



# Warrell Creek to Nambucca Heads – Pacific Highway Upgrade Project

## ENVIRONMENT PROTECTION AUTHORITY MONTHLY REPORT

■ September 2017

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Pacifico Project Number: WC2NH



A team consisting of RMS and Pacifico (ACCIONA Ferrovia 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 September 2017 included the following:

- Bitumen sealing work
- Earthworks including material resizing
- Continuing bridge works including deck unit installation and deck concrete pours
- Continuing works in the Pergola area near Upper Warrell Creek
- Continuing long drainage works
- Scour rock installation
- 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
- Pavement (Asphalt and Concrete)
- Line marking
- Decommissioning of the Precast Facility
- Verge / Median Placement including median Topsoil Placement
- Operation of concrete and asphalt batch plants
- Asphalt milling and removal of highway diversion under Nambucca Bridge
- Temporary Side-track removal – Rosewood Rd

Works scheduled for next month include

- Bitumen sealing work
- Earthworks
- Continuing bridge works including deck unit installation and deck concrete pours
- Continuing long drainage works

- Scour rock installation
- Batter stabilisation using hydromulch (permanent design seed mix)
- Topsoil Amelioration and Blending
- Concrete Lined Drains
- Basin Decommissioning
- Basin Maintenance including dewatering and desilting
- Permanent Basin Fit-out
- Decommissioning of the Precast Facility
- Installation of Erosion and Sediment Controls
- Pavement (Asphalt and Concrete)
- Verge / Median Placement including median Topsoil Placement
- Temporary Side-track removal – Rosewood Rd
- Fauna Furniture Installation
- Glider Pole and Rope Bridge Installation
- Landscape Planting Works

## 1.2 Consultation Activities

The project’s consultation activities during September 2017 included the following:

**Table 1 – Consultation Activities**

Groups	Date	Key Topics
Environmental Review Group	5 September	Project update, environmental monitoring, upcoming out of hours, site inspection
Toolboxes	Wednesday each week	Environmental and community issues communicated to the workforce.
North Facing Ramps group	18 September	Matters pertaining to ongoing works nearby

### Other Consultation Activities:

- Appropriate notification about out of hours work at the north facing ramps
- Emailed database with notification for opening of Old Coast Road north bridge;
- Letterbox dropped north facing ramps residents with notification for opening of Old Coast Road south bridge;
- Emailed database with notification for opening of Old Coast Road south bridge;
- Obtained agreements from approximately 38 residents for project wide OOHW activities through to March 2018;
- Notified of traffic changes around Letitia Close

### 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:

- Conduct next Nambucca Shire Council liaison meeting – 17<sup>th</sup> October
- Conduct next North Facing Ramps tri-weekly roadside community meetings scheduled for Monday 16<sup>th</sup> October
- Issue fifth edition of the North Facing Ramps three-month look-ahead;
- Issue notification for opening of quarry access bridge
- Continue to seek project wide agreements with potentially impacted residents for all anticipated Out of Hours construction works through to March 2018;
- Continue to consult stakeholders impacted by visual mounds along the entire alignment;
- Develop communications for southern interchange traffic switch in November
- Start to draft communications and consultation in relation to the new highway opening to traffic pre-Christmas 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 – Rainfall recorded at the two weather stations operated by Pacifico**

Month	Total monthly rainfall	Location
1/09/2017 – 30/09/2017	0mm	Northern Compound
1/09/2017 – 30/09/2017	0mm	Albert Drive Compound

The site experienced a total of zero (0mm) rain days throughout the month of September 2017.

During September, rainfall received on site was lower than the September monthly average of 55.6mm. 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 September 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

September 2017

Date	Time	TOTAL Rain Gauge (mm)
1/09/2017	9:00:00	0
2/09/2017	9:00:00	0
3/09/2017	9:00:00	0
4/09/2017	9:00:00	0
5/09/2017	9:00:00	0
6/09/2017	9:00:00	0
7/09/2017	9:00:00	0
8/09/2017	9:00:00	0
9/09/2017	9:00:00	0
10/09/2017	9:00:00	0
11/09/2017	9:00:00	0
12/09/2017	9:00:00	0
13/09/2017	9:00:00	0
14/09/2017	9:00:00	0
15/09/2017	9:00:00	0
16/09/2017	9:00:00	0
17/09/2017	9:00:00	0
18/09/2017	9:00:00	0
19/09/2017	9:00:00	0
20/09/2017	9:00:00	0
21/09/2017	9:00:00	0
22/09/2017	9:00:00	0
23/09/2017	9:00:00	0
24/09/2017	9:00:00	0
25/09/2017	9:00:00	0
26/09/2017	9:00:00	0
27/09/2017	9:00:00	0
28/09/2017	9:00:00	0
29/09/2017	9:00:00	0
30/09/2017	9:00:00	0

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

September 2017

Date	Time	TOTAL Rain Gauge (mm)
1/09/2017	9:00:00	0
2/09/2017	9:00:00	0
3/09/2017	9:00:00	0
4/09/2017	9:00:00	0
5/09/2017	9:00:00	0
6/09/2017	9:00:00	0
7/09/2017	9:00:00	0
8/09/2017	9:00:00	0
9/09/2017	9:00:00	0
10/09/2017	9:00:00	0
11/09/2017	9:00:00	0
12/09/2017	9:00:00	0
13/09/2017	9:00:00	0
14/09/2017	9:00:00	0
15/09/2017	9:00:00	0
16/09/2017	9:00:00	0
17/09/2017	9:00:00	0
18/09/2017	9:00:00	0
19/09/2017	9:00:00	0
20/09/2017	9:00:00	0
21/09/2017	9:00:00	0
22/09/2017	9:00:00	0
23/09/2017	9:00:00	0
24/09/2017	9:00:00	0
25/09/2017	9:00:00	0
26/09/2017	9:00:00	0
27/09/2017	9:00:00	0
28/09/2017	9:00:00	0
29/09/2017	9:00:00	0
30/09/2017	9:00:00	0



Table 2.3: Weather conditions recorded in September 2017 at Smoky Cape by the Bureau of Meteorology.

<b>September 2017</b>			
Date	Minimum temperature (°C)	Maximum temperature (°C)	Rainfall (mm)
1/09/2017	10.4	20.9	0
2/09/2017	12.1	22.8	0
3/09/2017	13.7	23.3	0
4/09/2017	16	26.1	0
5/09/2017	14.6	24.2	0
6/09/2017	13.9	24.2	0
7/09/2017	12.6	24	0
8/09/2017	13.2	24	0
9/09/2017	10.2	21	0
10/09/2017	11.8	23.5	0
11/09/2017	13.4	24	0
12/09/2017	14.8	25.5	0
13/09/2017	18	26	0
14/09/2017	13.8	18.9	2
15/09/2017	11.5	23.8	0
16/09/2017	13.6	24.7	0
17/09/2017	13	24	0
18/09/2017	15	24	0
19/09/2017	17	31	0
20/09/2017	13.7	24.7	0
21/09/2017	15.2	24	0
22/09/2017	16.6	25.3	0
23/09/2017	17.9	26	0
24/09/2017	20.6	28.8	0
25/09/2017	20.5	30.5	0
26/09/2017	18.3	25.2	0
27/09/2017	17.5	22.5	0
28/09/2017	18.6	28	0
29/09/2017	19.5	28.7	0
30/09/2017	18.6	22	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 (Pacífico):

#### Dry Sampling Event

A “dry” sampling event was undertaken on the 6<sup>th</sup> September 2017, field testing and lab sampling was undertaken. Results are attached in Appendix A.

#### pH levels noted to be outside of trigger levels at:

Nambucca River recorded elevated levels upstream (pH 7.86) and downstream (pH 7.75). It is noted that trigger levels are pH 7.00, with any value outside of this being outside of trigger levels. It is also noted that these levels are within ANZECC criteria (6.5-8.0). These results are consistent with previous results for the site (pH 7.88 upstream, pH 7.73 downstream August 2017, pH 7.93 upstream, pH 7.96 downstream July 2017).

#### Turbidity (NTU) noted to be outside of trigger levels at:

Lower Warrell Creek recorded slightly elevated NTU levels downstream (7.8 NTU recorded, 6.82 NTU trigger level) compared to upstream (3.1 NTU recorded, 6.82 NTU trigger). It is noted that controls were in place for the site. These levels are consistent with previous recordings for the site (12.7 NTU recorded June 2017, 15.5 NTU recorded May 2017). It should also be noted that no rainfall was received during the month of September and it is therefore unlikely that the elevated NTU result obtained from Lower Warrell Creek downstream was due to construction activities.

Nambucca River recorded elevated NTU levels upstream (75.3 NTU recorded, 19.3 NTU trigger) and downstream (49.7 NTU recorded, 19.3 NTU trigger). It is noted that levels decreased from upstream to downstream sites and are unlikely to be a result of construction impacts. It was also noted during monitoring that wind chop was stirring sediment on the banks of the river, which may have contributed to the elevated levels. These results are consistent with previous results for the site (158 NTU upstream, 85.2 NTU downstream March 2017, 65.2 NTU upstream, 74.6 NTU downstream November 2016).

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

Lower Warrell Creek recorded low levels upstream (3.28mg/L recorded, 5.07mg/L trigger) and downstream (4.81mg/L recorded, 5.07mg/L trigger). It is noted that dissolved oxygen levels increased from upstream to downstream sites and are therefore unlikely to be due to construction impacts. A potential cause for the low levels is decaying vegetation within the waterway and below average rainfall for the area (0mm of rainfall received at the Southern Compound in September, 55.6mm average rainfall during September). These levels are consistent with previous results for the site (3.6mg/L upstream, 3.83mg/L downstream in August 2017, 3.39mg/L upstream, 4.12mg/L downstream May 2017).

Nambucca River recorded low levels upstream (2.76mg/L recorded, trigger level 7.4mg/L) and downstream (2.79mg/L recorded, trigger level 7.4mg/L). It is noted that levels increased between upstream and downstream sites and works within the waterway had been completed (i.e. piling, headstocks etc). A potential cause for the lower levels is decaying vegetation within the waterway and below average rainfall for the area. These levels are consistent with previous results for the site (2.99mg/L upstream, 2.68mg/L downstream April 2017).

#### Metals noted to be above trigger levels at:

Lower Warrell Creek recorded elevated levels of nickel upstream and downstream (0.002mg/L recorded upstream and downstream, 0.001mg/L trigger level) and zinc downstream (0.012mg/L recorded, 0.006mg/L trigger), upstream levels were within criteria (0.006mg/L recorded, 0.006mg/L trigger). It is noted that nickel levels were consistent between upstream and downstream sites and are unlikely to be due to construction impacts. It is also noted that nickel levels were within ANZECC criteria (0.011mg/L). It is noted that zinc and levels were consistent with previous results for the site (nickel recorded 0.002mg/L downstream May 2017, zinc recorded 0.039mg/L upstream, 0.034mg/L downstream recorded July 2017).

Gumma Wetlands recorded slightly elevated levels of zinc upstream (0.008mg/L recorded, 0.005mg/L trigger) and downstream (0.006mg/L recorded, 0.005mg/L trigger) and elevated levels of nickel downstream (0.004mg/L recorded, 0.001mg/L trigger). It is noted that zinc levels decreased from upstream to downstream sites and are unlikely to be due to construction impacts. It is also noted that both zinc and nickel levels were within ANZECC criteria (0.008mg/L for zinc, 0.011mg/L for nickel). These levels are consistent with previous results (0.039mg/L recorded upstream, 0.024mg/L recorded downstream for zinc in July 2017, 0.004mg/L recorded downstream for nickel July 2017).

Nambucca River recorded slightly elevated levels of manganese upstream (0.04mg/L recorded, 0.03mg/L trigger) and downstream (0.045mg/L recorded, 0.03mg/L trigger). It is noted that these levels are within ANZECC criteria (0.08mg/L for marine, 1.9mg/L for freshwater). These levels are consistent with previous results for the site (0.067mg/L upstream, 0.049mg/L downstream recorded May 2017).

Nutrients noted to be above trigger levels at:

Upper Warrell Creek recorded elevated levels of phosphorus upstream (0.19mg/L recorded, 0.04mg/L trigger) and downstream (0.16mg/L recorded, 0.03mg/L trigger) and elevated levels of nitrate downstream (0.04mg/L recorded, 0.03mg/L trigger). It is noted that phosphorus levels decreased from upstream to downstream sites and are unlikely to be due to construction impacts. It is also noted that nitrate levels are within ANZECC criteria (0.7mg/L). These levels are consistent with previous results for both phosphorus (0.3mg/L recorded downstream in February 2016) and nitrate (0.2mg/L recorded downstream in July 2017). A potential source of the elevated levels is decaying organic matter within the waterway.

Stony Creek recorded elevated levels of phosphorus upstream (0.07mg/L recorded, 0.04mg/L trigger) and downstream (0.12mg/L recorded, 0.02mg/L trigger). A potential source of the elevated levels is decaying organic matter within the waterway.

Lower Warrell Creek recorded elevated levels of phosphorus downstream (0.06mg/L recorded, 0.04mg/L trigger), slightly elevated levels of nitrogen downstream (0.6mg/L recorded, 0.5mg/L trigger) and slightly elevated levels of ammonia (0.17mg/L recorded, 0.16mg/L trigger). It is noted that ammonia levels are within ANZECC criteria (0.9mg/L). A potential cause of the elevated levels is decaying organic matter within the waterway and the low rainfall for the month (0mm).

Gumma Wetlands recorded elevated levels of ammonia upstream and downstream (0.11mg/L recorded upstream, 0.1mg/L recorded downstream, 0.04mg/L trigger). It is noted that these levels are within ANZECC criteria (0.9mg/L). It is also noted that these levels decreased from upstream to downstream sites and are therefore unlikely to be related to construction activities.

Nambucca River recorded elevated levels of phosphorus upstream and downstream (0.05mg/L recorded upstream, 0.15mg/L recorded downstream, 0.04mg/L trigger) as well as ammonia upstream and downstream (0.09mg/L recorded upstream, 0.14mg/L recorded downstream, 0.03mg/L trigger). These levels are consistent with previous results for phosphorus (0.36mg/L recorded upstream, 0.11mg/L recorded downstream March 2017) and ammonia (0.13mg/L recorded upstream, 0.14mg/L recorded downstream March 2017).

Suspended solids noted to be above trigger levels at:

Stony Creek recorded elevated suspended solids upstream (22mg/L recorded, 9mg/L trigger) and downstream (10mg/L recorded, 5.8mg/L trigger). These levels are consistent with previous results for the downstream site (13mg/L recorded November 2016). It is noted that levels decreased from upstream to downstream sites and are unlikely to be due to construction impacts.

#### 4. Sediment Basin Water Monitoring

Water was released from commissioned basin B47.96 to allow for permanent design works to be undertaken. 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) ( $R^2 = 0.4941$ ,  $p < 0.00001$ ,  $n=227$ ). The regression equation for the analytical results calculates a turbidity (NTU) value of 120.716 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 84.50, 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 September 2017**

Date	Basin ID	Oil and Grease (visible) (Limit = No visible)	pH (6.5-8.5)	Turbidity (NTU) (Limit <85 NTU)	TSS (mg/L) (Limit <50mg/L)	Approx Volume Discharged (kL)	Comments
2/09/2017	B47.96	N	6.83	37.4		200	Released for permanent basin works

## 5. Noise Monitoring

Monthly routine construction noise monitoring was undertaken on the 19<sup>th</sup> of September 2017 at five 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.

## 6. Vibration Monitoring

No vibration monitoring was undertaken during the month of September 2017.

## 7. Dust Monitoring

Dust deposition gauges (DDG) were placed at nearby sensitive receivers from 1<sup>st</sup> - 29<sup>th</sup> August 2017, with the exception of DDG 1 which was placed from 1<sup>st</sup> August 2017 – 4<sup>th</sup> September 2017 due to property access issues. 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 DDG8.

DDG8 recorded a slightly elevated result (4.9g/m<sup>2</sup>.month TIM). It is noted that the AC level (more related to dust impacts) was within compliance levels (3.9g/m<sup>2</sup>/month). The previous monitoring cycle (3<sup>rd</sup> July 2017 – 1<sup>st</sup> August 2017) recorded unusually high levels at DDG8 (10.6g/m<sup>2</sup>/month TIM, 8.9g/m<sup>2</sup>/month AC) compared to the previous monitoring period (1<sup>st</sup> June 2017-3<sup>rd</sup> July 2017), where DDG8 recorded 0.5g/m<sup>2</sup>.month TIM and 0.3g/m<sup>2</sup>.month AC, with similar construction activities and climatic condition to this reporting period. It is also noted that dust suppression activities on Old Coast Road have continued with frequencies of visits similar over the two-month period. It is also noted that the gauge has had to be relocated, due to the resident on whose property the gauge was installed interfering with and removing the gauge from the monitoring site. The high reading from DDG8 during August 2017 is not believed to be due to construction activities with another source of contamination impacting on the results. In addition, the wind rose from the Northern Automative Weather Station details that the wind direction during the monitoring period was primarily from a W to WSW direction. As DDG8 is located to the west of the alignment it is therefore unlikely that construction activities were the primary source of dust generation during the monitoring period.

Dust mitigation measures including water carts and wetting of quarry material before arrival to site will continue.

## 8. Groundwater Monitoring

ACCIONA (Pacífico) undertook groundwater monitoring on the 12<sup>th</sup> of September 2017. Field testing was undertaken. The results from the groundwater monitoring is available in Table 4 of Appendix A.

### pH levels noted to be outside of trigger levels at:

Cut 11 bores recorded low pH at upslope bore 4BH022c (pH 5.73 recorded, pH 5.93 trigger) and downslope bore 4BH021 (pH 5.48 recorded, pH 5.81 trigger). It is noted that the upslope bore was relocated from its original location due to it being located within the construction footprint, with the trigger levels not necessarily correlating with the new bore location. These results are consistent with previous results e.g. pH 5.51 at 4BH022c, pH 5.77 at 4BH021 in July 2017.

Fill 15 bores recorded high pH at 4BH037a (pH 7.40 recorded, pH 6.51 trigger). It is noted that 4BH037a has been relocated from its original location due to it being within the construction footprint, with trigger levels not necessarily corresponding with the new bore location. These are consistent with previous results for 4BH037a e.g. pH 7.19 in July 2017, pH 7.28 in May 2017, pH 7.07 in April 2017.

Cut 15 bore recorded slightly low pH at the upgradient bore 4BH058c (pH 5.41 recorded, pH 5.56 trigger). It is noted that 4BH058c has been relocated from its original location due to it being within the construction footprint, with trigger levels not necessarily corresponding with the new bore location. Downgradient bore 4BH057 was dry, with no results recorded for the bore. This is consistent with previous results for the bore e.g. pH 5.19 in June 2017.

### Total Dissolved Solids (TDS) noted to be above trigger levels at:

4BH037a – Fill 15 west bore recorded elevated TDS (0.80g/L recorded, 0.1326g/L trigger level). It is noted that this bore had to be relocated from its original location due to it being within the construction footprint, with trigger levels not necessarily corresponding with the new bore location. This is consistent with previous results for the bore e.g. 6.09g/L in July 2017, 6.20g/L in April 2017, 5.74g/L in January 2017.

### Water depth noted to be below trigger levels at:

4BH058c – Cut 17 upslope bore recorded low water depth (14.80m from top of casing recorded, 13.84m trigger). It is noted that this bore had to be relocated from its original location due to it being within the construction footprint, with trigger levels not necessarily corresponding with the new bore location. A possible cause may also be the low rainfall levels resulting in minimal groundwater recharge (0mm in September 2017).

## 9. Acoustic Investigations

Out of Hours Works undertaken during the month of September 2017 under Condition L4.2(d) of the EPL are outlined in Table 4.

**Table 4 – September Out of Hours Works approved under L4.2 (d)**

<b>Out of Hours Activity</b>	<b>&gt;5dB(A) above background</b>	<b>Complete? Y/N</b>
Lower Warrell Creek Deck Pours (Monitoring and results provided in July 2017). Written Agreements obtained and permit updated on 8/9/2017 to EPL Condition L4.3	N	Ongoing
Nambucca River Bridge Works (Monitoring and results provided in August 2017)	N	Ongoing
Old Coast Road North Earthworks	N	Ongoing
Floodplain Bridge 2 Concrete Pours	N	Ongoing
CC05 Finishing Works	N	Ongoing
CC05 Nightworks	N	Y

Acoustic Investigations (field monitoring) have been conducted for Out of Hours Works during the month of August 2017, results are included in Appendix A.

## 10. Complaints

### 9.1 Summary of Complaints for the month of September 2017

18/09/2017 – Resident at Gumma Road contacted AFJV about concerns from dust generation due to a positrack working nearby. The area foreman was contacted and a water cart attended the area immediately. The Community team attended the site shortly after, water cart was noted at the area with no evidence of further dusty conditions.

20/09/2017 – Resident at Letitia Close stood on Letitia Close due to concerns about dust generation from trucks in the area. Community attended the area with the traffic manager and explained that the area was not able to be wet down due to impending line marking which was going to be undertaken in the area. The northern superintendent diverted trucks from that location and kept them to sealed surfaces until the water carts were able to apply water at this location. Once water had been applied construction activities recommenced at this location.

21/09/2017 – Resident at Gumma Road contacted AFJV regarding concerns about noise produced from a reversing alarm associated with an operating Elevated Work Platform. The Environment and Community team attended the site and listened to the reversing alarm. The community team explained to the resident that the beeper was required due to safety requirements and arranged for the beeper to be muffled to reduce the noise produced. The activity was being undertaken during the Project's standard working hours.

26/09/2017 – Residents at Cockburns Lane contacted AFJV regarding concerns about dust generation from trucks operating in the area. The area foreman was contacted

who deployed a water truck to the area, toolboxed the drivers regarding speed and dust generation in the area, committing to removing drivers that continued to speed and putting into place a traffic control to slow drivers down.

## 11. Non-Compliance

### 11.1 Summary of Non-compliances

No Non Compliances were raised against ACCIONA's Environmental Protection Licence during the month of September 2017.



Appendix A – Monitoring Results

Table 1 – Surface Water Results September 2017 – 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			Downstream			Upstream			Downstream							
			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater				
Date of Sampling	ANZECC 2000 95% species protected		6-Sep-17			6-Sep-17			6-Sep-17			6-Sep-17			6-Sep-17			6-Sep-17			6-Sep-17			6-Sep-17			6-Sep-17			6-Sep-17			6-Sep-17				
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				
<b>Laboratory data</b>																																					
<b>Metals</b>																																					
Aluminium	mg/L	0.055	-	0.06	0.01	<0.01	0.05	0.01	<0.01	0.05	0.01	<0.01	0.04	0.01	<0.01	0.06	0.01	<0.01	0.06	0.01	0.01	0.1	0.01	<0.01	0.1	0.01	<0.01	0.1	0.01	<0.01	0.04	0.1	0.01	<0.10	0.02	0.01	<0.10
Arsenic	mg/L	0.024	0.0023	-	-	<0.001	-	-	<0.001	-	-	<0.001	0.001	0.001	<0.001	0.001	0.001	<0.001	0.002	0.001	<0.001	0.002	0.001	<0.001	0.002	0.001	<0.001	0.002	0.001	<0.001	0.002	0.001	<0.010	0.002	0.001	<0.010	
Cadmium	mg/L	0.0002	0.0055	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	0.0001	0.0001	<0.0001	0.0001	0.0001	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0010	-	-	<0.0010	
Chromium	mg/L	0.001	0.0044	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.010	-	-	<0.010	
Copper	mg/L	0.0014	0.0013	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	0.002	0.001	0.001	<0.010	0.001	0.001	<0.010	
Lead	mg/L	0.0034	0.0044	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.010	-	-	<0.010	
Manganese	mg/L	1.9	0.08	0.21	0.02	0.104	0.2	0.03	0.075	0.06	0.02	0.039	0.052	0.013	0.05	0.26	0.08	0.167	0.26	0.08	0.192	0.23	0.019	0.092	0.23	0.019	0.187	0.23	0.019	0.152	0.03	0.002	0.04	0.03	0.002	0.045	
Nickel	mg/L	0.011	0.07	-	-	<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	0.001	0.001	0.001	0.004	-	-	<0.010	-	-	<0.010	
Selenium	mg/L	11	-	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.10	-	-	<0.10	
Silver	mg/L	0.00005	0.0014	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.010	-	-	<0.010	
Zinc	mg/L	0.008	0.015	-	-	<0.005	-	-	<0.009	0.005	0.005	<0.005	0.005	0.005	<0.005	0.006	0.005	0.006	0.005	0.005	0.012	0.005	0.005	<0.005	0.005	0.005	0.008	0.005	0.005	0.006	0.005	0.005	<0.050	0.005	0.005	<0.050	
Iron	mg/L	-	-	0.99	0.46	<0.05	0.93	0.31	<0.05	0.82	0.42	<0.05	0.78	0.37	<0.05	0.83	0.05	<0.05	0.83	0.05	<0.05	2.01	0.25	<0.05	2.01	0.25	0.59	2.01	0.25	0.36	-	-	<0.10	-	-	<0.10	
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	-	-	<0.0010	-	-	<0.0010	
<b>Total Recoverable Hydrocarbons</b>																																					
Naphthalene	µg/L	16	50	16	NA	16	NA	NA	16	NA	NA	NA	16	NA	NA	16	NA	NA	16	NA	NA	16	NA	NA	16	NA	NA	16	NA	NA	16	NA	NA	50	NA	50	NA
C6 - C10 Fraction	µg/L	-	-	-	NA	-	NA	NA	-	NA	NA	NA	-	NA	NA	-	NA	NA	-	NA	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	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	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	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	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	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	NA	-	NA	NA	-	NA	NA	-	NA	NA	-	NA	NA	-	NA	NA	
<b>BTEX</b>																																					
Benzene	µg/L	950	700	950	NA	950	NA	NA	950	NA	NA	NA	950	NA	NA	950	NA	NA	950	NA	NA	950	NA	NA	950	NA	NA	950	NA	NA	700	NA	700	NA	NA		
Toluene	µg/L	180	180	180	NA	180	NA	NA	180	NA	NA	NA	180	NA	NA	180	NA	NA	180	NA	NA	180	NA	NA	180	NA	NA	180	NA	180	NA	180	NA	180	NA	NA	
Ethylbenzene	µg/L	80	5	80	NA	80	NA	NA	80	NA	NA	NA	80	NA	NA	80	NA	NA	80	NA	NA	80	NA	NA	80	NA	NA	80	NA	5	80	NA	5	80	NA	NA	
m,p-Xylenes	µg/L	-	-	-	NA	-	NA	NA	-	NA	NA	NA	-	NA	NA	-	NA	NA	-	NA	NA	-	NA	NA	-	NA	NA	-	NA	NA	-	NA	NA	-	NA	NA	
o-Xylene	µg/L	350	350	350	NA	350	NA	NA	350	NA	NA	NA	350	NA	NA	350	NA	NA	350	NA	NA	350	NA	NA	350	NA	NA	350	NA	350	NA	350	NA	350	NA	NA	
Xylenes - Total	µg/L	-	-	-	NA	-	NA	NA	-	NA	NA	NA	-	NA	NA	-	NA	NA	-	NA	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	NA	-	NA	NA	-	NA	NA	-	NA	NA	-	NA	NA	-	NA	NA	
<b>Nutrients</b>																																					
Total Phosphorus	mg/L	0.05	0.03	0.04	0.01	0.19	0.03	0.01	0.16	0.04	0.01	0.07	0.02	0.01	0.12	0.04	0.01	0.02	0.04	0.01	0.06	0.12	0.03	0.03	0.12	0.03	0.41	0.12	0.03	<0.01	0.04	0.02	0.05	0.04	0.02	0.15	
Phosphate (reactive phosphorus)	mg/L	-	-	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	0.01	0.0044	<0.01	0.01	0.0044	<0.01	0.01	0.005	<0.01	0.01	0.005	0.01	0.01	0.005	<0.01	0.01	0.008	<0.01	0.01	0.008	<0.01	
Total Nitrogen	mg/L	0.5	0.3	0.62	0.2	0.4	0.6	0.2	0.2	0.3	0.1	0.3	0.41	0.1	0.3	0.5	0.2	0.4	0.5	0.2	0.6	2.8	1.1	0.6	2.8	1.1	1.9	2.8	1.1	1.1	0.5	0.2	0.5	0.5	0.2	<0.5	
Total Kjeldahl Nitrogen	mg/L	-	-	0.6	0.2	0.4	0.6	0.2	0.2	0.3	0.1	0.2	0.4	0.1	0.3	0.5	0.2	0.4	0.5	0.2	0.6	2.4	1	0.6	2.4	1	1.9	2.4	1	1.1	0.5	0.2	0.5	0.5	0.2	<0.5	
Nitrate	mg/L	0.7	-	0.04	0.01	0.02	0.03	0.01	0.04	0.03	0.01	0.09	0.03	0.01	0.02	0.04	0.01	<0.01	0.04	0.01	0.02	0.04	0.01	<0.01	0.04	0.01	0.01	0.04	0.01	0.02	0.02	0.01	<0.01	0.02	0.01	<0.01	
Nitrite	mg/L	-	-	-	-	<0.01	0.01	0.01	<0.01	0.01	0.01	<0.01	0.01	0.01	<0.01	0.01	0.01	<0.01	0.01	0.01	<0.01	0.05	0.01	<0.01	0.05	0.01	<0.01	0.05	0.01	<0.01	0.02	0.01	<0.01	0.02	0.01	<0.01	
Ammonia	mg/L	0.9	-	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	0.01	0.16	0.06	<0.01	0.16	0.06	0.17	0.04	0.01	<0.01	0.04	0.01	0.11										

**Table 3 - Dust Monitoring Results August - September 2017**

		DDG ID	DDG1	DDG2	DDG3	DDG4	DDG5	DDG6	DDG6N	DDG7	DDG8	DDG9NE	DDG9E	DDG A1	DDG A2
		Start date of sampling	1/08/2017	1/08/2017	1/08/2017	1/08/2017	1/08/2017	1/08/2017	1/08/2017	1/08/2017	1/08/2017	1/08/2017	1/08/2017	1/08/2017	1/08/2017
		Finish date of sampling	4/09/2017	29/08/2017	29/08/2017	29/08/2017	29/08/2017	29/08/2017	29/08/2017	29/08/2017	29/08/2017	29/08/2017	29/08/2017	29/08/2017	29/08/2017
Analyte	Time Period	Unit	Levels of Concern	LOR											
Ash Content	Current Month	g/m <sup>2</sup> .month	4	0.1	0.1	0.4	0.8	0.4	0.3	0.5	0.7	1.8	3.9	0.4	0.3
		mg	N/A	1	3	7	13	7	5	8	11	29	64	6	5
	Previous Month	g/m <sup>2</sup> .month			0.2	0.5	0.6	0.2	0.5	2.2	1	0.3	8.4	0.3	0.4
	Change	g/m <sup>2</sup> .month	Increase of 2		-0.1	-0.1	0.2	0.2	-0.2	-1.7	-0.3	1.5	-4.5	0.1	-0.1
Combustible Matter	Current Month	g/m <sup>2</sup> .month	N/A	0.1	0.2	0.3	0.3	<0.1	0.2	0.4	0.2	0.5	1	<0.1	0.1
		mg	N/A	1	4	4	5	<1	3	7	4	9	17	<1	1
Total Insoluble Matter (TIM)	Current Month	g/m <sup>2</sup> .month	4	0.1	0.3	0.7	1.1	0.4	0.5	0.9	0.9	2.3	4.9	0.4	0.4
		mg	N/A	1	7	11	18	7	8	15	15	38	81	6	6
	Previous Month	g/m <sup>2</sup> .month		0.1	0.8	0.7	0.9	0.4	0.6	4.7	1.2	0.4	10.6	0.3	0.7
	Change	g/m <sup>2</sup> .month	Increase of 2	0.1	-0.5	0	0.2	0	-0.1	-3.8	-0.3	1.9	-5.7	0.1	-0.3
Arsenic	Current Month	mg/L		0.001	----	----	----	----	----	----	----	----	----	----	----
Comments						House under construction opposite side of road from gauge location								Grass mowed around gauge	Grass mowed around gauge

**Table 4 – Groundwater Monitoring Results September 2017**

Location	Units	Groundwater Investigation Levels (GILs) from Interpretive Report	4BH010		4BH021		4BH022c		4BH025a		4BH037a		4BH038		4BH057		4BH058c									
Cut/Fill			Cut 6 - West (DS)		Cut 11 - West (DS)		Cut 11 - East (US)		Cut 12 - West (DS)		Fill 15 - West		Fill 15 - East		Cut 15 - West (DS)		Cut 15 - East (US)									
Date of Sampling			12/09/2017		12/09/2017		12/09/2017		12/09/2017		12/09/2017		12/09/2017		12/09/2017		12/09/2017									
			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			Sulfur odour				DRY				DRY															
<b>Field Physical data</b>																										
Depth to standing water level from TOC	m	-	16.802	15.89	8.7420	7.50	16.0140	3.45	8.4500	-	1.2000	0.88	1.3520	0.82	17.4120	-	13.84	15.00								
pH	pH	-	6.26	4.74	5.85	6.78	5.81	5.48	7.09	5.93	5.73	6.78	6.21	-	6.51	5.92	7.40	7.30	6.77	7.15	6.98	5.24	-	6.3960	5.56	5.41
Conductivity	mS/cm	-	3630.000	2.87	111.300	0.121	231.000	1.70	0.342	-	5.550	1.19	8366.000	8.27	121.100	-	132.660	0.092								
Temperature	C	-	22.4420	25.00	22.3600	23.98	21.1500	25.60	22.6040	-	25.9820	21.54	22.5600	22.11	22.8200	-	23.1940	25.39								
Total Dissolved Solids	g/L	-	3.5720	1.89	0.0946	0.079	0.1306	1.09	0.1326	-	0.1326	0.80	8.10	5.41	0.106	-	0.111	0.060								
			Exceedance of trigger level																							

**Table 5 – Field Monitoring for Out of Hours Works September 2017 (Acoustic Investigation)**

Description of Works	Date	Time	Location	NCA	NML (dB(A))	Laeq (dB(A))	Distance to receiver (m)	Compliant	Notes
Old Coast Road North Finishing Works	2/9/2017	2:10pm	East abutment	5	44	20.3	550m	Yes	Old Coast Road Traffic 50-60dBA. Monitoring to verify compliance with L4.2(d)
Northern Earthworks	2/9/2017	1:35pm	Cut 21	6	37	33.0	450m	Yes	Monitoring to verify compliance with L4.2(d)
BR12 Finishing Works	7/9/2017	6:25am	East abutment	5	44	27.4	580m	Yes	Parapet installation. Monitoring to verify compliance with L4.2(d)
BR12 Finishing Works	9/9/2017	7:45am	East abutment	5	44	38.3	510m	Yes	Monitoring to verify compliance with L4.2(d)
Old Coast Road North Sealing Works	9/9/2017	2:11pm	Fill 32 Southbound	5	44	27.4	580m	Yes	Monitoring to verify compliance with L4.2(d)
Northern Verge Trimming	9/9/2017	7:15am	Cut 21	6	37	36.3	300m	Yes	Monitoring to verify compliance with L4.2(d)
Old Coast Road North Earthworks	10/9/2017	9:45am	Fill 32 Southbound	5	44	30.0	575m	Yes	Monitoring to verify compliance with L4.2(d)
Floodplain Bridge 2 Deck Pour	12/9/2017	6:45am	Fill 15C	3	41	39.3	610m	Yes	Monitoring to verify compliance with L4.2(d)
Nambucca Bridge	16/9/2017	7:02am	Nursery Road	4	46	N/A	600m	Yes	Construction not audible. Monitoring to verify compliance with L4.2(d)
Floodplain Bridge 2 Deck Pour	16/9/2017	7:42am	Fill 15C	3	41	38.5	600m	Yes	Monitoring to verify compliance with L4.2(d)
CC05 Nightworks	18/9/2017	6:22pm	Alexandra Drive	5	44	N/A	610m	Yes	Construction not audible. Monitoring to verify compliance with L4.2(d)
CC05 Nightworks	18/9/2017	11:22pm	Alexandra Drive	5	44	N/A	610m	Yes	Construction not audible. Monitoring to verify compliance with L4.2(d)
CC05 Nightworks	19/9/2017	10:02pm	Racecourse Trail	5	44	N/A	605m	Yes	Construction not audible. Monitoring to verify compliance with L4.2(d)
CC05 Nightworks	20/9/2017	2:35am	Racecourse Trail	5	44	35.0	605m	Yes	Monitoring to verify compliance with L4.2(d)