Pacific Highway Upgrade:

Warrell Creek to Nambucca Heads

Compliance Tracking Report – Construction

Report 1 - February – August 2015

WC2NH-CS-EN-RPT-0039 Rev C

Rev	Description	Originator	Reviewed	Approved	Date
A	Initial Draft for Roads and Maritime Review	A.Dwyer	N.Rutherford		17/07/2015
B	Draft for Roads and Maritime Review	A.Dwyer	J.Haslett		8/9/2015
C	Incorporation of RMS/ER Comments	A.Dwyer	J.Haslett		9/9/2015

Details of Revision Amendments

Plan Control

The latest approved version of this Report will be available for all Project personnel on the Electronic Document Management System - TeamBinder. The functional manager will maintain, review and update this Plan at least annually.

Amendments

Each new revision to the Report will be distributed to all required personnel for review and approval.

The revision number is included at the end of the document number, which is noted in the footer of each page. The document will be allocated a new revision number each time a change is made to the document.

When a new revision to the document is available, a notification email will be distributed to all project personnel by the Document Control Team advising of the update.

The functional Manager is responsible for the implementation and review of the Report. The Project Director will approve new revisions of the Report via the review and approval process as detailed in the Document Control Procedure.

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Contents

Terms and Abbreviations

AADJV	Arup and Aurecon Design Joint Venture
ACCIONA	ACCIONA Infrastructure Australia Pty Ltd
AFG	Aboriginal Focus Group
AFJV	ACCIONA and Ferrovial Joint Venture
AADJV	Arup Aurecon Design Joint Venture
ASF	Ancillary Site Facility
AS/NZS	Australian and New Zealand Standard
CEMP	Construction Environmental Management Plan
D&C	Design and Construction
DG	Director General – Department of Planning and Environment
DPE	Department of Planning and Environment
EDMS	Electronic Document Management System (TeamBinder)
EPA	Environment Protection Authority
ERG	Environmental Reference Group
Ferrovial	Ferrovial Agroman (Australia) Pty Ltd
ID Planning	ID Planning Pty Ltd
IMS	Integrated Management System
ISO	International Standards Organisation
KPI	Key Performance Indicator
MCoA	Ministers Conditions of Approval
NSW	New South Wales
O&M	Operations and Maintenance
OEH	Office of Environment and Heritage
PMT	Project Management Team

Terms and Abbreviations

PV	Project Verifier
Roads and Maritime	Roads and Maritime Services
SoC	Statement of Commitments
SWTC	Scope of Works and Technical Criteria
WC2NH	Warrell Creek to Nambucca Heads (the Project)

Definitions

Client	An organisation inviting and receiving tenders and letting contracts. For the purposes of this project - Roads and Maritime Services
Contractor	An organisation that contracts with a client to carry out construction and related services. For the purposes of this Project - ACCIONA Ferrovial Joint Venture.
Deed	D&C Project Deed, IC-DC-C91-1, Pacific Highway Warrell Creek to Nambucca Heads
Design Joint Venture	Joint Venture consisting of Arup and Aurecon
Director General	Director General of the Department of Planning and Environment
Government Agency	NSW government department, authority, corporation or entity established by an Act of the NSW Parliament
Persons Conducting a Business or Undertaking	Is an employer, corporation, partnership, unincorporated association that has the primary duty of care for workplace health and safety - (AFJV and Contractors are a PCBU)
Planning Approval	Refers to the Consolidated Instrument for Modification 7 of the Planning Approval which contains the Ministers Conditions of Approval.
Principal Contractor	A person conducting a business or undertaking that commissions a construction project. For the purposes of this project - AFJV
Project	The design and construction of the upgrade to the Pacific Highway between Warrell Creek and Nambucca Heads
Project Verifier	For the purpose of the Project, this is Davis Langdon Australia Pty Ltd
Proof Engineer	For the purpose of the Project, Cardno Pty Ltd
Site	'Site' generally refers approved construction site. 'site' may refer to other sites specifically referred to, such as sensitive area sites, compound sites, on-site activities, site inspections etc
Subcontractor	Organisation that contracts with a principal contractor as the client to carry out construction and related services
Supplier	Organisation that contracts with a client to provide a product and / or service.
TeamBinder	The project Electronic Document Management System software
Worker	Is anyone who carries out work for a PCBU and includes: an employee, contractor or sub-contractor or an employee of, labour hire personnel, apprentice or trainee, work experience student

1. Introduction

The Pacific Highway Warrell Creek to Nambucca Heads Upgrade project (the Project) is being designed and constructed by Pacifico, a joint venture consisting of ACCIONA Infrastructures Pty Ltd (ACCIONA) and Ferrovial Agroman (Australia) Pty Ltd (Ferrovial), herein referred to as the Pacifico - ACCIONA Ferrovial JV (AFJV), with overall project management and site supervision of the project by Roads and Maritime Services (Roads and Maritime).

1.1. Project Background

The Warrell Creek to Nambucca Heads (WC2NH) Upgrade project consists of the detailed design and construction of 19.6 km of new dual carriageway road on the Pacific Highway between the northern end of the existing Allgomera Deviation south of Warrell Creek and the southern end of the Nambucca Heads to Urunga Pacific Highway upgrade project west of Nambucca Heads. The project includes:

- 19.6 km of new divided dual carriageway;
- two grade separated interchanges at Warrell Creek and Bald Hill Road south of Macksville. Roads and Maritime is also investigating the provision of north facing ramps at North Macksville;
- longitudinal bridges across Upper Warrell Creek, Williamson Creek, Warrell Creek, Nambucca River floodplain (2 of) and Nambucca River;
- overbridges on Cockburns Lane, Rosewood Road, Albert Drive, Scotts Heads Quarry access road, Bald Hill Road, Old Coast Road South, Mattick Road and Old Coast Road North;
- Underpass underneath North Coast Railway Line near Browns Crossing Road;
- local roads, drainage and fauna crossing structures; and
- associated infrastructure.

1.2. Compliance

This report has been prepared to fulfil the requirements of Planning Approval Condition B25.

Table 1 – Compliance reference.

MCoA Reference	Comment	Section Reference
B25 The Proponent shall develop and implement a **Compliance Tracking Program** to track compliance with the requirements of this approval. The Program shall be submitted to the Director General for approval prior to the commencement of construction and relate to both the construction and operational phases of the project, and include, but not necessarily be limited to:	Compliance Tracking Program prepared by Roads and Maritime and approved in March 2013 by the Director General. Document updated in October 2014 for WC2NH Project and resubmitted to the Director General. The Compliance Tracking Program was approved by the Director General on the 16/12/14.	NA

(a) provisions for the notification of the Director General of the commencement of works prior to the commencement of construction and prior to the commencement of operation of the project (including prior to each stage, where works are being staged);	Compliance Tracking Program states that 48 hours notice to be provided to the Director General prior to the commencement of construction. Notification provided to Director General by RMS on 9/2/2015.	NA
(b) provisions for periodic review of project compliance with the requirements of this approval, Statement of Commitments and documents listed under condition A1;	Compliance Tracking Program requires 6 monthly reviews of the MCoA, SoC and other relevant approvals. This report will be produced after the compliance review and reported to the Director General 6 months after the commencement of construction and yearly thereafter during the construction phase of the Project. Independent Compliance Audit undertaken 29/4-1/5 by SNC Lavalin.	Appendix C – Independent Audit Report Section 3
(c) provisions for periodic reporting of compliance status against the requirements of this approval, Statement of Commitments and documents listed under condition A1 to the Director General including at least one month prior to the commencement of construction and operation of the project and at other intervals during the construction and operation, as identified in the Program;	A Compliance Tracking Report will be prepared and submitted to the Director General six months after the commencement of construction and yearly thereafter throughout the construction phase of the WC2NH Project.	This report
(d) a program for independent environmental auditing in accordance with *ISO 19011:2003 - Guidelines for Quality and/ or Environmental Management Systems Auditing*;	The Compliance Tracking Program and the Project Construction Environmental Management Plan include the requirements for regular independent auditing. Six-monthly independent audits will be undertaken in accordance with ISO 19011:2003 – Guidelines for Quality and/or Environmental Management Systems Auditing and the findings included in the Compliance Tracking Report. It is noted that the first independent audit will be undertaken within three months of the commencement construction. Independent Compliance Audit undertaken 29/4-1/5 by SNC Lavalin.	Appendix C – Independent Audit Report Section 3

(e) mechanisms for reporting and recording incidents and actions taken in response to those incidents;	The Compliance Tracking Program refers to the Roads and Maritime's Environmental Incident Classification and Reporting Procedure and includes details on incident reporting in Section 2.5.	Section 6
(f) provisions for reporting environmental incidents to the Director General during construction and operation; and	This Compliance Tracking Report will include a brief description of the incidents that have occurred in the previous reporting period, including the corrective and preventative actions to prevent reoccurrence.	Section 6
(g) procedures for rectifying any non-compliance identified during environmental auditing, review of compliance or incident management.	This Compliance Tracking Report will include a brief description on audits undertaken during the reporting period, a review of the Project's compliance with the MCoA and SoC and any non-compliances raised. This report will also address the corrective/preventative actions undertaken to rectify the non-compliance. The Compliance Tracking Program includes procedures for rectifying non-compliance in Section 2.7.	Section 4

2. Scope of Activities undertaken during reporting period

The WC2NH Project is within the "construction" phase with construction works commencing on Monday, 9/2/2015.

The early works, assessed as being not construction activities undertaken by the Project include:

- Site Survey Activities
- Geotechnical investigations
- Investigations for services relocation
- Environmental surveys including ecological and heritage investigations
- Environmental monitoring including water quality, noise and ecological monitoring
- Grass slashing and weed management
- Installation of temporary "no-go zone" flagging and fencing;
- Demolition
- Construction of the main site Compound at 124 Albert Drive, Warrell Creek
- Installation of permanent rural fencing;
- Relocation of utilities (where possible);

The Construction phase works undertaken from 9/2/2015 during the reporting period includes:

- Sediment Basin Installation / Commissioning

- Demolition Activities
- Utilities Installation
- Clearing and Grubbing Activities
- Earthwork Activities – Bridging Layer Installation
- Drainage
- Topsoil Stripping
- Erosion and Sediment Control Installation
- Stockpiling
- Environmental Monitoring including water quality, noise and ecological monitoring
- Temporary Frog Fence Installation (Giant Barred Frog / Green Thighed Frog)
- Geotechnical Investigation
- Site Survey Activities
- Pest Management
- Installation of Clearing Limits, Project Boundary and Temporary "No-Go Zone" Flagging and Fencing
- Installation of Permanent Rural Fencing and Fauna Fencing
- Northern Compound – Precast Yard Construction
- Slashing
- Bore / Piezo Decommissioning
- Trial Blasts Cut 8/9/10/11
- Production Blasting Cut 11 and Cut 10
- Crushing and Screening Cut 10
- Working Platform Installation – Nambucca River North / Bald Hill Road / Upper Warrell Creek
- Piling – Nambucca River Bridge / Bald Hill Road
- Temporary Jetty Installation / Marine Mobilisation – Nambucca River North

2.1 General performance of environmental controls

Construction activities undertaken since February 2015 include the installation of sediment basins and associated drainage required to meet the Environmental Protection Licence (20533) requirements. AFJV has spent considerable time ensuring that the site's erosion and sediment control measures are set up correctly. Vegetation clearing was conducted in stages to allow for the construction of necessary erosion and sediment control measures prior to clearing the remaining area of the catchment. Earthworks including topsoil stripping and cut/fill activities are now taking place in the "drier" period of the year.

It has been noted generally within Environmental Review Group (ERG) meetings that the site's control measures have been well implemented. Agency representatives have noted that the site is well managed and controls are implemented correctly and in a timely fashion.

RMS currently conduct fortnightly inspections which is subject to a "traffic light" system in relation to the risk rating of actions raised during the inspection. Out of 12 inspections, AFJV have received three "amber" lights, with the remaining inspections resulting in a "green" light rating. A "green" light rating is difficult to achieve on Project's the size and complexity of WC2NH.

An Environmental Work Method Statement (EWMS) has also been prepared for each activity, which is reviewed by Roads and Maritime, the ER and relevant agency representatives. The EWMS includes control measures required to reduce the risk of hazards to the environment and compliance is closely monitored on site by AFJV and Roads and Maritime.

3. Outcome of Independent Audit

3.1 Compliance achieved

Compliance has been achieved by AFJV for the Independent Audit, undertaken within the first three (3) months of Construction commencing onsite. While there have been no non-conformances with SoC and MCoA, it is recognised that the project is still in the early stages of construction and therefore many of the MCoA and SoC obligations cannot be fulfilled in their entirety at this stage. However based on the documents reviewed and the interviews conducted, it is evident that these obligations are progressing. Further evidence will be reviewed throughout the course of the project to confirm compliance or otherwise. AFJV has implemented a management programme for tracking compliance with MCoA and SoC. It was also noted that there was strong evidence to suggest that Environmental Management Plans as required by the MCoA and SoC are being implemented onsite. The full audit report is available in Appendix C of this report.

4. Non-compliances raised

No Non-compliances were raised during the independent audit or the reporting period. Incidents raised are summarised within Section 6.

4.1 Corrective and Preventative Actions Taken

As no non-compliances were identified during the audit no corrective or preventative actions were required.

5. Outcomes of ERG Inspections

The Project has held six Environmental Review Group meetings between February and August 2015. The meetings generally have involved the following discussions / briefings:

- Approval Update (CEMP, Sub-plans, Consistency Assessments);
- Design Updates;
- Construction Status Updates and Activities Completed;
- Ecologist Update (Flora and Fauna)
- Monitoring Update (Air Quality, Noise Monitoring, Water Quality etc);
- Environmental Incidents;
- EWMS Updates; and
- Workshops;

This meeting is then typically followed with a site inspection with RMS, AFJV, EPA and DPI to gain an understanding of the design / construction implications for different aspects of the works as well as to gauge the environmental management and associated processes being delivered by AFJV on the ground during daily operations. Inspections also focus on high risk activities being undertaken onsite during this scheduled meeting including geotechnical investigations, clearing and grubbing, bridging layer installation (i.e. through the flying fox habitat), works adjacent to wetlands, stockpile management (i.e. mulch management in the Nambucca State Forest), sediment basin construction and operation, erosion and sediment controls for works adjacent to sensitive areas (i.e. Nambucca

River), demolition and utilities relocation activities. Inspections have also been undertaken during the ERG's on specific mitigation measures contained within the flora and fauna management plans (i.e. Giant Barred Frog Management Plan) where inspections have focused on the installation and monitoring associated with exclusion fencing, translocation of fauna species etc and this provides an opportunity for both agencies and contractor to discuss these mitigation measures, their effectiveness and monitoring results of works undertaken to date.

Table 2 below provides a summary of the items discussed at each ERG undertaken during the reporting period.

Table 2 – ERG Discussion Notes

Date	Stakeholder Attendees	Summary of Items Discussed
ERG #10 – 17/02/15	Brain Tolhurst – EPA Craig Dunk – EPA David Bone – ER James Sakker – DPI David Ledlin – RMS Rowena Mitchell – RMS Chris Wicks – RMS	Ecologists Update (Ecological monitoring update); Giant Barred Frog Fencing installation; Tall Knotweed Impact Assessment; Translocation activities; Construction Update; Design Update (clearing and grubbing drawings to IFC) Approvals Update; EWMS update; Flood modelling assessment; Community Consultation update; Monitoring Data.
ERG #11 – 17/03/15	Brain Tolhurst – EPA Craig Dunk – EPA David Bone – ER James Sakker – DPI David Ledlin – RMS Chris Clark – RMS Rowena Mitchell – RMS Chris Wicks – RMS Mehrdad – RMS	Background water quality data; Ecologists update (Ecological monitoring undertaken); Platypus monitoring protocol; Design update – fauna furniture Construction Update Incidents Approval Update Community Update;

Date	Stakeholder Attendees	Summary of Items Discussed
	Andrew Ballard - Coffey	Monitoring data.
ERG #12 - 21/04/15	David Bone - ER Rowena Mitchell – RMS Chris Wicks – RMS James Sakker – DPI Fisheries Jim Steen – RMS Peter Higgs – EPA David Havilah - Geolink	Approvals Update Design Update Construction Update Ecological Update Incidents Complaints EWMS Update
ERG #13 19/05/15	Rowena Mitchell – RMS Chris Wicks – RMS Peter Higgs – EPA Craig Dunk – EPA David Bone – ER James Sakker – DPI David Ledlin – RMS Chris Clark – RMS Jim Steen – RMS	Approvals Update Upper Warrell Creek design refinement Utilities adjustments Stockpiling on private property Design Refinements EWMS Update EPL Variations Construction Update Bridge works Update Chytrid Fungus Protocol Monitoring Results Out of Hours Works Planned Incidents Community Update Fig tree near Rosewood Scarred Tree Audits and Compliance
ERG #14 16/06/15	Rowena Mitchell – RMS Chris Wicks – RMS Craig Dunk – EPA	Approvals update Blasting limit increase EPL variations

Date	Stakeholder Attendees	Summary of Items Discussed
	David Bone – ER David Ledlin – RMS Jim Steen – RMS Brain Tolhurst – EPA Chris Clark – RMS	Design Update Construction Update Monitoring Data Flocculent Trials Ecological Update Out of Hours Works Planned Excess mulch plan EWMS Update
ERG #15 21/07/15	Rowena Mitchell – RMS Chris Wicks – RMS Sean Hardiman – RMS Craig Dunk – EPA David Bone – ER David Ledlin – RMS Jim Steen – RMS Brain Tolhurst – EPA Chris Clark – RMS James Sakker - DPI	Approvals update Blasting limit increase North Facing Ramps Heritage Sites – Design Refinements EPL variations Construction update Upper Warrell Creek Crossing update Monitoring Data Ecological Update Flocculent Trial Out of Hours Works Planned EWMS Update Community Update Incidents

The next ERG is scheduled for 18th August just outside this reporting period.

6. Incident Reporting

6.1 Incident Reports Raised

Six (6) incident reports have been raised during the reporting period. A brief outline of the incidents are included below:

Table 3 – Incidents that occurred between February – August 2015

Incident No.	Date	Location	Brief Description	Corrective/Preventative Action	Status
002	13/03/2015	Williamson Creek	Hydraulic Hose burst on 7t excavator during basin construction works at Williamson Creek (B47.14) resulting in a hydraulic oil spill of 10l contained at basin location	Spill was retained at the basin construction location and cleaned immediately using spill kit material.	Closed Out
003	16/03/2015	Cockburn's Lane (Chainage 42850 – 43110)	Death of four (4) Yellow Bellied Gliders (*Petaurus australis*) individuals during clearing operations of an unsafe tree within clearing boundaries. EPA notified of the incident 16/3/2015	Update the EWMS for Clearing and Grubbing to include a clear and concise procedure for dealing with unsafe trees, particularly habitat trees. Update the Pre-clearing and Ground Disturbance Permit to discuss unsafe trees. Toolbox clearing contractors and supervisors on updated EMWS and permit.	Closed Out
004	01/04/2015	Chainage 49960	Exposure of a Septic Absorption Trench during basin excavation (B46.96) and discharge from trench following rainfall. EPA notified of the incident 13/4/2015.	Remediation Action Plan to be developed with demolition subcontractor for absorption trench. Early notification of	Closed Out

Incident No.	Date	Location	Brief Description	Corrective/Preventative Action	Status
				potential find from field staff.	
005	14/04/2015	Chainage 52500-52800	Tractor slashing of the WC2NH road corridor between chainages 52500-52800 resulting in temporary impacts on freshwater wetland vegetation. Approximately 0.2590 ha of Freshwater Wetland was slashed outside of the projects approved clearing limit within federally listed EPBC Habitat. EPA notified of the incident 16/04/2015.	Site inspection to determine if no go zone fencing is adequate. Toolbox construction team on incident and key learnings, prepare and implement monitoring and rehabilitation report prepared by the project ecologist for the disturbed area. Corrective Action Report prior to works recommencing at this location.	Closed Out
006	21/05/2015	Chainage 52100	During Power Pole relocation works approximately 20l of sediment laden water entered Nambucca River	Engineers to re-toolbox EWMS to all relevant workers. Corrective Action Report to be raised by engineers	Closed Out
007	6/07/2015	Chainage 47560	Minor hydraulic oil leak from drill rig resulting in spill of 1L	The spill was promptly cleaned and the item of plant repaired to avoid future incidents.	Closed Out

Incident No.	Date	Location	Brief Description	Corrective/Preventative Action	Status
008	13/07/2015	Chainage 49350	Minor hydraulic oil leak of 400ml from crane	The spill was promptly cleaned and the item of plant repaired to avoid future incidents	Closed Out
009	15/07/2015	Chainage 54550	Directional boring at OC5 for a Telstra line fractured causing sediment to percolate to the surface outside of the project boundary (0.1m^3). EPA notified of the incident 16/07/2015.	ERSED controls installed, sucker truck utilised to remove excess material and assessment of depth of the bore line in and around gullies with head pressure of the adjacent catchment to be considered.	Closed Out
010	27/07/2015	Chainage 52600	Whilst lowering of the vibratory casing attachment for the piling works a fitting failed resulting in a 4 litre oil spill	The spill was promptly cleaned and the item of plant repaired and additional controls added to the procedure to avoid future incidents	Closed Out
011	30/07/2015	Chainage 46000	Early clearing of the southern end of the Northern Albert Drive and Pacific Highway Intersection outside of the project boundary. 206m^2 of roadside vegetation (predominantly camphor laurel, lantana and slash pines with some native regrowth she oaks and acacia species). EPA notified of the	Prevent an unapproved design being uploaded into a GPS System. Toolbox for earthworks team on EWMS, Permit to Disturb requirements of	Closed Out

Incident No.	Date	Location	Brief Description	Corrective/Preventative Action	Status
			incident 31/07/2015	the project. Audit undertaken and monthly checklist developed for site flagging. Corrective Action Report prior to works recommencing at this location.	
012	3/08/2015	Chainage 55500	While loading material a hydraulic hose ruptured resulting in hydraulic oil spill of 0.5 litres	The spill was promptly cleaned and the item of plant repaired to avoid future incidents	Closed Out
013	4/08/2015	Chainage 56300	Hydraulic hose failure on culvert delivery truck resulting in a small trail of oil over 150m (5 – 10 litres)	The spill was promptly cleaned and the item of plant repaired to avoid future incidents	Closed Out
014	5/08/2015	Chainage 42600	The clamp on the hydraulic hose broke while the vacuum truck was in use resulting in hydraulic oil spill of 4 litres	The spill was promptly cleaned and the item of plant repaired to avoid future incidents	Closed Out

7. Outcome of monitoring undertaken

Preconstruction and background monitoring / ground truthing have been undertaken to set bench mark data for reference once construction commences. This has consisted of surface water and groundwater quality monitoring, ground truthing of vegetation communities and threatened flora locations. Protective fencing has been erected in sensitive environmental areas to protect the location from pre-construction and construction activities.

7.1 Surface Water and Groundwater Monitoring

RMS are currently developing water parameter trigger levels based on the preconstruction water monitoring data for the construction phase as per MCoA Condition B17. Water quality monitoring data will be compared with the trigger levels provided in the interpretive report. Currently, AFJV are comparing construction phase data with relevant ANZECC criteria and average levels of analytes collected during the pre-construction phase. The final interpretive report is not expected to be finalised during the month of August 2015 and a draft as of March 2015 is included in Appendix C

The surface water monitoring has generally shown elevated nitrogen levels, lower dissolved oxygen levels and occasionally elevated suspended solids in the creeks and rivers adjacent to the Project. The upper reaches of the creeks contain low pH levels.

The groundwater quality has slightly elevated Copper, Nickel, Zinc and Cadmium in the vicinity of the Project. Slightly elevated levels of Cyanide has been encountered in 4BH064, 4BH065 and 4BH066 which are located near the redundant landfill adjacent to Old Coast Road in North Macksville. The water quality data reports are available in Appendix B.

7.2 Noise and Vibration Monitoring

Noise monitoring has been undertaken in accordance with the approved Noise and Vibration Management Plan (NVMP). Monthly noise monitoring is conducted at eight monitoring locations alongside the Project alignment. Noise levels have been monitored above Noise Management Levels on 6 occasions during the reporting period. The noise levels have been within the predicted levels for the Project. Mitigation measures as outlined in the NVMP have been implemented and noise complaints have been addressed. Potential high impact noise work has also been monitored and no readings have returned levels above 75 dB(A).

Vibration and air-blast overpressure monitoring has been undertaken for five production blasts that have been undertaken on the Project. The vibration readings at the nearest sensitive receiver was 5.461mm/s undertaken on 30/6, 5.773mm/s undertaken on 7/7, 6.17mm/s undertaken on 27/7, 11.64mm/s undertaken on 3/8 and 6.079mm/s undertaken on 6/8. Two blast undertaken on 30/6 and 7/7 resulted in an exceedance of the 5mm/s vibration limit stipulated within Condition C10. At the current rate of production, the Project is predicting that approximately 300 blasts will be required. Therefore, although the vibration recorded is above 5mm/s, it is predicted that overall, this will represent less than 5% of the total number of blasts. AFJV obtained approval from DPE on 17/7/2015 to increase the blast criteria in compliance with Condition C11 of the Planning Approval from 5mm/s to 25mm/s. This will reduce the number of blast required to approximately 50 and will minimise the risk of the Project exceeding the limits provided in Condition C10. It is noted that the air-blast overpressure monitored was below the criteria provided in Condition C9 for all five production blasts undertaken during the reporting period. The Blast Management Program has been updated to incorporate this change in August 2015 with the Noise and Vibration Management Plan to be updated in September 2015.

Vibration monitoring in relation to complaint was also undertaken in Letitia Close on the 07/07/15. The complaint was in regard to the use of a vibratory roller. The monitoring equipment was set at the lowest trigger level for vibration and was not triggered during the monitoring session.

7.3 Air Quality Monitoring

Air Quality Monitoring has been undertaken in accordance with the approved Air Quality Management Plan (AQMP). Ten dust deposition gauges have been placed at strategic locations alongside the Project alignment. Four dust related complaints were raised during the reporting period, the nature of these complaints and associated

responses are detailed in Section 8, below. Throughout the report period, elevated dust levels were monitored at 3 locations:

10/04/15 – 12/05/15 DDG1

An elevated level of 6.9mg/m2/month was recorded near the vicinity of Rosewood Road. An investigation into the exceedance was undertaken. The gauge had been located along the Project Boundary adjacent to a haul road and was not reflective of the dust levels experienced by the sensitive receiver located over 100m away. The dust gauge has now been relocated to the vicinity of the sensitive receivers dwelling.

Works on site in the vicinity of DDG1 during April/May included clearing and mulching, haul road establishment, basin excavation and stockpile and bund installation. Mitigation measures currently in place to reduce the level of dust include water trucks, stabilisation of exposed soil areas with grass cover and minimisation of exposed areas until earthworks commence. The Project is currently investigating and procuring chemical dust suppressants for use on the haul roads. The Project is also in the process of seeding of basin batters, stockpiles and bunds to reduce exposed surfaces.

12/05/15 – 05/06/15 DDG3 and DDG5

An elevated level of 8.1mg/m2/month was recorded at dust deposition gauge DDG3, which is located at a sensitive receiver near the vicinity of Scotts Head Road and the Pacific Motorway. It was noted numerous times during the monitoring period that sediment was being tracked by trucks exiting the Quarry on to the Motorway resulting in dust generation by passing traffic. This is considered to be a contributing factor to the elevated dust level at this location. Project works in the vicinity of DDG3 include the excavation of clean water drains, increasing the embankment adjacent to Scotts Head Road, and installation of bunds and spillways. The clean water drains and embankment have since been secured with geofabric, reducing the amount of exposed ground and potential dust generation.

An elevated level of 11.8mg/m2/month was recorded at DDG5 which is located at a sensitive receiver adjacent to Gumma Road. Works that occurred in this area include the delivery and spreading of rock in preparation of wick drain installation which commenced on 9 June. No topsoil stripping has or will occur in this area as it is located within the flood plain. It is noted that the DDG5 is in close proximity to the Council compound which contains stockpiles and unsealed roads. Mitigation measures being utilised on site to reduce the level of dust include water trucks, stabilisation of exposed soil areas with fabric, jute and/or grass cover. The Project is currently investigating and procuring chemical dust suppressants for use on the haul roads. The Project is also in the process of seeding of basin batters, stockpiles and bunds to reduce exposed surfaces.

06/06/2015 – 10/07/2015 DDG3

An elevated level of 6.6mg/m2/month was recorded at dust deposition gauge DDG3 for total insoluable matter (TIM), which is located at a sensitive receiver near the vicinity of Scotts Head Road and the Pacific Highway. It was noted numerous times during the monitoring period that sediment was being tracked by trucks exiting the Quarry on to the Motorway resulting in dust generation by passing traffic. This is considered to be a contributing factor to the elevated dust level at this location. Project works in the vicinity of DDG3 include the excavation of clean water drains, increasing the

embankment adjacent to Scotts Head Road, installation of bunds and spillways and drainage works. The clean water drains and embankment have since been secured with geofabric, reducing the amount of exposed ground and potential dust generation.

During the reporting period blasting, crushing and screening also commenced at Cut 11 which contains arsenic rock. Dust generation from this location has been managed as per the Air Quality Management Plan and the Arsenic Rock Management Strategy. Dust Gauges to measure arsenic were established at two locations adjacent to Cut 11 and in line with the Air Quality Management Plan. Monthly analysis of the dust gauges at these locations has not detected arsenic within measurable levels (i.e. <0.001mg/kg) during this reporting period.

7.4 Ecological Monitoring

Ecological Monitoring has been undertaking during the reporting period in accordance with the approved Ecological Monitoring Program, developed with consultation with the EPA as per MCoA Condition B10. With the following monitoring undertaken between February – August 2015:

- Giant Barred Frog (Year 1 Autumn Population monitoring);
- Microbat Monitoring including roost box, flyway monitoring, habitat monitoring and behaviour and persistence monitoring (Year 1 Autumn).
- In situ threatened flora and translocated flora (Year 1 Autumn).
- Freshwater Wetland Rehabilitation Monitoring (Nursery Rd)
- Monthly Weed Monitoring Reports

No impacts to habitat have been noted.

7.5 Heritage Monitoring

Monitoring of heritage significant areas is undertaken during the weekly Environmental Inspections. No-go zone fencing is rectified where necessary.

8. Complaints received regarding Environmental Issues

Table 4 – Issues and Queries Raised During Consultation Period

Issue / Query Raised	Response	Commitment
NOISE. 19/03/2015 - resident reported being woken up by noise at approximately 6AM by person / vehicle moving around in the dark at house removal site on Old Coast Road.	19/03/2015 - The complaint was investigated and it was found not to be project workers but in all probability a community member/s looking to salvage items from the demolition works. The information was passed on to the project's security team. The resident was thanked and advised accordingly. The resident also was advised that project pre-starts in this area would be held at 122 Old	n/a

Issue / Query Raised	Response	Commitment
	Coast Road, further away from residents. The complainant acknowledged the advice.	
AIR QUALITY. 30/05/2015 - Complaint regarding the safety of asbestos removal on a demolition site opposite his house	The site was inspected by the safety team for the project. The inspection found that, as per all house removal on the project, the work was being undertaken by workers accredited in house removal work, with WorkCover licences for removing asbestos in accordance with Australian and international standards and the requirements of NSW WorkCover (2011) How to safely remove Asbestos Code of Practice. The activities carried out as part of the removal work included fencing exclusion zones for safety reasons, erosion and sediment controls in place before work started, removal of the house and other structures from the property and clean-up of the property. The complainant was advised of the results of the inspection and that the house removal process has been audited by representatives from Roads and Maritime, the project verifier and WorkCover and that no concerns had been raised.	n/a
DUST. 15/04/2015 - resident complained about the amount of dust that was generated by the increased traffic on Old Coast Road.	15/04/2015 - Resident was advised that Pacifico could install a dust gauge at the property to monitor dust. A meeting with the environment manager to explain dust mitigation measures was offered and held on-site with the resident on 17 April 2015 and agreement reached to install a dust gauge the following week.	Dust gauge was installed on 19 May 2015. Monitoring is ongoing.
NOISE & VISUAL. 12/05/2015 - enquiry and/or complaint about visual & noise mitigation measures for Letitia Close + dust monitoring and management	13/05/2015 - RMS and Pacifico are working together to resolve the different pending items raised by Mr Scrivner in his email. (see Consultation manager for detailed response)	Planting of bamboo on the RMS property boundary adjacent to the resident's property. Noise monitoring and vibration monitoring have been conducted and levels were found to be below NVMP criteria.
VIBRATIONS.	03/06/2015 - several attempts	Investigating the possibility of

Issue / Query Raised	Response	Commitment
02/06/2015 - resident of Bellevue Drive said the compactor being used on Nursery Road was making his whole house (across Newee Creek) vibrate.	were made to contact the resident on the number he provided us with in order to understand whether the vibrations were still occurring. The resident was finally met and was advised to contact us if vibrations were still being felt. Vibration Monitoring was conducted at the residence during pile driving activities with no exceedance recorded.	installing a vibration monitor on the resident's property to try establish a link to the vibrations.
DUST. 05/06/2015 - resident of Old Coast Road complained about the amount of dust that has been generated by the construction of the batch plant and increased traffic on Old Coast Road which had contaminated his tank water.	17/06/2015 - After a failed attempt to meet on 5 June, the resident was met by a community relations officer and the senior engineer to understand the concerns he had re: dust and overall construction impacts. The resident was advised that first flush systems would be installed on properties most affected by the dust within 500m of the batch plant. The community team will be in touch to arrange a meeting once the project plumber is available for tank inspection.	Installation of a first flush system on water tank as soon as possible by Pacifico.
SOIL. 13/7/15 - resident of Old Coast Road complained directly to Bob Higgins and the EPA directly re: concerns there was asbestos in the fill used on an temporary access track outside of his property. The resident also stated that the fill material looked to contain: aluminium window trimmings, electrical cables, roof tiles, cooper pipes, plastics, fibre glass and fibro.	The concern was sent to the community team via RMS and the enviro team. The matter was treated as urgent and acted upon immediately. On Wednesday, 15 July 2015, Pacifico took the following actions: (the area containing the fill was cordoned off with safety fencing pending the following actions) • Testing was carried out on site this morning at 3 locations (Sheathers, Stockpile @ 54 Old Coast Road, Stockpile @ OC6) • Jim Steen of RMS was present for the testing of the main stockpile at 54 Old Coast Road • Both AADEMEX and Regional Geotechnical Solutions (the 3rd party soil testers engaged to do the testing) confirmed there was no visual evidence of the presence of asbestos at any	PACIFICO to remove material on temporary access track and replace. Material to be re-sorted.

Issue / Query Raised	Response	Commitment
	location • We have requested the fastest possible turnaround of the testing (48 hours) and are expecting results this Friday, 17 July 2015.	
HERITAGE. 17/7/15 - Warrell Creek resident called RMS to express his concern about a stand of trees near his property that he was advised was deemed a significant heritage/Indigenous site.	17/7/15 - Community obtained a copy of the 'Sensitive Area Plans' from Enviro to identify whether what Mr Whalen had heard was accurate. The map showed an area near Mr Whalen's property that is an archaeological PAD site. I will communicate this to Mr Whalen at another face to face meeting next week.	Meet with Mr Whalen to clearly explain what this means and what - if any - impacts it will have on the area surrounding his property. Community team met with Mr Whalen to explain how PAD sites are determined. It was also articulated to him that the PAD site was outside of his property boundary.
DUST. 31/07/15 - Mrs McIlwain called to complain about the dust on River Street and Gumma Road.	31/07/15 - Community team advised Mrs McIlwain the dust had been cleared and that we appreciated her bringing it to our attention.	Community team confirmed that water trucks will be frequently used to manage dust in the area nearby his property and the project boundary moving forward. The Community Team also advised Mr McIlwain to notify them whenever he became concerned about the dust levels on his property..
DUST. 5/08/15 - Mr McLeod called RMS to express his concerns with: - Excessive dust pollution (today being the worst) - Extensive damage to Bald Hill Road with truck use	The Community team spoke with Mr McLeod about the matter and explained the permissible dust levels for the project and identified the location of the dust gauge in his area. The team also notified Mr McLeod about the upcoming road repairs that will be undertaken on Bald Hill Road.	Mr McLeod requested a member from the Enviro team to visit his property to witness the dust deposit that has accumulated on his property. The Community Team arranged for Mr McLeod's house to be pressure cleaned periodically throughout the blasting phase at Cut 11. The Community Also requested that he call whenever he is concerned about the dust levels on his property.

9. Licencing, Permits and Consistency Assessments

The Warrell Creek to Urunga Pacific Highway Upgrade project (WC2U) was referred to the Commonwealth Minister of the Department of Environment in accordance with the requirements of the EPBC Act. The Project received Minister's Approval on the 11 December 2014 (2013/7101) subject to a number of conditions.

The Project has applied for, and has been granted an Environment Protection Licence, number 20533. This was approved on the 16/12/14.

The Project has also obtained permits to access surface water from Upper and Lower Warrell Creek. Groundwater bore licences have also been obtained. The details of the permits are provided in Table 8.

Table 8 – Groundwater and Surface Water Permits

Type of Permit	Permit Number	Location
Groundwater Bore Licence – Industrial Use (Road Construction and dust suppression)	30BL207257	Lot 5 DP258324
Groundwater Bore Licence – Industrial Use (Road Construction and dust suppression)	30BL207262	Lot 16 DP1154963
Groundwater Bore Licence – Industrial Use (Road Construction and dust suppression)	30BL207263	Lot 5 DP1067522
Surface Water Taking for industrial (road construction and dust suppression)	30PE002487	Warrell Creek Lot 66 DP 1175835
Surface Water Taking for industrial (road construction and dust suppression)	30PE002486	Warrell Creek Lot 108 DP 1181639
Surface Water Taking for industrial (road construction and dust suppression)	30PE002485	Warrell Creek Lot 48 DP 1172072
Surface Water Taking for industrial (road construction and dust suppression)	30PE002488	Warrell Creek Lot 6 DP 1014123

A number of Consistency Reviews have been prepared and approved by RMS and the ER for works that are consistent with the Planning Approval. The level of proposed activity has been categories as a Minor or Major

Consistency Review and a Site File Note for works concerning minor adjustments to the concept design presented to the Minister that has resulted during the detailed design stages such as extension of culvert rip rap changes to fauna fences extents, ancillary site facilities and temporary stockpiles site. A brief summary is provided below:

Table 9 – Summary of Consistency Assessments and Site File Notes

Consistency Assessment	Date Approved	Reference to Approval Condition
Major Consistency Review – Main Compound (124 Albert Drive, Warrell Creek)	12/11/2014	MCoA C27
Major Consistency Review – Northern Site Compound and Precast Yard (122 Old Coast Road, Macksville)	25/02/2015	MCoA C27
Major Consistency Review – Design Refinements Upper Warrell Creek (underpass of the North Coast Rail Line rather than an overpass which had been presented in the concept design)	5/06/2015	MCoA A6, B30
Major Consistency Review – Utility Adjustments Outside of Approved Project Boundary	5/6/2015	MCoA A6, B30
Major Consistency Review – Mandatory Option 2 (temporary access on the southern side of Macksville adjacent to the flying fox camp to allow access whilst the flying fox camp was roosting along the Project alignment)	30/01/2015	MCoA A6, B30
Minor Consistency Review – Clearing Limits (within boundary to allow for changes to the clearing limit from concept design to detailed design)	13/02/2015	MCoA A6, B30
Minor Consistency Review – Traffic Adjustments (outside of approved project boundary)	04/05/2015	MCoA A6, B30
Minor Consistency Review – Clearing for Structures (minor adjustments to clearing limits around temporary working platforms)	14/05/2015	MCoA A6, B30
Minor Consistency Review – Temporary Stockpiles within Project Boundary	19/02/2015	MCoA A6, B30
Minor Consistency Review – Temporary Stockpiling outside of project boundary but within RMS residual land	29/4/2015	MCoA A6, B30

Consistency Assessment	Date Approved	Reference to Approval Condition
Minor Consistency Review – Access Track into the Approved Northern Compound	14/4/2015	MCoA A6, B30
Minor Consistency Review – Temporary Stockpile and Laydown Area on Private Property at Chainage 58000	09/07/2015	MCoA A6, B30
Minor Consistency Review – Lower Warrell Creek Abutment B (change to clearing limits outside approved project boundary)	31/07/2015	MCoA A6, B30
File Note – Installation of Sediment Basins outside of EA Clearing Limits	04/02/2015	MCoA B30
File Note - Access to Lower Warrell Creek North Side	13/02/2015	MCoA B30
File Note - Access track into Northern Compound	13/02/2015	MCoA B30
File Note - Utilities Relocation	30/03/2015	MCoA B30
File Note - Installation of Sediment Basin outside of the approved project boundary (B48.87)	13/04/2015	MCoA B30
File Note - Power Infrastructure Relocation Works (Quarry Access)	03/06/2015	MCoA B30
File Note - Utilities Relocations (Telstra)	03/06/2015	MCoA B30
File Note - State Forest Trail Augmentation	18/06/2015	MCoA B30
File Note - Nursery Road Minor Works	18/06/2015	MCoA B30
File Note - Use of Reclaimed Water	20/08/2015	MCoA B30
File Note - Sheather Access Track	29/07/2015	MCoA B30
File Note - Albert Drive Connection (South)	06/08/2015	MCoA B30
File Note - Gumma Road (Nambucca River Bridge Abutment A)	03/09/2015	MCoA B30

- Minor changes to the CEMP required during this reporting period have been discussed with the Project ER and liaison with the ER is currently ongoing. The changes include:

- Revision of Blast Management Plan to incorporate approved changes to vibration limits as per MCoA C11

Refinements of the approved CEMP anticipated occurring during the next reporting period being to the:

- Grey Headed Flying Fox Management Plan to refine the low noise works activity definition of the plan to permit haulage through the buffer zone between 16 September and 1 May. MCoA B31 b)
- Updating the Green Thighed Frog potential habitat areas within the State Forest; and MCoA B31 b)
- Reviewing the Groundwater Monitoring Program/ Groundwater Management Strategy and Surface Water Monitoring Program to capture the baseline results and any changes to the sampling regime during construction; McoA B17.

- No Modification to the approvals was required during this reporting period. Any refinements to the approved plans or approval conditions will be advised to the DG upon request and summarised in the next six month compliance report.

10. Summary of Compliance Status

As detailed in Appendix A (Compliance Tracking Table) there are a total of 70 conditions contained with the Ministers Conditions of Approval (MCoA) (File Number S02/01634). Of the 70 conditions contained within the MCoA 13 are closed (no further action required), 57 are open (pending information). In terms of compliance 67 are found to be compliant with an additional 3 conditions found to be not applicable to this section Stage 2 of the WC2U Project (Warrell Creek to Nambucca Heads).

The works undertaken in implementing the approved project have been in full compliance with the approved plans and management systems in place pursuant with the Ministers Approval Conditions.

APPENDIX A – Compliance Tracking Table

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	Part A – Administrative conditions					
	Terms of approval					
A1	The Proponent shall carry out the project generally in accordance with the: *a* Major Projects Application 07_0112; *b* Upgrading the Pacific Highway – Warrell Creek to Urunga – Environmental Assessment (Volumes 1 and 2), prepared by Sinclair Knight Merz Pty Ltd for the NSW Roads and Traffic Authority and dated January 2010; *c* Upgrading the Pacific Highway – Warrell Creek to Urunga – Environmental Assessment Submissions and Preferred Project Report, prepared by the NSW Roads and Traffic Authority and dated November 2010; *d* Letter from the NSW Roads and Traffic Authority titled Pacific Highway Upgrade – Warrell Creek to Urunga Upgrade Addendum to Submissions Report – Fauna Crossing Structures, dated 25 May 2011 and accompanying attachments and Letter from the NSW Roads and Traffic Authority titled Pacific Highway Upgrade – Warrell Creek to Urunga Upgrade Addendum to Submissions Report – Fauna Crossing Structures, dated 1 June 2011 and accompanying attachment;	Stage 1 and 2	Preconstruction, Construction and Operation	Contractor	Ongoing	Status of Compliance with this condition is detailed in this document. The Scope of Work and Technical Criteria (SWTC) requires compliance with these documents. The Project has undertaken a number of Consistency Reviews that compare the proposed detailed design to the concept design. Details of the Consistency Reviews are provided in Section 9 above.

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	e The Roads and Maritime Services modification request and letter dated 23 October 2012 (07_0112 MOD1); *f* The Roads and Maritime Services modification request and letter dated 23 November 2012 to correct a minor error in condition C28 (07_0112 MOD2); *g* The Roads and Maritime Services modification request and letter dated 18 January 2013 to correct minor errors in condition A1 (07_0112 MOD3); *h* The Roads and Maritime Services modification request and letter dated 13 February 2013 to amend the definition of construction in Schedule 1 (07_0112 MOD4); *i* The Roads and Maritime Services modification request and letter dated 9 September 2013 to amend the heritage management requirements in conditions C16 and C27 (07_0112 MOD5); *j* The Roads and Maritime Services modification request and letter dated 12 February 2014 to delete reference to 'vegetation group remnant forest' conservation area in condition C15 (07_0112 MOD6); and *k* The conditions of this approval.					
A2	In the event of an inconsistency between: *a* the conditions of this approval and any document listed from condition A1(a) to A1(j) inclusive, the conditions of this approval shall prevail to the extent	Stage 1 and 2	Preconstruction, Construction and Operation	Contractor	Ongoing	Status of Compliance with this condition is detailed in this document. No issues were prevalent during

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	of the inconsistency; and; *b* any document listed from condition A1(a) to A1(j) inclusive, and any other document listed from condition A1(a) and A1(j) inclusive, the most recent document shall prevail to the extent of the inconsistency.					the reporting period.
A3	The Proponent shall comply with any reasonable requirement(s) of the Director General arising from the Department's assessment of: *a* any reports, plans or correspondence that are submitted in accordance with this approval; and *b* the implementation of any actions or measures contained within these reports, plans or correspondence.	Stage 1 and 2	Preconstruction, Construction and Operation	Roads and Maritime/Contractor	Ongoing	Status of Compliance with this condition is detailed in this document. No actions have been raised by the Director General in the reporting period.
A4	Subject to confidentiality, the Proponent shall make all documents required under this approval available for public inspection on request.	Stage 1 and 2	Preconstruction, Construction and Operation	Roads and Maritime	Ongoing	AFJV have made all documents required under the Planning Approval subject to public inspection on the Project Website and in the Community Display Centre located at 124 Albert Drive, Warrell Creek. The documents currently available are: Approved CEMP and Sub-plans

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						Nest Box Management Plan Threatened Flora Management Plan Ecological Monitoring Program Water Quality Monitoring Program Community Involvement Plan (Community Communications Strategy). Project Approval documents and consistency reviews are available on the RMS Project Website: http://www.rms.nsw.gov.au/projects/northern-nsw/warrell-creek-to-nambucca-heads/project-documents.html in accordance with the Project SWTC.
	Staging					
A5	The Proponent may elect to construct and/ or operate the project in stages. Where staging of the project is proposed, these conditions of approval are only required to be complied with at the relevant time and to the extent that	Stage 1 and 2	Preconstruction	Roads and Maritime	Closed	Initial staging report issued to DPE on 12 March 2013 in regards Stage 1 and Stage 2, stage 2 being Warrell Creek to

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	they are relevant to the specific stages of works. Where staging is proposed, the Proponent shall submit a Staging Report to the Director General prior to the commencement of the first proposed stage, which provide details of: *a* how the project would be staged including general details of work activities associated with each stage and the general timing of when each stage would commence; and *b* details of the relevant conditions of approval, which would apply to each stage and how these shall be complied with across and between the stages of the project. The Proponent shall ensure that an updated Staging Report (or advice that no changes to staging are proposed) is submitted to the Director General prior to the commencement of each stage, identifying any changes to proposed staging or applicable conditions. The Proponent shall ensure that relevant plans, sub-plans and other management documents required by the conditions of this approval relevant to each stage (as identified in the Staging Report) are submitted to the Director General. no later than one month prior to the commencement of the relevant stages, unless an alternative timeframe is agreed to by the Director General.					Urunga. Updated staging report for Stage 2 (2.1 and 2.2) issued to DPE on 19 February 2014. DPE responded 23 May 2014 noting the staging report satisfactorily addressed requirements of MCoA A5.

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	Statutory requirements					
A6	The Proponent shall ensure that all necessary licences, permits and approvals required for the development of the project are obtained and maintained as required throughout the life of the project. No condition of this approval removes the obligation for the Proponent to obtain, renew or comply with such necessary licences, permits or approvals except as provided under Section 75U of the Act. This shall include relevant certification requirements in accordance with section 109R of the Act.	Stage 1 and 2	Preconstruction, Construction and Operations	Contractor Roads and Maritime is responsible for condition A6, to the extent only that Roads and Maritime is to obtain the existing and future Approvals identified in Schedule 41	Ongoing	AFJV (Acciona Infrastructure) have obtained an Environmental Protection Licence (EPL 20533) pursuant to Section 48 of the Protection of the Environment Operations Act 1997 (POEO Act). A copy of the licence is kept on the premises and is publically available on the Acciona Infrastructure website: http://www.acciona.com.au/business-divisions/infrastructure/projects-in-australia/pacific-highway-upgrade-warrell-creek--nambucca-heads/environmental-protection-licence and RMS Website http://www.rms.nsw.gov.au/projects/northern-nsw/warrell-creek-to-nambucca-heads/project-documents.html A list of the groundwater bore and surface water permits is

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						available in Section 9 above.
	Limits of approval					
A7	This approval shall lapse ten years after the date on which it is granted, unless construction works the subject of this project approval are physically commenced on or before that date.	Stage 1 and 2	Preconstruction	Roads and Maritime	Complies	Construction for WC2NH commenced in February 2015 before the 2021-year approval timeframe.
A8	The Proponent shall implement the bridge crossing option (Option 2 in the Environmental Assessment) to traverse the floodplain from the northern bank of the Nambucca River to the existing Pacific Highway.	Stage 2	Preconstruction and Construction	Roads and Maritime	Project at detailed design phase	Option 2 has been adopted and has been incorporated into the detailed design of the Nambucca River bridge structure.
A9	The proposed trailer exchange facility located in the vicinity of the Nambucca Heads rest area does not form part of this approval.	Stage 2	NA	Roads and Maritime	NA	Not included in the AFJV scope.
	Part B – Prior to Construction					
	Biodiversity – Mitigation measures – Fauna and Waterway Crossings					
B1	The Proponent shall implement the fauna and waterway crossings identified in the documents listed under condition A1(d) at the locations and in accordance with the minimum design dimensions identified in the documents listed under condition A1(d), unless otherwise agreed to by the Director General.	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	Fauna crossing structures and waterway crossings have been designed to address the minimum requirements in the letter "*Pacific Highway Upgrade – Warrell Creek to Urunga Upgrade Addendum to*

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						Submission Report – Fauna Crossing Structures (25/5/11)" referred to in condition A1(d) and progressed by AFJV in detailed design with ecological input. Consultation has been undertaken with Roads and Maritime, EPA, Fisheries and DoE. Structures have been refined in consultation with EPA and Fisheries, several locations of the combined and dedicated structures have been moved as a result of this consultation and are reflected in the SWTC App 4 The following fauna connectivity culverts have moved to more suitable locations (please note the new location is shown in the new Project chainage): - 13285 (55050) now located at 55120 - 14555 (56320) now located at 56410 - 16630 (58395) now located at

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						58510 and 58560 (as 1 x 3m x 3m combined culvert and 1 x 3m x 3m Dedicated culvert) - 17205 (58970) now located at 59090 - 17720 (59485) now located at 59550 - 18515 (60280) now located at 60600 NB and 60610 SB - 19350 (61115) now located at 61115 There are specific fauna crossings/ fish passage requirements outlined within SWTC App 4.5 and Table 4.1 as well as SWTC App 5. Initial fauna and fish design discussions were held with EPA and DPI on 18 June 2014 (ERG 2). Onsite investigation / walkthrough with EPA, Roads and Maritime, DoE and experienced ecologists to determine fauna crossing

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						arrangements was undertaken in Aug 2014. The outcomes of this meeting were used to update the SWTC Table 4.1 to ensure the most appropriate underpass locations were identified and carried through into the design. The Design is currently progressing based on the updated Table 4.1 of the SWTC. The detailed design has been issued to the EPA and Fisheries for comment and has also been discussed at ERG meetings. A Fauna Connectivity report was provided to the Director General in accordance with Condition B3 prior to the commencement of construction of the fauna connectivity structures, this was sent to DPE by RMS on 17/7/2015.
B2	As part of detailed design, the Proponent shall further investigate design refinements to improve fauna connectivity between Chainages 19150 and 19820.	Stage 1 and 2	Preconstruction	Roads and Maritime	Ongoing	This is part of detailed design in Stages 1 and 2 as overlaps both stages. AFJV have proposed to increase

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						the area from 2500 m2 to 7500 m2 in ERG 2 (June 2014) and have agency comments in regards to this. The SWTC requires the addition of three crossing points (two glider poles and 1 rope ladder) to be installed within the widened median area. A pre-clearing assessment of the potential glider trees has been undertaken by Geolink on behalf of AFJV. The potential glider trees have been identified to be retained. The location of glider crossing points and the rope bridge will be confirmed once vegetation clearing is complete and the location and health of suitable glider crossing trees will be assessed by a suitably qualified ecologist in accordance with the SWTC requirements. Three additional dedicated fauna connectivity culverts have been installed

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
B3	All investigations into fauna crossings design undertaken during detailed design (with respect to the crossing design and locations identified in conditions B1 and B2 shall be undertaken with the input of a qualified and experienced ecologist and in consultation with EPA and DPI (Fisheries) through a process of workshops and on-site ground verification. Where detailed design refinements are made, the Proponent shall prior to the commencement of construction of the relevant crossings, submit a report to the Director General identifying the final design of the fauna crossings and demonstrating consistency with the locations and minimum design parameters identified in the documents listed under condition A1(d) or where there have been changes, how the new location and/ or design would result in a better biodiversity outcome. The report shall also clearly identify how the fauna crossings structures will work in conjunction with complementary fauna exclusion fencing measures to be implemented for the project. The report must be accompanied by evidence of consultation with EPA and DPI (Fisheries) in relation to the suitability of any changes to the crossings design.	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	Initial fauna and fish design discussions with EPA and Fisheries were held on 18 June 2014 (ERG 2). Onsite investigation / walkthrough with EPA, Roads and Maritime, DoE and experienced ecologists to determine fauna crossing arrangements was undertaken in Aug 2014. The outcomes of this meeting were used to update the SWTC Table 4.1 to ensure the most appropriate underpass locations were identified and carried through into the design. The Design is currently progressing based on the updated Table 4.1 of the SWTC. The detailed design will be issued to the EPA and Fisheries for comment and will also be discussed during upcoming ERG's. A Fauna Connectivity report will be provided to the Director General in accordance with

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						Condition B3 prior to the commencement of construction of the fauna connectivity structures, to be undertaken in mid 2015. There are SWTC App 4.5 / SWTC App 5 requirements in regards to fauna fencing. The fauna fencing locations have been revised based on advice from Roads and Maritime to address comments raised by DoE. The location of revised fauna fencing was discussed at the ERG meeting in September 2014. The revised fauna fencing locations were agreed in principle with the EPA during the ERG to progress the detailed design. The detailed design of the fauna fencing has been provided to the EPA for review throughout the detail design phase. The location of fauna fencing was also discussed during the ERG in August 2014. B3 Report was submitted to DPE

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						in accordance with the approval conditions on 17th July 2015. To date no response from DPE has been received and an update will be provided once received.
B4	The Proponent shall in consultation with EPA, ensure that the design of the project as far as feasible and reasonable, incorporates provision for glider crossings (such as widened medians and maintenance or enhancement of habitat within the medians and corresponding carriageway boundaries) where the alignment crosses areas of recognised glider habitat.	Stage 1 and 2	Preconstruction	Contractor	Ongoing	The Project has incorporated a "widened median" design between chainage 59700 – 61100 through an area identified as glider habitat. This has been incorporated into the detailed design. The SWTC requires the addition of three crossing points (two glider poles and 1 rope ladder) to be installed within the widened median area. A pre-clearing assessment of the potential glider trees has been undertaken by Geolink on behalf of AFJV. The potential glider trees have been identified to be retained. The location of glider crossing points and the rope bridge will be confirmed once the widened median design has been

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						determined. The location and health of suitable glider crossing trees will be assessed by a suitably qualified ecologist in accordance with the SWTC requirements.
B5	The Proponent shall in consultation with DPI (Fisheries) ensure that all waterway crossings are designed and constructed consistent with the principles of the *Guidelines for Controlled Activities Watercourse Crossings (DWE), Fish Note: Policy and Guidelines for Fish Friendly Waterway Crossings (NSW Fisheries) and Policy and Guidelines for Design and Construction of Bridges, Roads, Causeways, Culverts and Similar Structures (NSI4/ Fisheries).* As far as feasible and reasonable, culvert replacements as part of the project shall incorporate naturalised bases and where multiple cell culverts are proposed for creek crossings, shall include at least one cell for fish passage, with an invert or bed level that mimics creek flows.	Stage 1 and 2	Preconstruction	Contractor	Ongoing	Early design consultation with DPI (Fisheries) have been undertaken the culverts requiring fish passage as agreed with Fisheries have been noted in Table 4.1 of the SWTC. All waterway crossings are being designed in accordance with the SWTC which incorporates the requirements of this condition (B5) and DPI Fisheries requirements. DPI Fisheries have been provided with the opportunity to comment on the detailed design of culverts that provide fish passage. The fish passage culverts have been designed to incorporate naturalised bases. Where multiple cell culvert have been proposed, an invert that mimics

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						bed level and natural creek flows has been incorporated. DPI Fisheries have requested that the low flow channel be conveyed through the scour rock at the culvert inlet and outlet. This has been incorporated into the detailed design. Fisheries and the EPA have also raised the use of alternative "soft treatments" in creeklines and channel realignments as an alternative to the use of scour rock. This is currently being investigated and where feasible, is being incorporated into the detailed design. Issues are being raised at the monthly ERG meetings and closed out through site visits and/or ongoing communication.
	Biodiversity – Mitigation measures – Nest Boxes					
B6	Prior to the commencement of any construction work that would result in the disturbance of any native vegetation (or as otherwise agreed to by the Director General), the	Stage 1 and 2	Preconstruction and Construction	Roads and Maritime	Ongoing - Plan implementat	The Nest Box plan prepared by Roads and Maritime, was approved by DPE on

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	Proponent shall in consultation with EPA prepare and submit for the approval of the Director General a Nest Box Plan to provide replacement hollows for displaced fauna consistent with the requirements of SoC F7. The plan shall detail the number and type of nest boxes to be installed which must be justified based on the number and type of hollows removed (based on detailed pre-construction surveys), the density of hollows in the area to be cleared and adjacent forest, and the availability of adjacent food resources. The plan shall also provide details of maintenance protocols for the nest boxes installed including responsibilities, timing and duration.				ion	20/03/2013. In accordance with the Nest Box Management Plan, 92 nest boxes have been installed along the Project alignment between the 26 November and the 11 December 2014 prior to the commencement of vegetation clearing on the Project. The nest boxes were installed by the Project Ecologist David Havilah (Geolink) in appropriate locations mapped within the approved Plan. The remaining 60 nest boxes will be installed after the completion of clearing in accordance with the approved Plan.
	Biodiversity – Mitigation measures – *Amorphospermum whitei* and *Marsdenia longiloba*					
B7	Prior to the commencement of any construction work that would result in the disturbance of *Amorphospermum whitei* and *Marsdenia longiloba*, the Proponent shall in consultation with the EPA develop a management plan for these species which:	Stage 1 and 2	Preconstruction and Construction	Roads and Maritime	Final for Planning & Environment Approval	Potential impacts to *Amorphospermum whitei* and *Marsdenia longiloba* are incorporated into the Threatened Flora Management

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	a investigates the potential for the translocation of plants impacted by the project; b if investigation under Condition B7(a) reveals translocation of impacted plants is feasible, includes details of a translocation plan for the plants consistent with the Australian Network for Plant Conservation 2"d Ed 2OO4: Guidelines for the Translocation of Threatened Species in Australia, including details of ongoing maintenance such as responsibilities, timing and duration; c identifies a process for incorporating appropriate compensatory habitat for the impacted plants in the Biodiversity Offset Strategy referred to in Condition B8 should the information obtained during the investigation referred to in Condition B7(a) find that translocation is not feasible or where the monitoring undertaken as part of condition B10 finds that translocation measures have not been successful (as identified through performance criteria); and d includes detail of mitigation measures to be implemented during construction to avoid and minimise impacts to areas identified to contain these species, including excluding construction plant, equipment, materials and unauthorised personnel. Unless otherwise agreed to by the Director General, the Plan shall be submitted for the Director General's approval					Plan (Ver 4) (TFMP) which was provided to DPE and approved on the 16/12/14. The TFMP recommended translocating *A.whitei* and *M.longiloba* individuals that are either directly or indirectly impacted by the Project works. AFJV has engaged Ecos Environmental (Andrew Benwell) to complete the translocation of these species in accordance with the translocation plan detailed in the approved Plan. The translocation has been mostly complete with the exception of 2-3 individuals located in the vicinity of chainage 61250 and will require access to be constructed prior to translocation. Translocated individuals and individuals noted to be "protected In situ" in the Plan have been protected on site using "No-Go Zone fencing" and

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	prior to the commencement of any construction work that would result in the disturbance of *Amorphospermum whitei* and *Marsdenia longiloba*.					signage.
	Biodiversity offsets					
B8	The Proponent shall, in consultation with the EPA and DPI (Fisheries), develop a Biodiversity Offset Strategy that identifies available options for offsetting the biodiversity impacts of the project in perpetuity, with consideration to EPA's *Principles for the Use of Biodiversity Offsets in NSW* (EPA Website, June 2011). Unless otherwise agreed to by EPA, offsets shall be provided on a like-for-like basis and at a minimum ratio of 4:1 'for areas of high conservation value (including EEC and threatened species or their habitat identified in the Environmental Assessment to be impacted by the project and poorly conserved vegetation communities identified as being more than 75% cleared in the catchment management area) and 2:1 for the remainder of native vegetation areas (including mangroves, seagrass, salt marsh and riparian vegetation). The Strategy shall include, but not necessarily be limited to: a confirmation of the vegetation communities/ habitat (in hectares) to be offset and the size of offsets required (in hectares); b details of the available offset measures that have been identified to compensate for the biodiversity impacts	Stage 1 and 2	Preconstruction and Construction	Roads and Maritime	Approved	Comments were received from DPE on the draft Biodiversity Offset strategy for Warrell Creek to Urunga (12 September 2013, April 2014).. The Final Biodiversity Offset Strategy was submitted to DPE on 23/10/14 for approval. Included EPA comments addressed from 9 April & 15 Oct. WC2U Biodiversity Offset Strategy has been approved by Planning

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	of the project, such as (but not necessarily limited to): suitable compensatory land options and/ or contributions towards biodiversity programs for high conservation value areas on nearby lands (including research programs). Where the use of State Forest land managed in accordance with an Integrated Forestry Operations Approval is proposed to offset biodiversity impacts, the Proponent shall clearly demonstrate how this would provide the biodiversity outcomes required under this condition including any additional offset requirements to cover residual impacts; c the decision-making framework that would be used to select the final suite of offset measures to achieve the aims and objectives of the Strategy, including the ranking of offset measures; d a process for addressing and incorporating offset measures for changes to impact (where these changes are generally consistent with the biodiversity impacts identified for the project in the documents listed under condition A1, including: *i.* changes to footprint due to design changes; *ii.* changes to predicted impacts resulting from changes to mitigation measures; *iii.* identification of additional species/habitat through pre-clearance surveys; and					

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	iv. additional impacts associated with ancillary facilities; and e options for the securing of biodiversity options in perpetuity. The Biodiversity Offset Strategy shall be submitted to, and approved by, the Director General prior to the commencement of any construction work that would result in the disturbance of any native vegetation, unless otherwise agreed by the Director General. Unless otherwise agreed, the Biodiversity Offset Strategy shall be submitted to the Director General for approval no later than 6 weeks prior to the commencement of any construction that would result in the disturbance of any native vegetation. The Proponent may elect to satisfy the requirements of this condition by implementing a suitable offset package which addresses impacts from multiple Pacific Highway Upgrade projects (including the Warrell Creek to Urunga Project) within the North Coast Bio-region. Any such agreement made with the EPA must be made in consultation with the Department and approved by the Director General within a timeframe agreed to by the Director General.					
B9	Within two years of the approval of the Biodiversity Offset Strategy, unless otherwise agreed by the Director General, the Proponent shall prepare and submit a **Biodiversity**	Stage 1 and 2	Construction and Operations	Roads and Maritime	Ongoing	RMS is currently progressing investigations/assessments of suitable offset properties that

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	Offset Package which identifies the final suite of offset measures to be implemented for the project for the approval of the Director General. The Package shall be developed in consultation with EPA, and shall provide details of: a the final suite of the biodiversity offset measures selected for the project demonstrating how it achieves the requirements and aims of the Biodiversity Offset Strategy (including specified offset ratios); b the final selected means of securing the biodiversity values of the offset package in perpetuity including ongoing management, monitoring and maintenance requirements; and c timing and responsibilities for the implementation of the provisions of the package over time. The requirements of the Package shall be implemented by the responsible parties according to the timeframes set out in the Package.					will likely form part of the Biodiversity Offset Package
	Ecological Monitoring					
B10	Prior to the commencement of any construction work that would result in the disturbance of any native vegetation, the Proponent shall develop an Ecological Monitoring Program to monitor the effectiveness of the mitigation measures implemented as part of the project. The program shall be developed in consultation with EPA and prepared	Stage 1 and 2	Preconstruction and Construction	Roads and Maritime	Final submitted for Planning Approval	Ecological Monitoring Program for WC2NH has been finalised and submitted to DPE for approval on the 25/11/14 All EPA comments have been addressed as part of the final

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	by a suitably qualified ecologist and shall include but not necessarily be limited to: a an adaptive monitoring program to assess the effectiveness of the mitigation measures identified in condition B1 to B6, B7(b), B7(d), B21(c) and B31(b)and allow amendment to the measures if necessary. The monitoring program shall nominate appropriate and justified monitoring periods and performance targets against which effectiveness will be measured. The monitoring shall include operational road kill surveys to assess the effectiveness of fauna crossing and exclusion fencing implemented as part of the project; b mechanism for developing additional monitoring protocols to assess the effectiveness of any additional mitigation measures implemented to address additional impacts in the case of design amendments or unexpected threatened species finds during construction (where these additional impacts are generally consistent with the biodiversity impacts identified for the project in the documents listed under condition A1; c monitoring shall be undertaken during construction (for construction-related impacts) and from opening of the project to traffic (for operation/ongoing impacts) until such time as the effectiveness of mitigation measures can be demonstrated to have been achieved over a minimum of five successive monitoring periods					Ecological Monitoring Program The Ecological Monitoring Program was approved by DPE on the 16/12/14. The Ecological Monitoring Program has been implemented on site with the following monitoring undertaken between February – August 2015: - Giant Barred Frog (Year 1 Autumn Population monitoring); - Microbat Monitoring including roost box, flyway monitoring, habitat monitoring and behaviour and persistence monitoring (Year 1 Autumn). - In situ threatened flora and translocated flora (Year 1 Autumn). No impacts to habitat have been noted.

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	(i.e. 5 years) after opening of the project to traffic, unless otherwise agreed to by the Director General. The monitoring period may be reduced with the agreement of the Director General in consultation with EPA, depending on the outcomes of the monitoring; d provision for the assessment of the data to identify changes to habitat usage and if this can be attributed to the project; e details of contingency measures that would be implemented in the event of changes to habitat usage patterns directly attributable to the construction or operation of the project; and f provision for annual reporting of monitoring results to the Director General and EPA, or as otherwise agreed by those agencies. The Program shall be submitted for the Director General's approval prior to the commencement of any construction work that would result in the disturbance of any native vegetation. Unless otherwise agreed, the Program shall be submitted to the Director General for approval no later than 6 weeks prior to the commencement of any construction that would result in the disturbance of any native vegetation.					
	Hydrology and flooding					

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
B11	The Proponent shall undertake further flood modelling during detailed design to ensure that the Nambucca River crossing is designed and constructed with the aim of not exceeding the afflux and other flood characteristics predicted in the Environmental Assessment and Response to Submissions.	Stage 2	Preconstruction	Roads and Maritime	Compliant	AFJV have undertaken flood modelling based on the detailed design. The flood modelling identified that there would be a minor increase in water levels directly upstream of the Nambucca Bridge structure due to the presence of the bridge piers but this effect does not result in any change to the flow distributions through the channel or across the floodplain. Predicted water level increases are within the afflux limit of 15mm specified in the Project EA. This also meets the afflux requirements included in Section 4.28 of Appendix 4 of the SWTC. The Flood Modelling and Hydrology Report for the Nambucca River and Floodplain was provided to DPE on the 23/04/15 for review. This document aims to demonstrate compliance with Conditions B11, B12, B13, B14 and B15. The ER endorsed the report and confirmed compliance with

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						Conditions B11-B15 on the 23/04/15. RMS provided AFJV with written approval to commence works within the floodplain on the 24/04/15. Comments from DPE were received on the 22/05/15 which were addressed by AFJV and a revised report submitted to DPE on 24th July 2015. DPE approval obtained on 10/8/2015.
B12	Prior to the commencement of construction within areas affected by an increased afflux from the project, the Proponent shall in consultation with the EPA, DPI (Fisheries) and Nambucca Shire Council undertake flood modelling of the Nambucca River and floodplain based on the detailed design of the project, and submit the flood modelling report for the approval of the Director General. The flood modelling shall: a assess the impacts of the project on flood behaviour (in relation to Nambucca River and floodplain; b confirm the location and size of structures for the crossing the Nambucca River and floodplain which meet the performance criteria outlined in Condition B11; c examine flood behaviours through the full range of	Stage 2	Preconstruction	Roads and Maritime	Compliant	AFJV have undertaken flood modelling based on the detailed design. The flood modelling identified that there would be a minor increase in water levels directly upstream of the Nambucca Bridge structure due to the presence of the bridge piers but this effect does not result in any change to the flow distributions through the channel or across the floodplain. Predicted water level increases are within the afflux limit of 15mm specified in the Project EA. This also meets the afflux

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	flood events including but not limited to the 10%, 5%, 2%, 1% 0.5% and 0.2% Annual Exceedence Probability; d examine any changes in the flood behaviour under climate change conditions; and e examine any changes to existing conditions for flood timing, afflux, inundation, flood velocity, scour and siltation flood warning and flood evacuation strategies including stock.					requirements included in Section 4.28 of Appendix 4 of the SWTC. The Flood Modelling and Hydrology Report for the Nambucca River and Floodplain was provided to DPE on the 23/04/15 for review. This document aims to demonstrate compliance with Conditions B11, B12, B13, B14 and B15. The ER endorsed the report and confirmed compliance with Conditions B11-B15 on the 23/04/15. RMS provided AFJV with written approval to commence works within the floodplain on the 24/04/15. Comments from DPE were received on the 22/05/15 , addressed by AFJV and formal response sent on 31/7/2015 (Version 8 of B12 Report). DPE approved on 10/08/2015.
B13	Prior to commencement of construction within areas affected by an increased afflux from the Nambucca River and Kalang River crossings, the Proponent shall submit a hydrological mitigation report for the approval of the	Stage 1 and 2	Preconstruction and Construction	Contractor	Compliant	AFJV have undertaken flood modelling based on the detailed design. The flood modelling identified that there would be a

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	Director General detailing all feasible and reasonable flood mitigation measures for all properties where flood impacts are predicted to increase as a result of the project. The Report shall be based on detailed floor level survey and associated assessment of potentially flood affected properties. The report shall: a identify all properties likely to have an increased flooding impact and detail the predicted increased flooding impact; b identify mitigation measures to be implemented where increased flooding is predicted to adversely affect access, property or infrastructure; c identify measures to be implemented to minimise scour and dissipate energy at locations where flood velocities are predicted to increase as a result of the project and cause localised soil erosion and/or pasture damage; d be developed in consultation with EPA, the relevant Council, NSW State Emergency Service and directly-affected property owners; and e identify operational and maintenance responsibilities for items (a) to (e) inclusive. The Proponent shall not commence construction of the project on or within areas likely to alter flood conditions until such time as works identified in the hydrological mitigation report have been completed, unless otherwise					minor increase in water levels directly upstream of the Nambucca Bridge structure due to the presence of the bridge piers but this effect does not result in any change to the flow distributions through the channel or across the floodplain. Predicted water level increases are within the afflux limit of 15mm specified in the Project EA. This also meets the afflux requirements included in Section 4.28 of Appendix 4 of the SWTC. No properties were identified as impacted by increased afflux from the Project works. Therefore, no mitigation measures are proposed for properties. The Flood Modelling and Hydrology Report for the Nambucca River and Floodplain was provided to DPE on the 23/04/15 for review. This document aims to demonstrate compliance with Conditions B11,

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	agreed by the Director General.					B12, B13, B14 and B15. The ER endorsed the report and confirmed compliance with Conditions B11-B15 on the 23/04/15. RMS provided AFJV with written approval to commence works within the floodplain on the 24/04/15. Comments from DPE were received on the 22/05/15 which were addressed by AFJV and a revised report submitted to DPE on 24th July 2015. DPE approval obtained on 10/8/2015.
B14	Based on the mitigation measures identified in condition B13, the Proponent shall prepare a final schedule of feasible and reasonable flood mitigation measures proposed at each directly affected property in consultation with the property owner. The schedule shall be provided to the relevant property owner(s) no later than two months prior to the implementation of the mitigation works, unless otherwise agreed by the Director General. A copy of each schedule of flood mitigation measures shall be provided to the relevant Council and the Department prior to the implementation / construction of the mitigation measures on the property.	Stage 1 and 2	Preconstruction and Construction	Contractor	Compliant	No properties were identified as impacted by increased afflux from the Project works. Therefore, no mitigation measures are proposed for properties. The Flood Modelling and Hydrology Report for the Nambucca River and Floodplain was provided to DPE on the 23/04/15 for review. This document aims to demonstrate compliance with Conditions B11,

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						B12, B13, B14 and B15. The ER endorsed the report and confirmed compliance with Conditions B11-B15 on the 23/04/15. RMS provided AFJV with written approval to commence works within the floodplain on the 24/04/15. Comments from DPE were received on the 22/05/15 which were addressed by AFJV and a revised report submitted to DPE on 24th July 2015. DPE approval obtained on 10/8/2015.
B15	In the event that the Proponent and the relevant property owner cannot agree on feasible and reasonable flood mitigation measures to be applied to a property within one month of the first consultation on the measures (as required under Condition B14), the Proponent shall employ a suitably qualified and experienced independent hydrological engineer (who has been approved by the Director General for the purposes of this condition prior to the commencement of construction) to advise and assist affected property owners in negotiating feasible and reasonable mitigation measures.	Stage 1 and 2	Preconstruction and Construction	Roads and Maritime	Approved	WMA has been appointed as the qualified and experienced hydrological Engineer. Nominated person to be provided to DPE by end-July 2014. RMS to liaise with affected landholder in consultation with Contractor . No un-resolvable negotiation have transpired to date requiring independed verifier involvement. Discussions with the resident adjacent to

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						project along Browns Crossing Rd in regards to increased afflux is ongoing. RMS will provide details of the nominated independent hydrological engineer once appointed as to date the need for mediation due to flood impacts has not been required as no issues have been raised to date that have not been resolved within 1 month of the concern being raised. WMA still are the project hydrological consultant used for independent review/ comment of designs eg. the B12/B13 report as approved.
B16	The Proponent shall provide assistance to the relevant Council's and/ or NSW State Emergency Service to prepare any new or necessary update(s) to the relevant plans and documents in relation to flooding, to reflect changes in flooding levels, flows and characteristics as a result of the project, as identified in the documents listed under condition A1 and the modelling undertaken as part of condition B12.	Stage 1 and 2	Preconstruction and Construction	Roads and Maritime/Contractor .	Ongoing	AFJV will provide Roads and Maritime with all the information, details and data as a consequence of the Project Works that Roads and Maritime requires in providing assistance. RMS have provided assistance to NSC and SES for WC2U Stage 2 component as per B16. B12 Report submitted to NSC and

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						SES as part of the consultative component for preparation finalisation of the report. RMS has provided assistance to council to prepare any new or necessary updated to relevant plans and documents in relation to flooding to reflect changes in flooding levels, flows and characteristics as a result of the project. Email sent from RMS to DPE detailing consultation on 31/7/2015
	Water Quality					
B17	The Proponent shall prepare and implement a Water Quality Monitoring Program to monitor the impacts of the project on SEPP 14 wetlands, surface water quality and groundwater resources during construction and operation. The Program shall be developed in consultation with EPA and DPI and shall include but not necessarily be limited to: a identification of surface water and groundwater quality monitoring locations which are representative of the potential extent of impacts from the project;	Stage 1 and 2	Preconstruction, Construction and Operation	Roads and Maritime to prepare plan and implement the pre and post construction requirements.	Ongoing	a) Shown in the Geolink approved WQMP plan as approved by DPE 23 May 2014. The attached (*to the CTR*) interpretative report recommends refinement of bore locations based on prior

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	b identification of works and activities during construction and operation of the project, including emergencies and spill events, that have the potential to impact on surface water quality and risks to oyster farming in the Nambucca, Bellinger, and Kalang rivers; c representative background monitoring of surface water and groundwater quality parameters for a minimum of six (6) months (considering seasonality) prior to the commencement of construction to establish baseline water conditions; d development and presentation of indicators or standards against which any changes to surface water quality will be assessed, having regard to the Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2000 (ANZECC, 2000); e contingency and ameliorative measures in the event that adverse impacts to surface water quality are identified; f a minimum monitoring period of three years following the completion of construction or until any disturbed waterways/ groundwater resources are certified by an independent expert as being rehabilitated to an acceptable condition. The monitoring shall also confirm the establishment of operational water control measures (such as sedimentation basis and vegetation swales); and			Contractor responsible to implement requirements during construction.		monitoring results and the detailed design of cuts and fills. The final plan indicating refinements be issued to DPE as an addendums to the 3 May 2014 approved WQMP once completed end of September 2015. b) Outlined in the approved WQMP as approved by DPE 23 May 2014 c) The attached interpretative report and data sets are pursuant with the approval letter dated 25 May 2014 and forms the additional 4 months baseline monitoring data to that approved for January and February 2014 per DPEs approval letter dated 23.5.14. It is noted that the monitoring data

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	g reporting of the monitoring results to the Department, EPA and DPI. The Program shall be submitted to the Director General for approval six (6) months prior to the commencement of construction of the project, or as otherwise agreed by the Director General. A copy of the Program shall be submitted to EPA and DPI prior to its implementation.					sets were collected 6 months prior to start of construction on 9 February 2015 and those up to Dec 2014 were issued to DPE via the required preconstruction compliance report (PCCR) as approved in December 2014 d) Outlined in the approved WQMP as DPE approved 23 May 2014 e) Outlined in the approved WQMP plan DPE approved 23 May 2014 f) Not yet entered completion phase anticipated such end of 2017 g) Results are presented to EPA and DPI monthly via the ERG and 6 monthly via the CTR to the DPE

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						Submission of WQMP to DG DPE 6 months prior to commencement of construction; The WQMP was submitted on 22 April 2014 and approved on 23 May 2014. Construction commenced 9 February 2015 thus DPE DG approval sought and obtained 6 months prior to construction commencing. Any addendum or refinement to the approved plan recommend in the interpretative report and the soon to be completed addendum report will have the Departments Environmental Representatives endorsement before issuing the plan to the DPE DG for information. Pacifico are currently undertaking the Surface Water and Groundwater monitoring programs during the construction phase of the Project.
	Heritage impacts					

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
B18	As part of detailed design, the Proponent shall ensure that the final design of the alignment is aligned to minimise project impacts on the Cow Creek Aboriginal Reserve (21-6-0228) as far as practicable and detail these design considerations in the Heritage Management Plan required to be prepared under condition B31(e).	Stage 1	Preconstruction	Contractor	NA	Not applicable to the WC2NH Project.

B19	Prior to the commencement of pre-construction and construction activities affecting the following Aboriginal sites the Proponent shall undertake the relevant salvage mitigation measures outlined in the Environmental Assessment for these sites:
	a Butchers Creek 1 (previously PAD 1);
	b Stoney Creek 1 (previously PAD 24);
	c Bald Hill Road 1 (previously PAD 7);
	d Old Coast Road Stone Artefact (previously PAD 2);
	e Boggy Creek Artefact 1 & resource gathering area (previously PAD 16);
	f Cow Creek Artefact Scatter (previously PAD 8);
	g Kalang Spur Artefact Scatter (previously PAD 12);
	h Kalang Flat 1 9(a) (previously PAD 9);
	i Kalang Flat 2 9(b) (previously PAD 9);
	j South Arm Road 1;
	k Tyson's Flat Ridge Artefact Scatter (previously PAD 29);
		Stage 1 and 2	Preconstruction	Roads and Maritime	Compliant	Archaeological Salvage works have been undertaken by Roads and Maritime. Sites located within the Project Boundary have been cleared to commence construction in October 2014.
						RMS submitted salvage report to LALC's in August 2012. RMS submitted the results of the salvage report to DPE (formally DOPI) on 1/8/2012.

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	l Tyson's Flat I (previously PAD 28); and m Tyson's Flat 2 (previously PAD 27). The results of the salvage program shall be provided to the Department, OEH and Aboriginal stakeholders within six months of the completion of the salvage program, unless otherwise agreed by the Director General.					
B20	Prior to the commencement of pre-construction and construction activities affecting the possible house site identified as Site 12 in Table 19-3 of the Environmental Assessment, the Proponent shall prepare an archaeological assessment in consultation with the OEH (Heritage Branch), and generally in accordance with the Departments Archaeological Assessments Guideline (1996), and submit the assessment for the Director General's approval. Any further archaeological work recommended on this site by the assessment shall be undertaken by the Proponent in consultation with the OEH (Heritage Branch) and reported to the Director General within six months of the completion of the work, unless otherwise agreed by the Director General.	Stage 1	Preconstruction	Roads and Maritime	NA	Not applicable to the WC2NH Project.
	Urban design and landscaping					
B21	Prior to the commencement of construction (unless otherwise agreed to by the Director General), the Proponent shall prepare and implement an Urban Design	Stage 1 and 2	Preconstruction and Construction	Contractor	Compliant	A letter seeking approval for a staged Plan and to submit the UDLP after the commencement

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	and Landscape Plan for the project. The plan shall be prepared in consultation with the relevant Council and shall present an integrated urban design for the project. The plan shall include, but not necessarily be limited to: a a principle goal of achieving the urban design objectives outlined in Section 13.4 of Volume 1 of the Environmental Assessment; b sections and perspective sketches; c locations along the project corridor directly or indirectly impacted by the construction of the project (e.g. temporary ancillary facilities, access tracks, watercourse crossings, etc.) which are proposed to be actively rehabilitated, regenerated and/ or revegetated to promote biodiversity outcomes and visual integration. Details of species to be replanted/ revegetated shall be provided,, including their appropriateness to the area and considering existing vegetation and habitat for threatened species; d location of existing vegetation and proposed landscaping, including use of indigenous and endemic species where possible. The plan shall assess the visual screening effects of existing vegetation and the proposed landscaping at residences and businesses, which have been identified as likely to experience high visual impact as a result of the project. Where high residual impacts are identified to remain, the plan					of construction was provided to DPE on the 25/11/14. A letter confirming staged submission of the Project UDLP was provided by DPE on the 04/12/14. The letter confirmed the staged submission of the UDLP: - Stage 1 to be submitted in May 2015 - Stage 2 (following Community Consultation) to be submitted in November 2015. Stage 1 of the UDLP was provided to DPE on the 01/06/15. Stage 1 of the UDLP included the Project design at the 15% detailed design phase. It included a methodology for bushland regeneration, riparian zone rehabilitation, preferred seed mixes and concepts for the design of built elements. Comments have been received

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	shall in consultation with affected receptors, identify opportunities for providing at-receptor landscaping to further screen views of the project. Where agreed to with the landowner, these measures shall be implemented during the construction of the project; e strategies for progressive landscaping incorporating other environmental controls such as erosion and sedimentation controls, drainage, noise mitigation; f location and design treatments for built elements including retaining walls, cuttings, bridges, and noise barriers; g location and design treatments for any associated footpaths and cyclist elements, and other features such as seating, lighting (in accordance with AS 4282-1997 Control of the Obtrusive Effect of Outdoor Lighting), fencing, and signs; h evidence of consultation with the community on the proposed urban design and landscape measures prior to its finalisation; and i monitoring and maintenance procedures for the built elements and landscaping (including weed control) including responsibilities, timing and duration and contingencies where landscaping measures fail. The Plan shall be submitted for the approval of the Director General prior to commencement of construction of the project. The Plan may be submitted in stages to suit					from DPE on the 26/06/15. The comments are currently being addressed by AFJV as part of the 85% UDLP Review Process. Stage 2 is currently progressing and will be available for Community Consultation in approximately September 2015. AFJV will be providing Stage 2 of the UDLP to DPE in November 2015.

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	the staged construction program of the project.					
	Traffic and access					
B22	The Proponent shall ensure that the project is designed in consultation with DPI (Forests NSW) to ensure that access of a standard that is at least equivalent to that currently existing and which meets relevant road safety standards is maintained within the State forests to enable continued forestry operations, fire management and recreation during construction and operation.	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	Roads and Maritime has reached agreement with Forestry Corporation in regards to this requirement, with proposal from Forestry Corporation on the work it will undertake in State Forests. The detailed design has incorporated permanent adjustments to forestry tracks to maintain access at an equivalent standard to that which currently exists. AFJV in consultation with Forests NSW is maintaining safe access to forestry tracks during temporary traffic staging/construction. AFJV to comply with requirements for merchantable timber and construction property adjustments as per

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						agreements made by RMS.
B23	The Proponent shall ensure that the project is designed to incorporate appropriate signage for townships along the project alignment, in consultation with the relevant Council and businesses policy, and provide information on the range of services available within the towns including advice that the route through the towns may be taken as an alternative route to the bypass.	Stage 1 and 2	Preconstruction and Construction	Contractor	Compliant	AFJV scope of work will include signage and placement in consultation and approval of Roads and Maritime. The requirement of this condition will be included as part of the permanent signage and linemarking design package.
	Property and landuse					
B24	The Proponent shall ensure that the project is designed to minimise land take impacts to surrounding properties (including agricultural properties) as far as feasible and reasonable, in consultation with the affected landowners. Where the viability of existing agricultural operations are identified to be highly affected by the land requirements of the project, the Proponent shall as part of detailed design employ a suitably qualified and experienced independent agricultural specialist (that is approved by the Director General for the purpose of this condition), to assist in the following (where agreed to by the relevant landowner): a identifying alternative farming opportunities for the relevant properties including purchase of other residual land to enable existing/new agricultural activities to continue; and/or	Stage 1 and 2	Preconstruction	Roads and Maritime	Ongoing	Property purchases have all been completed except for one additional acquisition at southern end to facilitate safety improvements for Warrell Creek interchange. Roads and Maritime is currently liaising with property owner in regard to boundary refinements to minimise area of acquisition. No land use has been identified as being affected by the project to such an extent jeopardising continued agricultural use – the design has allowed for parcels

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	b negotiating appropriate compensation and/or arrangements for the purchase of the property under the Land Acquisition (Just Terms Compensation) Act 1991.					separated under the one title for grazing to have stock under passes provided. No agricultural specialist has been required to be employed to determine offsets. Landholders have been consulted with in regards to acquisitions and offset works (gates fences access tracks revegetation) as required. Acquisitions complete and works for property adjustments fencing accesses permanent and temporary are ongoing
	Compliance tracking					
B25	The Proponent shall develop and implement a Compliance Tracking Program to track compliance with the requirements of this approval. The Program shall be submitted to the Director General for approval prior to the commencement of construction and relate to both the construction and operational phases of the project, and include, but not necessarily be limited to: a provisions for the notification of the Director General of the commencement of works prior to the commencement of construction and prior to the	Stage 1 and 2	Preconstruction, Construction and Operation	Roads and Maritime to prepare and submit the Program for approval and implement the program during the operational phase.	Compliant	Roads and Maritime submitted Compliance Tracking Program to DPE on 7 March 2013, which was subsequently approved by DPE of 20 March 2013. The Compliance Tracking Program was updated for the WC2NH Project and submitted to DPE and approved on the 16/12/14 in a letter from DPE.

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	commencement of operation of the project (including prior to each stage, where works are being staged); b provisions for periodic review of project compliance with the requirements of this approval, Statement of Commitments and documents listed under condition A1; c provisions for periodic reporting of compliance status against the requirements of this approval, Statement of Commitments and documents listed under condition A1 to the Director General including at least one month prior to the commencement of construction and operation of the project and at other intervals during the construction and operation, as identified in the Program; d a program for independent environmental auditing in accordance with ISO 19011:2003 - Guidelines for Quality and/ or Environmental Management Systems Auditing; e mechanisms for reporting and recording incidents and actions taken in response to those incidents; f provisions for reporting environmental incidents to the Director General during construction and operation; and g procedures for rectifying any non-compliance identified during environmental auditing, review of compliance or incident management.			Contractor to implement the Program during construction.		A standalone compliance tracking register is in place for WC2NH and will be reviewed and updated on an ongoing basis and summarised at progressive six (6) monthly intervals within Compliance Tracking Reports (first report will be issued one (1) month prior to commencement of construction and an update report issued every six (6) months during construction).

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	Community information and involvement – provision of electronic information					
B26	Prior to the commencement of construction, the Proponent shall establish and maintain a new website, or dedicated pages within an existing website, for the provision of electronic information associated with the project. The Proponent shall, subject to confidentiality, publish and maintain up-to-date information on the website or dedicated pages including, but not necessarily limited to: a information on the current implementation status of the project; b a copy of the documents referred to under condition A1 of this approval, and any documentation supporting modifications to this approval that may be granted from time to time; c a copy of this approval and any future modification to this approval; d a copy of each relevant environmental approval, licence or permit required and obtained in relation to the project; e a copy of each current strategy, plan, program or other document required under this approval; and f the outcomes of compliance tracking in accordance with the requirements of Condition B25.	Stage 1 and 2	Preconstruction and Construction	Roads and Maritime/Contractor	Ongoing	Roads and Maritime managed web site for WC2NH is in place. AFJV will provide Roads and Maritime with all relevant information, details and data (electronically in WCAG 2.0 web accessible format) in regards to construction in compliance with the requirements of this condition, to enable Roads and Maritime to maintain the website and ensure it is up to date.

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	Complaints and enquiries procedure					
B27	Prior to the commencement of construction, the Proponent shall ensure that the following are available for community complaints and enquiries during the construction period: a a telephone number on which complaints and enquiries about construction and operation activities may be registered; b a postal address to which written complaints and enquiries may be sent; and c an email address to which electronic complaints and enquiries may be transmitted. The telephone number, the postal address and the email address shall be published in a newspaper circulating in the local area prior to the commencement of construction and prior to the commencement of project operation. The above details shall also be provided on the website (or dedicated pages) required by this approval. The Proponent must prepare and implement a Construction Complaints Management System consistent with *AS 4269 Complaints Handling* prior to the commencement of construction activities and must maintain the System for the duration of construction activities. Information on all complaints received, including the	Stage 1 and 2	Preconstruction and Construction	Contractor	Compliant	AFJV has established the following methods and tools for community complaints and enquiries about construction activities: (a) a telephone number for registration of complaints and enquiries: 1800 074 588 (b) a postal address enabling written complaints and enquiries to be received: PO Box 254, Macksville NSW 2447 (c) an email address to which electronic complaints and enquiries may be transmitted: community@afjv.com.au ☐ An add advising of the commencement of Early Works was undertaken on the 31/11/2015 and was presented in the Belligen Shire Courier-Sun on 31/10/2015 A Construction Complaints

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	means by which they were addressed and whether resolution was reached and whether mediation was required or used, must be maintained by the Proponent and included in a complaints register. The information contained within the System must be made available to the Director General on request.					Management System consistent with AS 4269 Complaints Handling is in place (Consultation Manager). Information on the complaint raised and the resolution is maintained in this register.
	Community involvement					
B28	The Proponent shall prepare and implement a Community Communication Strategy for the project. This Strategy shall be designed to provide mechanisms to facilitate communication between the Proponent, the Contractor, the Environmental Representative, the relevant Council and the local community (broader and local stakeholders) on the construction and environmental management of the project. The Strategy shall include, but not necessarily be limited to: a identification of stakeholders to be consulted as part of the Strategy, including affected and adjoining landowners; b procedures and mechanisms for the regular distribution of information to stakeholders on the progress of the project and matters associated with environmental management; c procedures and mechanisms through which	Stage 1 and 2	Preconstruction and Construction	Contractor	Compliant	AFJV has an approved Community Involvement Plan (which covers the requirements of the Condition B28 Community Communication Strategy) to provide the mechanisms to facilitate communication between the Proponent, the Contractor, the Environmental Representative, the relevant Council and the local community (broader and local stakeholders) on the construction and environmental management of the project, covering all tasks and procedures in meeting the requirements of this condition. The Plan was approved by DPE

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	stakeholders can discuss or provide feedback to the Proponent and/or Environmental Representative in relation to the environmental management and delivery of the project; d procedures and mechanisms through which the Proponent can respond to any enquires or feedback from stakeholders in relation to the environmental management and delivery of the project; and e procedures and mechanisms that would be implemented to resolve any issues/disputes that may arise between parties on the matters relating to environmental management and the delivery of the project. This may include the use of an appropriately qualified and experienced independent mediator. The Proponent shall maintain and implement the Strategy throughout construction of the project. The Strategy shall be approved by the Director General prior to the commencement of construction, or as otherwise agreed by the Director General.					on the 16/12/14. AFJV will maintain and implement the Strategy throughout construction of the project.
	Environmental management – Environmental Representative					
B29	Prior to the commencement of construction of the project, or as otherwise agreed by the Director General, the Proponent shall nominate for the approval of the Director General a suitably qualified and experienced Environment	Stage 1 and 2	Preconstruction and Construction	Roads and Maritime/Contractor	Compliant	The Environmental Representative (ER) for WC2NH approved by DPE on 12 September 2013. The ER Deed

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	Representative(s) that is independent of the design (including preparation of documentation referred to condition A1), and construction personnel. The Proponent shall employ the Environmental Representative(s) for the duration of construction, or as otherwise agreed by the Director General. The Environment Representative(s) shall: a be the principal point of advice in relation to the environmental performance of the project; b be consulted in responding to the community concerning the environmental performance of the project; c monitor the implementation of all environmental management plans and monitoring programs required under this approval; d monitor the outcome of all environmental management plans and advise the Proponent upon the achievement of all project environmental outcomes; e have responsibility for considering and advising the Proponent on matters specified in the conditions of this approval, and all other licences and approvals related to the environmental performance and impacts of the project; f ensure that environmental auditing is undertaken in accordance with the requirements of condition B25 and the project Environmental Management					has been signed and the ER is now engaged on the project and undertaking the requirements of this condition.

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	System(s); g be given the authority to approve/ reject minor amendments to the Construction Environment Management Plan. What constitutes a "minor" amendment shall be clearly explained in the Construction Environment Management Plan required under condition B30; and h be given the authority and independence to require reasonable steps be taken to avoid or minimise unintended or adverse environmental impacts, and failing the effectiveness of such steps, to direct that relevant actions be ceased immediately should an adverse impact on the environment be likely to occur.					
	Construction Environmental Management Plan					
B30	Prior to the commencement of construction, the Proponent shall prepare and (following approval) implement a Construction Environmental Management Plan for the project. The Plan shall outline the environmental management practices and procedures that are to be followed during construction, and shall be prepared in consultation with the EPA, DPI and relevant Council and include, but not necessarily be limited to: a a description of all relevant activities to be undertaken during construction of the project or stages of construction, as relevant;	Stage 1 and 2	Preconstruction and Construction	Contractor	Compliant	DPE approved the WC2NH CEMP and Sub-plans on the 16/12/14, reported within the preconstruction compliance tracking report. CoA B30 Requirements (a) to (e) are covered within the approved CEMP, prescribing: • Scope and description of all relevant activities to be undertaken during

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	b statutory and other obligations that the Proponent is required to fulfil during construction including all approvals, consultations and agreements required from authorities and other stakeholders, and key legislation and policies. Evidence of consultation with relevant public authorities, shall be included identifying how issues raised by these public authorities have been addressed in the plan; c a description of the roles and responsibilities for all relevant employees involved in the construction of the project including relevant training and induction provisions for ensuring that all employees, including contractors and sub-contractors are aware of their environmental and compliance obligations under these conditions of approval; d identification of ancillary facility site locations, including an assessment against the location criteria outlined in condition C27; e an environmental risk analysis to identify the key environmental performance issues associated with the construction phase and details of how environmental performance would be monitored and managed to meet acceptable outcomes including what actions will be taken to address identified potential adverse environmental impacts (including any impacts arising from concurrent construction works with adjacent Pacific Highway Upgrade projects, as relevant). In					construction • Statutory and other obligations that AFJV is required to fulfil during construction • Consultation with relevant public authorities, • Roles and responsibilities for all relevant personnel involved in the construction • Training and awareness for all employees, including contractors and sub-contractors • identification of ancillary facility site locations including a detailed Ancillary Facilities Assessment (Also refer to Reference / Comment provided in condition C27) • Environmental risk analysis

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	particular, the following environmental performance issues shall be addressed in the Plan: *i.* measures to monitor and manage **dust emissions** including dust generated by haulage trucks, traffic on unsealed public roads and stockpile management; *ii.* measures to monitor and manage **waste** generated during construction including but not necessarily limited to: general procedures for waste classification, handling, reuse, and disposal; how contaminated materials would be handled and disposed; use of secondary waste material in construction wherever feasible and reasonable; procedures for dealing with green waste including timber and much from clearing activities; and measures for reducing demand on water resources (including the potential for reuse of treated water from sediment control basins); *iii.* measures to monitor and manage **spoil and fill** including details of how excavated material would be handled, stockpiled, reused and disposed and a stockpile management protocol detailing location criteria that would guide the placement of stockpiles and minimum management measures (including rehabilitation) that would be implemented to avoid/ minimise amenity impacts to surrounding residents and environmental risks					and register • Details on environmental performance monitoring The CEMP is also supplemented by construction Sub-plans to address specific environmental aspects of the projects in accordance with the requirements of this condition as follows: • Requirement (e)(i) is covered within the Air Quality Management Sub-plan (AQMP). • Requirement (e)(ii) is covered within the Waste & Energy Management Sub-plan (WEMP). • Requirement (e)(iii) is covered by the Spoil Management Protocol (Appendix I to the Soil and Water Management Sub-

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	(including to surrounding watercourses); *iv.* measures to monitor and manage **hazard and risks** including emergency management; and *v.* the issues identified in condition B31; f details of community involvement and complaints handling procedures during construction, consistent with the requirements of conditions B26 to B28; g details of compliance and incident management consistent with the requirements of condition B25; and h procedures for the periodic review and update of the Construction Environmental Management Plan as necessary (including where minor changes can be approved by the Environmental Representative). The Plan shall be submitted for the approval of the Director General no later than one month prior to the commencement of construction, or within such period otherwise agreed by the Director General. Construction works shall not commence until written approval has been received from the Director General.					plan (SWMP)). Requirement (e)(iv) is covered by the CEMP incorporating measures to monitor and manage hazard and risks including emergency management. Requirement (e)(v) is covered by the CEMP and associated Sub-plans (see B31 Reference / Comment response). Requirement (f) and (g) are covered within the Community Relations Management Plan (CRMP) and linked to the CEMP. Requirement (h) is covered by the CEMP on procedures for the periodic review and continual improvement of the CEMP.
B31	As part of the Construction Environment Management Plan for the project required under condition B30 of this approval, the Proponent shall prepare and implement the following sub plan(s): a a **Construction Traffic Management Plan**, prepared in	Stage 1 and 2	Preconstruction and Construction	Contractor	Compliant	DPE approved the WC2NH CEMP and associated Sub-plans on the 16/12/14. The CEMP Sub-plans include the: • Construction Traffic

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	accordance with the RTA's *QA Specification G10 - Control of Traffic and Traffic Control at Work Sites Manual* (2003) to manage disruptions to highway and local traffic movements as a result of construction traffic associated with the project. The Plan shall be developed in consultation with Council and shall include, but not necessarily be limited to: *i.* identification of construction traffic routes and quantification of construction traffic volumes (including heavy vehicle/spoil haulage) on these routes; *ii.* details of vehicle movements for construction sites and site compounds including parking, dedicated vehicle turning areas, and ingress and egress points; *iii.* potential impacts to traffic on the existing highway and associated local roads including intersection level of service and potential disruptions to arrangements for pedestrians, property access, public transport, parking and/ or cyclist; *iv.* details of temporary and interim traffic arrangements including intersections, property access and alternative traffic routes; *v.* traffic and other arrangements to minimise impacts including safe pedestrian access at all					Management Plan • Flora and Fauna Management Plan • Noise and Vibration Management Plan • Soil and Water Management Plan • Heritage Management Plan • Air Quality Management Plan • Waste and Energy Management Plan The approved Traffic and Safety Management Plan has been prepared in accordance with RMS Specification G10 and complies with the requirements of this condition.

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	times, and the provision of alternative facilities and locations for pedestrians and/or cyclist access; *vi.* a response procedure for dealing with traffic incidents; and *vii.* mechanism for the monitoring, review and amendment of this plan;					
	b a **Construction Flora and Fauna Management Plan** to detail how construction impacts on ecology will be minimised and managed. The Plan shall be developed in consultation with the EPA and shall include, but not necessarily be limited to: *i.* details of pre-construction surveys undertaken to verify the construction boundaries/ footprint of the project based on detailed design and to confirm the vegetation to be cleared as part of the project (including tree hollows, threatened flora and fauna species, mangroves and riparian vegetation). The surveys shall be undertaken by a qualified ecologist and include surveys of existing bridges and culverts for the presence of micro-bat roosting at least 6 months prior to the planned disturbance of such structures and targeted surveys for the Giant Barred Frog within and in the vicinity of the project corridor undertaken	Stage 1 and 2	Preconstruction and Construction	Contractor	Compliant	DPE approved the Flora and Fauna Management Plan (FFMP) on the 16/12/14. The Flora and Fauna Management Plan (FFMP) incorporates the following plans and strategies in regards to minimising impacts on flora and fauna: • Giant Barred Frog Management Strategy • Grey-Headed Flying Fox Management Plan • Koala Management Plan • Spotted Tail Quoll Management Plan • Threatened Flora

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	during suitable conditions; *ii.* updated sensitive area vegetation maps based on B31(b)(i) above and previous survey work; *iii.* a Giant Barred Frog management plan, in the case that this species or its habitat is identified to occur in the project corridor or its vicinity, based on surveys undertaken as part of B31(b)(i); *iv.* a micro-bat management strategy, in the case that micro bats or evidence of roosting are identified during pre-construction surveys. The strategy shall detail measures to avoid, minimise and mitigate impacts to these species and identified roost sites, including short and long term management measures; *v.* details of general work practices to minimise the potential for damage to native vegetation (particularly EECs) not proposed to be cleared as part of the project and native fauna during construction, including (but not necessary limited to): fencing of sensitive areas, a protocol for the removal and relocation of fauna during clearing, presence of an experienced ecologist to oversee clearing activities and facilitate fauna rescues and re-location, clearing timing with consideration to breeding periods, measures for maintaining existing habitat features (such as bush rock and tree branches etc), seed harvesting and					Management Plan • Nest Box Management • Ecological Monitoring Program • Green-Thighed Frog Management Strategy • *Microchiropteran* Bat Management Strategy • Pre-Clearing Checklist • Working Around Trees Guideline • Fauna Handling and rescue Procedure • Unexpected Threatened Species/EEC Procedure • Weed Management Plan Roads and Maritime has developed a construction and operational phase monitoring strategy for the Yellow - Bellied Glider. In addition to these plans and

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	appropriate topsoil management, construction worker education, weed management, erosion and sediment control and progressive re-vegetation; *vi.* specific procedures to deal with EEC/ threatened species anticipated to be encountered within the project corridor including re-location, translocation and/or management and protection measures; *vii.* a procedure for dealing with unexpected EEC/ threatened species identified during construction including stopping works and notification of EPA, determination of appropriate mitigation measures in consultation with EPA (including relevant relocation measures) and update of ecological monitoring and/ or biodiversity offset requirements consistent with conditions B8 and B10; and *viii.* mechanism for the monitoring, review and amendment of this plan;					strategies, AFJV has prepared sensitive area plans identifying vegetation EECs, incorporated within the draft CEMP (Appendix A6). Controls on topsoil management and erosion and sedimentation are covered within the Soil and Water Management Sub-plan of the CEMP. As required by the AFJV scope of work, AFJV will implement the requirements of the FFMP and subordinate plans, strategies and guidelines, and associated CEMP Sub-plans. The FFMP will undergo periodic review and continual improvement in accordance with the requirements specified within the CEMP.
	c a **Construction Noise and Vibration Management Plan** to detail how construction noise and vibration impacts will be minimised and managed. The Plan shall be developed in consultation with the EPA and include, but not necessarily be limited to:	Stage 1 and 2	Preconstruction and Construction	Contractor	Compliant	DPE approved the WC2NH Noise and Vibration Management Plan (NVMP) on the 16/12/14. The Plan incorporates the identification and procedures of:

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	i. identification of nearest sensitive receptors and relevant construction noise and vibration goals applicable; *ii.* identification of key noise and/or vibration generating construction activities (based on representative construction scenarios) that have the potential to impact on surrounding sensitive receivers including expected noise/ vibration levels; *iii.* identification of all feasible and reasonable measures proposed to be implemented to minimise construction noise and vibration impacts (including construction traffic noise impacts); *iv.* procedure for dealing with out-of-hour works in accordance with condition C4, including procedures for notifying the Director General concerning complaints received in relation to the extended hours approved under condition C4(d); *v.* procedures and mitigation measures to ensure relevant vibration and blasting criteria are achieved, including a suitable blast program supported by test blast results, applicable buffer distances for vibration intensive works, use of low vibration generating equipment vibration dampeners or alternative construction methodology, and pre- and post- construction					Nearest sensitive receptors and relevant construction noise and vibration goals Key noise and vibration generating construction activities accompanied with Plant and Equipment sound power data Measures proposed to be implemented to minimise construction noise and vibration impacts Out-Of-Hour Works Procedure Blast Management Program Notification to sensitive receivers and handling of noise and vibration complaints Noise and vibration monitoring and managing potential exceedances As required by the AFJV scope of work, AFJV will implement the requirements of the NVMP and subordinate procedures and

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	dilapidation surveys of sensitive structures where blasting and/ or vibration is likely to result in building damage; *vi.* procedures for notifying sensitive receivers of construction activities that are likely to affect their noise and vibration amenity, as well as procedures for dealing with and responding to noise complaints; and *vii.* a program for construction noise and vibration monitoring clearly indicating monitoring frequency, location, how the results of this monitoring would be recorded and, procedures to be followed where significant exceedances of relevant noise and vibration goals are detected;					programs. The Blast Management Program has been updated to reflect limit change approval from DPE in August 2015. Approval from DPE obtained on 17/7/2015. The Noise and Vibration Management Plan shall be amended and changes (minor) endorsed by the ER pursuant to MCoA B29 (g) in September 2015
	d a **Construction Water Quality Management Plan** to manage surface water quality and groundwater impacts during construction of the project. The Plan shall be developed in consultation with EPA, DPI (Fisheries and NOW) and include, but not necessarily be limited to: *i.* a contingency plan, consistent with the *Acid Sulfate Soils Manual*, to deal with the unexpected discovery of actual or potential acid sulfate soils; *ii.* a tannin leachate management protocol to manage the stockpiling of mulch and use of	Stage 1 and 2	Preconstruction and Construction	Contractor	Compliant	DPE approved the WC2NH Soil and Water Management Plan (SWMP) on the 16/12/14. The Plan incorporates requirements for soil and water quality management including requirements for mitigation and management of erosion and sedimentation. The SWMP incorporates specific plans and procedures including:

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	cleared vegetation and mulch filters for erosion and sediment control; *iii.* details of how construction activities would be managed and mitigated to minimise erosion and sedimentation consistent with condition C17; *iv.* where construction activities have the potential to impact on waterways or wetlands (through direct disturbance such as construction of waterway crossings or works in close proximity to waterways or wetlands), site specific mitigation measures to be implemented to minimise water quality, riparian and steam hydrology impacts as far as practicable, including measures to stabilise bank structure and rehabilitate affected riparian vegetation to existing or better condition (including relevant performance indicators and monitoring requirements). The timing of rehabilitation of the waterways shall be as agreed to with DPI (Fisheries and NOW) shall be identified in the plan; *v.* construction water quality monitoring requirements consistent with condition B17; and *vi.* a groundwater management strategy, including (but not necessarily limited to): i. description and identification of groundwater resources (including depths of the water table					• Acid Sulfate Soil Management Procedure • Management of Tannins from Vegetation Mulch • Sediment Basin Management and Discharge Procedure • Pacific Highway Projects Dewatering Practice Note • Water Quality Monitoring Program • Groundwater Management Strategy • Spoil and Fill Management Procedure • Stockpile Management Protocol • Unexpected Discovery of Contaminated Land Procedure • Arsenic Rock Management Strategy As required by the AFJV scope of

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	and groundwater quality) potentially affected by the proposal based on baseline groundwater monitoring undertaken in accordance with condition B17(c); ii. identification of surrounding licensed bores, dams or other water supplies and groundwater dependant ecosystems and potential groundwater risks associated with the construction of the project on these groundwater users and ecosystems; iii. measures to manage identified impacts on water table, flow regimes and quality and to groundwater users and ecosystems; iv. groundwater inflow control, handling, treatment and disposal methods; and v. a detailed monitoring plan to identify monitoring methods, locations, frequency, duration and analysis requirements; and					work, AFJV will implement the requirements of the SWMP and subordinate procedures and programs.
	e a **Construction Heritage Management Plan** to detail how construction impacts on Aboriginal and non-Aboriginal heritage will be minimised and managed. The Plan shall be developed in consultation with the OEH (Heritage Branch) (for non-Aboriginal heritage) and EPA and Registered Aboriginal Stakeholders (for	Stage 1 and 2	Preconstruction and Construction	Contractor	Compliant	DPE approved the WC2NH Heritage Management Plan (HMP) on the 16/12/14. The Plan incorporates requirements for mitigation and management of construction impacts on

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	Aboriginal heritage), and include, but not necessarily be limited to: *ii.* In relation to Aboriginal Heritage: i. details of management measures to be carried out in relation to already recorded sites and potential Aboriginal deposits (including further archaeological investigations, salvage measures and/ or measures to protect unaffected sites during construction works in the vicinity); ii. procedures for dealing with previously unidentified Aboriginal objects excluding human remains (including halting of works in the vicinity, assessment of the significance of the item(s) and determination of appropriate mitigation measures including when works can re-commence by a qualified archaeologist in consultation with registered Aboriginal stakeholders, assessment of the consistency of any new Aboriginal heritage impacts against the approved impacts of the project, and registering of the new site in the OEH AHIMS register); iii. procedures for dealing with human remains (including halting of works in the vicinity and notification of the NSW Police, OEH and registered Aboriginal stakeholders and not-recommending any works in the area unless					Aboriginal and Non-Aboriginal heritage, including management measures to be carried out in relation to already recorded sites and potential Aboriginal deposits and non-Aboriginal heritage sites. The HMP incorporates specific plans and procedures including: Methodology for Aboriginal and Historical Heritage Investigation for Works Outside the Project Corridor Aboriginal heritage education and training package Non-Aboriginal heritage education and training package Roads and Maritime Standard Management Procedure – Unexpected Heritage Items As required by the AFJV scope of work, AFJV will implement the requirements of the HMP and subordinate management procedures, and training

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	authorised by OEH and/ or the NSW Police); and iv. Aboriginal cultural heritage induction processes for construction personnel (including procedures for keeping records of inductions undertaken for the duration of the project) and procedures for ongoing Aboriginal consultation and involvement; and (iii) In relation to non-Aboriginal Heritage: i. details of management measures to be carried out in relation to already recorded sites (including further heritage investigations, archival recordings and/ or measures to protect unaffected sites during construction works in the vicinity), consistent with the measures listed in Environmental Assessment Table 19-4; ii. procedures for dealing with previously unidentified non-Aboriginal objects, (including halting of works in the vicinity, assessment of the significance of the item(s) and determination of appropriate mitigation measures including when works can re-commence by a qualified archaeologist and assessment of the consistency of any new non-Aboriginal heritage impacts against the approved impacts of the project; and iii. non-Aboriginal cultural heritage induction processes for					packages for heritage induction and training. Cultural Heritage Awareness training is to commence on the Project in July/August 2015.

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	construction personnel.					
	Part C – During construction					
	Biodiversity					
C1	The Proponent shall employ all feasible and reasonable measures to minimise the clearing of native vegetation to the greatest extent practicable during the construction of the project.	Stage 1 and 2	Preconstruction and Construction	Contractor	In progress	AFJV has conducted ground truthing surveys whilst preparing the FFMP. The ecology surveys have informed the clearing extent for detailed design to minimise the clearing of native vegetation to the greatest extent practicable during the construction. All vegetation clearing required for the Project is assessed and determined to be consistent with the Planning Approval and Environmental Assessment by RMS and the ER prior to being undertaken. A Consistency Review has been undertaken to compare the Detailed Design clearing limits with the Concept Design clearing limits. This document was approved in February 2015 by RMS and the

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						ER. A Vegetation Clearing Tracking Register is maintained and compared with the approved clearing requirements. The approved clearing is consistent with the Biodiversity Offset Strategy. The quantity of EEC clearing is much lower than the area provided in the EA, however the overall quantity of native vegetation clearing is marginally higher than the area provided in the EA. The Project considers the retention of vegetation with conservation significance is a positive outcome for the Project.
	Air quality impacts					
C2	The Proponent shall employ all feasible and reasonable measures (including temporary cessation of relevant works, as appropriate) to ensure that the project is constructed in a manner that minimises dust emissions from the site, including wind-blown, traffic-generated dust, stockpiles and material tracking from construction sites	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	AFJV has detailed management and mitigation measures to achieve this requirement within the approved Air Quality Management Plan (AQMP). The AQMP includes the locations of dust sensitive areas and

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	onto public roads.					monitoring locations. The Project is currently investigating the use of chemical suppressants in conjunction with the EPA and RMS for use on haul roads, stockpiles and batter stabilisation. Dust monitoring has commenced. Several exceedances of the requirements stipulated in the AQMP have been reported to the EPA in the EPA Monthly Report. The Project has investigated each exceedance and applied additional dust mitigation measures.
	Noise and vibration impacts – construction hours					
C3	The Proponent shall only undertake construction activities associated with the project during the following standard construction hours: a 7:00am to 6:00pm Mondays to Fridays, inclusive; and b 8:00am to 1:00pm Saturdays; and c at no time on Sundays or public holidays.	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	The requirements of this condition are included within the NVMP Sub-plan for implementation by AFJV during construction.
C4	Works outside of the construction hours identified in conditions C3 may be undertaken in the following	Stage 1 and 2	Preconstruction	Contractor	Ongoing	The requirements of this condition are included within

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	circumstances: a works that generate noise that is not audible at any sensitive receptor; b for delivery of materials required outside these hours by the Police or other authorities for safety reasons; or c where it is required in an emergency to avoid the loss of lives, property and/or to prevent environmental harm; or d construction works undertaken through sparsely populated areas in which sensitive receptors are located greater than 300 metres away from the project boundary. In this case construction is permissible during the following hours: 6.00am to 6.00pm Monday to Friday and 7.00am to 4.00pm Saturdays and at no time on Sundays or public holidays. These works hours may be reviewed and/ or revoked by the Director General in consultation with the EPA in the case of excessive or unresolved noise complaints; or e where an EPL applies to the construction of the project, construction hours which are approved in accordance with the conditions of an EPL for the project; or f where an EPL does not apply to the construction of the project, Out of Hours Works as agreed to by the Director general in accordance with condition C5.		and Construction			the NVMP Sub-plan and the Out-Of-Hours Works procedure included in the NVMP, for implementation by AFJV during construction. Noise requirements are also subject to the Environment Protection Licence 20533 conditions. The Project has undertaken several items of work outside of Standard Construction hours including: - Linemarking and traffic adjustments on the existing Pacific Highway (undertaken in accordance with the EPL requirements) - Installation of culvert pipes across the Boral Quarry access (undertaken in accordance with EPL requirements); - Extended hours to clear

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						vegetation and install sediment basins in the State Forest subject to condition C4(d). The Project is currently investigating undertaking works outside of standard construction hours north of Bald Hill Road in the vicinity of the Flying Fox camp to maximise the work being undertaken whilst the colony is not in the vicinity. The Project is also looking into other out of hours works in conjunction with the EPA and RMS.
C5	For the purposes of condition C4 (f), certain construction activities (Out of Hours Works) may be allowed to occur outside the construction hours specified in conditions C3 with the prior written approval of the Director General. Requests for out of hours approval will be considered for construction activities which cannot be undertaken during the construction hours specified in conditions C3 for technical or other justifiable reasons and will be considered on a case by case or activity-specific basis. Any request for Out of Hours Works must be accompanied by: a details of the nature and need for activities to be	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	The Project is subject to an EPL, therefore, this Condition does not specifically apply to the Project. All works undertaken outside of standard construction hours comply with the approved Out of Hours Works Procedure.

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	conducted during the varied construction hours; b written evidence to the EPA and the Director General that activities undertaken during the varied construction hours are justified, appropriate consultation with potentially affected receivers and notification of Council has been undertaken, issues raised have been addressed, and all feasible and reasonable mitigation measures have been put in place; and c evidence of consultation with the EPA on the proposed variation in standard construction hours. Despite the above, Out of Hours Works may also occur in accordance with an approved Construction Environment Management Plan or Construction Noise and Vibration Management Plan for this project, where that plan provides a process for considering the above on a case by case or activity specific basis by the Proponent, including factors a) to c) above.					
C6	Blasting associated with the project shall only be undertaken during the following hours a 9:00 am to 5:00 pm, Mondays to Fridays, inclusive; b 9:00 am to 1:00 pm on Saturdays; and c at no time on Sundays or public holidays. This condition does not apply in the event of a direction from police or other relevant authority for safety or emergency reasons to avoid loss of life, property loss	Stage 1 and 2	Construction	Contractor	Ongoing	Blasting activities have commenced on the Project in July 2015. All blasts are undertaken in accordance with the hours specified in this condition.

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	and/or to prevent environmental harm.					
	Noise and vibration impacts – construction noise and vibration goals					
C7	The Proponent shall implement all feasible and reasonable noise mitigation measures with the aim of achieving the construction noise management levels detailed in the *Interim Construction Noise Guideline* (DECC, 2009) during construction activities, Any activities that could exceed the construction noise management levels shall be identified and managed in accordance with the Construction Noise and Vibration Management Plan required under condition B31(c) of this approval.	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	Proposed noise mitigation measures are included within the NVMP Sub-plan for implementation by AFJV during construction. AFJV have commenced monitoring construction noise levels in accordance with the NVMP. The levels recorded are within the criteria specified in the NVMP. Where the noise levels exceed the Noise Management Levels provided in the NVMP, AFJV provides an explanation and investigates additional mitigation measures in the EPA Monthly Report. AFJV also presents noise monitoring results at the monthly ERG meeting and a discussion regarding reasonable mitigation measures is also undertaken.

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C8	The Proponent shall implement all feasible and reasonable mitigation measures with the aim of achieving the following construction vibration goals and ground-borne noise levels: a for structural damage vibration, the vibration limits set out in the German Standard D/N 4150 Part 3-1999 Structural Vibration in Buildings - Effects on Structures; b for works in the vicinity of the heritage structures, the vibration limits set out in the German Standard DIN 4150-3: 1999 Structural Vibration - part 3: Effects of vibration on structures; and c for human exposure, the acceptable vibration values set out in the Environmental Noise Management Assessing Vibration: A Technical Guideline (DEC 2006); and d the ground-borne noise levels set out in the Interim Construction Noise Guidelines (DECC, 2009).	Stage 1 and 2	Construction	Contractor	Ongoing	Proposed construction noise and vibration goals are included within the NVMP Sub-plan for implementation by AFJV during construction. The mitigation measures included in the NVMP are based on the standards provided in Condition C8. Vibration monitoring has been conducted for the blasting undertaken on the Project and for the use of vibratory equipment such as a roller. The results have been compared to the NVMP which is based on the standards set out in Condition C8.

<table>
<tr><th>CoA No.</th><th>Requirement</th><th>Stage</th><th>Timing</th><th>Responsibility</th><th>Status</th><th>Reference / Comment</th></tr>
<tr><td>C9</td><td>The Proponent shall ensure that airblast overpressure generated by blasting associated with the project does not exceed the criteria specified in Table 1 when measured at the most affected residence or other sensitive receiver. To ensure that criteria are satisfied at the most affected residence or other sensitive receiver, blasting trials shall be undertaken prior to the commencement of the project blasting program, with results from the trials used to determine site specific blast design to satisfy the criteria specified in Table 1.

Table 1 Airblast overpressure criteria
<table><tr><td>Airblast overpressure (dB(Lin Peak))</td><td>Allowable exceedance</td></tr><tr><td>115</td><td>5% of total number of blasts over a 12 month period</td></tr><tr><td>120</td><td>0%</td></tr></table></td><td>Stage 1 and 2</td><td>Construction</td><td>Contractor</td><td>Ongoing</td><td>The requirements of this condition are included within the NVMP Sub-plan and subordinate Blast Management program for implementation by AFJV during construction.

AFJV are currently seeking approval from DPE in accordance with Condition C11 to increase the blast vibration and airblast overpressure limits.

An approval request was submitted to DPE on the 08/07/15 to increase the airblast overpressure limit to 125 dB(L) and the ground vibration limit to 25mm/s (PPV).

Production blasting undertaken to date has shown compliance with the airblast overpressure requirements of condition C9.</td></tr>
<tr><td>C10</td><td>The Proponent shall ensure that ground vibration generated by blasting associated with the project does not exceed the criteria specified in Table 2 when measured at the most affected residence or other sensitive receiver. To</td><td>Stage 1 and 2</td><td>Construction</td><td>Contractor</td><td>In progress</td><td>The requirements of this condition are included within the NVMP Sub-plan and subordinate Blast Management</td></tr>
</table>

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<tr><th>CoA No.</th><th>Requirement</th><th>Stage</th><th>Timing</th><th>Responsibility</th><th>Status</th><th>Reference / Comment</th></tr>
<tr><td></td><td>ensure that criteria are satisfied at the most affected residence or other sensitive receiver, blasting trials shall be undertaken prior to the commencement of the project blasting program, with results from the trials used to determine site specific blast design to satisfy the criteria specified in Table 2.

Table 2 Peak particle velocity criteria
<table><tr><td>Peak particle velocity (mms-1)</td><td>Allowable exceedance</td></tr><tr><td>5</td><td>5% of total number of blasts over a 12 month period</td></tr><tr><td>10</td><td>0%</td></tr></table></td><td></td><td></td><td></td><td></td><td>program for implementation by AFJV during construction.

AFJV sought approval from DPE in accordance with Condition C11 to increase the blast vibration and airblast overpressure limits.

An approval request was submitted to DPE on the 08/07/15 to increase the airblast overpressure limit to 125 dB(L) and the ground vibration limit to 25mm/s (PPV). An approval was obtained from DPE on 17/7/2015 subject to conditions being met.

Production blasting undertaken to date has shown compliance with the ground vibration requirements of condition C10. All blasts have measured vibration below 10mm/s (PPV). Two blasts have measured a PPV marginally above 5mm/s at the nearest sensitive receiver. The current predicted number of blasts is 50, based on the</td></tr>
</table>

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						approved limit increases and therefore the Project will remain compliant with Condition C10.
C11	The blasting criteria identified in condition C9 and/ or C10 do not apply where the Proponent has a written agreement with the relevant landowner to exceed the criteria identified in condition C9 and/ or C10 and the Director General has approved the terms of the written agreement. In obtaining the Director General approval for any such agreement, the Proponent shall submit to the Director General: a details of the proposed blasting program and justification for the proposed increase to blasting criteria including alternatives considered (where relevant); b an assessment of the environmental impacts of the increased blast limits on the surrounding environment and most affected residences or other sensitive receivers including, but not limited to noise, vibration and air quality and any risk to surrounding utilities, services or other structures; c details of the blast management, mitigation and monitoring procedures to be implemented; and d details of consultation undertaken and agreement reached with the relevant landowners (including a copy of the agreement in relation to increased blasting	Stage 1 and 2	Construction	Contractor	In progress	The requirements of this condition are included within the NVMP Sub-plan and subordinate Blast Management Program for implementation by AFJV during construction. AFJV are currently seeking approval from DPE in accordance with Condition C11 to increase the blast vibration and airblast overpressure limits. An approval request was submitted to DPE on the 08/07/15 to increase the airblast overpressure limit to 125 dB(L) and the ground vibration limit to 25mm/s (PPV). Approval was received from DPE on 17/07/2015.

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	limits). The following exclusions apply to the application of this condition: a any agreements reached may be terminated by the landowner at any time should concerns about the increased blasting limits be unresolved; b the blasting limit agreed to under any agreement can at no time exceed a maximum Peak Particle Velocity vibration level of 25 mm/s or maximum Airblast Overpressure level of 125 dBL; and c the provisions under condition C'11 (to increase applicable blast criteria in agreement with the relevant landowners) do not apply where the property is a heritage property.					
	Operational noise mitigation review					
C12	Unless otherwise agreed to by the Director General, within six months of commencing construction, the Proponent shall in consultation with EPA prepare and submit for the approval of the Director General, a review of the operational noise mitigation measures proposed to be implemented for the project. The review shall: a confirm the operational noise predictions of the project based on detailed design. This operational noise assessment shall be based on an appropriately calibrated noise model (which has incorporated	Stage 1 and 2	Construction	Contractor	In Progress	A draft Operational Noise Report has been provided to RMS for review by AFJV. The report has also been provided to the EPA to review. RMS submitted a letter requesting an extension of time from DPE for submission of the Operational Noise Mitigation Review (5/8/2015). DPE

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	additional noise monitoring, where necessary for calibration purposes). The assessment shall specifically include verification of noise levels at Nambucca Heads Rest Area, based on additional noise monitoring undertaken at this location; b review the suitability of the operational noise mitigation measures identified in the documents listed under condition A1 to achieve the criteria outlined in the Environmental Criteria for Road Traffic Noise (EPA, 1999) and the Industrial Noise Policy (EPA, 2000) in relation to the Nambucca Heads Rest Area, based on the operational noise performance of the project predicted under (a) above; and c where necessary, investigate additional feasible and reasonable noise mitigation measures to achieve the criteria outlined in the Environmental Criteria for Road Traffic Noise (EPA, 1999) and the Industrial Noise Policy (EPA, 2000) in relation to the Nambucca Heads Rest Area including the applicability of noise walls in the vicinity of River Road in Macksville.					approved the extension of time on 14/8/2015 for 9 months. The Operational Noise Review is now due to DPE on 8th May 2016.
	Heritage impacts					
C13	This approval does not allow the Proponent to destroy, modify or otherwise physically affect human remains.	Stage 1 and 2	Preconstruction, Construction and Operations	Contractor	Ongoing	The approved Heritage Management Plan includes the Standard Management Procedure: Unexpected Archaeological Finds Roads and

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						Maritime 12003. The HMP also includes Aboriginal and Non-Aboriginal heritage induction training packages. These controls will be implemented by AFJV. No human remains have been encountered on the Project.
C14	The Proponent shall not destroy, modify or otherwise physically affect the Aboriginal cultural sites identified in Table 15-3 of the Environmental Assessment (including AHIMS site numbers 21-6-36, 21-6-0287, 21-6-0016, 21-6-0163, 21-6-0039, 21-6-0090, 21-6-0102, 21-6-0141, 21-6-0164, 21-6-0064, and 21-6-0044), Boggy Creek spiritual area, Buchanan Conflict Site at Cow Creek (21-6-00286), burial site, ~~Cabbage tree palm resource site~~, Aboriginal mirrah (21-3-0034), Rosewood Scarred Tree or ~~potential archaeological deposits (PAD) 31~~.	Stage 1 and 2	Preconstruction, Construction and Operations	Contractor	Ongoing	Site surveys within the WC2NH project area have been undertaken to determine relevant sites, and no-go zone fencing and signage has been erected. Impacts to the Cabbage tree palm resource site and potentially PAD 31 (for fencing works), have been addressed through a modification of the approval by DPE (Mod 7) which was approved on the 15/01/15. The Rosewood Scarred Tree has been permanently fenced and protected from construction activities.

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
C15	The Proponent shall not destroy, modify or otherwise physically affect the following historic sites: the ferry/punt crossing at Boulton Hill; old municipal tip; Valla Gold Mine; former stock route; tramway and quarry, Martells Road; and the native swamp conservation area.	Stage 1 and 2	Preconstruction, Construction and Operations	Contractor	Ongoing	Relevant site surveys for WC2NH (Ferry Punt at Boulton Hill, and old municipal tips) have been undertaken to determine relevant sites, and no-go zone fencing and signage has been erected. No impacts have occurred to the ferry/punt crossing at Boulton Hill and the Old Municipal Tip.
C16	The measures to protect any Aboriginal or historic heritage sites near or adjacent to the project during construction shall be detailed in the Heritage Management Plan required under condition B31(e).	Stage 1 and 2	Preconstruction, Construction and Operations	Contractor	In progress	The requirement of this condition has been incorporated by AFJV into management and mitigation measures and procedures within the approved Heritage Management Plan
C16A	a i) Where permanent works (including utilities, services and permanent access and service roads, or similar works required for the project) located outside the approved project footprint and described in the documents listed in condition A1 are required, and those works have the potential to impact upon previously unidentified non-Aboriginal and Aboriginal archaeology, the proponent shall undertake archaeological investigations to determine the impacts of those works.	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	The approved methodology - Methodology for Aboriginal and Historical Heritage Investigation for Works Outside the Project Corridor", is incorporated as Appendix A to the approved Heritage Management Plan for implementation by AFJV. Accordingly, archaeological reports will be required to be submitted to DPE for approval or

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	ii) The proponent shall undertake the investigations required in accordance with condition C16A(a)(i) consistent with the Construction Heritage Management Plan required under Condition B31(e), or using a methodology prepared in consultation with OEH and approved by the Director General. iii) The proponent shall report on the results of the archaeological investigations prior to commencement of permanent works, and: · where the potential heritage impacts identified in the report are less than those described in the documents listed in condition A1, the report shall be provided to the Director General; · where the potential heritage impacts identified in the report are the same as those described in the documents listed in condition A1, the report shall be prepared in consultation with OEH and submitted to the Director General; · where the potential heritage impacts identified in the report are greater than those described in the documents listed in condition A1, the report shall be prepared in consultation with OEH and submitted to the satisfaction of the Director General. iv) The report on the results of the archaeological					advice. This methodology establishes the Aboriginal cultural heritage assessment methodology for any future permanent work areas (as defined in Ministers Conditions of Approval C16A) identified outside the previous heritage survey and assessment. Heritage assessments have been undertaken for Public Utility realignment works, private property adjustments and design refinements outside of the approved Project Boundary. The approved Methodology has been followed under the guidance of the Project Archaeologist Jacobs and the Registered Aboriginal Parties. In all circumstances, a report has been prepared and approved by RMS and the ER. No impacts to heritage items have been identified from additional permanent work activities. The detailed design of

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	investigation is to include recommendations (such as for further archaeological work) and shall include, but not necessarily be limited to, consideration of measures to avoid or minimise disturbance to Aboriginal objects where objects of moderate to high significance are found to be present. b i) The proponent shall undertake salvage work with the approval of the Director General, when recommended by the results of the archaeological investigation required under condition C16A. ii) In determining whether to approve salvage work, the Director General is to have reference to the results of all relevant archaeological investigations undertaken under condition C16A(a) and the views of OEH.					permanent works in the Southern end of the Project may require the salvage of a singular artefact, a report will be provided for approval to DPE prior to this activity commencing. Also, additional minor clearing of the Cabbage Tree Palm resource area is also required to facilitate the construction of a Forestry access trail. DPE approval will also be sought for this prior to commencement.
	Sedimentation, erosion and water					
C17	Soil and water management measures consistent with *Managing Urban Stormwater - Soils and Construction Vols 1 and 2, 4th Edition* (Landcom, 2004) and *Managing Urban Stormwater Soils And Construction Vols 2A and 2D Main Road Construction* (DECC 2008) shall be employed during the construction of the project for erosion and sediment control.	Stage 1 and 2	Preconstruction and Construction	Contractor	In progress	AFJV has incorporated soil and water management measures consistent with the requirements of this condition, into the approved Soil and Water Quality Management Sub-plan (SWMP).
C18	Where available, and of appropriate chemical and biological quality, the Proponent shall use stormwater,	Stage 1 and 2	Preconstruction	Contractor	Ongoing	AFJV is currently using water captured in farm dams and

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	recycled water or other water sources in preference to potable water for construction activities, including concrete mixing and dust control.		and Construction			sediment basins located along the Project alignment as a water source. The Project is constructing several large water holding dams to hold water captured during rainfall events in sediment basins located on site. AFJV has obtained approval from Nambucca Shire Council to use treated effluent for dust suppression. AFJV have also sought approval from the NSW Office of Water to extract water from Upper Warrell Creek and Lower Warrell Creek. Bore licences have also been obtained to utilise groundwater resources if required. Potable water is currently not being used for dust suppression.
	Property and landuse – property impacts					
C19	The Proponent shall construct the project in a manner that minimises impacts to private properties and other public or private structures (such as dams, fences, utilities, services	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	The WC2NH Project has been designed to minimise the impacts to private property and

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	etc) along the project corridor. In the event that construction of the project results in direct or indirect damage to any such property or structure, the Proponent shall arrange and fund repair of the damage to a standard comparable to the in existence prior to the damage.					private property structures. AFJV has obtained building condition surveys of existing structures located adjacent to the alignment to ensure all damage is rectified to the pre-existing standard prior to construction commencing.
C20	The Proponent shall ensure that access to all properties is maintained during construction unless agreed with the property owner in advance and that any access physically affected by the Project is reinstated to at least an equivalent standard, in consultation with the landowner.	Stage 1 and 2	Construction	Contractor	Ongoing	The AFJV will ensure that access to properties is maintained during construction.
C21	The Proponent shall in consultation with relevant landowners construct the project in a manner that minimises intrusion and disruption to agricultural operations/activities in surrounding properties (e.g. stock access, access to farm dams etc).	Stage 1 and 2	Construction	Contractor	Ongoing	AFJV has consulted with relevant landowners on construction of the project, addressing construction activities and approach to minimise intrusion and disruption to agricultural operations/activities in surrounding properties (e.g. stock access, access to farm dams etc). AFJV has provided stock access through the alignment where

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						necessary.
	Property and landuse – forestry impacts					
C22	Where the project traverses Nambucca, Newry and Little Newry State Forests, the Proponent shall in consultation with DPI (Forestry) ensure that construction activities do not unduly disrupt existing forestry activities, access for fire fighting and recreation activities during construction.	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	AFJV has consulted with Forestry Corporation to ensure that construction activities do not unduly disrupt existing forestry activities, access for fire fighting and recreation activities during construction.
	Traffic impacts					
C23	Road dilapidation reports shall be prepared for all local roads likely to be used by construction traffic prior to use by construction heavy vehicles. A copy of the relevant report shall be provided to the relevant Council. Any damage resulting from the construction of the project, aside from that resulting from normal wear and tear, shall be repaired at the cost of the Proponent. The roads likely to be used by heavy construction vehicles should be identified in the Traffic Management Plan required under condition B31(a).	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	In accordance with the approved Traffic and Safety Management Plan, a road dilapidation review has been undertaken by the Project for i) the Pacific Hwy and ii) Local Roads affected by the project. A copy of the dilapidation report has been provided to the relevant road authority, RMS and Nambucca Shire Council respectively.
	Waste management					

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
C24	The Proponent shall not cause, permit or allow any waste generated outside the site to be received at the site for storage, treatment, processing, reprocessing, or disposal on the site, except as expressly permitted by a licence under the *Protection of the Environment Operations Act 1997*, if such a licence is required in relation to that waste.	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	No waste materials have been accepted onto the Project site.
C25	The Proponent shall maximise the reuse and/or recycling of waste materials generated on site as far as practicable, to minimise the need for treatment or disposal of those materials off site.	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	AFJV has detailed the requirements of this condition within the approved Waste and Energy Management Plan (WEMP). The Plan includes measures to reduce wastage and provide recycling for construction waste. The Project has reused crushed concrete and demolition materials on site. Recycling receptacles are available for comingled paper, cardboard, plastics, etc.
C26	The Proponent shall ensure that all liquid and/or non-liquid waste generated on the site is assessed and classified in accordance with *Waste Classification Guidelines* (DECC, 2008), or any future guideline that may supersede that document and where removed from the site is only directed to a waste management facility lawfully permitted	Stage 1 and 2	Construction	Contractor	Ongoing	AFJV has detailed the requirements of this condition within the approved Waste and Energy Management Plan (WEMP). All liquid and non-liquid wastes are classified prior

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	to accept the materials.					to transportation and disposal.
	Ancillary facilities					
C27	Unless otherwise approved by the Director General in accordance with this condition, the sites for ancillary facilities associated with the construction of the project shall: a be located more than 50 metres from a waterway; b have ready access to the road network or direct access to the construction corridor; c be located in areas of low ecological significance and require minimal clearing of native vegetation (not beyond that already required by the project); d be located on relatively level land; e be separated from the nearest residences by at least 200 metres (or at least 300 metres for a temporary batching plant); f be above the 20 ARI flood level unless a contingency plan to manage flooding is prepared and implemented; g not unreasonably affect the land use of adjacent properties; h provide sufficient area for the storage of raw materials to minimise, to the greatest extent practical, the number of deliveries required outside standard	Stage 1 and 2	Construction	Contractor Roads and Maritime to submit documentation for approval.	Compliant	A Major Consistency Review (MaCR) has been prepared for the Albert Drive Compound and has been approved by Roads and Maritime and the ER. The Albert Drive Compound will be the main site office compound for the Project and has been assessed to fully comply with MCoA C27 requirements. The site compound is located at no 124 Albert Drive Warrell Creek. The compound has been constructed and is currently in use as the main office for AFJV and RMS Project personnel. Another MaCR has been approved by RMS and the ER for the Northern Site Compound located at 50-128 Old Coast Road, Macksville. This site was assessed as being fully compliant Condition C27. The Northern Compound site also includes a

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	construction hours; and i be located in areas of low heritage conservation significance (including identified Aboriginal cultural value) and not impact on heritage sites beyond those already impacted by the project. Ancillary sites identified that do not meet the above criteria shall be assessed against this criteria to demonstrate how any impacts can be mitigated and managed to acceptable standards (including demonstrating consistency with project impacts identified in the documents listed under condition 41, to the satisfaction of the Director General. Such assessment(s) can be submitted separately or as part of the Construction Environmental Management Plan required under condition B30.					concrete batch plant and precast facility which is currently being constructed. The approved methodology - Methodology for Aboriginal and Historical Heritage Investigation for Works Outside the Project Corridor", is incorporated as Appendix A to the approved Heritage Management Plan for implementation by AFJV.
C27A	a The Proponent may undertake archaeological investigations at ancillary sites that do not meet the criterion set out in condition C27(i) of this approval, where this is required to assess the potential non-Aboriginal and Aboriginal archaeological impacts of the ancillary facility on previously unidentified heritage sites. b Any archaeological investigations undertaken under this condition must be undertaken consistent with the Construction Heritage Management Plan required under Condition B31(e) or a methodology prepared in consultation with OEH and approved by the Director	Stage 1 and 2	Preconstruction and Construction	Contractor	Compliant	Archaeological assessments of nominated ancillary site facilities has been undertaken in accordance with the approved Methodology for aboriginal heritage and historic investigation for works outside the project corridor. The assessment results have been provided to Roads and Maritime and the ER as part the MaCR for the Albert Drive Compound and the Northern Compound. No

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	General. c The results of any relevant archaeological investigations undertaken under this condition must be described					impacts to areas or items of heritage significance have been undertaken for either of the Ancillary Site Facilities approved for the Project.
C28	The Director General's approval is not required for minor ancillary facilities (e.g. lunch sheds, office sheds, and portable toilet facilities) that do not comply with the criteria set out in condition C27 of this approval and which: a are located within an active construction zone within the approved project footprint; and b have been assessed by the Environmental Representative to have: (i) minimal amenity impacts to surrounding residences, with consideration to matters such as noise and vibration impacts, traffic and access impacts, dust and odour impacts, and visual (including light spill) impacts, and (ii) minimal environmental impact in respect to waste management, and no impacts on flora and fauna, soil and water, and heritage beyond those approved for the project; and c have environmental and amenity impacts that can be managed through the implementation of	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	The Project currently has a register of Minor Ancillary Facilities that is provided to the ER for approval. There are currently 8 approved Minor Ancillary Facilities on the Project. The register compares the Minor Ancillary Facility this condition and also to C27.

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	environmental measures detailed in a Construction Environment Management Plan for the project.					
	Part D – Prior to Operations					
	Operational Environment Management System			Roads and Maritime	Open	
D1	Prior to the commencement of operation, the Proponent shall incorporate the project into its existing environmental management system.	Stage 1 and 2	Operations	Roads and Maritime	Open	RMS will incorporate WAE within RMS operational management systems per the requirements for both stage 1 and stage 2 within 6 months of the stages being deemed fully operational
	Part E – During Operations					
	Operational noise					
E1	Within 12 months of the commencement of operation of the project, or as otherwise agreed by the Director General, the Proponent shall undertake operational noise monitoring to compare actual noise performance of the project against noise performance predicted in the review of noise mitigation measures required by condition C12 and prepare an Operational Noise Report to document this monitoring. The Report shall include, but not necessarily be limited to: noise monitoring to assess compliance with the	Stage 1 and 2	Operations	Roads and Maritime	Open	Not yet commenced.

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	operational noise levels predicted in the review of operational noise mitigation measures required under condition C12 and documents specified under condition A1 of this approval; a review of the operational noise levels in terms of criteria and noise goals established in the Environmental Criteria for Road Traffic Noise (EPA, 1999); methodology, location and frequency of noise monitoring undertaken, including monitoring sites at which project noise levels are ascertained, with specific reference to locations indicative of impacts on sensitive receivers; details of any complaints and enquiries received in relation to operational noise generated by the project between the date of commencement of operation and the date the report was prepared; any required recalibrations of the noise model taking into consideration factors such as actual traffic numbers and proportions; an assessment of the performance and effectiveness of applied noise mitigation measures together with a review and if necessary, reassessment of all feasible and reasonable mitigation measures; and identification of any additional feasible and reasonable measures to those identified in the review of noise mitigation measures required by condition C12, that would					

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	be implemented with the objective of meeting the criteria outlined in the *Environmental Criteria for Road Traffic Noise* (EPA, 1999), when these measures would be implemented and how their effectiveness would be measured and reported to the Director General and the EPA. The Proponent shall provide the Director General and the EPA with a copy of the Operational Noise Report within 60 days of completing the operational noise monitoring referred to a) above and no later than 12 months after the date of the commencement of operation, or as otherwise agreed by the Director General.					

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	Environmental management					
M1	The head contractor for the project will have an environmental management system.	Stage 1 and 2	Preconstruction and Construction	Contractor	Compliant	The EMS used on the WC2NH Project is based on the existing certified ACCIONA EMS no. EMS592490

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
M2	Suitably qualified and experienced personnel will develop and implement project specific environmental management plans and procedures, incorporating as a minimum the mitigation and management measures in the environmental assessment.	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	AFJV has employed suitably qualified and experienced staff to develop and implement all environmental management requirements under the Project Deed and in meeting all environmental requirements. Support consultants to the AFJV environment team include the Project Ecologist, Project Archaeologist and the Project Soil Conservationist, and other technical specialists on an as needs basis.
M3	RTA and the contractor will implement a performance and compliance program.	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	This Compliance Tracking Program has been submitted and approved by DPE on the 16/12/14. The Compliance Tracking Report (this document) will be provided to the DPE 6 month after the commencement of construction. The Project Construction Environmental Management Plan includes the requirements for regular independent auditing.

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						Six-monthly independent audits will be undertaken in accordance with ISO 19011:2003 – Guidelines for Quality and/or Environmental Management Systems Auditing and the findings included in the Compliance Tracking Report. An independent audit on compliance with the Planning Approval and SoC was undertaken in May 2015. The audit has been provided in Appendix C of this report.
	Community consultation					
CC1	Keeping the community informed will include: • regular project updates. • prior notice of project activities. • changes to traffic and access and works outside standard working hours. • contact details for enquiries. Targeted consultation with affected individuals or groups will occur as necessary (e.g. waterway users, farmers, noise affected residents, etc.).	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	Since February the Community Team has published and distributed • 8 notifications • 7 fact sheets • 3 project updates • 1 good news story Held community information and drop-in sessions on the following dates:

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						• 22 and 23 April • 1 July • 22 August Included a topic relevant to the community in the weekly Toolbox Talk/Presentation. Made feedback available at the following locations: • Site compound at 124 Albert Drive, Warrell Creek • The Friendly Grocer in Macksville • The Friendly Grover in Scotts Heads • Nambucca Shire Council • Macksville Library • Nambucca Library • Roads and Maritime Service motor registry office at Nambucca Heads.

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
CC2	Complaint management will include: • A published 24 hour toll free complaints number. • Directions on how to register a complaint. • Acknowledgment of complaints within eight working hours. • Complaint recording. • Tracking of complaints until resolution.	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	AFJV have implemented a Construction Complaints Management System consistent with AS 4269 Complaints Handling. AFJV has established the following methods and tools for community complaints and enquiries about construction activities: (a) a telephone number for registration of complaints and enquiries (b) a postal address enabling written complaints and enquiries to be received (c) an email address to which electronic complaints and enquiries may be transmitted. An add advising of the commencement of Early Works was undertaken on the 31/11/2015 and was presented in the Belligen Shire Courier-Sun on 31/10/2015

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						The above details shall also be provided on the Roads and Maritime Project website. Information has been supplied by AFJV to Roads and Maritime for review and updating website.
	Traffic and transport					
T1	Construction vehicle movements and work programs will incorporate traffic control measures to minimise traffic and transport impacts on local roads and the existing Pacific Highway.	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	The Traffic Management & Safety Plan (TM&SP) has been prepared by AFJV and approved by DPE on the 16/12/14. In accordance with the TM&SP, AFJV will submit Area / Discipline specific Traffic Management Plans (TMP) to the Roads and Maritime Representative. The TMP has been implemented to identify the Traffic Control Plans, access requirements and vehicle movement plans to ensure adequate and safe accesses are provided to minimise impact to all road users. The TMP details the specific road safety and traffic management

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						measures that will be applied during the staged delivery of the elements of a specific area of the project.
T2	Any use of non-arterial roads by construction traffic will require the preparation of pre-construction and post construction dilapidation reports, with copies to go to the relevant roads authority. Repair of any damage resulting from construction (normal wear and tear), will occur, unless there are alternative arrangements with the relevant roads authority.	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	A road dilapidation review has been undertaken by the Project for i) the Pacific Hwy and ii) Local Roads affected by the project. A copy of the dilapidation report has been provided to the relevant road authority, RMS and Nambucca Shire Council respectively.
T3	Construction vehicle movement arrangements will limit impacts on other road users (including pedestrians, vehicles, cyclists and disabled persons), having regard to other road works in the area, local traffic movement requirements, and peak traffic volumes, including those during long weekends and holiday periods.	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	The Project must comply with the Road Occupancy Licence (ROL) regime, which limits the use of traffic control during peak times, weekends and major events/holiday periods. TCP's are developed to incorporate all road users and construction requirements. Vehicle Movement Plans (VMP) are developed to ensure that all construction personnel are aware

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						of the permitted vehicle movements, inter action between plant and workers on foot and any site specific details such as bus stops, pedestrian routes and characteristics of local vehicle movements.
T4	Where the Proposal temporarily or permanently affects any legal property access, the provision of feasible and reasonable alternative access to an equivalent standard will be necessary, unless a property owner agrees to alternative arrangements.	Stage 1 and 2	Preconstruction and Construction	Contractor/ Roads and Maritime	Ongoing	AFJV consults with relevant landowners on construction of the project, addressing construction activities and approach to minimise intrusion and disruption to property access. Property access has been maintained to an equivalent standard unless agreed with the resident.
T5	Construction vehicle movements and work programs will incorporate traffic control measures to maintain access to state forests.	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	AFJV in consultation with Forests NSW maintains safe access to forestry tracks during temporary traffic staging/construction, where they need to be closed or where an alternative needs to be provided it will be done so in consultation with the NSW State Forests.

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	Noise and vibration					
N1	Further investigation of all feasible and reasonable mitigation and management measures to minimise construction noise at sensitive receivers will occur as part of detailed design (including consideration of early implementation of operational noise mitigation measures). Noise and vibration monitoring will measure against predicted levels and assess effectiveness. Implementation of further feasible and reasonable mitigation measures will occur where necessary.	Stage 1 and 2	Preconstruction, Construction and Operation	Contractor/ Roads and Maritime.	Ongoing	Measures to minimise construction noise have been investigated by AFJV during detailed design. Mitigation measures have been incorporated into the draft Noise and Vibration Management Plan (NVMP). The NVMP also prescribes the noise monitoring requirements to be undertaken during construction. Visual and noise mounds have been included in the detailed design and will be constructed as early as practical during the construction phase. Roads and Maritime will undertake at residence noise mitigation treatments in regards to operational noise mitigation.
N2	Consultation with affected education institutions during construction works in their vicinity will attempt to limit audible construction works during important events, such as examination periods.	Stage 1 and 2	Construction	Contractor	Compliant	Noise sensitive areas have been investigated as part of developing the NVMP covering requirements for mitigation of potential noise impacts to educational

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						institutions during construction. It is noted that no educational institutions will be impacted by construction noise from the WC2NH project.
N3	Best practice mitigation and management measures will be used to minimise construction noise and vibration at sensitive receivers.	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	Mitigation measures are incorporated into the approved NVMP.
N4	Construction would normally be limited to the following hours: • Between 6am and 6pm Monday to Friday. • Between 7am and 4pm Saturday. There would be no works outside these hours or on Sundays or public holidays except: a) Works that do not cause construction noise to be audible at any sensitive receivers. b) For the delivery of materials required outside these hours by the Police or other authorities for safety reasons. c) Where it is required in an emergency to avoid the loss of lives, property and/or to prevent environmental harm. d) Any other work as agreed through negotiations between the RTA and potentially affected sensitive receivers. Any such agreement must be recorded in writing and a copy	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	The requirements of this SoC are included within the approved NVMP Sub-plan for implementation by AFJV during construction. For any works to be undertaken outside of the prescribed hours will be subject to the requirements prescribed in the Out of Hours Works Procedure (OOHW) which is a part of the approved NVMP. Noise requirements will also be subject to the Environment Protection Licence 20533.

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	kept on site for the duration of the works. e) Where the work is identified in the CNVMP and approved as part of the Construction Environmental Management Plan. f) As agreed by Department of Planning and or Department of Environment, Climate Change and Water in an EPL for the construction of the Proposal Local residents and the Department of Environment, Climate Change and Water must be informed of the timing and duration of work approved under items (d) and (e) at least 48 hours before that work commences.					
N5	All reasonable attempts will be made to contact sensitive receivers located within 500 metres of a blast location. The contact will be at least 48 hours before a blast and will include a schedule of blast time(s), and a telephone contact name and number.	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	The Project's Blast Management Plan outlines the requirements for community consultation leading up to a blast. The Blast Management Plan includes notification to be made with residents 500m from the blast at least 48 hours prior to the blast via email or SMS which will include the date, time and no. of blasts. This is currently being undertaken throughout the production blasting program.

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
N6	Where complaints relating to noise or vibration impacts as a result of extended workings cannot be satisfactorily resolved with the affected residents then works hours will revert back to standard working hours at that particular location for that particular activity. Resident(s) will be consulted before recommencing any works outside standard working hours. Any complaints received in relation to working hours will be made available to DoP and DECCW.	Stage 1 and 2	Construction	Contractor	Ongoing	The requirements of this SoC are included within the NVMP Sub-plan and OOHW Procedure for implementation by AFJV during construction. No complaints regarding works outside of standard construction hours have been received by the Project to date.
N7	Confirmation of all feasible and reasonable mitigation and management measures to minimise operational noise at sensitive receivers will occur as part of detailed design. Implementation of the measures would occur as construction proceeds.	Stage 1 and 2	Preconstruction, Construction and Operations	Contractor/Roads and Maritime	Ongoing	The Operational Noise Modelling and Mitigation Report is currently in draft form and has been provided to RMS and the EPA for review. Roads and Maritime will undertake at residence noise mitigation treatments in regards to operational noise mitigation.
N8	Monitoring of operational noise will be undertaken within one year after completion of construction. If monitoring indicates a clear trend that traffic noise levels exceed those predicted, investigation of all further feasible and reasonable management measures will occur. Consultation with a suitably qualified and experienced acoustic specialist and the affected property owner will be necessary during the development of any additional	Stage 1 and 2	Operations	Roads and Maritime	Open	Not yet required

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	mitigation measures.					
	Flora and Fauna					
F1	Clearing of native vegetation (including endangered ecological communities (EECs)) will be restricted to the minimum area necessary for construction.	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	AFJV has conducted ground truthing surveys whilst preparing the FFMP. The ecology surveys have informed the clearing extent for detailed design to minimise the clearing of native vegetation to the greatest extent practicable during the construction. All vegetation clearing required for the Project is assessed and determined to be consistent with the Planning Approval and Environmental Assessment by RMS and the ER prior to being undertaken. A Consistency Review has been undertaken to compare the Detailed Design clearing limits with the Concept Design clearing limits. This document was approved in February 2015 by RMS and the ER. A Vegetation Clearing Tracking

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						Register is maintained and compared with the approved clearing requirements. The approved clearing is consistent with the Biodiversity Offset Strategy. The quantity of EEC clearing is much lower than the area provided in the EA, however the overall quantity of native vegetation clearing is marginally higher than the area provided in the EA. The Project considers the retention of vegetation with conservation significance is a positive outcome for the Project.
F2	A qualified ecologist will identify any vegetation (including *Marsdenia longiloba*) to be retained and to be clearly delineated on work plans within the construction corridor. Erection of flagging/fencing on-site prior to any construction works, which is to remain in place for the full construction period, will clearly delineate this vegetation.	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	A qualified Project Ecologist has been engaged by AFJV as part of the project team to advise on erection of vegetation flagging/fencing to be in place throughout construction. The Project Ecologist undertakes inspections of all areas prior to clearing works to ensure the area is cleared of *Marsdenia longiloba*. Pre-clearing inspections also involve AFJV and RMS. The

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						clearing limits are flagged using yellow flagging, which is inspected for accuracy during the pre-clearing inspection. Orange flagging is used to delineate areas of threatened flora, heritage significance, etc, as well as appropriate signage.
F3	A threatened flora survey will be undertaken prior to clearing to identify individuals to be translocated and to confirm the extent of clearing. Erection of exclusion fencing to prevent any further encroachment into Newry State Forest to the east of the construction footprint. Threatened species directly impacted by the Proposal will be translocated to a suitable location outside the impact zone. A further visual inspection will be conducted post clearance to identify threatened species which may be indirectly impacted outside the cleared zone. Landscape planting to commence along the road boundary as soon as possible during construction.	Stage 1 and 2	Preconstruction and Construction	Contractor/Roads and Maritime	Ongoing	AFJV is has undertaken ground truthing ecological surveys of the alignment to identify threatened flora individuals that require translocation. Threatened flora noted in the Threatened Flora Management Plan as Directly or Indirectly impacted have been translocated to protected areas outside of the clearing limits. These areas have been delineated with no-go zone fencing and signage. Several *M.longiloba* individuals in the northern section of the Project still require translocation which will be carried out in Aug/Sept 2015. **Note: requirements for Newry State Forest not**

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						applicable to Project (Newry State Forest north of WC2NH). Landscape planting will commence as soon as practical during the construction phase.
F4	Plantings of rusty plum (*Amorphospermum whitei*) in areas of suitable habitat adjacent to the Proposal will follow from seed collection and propagation.	Stage 1 and 2	Construction	Contractor	Compliant	Seed collection and propagation of *A.whitei* has commenced. The individuals will be nursery raised and planted along the alignment once suitable.
F5	Site induction of construction workers will inform and instruct them of vegetation to be retained and on the identification of threatened species	Stage 1 and 2	Preconstruction and Construction	Contractor	Compliant	The site induction covers the identification of key threatened flora species located along the alignment.
F6	A suitably qualified ecologist will undertake pre-clearance surveys for threatened species including frogs. Searches will include nests and hollow bearing trees. Re-location of fauna species at risk of injury found in pre-clearance surveys or during construction will be in suitable habitat as close as possible to the area in which they were found. Immediately prior to clearing an inspection will confirm that the sites subject to pre-clearance surveys remain free of fauna.	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	A qualified Project Ecologist has been engaged by AFJV as part of the project team. The Project Ecologist undertakes inspections of all areas prior to inspect for potential fauna habitat, nests and hollow bearing trees. Fauna at risk of injury is relocated outside of the clearing area where practical.

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
F7	Where feasible and reasonable the identification and distribution of natural and artificial habitat features and resources (such as hollow-bearing trees, hollow logs, nest boxes and bush rocks) will occur along the Proposal. This relocation will limit injury to fauna and damage to existing vegetation. A nest box plan will be developed for the Proposal.	Stage 1 and 2	Preconstruction and Construction	Contractor. Roads and Maritime will develop a Nest Box Plan to be implemented by the contractor.	In progress	The AFJV Project Ecologist has identified hollow's and coarse woody debris that has been reused within the Project alignment for habitat. The Nest Box plan prepared by Roads and Maritime, was approved by DPE on 20/03/2013.
F8	Retention of mature trees in the median at locations identified in the environmental assessment will provide a stepping stone for gliders. Protection of these trees will occur (F2), and lopping and pruning is not to occur without expert advice.	Stage 1 and 2	Preconstruction and Construction	Contractor	In progress	The detailed design specifies a "widened median" which includes retained vegetation for glider crossings throughout the northern section of the Project from chainage 59700-61100. The trees that provide potential glider movement have been identified and are being retained throughout the clearing phase.
F9	Provision of fauna crossings will be as identified in the environmental assessment. All fauna crossings will be confirmed with the DECCW and I&I (Fisheries) during the detailed design phase.	Stage 1 and 2	Preconstruction and Construction	Contractor	Compliant	There are specific fauna crossings/ fish passage requirements outlined within SWTC App 4.5 and Table 4.1 as well as SWTC App 5. Initial fauna and fish design discussions were held with EPA

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						on 18 June 2014 (ERG 2). Onsite investigation / walkthrough with EPA, Roads and Maritime, DoE and experienced ecologists to determine fauna crossing arrangements was undertaken in Aug 2014. The outcomes of this meeting were used to update the SWTC Table 4.1 to ensure the most appropriate underpass locations were identified and carried through into the design. The Design is currently progressing based on the updated Table 4.1 of the SWTC. The detailed design will be issued to the EPA and Fisheries for comment and is regularly discussed during Environmental Review Group (ERG) meetings.
F10	Design and construction of waterway crossings will be in accordance with the fish habitat classification of each waterway and in consultation with the Department of Industry and Investment. All fauna crossings will be confirmed with the DECCW and I&I (Fisheries) during the	Stage 1 and 2	Preconstruction and Construction	Contractor	In progress	Early design consultation with DPI (Fisheries) have been undertaken and included in tender documentation. The culverts requiring fish passage as agreed

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	detailed design phase.					with Fisheries have been noted in Table 4.1 of the SWTC. The Design is currently progressing to incorporate the requirements of Table 4.1. All waterway crossings are being designed in accordance with the SWTC and DPI Fisheries requirements. AFJV is providing DPI Fisheries with relevant designs drawings for comment. Issues are being raised at the monthly ERG meetings and closed out through site visits and/or ongoing communication
F11	Erection of fauna exclusion fencing (e.g. floppy-top fencing) along the Proposal at appropriate locations will direct fauna movement towards fauna-crossing structures.	Stage 1 and 2	Preconstruction and Construction	Contractor. Roads and Maritime will determine the appropriate locations for fauna exclusion fencing.	Ongoing	There are SWTC App 4.5 / SWTC App 5 requirements in regards to fauna fencing. The fauna fencing locations have been revised based on advice from Roads and Maritime to address comments raised by DoE. The location of revised fauna fencing was discussed at the ERG meeting in September 2014. The revised fauna fencing locations were

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						agreed in principle with the EPA during the August 2014 ERG to progress the detailed design. The Detailed Design has been provided to the EPA for comment prior to finalising the location of fauna fencing.
F12	Development of an offset strategy will occur in consultation with the Department of Environment, Climate Change and Water.	Stage 1 and 2	Preconstruction, Construction and Operations	Roads and Maritime	Approved	Comments were received from DPE on the draft Biodiversity Offset strategy for Warrell Creek to Urunga (12 September 2013, April 2014).. The Final Biodiversity Offset Strategy was submitted to DPE on 23/10/14 for approval. Included EPA comments addressed from 9 April & 15 Oct. WC2U Biodiversity Offset Strategy has been approved by Planning. There will likely be overlap with the Commonwealth approval in regards to offsets, subject to approval.

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
F13	A targeted, adaptive monitoring program will be undertaken for a minimum of 12 months to assess the effectiveness of fauna and flora impact mitigation measures. After 12 months a report will be completed to assess the need for additional measures and/or further targeted monitoring.	Stage 1 and 2	Preconstruction and Construction	Roads and Maritime	Ongoing	The Ecological Monitoring Program was approved by DPE as part of the Flora and Fauna Management Plan on the 16/12/14. AFJV are currently progressing the monitoring requirements in accordance with this document.
F14	The RTA will set bed levels for culverts and ledges for combined fauna passage in consultation with the Department of Environment, Climate Change and Water.	Stage 1 and 2	Preconstruction and Construction	Contractor	In progress	Early design consultation with DPI (Fisheries) have been undertaken and included in tender documentation. The culverts requiring fish passage as agreed with Fisheries have been noted in Table 4.1 of the SWTC. The Design is currently progressing to incorporate the requirements of Table 4.1. The bed levels and ledges for fauna culverts are currently being designed. AFJV is providing agencies with design drawings for review and comment. Issues are being raised at the

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						monthly ERG meetings and closed out through site visits and/or ongoing communication.
	Aboriginal heritage					
AH1	The protection of items and areas of archaeological significance not directly affected by construction will occur.	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	Heritage sites identified during the EA and subsequent Cultural Heritage Assessments are identified on the Project's Sensitive Area Plans. The areas are flagged on site with no-go zne flagging and signage to prevent construction access.
AH2	There will be protocols will be established and implemented to manage any previously unidentified Aboriginal objects or skeletal remains encountered during construction. All works in the vicinity of the find will cease to obtain Aboriginal heritage specialist advice and inform the Department of Environment, Climate Change and Water.	Stage 1 and 2	Preconstruction and Construction	Contractor	Compliant	The approved HMP incorporates specific plans and procedures including Roads and Maritime Standard Management Procedure – Unexpected Heritage Items
AH3	The management of any Aboriginal heritage items directly affected will be in consultation with Aboriginal stakeholders and the Department of Environment, Climate Change and Water.	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	Archaeological Salvage works have been undertaken by Roads and Maritime with consultation with Aboriginal stakeholders and DPE. Sites located within the Project Boundary have been

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						cleared to commence construction. Subsequent Cultural Heritage Assessments undertaken for the Project have not identified any Aboriginal Heritage items that will be directly affected. However a section of the permanent design in the southern section of the Project will require salvage of an artefact. Also, a forestry trail will need to be constructed in an area of Cabbage Tree Palm Resource Area in the northern section of the Project. Approval will be sought from DPE prior to undertaking this work.
AH4	All construction personnel will receive training on their obligations for protection of Aboriginal cultural materials, including information on site locations, conservation management and legal obligations in regard to Aboriginal cultural materials.	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	The HMP includes an Aboriginal heritage education and training package. AFJV will implement the requirements of the HMP and subordinate management procedures, and training packages for heritage induction and training. The first training session is planned for July/August

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						2015.
AH5	The RTA will comply with the NSW Government's *Aboriginal Participation in Construction Guidelines.*	Stage 1 and 2	Preconstruction and Construction	Contractor	In progress	An Aboriginal Participation Plan is being currently being implemented by AFJV.
	Non-Aboriginal heritage					
NH1	The detailed design will minimise impacts to identified non-Aboriginal heritage items where feasible and reasonable.	Stage 1 and 2	Preconstruction and Construction	Contractor	Compliant	Relevant site surveys for WC2NH (Ferry Punt at Boulton Hill, and old municipal tips) have been undertaken to determine relevant sites, these areas have been identified with no-go zone flagging and signage. The detailed design has avoided impacts to non-aboriginal heritage items identified in the approved HMP.
NH2	If any material of potential archaeological significance is unearthed, work will cease to obtain specialist heritage advice.	Stage 1 and 2	Construction	Contractor	Ongoing	The approved HMP incorporates specific plans and procedures including Roads and Maritime Standard Management Procedure – Unexpected Heritage Items
NH3	Preparation of archival and photographic records for impacted heritage items would be in accordance with relevant guidelines.	Stage 1 and 2	Preconstruction and Construction	Contractor	Compliant	The Old Farm House in North Macksville has been subject to archival recording during

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						demolition in accordance with relevant procedures and guidelines. The archival recording has been undertaken by the Project Archaeologist/Heritage consultant – Jacobs.
	Water quality and hydrology					
W1	Minimisation of the area of soil exposure during construction.	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	The Project works are inspected on a fortnightly basis by the Project Soil Conservationist who provides guidance and advice to reduce the area of soil exposed during construction. The clearing and topsoil strip phases of construction have been undertaken progressively to avoid exposing soil to erosion.
W2	Detailed design will further investigate any additional feasible and reasonable mitigation and management measures to minimise construction erosion and sedimentation.	Stage 1 and 2	Preconstruction and Construction	Contractor	Compliant	Sediment basins and other water quality control measures have been designed and managed by AFJV during the detailed design phase. These have been further developed and managed by AFJV and the Project Soil Conservationist after the detailed design was released. The design

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						of the alignment aims to minimise the footprint where possible in order to minimise potential for erosion and sedimentation.
W3	Monitoring of groundwater impacts and surface water quality upstream and downstream of the site during construction will determine the effectiveness of mitigation strategies. Implementation of additional feasible and reasonable management measures will occur if necessary.	Stage 1 and 2	Preconstruction and Construction	Contractor/Roads and Maritime	Ongoing	The SWMP incorporates a: • Water Quality Monitoring Program; and • Groundwater Management Strategy Roads and Maritime will prepare the monitoring program and implement the pre and post construction requirements. AFJV is currently undertaking the monitoring of groundwater and surface water during construction in accordance with the approved plans.

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
W4	Development and implementation of specific construction measures for in-stream works to limit water quality impacts will occur in consultation with relevant government agencies.	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	AFJV have developed specific EWMS's for works in or near waterways. The EWMS's have been reviewed by DPI Fisheries and the EPA. DPI Fisheries are specifically notified prior to undertaking works in or near waterways. These areas are also regularly inspected during ERG meetings by DPI Fisheries and the EPA.
W5	Managing operational water quality will occur by applying RTA's *Code of Practice for Water Management – Road Development and Management (1999)*.	Stage 1 and 2	Construction and Operations	Contractor/ Roads and Maritime	Ongoing	Operational water quality basins are being designed in accordance with the SWTC. Roads and Maritime will manage operational water quality during the operational phase.
W6	Investigation of the potential for changes in the groundwater table will take place before starting any major earthworks. Where a potential for change is identified, the significance of the change and any resultant impacts will be determined and measures to manage the changes will be designed and implemented as necessary.	Stage 1 and 2	Preconstruction and Construction	Roads and Maritime/ Contractor	Ongoing	Roads and Maritime has prepared the monitoring program and implementation for the pre and post construction requirements. AFJV is currently monitoring groundwater in accordance with the approved groundwater monitoring program.

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						A Groundwater Management Strategy is a part of the approved SWMP. This Strategy includes management and mitigation measures for groundwater resource areas that may be impacted by the Project.
W7	Baseline monitoring of groundwater levels and chemical levels at cutting sites near springs, creeks or endangered ecological communities prior to construction commencing.	Stage 1 and 2	Preconstruction and Construction	Roads and Maritime/ Contractor.	Ongoing	Roads and Maritime has undertaken baseline monitoring up to construction commencing. AFJV is currently implementing the construction-phase monitoring requirements.
	Soils and fill					
S1	Identification and management of Acid Sulphate Soils will be in accordance with the *Guidelines for the Management of Acid Sulphate materials: Acid Sulphate Soils, Acid Sulphate Rock and Monosulphidic Black Ooze (RTA 2005)*.	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	The approved SWMP includes an Acid Sulphate Material Management Plan which is based on this guideline document. This is currently being implemented on site.
S2	There will be identification, investigation and appropriate management of areas of potential soil contamination (including works in the vicinity of the old municipal tip site in Nambucca State Forest).	Stage 1 and 2	Preconstruction and Construction	Contractor	In progress	Potential contamination within and adjacent to the Project site has been assessed and will be managed in consideration of design requirements and

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						construction. All known areas assessed in reports prepared by Coffeys, including the April 2014 report. Contaminated areas are managed in accordance with RMS specification requirements including the preparation and implementation of a Remedial Action Plan. In addition, procedures have been included within the SWMP in dealing with unexpected contamination detected during construction.
	Air quality					
AQ1	To minimise windblown, traffic generated or equipment generated dust emissions, there will be feasible and reasonable mitigation and management measures.	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	AFJV has detailed management and mitigation measures to achieve this requirement within the approved Air Quality Management Plan (AQMP).
AQ2	Dust generating activities will stop where visible dust is being emitted outside the construction corridor and dust suppression measures are ineffective.	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	The AQMP includes the locations of dust sensitive areas and indicative monitoring locations. Specific controls for managing potential for air quality (dust)

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						impacts is prescribed within the approved AQMP.
	Greenhouse gases and energy					
G1	Wherever feasible and reasonable detailed design will consider whole of life reductions in greenhouse gas emissions and energy consumption.	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	AFJV has detailed the requirements of this SoC within the approved Waste and Energy Management Plan (WEMP). The detailed design has endeavoured to reuse material won from the Project alignment to reduce the need for carting material to and from the worksite. The long term design also supports less vehicle emissions through smarter road design (e.g less inclines, less stopping and starting, etc).
G2	Energy efficient work practices will be adopted to limit energy use. Where reasonable and feasible, equipment and management measures will be adopted to minimise energy use and greenhouse gas production.	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	AFJV has detailed the requirements of this SoC within the approved Waste and Energy Management Plan (WEMP).
	Visual amenity and design					

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
UD1	The preparation of detailed urban and landscape design will be in consultation with Nambucca and Bellingen Shire councils and the community. The detailed design and implementation of built elements and landscapes and the mitigation of residual impacts will be in accordance with the visual and urban design objectives and principles of the Proposal.	Stage 1 and 2	Preconstruction and Construction	Contractor	In progress	The UDLP has been prepared and provided to DPE under a staged submission. The design has been provided to Nambucca Shire Council for review (It is noted that Bellingen Shire Council is not relevant for the WC2NH Proejct). Once the UDLP has developed through the design it will be provided for Community Consultation and the final Stage 2 document provided to DPE for approval.
UD2	The species to be used in the landscaping treatments will include native and locally indigenous plants.	Stage 1 and 2	Preconstruction and Construction	Contractor	In progress	This requirement has been incorporated into the UDLP.
UD3	Landscape and rehabilitation works will be subject to monitoring and maintenance where necessary for a minimum of two years after construction.	Stage 1 and 2	Construction and Operation	Contractor.	Open	Not yet commenced
	Hazards and risks					
HR1	Hazardous materials used during construction will be stored in bunded areas within construction sites. Hazardous materials will not be stored on the floodplain below the 20 year ARI flood level. Use of hazardous materials in floodplain areas will be limited to a daily or weekly threshold.	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	These requirements are incorporated as part of the CEMP in the approved SWMP. For site/activity specific works, EWMS's have been prepared and implemented for the prevention

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	Containers, workshops, plant, material stores and storage tanks will not be sited on the floodplain of watercourses where avoidable.					and mitigation of potential hazards and risk. Hazardous materials are not stored within the floodplain or adjacent to creek lines.
HR2	Potentially hazardous and contaminating activities (such as washing construction plant and handling hazardous chemicals) and activities with the potential for spillage such as refuelling, maintenance of equipment, mixing of cutting oil and bitumen will be in bunded areas or in other areas where suitable containment measures are in place to prevent discharge into watercourses.	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	These requirements are incorporated as part of the approved SWMP. Activities that may cause contaminated run-off are undertaken in appropriately bunded areas.
	Waste and resource management					
WR1	The waste minimisation hierarchy principles of avoid / reduce / re-use / recycle / dispose will apply to all aspects of the Proposal, including work programs, purchase strategies and site inductions. Quarterly assessments will identify opportunities for improvement.	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	AFJV has detailed the requirements of this SoC within the approved Waste and Energy Management Plan (WEMP). Waste management is reviewed quarterly in line with ACCIONA infrastructure internal reporting requirements.
WR2	Where reuse or recycling of water is not possible, it will be	Stage 1 and	Preconstruction	Contractor	Ongoing	AFJV has detailed the

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	sent to an appropriately licensed facility.	2	and Construction			requirements of this SoC within the approved Waste and Energy Management Plan (WEMP). Water is reused of disposed in accordance with the Environmental Protection Licence 20533.
	Landuse and property					
P1	Negotiation of all property acquisitions will be in accordance with the RTA *Land Acquisition Policy Statement*. Compensation assessment will be in accordance with the *Land Acquisition (Just Terms Compensation) Act 1991*.	Stage 1 and 2	Preconstruction and Construction	Roads and Maritime	In progress	Property purchases have all been completed except for one additional acquisition at southern end to facilitate safety improvements for Warrell Creek interchange. Roads and Maritime is currently liaising with property owner in regard to boundary refinements to minimise area of acquisition. Negotiations are still ongoing with the one outstanding landholder at Upper Warrell Ck.
P2	The Department of Industry and Investment will have access to state forest land identified for acquisition by RTA to remove any harvestable timber within the footprint of the Proposal prior to commencement of construction.	Stage 1 and 2	Preconstruction and Construction	Roads and Maritime	In progress	Roads and Maritime has reached agreement with Forestry Corporation in regards to this requirement, with proposal from

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	Access to state forest land adjacent to the Proposal will provide for forestry operations, fire management activities and recreation purposes.					Forestry Corporation on the work it will undertake in State Forests.
P3	Where the Proposal adversely affects a licensed bore, dam or other property water supply, RTA will investigate an alternate source or negotiate compensation for the loss with the landowner.	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	The Project has not impacted on any licenced bores or dams to date.
	Socio economic impacts					
S1	There will be ongoing consultation with affected businesses, agricultural and aquaculture landowners.	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	AFJV has an approved Community Involvement Plan (which covers the requirements of the Condition B28 Community Communication Strategy) to provide the mechanisms to facilitate communication between the Proponent, the Contractor, the Environmental Representative, the relevant Council and the local community (broader and local stakeholders) on the construction and environmental management of the project, covering all tasks and procedures in meeting the requirements of this SoC.

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
S2	The identification of utilities and services potentially affected by construction, including requirements for diversion, protection and / or support will occur prior to the start of construction. Consultation with the service providers will determine alterations to services, the limitation of disruptions and requirements for advice to customers.	Stage 1 and 2	Preconstruction and Construction	Contractor	Ongoing	The AFJV has actively consulted with Utilities providers and has prepared a design of the relocation of impacted public utilities. This is currently being implemented on site to prevent damage to necessary public utilities.
S3	Sites chosen for ancillary facilities will satisfy criteria outlined in Chapter 7 of the EA. Occupation and use of compound and work sites will seek to minimise disturbance to adjacent residents.	Stage 1 and 2	Preconstruction and Construction	Contractor	In progress	AFJV has prepared a Consistency Assessment for two Ancillary Site Facilities (Southern Compound and Northern Compound). The Consistency Assessments address the facilities compliance with the Planning Approval and this condition. Both Consistency Assessments have shown the facilities are consistent with the EA and Planning Approval and have been approved by RMS and the ER.
S4	Fencing will be erected around construction activities to prevent livestock from adjacent properties entering construction areas. Inclusion of water quality protection measures during the installation of in-stream structures to protect aquaculture.	Stage 1 and 2	Preconstruction and Construction	Contractor	Compliant	Rural fencing was installed prior to the commencement of substantial construction to prevent livestock entering active construction zones.

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						The works in-stream incorporate water quality protection measures such as silt curtains and hydrocarbon booms.

APPENDIX B – Monitoring Data

Monthly Dust Monitoring Results - Jan/Feb 2015

		Unit	Levels of Concern	LOR								
DDG ID					DDG1	DDG2	DDG3	DDG4	DDG5	DDG6	DDG7	DDG A1	DDG A2
Jan-15	Start Date of Sampling				8/01/2015	8/01/2015	8/01/2015	8/01/2015	8/01/2015	8/01/2015	8/01/2015	8/01/2015	8/01/2015
	Finish date of Sampling				6/02/2015	6/02/2015	6/02/2015	6/02/2015	6/02/2015	6/02/2015	6/02/2015	6/02/2015	6/02/2015
	Total Soluble Matter	g/m².month	N/A	0.1	2.9	2.7	1.7	1.8	1.4	1.5	0.6	-	-
		mg	N/A	1	50	45	30	30	24	25	10	-	-
	Total Insoluble	g/m².month	4 or increase of 2	0.1	0.6	1.8	1.6	0.7	0.5	1.1	0.6	-	-
		mg	N/A	1	11	30	27	12	8	19	10	-	-
	Total Solids	g/m².month	N/A	0.1	2.5	4.5	3.3	2.5	1.9	2.6	1.2	-	-
		mg	N/A	1	61	75	57	42	32	44	20	-	-
	Arsenic	mg/L	0.001	0.001	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001
	Comments				Overtopped	Overtopped	Overtopped	Overtopped	Overtopped	Overtopped	Missing Funnel	Overtopped	Overtopped

Monthly Dust Monitoring Results - Feb / Mar 2015

		Unit	Levels of Concern	LOR									
DDG ID					DDG1	DDG2	DDG3	DDG4	DDG5	DDG6	DDG7	DDG A1	DDG A2
Feb-15	Start date of sampling				6/02/2015	6/02/2015	6/02/2015	6/02/2015	6/02/2015	6/02/2015	6/02/2015	6/02/2015	6/02/2015
	Finish date of sampling				9/03/2015	9/03/2015	9/03/2015	9/03/2015	9/03/2015	9/03/2015	9/03/2015	9/03/2015	9/03/2015
	Total Soluble Matter	g/m².month	N/A	0.1	<0.1	1.3	0.3	2.1	0.3	0.1	0.2	-	-
		mg	N/A	1	1	24	5	39	5	2	3	-	-
	Total Insoluble	g/m².month	4 or increase of 2	0.1	0.9	0.5	1.1	0.8	0.2	0.5	0.4	-	-
		mg	N/A	1	16	10	20	14	4	9	8	-	-
	Total Solids	g/m².month	N/A	0.1	0.9	1.8	1.4	2.9	0.5	0.6	0.6	-	-
		mg	N/A	1	17	34	25	53	9	11	11	-	-
	Arsenic	mg/L	0.001	0.001	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001
	Comments												

Monthly Dust Monitoring Results - March/April 2015

		Unit	Levels of Concern	LOR								
DDG ID					DDG1	DDG2	DDG3	DDG4	DDG5	DDG6	DDG7	DDG A1	DDG A2
Mar-15	Start date of sampling				9/03/2015	9/03/2015	9/03/2015	9/03/2015	9/03/2015	9/03/2015	9/03/2015	9/03/2015	9/03/2015
	Finish date of sampling				10/04/2015	10/04/2015	10/04/2015	10/04/2015	10/04/2015	10/04/2015	10/04/2015	10/04/2015	10/04/2015
	Total Soluble Matter	g/m².month	N/A	0.1	1.3	0.4	0.7	1.6	2.3	2.8	1.8		
		mg	N/A	1	24	8	13	30	43	52	33		
	Total Insoluble	g/m².month	4 or increase of 2	0.1	0.1	0.2	0.6	0.7	0.5	1	0.2		
		mg	N/A	1	2	4	11	13	10	19	3		
	Total Solids	g/m².month	N/A	0.1	1.4	0.6	1.3	2.3	2.8	3.8	2		
		mg	N/A	1	26	12	24	43	53	71	36		
	Arsenic	mg/L	0.001	0.001								<0.001	<0.001
	Comments												

Monthly Dust Monitoring Results - April/May 2015

			Unit	Levels of Concern	LOR									
DDG ID						DDG1	DDG2	DDG3	DDG4	DDG5	DDG6	DDG7	DDG A1	DDG A2
Apr-15	Start date of sampling					10/04/2015	10/04/2015	10/04/2015	10/04/2015	10/04/2015	10/04/2015	10/04/2015	10/04/2015	10/04/2015
	Finish date of sampling					12/05/2015	12/05/2015	12/05/2015	12/05/2015	12/05/2015	12/05/2015	12/05/2015	12/05/2015	12/05/2015
	Total	g/m².month		N/A	0.1	2.1	2.1	1.3	1.7	5.8	2.9	2.6	----	----
	Soluble	mg		N/A	1	39	39	25	33	110	54	49	----	----
	Total	g/m².month		4 or increase of 2	0.1	6.9	1.2	1.3	2	1.9	1	0.5	----	----
	Insoluble	mg		N/A	1	131	23	25	37	36	18	10	----	----
	Total	g/m².month		N/A	0.1	9	3.3	2.6	3.7	7.7	3.9	3.1	----	----
	Solids	mg		N/A	1	170	62	50	70	146	72	59	----	----
	Arsenic	mg/L		0.001	0.001	----	----	----	----	----	----	----	0.003	<0.001
	Comments					Exceedance recorded - Monitor to be relocated to better representative location							Background - haven't started Arsenic rock excavation	

Table 3 - Dust Monitoring results

Monthly Dust Monitoring Results - May/June 2015

		Unit	Levels of Concern	LOR	DDG1	DDG2	DDG3	DDG4	DDG5	DDG6	DDG7	DDG8	DDG A1	DDG A2
DDG ID														
May-15	Start date of sampling				12/05/2015	12/05/2015	12/05/2015	12/05/2015	12/05/2015	12/05/2015	12/05/2015	19/05/2015	12/05/2015	12/05/2015
	Finish date of sampling				9/06/2015	9/06/2015	9/06/2015	9/06/2015	9/06/2015	9/06/2015	9/06/2015	9/06/2015	9/06/2015	9/06/2015
	Total	g/m².month	N/A	0.1	1.8	0.5	1.4	0.4	0.6	0.2	1.9	3.6	----	----
	Soluble	mg	N/A	1	30	8	23	6	9	3	32	44	----	----
	Total	g/m².month	4 or increase of 2	0.1	0.4	1	8.1	1.6	11.8	1.4	0.4	0.6	----	----
	Insoluble	mg	N/A	1	7	16	133	27	194	23	7	7	----	----
	Total	g/m².month	N/A	0.1	2.2	1.5	9.5	2	12.4	1.6	2.3	4.2	----	----
	Solids	mg	N/A	1	37	24	156	33	203	26	39	51	----	----
	Arsenic	mg/L	0.001	0.001	----	----	----	----	----	----	----	----	<0.001	<0.001
	Comments						Exceedence - related to quarry traffic		Exceedence - no topsoil stripping in area					

Monthly Dust Monitoring Results - June/July 2015

		Unit	Levels of Concern	LOR									
DDG ID					DDG1	DDG2	DDG3	DDG4	DDG5	DDG6	DDG7	DDG8	DDG A1	DDG A2
Jun-15	Start date of sampling				9/06/2015	9/06/2015	9/06/2015	9/06/2015	9/06/2015	9/06/2015	9/06/2015	9/06/2015	9/06/2015	9/06/2015
	Finish date of sampling				10/07/2015	10/07/2015	10/07/2015	10/07/2015	10/07/2015	10/07/2015	10/07/2015	10/07/2015	10/07/2015	10/07/2015
	Total	g/m².month	N/A	0.1	1.9	2	1.3	0.5	0.8	0.4	0.6	0.9	----	----
	Soluble	mg	N/A	1	35	37	24	9	14	8	11	16	----	----
	Total	g/m².month	4 or increase of 2	0.1	0.9	0.5	6.6	0.8	0.8	0.8	0.2	2.4	----	----
	Insoluble	mg	N/A	1	17	10	120	15	14	15	4	44	----	----
	Total	g/m².month	N/A	0.1	2.8	2.5	7.9	1.3	1.6	1.2	0.8	3.3	----	----
	Solids	mg	N/A	1	52	47	144	24	28	23	15	60	----	----
	Arsenic	mg/L	0.001	0.001	----	----	----	----	----	----	----	----	<0.001	<0.001
	Comments						Exceedence - related to quarry traffic							

Monthly Dust Monitoring Results - July/Aug 2015

			Unit	Levels of Concern	LOR	DDG1	DDG2	DDG3	DDG4	DDG5	DDG6	DDG7	DDG8	DDG A1	DDG A2
DDG ID															
Jul-15	Start date of sampling					10/07/2015	10/07/2015	10/07/2015	10/07/2015	10/07/2015	10/07/2015	10/07/2015	10/07/2015	10/07/2015	10/07/2015
	Finish date of sampling					11/08/2015	10/08/2015	10/08/2015	10/08/2015	10/08/2015	10/08/2015	10/08/2015	10/08/2015	10/08/2015	10/08/2015
	Ash Content	g/m².month	N/A	0.1		0.2	0.4	0.9	5.8	4.2	0.3	0.2	1.2	----	----
		mg	N/A	1		3	8	16	106	77	6	3	22	----	----
	Combustible Matter	g/m².month	N/A	0.1		<0.1	0.2	0.3	0.9	0.9	0.4	0.1	<0.1	----	----
		mg	N/A	1		<1	3	6	16	16	7	3	<1	----	----
	Total Insoluble	g/m².month	4 or increase of 2	0.1		0.2	0.6	1.2	6.7	5.1	0.7	0.3	1.2	----	----
		mg	N/A	1		3	11	22	122	93	13	6	22	----	----
	Arsenic	mg/L	0.001	0.001		----	----	----	----	----	----	----	----	<0.001	<0.001
	Comments								Large dirt clod in funnel	Gauge was full to brim with water. Other gauges had approx 10mm of water					

April 2015 Groundwater Monitoring (Coffeys Groundwater Plan)

Location	Units	Groundwater Investigation Levels (GILs)	4BH010	4BH011	1BH04	4LDBH009	4LDBH011	4LDBH012	1BH10	1BH12	2BH12	4BH022	4BH021	4BH024	4LDBH015	1BH49	4BH058	4BH065	4BH066	5BH066	4BH064
Cut			6	6	7	7	8	9	9	10	10 (replicate)	11	11	12	12	17	17	28 / Landfill	28 / Landfill	28 / Landfill (replicate)	28 / Landfill
Date of Sampling			4-May-15	4-May-15	5-May-15	5-May-15	4-May-15	4-May-15	4-May-15	5-May-15	5-May-15	4-May-15	5-May-15	4-May-15	4-May-15	4-May-15	4-May-15	4-May-15	5-May-15	5-May-15	5-May-15
Laboratory data																					
Metals																					
Aluminium	mg/L	0.055	0.170	DRY	0.105	0.005	0.007	0.056	<0.005	0.078	0.098	0.387	0.025	0.052	0.020	<0.005	<0.005	0.519	..	..	DRY
Arsenic	mg/L	0.024	0.001	DRY	0.009	<0.001	0.003	<0.001	<0.001	0.002	0.002	0.001	0.002	<0.001	0.004	0.001	<0.001	0.001	..	..	DRY
Cadmium	mg/L	<LOR	<0.001	DRY	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	..	..	DRY
Chromium	mg/L	0.001	0.001	DRY	<0.001	<0.001	0.002	<0.001	<0.001	0.001	0.002	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	0.001	..	..	DRY
Copper	mg/L	0.0014	0.182	DRY	0.002	0.065	0.001	0.008	<0.001	0.001	0.003	0.004	0.006	0.03	0.02	0.001	0.004	0.021	..	..	DRY
Lead	mg/L	0.0034	0.001	DRY	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	..	..	DRY
Manganese	mg/L	-	0.139	DRY	0.042	0.013	1.202	0.036	3.539	0.2	0.205	0.028	0.011	0.005	0.113	0.256	0.053	0.037	..	..	DRY
Nickel	mg/L	0.011	0.014	DRY	0.002	0.001	0.003	0.002	0.009	0.001	0.001	0.002	0.002	0.002	0.042	0.003	0.003	0.002	..	..	DRY
Selenium	mg/L	-	<0.002	DRY	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	..	..	DRY
Silver	mg/L	<LOR	<0.001	DRY	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	..	..	DRY
Zinc	mg/L	0.008	0.039	DRY	0.033	0.007	0.002	0.088	0.023	0.008	0.034	0.019	0.016	0.015	0.046	0.016	0.007	0.007	..	..	DRY
Iron	mg/L		1.311	DRY	0.069	0.009	0.256	0.087	5.315	0.221	0.212	0.135	0.014	0.027	0.058	0.024	0.03	0.922	..	..	DRY
Mercury	mg/L	0.0006	<0.0005	DRY	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	..	..	DRY
Antimony	mg/L	0.009	..	DRY	..	..	..	..	..	..	..	..	..	..	..	..	..	<0.001	0.001	0.001	DRY
Beryllium	mg/L	-	..	DRY	..	..	..	..	..	..	..	..	..	..	..	..	..	<0.001	<0.001	<0.001	DRY
Boron	mg/L	-	..	DRY	..	..	..	..	..	..	..	..	..	..	..	..	..	0.034	0.094	0.09	DRY
Cobalt	mg/L	-	..	DRY	..	..	..	..	..	..	..	..	..	..	..	..	..	0.002	0.005	0.004	DRY
Molybdenum	mg/L	-	..	DRY	..	..	..	..	..	..	..	..	..	..	..	..	..	0.001	<0.001	<0.001	DRY
Tin	mg/L	0.005	..	DRY	..	..	..	..	..	..	..	..	..	..	..	..	..	<0.001	<0.001	<0.001	DRY
Inorganics																					
Cyanide	ug/L or ppb	0.007	..	DRY	..	..	..	..	..	..	..	..	..	..	..	..	..	<0.004	<0.004	<0.004	DRY
Total Recoverable Hydrocarbons (dependant on visual																					
C10-C14 Fraction	ug/L or ppb	-	<50	DRY	<50	<50	**79**	<50	<50	**190**	**160**	<50	<50	<50	<50	<50	<50	<50	<50	<50	DRY
C15-C28 Fraction	ug/L or ppb	-	<100	DRY	<100	<100	<100	<100	<100	**1900**	**1400**	<100	<100	<100	<100	<100	<100	<100	<100	<100	DRY
C29-C36 Fraction	ug/L or ppb	-	<100	DRY	<100	<100	<100	<100	<100	**860**	**470**	<100	<100	<100	<100	<100	<100	<100	<100	<100	DRY
C10-C16 Fraction	ug/L or ppb	-	<50	DRY	<50	<50	**93**	<50	<50	**1300**	**1200**	<50	<50	<50	<50	<50	<50	<50	<50	<50	DRY
C10-C16 less Naphthalene Fraction	ug/L or ppb	-	**N/A**	DRY	..	..	..	..	..	**N/A**	**N/A**	**N/A**	..	..	..	..	..	<50	<50	<50	DRY
C16-C34 Fraction	ug/L or ppb	-	<100	DRY	**100**	<100	<100	<100	<100	**1400**	**720**	<100	<100	<100	<100	<100	<100	<100	<100	<100	DRY
C34-C40 Fraction	ug/L or ppb	-	<100	DRY	<100	<100	<100	<100	<100	**500**	**300**	<100	<100	<100	<100	<100	<100	<100	<100	<100	DRY
BTEX (dependent on visual insp.)																					
Benzene	ug/L or ppb	950	..	DRY	..	..	..	..	..	..	..	..	..	..	..	..	..	<1	<1	<1	DRY
Toluene	ug/L or ppb	180	..	DRY	..	..	..	..	..	..	..	..	..	..	..	..	..	<1	<1	<1	DRY
Ethylbenzene	ug/L or ppb	80	..	DRY	..	..	..	..	..	..	..	..	..	..	..	..	..	<1	<1	<1	DRY
m+p-Xylene	ug/L or ppb	-	..	DRY	..	..	..	..	..	..	..	..	..	..	..	..	..	<2	<2	<2	DRY
o-Xylene	ug/L or ppb	350	..	DRY	..	..	..	..	..	..	..	..	..	..	..	..	..	<1	<1	<1	DRY
Polynuclear Aromatic Hydrocarbons																					
Acenaphthene	ug/L or ppb	-	..	DRY	..	..	..	..	..	..	..	..	..	..	..	..	..	<1	<1	<1	DRY
Acenaphthylene	ug/L or ppb	-	..	DRY	..	..	..	..	..	..	..	..	..	..	..	..	..	<1	<1	<1	DRY
Anthracene	ug/L or ppb	-	..	DRY	..	..	..	..	..	..	..	..	..	..	..	..	..	<1	<1	<1	DRY
Benz(a)anthracene	ug/L or ppb	-	..	DRY	..	..	..	..	..	..	..	..	..	..	..	..	..	<1	<1	<1	DRY

Benzo(a)pyrene	ug/L or ppb	0.2	..	DRY	..	..	..	..	..	..	..	..	..	..	..	..	..	<5	<5	<5	DRY
Benzo(b) & (k) flouranthene	ug/L or ppb	-	..	DRY	..	..	..	..	..	..	..	..	..	..	..	..	..	<2	<2	<2	DRY
Benzo(g.h.i)perylene	ug/L or ppb	-	..	DRY	..	..	..	..	..	..	..	..	..	..	..	..	..	<1	<1	<1	DRY
Chrysene	ug/L or ppb	-	..	DRY	..	..	..	..	..	..	..	..	..	..	..	..	..	<1	<1	<1	DRY
Dibenz(a.h)anthracene	ug/L or ppb	-	..	DRY	..	..	..	..	..	..	..	..	..	..	..	..	..	<1	<1	<1	DRY
Fluoranthene	ug/L or ppb	1.4	..	DRY	..	..	..	..	..	..	..	..	..	..	..	..	..	<1	<1	<1	DRY
Fluorene	ug/L or ppb	-	..	DRY	..	..	..	..	..	..	..	..	..	..	..	..	..	<1	<1	<1	DRY
Indeno(1.2.3-cd)pyrene	ug/L or ppb	-	..	DRY	..	..	..	..	..	..	..	..	..	..	..	..	..	<1	<1	<1	DRY
Naphthalene	ug/L or ppb	16	..	DRY	..	..	..	..	..	..	..	..	..	..	..	..	..	<1	<1	<1	DRY
Phenanthrene	ug/L or ppb	2	..	DRY	..	..	..	..	..	..	..	..	..	..	..	..	..	<1	<1	<1	DRY
Pyrene	ug/L or ppb	-	..	DRY	..	..	..	..	..	..	..	..	..	..	..	..	..	<1	<1	<1	DRY
Sum of reported PAHs	ug/L or ppb	-	..	DRY	..	..	..	..	..	..	..	..	..	..	..	..	..	<2	<2	<2	DRY
Methoxychlor	ug/L or ppb	-	..	DRY	..	..	..	..	..	..	..	..	..	..	..	..	..	<0.2	<0.2	<0.2	DRY
4,4 DDT	ug/L or ppb	<LOR	..	DRY	..	..	..	..	..	..	..	..	..	..	..	..	..	<0.2	<0.2	<0.2	DRY
Organochlorin (OC) Pesticides	ug/L or ppb	-	..	DRY	..	..	..	..	..	..	..	..	..	..	..	..	..	<0.2	<0.2	<0.2	DRY
Organophosphate (OP) Pesticides	ug/L or ppb	-	..	DRY	..	..	..	..	..	..	..	..	..	..	..	..	..	<0.2	<0.2	<0.2	DRY
Polychlorinated Biphenyls (PCB's)	ug/L or ppb	-	..	DRY	..	..	..	..	..	..	..	..	..	..	..	..	..	<2	<2	<2	DRY
Total Phosphorus	mg/L	-	0.022	DRY	0.188	0.099	0.104	0.026	0.021	0.173	0.202	0.019	0.02	0.011	0.06	0.011	0.014	0.038	0.24	0.23	DRY
Phosphat e	mg/L	-	0.002	DRY	0.098	0.08	0.03	0.004	0.012	0.06	0.067	0.002	0.011	0.001	0.042	0.005	0.001	0.013	0.031	0.039	DRY
				DRY																	DRY
Tot al Nit rogen	mg/L	-	0.418	DRY	1.16	0.984	2.859	1.559	0.88	3.794	4.124	0.493	0.09	0.286	0.278	0.135	0.13	0.387	0.9	0.982	DRY
Tot al Kjeldahl Nit rogen	mg/L	-	0.411	DRY	0.6	0.285	2.798	0.212	0.549	3.766	4.052	0.07	0.011	0.057	0.173	0.059	0.095	0.361	0.221	0.386	DRY
				DRY																	DRY
Nit rat e	mg/L	-	0.003	DRY	0.446	0.686	0.06	1.344	0.321	0.025	0.066	0.421	0.079	0.228	0.103	0.076	0.035	0.021	0.664	0.583	DRY
Nit rit e	mg/L	-	0.004	DRY	0.114	0.013	0.001	0.003	0.01	0.003	0.006	0.002	<0.001	0.001	0.002	<0.001	<0.001	0.005	0.015	0.013	DRY
Ammonia	mg/L	-	0.116	DRY	0.54	0.193	0.662	0.068	0.301	0.357	0.34	0.035	0.005	0.008	0.01	0.007	0.013	0.052	0.012	0.038	DRY
Chloride	mg/L	-	1,095	DRY	12	17	164	18	879	310	288	31	16	23	101	16	12	43	..	..	DRY
Sulfate	mg/L	-	3,285	DRY	35	50	492	53	2,637	930	864	93	47	69	303	48	36	128	..	..	DRY
Bicarbonate	mg/L	-	70	DRY	40	4	440	60	200	175	170	9	48	6	55	24	52	72	52	48	DRY
Sodium	mg/L	-	580	DRY	25	11	241	16	330	230	226	9	18	13	136	9	45	34	..	..	DRY
Potassium	mg/L	-	2	DRY	4	0	2	4	18	4	4	1	1	0	1	1	0	2	..	..	DRY
Calcium	mg/L	-	5.55	DRY	0.83	0.45	76.6	127	239	27.2	27.7	3.43	8.01	0.29	3.09	2.8	1.21	16	..	..	DRY
Magnesium	mg/L	-	90	DRY	1.8	0.79	28.8	5.06	85.2	18	17.9	2.02	3.73	1.51	3.05	6.01	1.9	4.07	..	..	DRY
Tot al Dissolved Solids	mg/L	-	..	DRY	106.7	66.7	960	540	2746.7	780	773.3	73.3	116.7	73.3	466.7	106.7	146.7	200	..	..	DRY
TSS	mg/L	-	..	DRY	24	27	13	59	63	6	25	24	10	102	25	61	23	344	..	..	DRY
Conductivity	dS/m	-	3.76	DRY	0.155	0.088	1.619	0.738	3.685	1.402	1.41	0.097	0.158	0.096	0.722	0.128	0.241	0.273	0.361	0.326	DRY
pH		-	6.06	DRY	6.03	5.06	6.95	6.58	6.59	6.71	6.75	5.69	6.24	5.32	6.11	5.65	6.07	6.26	6.16	6.27	DRY
Temperature	°C	-	21.53	DRY	22.83	22.31	22.47	22.36	22.24	21.41	-	20.44	19.75	20.9	20.89	20.68	20.49	20.35	19.68	-	DRY
pH	pH	-	7.35	DRY	7.37	7.22	7.83	7.73	7.73	7.66	-	7.17	7.56	7.21	7.34	7.42	7.3	6.91	7.68	-	DRY
Conductivity	mS/cm	-	1.87	DRY	0.169	0.164	1.51	0.689	3.52	1.31	-	0.93	0.144	0.109	0.708	0.15	2.18	0.084	0.263	-	DRY
Turbidity	NTU	-	73.8	DRY	5.8	8.3	31.5	27.7	13.7	5.3	-	6.8	3.7	7.3	2.3	6.4	42	252	103	-	DRY
Dissolved Oxygen	mg/L	-	1.85	DRY	2.25	115%	7.25	3.07	1.9	7.36	-	5.09	1.85	2.6	1.46	1.98	2.96	4.7	2.79	-	DRY

May 2015 Groundwater Monitoring (Geolink)

Location	Units	Groundwater Investigation Levels (GILs)	4BH007	4BH008	4BH010	4BH011	4BH021	4BH022	4BH024	4LDBH015	5LDBH015	4BH037	4BH038	1BH49	4BH058	4BH061	4BH062
Cut/Fill			4	4	6	6	11	11	12	12	12	15	15	17	17	26	26
Date of Sampling			30-May-15	30-May-15	30-May-15	30-May-15	30-May-15	30-May-15	30-May-15	30-May-15	30-May-15	30-May-15	30-May-15	30-May-15	30-May-15	30-May-15	30-May-15
Comments			DRY	DRY		DRY						Unable to obtain sample				DRY	DRY
Laboratory data																	
Metals																	
Aluminium	mg/L	0.055	DRY	DRY	0.458	DRY	0.033	0.002	0.011	0.057	0.061	-	0.001	0.001	0.005	DRY	DRY
Arsenic	mg/L	0.024	DRY	DRY	0.003	DRY	0.001	<0.001	<0.001	0.009	0.011	-	0.001	0.001	<0.001	DRY	DRY
Cadmium	mg/L	<LOR	DRY	DRY	<0.001	DRY	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	DRY	DRY
Chromium	mg/L	0.001	DRY	DRY	0.005	DRY	<0.001	<0.001	<0.001	0.003	0.003	-	<0.001	<0.001	<0.001	DRY	DRY
Copper	mg/L	0.0014	DRY	DRY	0.082	DRY	0.004	<0.001	0.166	0.032	0.028	-	0.005	0.001	0.004	DRY	DRY
Lead	mg/L	0.0034	DRY	DRY	0.002	DRY	<0.001	<0.001	<0.001	0.001	0.001	-	<0.001	<0.001	<0.001	DRY	DRY
Manganese	mg/L	-	DRY	DRY	0.091	DRY	0.006	0.779	0.011	0.204	0.215	-	1.582	0.283	0.080	DRY	DRY
Nickel	mg/L	0.011	DRY	DRY	0.012	DRY	0.001	0.001	0.004	0.078	0.081	-	0.006	0.003	0.003	DRY	DRY
Selenium	mg/L	-	DRY	DRY	<0.010	DRY	<0.010	<0.010	<0.010	<0.010	<0.010	-	<0.010	<0.010	<0.010	DRY	DRY
Silver	mg/L	<LOR	DRY	DRY	<0.001	DRY	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	DRY	DRY
Zinc	mg/L	0.008	DRY	DRY	0.037	DRY	0.005	0.003	0.031	0.039	0.037	-	0.006	0.009	0.013	DRY	DRY
Iron	mg/L	-	DRY	DRY	2.035	DRY	0.038	4.802	0.006	1.054	1.524	-	0.022	1.911	0.014	DRY	DRY
Mercury	mg/L	0.0006	DRY	DRY	<0.0005	DRY	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	DRY	DRY
Total Recoverable Hydrocarbons (dependant																	
C10-C14 Fraction	ug/L or ppb	-	DRY	DRY	<50	DRY	<50	<50	<50	<50	<50	-	<50	<50	<50	DRY	DRY
C15-C28 Fraction	ug/L or ppb	-	DRY	DRY	<100	DRY	<100	<100	<100	<100	<100	-	<100	<100	<100	DRY	DRY
C29-C36 Fraction	ug/L or ppb	-	DRY	DRY	<100	DRY	<100	<100	<100	<100	<100	-	<100	<100	<100	DRY	DRY
C10-C16 Fraction	ug/L or ppb	-	DRY	DRY	<50	DRY	<50	<50	<50	<50	<50	-	<50	<50	<50	DRY	DRY
C16-C34 Fraction	ug/L or ppb	-	DRY	DRY	<100	DRY	<100	<100	<100	<100	<100	-	<100	<100	<100	DRY	DRY
C34-C40 Fraction	ug/L or ppb	-	DRY	DRY	<100	DRY	<100	<100	<100	<100	<100	-	<100	<100	<100	DRY	DRY
Nutrients																	
Total Phosphorus	mg/L	-	DRY	DRY	0.022	DRY	0.016	0.035	0.006	0.122	0.140	-	0.094	0.029	0.023	DRY	DRY
Phosphat e	mg/L	-	DRY	DRY	0.011	DRY	0.015	0.017	0.007	0.037	0.050	-	0.034	0.010	0.007	DRY	DRY
												-				DRY	DRY
Tot al Nit rogen	mg/L	-	DRY	DRY	0.772	DRY	0.075	0.282	0.337	0.643	0.488	-	1.023	0.245	0.193	DRY	DRY
Tot al Kjeldahl Nit rogen	mg/L	-	DRY	DRY	0.756	DRY	0.038	0.267	0.060	0.630	0.474	-	0.527	0.239	0.182	DRY	DRY
Nit rat e	mg/L	-	DRY	DRY	<0.005	DRY	0.037	0.009	0.273	0.006	<0.005	-	0.489	<0.005	0.007	DRY	DRY
Nit rit e	mg/L	-	DRY	DRY	0.019	DRY	<0.001	0.006	0.004	0.007	0.014	-	0.007	0.003	0.004	DRY	DRY
Ammonia	mg/L	-	DRY	DRY	0.245	DRY	0.007	0.168	0.008	0.005	0.056	-	<0.005	0.007	0.031	DRY	DRY
Major anions																	
Chloride	mg/L	-	DRY	DRY	450.000	DRY	13.5	15.400	18.900	74.700	80.900	-	2,261.000	13.000	14.400	DRY	DRY
Sulfate	mg/L	-	DRY	DRY	37.200	DRY	9.96	11.940	9.600	114.900	115.500	-	2,694.000	18.840	25.020	DRY	DRY
Bicarbonate	mg/L	-	DRY	DRY	90.000	DRY	20	72.000	10.000	55.000	50.000	-	700.000	32.000	17.000	DRY	DRY
Major cations																	
Sodium	mg/L	-	DRY	DRY	278.000	DRY	13.2	17.300	11.900	103.000	106.000	-	1,668.000	9.160	51.900	DRY	DRY
Potassium	mg/L	-	DRY	DRY	1.680	DRY	0.57	1.910	0.400	1.960	1.650	-	87.700	1.010	0.570	DRY	DRY
Calcium	mg/L	-	DRY	DRY	3.970	DRY	1.57	17.000	0.390	7.550	6.160	-	269.000	2.360	1.210	DRY	DRY
Magnesium	mg/L	-	DRY	DRY	31.800	DRY	1.27	4.000	1.370	3.100	2.890	-	505.000	5.960	2.170	DRY	DRY
Physical																	

~~pH~~		-	DRY	~~DRY~~	~~6.140~~	~~DRY~~	~~5.74~~	6.220	~~5.760~~	~~6.760~~	6.530	-	~~7.300~~	~~5.940~~	~~5.720~~	~~DRY~~	DRY
~~Conductivity~~	dS/m	-	DRY	~~DRY~~	~~1.800~~	~~DRY~~	~~0.102~~	0.232	~~0.095~~	~~0.604~~	0.626	-	~~11.690~~	~~0.130~~	~~0.130~~	~~DRY~~	DRY
~~Tot al Dissolved Solids~~	~~mg/L~~	-	DRY	DRY	955.000	DRY	80	145.000	55.000	390.000	405.000	-	8,135.000	105.000	85.000	DRY	DRY
Field Physical data																	
Depth to standing water level from TOC	m	-	DRY	DRY	1 .	DRY	6.9	1 .	.	.	.	-	.	14.38	.	-	-
~~pH~~	pH	-	DRY	~~DRY~~		~~DRY~~	~~7.71~~	7.56	~~7.71~~	~~7.75~~	7.75	-	~~7.45~~	~~7.83~~	~~7.61~~	-	-
~~Conductivity~~	mS/cm	-	DRY	~~DRY~~		~~DRY~~	~~0.097~~	.	~~0.098~~	~~0.678~~	0.678	-	~~10.4~~	.	.	-	-
~~Temperature~~	○C	-	DRY	~~DRY~~		~~DRY~~	~~19.7~~	19.4	~~20.62~~	~~20.12~~	20.12	-	~~19.68~~			-	-
~~Dissolved Oxygen~~	mg/L	-	DRY	~~DRY~~		~~DRY~~	~~4.3~~	4.33	~~5.5~~	~~2.49~~	2.49	-	~~5.97~~	~~2.88~~		-	-
Turbidity	NTU	-	DRY	DRY	.	DRY	6.8	62.5	4.8	16.3	16.3	-	68.9	6.4	9.6	-	-

June 2015 Groundwater Monitoring (Geolink)

Location	Units	Groundwater Investigation Levels (GILs)	4BH007	4BH008	4BH010	4BH011	4BH021	4BH022	4BH024	4LDBH015	4BH037	4BH038	1BH49	4BH058	4BH061	4BH062
Cut/Fill			Cut 4	Cut 4	Cut 6	Cut 6	Cut 11	Cut 11	Cut 12	Cut 12	Fill 15	Fill 15	Cut 17	Cut 17	Cut 26	Cut 26
Date of Sampling			18-Jun-15	18-Jun-15	18-Jun-15	18-Jun-15	18-Jun-15	18-Jun-15	18-Jun-15	18-Jun-15	18-Jun-15	18-Jun-15	18-Jun-15	18-Jun-15	18-Jun-15	18-Jun-15
Comments			DRY	DRY		DRY					Unable to obtain sample				DRY	DRY
Field Physical data																
Depth to standing water level from TOC	m	-	-	-	13.98	-	7.2	14.8	7.2	9.7	-	0.38	14.82	10.37	-	-
pH	pH	-	-	-	5.28	-	6.72	5.86	6.31	6.2	-	7.21	6.64	5.65	-	-
Conductivity	mS/cm	-	-	-	4.63	-	0	0.182	0.28	0.656	-	10.7	0.169	0.213	-	-
Temperature	○C	-	-	-	17.8	-	18.7	20.2	20.9	20	-	18.5	17.6	17.5	-	-
Dissolved Oxygen	mg/L	-	-	-	6.38	-	9.42	5.26	6.29	2.89	-	5.16	3.01	30	-	-
Turbidity	NTU	-	-	-	26.3	-	3.5	8.3	18.2	20	-	31.3	5	7.8	-	-

July 2015 Groundwater Monitoring (Coffeys)

Location	Units	Groundwater Investigation Levels (GILs)																								
Cut/Fill																										
Date of Sampling			16-Jul-15	16-Jul-15	16-Jul-15	16-Jul-15	16-Jul-15	16-Jul-15	16-Jul-15	16-Jul-15	16-Jul-15	16-Jul-15	15-Jul-15	15-Jul-15	15-Jul-15	15-Jul-15	15-Jul-15	15-Jul-15	15-Jul-15	15-Jul-15	15-Jul-15	15-Jul-15	15-Jul-15	15-Jul-15	15-Jul-15	15-Jul-15	15-Jul-15
Comments			DRY	DRY		DRY		Unable to obtain sample (damaged). No logger			DRY				Unable to sample (buried)		DRY		Unable to sample (damaged)				Dry - no logger	Dry - no logger		Dry - no logger present	Unable to sample (bore not able to be found)
Aluminium	mg/L	0.055	-	-	0.190	-	0.008	-	0.004	0.006	-	0.107	0.008	0.014	-	0.051	-	-	-	0.037	<0.001	0.008	-	-	0.053	-	-
Arsenic	mg/L	0.024	-	-	<0.001	-	<0.001	-	0.003	0.002	-	0.002	0.001	<0.001	-	<0.001	-	-	-	<0.001	0.001	0.001	-	-	0.001	-	-
Cadmium	mg/L	<LOR	-	-	<0.001	-	<0.001	-	<0.001	<0.001	-	<0.001	<0.001	<0.001	-	<0.001	-	-	-	<0.001	<0.001	<0.001	-	-	<0.001	-	-
Chromium	mg/L	0.001	-	-	0.001	-	<0.001	-	<0.001	<0.001	-	0.001	<0.001	0.004	-	<0.002	-	-	-	<0.001	<0.001	<0.001	-	-	<0.001	-	-
Copper	mg/L	0.0014	-	-	0.301	-	0.016	-	<0.001	<0.001	-	0.001	0.003	0.003	-	0.034	-	-	-	<0.001	<0.001	0.013	-	-	0.054	-	-
Lead	mg/L	0.0034	-	-	0.001	-	<0.001	-	<0.001	<0.001	-	<0.001	<0.001	<0.001	-	<0.001	-	-	-	<0.001	<0.001	<0.001	-	-	<0.001	-	-
Manganese	mg/L	-	-	-	0.238	-	0.008	-	0.926	3.689	-	0.218	0.01	0.508	-	<0.001	-	-	-	19.020	0.474	0.024	-	-	0.447	-	-
Nickel	mg/L	0.011	-	-	0.025	-	0.002	-	0.009	0.028	-	0.006	0.003	0.004	-	0.001	-	-	-	0.075	0.002	0.003	-	-	0.024	-	-
Selenium	mg/L	-	-	-	0.003	-	<0.001	-	0.001	0.005	-	0.001	0.001	0.001	-	<0.001	-	-	-	<0.02	0.001	0.001	-	-	0.001	-	-
Silver	mg/L	<LOR	-	-	<0.001	-	<0.001	-	<0.001	<0.001	-	<0.001	<0.001	<0.001	-	<0.001	-	-	-	0.003	<0.001	<0.001	-	-	<0.001	-	-
Zinc	mg/L	0.008	-	-	0.048	-	0.004	-	0.005	0.021	-	0.014	0.006	0.005	-	0.001	-	-	-	0.001	0.005	0.010	-	-	0.032	-	-
Iron	mg/L	-	-	-	1.485	-	<0.001	-	0.058	0.135	-	0.146	0.013	0.008	-	0.043	-	-	-	0.175	4.888	0.007	-	-	0.052	-	-
Mercury	mg/L	0.0006	-	-	<0.0005	-	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	-	<0.0005	-	-	-	<0.0005	<0.0005	<0.0005	-	-	<0.0005	-	-
Antimony	mg/L	0.009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	mg/L	0.37	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide	µg/L or ppb	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<4	-	-
C10-C14 Fraction	µg/L or ppb	-	-	-	<50	-	<50	-	<50	<50	-	140	<50	<50	-	<50	-	-	-	<50	<50	<50	-	-	<50	-	-
C15-C28 Fraction	µg/L or ppb	-	-	-	120.000	-	<100	-	<100	<100	-	1200	<100	<100	-	<100	-	-	-	<100	<100	570.000	-	-	<100	-	-
C29-C36 Fraction	µg/L or ppb	-	-	-	<100	-	<100	-	<100	<100	-	190	<100	<100	-	<100	-	-	-	<100	<100	150.000	-	-	<100	-	-
C10-C16 Fraction	µg/L or ppb	-	-	-	73.000	-	<50	-	<50	<50	-	1000	<50	<50	-	<50	-	-	-	<50	<50	110.000	-	-	<50	-	-
C16-C34 Fraction	µg/L or ppb	-	-	-	110.000	-	<100	-	<100	<100	-	430	<100	<100	-	<100	-	-	-	<100	<100	600.000	-	-	<100	-	-
C34-C40 Fraction	µg/L or ppb	-	-	-	<100	-	<100	-	<100	<100	-	<100	<100	<100	-	<100	-	-	-	<100	<100	<100	-	-	<100	-	-
Benzene	µg/L or ppb	950	-	-	<1	-	<1	-	<1	<1	-	<1	<1	<1	-	<1	-	-	-	<1	<1	<1	-	-	<1	-	-
Toluene	µg/L or ppb	-	-	-	<1	-	<1	-	<1	<1	-	<1	<1	<1	-	<1	-	-	-	<1	<1	<1	-	-	<1	-	-
Ethylbenzene	µg/L or ppb	-	-	-	<1	-	<1	-	<1	<1	-	<1	<1	<1	-	<1	-	-	-	<1	<1	<1	-	-	<1	-	-
m+p-Xylene	µg/L or ppb	-	-	-	<2	-	<2	-	<2	<2	-	<2	<2	<2	-	<2	-	-	-	<2	<2	<2	-	-	<2	-	-
o-Xylene	µg/L or ppb	-	-	-	<1	-	<1	-	<1	<1	-	<1	<1	<1	-	<1	-	-	-	<1	<1	<1	-	-	<1	-	-
Naphthalene	µg/L or ppb	-	-	-	<1	-	<1	-	<1	<1	-	<1	<1	<1	-	<1	-	-	-	<1	<1	<1	-	-	<1	-	-
Acenaphthene	µg/L or ppb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	-	-
Acenaphthylene	µg/L or ppb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	-	-
Anthracene	µg/L or ppb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	-	-
Benz(a)anthracene	µg/L or ppb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	-	-
Benzo(a)pyrene	µg/L or ppb	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	-	-
Benzo(b) & (k) flouranthene	µg/L or ppb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	-	-
Benzo(g.h.i)perylene	µg/L or ppb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	-	-
Chrysene	µg/L or ppb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	-	-
Dibenz(a.h)anthracene	µg/L or ppb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	-	-
Fluoranthene	µg/L or ppb	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	-	-
Fluorene	µg/L or ppb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	-	-
Indeno(1.2.3-cd)pyrene	µg/L or ppb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	-	-
Naphthalene	µg/L or ppb	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	-	-
Phenanthrene	µg/L or ppb	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	-	-
Pyrene	µg/L or ppb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	-	-
Sum of reportes PAHs	µg/L or ppb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	-	-
Methoxychlor	µg/L or ppb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.2	-	-
4, 4 DDT	µg/L or ppb	<LOR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.2	-	-
Other Organochlorine (OC) Pesticides	µg/L or ppb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.2	-	-
Organophosphate (OP) Pesticides	µg/L or ppb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.2	-	-
Polychlorinated Biphenyls (PCB's)	µg/L or ppb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	-	-

Total Phosphorus	mg/L	-	-	-	0.020	-	0.028	-	0.048	0.06	-	0.177	0.026	0.021	-	0.044	-	-	-	0.070	0.031	0.012	-	-	-	-	-
Phosphate	mg/L	-	-	-	0.014	-	0.005	-	0.028	0.055	-	0.176	0.005	0.007	-	0.010	-	-	-	0.034	0.004	0.006	-	-	-	-	-
			-	-		-		-			-				-		-	-	-				-	-	-	-	-
Total Nitrogen	mg/L	-	-	-	0.076	-	0.573	-	1.982	0.68	-	3.784	0.149	0.355	-	0.411	-	-	-	1.055	0.059	0.301	-	-	-	-	-
Total Kjeldahl Nitrogen	mg/L	-	-	-	0.076	-	0.123	-	1.963	0.308	-	3.778	0.115	0.039	-	0.051	-	-	-	0.059	0.056	0.091	-	-	-	-	-
			-	-		-		-			-				-		-	-	-				-	-	-	-	-
Nitrate	mg/L	-	-	-	<0.001	-	0.45	-	0.019	0.372	-	0.006	0.034	0.316	-	0.360	-	-	-	0.996	0.003	0.210	-	-	-	-	-
Nitrite	mg/L	-	-	-	0.001	-	0.002	-	0.004	0.006	-	0.007	0.003	0.003	-	0.001	-	-	-	0.010	0.002	0.001	-	-	-	-	-
Ammonia	mg/L	-	-	-	0.072	-	0.021	-	0.812	0.02	-	0.194	0.034	0.004	-	0.024	-	-	-	<0.005	0.025	0.030	-	-	-	-	-
Chloride	mg/L	-	-	-	1,862.000	-	26.1	-	196	1055	-	351	19.9	27.100	-	32.600	-	-	-	25,719.000	17.620	39.100	-	-	-	-	-
Sulfate	mg/L	-	-	-	49.000	-	9.06	-	81.2	120	-	40.9	10.5	11.500	-	17.400	-	-	-	10,003.000	11.800	15.700	-	-	-	-	-
Bicarbonate	mg/L	-	-	-	38.00	-	2.88	-	2.41	8.79	-	8.58	1.90	2.36	-	1.87	-	-	-	2.57	1.49	2.49	-	-	-	-	-
Sodium	mg/L	-	-	-	816.000	-	12.1		220	346	-	216	16.4	22.700	-	38.200	-	-	-	15,156.000	11.900	18.200	-	-	-	-	-
Potassium	mg/L	-	-	-	1.820	-	0.34	-	2.19	20.5	-	4.38	0.61	1.170	-	0.490	-	-	-	812.000	1.320	0.520	-	-	-	-	-
Calcium	mg/L	-	-	-	6.220	-	0.25	-	62	235	-	26.2	1.05	2.910	-	0.270	-	-	-	2,571.000	1.650	1.210	-	-	-	-	-
Magnesium	mg/L	-	-	-	137.000	-	0.98	-	26.8	89.5	-	18.7	1.36	3.080	-	1.570	-	-	-	5,048.000	7.730	2.730	-	-	-	-	-
pH	pH	-	-	-	4.620	-	4.99	-	7.41	7.47	-	6.74	5.77	5.970	-	6.180	-	-	-	7.440	6.130	6.310	-	-	-	-	-
Conductivity	dS/m	-	-	-	5.162	-	0.079	-	1.501	3.54	-	1.312	0.099	0.161	-	0.195	-	-	-	11.120	0.147	0.123	-	-	-	-	-
Total Dissolved Solids	mg/L	-	-	-	3510.2	-	53.7	-	1020.7	2407.2	-	892.2	67.3	109.5	-	132.6	-	-	-	7561.6	100.0	83.6	-	-	-	-	-
Depth to standing water level from TOC	m	-	-	-	14.45 m	-	9.45 m	-	2.8 m	4.61 m	-	9.2 m	7.59 m	15.61 m	-	8.65 m	-	11.1 m	-	0.85 m	16.2 m	11.52 m	-	-	13 m	-	-
pH	pH	-	-	-	7.44	-	5.3	-	6.93	6.79	-	4.94	5.65	5.62	-	5.37	-	4.92	-	5.07	1.12	3.07	-	-	2.9	-	-
Conductivity	mS/cm	-	-	-	4.79	-	0.134	-	1.52	3.48	-	1.35	0.101	0.172	-	0.351	-	0.735	-	10.7	0.183	0.144	-	-	0.617	-	-
Temperature	○C	-	-	-	18.27	-	18.94	-	18.9	19.96	-	20.15	19.14	18.73	-	19.7	-	19.64	-	17.7	19.38	18.9	-	-	17.4	-	-
Dissolved Oxygen	mg/L	-	-	-	3.79	-	6.45	-	4.92	4.49	-	3.79	2.41	5.9	-	7.78	-	3.83	-	5.9	7.53	4.74	-	-	3.56	-	-
Turbidity	NTU	-	-	-	34.9	-	49.7	-	28.5	76.6	-	7.6	10.1	14.6	-	800	-	71.5	-	94.1	29.8	46.6	-	-	172	-	-

Monthly Noise Monitoring Results - Feb 2015

Date	Time	Location	Site ID	Rec ID	NCA	NML	Laeq	LAFMAX	LAFMIN	LCEQ	LAF05	LAF10	LAF50	LAF90	Principal sources/ operations	Measurements exceeding criteria, plant/ operations causing	Corrective actions
26/02/2015	10:28	Cockburns Lane	1	16	1	50	51.1	62.6	42.7	63	54.8	53.4	50.3	47.4	BG: Sawmill, Traffic	NA	NA
26/02/2015	11:16	Letitia Close	2	410	4	59	49.5	78.5	30.7	57.6	47.9	45	38.3	34.7	BG: Birds, Traffic, Crickets	NA	NA
26/02/2015	11:51	Bald Hill Rd	3	197	3	50	54.6	80.3	37.2	63.2	51/7	47.1	41.9	39.4	BG: Lawn mower, traffic, residence, birds	NA	NA
26/02/2015	12:18	Albert Drive - O'Dells Rd	4	74	1	50	56.2	81.5	40.8	64.3	54.6	52.6	48.3	45	BG: Traffic, birds, dog	NA	NA

Monthly Noise Monitoring Results

Date	Time	Location	Site ID	Rec ID	NCA	LAeq	LAFMAX	LAFMIN	LCEQ	LAF05	LAF10	LAF50	LAF90	Principal sources/ operations	Measurements exceeding criteria, plant/ operations causing	Corrective actions	NML noise objective
25/03/2015	11:30	Albert Drive	4	74	1	60.8	86.2	40.9	68.1	61.8	55.2	46.2	43.3	Plant traffic, birds, dogs	Dogs barking	NA	50
25/03/2015	12:35	Letitia Close	2	410	4	49.7	76.8	34.7	57.6	45.4	42.6	39.2	37.3	Traffic, lawnmower, post driving	NA	NA	59
25/03/2015	13:00	Mattick Rd	5	442	6	49.3	65.9	41.8	63	53.2	51.6	47.7	45.1	Clearers - excavators x2, reversing squelcher	NA	NA	44

Monthly Noise Monitoring Results April

Date	Time	Location	Rec ID	NCA	NML	Laeq	LAFMAX	LAFMIN	LAF05	LAF10	LAF50	LAF90	Principal sources/ operations	Measurements exceeding criteria, plant/ operations causing	Corrective actions	Notes
24/04/2015	15:22	Mattick Rd	442	6	44	50.3	74	33.7	52.8	47.4	39.3	36.4	BG: Private Traffic	Nil	NA	
24/04/2015	10:58	Letitia Cl	410	4	59	55	77.6	38.6	62.2	58	45.7	41.6	BG: Mower	Nil	NA	
24/04/2015	15:49	Nursery Rd	415	4	59	57.2	77.8	47.3	61.3	58.7	53.6	50.9	BG: Birds, Traffic on highway	Nil	NA	
24/04/2015	16:17	Gumma Rd	383	3	50	63	82.8	42.5	68.4	61.8	61.8	45.7	BG: Private vehicles driving past	Nil	NA	
24/04/2015	16:44	Bald Hill Rd	197	3	50	54.3	78.9	36.4	57.5	53.6	43.4	39.8	BG: Birds, road traffic	Nil	NA	Excavator visible, not audible
24/04/2015	11:51	Cockburns Ln	16	1	50	55.6	77.6	43.9	56.6	55.7	52.2	48.1	Concrete truck on road (53-55)	Concrete truck has caused marginal increase above NML. Truck moved from area to reduce noise.	NA	Concrete truck parked opposite receiver, moved after 5 mins
24/04/2015	11:20	Albert Dr	74	1	50	57.3	78.2	42.2	55.7	51.2	49.7	45	BG: Traffic, birds, dog	Nil	NA	

Monthly Noise Monitoring Results May 2015

Date	Time	Location	Rec ID	NCA	NML	LAeq	LAFMAX	LAFMIN	LCEQ	LAF05	LAF10	LAF50	LAF90	Principal sources/ operations	Measurements exceeding criteria, plant/ operations causing	Corrective actions	Notes
13/05/2015	1:42pm	Albert Drive	74	1	50	58.9	95.9	35.7	61.3	49.2	47.1	42.5	39.1	Background - birds, highway traffic	NA		
13/05/2015	2:06pm	Cockburns Lane	16	1	50	52.5	74.3	44.8	63.3	63.3	55	54.1	50.8	Backhoe reversing, clearers	Minor exceedence from backhoe reversing towards receiver beeper - temporary		
13/05/2015	2:35pm	Bald Hill Rd	197	3	50	56.4	81.5	43.5	68.8	57.2	54	49.9	46.9	Pump, excavator, reversing beeper			Temporary works
14/05/2015	9:42am	Letitia Rd	410	4	59	54.9	80.9	39.8	63.8	53.5	51.5	46.3	42.8	Highway traffic dominant, minimal construction activity			
14/05/2015	10:39am	Mattick Rd	442	6	44	52	74.9	43.2	70.2	56.5	54.4	49.3	46.1	PCY earthworks	Earthworks with reversing beeper (moxies, front loader, compactor, excavators, positrack)		
14/05/2015	11:12am	Nursery Rd	415	4	59	53	68.7	46.4	69.9	56.1	55.3	52.5	49.9	Background - mower, highway traffic		NA	
15/05/2015	12:30pm	Wallace St	148	3	50	63.8	89.5	45.7	71.6	66.9	61.7	52.5	48.8	Background - industrial estate, private traffic	NA	NA	Construction visible, not audible
15/05/2015	2:15pm	Gumma Rd	383	3	50	65.4	89.6	38.6	73.2	69.8	63.9	47.9	44	Private traffic, reversing beeper (excavator across river)	Reversing beeper below NML - major noise from private traffic (trucks)	NA	

Table 2 - Noise Monitoring Results

Monthly Noise Monitoring Results June 2015

Date	Time	Location	Rec ID	NCA	NML	LAeq	LAFMAX	LAFMIN	LAF05	LAF10	LAF50	LAF90	Principal sources/ operations	Measurements exceeding criteria, plant/ operations causing	Corrective actions	Notes
23/06/2015	4:40 PM	Albert Drive	74	1	50	57.7	77.6	47.1	60.5	59.2	55.3	52.2	Dozer tracking, excavator tracking / excavating	Dozer + excavator working at same time	Noise levels consistent with predictions for fill and compaction works	
23/06/2015	3:02 PM	Cockburns Lane	16	1	50	56.3	70.8	48.1	60.8	58.9	54.8	51.8	Moxy / excavator movement	Moxy/ excavator moving, loader reversing	Noise levels consistent with predictions for topsoil strip works.	
24/06/2015	8:43 AM	Bald Hill Rd	197	3	50	59	81	46.6	60.7	57.9	52.3	49.5	Backhoe digging/rolling	Backhoe	Backhoe only working temporarily near sensitive receiver.	
24/06/2015	9:37 AM	Letitia Rd	410	4	59	52.2	68.3	43.5	54.5	53.1	57.5	47.7	Drill rig on truck, birds	NA	NA	
24/06/2015	10:00 AM	Mattick Rd	442	6	44	44.2	66.2	37.5	47.4	46.3	42.5	40	LV movement at northern compound	NA	NA	
24/06/2015	9:15 AM	Nursery Rd	415	4	59	50.1	58.8	43.4	53.9	52.7	49.3	46.3	Highway traffic	NA	NA	Background - construction not audible/visible
23/06/2015	3:40 PM	Wallace St	148	3	50	61.1	81.9	43.4	66.4	62.9	54.3	48.8	Local roads + highway traffic, birds	NA	NA	Background - Construction visible - not audible
23/06/2015	4:08 PM	Gumma Rd	383	3	50	65.4	86.3	45.4	72.9	70.2	53.8	48.3	Private traffic, birds	NA	Truck reversing only briefly dominant noise, minimal exceedence (52-54)	Background - Construction visible across river - no exceedences

Monthly Noise Monitoring Results July 2015

Date	Time	Location	Rec ID	NCA	NML	Activity	Predicted levels for activity	Laeq	LAFMAX	LAFMIN	LCEQ	LAF05	LAF10	LAF50	LAF90	Principal sources/ operations	Measurements exceeding criteria, plant/ operations causing	Corrective actions	Notes
28/07/2015	8:49 AM	Albert Drive	74	1	50	Cut	62	57.2	75.7	47.8	72.5	61.3	59.5	54.6	51.5	Scrapers, moxy, compactor	Scrapers moxy + compactor together	Minimise simultaneous works on site.	Consistent with noise level predicted for cut works
28/07/2015	9:41 AM	Cockburns Lane	16	1	50	Cut	65	54.6	67.3	47.3	64.5	58.3	57	53.4	50.7	Dozer + excavator.	Dozer	Dozer with squeaky track - equipment was put out of service until track replaced	Consistent with noise level predicted for cut works
28/07/2015	12:30 PM	Bald Hill Rd	197	3	50	Cut	72	56.3	76.7	47.5	71.3	58.9	57.3	54.3	52.1	Dozer, scraper, compactor, moxy	Scraper, dozer, moxy		Consistent with noise level predicted for cut works
27/07/2015	3:27 PM	Letitia Rd	410	4	59	Cut	60	55.8	80.3	34.5	66	55.7	49.8	40.3	37.2	Highway traffic, private traffic, birds	NA	NA	Background - no construction audible
28/07/2015	11:26 AM	Mattick Rd	442	6	44	Cut	62	51.4	69	41.2	62	56.4	54.6	47.6	44	Dozer tracking	Dozer		Consistent with noise level predicted for cut works
27/07/2015	2:37 PM	Nursery Rd	415	4	59	Pile vibration		47.9	61.7	37.6	61.9	52.1	50	46.8	43.7	Pile vibration	NA	NA	
28/07/2015	10:30 AM	Wallace St	148	3	50	N/A	N/A	55.7	71.7	46	67.8	60.5	57	51.7	49	Private traffic, industrial estate	NA	NA	Background - construction visible not audible
28/07/2015	12:00 PM	Gumma Rd	383	3	50	Fill	66	61.3	82.1	37.8	68.1	67.7	62.1	47.4	42.8	Private construction: sawing in council building. Private traffic.	NA	NA	Background

Surface Water Results - February 2015 Dry

Weather: Fine Low Tide: 7:15PM

Sample ID		TBA	TBA	Upper Warrell Creek	Upper Warrell Creek	Stony Creek	Stony Creek	Lower Warrell Creek	Lower Warrell Creek	Flying Fox Gumma Wetlands E	Flying Fox Gumma Wetlands W	Flying Fox Gumma Wetlands N	Nambucca River	Nambucca River
Type				Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Upstream	Downstream	Upstream	Downstream
Date of Sampling				23-Feb-15	23-Feb-15	23-Feb-15	23-Feb-15	23-Feb-15	23-Feb-15	23-Feb-15	23-Feb-15	23-Feb-15	23-Feb-15	23-Feb-15
Weather				Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet
Laboratory data														
Metals														
Silver	mg/L			<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	No Access	No Access	No Access	<0.001	<0.001
Aluminium	mg/L			1.456	1.298	1.298	1.254	1.266	1.228				0.922	0.907
Arsenic	mg/L			0.001	0.001	0.001	0.002	0.001	0.001				0.001	0.001
Cadmium	mg/L			<0.001	<0.001	<0.001	<0.001	<0.001	<0.001				<0.001	<0.001
Chromium	mg/L			0.002	0.001	0.001	0.001	0.001	0.001				0.001	0.001
Copper	mg/L			0.002	0.003	0.003	0.001	0.003	0.002				0.002	0.002
Iron	mg/L			1.004	0.971	0.971	1	1.08	0.949				0.937	0.955
Manganese	mg/L			0.019	0.059	0.059	0.026	0.058	0.017				0.037	0.037
Nickel	mg/L			0.001	0.004	0.004	0.001	0.004	0.001				0.001	0.001
Lead	mg/L			<0.001	0.001	0.001	<0.001	0.001	<0.001				0.001	<0.001
Selenium	mg/L			<0.002	<0.002	<0.002	<0.002	<0.002	<0.002				<0.002	<0.002
Zinc	mg/L			0.002	0.018	0.018	0.002	0.018	0.003				0.003	0.002
Mercury	mg/L			<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005				<0.0005	<0.0005
Total Recoverable Hydrocarbons (dependent on visual inspection)														
Naphthalene	mg/L													
TRH >C10-C16	mg/L													
TRH >C10-C16 (F2)	mg/L													
TRH >C16-C34	mg/L													
TRH >C34-C40	mg/L													
TRH C6-C10	mg/L													
TRH C6-C10 (F1)	mg/L													
BTEX (dependent on visual inspection)														
Benzene	mg/L													
Ethylbenzene	mg/L													
m&p-Xylenes	mg/L													
o-Xylene	mg/L													
Toluene	mg/L													
Xylenes - Total	mg/L													
Nutrients														
Total Phosphorus	mg/L			0.03	0.03	0.03	0.02	0.04	0.03				0.06	0.05
Phosphate	mg/L			<0.005	0.005	0.005	0.005	0.006	0.005				0.011	0.008
	mg/L													
Total Nitrogen	mg/L			0.48	0.57	0.49	0.4	0.55	0.55				0.55	0.52
Total Kjeldahl Nitrogen	mg/L			0.44	0.52	0.27	0.2	0.5	0.51				0.5	0.46
Nitrate	mg/L			0.027	0.043	0.214	0.191	0.046	0.034				0.049	0.053
Nitrite	mg/L			0.008	0.008	0.006	0.005	0.007	0.01				0.008	0.007
Ammonia	mg/L			0.024	0.05	0.01	0.015	0.012	0.036				0.031	0.014
TSS	mg/L													
NTU														
Field Physical data														
Temperature	°C			23.57	23.2	22.96	23.42	24.85	23.94				25.54	25.37
pH	pH			6.54	6.41	6.62	6.44	6.48	6.3				7.08	7.05
pHmV	pHmV			19	26	15	25	23	33				-12	-11
ORPmV	ORPmV			243	266	196	192	237	225				178	178
Conductivity	ms/cm			0.106	0.103	0.141	0.145	0.154	0.141				0.875	0.773
Turbidity	NTU			23.6	27.9	9	15.1	16.7	12				24.1	27.2
Dissolved Oxygen	mg/L			5.58	3.52	6.04	5.24	2.81	2.94				7.46	5.99
ppt	ppt			0	0	0.1	0.1	0.1	0.1				0.4	0.4
ot	ot			0	0	0	0	0	0				0	0
m	m			0.55	0.8	1.1	0.55	0.55	0.55				0.6	0.6
TDS				0.069	0.067	0.091	0.097	0.1	0.091				0.56	0.495

Surface Water Results - March 2015 Dry

Weather: Fine Low Tide: 1:38PM

Location	LOR	Units	Levels of Concern	Upper Warrell Creek	Upper Warrell Creek	Stony Creek	Stony Creek	Lower Warrell Creek	Lower Warrell Creek	Flying Fox Gumma Wetlands E	Flying Fox Gumma Wetlands W	Flying Fox Gumma Wetlands N	Nambucca River	Nambucca River
Type				Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Upstream	Downstream	Upstream	Downstream
Date of Sampling			TBA	17-Mar-15	17-Mar-15	17-Mar-15	17-Mar-15	17-Mar-15	17-Mar-15	18-Mar-15	18-Mar-15	18-Mar-15	17-Mar-15	17-Mar-15
Weather				Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
Laboratory data														
Metals														
Aluminium	0.01	mg/L		0.05	0.02	0.04	0.02	0.06	0.07	0.13	0.06	0.1	<0.01	<0.01
Arsenic	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	0.001	0.002	0.002	<0.001	0.002	0.001	<0.001
Cadmium	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	0.002	0.002	<0.001	<0.001	<0.001	<0.001	<0.001
Lead	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	0.001	mg/L		0.047	0.006	0.023	0.026	0.011	0.026	0.034	0.002	0.338	0.017	<0.001
Nickel	0.001	mg/L		0.001	0.002	<0.001	<0.001	0.002	0.001	<0.001	0.001	0.001	<0.001	<0.001
Selenium	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.002
Zinc	0.005	mg/L		<0.005	0.006	<0.005	<0.005	0.007	0.008	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	0.05	mg/L		1	1.14	0.69	0.76	0.89	0.95	2.01	0.42	1.18	<0.05	<0.05
Mercury	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Recoverable Hydrocarbons (dependent on visual inspection)														
Naphthalene		mg/L												
TRH >C10-C16		mg/L												
TRH >C10-C16 (F2)		mg/L												
TRH >C16-C34		mg/L												
TRH >C34-C40		mg/L												
TRH C6-C10		mg/L												
TRH C6-C10 (F1)		mg/L												
BTEX (dependent on visual inspection)														
Benzene		mg/L												
Ethylbenzene		mg/L												
m&p-Xylenes		mg/L												
o-Xylene		mg/L												
Toluene		mg/L												
Xylenes - Total		mg/L												
Nutrients														
Total Phosphorus	0.01	mg/L		0.02	0.03	0.04	0.02	0.06	0.06	0.1	0.09	0.08	0.12	0.12
Phosphate	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01
		mg/L												
Total Nitrogen	0.1	mg/L		1	0.5	<0.1	<0.1	0.6	0.6	1.4	1.8	1.8	1.2	0.8
Total Kjeldahl Nitrogen	0.1	mg/L		1	0.5	<0.1	<0.1	0.6	0.6	1.4	1.8	1.8	1.2	0.8
Nitrate	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrite	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ammonia	0.01	mg/L		0.04	0.02	<0.01	0.01	0.16	0.1	<0.01	0.06	0.03	<0.01	0.03
TSS	5	mg/L		<5	9	<5	<5	<5	<5	31	9	44	44	34
Turbidity	0.1	NTU		7.6	13.5	3.5	4.6	6.6	6.8	14	3.6	9.4	25.7	28.4
Field Physical data														
Temperature		°C		22.17	24.65	22.32	23.7	28.15	28.14	27.99	24.99	28.48	27.84	28.14
pH		pH		6.78	6.46	7.02	6.47	7.59	7.34	6.1	6.14	6.34	8.29	8.32
pHmV		pHmV		5	24	-9	23	-42	-27	45	43	31	-83	-85
ORPmV		ORPmV		175	122	158	184	164	160	121	10	52	171	173
Conductivity		mS/cm		0.248	0.235	0.223	0.216	0.684	0.674	0.318	0.409	0.622	23.7	25.3
Turbidity		NTU		0	5.9	0	0	13.4	0	13.5	17.2	10.7	35.9	28
Dissolved Oxygen		mg/L		1.7	1.2	7.3	2.89	3.08	3.54	2.24	0.21	1.09	6.87	7.26
ppt		ppt		0.161	0.153	0.145	0.141	0.438	0.434	0.206	0.266	0.412	14.7	15.7
ot		ot		0.1	0.1	0.1	0.1	0.3	0.3	0.2	0.2	0.3	14.4	15.4
m		m		0	0	0	0	0	0	0	0	0	7.2	7.9
TDS		g/L		0.45	0.35	0.35	0.45	0.35	0.35	0.45	0.5	0.45	0.35	0.4

Surface Water Results - March 2015 Wet

Weather: Overcast Low Tide: 6:37PM

Location	LOR	Units	Levels of Concern	Upper Warrell Creek	Upper Warrell Creek	Stony Creek	Stony Creek	Lower Warrell Creek	Lower Warrell Creek	Flying Fox Gumma Wetlands E	Flying Fox Gumma Wetlands W	Flying Fox Gumma Wetlands N	Nambucca River	Nambucca River
Type				Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Upstream	Downstream	Upstream	Downstream
Date of Sampling				24-Mar-15	24-Mar-15	24-Mar-15	24-Mar-15	25-Mar-15	25-Mar-15	24-Mar-15	24-Mar-15	24-Mar-15	25-Mar-15	25-Mar-15
Time of Sampling			TBA	1:50pm	2:15pm	3:25pm	3:35pm	9:00am	9:05am	4:35pm	5:00pm	5:05pm	8:20am	8:30am
Low tide				12:37pm	12:37pm	12:37pm	12:37pm	1:26pm	1:26pm	12:37pm	12:37pm	12:37pm	1:26pm	1:26pm
Weather				Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet
Laboratory data														
Metals														
Aluminium	0.01	mg/L		0.19	0.13	0.05	0.03	0.05	0.06	0.13	0.06	0.1	<0.01	<0.01
Arsenic	0.001	mg/L		<0.001	<0.001	0.001	0.002	<0.001	0.001	0.002	<0.001	0.002	0.002	0.002
Cadmium	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Lead	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	0.001	mg/L		0.023	0.026	0.028	0.058	0.111	0.136	0.034	0.002	0.338	0.111	0.068
Nickel	0.001	mg/L		<0.001	0.001	<0.001	<0.001	0.001	0.001	<0.001	0.001	0.001	<0.001	<0.001
Selenium	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.15	0.14
Silver	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	0.005	mg/L		0.005	0.008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	0.05	mg/L		1.02	1.14	0.94	1.09	0.79	0.96	2.01	0.42	1.18	<0.05	<0.05
Mercury	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Recoverable Hydrocarbons (dependant on visual insp.)														
Naphthalene		mg/L												
TRH >C10-C16		mg/L												
TRH >C10-C16 (F2)		mg/L												
TRH >C16-C34		mg/L												
TRH >C34-C40		mg/L												
TRH C6-C10		mg/L												
TRH C6-C10 (F1)		mg/L												
BTEX (dependent on visual insp.)														
Benzene		mg/L												
Ethylbenzene		mg/L												
m&p-Xylenes		mg/L												
o-Xylene		mg/L												
Toluene		mg/L												
Xylenes - Total		mg/L												
Nutrients														
Total Phosphorus	0.01	mg/L		0.07	0.05	0.02	0.03	0.09	0.12	0.07	0.06	0.19	0.22	0.18
Phosphate	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01
		mg/L												
Total Nitrogen	0.1	mg/L		0.6	0.6	0.3	0.4	0.6	0.5	1.3	1.3	2.6	<0.2	<0.2
Total Kjeldahl Nitrogen	0.1	mg/L		0.5	0.6	0.2	0.3	0.5	0.5	1.3	1.3	2.6	<0.2	<0.2
Nitrate	0.01	mg/L		0.05	0.05	0.09	0.05	0.05	0.04	0.04	0.02	0.03	0.04	0.04
Nitrite	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ammonia	0.01	mg/L		<0.01	0.02	0.02	0.02	0.14	0.12	<0.01	<0.01	<0.01	<0.01	0.06
TSS	5	mg/L		11	12	6	7	8	8	26	13	76	14	27
Turbidity	0.1	NTU		17.4	15.6	3.9	5.4	6.9	6.8	12	4.8	22.2	7.9	12.9
Field Physical data														
Temperature		°C		22.9	26.24	25.34	24.63	26.14	26.12	29.8	25.84	26.91	26.4	26.61
pH		pH		6.25	6.37	6.54	6.05	6.82	6.73	5.59	6.01	6.09	7.72	7.71
pHmV		pHmV		12	6	-4	24	-19	-14	52	26	22	-72	-71
ORPmV		ORPmV		197	254	204	175	112	139	199	92	1	145	165
Conductivity		mS/cm		0.235	0.249	0.228	0.217	0.7622	0.585	0.334	0.383	0.546	26.7	23.6
Turbidity		NTU		24	22.9	0.9	4.4	18.9	26.1	78.8	17.4	46.4	14.3	26.3
Dissolved Oxygen		mg/L		3.51	3.81	4.68	5.91	1.36	1.9	2.88	0.08	1.95	4.48	4.27
ppt		ppt		0.153	0.162	0.148	0.141	0.462	0.392	0.217	0.249	0.35	16.6	15.2
ot		ot		0.1	0.1	0.1	0.1	0.4	0.3	0.2	0.2	0.3	16.3	13.9
m		m		0	0	0	0	0	0	0	0	0	9.1	7.2
TDS		g/L		0.05	0	0	0	0	0.05	0	0	0	0	0.05

Surface Water Results - April 2015 Dry

Weather: Fine

Low Tide:
1:08PM

Location	Units	ANZEC Criteria	Upper Warrell Creek	Upper Warrell Creek	Stony Creek	Stony Creek	Lower Warrell Creek	Lower Warrell Creek	Flying Fox Gumma Wetlands E	Flying Fox Gumma Wetlands W	Flying Fox Gumma Wetlands N	Nambucca River	Nambucca River
Type			Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Upstream	Downstream	Upstream	Downstream
Date of Sampling			17-Apr-15	17-Apr-15	17-Apr-15	17-Apr-15	17-Apr-15	17-Apr-15	17-Apr-15	17-Apr-15	17-Apr-15	17-Apr-15	17-Apr-15
Time of Sampling			11:15 AM	10:51 AM	10:11 AM	9:30 AM	11:38 AM	11:53 AM	1:16 PM	1:30 PM	1:42 PM	12:40 PM	12:20 PM
Field Physical data													
Temperature	°C	na	19.49	20.05	20.72	20.31	23.19	24.83	21.1	23.46	20.74	26.18	27.48
pH	pH	6.5-8.8	6.36	6.18	6.25	6.13	6.47	6.51	5.46	5.52	5.73	7.89	7.93
ORPmV	ORPmV	na	182	198	150	189	174	170	43	68	10.6	160	140
Conductivity	mS/cm	0.12-2.2 (FW)	0.226	0.222	0.24	0.23	0.311	0.349	0.412	0.343	0.435	24.9	24.8
Turbidity	NTU	50 (FW), 10(SW)	14.3	14.6	6.4	6.3	44.5	33	27	247	30.3	17.7	28.6
Dissolved Oxygen	mg/L	>5	5.03	3.16	7.84	2.26	4.82	5.98	0	0	0	8.71	8.97
TDS	g/L	1.474 (FW)	0.147	0.144	0.156	0.15	0.213	0.235	0.268	0.223	0.283	15.4	15.4

Surface Water Results April 2015 - Wet Event

Weather: Overcast With Showers

Low Tide: 12:23PM

Location	Units	ANZECC Criteria	Upper Warrell Creek	Upper Warrell Creek	Stony Creek	Stony Creek	Lower Warrell Creek	Lower Warrell Creek	Flying Fox Gumma Wetlands E	Flying Fox Gumma Wetlands W	Flying Fox Gumma Wetlands N	Nambucca River	Nambucca River
Type			Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Upstream	Downstream	Upstream	Downstream
Date of Sampling			30-Apr-15	30-Apr-15	30-Apr-15	30-Apr-15	30-Apr-15	30-Apr-15	30-Apr-15	30-Apr-15	30-Apr-15	30-Apr-15	30-Apr-15
Time of Sampling			2:08 PM	1:47 PM	11:34 AM	11:05 AM	1:38 PM	1:48 PM	10:32 AM	9:56 AM	9:21 AM	9:09 AM	9:25 AM
Laboratory data													
Metals													
Aluminium	mg/L		0.02	0.02	0.03	<0.01	0.05	0.06	0.05	0.09	0.09	<0.01	<0.10
Arsenic	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.001	0.002	<0.010
Cadmium	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0010
Chromium	mg/L		<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.010
Copper	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.010
Lead	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.010
Manganese	mg/L		0.095	0.11	0.036	0.047	0.09	0.087	0.089	0.068	0.129	0.064	0.062
Nickel	mg/L		<0.001	0.001	<0.001	<0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.010
Selenium	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.10
Silver	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.010
Zinc	mg/L		0.006	0.008	0.008	0.005	<0.005	<0.005	0.009	<0.005	<0.005	<0.005	<0.050
Iron	mg/L		0.68	0.73	0.47	0.32	0.56	0.75	0.59	1.65	0.76	<0.05	<0.50
Mercury	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Recoverable Hydrocarbons (dependant on visual insp.)													
Naphthalene	mg/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRH >C10-C16	mg/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRH >C10-C16 (F2)	mg/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRH >C16-C34	mg/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRH >C34-C40	mg/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRH C6-C10	mg/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRH C6-C10 (F1)	mg/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BTEX (dependent on visual insp.)													
Benzene	mg/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	mg/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m&p-Xylenes	mg/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	mg/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	mg/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes - Total	mg/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nutrients													
Total Phosphorus	mg/L		0.02	0.02	<0.01	<0.01	0.03	0.03	0.12	0.05	0.03	0.02	<0.02
Phosphate	mg/L		<0.01	<0.01	0.02	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	mg/L												
Total Nitrogen	mg/L		0.4	0.5	0.6	0.3	0.5	0.5	20.2	1.2	1.1	0.3	0.2
Total Kjeldahl Nitrog	mg/L		0.3	0.4	0.5	0.2	0.4	0.4	3.4	1.2	1.1	0.3	0.2
Nitrate	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrite	mg/L		0.07	0.06	0.13	0.06	0.06	0.07	16.8	<0.01	<0.01	0.04	<0.01
Ammonia	mg/L		0.02	0.02	0.03	0.01	0.06	0.08	0.14	<0.01	<0.01	0.03	0.02
TSS	mg/L		6	7	10	<5	6	6	31	22	<5	9	<5
Turbidity	NTU		7.9	9.2	3.6	2.5	4.4	4.7	10.9	24.7	1.8	4.7	1.5
Field Physical data													
Temperature	°C	na	16.39	16.91	17.53	17.28	19.07	19.17	17.02	19.47	17.74	21.06	21.14
pH	pH	6.5-8.8	6.57	6.45	6.69	6.28	6.81	6.85	2.95	5.81	6.02	7.98	7.97
ORPmV	ORPmV	na	-149	-142	-164	-104	-151	-151	-142	-127	-142	-116	-108
Conductivity	mS/cm	0.12-2.2 (FW)	0.247	0.239	0.071	0.218	0.585	0.594	0.628	0.482	0.482	32.5	33.6
Turbidity	NTU	50 (FW), 10(SW)	7.9	9.2	3.6	2.5	4.4	4.7	10.9	24.7	1.8	4.7	1.5
Dissolved Oxygen	mg/L	>5	2.44	5.26	9.08	4.2	2.33	2.11	0.97	0.22	1.76	3.96	3.21
TDS	g/L	1.474 (FW)	0.161	0.155	0.046	0.142	0.375	0.38	0.402	0.313	0.313	19.8	20.1

Surface Water Results May 2015 - Wet Event

Weather: Overcast With Showers

Low Tide: 2:33PM

Location	LOR	Units	Levels of Concern		Upper Warrell Creek	Upper Warrell Creek	Stony Creek	Stony Creek	Lower Warrell Creek	Lower Warrell Creek	Flying Fox Gumma Wetlands E	Flying Fox Gumma Wetlands W	Flying Fox Gumma Wetlands N	Nambucca River	Nambucca River
Type			ANZECC 2000 95% species protected		Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Upstream	Downstream	Upstream	Downstream
Freshwater / Estuarine					Freshwater	Freshwater	Freshwater	Freshwater	Estuarine	Estuarine	Freshwater	Freshwater	Freshwater	Estuarine	Estuarine
Date of Sampling					5-May-15	5-May-15	5-May-15	5-May-15	5-May-15	5-May-15	5-May-15	5-May-15	5-May-15	5-May-15	5-May-15
Time of Sampling			Freshwater	Saline	12:15 PM	11:50 AM	9:50 AM	9:10 AM	1:30 PM	1:50 PM	3:40 PM	4:30 PM	4:08 PM	2:30 PM	2:50 PM
Laboratory data															
Metals															
Aluminium	0.01	mg/L	0.055	-	0.28	0.32	0.11	0.56	0.76	0.34	0.62	0.29	0.24	0.11	0.13
Arsenic	0.001	mg/L	0.024	-	<0.001	<0.001	<0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	0.0001	mg/L	0.0002	0.0055	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0004	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	0.001	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	<0.001
Copper	0.001	mg/L	0.0014	0.0013	0.001	0.002	0.001	0.001	0.006	0.003	0.001	<0.001	<0.001	<0.001	<0.001
Lead	0.001	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	<0.001
Manganese	0.001	mg/L	1.9	-	0.032	0.044	0.033	0.031	0.388	0.604	0.182	0.046	0.06	0.177	0.11
Nickel	0.001	mg/L	0.011	0.07	0.001	0.001	<0.001	<0.001	0.006	0.01	0.002	<0.001	<0.001	<0.001	<0.001
Selenium	0.01	mg/L	11	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	0.001	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	<0.001
Zinc	0.005	mg/L	0.008	0.015	0.008	0.015	0.007	<0.005	0.046	0.087	0.008	0.285	0.005	<0.005	<0.005
Iron	0.05	mg/L	-	-	0.36	0.37	0.23	0.51	0.8	0.33	1.45	0.64	1.04	0.22	0.24
Mercury	0.0001	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	<0.0001
Total Recoverable Hydrocarbons (dependant on visual insp.)															
Naphthalene		mg/L	0.016	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRH >C10-C16		mg/L			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRH >C10-C16 (F2)		mg/L			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRH >C16-C34		mg/L			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRH >C34-C40		mg/L			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRH C6-C10		mg/L			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRH C6-C10 (F1)		mg/L			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BTEX (dependent on visual insp.)															
Benzene		mg/L	0.95	0.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene		mg/L	0.08	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m&p-Xylenes		mg/L	-	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene		mg/L	0.35	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene		mg/L	0.18	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes - Total		mg/L			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nutrients															
Total Phosphorus	0.01	mg/L	0.5	0.3	0.02	0.04	0.02	0.03	0.08	0.02	0.07	0.04	0.03	0.06	0.11
Phosphate (reactive phosphorus)	0.01	mg/L	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01
Total Nitrogen	0.1	mg/L	0.5	0.3	1	1	0.8	1	1.9	0.7	1.3	0.8	0.9	0.7	0.9
Total Kjeldahl Nitrogen	0.1	mg/L			0.8	0.8	0.4	0.6	1.8	0.6	1	0.8	0.8	0.5	0.7
					TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA
Nitrate	0.01	mg/L	0.7	-	0.18	0.17	0.39	0.36	0.1	0.1	0.32	0.02	0.07	0.23	0.18
Nitrite	0.01	mg/L	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ammonia	0.01	mg/L	0.9		0.02	0.02	0.02	0.07	0.1	0.03	0.04	0.01	0.05	0.05	0.06
TSS															
Turbidity			50	10											
TSS	5	mg/L	<40	<10	<5	8	<5	<5	20	19	11	8	<5	71	71
Field Physical data															
Temperature		°C			19.58	19.67	20.03	20.29	21.15	20.53	20.75	20.49	20.2	21.27	21.2
pH		pH	6.5-8	6.5-8	5.91	5.98	6.17	6.05	5.72	5.27	5.68	5.65	5.58	6.43	6.41
pHmV		pHmV			29	25	14	21	40	65	42	44	48	-1	-10
ORPmV		ORPmV			2.71	240	207	201	268	285	157	89	144	214	264
Conductivity		mS/cm	125-2,200	-	0.118	0.117	0.164	0.165	0.167	0.163	0.217	0.295	0.181	0.467	0.506
Turbidity		NTU	50	10	42.6	45.4	14.5	17.7	48	50.3	24.9	40.6	16.1	166	150
Dissolved Oxygen		mg/L	>5	>5	7.43	7.22	8.46	7.82	1.19	0.9	0	1.37	0	5.02	3.3
TDS		g/L			0.072	0.076	0.106	0.107	0.109	0.106	0.141	0.192	0.118	0.303	0.812

Surface Water May 2015 - Dry Event

Weather: Fine

Low Tide: 3:48PM

Location			Levels of Concern		Upper Warrell Creek	Upper Warrell Creek	Stony Creek	Stony Creek	Lower Warrell Creek	Lower Warrell Creek	Flying Fox Gumma Wetlands E	Flying Fox Gumma Wetlands W	Flying Fox Gumma Wetlands N	Nambucca River	Nambucca River
Type	LOR	Units	ANZECC 2000 95% species protected		Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Upstream	Downstream	Upstream	Downstream
Freshwater / Estuarine					Freshwater	Freshwater	Freshwater	Freshwater	Estuarine	Estuarine	Freshwater	Freshwater	Freshwater	Estuarine	Estuarine
Date of Sampling					20-May-15	20-May-15	20-May-15	20-May-15	20-May-15	20-May-15	20-May-15	20-May-15	20-May-15	20-May-15	20-May-15
Time of Sampling			Freshwater	Saline	1:51 PM	2:36 PM	12:58 PM	1:33 PM	3:24 PM	3:53 PM	5:00 PM	5:20 PM	5:44 PM	4:11 PM	4:37 PM
Laboratory data															
Metals															
Aluminium	0.01	mg/L	0.055	-	0.04	0.05	0.03	0.02	0.1	0.13	0.08	0.1	0.12	0.02	0.01
Arsenic	0.001	mg/L	0.024	-	<0.001	<0.001	0.001	0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	0.002
Cadmium	0.0001	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
Chromium	0.001	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	<0.001
Copper	0.001	mg/L	0.0014	0.0013	0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Lead	0.001	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	<0.001
Manganese	0.001	mg/L	1.9	-	0.043	0.044	0.036	0.07	0.115	0.126	0.082	0.052	0.107	0.153	0.15
Nickel	0.001	mg/L	0.011	0.07	0.002	<0.001	<0.001	<0.001	0.002	0.002	<0.001	<0.001	0.001	<0.001	<0.001
Selenium	0.01	mg/L	11	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	0.001	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	0.001
Zinc	0.005	mg/L	0.008	0.015	0.009	<0.005	<0.005	<0.005	0.009	0.01	0.005	<0.005	<0.005	<0.005	<0.005
Iron	0.05	mg/L	-	-	0.63	0.73	0.42	0.57	0.83	0.84	1.19	1.28	2.86	0.09	0.06
Mercury	0.0001	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	<0.0001
Total Recoverable Hydrocarbons (dependant on visual insp.)															
Naphthalene		mg/L	0.016	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRH >C10-C16		mg/L			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRH >C10-C16 (F2)		mg/L			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRH >C16-C34		mg/L			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRH >C34-C40		mg/L			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRH C6-C10		mg/L			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRH C6-C10 (F1)		mg/L			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BTEX (dependent on visual insp.)															
Benzene		mg/L	0.95	0.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene		mg/L	0.08	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m&p-Xylenes		mg/L	-	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene		mg/L	0.35	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene		mg/L	0.18	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes - Total		mg/L			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nutrients															
Total Phosphorus	0.01	mg/L	0.5	0.3	<0.01	<0.01	<0.01	<0.01	0.01	0.01	0.06	0.08	0.07	0.06	0.04
Phosphate (reactive phosphorus)	0.01	mg/L	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Total Nitrogen	0.1	mg/L	0.5	0.3	0.3	0.3	0.1	0.2	0.4	0.5	1.1	1.3	1	0.1	0.3
Total Kjeldahl Nitrogen	0.1	mg/L			0.2	0.2	<0.1	0.1	0.3	0.4	1.1	1.3	1	<0.1	0.2
Nitrate	0.01	mg/L	0.7	-	0.07	0.08	0.1	0.07	0.09	0.08	<0.01	<0.01	<0.01	0.12	0.08
Nitrite	0.01	mg/L	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ammonia	0.01	mg/L	0.9		0.02	0.02	<0.01	<0.01	0.08	0.06	<0.01	<0.01	<0.01	0.04	0.03
TSS															
Turbidity			50	10	9.7	8.8	2.9	3.4	6.4	8	8.1	20	19.2	9.8	11.1
TSS	5	mg/L	<40	<10	5	<5	<5	<5	<5	5	14	47	43	26	<5
Field Physical data															
Temperature		°C			16.17	16.93	17.61	17.62	19.32	19.41	16.37	15.91	16.81	20.37	20.41
pH		pH	6.5-8	6.5-8	6.45	6.51	6.58	6.42	6.5	6.52	5.97	6.25	6.12	7.62	7.35
pHmV		pHmV			16	13	9	17	13	13	42	27	34	-48	-34
ORPmV		ORPmV			-127	-98	-156	-158	-113	-122	-151	-142	-159	-21	-19
Conductivity		mS/cm	125-2,200	-	0.253	0.243	0.216	0.209	0.435	0.471	0.245	0.397	0.262	20.3	20.5
Turbidity		NTU	50	10	0	0	0	0	0	0	5.5	4.8	0	5.4	7.1
Dissolved Oxygen		mg/L	>5	>5	4.15	7.55	6.79	4.81	4.34	4.36	0	4.65	4.82	6.35	6.55
TDS		g/L			0.164	0.158	0.14	0.136	0.282	0.306	0.159	0.258	0.17	12.6	12.7

Surface Water Results June 2015 - Dry Event

Weather: Overcast

Low Tide: 2:37PM

Location	Units	Levels of Concern		Upper Warrell Creek	Upper Warrell Creek	Stony Creek	Stony Creek	Lower Warrell Creek	Lower Warrell Creek	Flying Fox Gumma Wetlands E	Flying Fox Gumma Wetlands W	Flying Fox Gumma Wetlands N	Nambucca River	Nambucca River
Type		ANZECC 2000 95% species protected		Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Upstream	Downstream	Upstream	Downstream
Freshwater / Estuarine				Freshwater	Freshwater	Freshwater	Freshwater	Estuarine	Estuarine	Freshwater	Freshwater	Freshwater	Estuarine	Estuarine
Date of Sampling				3-Jun-15	3-Jun-15	3-Jun-15	3-Jun-15	3-Jun-15	3-Jun-15	3-Jun-15	3-Jun-15	3-Jun-15	3-Jun-15	3-Jun-15
Time of Sampling		Freshwater	Saline	11:22 AM	11:06 AM	10:44 AM	10:20 AM	11:40 AM	11:44 AM	1:31 PM	1:17 PM	1:24 PM	12:41 PM	12:56 PM
Field Physical data														
Temperature	°C			14.22	14.61	14.16	13.59	16.52	16.56	18.13	16.14	14.56	19.02	19.22
pH	pH	6.5-8	6.5-8	6.45	6.45	6.66	6.42	6.38	6.34	5.61	6.47	6.08	7.41	7.81
pHmV	pHmV			-5	-5	-17	-4	-1	1	43	-6	16	-59	-82
ORPmV	ORPmV			280	265	188	171	264	267	234	185	175	305	207
Conductivity	mS/cm	0.125 - 2.25	-	0.289	-0.277	0.241	0.232	0.556	0.558	0.377	0.423	0.12	34.9	34.6
Turbidity	NTU	50	10	9.1	5.8	0	0.1	6.5	3.4	180	171	7.5	9.3	16.2
Dissolved Oxygen	mg/L	>5	>5	5.36	4.73	7.84	4.29	4.12	4.33	0.36	0.45	0	6.56	7.31
TDS	g/L			0.18	0.18	0.156	0.151	0.356	0.357	0.245	0.275	0.203	21.3	21.1

Surface Water Results - July 2015 - Dry Event

Weather: Overcast

Low Tide: 7:05am

Location	Units	Levels of Concern		SW01	SW02	SW03	SW04	SW05	SW06	SW07	SW08	SW09	SW10	SW11	SW12	SW13	SW14	SW15	SW16
				Upper Warrell Creek	Upper Warrell Creek	Stony Creek	Stony Creek	Lower Warrell Creek	Lower Warrell Creek	Unnamed Channel Gumma Wetland	Gumma Wetland	Unnamed Creek Gumma West	Unnamed Creek Gumma East	Unnamed Creek Gumma North	Nambucca River South	Nambucca River South	Nambucca River North/ Newee Creek Junction	Nambucca River North	Newee Creek
Type				Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Upstream	Upstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream
Freshwater / Estuarine		ANZECC 2000 95% species protected		Freshwater	Freshwater	Freshwater	Freshwater	Freshwater	Freshwater	Freshwater	Freshwater	Freshwater	Freshwater	Freshwater	Estuarine	Estuarine	Estuarine	Estuarine	Estuarine
Date of Sampling				23-Jul-15	23-Jul-15	23-Jul-15	23-Jul-15	23-Jul-15	23-Jul-15	23-Jul-15	23-Jul-15	23-Jul-15	23-Jul-15	23-Jul-15	23-Jul-15	23-Jul-15	23-Jul-15	23-Jul-15	23-Jul-15
Time of Sampling		Freshwater	Marine	5:05 PM	4:40 PM	4:25 PM	4:05 PM	12:40 PM	12:50 PM	1:55 PM	2:10 PM	2:30 PM	3:15 PM	2:55 PM	12:10 PM	11:55 AM	11:33 AM	11:15 AM	3:39 PM
Laboratory data																			
Metals																			
Aluminium	mg/L	0.055	-	0.02	0.02	0.05	0.01	0.01	0.01	0.12	0.02	0.16	0.06	0.08	<0.01	<0.01	<0.01	<0.01	<0.01
Arsenic	mg/L	0.024	0.0023	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.001	0.001	<0.001	<0.001	0.002	0.001	0.002	0.001	0.003
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	<0.0001	<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	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
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	<0.001	<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	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	mg/L	1.9	0.08	0.008	0.004	0.026	0.023	0.059	0.083	0.099	0.002	0.019	0.122	0.046	0.034	0.027	0.055	0.052	0.049
Nickel	mg/L	0.011	0.07	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	0.005	0.007	<0.001	<0.001	0.002	<0.001	<0.001	<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	<0.01	0.01	0.01	0.03	0.03	<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	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	mg/L	0.008	0.015	<0.005	0.011	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	0.008	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	mg/L	-	-	0.47	0.35	0.27	0.24	0.19	0.21	0.83	0.6	1.47	0.64	0.36	<0.05	<0.05	<0.05	<0.05	<0.05
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	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Recoverable Hydrocarbons																			
Naphthalene	µg/L	16	50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
C6 - C10 Fraction	µg/L	-	-	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
C6 - C10 Fraction minus BTEX (F1)	µg/L	-	-	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
>C10 - C16 Fraction	µg/L	-	-	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
>C16 - C34 Fraction	µg/L	-	-	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
>C34 - C40 Fraction	µg/L	-	-	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
>C10 - C40 Fraction (sum)	µg/L	-	-	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
>C10 - C16 Fraction minus Naphthalene (F2)	µg/L	-	-	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
BTEX																			
Benzene	µg/L	950	700	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	µg/L	180	180	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Ethylbenzene	µg/L	80	5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
m&p-Xylenes	µg/L	-	-	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
o-Xylene	µg/L	350	350	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Xylenes - Total	µg/L	-	-	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Sum of BTEX	µg/L	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Nutrients																			
Total Phosphorus	mg/L	0.05	0.03	0.01	0.01	<0.01	0.01	0.01	<0.01	0.03	0.03	0.18	0.14	0.25	0.04	0.03	0.03	0.03	0.03
Phosphate (reactive phosphorus)	mg/L	-	-	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	<0.01	<0.01
Total Nitrogen	mg/L	0.5	0.3	0.3	0.4	0.2	0.7	0.3	0.3	1.4	1.5	2.7	3.3	2.4	<0.2	<0.2	<0.2	<0.2	1.5
Total Kjeldahl Nitrogen	mg/L			0.2	0.2	0.1	0.2	0.2	0.2	1.3	1.5	2.7	2.1	2.4	<0.2	<0.2	<0.2	<0.2	0.2
Nitrate	mg/L	0.7	-	0.13	0.15	0.12	0.5	0.06	0.07	0.1	0.03	0.04	1.16	0.02	0.04	0.04	0.03	0.03	1.3
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
Ammonia	mg/L	0.9		0.03	0.03	0.02	0.04	0.03	0.04	0.02	0.11	0.06	0.14	0.04	0.04	0.02	0.03	0.02	0.02
TSS																			
Turbidity		50	10	5.3	5.8	3.6	2.9	2.1	2.2	13.1	9.9	43	17.4	102	3.7	2	2.9	0.5	10.5
TSS	mg/L	<40	<10	<5	<5	<5	<5	<5	<5	<5	<5	48	27	327	<5	<5	<5	<5	12
Field Physical data																			
Temperature	°C	-	-	13.21	13.73	15.9	14.98	16.08	17.19	14.98	16.14	17.28	18.28	16.68	16.9	15.95	16.06	16.86	17.91
pH	pH	-	6.5-8	6.47	6.46	6.73	6.72	7.51	7.12	6.04	6.85	6.22	6.3	6.14	7.74	7.73	7.53	7.2	7.51
pHmV	pHmV	-	-	-29	-29	-44	-43	-88	-66	-5	-50	-15	-19	-10	-101	-100	-89	-70	-88
ORPmV	ORPmV	-	-	183	176	142	104	145	110	164	157	167	117	86	176	181	197	204	175
Conductivity	mS/cm	0.125-2.2	-	0.288	0.289	0.273	0.259	2.35	2.33	0.501	1.2	0.457	0.622	0.915	35.4	35.8	34.6	35.4	35.5
Turbidity	NTU	50	10	0	0.1	0	0	1.9	0.9	17.6	17.4	75.1	24.6	31.5	10.4	0	0	0	10.3
Dissolved Oxygen	mg/L	5	5	3.85	3.58	5.09	3.82	3.93	3.71	0	4.23	2.97	2.49	1.56	3.53	5.57	3.96	4.79	5.63
TDS	g/L	-	-	0.187	0.188	0.178	0.169	1.5	1.49	0.32	0.766	0.297	0.398	0.585	21.6	21.8	21.1	21.6	21.7

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

Exceedances of ANZECC Level of Concern ANZECC 2000 95% species protected

APPENDIX C – Independent Audit Report and Water Quality Interpretive Report (draft)

COMPLIANCE AUDIT REPORT

WARRELL CREEK TO NAMBUCCA HEADS PACIFIC HIGHWAY UPGRADE

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Document control log

Rev	Date	Comments	Prepared by	Reviewed by	Approved by
A	4 May 2015	First draft	RP	SP	RP
0	19 June 2015	Final	RP	SP	RP

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1 INTRODUCTION

SNC-Lavalin has been engaged by the Acciona Ferrovial Joint Venture (Pacifico) to undertake an audit of the Warrell Creek to Nambucca Heads Pacific Highway Upgrade. This audit is required as part of Pacifico's obligations in relation to Minister's Condition of Approval (MCoA) B25(d) which requires a program for independent environmental auditing in accordance with *ISO 19011:2003 – Guidelines for Quality and/ or Environmental Management Systems Auditing.* This initial audit is scheduled for within 3 months of project commencement as prescribed by project Compliance Tracking Report (WC2NH-EN-RPY-0004 Rev C).

In accordance with this requirement, the audit was undertaken between 29 April and 1 May 2015. This report documents the findings of the audit.

2 AUDIT SCOPE

The scope of this audit is to assess compliance with the MCoA and Statement of Commitments (SoC) that relate to Pacifico's scope of works. The scope of the audit excludes:

- MCoA and SoC that are not the responsibility of Pacifico (i.e. those that are the responsibility of the RMS).
- An assessment of compliance with other licences or approvals such as the project Environment Protection Licence and Commonwealth Approvals.
- A detailed audit of the specific subplans that are required by the MCoA (e.g. Construction Environmental Management Plan) or Pacifico's management systems.
- RMS Contractual Specifications.
- A detailed verification of compliance with relevant standards (e.g the Blue Book).

3 AUDIT ACTIVITIES

The key audit activities consisted of:

- **Audit Planning**
  - Preparation of audit plan and checklist
  - Undertake preliminary document review
- **Conduct Site Audit**
  - Conduct opening meeting, interview key personnel and undertake inspection(s) of the project and key work activities
  - Undertake detailed document review
  - Conduct closing meeting
- **Reporting**
  - Prepare draft report and finalise following receipt of Pacifico's comments

3.1 AUDIT PREPARATION

The draft audit plan was provided to Pacifico on 27 April 2015. Prior to undertaking the audit, a high level review of the Construction Environment Management Plan and Subplans were undertaken.

3.2 OPENING MEETING

The opening meeting was held on 29 April 2015 and was attended by the following personnel:

- Manuel Gill (Construction Manager)
- Noelene Rutherford (Environment Manager) – in Part
- Emma Wright (Environment Coordinator)
- Alex Dwyer (Environment Coordinator)
- Jack Henderson (Environmental Graduate)

At the opening meeting the audit plan was discussed and the timing of audit activities agreed.

3.3 SITE INSPECTION

Site inspections were undertaken on 30 April and 1 May. This included:

- A general site inspection to observe the project activities and status of the project.
- An inspection of environmental controls. This was undertaken in both dry and wet weather conditions.
- Participation in a pre-clearing inspection with the project ecologist.

Prior to the site inspection a safety induction was completed.

Observations made during the site inspections are reported in Section 4.1 below.

3.4 DOCUMENT REVIEW

Documents reviewed as part of the audit included (but was not limited to) the following:

- Minister's Conditions of Approval
- Statement of Commitments
- Pacifico Compliance Tracking Schedule
- Incident reports and incident register
- Construction Environmental Management Plan and specialist subplans
- Project Management Plans including blasting, community and traffic
- Related project approvals including the Environment Protection Licence and the Road Occupancy Licence
- Document comments registers and project correspondence (RMS, Council, DPE)
- Community notifications and complaints registers
- Project records including meeting minutes, forms and registers
- Site Environmental Constraints Maps and design drawings

3.5 INTERVIEWS WITH KEY PERSONNEL

Interviews and discussions were undertaken with the following personnel

- Community Relations Manager
- Project Utilities Engineer
- Environment Manager
- Environment Foreman
- Traffic Manager
- Project Ecologist

The DPI (Fisheries) officer was also contacted to discuss consultation undertaken regarding Waterway crossing design and implementation.

3.6 CLOSING MEETING

The following personnel attended the closing meeting:

- Manuel Gill (Construction Manager)
- Noelene Rutherford (Environment Manager)
- Emma Wright (Environment Co-ordinator)
- Alex Dwyer (Environment Co-ordinator)

At the closing meeting, the audit findings were discussed as well as the process for submitting and finalising the audit report.

4 AUDIT FINDINGS

4.1 SITE OBSERVATIONS

4.1.1 General activities

At the time of the audit, the following activities have been completed to date and/or were in progress:

- Site establishment of main compound at Albert Drive
- Geotechnical investigations
- Installation of environmental controls including sediment basins and mulch bunds
- Installation of clearing limit fencing and no-go signage
- Trial blasting (production blasting yet to commence)
- Construction of some waterway crossings
- Service, utility, and electrical works
- Installation of livestock protection fencing
- Establishment of hard stand and lay down areas
- Miscellaneous storage containers
- Clearing for installation of sediment basins

Preparation of management plans had been completed and approved by DPE and the Environment Protection Licence obtained. Permits for surface and groundwater extraction had been submitted and are pending issue. Commonwealth approval under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) had also been obtained as well as the Road Occupancy Licence from RMS.

Weather during the three days of the audit was generally overcast with patches of very heavy rain occurring on all three days of the audit.

4.1.2 Erosion and sediment control

The following observations were made with respect to erosion and sediment control.

- Sediment basins included a raised inlet and syphon system with locking outlet in place to prevent unauthorised discharge.

- Sediment basins appeared to be constructed to a high standard. Basins were being installed progressively prior to main line clearing.
- The “mulch protocol” was being implemented on site. Mulch stockpiles were bunded to prevent tannin leachate to the environment.
- Sediment basins were inspected during heavy rainfall and appeared to be operating effectively.
- Rumble grids were installed at site egress points. There was no observed tracking of sediment on access roads.
- A specialist Erosion and Sediment Control Advisor has been appointed (Soil Conservation Service).
- Water quality results from sediment basin discharges were reviewed and were within the range prescribed in the EPL.

4.1.3 Ecology and heritage

The following observations were made with respect to ecology and heritage:

- A qualified Project Ecologist (GeoLINK) has been appointed who is onsite full time during clearing activities.
- Site boundary, heritage and ecology no-go fencing and signage had been installed.
- Endangered ecological communities, threatened species, no-go zones and project boundary fencing has been clearly marked on site constraints map.
- Pre-clearing inspections (with the project ecologist) were being conducted.
- Threatened species translocations are in progress.
- Protocols to avoid impacts to Giant Barred Frog had been implemented on site. This included special fencing as well as decontamination procedures to prevent disease.
- Nest boxes were observed to be installed, habitat trees were clearly marked.

4.1.4 Other observations

The following general observations were made:

- A supply of oil absorbent materials was stored on site. Individual spill kits were placed adjacent to works near waterways

- Hydrocarbon booms have been placed around works adjacent to Lower Warrell Creek (Northern Bank).
- Stabilised creek crossings were being implemented allowing fish passage.
- There was no on site bulk fuel facility observed.
- Livestock perimeter fencing was being progressively installed.
- A weather station has been installed.
- There were only several occasions where out of hours works were undertaken (for minor works). The out-of-hours works protocol was observed to be implemented.
- An Environmental Foreman has been appointed to manage on the ground implementation of environmental controls.

4.2 MAJOR NON-CONFORMANCES

No major non-conformances with the MCoA or the SoC were identified during the audit.

4.3 MINOR NON-CONFORMANCES

No minor non-conformances were identified by the audit. It is acknowledged, though, that there have been three recorded incidents:

- Unauthorised clearing (24 April 2015)
- Yellow Belly Glider deaths (16 March 2015)
- Oil Spill (13 March 2015)

Although these incidents are not explicitly non-conformances with the either the MCoA or SoC, they are potential non-conformances with the CEMP and the specialist subplans prescribed by MCoA B30 and B31.

[

4.4 OPPORTUNITIES FOR IMPROVEMENT

The following opportunities for improvement have been identified:

- Signage is installed at all sediment basins advising construction workforce of the contact details of the environment co-ordinator to arrange water testing prior to pumping. The signage should re-enforce site rules in relation to permits to release water (i.e. no permit = no release of water).
- An internal review of the fauna crossing locations and design is being undertaken with respect to MCoA B1 and, if required, approval from DPE is sought for any design modifications that are inconsistent with the requirements of this condition.

5 CONCLUSIONS

The following conclusions are made:

- There is strong evidence to suggest that environmental management plans as required by the MCoA and the SoC are being implemented on site.
- The standard of environmental controls and protection is high and the project team is to be commended for this.
- Pacifico have implemented a management programme for tracking compliance with MCoA and SoC and this appears to be effective.
- While there have been no major or minor non-conformances with SoC and MCoA, it is recognised that the project is still in the early stages of construction and therefore many of the MCoA and SoC obligations cannot be fulfilled in their entirety at this stage. However, based on the documents reviewed and the interviews conducted, it is evident that these obligations are progressing. Further evidence will need to be reviewed throughout the course of the project to confirm compliance or otherwise.