



# Warrell Creek to Nambucca Heads – Pacific Highway Upgrade Project

## ENVIRONMENT PROTECTION AUTHORITY MONTHLY REPORT

■ December 2016

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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



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## 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 16<sup>th</sup> 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 December 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)
- Landscape Planting
- Topsoil Amelioration and Blending
- Concrete Lined Drains
- Basin Decommissioning
- Basin Maintenance including dewatering
- Installation of Erosion and Sediment Controls
- Pavement (Asphalt and Concrete)
- Line marking

Works scheduled for next month include

- Earthworks including crushing
- 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

- Landscape 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 Pavement (Asphalt and Concrete)
- Temporary Jetty Removal
- Barge Demobilisation

## 1.2 Consultation Activities

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

Table 1 – Consultation Activities

Groups	Date	Key Topics
Environmental Review Group	December 13	Construction Progress, Design Update, Upcoming Works, Environmental Update, Monitoring Update, Out of Hours Works, Incidents and Community Complaints
Community Information Sessions	December 7 and 8	Regular quarterly sessions were held at Warrell Creek (#27) and Nambucca Heads (#12). Issues raised included general project information, access points to the new highway, at house noise treatment, site remediation.
Toolboxes	Wednesdays each week	Workforce behavioural issues examined and impact management tips provided, as appropriate. eg. good housekeeping prior to Christmas shutdown, and also a thank you for good work all year.
North Facing Ramps group	10am Monday fortnightly Final session for 2016 was 5 December	Two week look-ahead for construction activities

### **Other Consultation Activities:**

- Distributed quarterly Project Update by email and hard copy
- Distributed notification for new Mattick Road bridge opening and bus stop relocation
- Distributed notification for Christmas and New Year site shutdown details
- Distributed three-month look-ahead to north facing ramps community group
- Gained agreement from all but one property owner for OOHW Nambucca River bridge concreting
- Provided website project update summary to RMS for uploading
- Ongoing and timely notification to stakeholders for paving and saw-cutting activity in northern section and near Bald Hill Road
- Ongoing and timely notifications and traffic alerts for night time girder deliveries through Macksville

**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. All enquiries received are emailed to GHD representative and appropriate RMS personnel.

**Upcoming Community and stakeholder activities:**

- Recommence North Facing Ramps regular roadside community meetings from 9 January (three-weekly)
- Announce RMS approval to community for construction of asphalt plant
- Very broad notification for Scotts Head Road traffic delays for girder lifts in mid-January 2017
- Notify traffic diversion for Bald Hill Road
- Seek one agreement and then more broadly notify regarding OOHW for northern batch plant
- Seek two agreements for OOHW at Upper Warrell Creek bridge
- Notify permanent closure of Albert Drive north and new bridge opening
- School visits including construction personnel and RMS representatives likely to gain momentum end of first quarter of 2017.

**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
01/12/16 – 31/12/16	47.8mm	Northern Compound
01/12/16 – 31/12/16	23.4mm	Albert Drive Compound

The site experienced a total of 12 rain days throughout the month of December 2016.

During December, rainfall received on site was lower than the December monthly average of 117.6mm. 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 December 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

<b>December 2016</b>		
Date	Time	TOTAL Rain Gauge (mm)
1/12/2016	9:00:00	0.6
2/12/2016	9:00:00	0.4
3/12/2016	9:00:00	0
4/12/2016	9:00:00	0
5/12/2016	9:00:00	0
6/12/2016	9:00:00	8.4
7/12/2016	9:00:00	6.6
8/12/2016	9:00:00	2.4
9/12/2016	9:00:00	2.8
10/12/2016	9:00:00	0.2
11/12/2016	9:00:00	0.8
12/12/2016	9:00:00	0
13/12/2016	9:00:00	0
14/12/2016	9:00:00	0
15/12/2016	9:00:00	0
16/12/2016	9:00:00	0
17/12/2016	9:00:00	0
18/12/2016	9:00:00	0.2
19/12/2016	9:00:00	0.6
20/12/2016	9:00:00	0
21/12/2016	9:00:00	0.2
22/12/2016	9:00:00	0.2
23/12/2016	9:00:00	0
24/12/2016	9:00:00	0
25/12/2016	9:00:00	0
26/12/2016	9:00:00	0
27/12/2016	9:00:00	0
28/12/2016	9:00:00	0
29/12/2016	9:00:00	0

Date	Time	TOTAL Rain Gauge (mm)
30/12/2016	9:00:00	0
31/12/2016	9:00:00	0

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

**December 2016**

Date	Time	TOTAL Rain Gauge (mm)
1/12/2016	9:00:00	0.2
2/12/2016	9:00:00	1
3/12/2016	9:00:00	0
4/12/2016	9:00:00	0
5/12/2016	9:00:00	0
6/12/2016	9:00:00	10.4
7/12/2016	9:00:00	10.2
8/12/2016	9:00:00	3.6
9/12/2016	9:00:00	7.6
10/12/2016	9:00:00	0.2
11/12/2016	9:00:00	0
12/12/2016	9:00:00	0
13/12/2016	9:00:00	0
14/12/2016	9:00:00	0
15/12/2016	9:00:00	0
16/12/2016	9:00:00	0.2
17/12/2016	9:00:00	0
18/12/2016	9:00:00	12
19/12/2016	9:00:00	1
20/12/2016	9:00:00	0
21/12/2016	9:00:00	0
22/12/2016	9:00:00	1.4
23/12/2016	9:00:00	0
24/12/2016	9:00:00	0
25/12/2016	9:00:00	0
26/12/2016	9:00:00	0
27/12/2016	9:00:00	0
28/12/2016	9:00:00	0
29/12/2016	9:00:00	0
30/12/2016	9:00:00	0
31/12/2016	9:00:00	0



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

December 2016			
Date	Minimum temperature (°C)	Maximum temperature (°C)	Rainfall (mm)
1/12/2016	18.2	26.3	0
2/12/2016	18.5		1.4
3/12/2016		29	
4/12/2016	19.3	28	0.8
5/12/2016	20.2		0
6/12/2016		32.5	
7/12/2016	19.8	23.8	9.8
8/12/2016	18.8	25	3.8
9/12/2016	20.5	28	2.6
10/12/2016	16.5	26.9	2
11/12/2016	17.5	27.2	0
12/12/2016	19.1	26.5	0
13/12/2016	19.8	25.4	0
14/12/2016	19.5	25.4	0
15/12/2016	19.1	30.4	0
16/12/2016	19.5	23.2	0.6
17/12/2016	20.5	27.8	0.4
18/12/2016	19.4	24.2	8.4
19/12/2016	17.1	26.4	0
20/12/2016	19.1	27.8	0
21/12/2016	21	31.5	0
22/12/2016	19.5	28	0
23/12/2016	18.4	28.5	0.8
24/12/2016	21.4	27.8	0
25/12/2016	21.6	28	0
26/12/2016	21.3	28	0
27/12/2016	21.2	27.2	0
28/12/2016	21.8	28.4	0
29/12/2016	22	28.8	0
30/12/2016	21.5	28.9	0
31/12/2016	21.6	29	0

## 2. 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):

### **Dry Sampling Event**

A "dry" sampling event was undertaken on the 15<sup>th</sup> December 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 (pH7.44) and downstream (pH7.27). It is noted that levels decreased 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 (pH6.5-8.0).

Nambucca River recorded elevated levels upstream (pH8.13) and downstream (pH8.18). 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 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:

Nambucca river recorded elevated levels upstream (32.3 NTU) downstream (39 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 upstream (4.67mg/L) and 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 may be due to decaying vegetative matter within the waterway.

Nambucca River upstream (4.72mg/L) and downstream (5.01mg/L). All controls were verified to be in place for the site, with no activities being undertaken in the waterway. It is noted that downstream levels are above ANZECC criteria (5mg/L).

## 3. Sediment Basin Water Monitoring

Water was released from commissioned sediment basins after rainfall events on the 10<sup>th</sup> and 19<sup>th</sup> of December 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) ( $R^2 = 0.5953$ ,  $p < 0.00001$ ,  $n=184$ ). The regression equation for the analytical results calculates a turbidity (NTU) value of 124.776 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 87.3432, rounded to an NTU value of 85. 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
11/12/2016	B53.03	N	7.21	43.1		100	Release for shutdown
11/12/2016	B53.8	N	6.85	20	9	300	Release for shutdown
12/12/2016	B55.8	N	7.92	49.5		300	Release for shutdown
12/12/2016	B59.6	N	7.1	64.6		100	Release for shutdown
14/12/2016	B59.5	N	6.67	13.3		30	Release for shutdown
14/12/2016	B59.85	N	7.24	19.6		300	Release for shutdown
20/12/2016	B53.03	N	7.36	33.2		40	Release for shutdown
21/12/2016	B60.87	N	6.92	16.3		20	Release for shutdown

## 4. Noise Monitoring

Monthly routine construction noise monitoring was undertaken on the 14<sup>th</sup>, 15<sup>th</sup> and 20<sup>th</sup> of December 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 the dominant noise source at the nearest residence.

## 5. Vibration Monitoring

Vibration monitoring was undertaken at the commencement of vibratory rolling near residents at Old Coast Road on the 12<sup>th</sup> of December 2016. Monitoring results are contained in Table 5 Appendix A. Results were within building damage limits (5mm/s).

## 6. Dust Monitoring

Dust deposition gauges (DDG) were placed at nearby sensitive receivers from 31<sup>st</sup> October to 2<sup>nd</sup> December 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/m<sup>2</sup>.month or increase of 2g/m<sup>2</sup>/month) during the monitoring period, with the exception of DDG 6 and DDG6N, both located at Letitia Close. DDG6 recorded 7.2g/m<sup>2</sup>/month TIM and 4.2g/m<sup>2</sup>/month AC, DDG6N recorded 6.7g/m<sup>2</sup>/month TIM and 5.7g/m<sup>2</sup>/month. Mitigation measures for the area include stabilisation of the nearby batters with hydromulch, soil binder application to exposed batters 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.

## 7. Groundwater Monitoring

ACCIONA (Pacifico) have undertaken groundwater monitoring on the 8<sup>th</sup> and 15<sup>th</sup> of December 2016. The results from the groundwater monitoring is available in Table 4 of Appendix A.

pH levels noted to be outside of trigger levels at:

4BH037a – Cut 12 (7.09). It is noted that this was only slightly above trigger levels (6.508) and that the bore has been relocated from its original location due to it being within the construction footprint.

Conductivity noted to be outside of trigger levels at:

4BH037a – Fill 15 (9.53mS/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 due to localised differences in groundwater quality.

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

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

OOH Request Title	>5dB(A) above background	Approval Date
Pre-load placement at OCR South	N	2/12/2016
Quarry Access Bridge Concreting	N	5/12/2016
Installation of barrier and safety rail screens	N	8/12/2016
OCR North bridge concreting	N	9/12/2016
Concreting southern batch plant	N	10/12/2016
Early concreting at Cut 2	N	16/12/2016

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

- CC05 Northern Earthworks
- Girder deliveries
- Nambucca River structures

## **9. Complaints**

### **10.1 Summary of Complaints for the month**

1/12/2016 – Resident contacted Pacifico regarding concerns around noise from plant active nearby. Monitoring was undertaken and results were slightly above predicted levels for the activity (60.1dB calculated at the receivers house, 60dB predicted levels), however significantly windy conditions interfered significantly with results obtained and construction was not the dominant noise source. Results were provided to resident at time of monitoring and are included in Appendix A.

2/12/2016 – Resident contacted Pacifico regarding concerns around dust generation at Nambucca River. A water truck was dispatched immediately to the area, where it was agreed to be stationed as an ongoing mitigation measure.

12/12/2016 – Resident contacted Pacifico regarding concerns around high winds generating dust generation at Nambucca River. Works were stopped in the area until it was deemed that mitigation measures were effective again. Water carts were being used in the area at the time.

17/12/2016 – Resident contacted Pacifico regarding concerns around steam generation from water cart operations over hydrated lime. Generation of steam as a normal part of the activity being undertaken (wetting hydrated lime) was explained to the resident that this would be a short-term activity. No further concerns were raised from the resident.

## **10. Non-Compliance**

### **11.1 Summary of Non-compliances**

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

**Appendix A – Monitoring Results**

Table 1 - Surface Water Sampling Results December 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	Result	Upstream	Downstream	Result	Upstream	Downstream	Result	Upstream	Downstream	Result	Upstream	Downstream	Result	Upstream	Downstream	Result	Upstream	Downstream	Result	Upstream	Downstream	Result	Upstream	Downstream	Result	Upstream	Downstream	Result				
Freshwater / Estuarine		ANZECC 2000 95% species protected	Freshwater	Freshwater	Freshwater	Freshwater	Freshwater	Freshwater	Freshwater	Freshwater	Freshwater	Freshwater	Freshwater	Freshwater	Freshwater	Freshwater	Freshwater	Freshwater	Freshwater	Freshwater	Freshwater	Freshwater	Freshwater	Freshwater	Freshwater	Freshwater	Freshwater	Freshwater	Freshwater	Freshwater						
Date of Sampling			15-Dec-16	15-Dec-16	15-Dec-16	15-Dec-16	15-Dec-16	15-Dec-16	15-Dec-16	15-Dec-16	15-Dec-16	15-Dec-16	15-Dec-16	15-Dec-16	15-Dec-16	15-Dec-16	15-Dec-16	15-Dec-16	15-Dec-16	15-Dec-16	15-Dec-16	15-Dec-16	15-Dec-16	15-Dec-16	15-Dec-16	15-Dec-16	15-Dec-16	15-Dec-16	15-Dec-16	15-Dec-16						
Time of Sampling			2:45 PM	2:30 PM	2:30 PM	1:50 PM	1:45 PM	3:00 PM	2:55 PM	4:30 PM	4:20 PM	4:10 PM	3:23 PM	3:30 PM	3:30 PM	3:30 PM	3:30 PM	3:30 PM	3:30 PM	3:30 PM	3:30 PM	3:30 PM	3:30 PM	3:30 PM	3:30 PM	3:30 PM	3:30 PM	3:30 PM	3:30 PM	3:30 PM						
Comments																																				
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				
Field Physical data																																				
Temperature	°C	-	24.86	14.99	27.39	25.1	16.3	27.57	24.4	16	25.05	26.46	15.94	25.6	27.9	18.4	28.59	27.9	18.4	28.54	26.5	16.3	25	26.5	16.3	23.95	26.5	16.3	-	27.9	18.1	26.6	27.9	18.1	26.72	
pH	pH	-	7.25	6.48	7	7.3	6.4	7.04	7.5	6.6	6.6	7.33	6.26	7.06	7.02	6.57	7.44	7.02	6.57	7.27	7	6.1	6.76	7	6.1	6.47	7	6.1	-	7	7	8.13	7	8.18		
Conductivity	mS/cm	0.125-2.2	0.316	0.232	0.269	0.348	0.227	0.27	0.348	0.227	0.171	0.3338	0.2168	0.264	20.946	0.679	17.70	20.946	0.679	17.5	0.808	0.4234	0.773	0.808	0.4234	0.548	0.808	0.4234	-	47.32	29.44	49.1	47.32	29.44	49.2	
Turbidity	NTU	50	10	10.96	4	14.7	9.9	3.5	6.5	9.9	3.5	3	5.97	3.74	2.7	6.82	1.83	3.1	6.82	1.83	4	52.78	11.3	129	52.78	11.3	582	52.78	11.3	-	19.3	6.7	32.3	19.3	6.7	39
Dissolved Oxygen	mg/L	5	4.98	1.91	4.21	4.8	2.6	4.06	4.8	2.6	8.64	6.34	3.52	5.02	7.98	5.07	4.67	7.98	5.07	3.85	6.4	1.75	0.45	6.4	1.75	2.28	6.4	1.75	-	9.1	7.4	4.72	9.1	7.4	5.01	
Dissolved Oxygen	%		-	-	53.9	-	-	52.2	-	-	96.6	-	-	83	-	-	64.4	-	-	53	-	-	5.6	-	-	27.6	-	-	-	-	-	-	-	-	76.6	
TDS	g/L	-	-	-	0.175	-	-	0.179	-	-	0.176	-	-	0.172	-	-	11.000	-	-	10.8	-	-	0.495	-	-	0.351	-	-	-	-	-	-	-	-	30	

Table 2 - Noise Monitoring Results December 2016

Date	Time	Location	Rec ID	NCA	NML	Activity	Predicted levels for activity	Laeq	LAFMAX	LAFMIN	LAF10	LAF50	LAF90	Plant monitored	Construction noise dominant?	Corrective actions	Notes
20/12/2016	3:30 PM	Albert Drive	74	1	50	Cut	62	48.9	69.7	42.3	50.6	47.8	45	Truck	N	N/A	Highway dominant noise source
20/12/2016	3:50 PM	Cockburns Lane	16	1	50	Cut	65	49.8	64.1	42.5	52.2	48.4	44.9	Excavator	N	N/A	Highway, dog barking, saw mill dominant noise source
20/12/2016	3:00 PM	Bald Hill Rd	197	3	50	Cut	72	54	68.6	44.2	57.1	50.3	47.3	Excavator loading moxy	Y	N/A	Within predicted levels. Other noise sources - dog barking
15/12/2016	10:56 AM	Letitia Rd	406	4	59	Cut	74	65.9	85.6	52.3	68.2	63.1	57	Scrapers, grader, compactor, side tippers, water cart	Y	N/A	Within predicted levels
14/12/2016	3:56 PM	Mattick Rd	442	6	44	Cut	62	53.8	69.6	45.7	56.3	51.1	48.6	Excavator	Y	N/A	Within predicted levels. Other noise sources - local traffic, dog barking
15/12/2016	12:05 PM	Nursery Rd	415	4	59	Cut	53	57.3	79	45.8	59.2	52.7	48.5	Hand tools	N	N/A	Construction not audible. Highway traffic dominant noise source
20/12/2016	4:18 PM	Wallace St	148	3	50	Cut	47	59.8	76.1	48.7	60.9	54.1	51.3	Excavator	N	N/A	Construction not audible. Highway, local traffic dominant noise source
20/12/2016	4:40 PM	Gumma Rd	383	3	50	Bridgeworks	67	49.9	67.5	41.8	51.8	45.6	43.3	EWP, hand tools	N	N/A	Local traffic dominant noise source

Table 3 - Dust Monitoring Results 2016

		DDG ID		DDG1	DDG2	DDG3	DDG4	DDG5	DDG6	DDG6N	DDG7	DDG8	DDG9NE	DDG9E	DDG A1	DDG A2	
		Start date of sampling		31/10/2016	31/10/2016	31/10/2016	31/10/2016	31/10/2016	31/10/2016	31/10/2016	31/10/2016	31/10/2016	31/10/2016	31/10/2016	31/10/2016	31/10/2016	
		Finish date of sampling		5/12/2016	2/12/2016	2/12/2016	2/12/2016	2/12/2016	2/12/2016	2/12/2016	2/12/2016	2/12/2016	2/12/2016	2/12/2016	2/12/2016	2/12/2016	
Analyte	Time Period	Unit	Levels of Concern	LOR													
Ash Content	Current Month	g/m <sup>2</sup> .month	4	0.1	0.3	0.8	1	0.7	0.7	4.2	5.7	0.7	1.4	1.4	0.6	----	----
		mg	N/A	1	6	15	18	13	14	79	107	13	27	27	11	----	----
	Previous Month	g/m <sup>2</sup> .month			0.4	0.7	4.4	1.5	1	1.4	0.3	0.8	1.4	0.4	1.9	----	----
	Change	g/m <sup>2</sup> .month	Increase of 2		-0.1	0.1	-3.4	-0.8	-0.3	2.8	5.4	-0.1	0	1	-1.3	----	----
Combustible Matter	Current Month	g/m <sup>2</sup> .month	N/A	0.1	0.3	0.6	0.3	0.4	0.4	3	1	0.3	0.9	0.5	1.2	----	----
		mg	N/A	1	7	11	7	8	6	56	20	6	16	9	23	----	----
Total Insoluble Matter (TIM)	Current Month	g/m <sup>2</sup> .month	4	0.1	0.6	1.4	1.3	1.1	1.1	7.2	6.7	1	2.3	1.9	1.8	----	----
		mg	N/A	1	13	26	25	21	20	135	127	19	43	36	34	----	----
	Previous Month	g/m <sup>2</sup> .month		0.1	0.9	1.2	5.6	2	1.4	1.9	0.4	1.3	1.9	0.7	2.5	----	----
	Change	g/m <sup>2</sup> .month	Increase of 2	0.1	-0.3	0.2	-4.3	-0.9	-0.3	5.3	6.3	-0.3	0.4	1.2	-0.7	----	----
Arsenic	Current Month	mg/L		0.001	----	----	----	----	----	----	----	----	----	----	----	<0.001	<0.001
Comments																	

Table 4 - Groundwater Monitoring Results December 2016

Location	Units	Groundwater Investigation Levels (GILs)	4BH007		4BH008		4BH010		4BH011		4BH021		4BH022c		4BH025		4BH026		4BH037a		4BH038		1BH49		4BH058c		4BH061		4BH062				
			Cut 4	Results	Cut 4	Results	Cut 6	Results	Cut 6	Results	Cut 11	Results	Cut 11	Results	Cut 12	Results	Cut 12	Results	Fill 15	Results	Fill 15	Results	Cut 17	Results	Cut 17	Results	Cut 17	Results	Cut 23	Results	Cut 23	Results	
Date of Sampling			8/12/2016		8/12/2016		8/12/2016		8/12/2016		8/12/2016		8/12/2016		8/12/2016		8/12/2016		15/12/2017		8/12/2016		8/12/2016		8/12/2016		8/12/2016		8/12/2016				
			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	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				Unable to sample						Unable to sample		DRY				Unable to sample		Unable to sample				DRY		DRY			
<b>Field Physical data</b>																																	
Depth to standing water level from TOC	m	-	-	-	-	-	16.802	16.84	-	-	8.7420	8.02	16.0140	2.12	8.4500	-	14.4820	-	1.2000	1.27	1.3520	-	17.4120	-	13.8440	15.81	-	-	-	-			
pH	pH	-	-	-	-	6.264	4.736	6.18	-	-	6.7800	5.8100	6.02	7.0900	6.02	6.7780	6.2080	-	7.34	6.2600	-	6.5080	5.9220	7.09	7.3040	6.7680	-	6.9800	5.2400	-	6.3960	5.5620	5.67
Conductivity	mS/cm	-	-	-	-	3630.000	4.89	-	-	111.300	0.230	231.000	0.793	0.342	-	322.000	-	5.550	9.53	8366.000	-	121.100	-	132.660	0.104	-	-	-	-	-			
Temperature	°C	-	-	-	-	22.4420	23.63	-	-	22.3600	23.62	21.1500	23.00	22.6040	-	21.3000	-	25.9820	25.18	22.5600	-	22.8200	-	23.1940	24.92	-	-	-	-	-			
Exceedance of trigger level																																	

Table 5 - Vibration Monitoring Result December 2016

Rec ID	DATE	TIME	Triggered	Vector Sum	Description
	[Date]	[Time]	[Src]	[mm/s]	
397	2016-12-12	15:20:00	Continuous	0.188	Background
397	2016-12-12	16:26:00	Continuous	0.301	Roller ~100m away, heavy vibe
397	2016-12-12	16:34:00	Continuous	1.858	Roller ~20m away, heavy vibe

Table 6 - Field Monitoring for Out of Hours Works December 2016

Description of Works	Date	Time	Location	NCA	NML	Calculated Laeq	Distance to receiver (m)	Compliant	Principal sources/ operations	Notes
Concreting Cut 2	17/12/2016	8:40 AM	Cockburns	1	40	35.0	200	Y	Concrete pump + agitator	Resident came out while monitoring and verbally confirmed that there were no issues from early start works. Worst case as pump was at closest location to receiver. Running vehicle parked near meter + contributed to levels.



Table 7 – Additional Noise Monitoring December 2016

Description of Works	Date	Time	Location	NCA	NML	Predicted levels for activity	Laeq	Construction noise dominant?	Principal sources/ operations	Notes
Earthworks*	20/11/2016	4:08 PM	Letitia Cl	6	59	60	61.0	N	Wind in vegetation	High winds during monitoring increased noise levels.

\*Daytime activity measured in response to Community issue received by Pacifico

Figure 1 – Acoustic Investigation (Modelling) Results December 2016

# SoundAdvice

Noise Prediction and Management Tool

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## Noise Impact Assessment Report

### Report Details

<i>Report Date:</i>	1/12/2016	<i>Report Reference:</i>	OCR Preload Rolling
<i>Company:</i>	AFJV	<i>Prepared by:</i>	JH

### Proposed Works

<i>Date of Proposed Works:</i>	10,17/12	<i>Time of Proposed Works:</i>	1-5pm
<i>Description of Works</i>		<i>Rolling material</i>	<i>Work Duration:</i>

### Noise Prediction Details

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

### Proposed Equipment

Location	Number of Plant	Equipment	Usage Factor	Total Sound Power
Location 2	1	3d foot roller Vibratory 10T - 25T -Moving with alar	0.25	105
Location 2	3	Ute	<25%	76

### Noise Predictions

Receiver ID	Criteria	Predicted LAeq	Exceedance / Risk	Magnitude - dB(A)
398-2 MATTICK ROAD, NORTH MACKSVILLE NSW ;	38.0	2.1	No / Type 1	
402-83 OLD COAST ROAD, NORTH MACKSVILLE NS	46.0	9.5	No / Type 1	
405-4 MATTICK ROAD, NORTH MACKSVILLE NSW ;	38.0	7.2	No / Type 1	
409-122 OLD COAST ROAD, NORTH MACKSVILLE N	38.0	7.2	No / Type 1	
414-18 MATTICK ROAD, NORTH MACKSVILLE NSW	38.0	7.2	No / Type 1	
429-124 OLD COAST ROAD, NORTH MACKSVILLE N	38.0	7.2	No / Type 1	
491-64 MATTICK ROAD, NORTH MACKSVILLE NSW	38.0	7.1	No / Type 1	
499-73 CHAMPIONS LANE, NORTH MACKSVILLE N	38.0	7.2	No / Type 1	
384-DP205344 BELLEVUE DRIVE, NORTH MACKSV	46.0	25.2	No / Type 1	
385-47 NURSERY ROAD, NORTH MACKSVILLE NSW	46.0	27.3	No / Type 1	
388-DP654625 NURSERY ROAD, NORTH MACKSVII	46.0	30.2	No / Type 1	
325-1 GRANDVIEW DRIVE, NORTH MACKSVILLE N:	46.0	20.2	No / Type 1	
397-36 OLD COAST ROAD, NORTH MACKSVILLE NS	46.0	15.0	No / Type 1	
400-51 OLD COAST ROAD, NORTH MACKSVILLE NS	46.0	11.9	No / Type 1	
412-24 LETITIA CLOSE, NORTH MACKSVILLE NSW ;	46.0	15.7	No / Type 1	
406-20 LETITIA CLOSE, NORTH MACKSVILLE NSW ;	46.0	17.8	No / Type 1	
410-19 LETITIA CLOSE, NSW	46.0	14.0	No / Type 1	
486-41 LETITIA CLOSE, NORTH MACKSVILLE NSW ;	46.0	9.4	No / Type 1	
415-143 NURSERY ROAD, NORTH MACKSVILLE NS	46.0	12.2	No / Type 1	
482-169 NURSERY ROAD, NORTH MACKSVILLE NS	46.0	12.9	No / Type 1	
31153-LOT 1 PACIFIC HWY, NORTH MACKSVILLE	46.0	36.1	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 from AQMP

**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: 2/12/2016  
Company: Pacific  
Report Reference: Concreting Quarry Access Bridge  
Prepared by: N.Rutherford

### Proposed Works

Date of Proposed Works: 02/12-03/12  
Description of Works:  
Time of Proposed Works: 5am-8pm  
Work Duration: 2 days

### Noise Prediction Details

Expected Meteorological Conditions  
Wind Speed: Strong (16 - 21)  
Cloud Cover: Clear  
Relative Humidity (%): < 55%  
Wind Direction: South West  
Temperature (Degrees C): 10 - 20 ° C  
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 13	1	Concrete Pump + Cement Mixer Truck 8 t / 350 bar	0.75	94
Location 13	1	Concrete Agitator	0.75	95
Location 13	4	Handtools	0.5	91
Location 13	1	Franna - 25T	<25%	93
Location 13	1	EWP	0.5	99
Location 13	4	Concrete Vibrator	0.75	95

### Noise Predictions

Receiver ID	Criteria	Predicted LAeq	Exceedance / Risk	Magnitude - dB(A)
--273 UPPER WARRELL CREEK ROAD, CONGARINNI	40.0	2.1	No / Type 1	
74-75 ALBERT DRIVE, WARRELL CREEK NSW 2447	40.0	7.0	No / Type 1	
81-40 ALBERT DRIVE, DONNELLYVILLE NSW 2447	40.0	14.3	No / Type 1	
89-33 O'DELLS ROAD, DONNELLYVILLE NSW 2447	40.0	2.2	No / Type 1	
93-8 MAIN STREET, DONNELLYVILLE NSW 2447	40.0	4.7	No / Type 1	
97-4723 PACIFIC HIGHWAY, DONNELLYVILLE NSW :	40.0	10.1	No / Type 1	
100-17 ALBERT DRIVE, DONNELLYVILLE NSW 2447	40.0	5.7	No / Type 1	
101-OP1072289, HENRYS LANE, WARRELL CREEK NSW	36.0	1.5	No / Type 1	
103-11 ALBERT DRIVE, DONNELLYVILLE NSW 2447	40.0	5.6	No / Type 1	
163-4 SCOTTS HEAD ROAD, WAY WAY NSW 2447	40.0	19.8	No / Type 1	
115-95 MAIN STREET, DONNELLYVILLE NSW 2447	40.0	4.9	No / Type 1	
151-72 SCOTTS HEAD ROAD, WAY WAY NSW 2447	40.0	13.1	No / Type 1	
112-4 SCOTTS HEAD ROAD, WAY WAY NSW 2447	40.0	23.9	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:



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: 7/12/2016  
Company: Pacifico  
Report Reference: Bald Hill Road - Install barriers and screens on bridge  
Prepared by: N.Rutherford

**Proposed Works**

Date of Proposed Works: 09/12/16 - 22/12/16  
Description of Works: Time of Proposed Works: 7am-5pm Sat and Sun  
Work Duration: 4 days

**Noise Prediction Details**

**Expected Meteorological Conditions**

Wind Speed: Strong (16 - 21)  
Cloud Cover: Clear  
Relative Humidity (%): < 55%  
Wind Direction: South West  
Temperature (Degrees C): 10 - 20 \* C  
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	1	Grinder (4-7 inch)	0.75	107
Location 11	2	Handtools	0.75	93
Location 11	1	Forklift	0.5	97

**Noise Predictions**

Receiver ID	Criteria	Predicted LAeq	Exceedance / Risk	Magnitude - dB(A)
112-4 SCOTTS HEAD ROAD, WAY WAY NSW 2447	40.0	1.3	No / Type 1	
117-15 REID STREET, MACKSVILLE NSW 2447	39.0	3.3	No / Type 1	
131-DP826440, HARRIMANS LANE, MACKSVILLE N	39.0	3.0	No / Type 1	
148-1 REID STREET, MACKSVILLE NSW 2447	39.0	5.5	No / Type 1	
151-72 SCOTTS HEAD ROAD, WAY WAY NSW 2447	40.0	1.9	No / Type 1	
155-26 HARRIMANS LANE, MACKSVILLE NSW 2447	39.0	5.3	No / Type 1	
163-4 SCOTTS HEAD ROAD, WAY WAY NSW 2447	40.0	1.8	No / Type 1	
175-34 HARRIMANS LANE, NSW	39.0	11.5	No / Type 1	
180-58 HARRIMANS LANE, MACKSVILLE NSW 2447	39.0	21.4	No / Type 1	
186-41 BALD HILL ROAD, MACKSVILLE NSW 2447	39.0	24.7	No / Type 1	
192-38 KERR DRIVE, MACKSVILLE NSW 2447	39.0	7.6	No / Type 1	
193-KERR DRIVE, MACKSVILLE NSW 2447	39.0	22.7	No / Type 1	
194-DP1014123, KERR DRIVE, MACKSVILLE NSW 2	39.0	9.2	No / Type 1	
197-54 BALD HILL ROAD, MACKSVILLE NSW 2447	39.0	26.1	No / Type 1	
261-13 CONNORS CRESCENT, MACKSVILLE NSW 24	39.0	16.9	No / Type 1	
266-2 AINSWORTH CLOSE, MACKSVILLE NSW 2447	39.0	20.6	No / Type 1	
302-98 BALD HILL ROAD, MACKSVILLE NSW 2447	39.0	7.3	No / Type 1	
342-228 SCOTTS HEAD ROAD, WAY WAY NSW 244	36.0	6.8	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:**



Noise Prediction and Management Tool

Pacific Highway Upgrade  
Warrell Creek to Nambucca Heads  
Chainage 54,300 - 56,400

**Noise Impact Assessment Report**  
**Report Details**

Report Date: 7/12/2016  
Company: Pacific  
Report Reference: Mattick Road - Install Safety Barriers and Screens on Bridge  
Prepared by: N.Rutherford

**Proposed Works**

Date of Proposed Works: 09/12/16 - 22/12/16  
Description of Works: Time of Proposed Works: 7am-5pm Sat and Sun  
Work Duration: 4 days

**Noise Prediction Details**

Expected Meteorological Conditions  
Wind Speed: Strong (16 - 21)  
Cloud Cover: Clear  
Relative Humidity (%): < 55%  
Wind Direction: South West  
Temperature (Degrees C): 10 - 20 °C  
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 2	1	Grinder (4-7 inch)	0.75	107
Location 2	1	Forklift	0.5	97
Location 2	2	Handtools	0.75	93

**Noise Predictions**

Receiver ID	Criteria	Predicted LAeq	Exceedance / Risk	Magnitude - dB(A)
403-247 OLD COAST ROAD, NSW	38.0	26.8	No / Type 1	
405-4 MATTICK ROAD, NORTH MACKSVILLE NSW 2	38.0	31.7	No / Type 1	
411-309 OLD COAST ROAD, NORTH MACKSVILLE NSW	38.0	21.6	No / Type 1	
414-18 MATTICK ROAD, NORTH MACKSVILLE NSW	38.0	32.6	No / Type 1	
444-198 OLD COAST ROAD, NORTH MACKSVILLE NSW	38.0	37.0	No / Type 1	
488-09809906 MATTICK ROAD, NORTH MACKSVILLE NSW	38.0	20.5	No / Type 1	
491-64 MATTICK ROAD, NORTH MACKSVILLE NSW	38.0	15.0	No / Type 1	
495-OLD COAST ROAD, NORTH MACKSVILLE NSW 2	38.0	10.8	No / Type 1	
503-219 FLORENCE WILMONT DRIVE, NAMBUCCA I	38.0	11.0	No / Type 1	
514-197 FLORENCE WILMONT DRIVE, NAMBUCCA I	38.0	10.2	No / Type 1	
515-3 CHARLES PLACE, NAMBUCCA HEADS NSW 24	38.0	2.2	No / Type 1	
529-169 FLORENCE WILMONT DRIVE, NAMBUCCA I	38.0	9.2	No / Type 1	
M8a-349 OLD COAST ROAD, NORTH MACKSVILLE	38.0	14.4	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

Name: \_\_\_\_\_  
Date: \_\_\_\_\_  
Signature: \_\_\_\_\_  
Position: \_\_\_\_\_

Required Mitigation Measures:



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: 7/12/2016  
Company: Pacifico  
Report Reference: Install barrier rail and safety screens on bridge  
Prepared by: N.Rutherford

**Proposed Works**

Date of Proposed Works: 09/12/16 - 22/12/16  
Description of Works: Time of Proposed Works: 7am-5pm Sat and Sun  
Work Duration: 4 days

**Noise Prediction Details**

Expected Meteorological Conditions  
Wind Speed: Strong (16 - 21)  
Cloud Cover: Clear  
Relative Humidity (%): < 55%  
Wind Direction: South West  
Temperature (Degrees C): 10 - 20 °C  
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	Grinder (4-7 inch)	0.75	107
Location 9	2	Handtools	0.5	91
Location 9	1	Forklift	0.5	97

**Noise Predictions**

Receiver ID	Criteria	Predicted LAeq	Exceedance / Risk	Magnitude - dB(A)
28-425 UPPER WARRELL CREEK ROAD, CONGARIN	40.0	5.8	No / Type 1	
42-395 UPPER WARRELL CREEK ROAD, CONGARIN	40.0	8.6	No / Type 1	
48-13A SONNYS LANE, WARRELL CREEK NSW 2447	40.0	5.5	No / Type 1	
51-196 ALBERT DRIVE, WARRELL CREEK NSW 2447	40.0	7.6	No / Type 1	
55-4478 PACIFIC HIGHWAY, WARRELL CREEK NSW	40.0	5.6	No / Type 1	
57-153 ALBERT DRIVE, WARRELL CREEK NSW 2447	40.0	14.1	No / Type 1	
58-19 ROSEWOOD ROAD, WARRELL CREEK NSW 2	40.0	14.5	No / Type 1	
59-46 ROSEWOOD ROAD, WARRELL CREEK NSW 2	40.0	8.3	No / Type 1	
61-124 ALBERT DRIVE, WARRELL CREEK NSW 2447	40.0	24.6	No / Type 1	
63-115 ALBERT DRIVE, WARRELL CREEK NSW 2447	40.0	36.5	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	5.8	No / Type 1	
71-DP1150527, ROSEWOOD ROAD, WARRELL CREI	36.0	3.8	No / Type 1	
74-73 ALBERT DRIVE, WARRELL CREEK NSW 2447	40.0	40.2	No / Type 2	
77-62 O'DELLS ROAD, WARRELL CREEK NSW 2447	36.0	18.6	No / Type 1	
81-40 ALBERT DRIVE, DONNELLYVILLE NSW 2447	40.0	33.2	No / Type 1	
89-33 O'DELLS ROAD, DONNELLYVILLE NSW 2447	40.0	23.2	No / Type 1	
93-8 MAIN STREET, DONNELLYVILLE NSW 2447	40.0	26.1	No / Type 1	
100-17 ALBERT DRIVE, DONNELLYVILLE NSW 2447	40.0	20.1	No / Type 1	
111-12 PARKINS CLOSE, WARRELL CREEK NSW 244	36.0	17.0	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 58,400 - 61,300

## Noise Impact Assessment Report

### Report Details

Report Date: 9/12/2016  
Company: Padfico  
Report Reference: Concreting Works on OCR North Bridge  
Prepared by: N.Rutherford

### Proposed Works

Date of Proposed Works: Dec 2016 - March 2017  
Description of Works: Time of Proposed Works: M-F 5am-7pm, S 7am-5pm  
Work Duration: 3 months

### Noise Prediction Details

#### Expected Meteorological Conditions

Wind Speed: Strong (16 - 21)  
Cloud Cover: Clear  
Relative Humidity (%): < 55%  
Wind Direction: South West  
Temperature (Degrees C): 10 - 20 ° C  
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 13	1	Concrete Pump + Cement Mixer Truck 8 t / 350 bar	0.75	94
Location 13	1	Concrete Agitator	0.75	95
Location 13	1	Concrete Screed	0.5	-3
Location 13	1	Concrete Vibrator	0.5	93
Location 13	5	Handtools (electric)	0.5	91
Location 13	1	Compressor	0.75	99
Location 13	5	LV's	<25%	75

### Noise Predictions

Receiver ID	Criteria	Predicted LAeq	Exceedance / Risk	Magnitude - dB(A)
518-18 SIDING ROAD, NORTH MACKSVILLE NSW 24	38.0	4.7	No / Type 1	
548-3 COCOS COURT, NAMBUCCA HEADS NSW 24	44.0	16.7	No / Type 1	
589-10 ALEXANDRA DRIVE, NAMBUCCA HEADS NSW	44.0	24.0	No / Type 1	
611-15 ALEXANDRA DRIVE, NAMBUCCA HEADS NSW	44.0	16.9	No / Type 1	
618-2 BANGALOW DRIVE, NAMBUCCA HEADS NSW	44.0	20.3	No / Type 1	
633-2 ROYALE COURT, NAMBUCCA HEADS NSW 24	44.0	20.4	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 46,200 - 47,700

## Noise Impact Assessment Report

### Report Details

Report Date: 8/12/2016  
Company: Pacific  
Report Reference: Southern Batch Plant Concreting Slab  
Prepared by: N.Rutherford

### Proposed Works

Date of Proposed Works: 10-22/12/16  
Description of Works: Time of Proposed Works: 7am-5pm Saturday  
Work Duration: 2 days

### Noise Prediction Details

Expected Meteorological Conditions  
Wind Speed: Medium (10 - 16)  
Cloud Cover: Clear  
Relative Humidity (%): < 55%  
Wind Direction: South West  
Temperature (Degrees C): 10 - 20 °C  
Time of Day: Extended Hours

### Proposed Equipment

Location	Number of Plant	Equipment	Usage Factor	Total Sound Power
Location 14	1	Concrete Pump + Cement Mixer Truck 8 t / 350 bar	0.75	94
Location 14	1	Concrete Agitator	1	96
Location 14	1	Concrete vibrator	0.5	97
Location 14	1	LV's	<25%	75

### Noise Predictions

Receiver ID	Criteria	Predicted LAeq	Exceedance / Risk	Magnitude - dB(A)
-273 UPPER WARRELL CREEK ROAD, CONGARINNI	45.0	2.5	No / Type 1	
74-73 ALBERT DRIVE, WARRELL CREEK NSW 2447	45.0	6.6	No / Type 1	
81-40 ALBERT DRIVE, DONNELLYVILLE NSW 2447	45.0	3.6	No / Type 1	
89-33 O'DELLS ROAD, DONNELLYVILLE NSW 2447	45.0	1.4	No / Type 1	
93-8 MAIN STREET, DONNELLYVILLE NSW 2447	45.0	2.6	No / Type 1	
97-4723 PACIFIC HIGHWAY, DONNELLYVILLE NSW :	45.0	10.5	No / Type 1	
100-17 ALBERT DRIVE, DONNELLYVILLE NSW 2447	45.0	4.2	No / Type 1	
101-DP1072289, HENRYS LANE, WARRELL CREEK N	40.0	1.4	No / Type 1	
103-11 ALBERT DRIVE, DONNELLYVILLE NSW 2447	45.0	1.7	No / Type 1	
163-4 SCOTTS HEAD ROAD, WAY WAY NSW 2447	45.0	18.1	No / Type 1	
115-35 MAIN STREET, DONNELLYVILLE NSW 2447	45.0	1.6	No / Type 1	
151-72 SCOTTS HEAD ROAD, WAY WAY NSW 2447	45.0	3.8	No / Type 1	
112-4 SCOTTS HEAD ROAD, WAY WAY NSW 2447	45.0	28.0	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 H  
Warrell C  
Chainage

## Noise Impact Assessment Report

### Report Details

Report Date: 15/12/2016 Report Reference: Early Start for Concrete  
Company: Pacific Prepared by: N.Rutherford

### Proposed Works

Date of Proposed Works: 17/12/16-17/03/16 Time of Proposed Works: 5am start M-F, 6am start Sat, 8pm  
Description of Works: Work Duration:

### Noise Prediction Details

Expected Meteorological Conditions  
Wind Speed Medium (10 - 16)  
Cloud Cover Clear  
Relative Humidity (%) < 55%  
Wind Direction South West  
Temperature (Degrees C) 10 - 20 \* C  
Time of Day Night (7pm-6am M-F, 4

### Proposed Equipment

Location	Number of Plant	Equipment	Usage Factor	Total Sound Power
Location 5	1	Concrete Pump + Cement Mixer Truck 8 t / 350 bar	0.75	94
Location 5	1	Concrete Agitator	0.75	95
Location 5	1	Concrete Vibrators	0.5	97
Location 5	4	Handtools	0.5	91

### Noise Predictions

Receiver ID	Criteria	Predicted LAeq	Exceedance / Risk	Magnitude - dB(A)
1-760 UPPER WARRELL CREEK ROAD, CONGARINN	40.0	1.2	No / Type 1	
3-800 UPPER WARRELL CREEK ROAD, CONGARINN	40.0	1.2	No / Type 1	
4-4201 PACIFIC HIGHWAY, EUNGAI CREEK NSW 24	40.0	2.7	No / Type 1	
5-464 BROWNS CROSSING ROAD, WARRELL CREEK	40.0	2.7	No / Type 1	
6-4227 PACIFIC HIGHWAY, CONGARINNI NSW 244	40.0	3.2	No / Type 1	
10-4317 PACIFIC HIGHWAY, WARRELL CREEK NSW	40.0	4.4	No / Type 1	
11-4263 PACIFIC HIGHWAY, CONGARINNI NSW 24	40.0	6.9	No / Type 1	
12-4371 PACIFIC HIGHWAY, WARRELL CREEK NSW	40.0	2.9	No / Type 1	
16-0P755562, COCKBURNS LANE, WARRELL CREEK	40.0	19.2	No / Type 1	
19-73 COCKBURNS LANE, WARRELL CREEK NSW 24	40.0	12.7	No / Type 1	
22-4411 PACIFIC HIGHWAY, WARRELL CREEK NSW	40.0	2.1	No / Type 1	
39-4476 PACIFIC HIGHWAY, WARRELL CREEK NSW	40.0	1.4	No / Type 1	
45-4390 PACIFIC HIGHWAY, WARRELL CREEK NSW	40.0	2.5	No / Type 1	
51-196 ALBERT DRIVE, WARRELL CREEK NSW 2447	40.0	1.2	No / Type 1	
55-4478 PACIFIC HIGHWAY, WARRELL CREEK NSW	40.0	1.5	No / Type 1	
59-46 ROSEWOOD ROAD, WARRELL CREEK NSW 2	40.0	1.3	No / Type 1	
60-180 ROSEWOOD ROAD, WARRELL CREEK NSW	36.0	5.7	No / Type 1	
64-69 ROSEWOOD ROAD, WARRELL CREEK NSW 2	36.0	1.1	No / Type 1	
66-174 ROSEWOOD ROAD, WARRELL CREEK NSW	36.0	2.3	No / Type 1	
68-91 ROSEWOOD ROAD, WARRELL CREEK NSW 2	36.0	8.7	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: \_\_\_\_\_