVILLE NSW | 48.0 | 38.2 | No / Type 1 | |
| 388-DP654625 NURSERY ROAD, NORTH MACKSVII | 48.0 | 35.8 | No / Type 1 | |
| 325-1 GRANDVIEW DRIVE, NORTH MACKSVILLE NS | 48.0 | 26.3 | No / Type 1 | |

**Risk:**

**Type 1 - Complies with assessment criteria**

**Type 2 - Low Risk - 0 to 2 dB(A) above assessment criteria**

**Type 3 - Moderate Risk - 2dB(A) to 5dB(A) above assessment criteria**

**Type 4 - High Risk - More than 5dB(A) above assessment criteria**

Notes:

***Name:***

***Date:***

***Signature:***

***Position:***

***Required Mitigation Measures:***

SoundAdvice™

Noise Prediction and Management Tool

Pacific Highway Upgrade
Warrell Creek to Nambucca Heads
Chainage 47,700 - 49,300

# Noise Impact Assessment Report

## Report Details

| | | | |
|---|---|---|---|
| *Report Date:* | 8/08/2016 | *Report Reference:* | Bald Hill Bridge Wet Curing |
| *Company:* | AFJV | *Prepared by:* | JH |

## Proposed Works

| | | | | | |
|---|---|---|---|---|---|
| *Date of Proposed Works:* | 10/8-28/8/16 | *Time of Proposed Works:* | 6-8pm M-F, 1-3pm Sat 9am-3pm Su | *Work Duration:* | during curing of deck pours |
| *Description of Works* | Deck pours need to be kept wet to allow for concrete to cure | | | | |

## Noise Prediction Details

**Expected Meteorological Conditions**

| | | | |
|---|---|---|---|
| *Wind Speed* | Strong (16 - 21) | *Wind Direction* | West |
| *Cloud Cover* | Clear | *Temperature (Degrees C)* | 10 - 20 ° C |
| *Relative Humidity (%)* | < 55% | *Time of Day* | Night (7pm-6am M-F, 4pm-7am Sat, all day Sunday ) |

## Proposed Equipment

| *Location* | *Number of Plant* | *Equipment* | *Usage Factor* | *Total Sound Power* |
|---|---|---|---|---|
| Location 11 | 2 | Daymakers (Tower lights) | 1 | 93 |
| Location 11 | 1 | Compressor | 0.75 | 92 |
| Location 11 | 1 | Hand tools | 0.25 | 88 |

## Noise Predictions

| *Receiver ID* | *Criteria* | *Predicted LAeq* | *Exceedance / Risk* | *Magnitude - dB(A)* |
|---|---|---|---|---|
| 112-4 SCOTTS HEAD ROAD, WAY WAY NSW 2447 | 40.0 | 1.2 | No / Type 1 | |
| 117-15 REID STREET, MACKSVILLE NSW 2447 | 39.0 | 1.5 | No / Type 1 | |
| 131-DP826440, HARRIMANS LANE, MACKSVILLE N | 39.0 | 1.6 | No / Type 1 | |
| 148-1 REID STREET, MACKSVILLE NSW 2447 | 39.0 | 1.5 | No / Type 1 | |
| 151-72 SCOTTS HEAD ROAD, WAY WAY NSW 2447 | 40.0 | 1.5 | No / Type 1 | |
| 155-26 HARRIMANS LANE, MACKSVILLE NSW 2447 | 39.0 | 2.5 | No / Type 1 | |
| 163-4 SCOTTS HEAD ROAD, WAY WAY NSW 2447 | 40.0 | 1.5 | No / Type 1 | |
| 175-34 HARRIMANS LANE, NSW | 39.0 | 4.9 | No / Type 1 | |
| 180-58 HARRIMANS LANE, MACKSVILLE NSW 2447 | 39.0 | 14.4 | No / Type 1 | |
| 186-41 BALD HILL ROAD, MACKSVILLE NSW 2447 | 39.0 | 14.4 | No / Type 1 | |
| 192-38 KERR DRIVE, MACKSVILLE NSW 2447 | 39.0 | 6.0 | No / Type 1 | |
| 193-KERR DRIVE, MACKSVILLE NSW 2447 | 39.0 | 20.2 | No / Type 1 | |
| 194-DP1014123, KERR DRIVE, MACKSVILLE NSW 2 | 39.0 | 8.5 | No / Type 1 | |
| 197-54 BALD HILL ROAD, MACKSVILLE NSW 2447 | 39.0 | 16.4 | No / Type 1 | |
| 261-13 CONNORS CRESCENT, MACKSVILLE NSW 24 | 39.0 | 9.9 | No / Type 1 | |
| 266-2 AINSWORTH CLOSE, MACKSVILLE NSW 2447 | 39.0 | 11.9 | No / Type 1 | |
| 302-98 BALD HILL ROAD, MACKSVILLE NSW 2447 | 39.0 | 2.8 | No / Type 1 | |
| 342-228 SCOTTS HEAD ROAD, WAY WAY NSW 244 | 36.0 | 3.4 | No / Type 1 | |

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**Risk:**

**Type 1 - Complies with assessment criteria**

**Type 2 - Low Risk - 0 to 2 dB(A) above assessment criteria**

**Type 3 - Moderate Risk - 2dB(A) to 5dB(A) above assessment criteria**

**Type 4 - High Risk - More than 5dB(A) above assessment criteria**

Notes:

Worst case wind direction

***Name:*** _____

***Date:*** _____

***Signature:*** _____

***Position:*** _____

***Required Mitigation Measures:***

SoundAdvice

Noise Prediction and Management Tool

Pacific Highway Upgrade
Warrell Creek to Nambucca Heads
Chainage 41,750 - 45,100

# Noise Impact Assessment Report

## Report Details

| | | | |
|---|---|---|---|
| *Report Date:* | 1/08/2016 | *Report Reference:* | UWC Concreting |
| *Company:* | AFJV | *Prepared by:* | JH |

## Proposed Works

| | | | | | |
|---|---|---|---|---|---|
| *Date of Proposed Works:* | 8-Jan | *Time of Proposed Works:* | 6-8pm | *Work Duration:* | Finishing concrete pour |
| *Description of Works* | Concrete finishing works for UWC | | | | |

## Noise Prediction Details

**Expected Meteorological Conditions**

| | | | |
|---|---|---|---|
| *Wind Speed* | Strong (16 - 21) | *Wind Direction* | North East |
| *Cloud Cover* | Clear | *Temperature (Degrees C)* | 10 - 20 ° C |
| *Relative Humidity (%)* | < 55% | *Time of Day* | Night (7pm-6am M-F, 4pm-7am Sat, all day Sunday ) |

## Proposed Equipment

| *Location* | *Number of Plant* | *Equipment* | *Usage Factor* | *Total Sound Power* |
|---|---|---|---|---|
| Location 4 | 1 | Concrete Pump + Cement Mixer Truck 8 t / 350 bar | 0.75 | 94 |
| Location 4 | 2 | Boom lift | 0.25 | 87 |
| Location 4 | 3 | Concrete Poker Vibrator | 0.25 | 90 |
| Location 4 | 2 | Daymakers (Tower lights) | 1 | 93 |

## Noise Predictions

| *Receiver ID* | *Criteria* | *Predicted LAeq* | *Exceedance / Risk* | *Magnitude - dB(A)* |
|---|---|---|---|---|
| 1-760 UPPER WARRELL CREEK ROAD, CONGARINN | 40.0 | 16.4 | No / Type 1 | |
| 3-800 UPPER WARRELL CREEK ROAD, CONGARINN | 40.0 | 17.4 | No / Type 1 | |
| 4-4201 PACIFIC HIGHWAY, EUNGAI CREEK NSW 24 | 40.0 | 24.7 | No / Type 1 | |
| 5-464 BROWNS CROSSING ROAD, WARRELL CREEK | 40.0 | 21.1 | No / Type 1 | |
| 6-4227 PACIFIC HIGHWAY, CONGARINNI NSW 244 | 40.0 | 33.9 | No / Type 1 | |
| 10-4317 PACIFIC HIGHWAY, WARRELL CREEK NSW | 40.0 | 15.2 | No / Type 1 | |
| 11-4263 PACIFIC HIGHWAY, CONGARINNI NSW 24 | 40.0 | 36.1 | No / Type 1 | |
| 12-4371 PACIFIC HIGHWAY, WARRELL CREEK NSW | 40.0 | 7.4 | No / Type 1 | |
| 16-DP755562, COCKBURNS LANE, WARRELL CREEK | 40.0 | 22.6 | No / Type 1 | |
| 19-73 COCKBURNS LANE, WARRELL CREEK NSW 24 | 40.0 | 38.9 | No / Type 1 | |
| 22-4411 PACIFIC HIGHWAY, WARRELL CREEK NSW | 40.0 | 5.7 | No / Type 1 | |
| 39-4476 PACIFIC HIGHWAY, WARRELL CREEK NSW | 40.0 | 4.4 | No / Type 1 | |
| 45-4390 PACIFIC HIGHWAY, WARRELL CREEK NSW | 40.0 | 5.3 | No / Type 1 | |
| 51-196 ALBERT DRIVE, WARRELL CREEK NSW 2447 | 40.0 | 4.1 | No / Type 1 | |
| 55-4478 PACIFIC HIGHWAY, WARRELL CREEK NSW | 40.0 | 4.3 | No / Type 1 | |
| 59-46 ROSEWOOD ROAD, WARRELL CREEK NSW 2 | 40.0 | 4.1 | No / Type 1 | |
| 60-180 ROSEWOOD ROAD, WARRELL CREEK NSW | 36.0 | 4.7 | No / Type 1 | |
| 64-69 ROSEWOOD ROAD, WARRELL CREEK NSW 2 | 36.0 | 2.5 | No / Type 1 | |
| 66-174 ROSEWOOD ROAD, WARRELL CREEK NSW | 36.0 | 4.5 | No / Type 1 | |
| 68-91 ROSEWOOD ROAD, WARRELL CREEK NSW 2 | 36.0 | 4.1 | No / Type 1 | |

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**Risk:**

**Type 1 - Complies with assessment criteria**
**Type 2 - Low Risk - 0 to 2 dB(A) above assessment criteria**
**Type 3 - Moderate Risk - 2dB(A) to 5dB(A) above assessment criteria**
**Type 4 - High Risk - More than 5dB(A) above assessment criteria**

Notes:

**Weather from AQMP**

***Name:*** _____
***Date:*** _____
***Signature:*** _____
***Position:*** _____
***Required Mitigation Measures:*** _____

SoundAdvice

Noise Prediction and Management Tool

Pacific Highway Upgrade
Warrell Creek to Nambucca Heads
Chainage 41,750 - 45,100

# Noise Impact Assessment Report

## Report Details

| | | | |
|---|---|---|---|
| *Report Date:* | 8/08/2016 | *Report Reference:* | Cockburns deck pour finishing curing |
| *Company:* | AFJV | *Prepared by:* | JH |

## Proposed Works

| | | | | | |
|---|---|---|---|---|---|
| *Date of Proposed Works:* | 29/8-18/9 | *Time of Proposed Works:* | 6-8pm M-F, 1-3pm Sat, 9am-3pm S | *Work Duration:* | After deck pours |
| *Description of Works* | | Wet curing of concrete and finishing works for deck pours | | | |

## Noise Prediction Details

**Expected Meteorological Conditions**

| | | | |
|---|---|---|---|
| *Wind Speed* | Strong (16 - 21) | *Wind Direction* | East |
| *Cloud Cover* | Clear | *Temperature (Degrees C)* | 10 - 20 ° C |
| *Relative Humidity (%)* | < 55% | *Time of Day* | Night (7pm-6am M-F, 4pm-7am Sat, all day Sunday ) |

## Proposed Equipment

| *Location* | *Number of Plant* | *Equipment* | *Usage Factor* | *Total Sound Power* |
|---|---|---|---|---|
| Location 5 | 2 | Daymakers (Tower lights) | 1 | 92 |
| Location 5 | 1 | Compressor | 0.75 | 92 |
| Location 5 | 1 | Hand tools | 0.25 | 88 |

## Noise Predictions

| *Receiver ID* | *Criteria* | *Predicted LAeq* | *Exceedance / Risk* | *Magnitude - dB(A)* |
|---|---|---|---|---|
| 1-760 UPPER WARRELL CREEK ROAD, CONGARINN | 40.0 | 1.3 | No / Type 1 | |
| 3-800 UPPER WARRELL CREEK ROAD, CONGARINN | 40.0 | 1.3 | No / Type 1 | |
| 4-4201 PACIFIC HIGHWAY, EUNGAI CREEK NSW 24 | 40.0 | 3.9 | No / Type 1 | |
| 5-464 BROWNS CROSSING ROAD, WARRELL CREEK | 40.0 | 3.5 | No / Type 1 | |
| 6-4227 PACIFIC HIGHWAY, CONGARINNI NSW 244 | 40.0 | 4.4 | No / Type 1 | |
| 10-4317 PACIFIC HIGHWAY, WARRELL CREEK NSW | 40.0 | 3.5 | No / Type 1 | |
| 11-4263 PACIFIC HIGHWAY, CONGARINNI NSW 24 | 40.0 | 8.5 | No / Type 1 | |
| 12-4371 PACIFIC HIGHWAY, WARRELL CREEK NSW | 40.0 | 1.6 | No / Type 1 | |
| 16-DP755562, COCKBURNS LANE, WARRELL CREEK | 40.0 | 15.1 | No / Type 1 | |
| 19-73 COCKBURNS LANE, WARRELL CREEK NSW 24 | 40.0 | 13.0 | No / Type 1 | |
| 22-4411 PACIFIC HIGHWAY, WARRELL CREEK NSW | 40.0 | 1.1 | No / Type 1 | |
| 39-4476 PACIFIC HIGHWAY, WARRELL CREEK NSW | 40.0 | 1.1 | No / Type 1 | |
| 45-4390 PACIFIC HIGHWAY, WARRELL CREEK NSW | 40.0 | 1.1 | No / Type 1 | |
| 51-196 ALBERT DRIVE, WARRELL CREEK NSW 2447 | 40.0 | 1.0 | No / Type 1 | |
| 55-4478 PACIFIC HIGHWAY, WARRELL CREEK NSW | 40.0 | 1.1 | No / Type 1 | |
| 59-46 ROSEWOOD ROAD, WARRELL CREEK NSW 24 | 40.0 | 1.1 | No / Type 1 | |
| 60-180 ROSEWOOD ROAD, WARRELL CREEK NSW | 36.0 | 1.6 | No / Type 1 | |
| 64-69 ROSEWOOD ROAD, WARRELL CREEK NSW 24 | 36.0 | 1.0 | No / Type 1 | |
| 66-174 ROSEWOOD ROAD, WARRELL CREEK NSW | 36.0 | 1.1 | No / Type 1 | |
| 68-91 ROSEWOOD ROAD, WARRELL CREEK NSW 24 | 36.0 | 4.1 | No / Type 1 | |

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**Risk:**

**Type 1 - Complies with assessment criteria**

**Type 2 - Low Risk - 0 to 2 dB(A) above assessment criteria**

**Type 3 - Moderate Risk - 2dB(A) to 5dB(A) above assessment criteria**

**Type 4 - High Risk - More than 5dB(A) above assessment criteria**

Notes:

Worst case wind direction

***Name:*** _____

***Date:*** _____

***Signature:*** _____

***Position:*** _____

***Required Mitigation Measures:***

SoundAdvice™

Noise Prediction and Management Tool

Pacific Highway Upgrade
Warrell Creek to Nambucca Heads
Chainage 45,100 - 46,200

# Noise Impact Assessment Report

## Report Details

| | | | |
|---|---|---|---|
| *Report Date:* | 8/08/2016 | *Report Reference:* | Finishing deck pour Albert Drive |
| *Company:* | AFJV | *Prepared by:* | JH |

## Proposed Works

| | | | | | |
|---|---|---|---|---|---|
| *Date of Proposed Works:* | 22/8-11/9 | *Time of Proposed Works:* | 6-8pm M-F, 1-3pm Sat, 9am-3pm S | *Work Duration:* | After deck pours |
| *Description of Works* | Deck pours required to be kept wet during curing and finishing works | | | | |

## Noise Prediction Details

**Expected Meteorological Conditions**

| | | | |
|---|---|---|---|
| *Wind Speed* | Strong (16 - 21) | *Wind Direction* | West |
| *Cloud Cover* | Clear | *Temperature (Degrees C)* | 10 - 20 ° C |
| *Relative Humidity (%)* | < 55% | *Time of Day* | Night (7pm-6am M-F, 4pm-7am Sat, all day Sunday ) |

## Proposed Equipment

| *Location* | *Number of Plant* | *Equipment* | *Usage Factor* | *Total Sound Power* |
|---|---|---|---|---|
| Location 9 | 2 | Daymakers (Tower lights) | 1 | 93 |
| Location 9 | 1 | Hand tools | 0.25 | 88 |
| Location 9 | 1 | Compressor | 0.75 | 92 |

## Noise Predictions

| *Receiver ID* | *Criteria* | *Predicted LAeq* | *Exceedance / Risk* | *Magnitude - dB(A)* |
|---|---|---|---|---|
| 28-425 UPPER WARRELL CREEK ROAD, CONGARIN | 40.0 | 3.7 | No / Type 1 | |
| 42-395 UPPER WARRELL CREEK ROAD, CONGARIN | 40.0 | 5.2 | No / Type 1 | |
| 48-13A SONNYS LANE, WARRELL CREEK NSW 2447 | 40.0 | 3.5 | No / Type 1 | |
| 51-196 ALBERT DRIVE, WARRELL CREEK NSW 2447 | 40.0 | 4.6 | No / Type 1 | |
| 55-4478 PACIFIC HIGHWAY, WARRELL CREEK NSW | 40.0 | 4.0 | No / Type 1 | |
| 57-153 ALBERT DRIVE, WARRELL CREEK NSW 2447 | 40.0 | 9.1 | No / Type 1 | |
| 58-19 ROSEWOOD ROAD, WARRELL CREEK NSW 2 | 40.0 | 9.6 | No / Type 1 | |
| 59-46 ROSEWOOD ROAD, WARRELL CREEK NSW 2 | 40.0 | 6.2 | No / Type 1 | |
| 61-124 ALBERT DRIVE, WARRELL CREEK NSW 2447 | 40.0 | 18.2 | No / Type 1 | |
| 63-115 ALBERT DRIVE, WARRELL CREEK NSW 2447 | 40.0 | 29.3 | No / Type 1 | |
| 64-69 ROSEWOOD ROAD, WARRELL CREEK NSW 2 | 36.0 | 9.1 | No / Type 1 | |
| 68-91 ROSEWOOD ROAD, WARRELL CREEK NSW 2 | 36.0 | 6.2 | No / Type 1 | |
| 71-DP1150527, ROSEWOOD ROAD, WARRELL CREI | 36.0 | 4.3 | No / Type 1 | |
| 74-73 ALBERT DRIVE, WARRELL CREEK NSW 2447 | 40.0 | 32.1 | No / Type 1 | |
| 77-62 O'DELLS ROAD, WARRELL CREEK NSW 2447 | 36.0 | 17.7 | No / Type 1 | |
| 81-40 ALBERT DRIVE, DONNELLYVILLE NSW 2447 | 40.0 | 24.1 | No / Type 1 | |
| 89-33 O'DELLS ROAD, DONNELLYVILLE NSW 2447 | 40.0 | 15.9 | No / Type 1 | |
| 93-8 MAIN STREET, DONNELLYVILLE NSW 2447 | 40.0 | 18.0 | No / Type 1 | |
| 100-17 ALBERT DRIVE, DONNELLYVILLE NSW 2447 | 40.0 | 12.8 | No / Type 1 | |
| 111-12 PARKINS CLOSE, WARRELL CREEK NSW 244 | 36.0 | 15.0 | No / Type 1 | |

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**Risk:**

**Type 1 - Complies with assessment criteria**

**Type 2 - Low Risk - 0 to 2 dB(A) above assessment criteria**

**Type 3 - Moderate Risk - 2dB(A) to 5dB(A) above assessment criteria**

**Type 4 - High Risk - More than 5dB(A) above assessment criteria**

Notes:

Worst case wind direction

***Name:***

***Date:***

***Signature:***

***Position:***

***Required Mitigation Measures:***

# SoundAdvice™

Noise Prediction and Management Tool

## Noise Impact Assessment Report

### Report Details

| | | | |
|---|---|---|---|
| *Report Date:* | 4/08/2016 | *Report Reference:* | Quarry Access Line Ma |
| *Company:* | Pacifico | *Prepared by:* | N.Rutherford |

### Proposed Works

| | | | | |
|---|---|---|---|---|
| *Date of Proposed Works:* | 22/8-09/09 | *Time of Proposed Works:* | 6pm-7am | *Work Duration:* |
| *Description of Works* | | Linemarking removal and re-linemarking for lateral shift | | |

### Noise Prediction Details

**Expected Meteorological Conditions**

| | | | |
|---|---|---|---|
| *Wind Speed* | Strong (16 - 21) | *Wind Direction* | North East |
| *Cloud Cover* | Clear | *Temperature (Degrees C)* | 10 - 20 ° C |
| *Relative Humidity (%)* | < 55% | *Time of Day* | Night (7pm-6am M-F, 4 |

### Proposed Equipment

| *Location* | *Number of Plant* | *Equipment* | *Usage Factor* | *Total Sound Power* |
|---|---|---|---|---|
| Location 9 | 1 | Daymakers (Tower lights) | 1 | 93 |
| Location 12 | 1 | Daymakers (Tower lights) | 1 | 93 |
| Location 13 | 1 | Daymakers (Tower lights) | 1 | 93 |
| Location 14 | 2 | Daymakers (Tower lights) | 1 | 93 |
| Location 8 | 2 | Light trucks | 0.5 | 97 |
| Location 8 | 5 | LV's | <25% | 75 |
| Location 8 | 1 | Asphalt Sprayer 13T | 0.75 | 91 |
| Location 8 | 1 | Multi Tyred Roller | 0.5 | 97 |
| Location 8 | 1 | Street sweeper-Sweeping with dust suppression | 0.5 | 101 |

### Noise Predictions

| *Receiver ID* | *Criteria* | *Predicted LAeq* | *Exceedance / Risk* | *Magnitude - dB(A)* |
|---|---|---|---|---|
| --273 UPPER WARRELL CREEK ROAD, CONGARINN | 40.0 | 8.6 | No / Type 1 | |
| 74-73 ALBERT DRIVE, WARRELL CREEK NSW 2447 | 40.0 | 15.3 | No / Type 1 | |
| 81-40 ALBERT DRIVE, DONNELLYVILLE NSW 2447 | 40.0 | 21.3 | No / Type 1 | |
| 89-33 O'DELLS ROAD, DONNELLYVILLE NSW 2447 | 40.0 | 10.1 | No / Type 1 | |
| 93-8 MAIN STREET, DONNELLYVILLE NSW 2447 | 40.0 | 20.2 | No / Type 1 | |
| 97-4723 PACIFIC HIGHWAY, DONNELLYVILLE NSW | 40.0 | 25.7 | No / Type 1 | |
| 100-17 ALBERT DRIVE, DONNELLYVILLE NSW 2447 | 40.0 | 24.6 | No / Type 1 | |
| 101-DP1072289, HENRYS LANE, WARRELL CREEL N | 36.0 | 6.3 | No / Type 1 | |
| 103-11 ALBERT DRIVE, DONNELLYVILLE NSW 2447 | 40.0 | 35.0 | No / Type 1 | |
| 163-4 SCOTTS HEAD ROAD, WAY WAY NSW 2447 | 40.0 | 18.5 | No / Type 1 | |
| 115-35 MAIN STREET, DONNELLYVILLE NSW 2447 | 40.0 | 17.8 | No / Type 1 | |
| 151-72 SCOTTS HEAD ROAD, WAY WAY NSW 2447 | 40.0 | 7.5 | No / Type 1 | |
| 112-4 SCOTTS HEAD ROAD, WAY WAY NSW 2447 | 40.0 | 20.7 | No / Type 1 | |

**Risk:**

**Type 1 - Complies with assessment criteria**

**Type 2 - Low Risk - 0 to 2 dB(A) above assessment criteria**

**Type 3 - Moderate Risk - 2dB(A) to 5dB(A) above assessment criteria**

**Type 4 - High Risk - More than 5dB(A) above assessment criteria**

Notes:

***Name:***

***Date:***

***Signature:***

***Position:***

***Required Mitigation Measures:***