Pacific Highway Upgrade:

Warrell Creek to Nambucca Heads

Compliance Tracking Report – Construction

Report 2 – September 2015 – February 2016

WC2NH-CS-EN-RPT-0090 Rev D

Rev	Description	Originator	Reviewed	Approved	Date
A	Initial Draft for Roads and Maritime Review	A.Dwyer	N.Rutherford	N.Rutherford	17/3/2016
B	Incorporating comments from RMS/ER	N.Rutherford	A.Dwyer	N.Rutherford	30/03/16
C	Incorporating comments from RMS/ER	A.Dwyer	N.Rutherford	N.Rutherford	31/03/16
D	Incorporting further comments from RMS	N.Rutherford	N.Rutherford	N.Rutherford	05/04/16

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.

Functional Manager Authorisation	Distribution List	
Name: Jason Haslett Date: 02/02/2016 Position: Environment Manager Signature: Comments:	Project Director	
	Design Manager	
	Quality Manager	
	Procurement Manager	
	Construction Manager	
	Safety Manager	
	Commercial Manager	
	Environmental Manager	
Project Director Authorisation	Finance Manager	
Name: Guillermo Ripado Date: 02/02/2016 Signature: Comments:	Engineer Manager	
	Area Manager	
	Human Resources Manager	
	Site Superintendents	
	Roads and Maritime Services	
	IMS Manager	
	Other:	

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
PV	Project Verifier

Terms and Abbreviations

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. Construction Phase of the WC2NH Project commenced on the 9th of February 2015.	NA
(a) provisions for the notification of the Director General of the	Compliance Tracking Program states that 48 hours notice to be	NA

MCoA Reference	Comment	Section Reference
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);	provided to the Director General prior to the commencement of construction. Notification provided to Director General by RMS to commence construction on the 9/2/2015.	
(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 every six months thereafter during the construction phase of the Project. Independent Compliance Audit undertaken 27-29/10/15 by SNC Lavalin.	This report 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 every six months 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. Independent Compliance Audit undertaken 27-29/10/15 by SNC Lavalin.	Appendix C – Independent Audit Report Section 3
(e) mechanisms for reporting and recording incidents and actions taken	The Compliance Tracking Program refers to the Roads and Maritime's Environmental Incident	Section 6

MCoA Reference	Comment	Section Reference
in response to those incidents;	Classification and Reporting Procedure and includes details on incident reporting in Section 2.5.	
(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 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 Construction works undertaken during the reporting period include:

- Geotechnical investigation and site survey activities;
- House demolition and installation of site access points;
- Clearing of vegetation for the installation of erosion and sediment control measures;
- Installation of sediment control measures such as sediment basins;
- Clearing of vegetation prior to the commencement of earthworks;
- Topsoil stripping and stockpiling including the establishment of temporary stockpile locations;
- Commencement of earthworks including cut excavation and embankment filling works;
- Production blasting in Cut 9, 10, 11 and 12;
- Installation of cross drainage culverts and transverse drainage;
- Installation of temporary working platforms for bridge installation;
- Bored and driven piling and commencement of bridgeworks;
- Bridge headstock construction;
- Precast and Batch Plant Construction and Operation;
- Girder Construction;
- Fauna Fence Installation;
- Installation of Permanent Rural Fencing;
- Environmental Monitoring including water quality, noise, air and ecological monitoring;
- Permanent Landscaping;
- Waterway Crossing installation and removal;

- Williamson Creek Realignment;
- Acid Sulfate Soil Treatment;
- Basin installation, augmentation, decommissioning and dewatering activities.

2.1. General performance of environmental controls

Construction activities undertaken since construction commencement in February 2015 include the installation of sediment basins and associated drainage required to meet the Environment 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 were planned to commence in the "drier" period of the year and are currently ongoing. Overall, the erosion and sediment controls have performed well throughout the 'wetter' period of the year (this reporting period) with generally positive feedback received at the Project Environmental Review Group meetings (ERG). Several non-compliances were detected and are reported below in Section 7 below.

RMS and the ER team currently conduct fortnightly inspections which is subject to a "traffic light" system based on the environmental risk rating of issues raised during the inspection. Out of 12 inspections during this compliance reporting period, AFJV have received one "amber" light, 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 and shows the attention to environmental management.

An Environmental Work Method Statement (EWMS) has also been prepared for each high risk 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

An independent audit was conducted by SNC Lavalin on the 27-29 October 2015. The audit reviewed the Project's compliance with the Ministers Conditions of Approval (MCoA) and the Statement of Commitments (SoC) as required by the CEMP. Compliance with the Project approval was assessed over the reporting May 2015 – October 2015. In accordance with the Compliance Tracking Program Section 2.4 the first independent audit was conducted within 3 months of the commencement of construction activities and therefore ongoing audits are conducted every six months thereafter.

While there have been no non-conformances with SoC and MCoA, it was 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 was found 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 provided to suggest that Environmental Management Plans, as required by the MCoA and SoC are being implemented onsite and the standard of environmental controls, protection and management are generally high. 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 in October 2015.

However eight (8) non-compliances occurred during the reporting period after the independent audit and from undertaking this 6 monthly review:

1. MCoA B10 - Omission of the November 2015 monitoring report on translocated individuals which is a requirement of the TFMP. Section 4.8.3 Timing/Frequency of the Threatened Flora Management Plan, which forms part of the Flora and Fauna Management Plan details the monitoring frequency periods for the translocated threatened species, which includes four monitoring periods in the first year and six monthly monitoring period in Year 2. In Year 1 only three monitoring events were completed, with no monitoring being undertaken in November 2015. The cause of this non-compliance was the principal botanist contracted to undertake the monitoring was not available during this period and was overseas. It did not become apparent to the Project that the monitoring period had been missed until the Annual Report was prepared by the principal botanist.
2. MCoA B10 - Omission of the Winter Microbat Roost Box monitoring (1st year which is a requirement of the Micro-chiropteran Management Plan (MBMP). An inconsistency exists between Table 4.4 within the MBMP and the wording within the management plan. Table 4.4 states that roost box monitoring is to commence in Year 2 of construction while the document details that roost box monitoring is to commence in Year 1 of construction. Table 4.4 has been used as a reference to track ecological monitoring requirements.
3. MCoA C17 and B31(d) - Albert Drive (28/10/2015) – Turbid water (approximately 100 litres) was discharged offsite during the cleaning of the surface of the heavily bound pavement material and subsoil drains. Erosion and Sediment Controls were removed prior to the works commencing and not reinstated within an appropriate timeframe prior to commencing work. Erosion and Sediment Controls, at the time of the incident were not compliant with the Progressive Erosion and Sediment Control Plan. (See Section 6.0 below for further details on this incident).
4. MCoA C17 and B31(d)- Rosewood Tributary and Butchers Creek (22/02/2016) – Sediment Laden Water left the project boundary at Butchers Creek and Rosewood Tributary following 45.4mm of rainfall. Erosion and Sediment Controls had been installed prior to the rainfall event but were not fully reinstated compliant with the Progressive Erosion and Sediment Control Plan following works in the areas. This resulted in sediment laden water discharge outside of the approved project boundary. (See Section 6.0 below for further details on the incidents).
5. MCoA C16A - Failure to provide the Cultural Heritage Assessment Reports for permanent works outside of the approved Project Boundary for Public Utilities Works and Design Refinements to the Secretary of the Department of Planning in accordance with C16A of the MCoA.
6. MCoA C27e) – Build of concrete batching facility within the 300 m prescribed offset distance.
7. MCoA B26 – Failure by to maintain a complete compilation of all required documents on the project website.
8. MCoA B10 – Omission of the fortnightly Grey Headed Flying Fox Monitoring frequency. Monthly frequency has been adopted by RMS due to no presence of Grey Headed Flying Fox's during the nominated period within the plan. However the frequency adjustment was not approved prior to implementation.

4.1. Corrective and Preventative Actions Taken

Corrective and preventative actions for the non-compliances NCR's raised during the reporting period above are:

1. Inadvertent omission of the November 2015 monitoring of translocated individuals in accordance with the TFMP.
    a. NCR raised with RMS detailing the non-conformance and remedial / corrective actions required
    b. Corrective Actions – Proposal from Plan Author to modify the frequency of monitoring to the following:
        i. Year 1 – frequency change to 3 monitoring periods
        ii. Year 2 – frequency change to 3 monitoring period (6th, 9th and 12th months) – this change will also enable the Plan Author to complete monitoring in November 2016 which would coincide with the flowering time of Slender Marsdenia.
    c. A request to the Environmental Representative has been made for a minor amendment to the CEMP (TFMP, Appendix B of FFMP) under Condition B29 (g) minor change to CEMP
2. Inadvertent omission of the Winter Microbat Roost Box monitoring (1st year)
    a. Corrective / Preventative Actions:
        i. Ecological Monitoring internal tracker has been updated with the correct deliverables
        ii. Quarterly Monitoring of roost boxes is proposed for the next four years in the MBMP which is expected to provide sufficient data to achieve the objectives of this particular monitoring component.
3. Albert Drive (28/10/2015) – Turbid water (approximately 100 litres) was discharged offsite during the cleaning of the surface of the heavily bound pavement material and subsoil drains.
    a. Corrective / Preventative Actions
        i. Works ceased immediately with the newly constructed table drain blocked preventing the release of further turbid water beyond the project boundary. Erosion and Sediment Controls were then reinstated in accordance with the Progressive Erosion and Sediment Control Plan with the Superintendent, Project Engineer and Foreman being debriefed on the incident
        ii. To prevent further reoccurrences a toolbox was prepared and delivered to all staff during the weekly toolbox on the 4th of November 2015. The toolbox included information that the area foreman, project engineer and environmental coordinators are to be consulted before removing environmental controls, with emphasis on the Project and EPA/EPL water quality requirements and levels required to be met prior to the release of water reiterated to all personnel.
4. Rosewood Tributary and Butchers Creek (22/02/2016) – Sediment Laden Water left the project boundary at Butchers Creek and Rosewood Tributary following 45.4mm of rainfall.
    a. Corrective / Preventative Actions

i. Erosion and Sediment Control Training to be provided to the AFJV foreman and leading hands who did not attend the field Erosion and Sediment Control Training completed by Soil Conservation Services in the next reporting period.

ii. Management review and an Action Plan (based on hierarchy of controls) is being developed by AFJV to ensure future compliance as administrative controls (training) alone is no guarantee of future compliance.

5. Failure to submit the CHAR in accordance with Condition C16A of the MCoA. RMS to submit the CHAR documents in April 2016 to comply with this condition. Review of the HMP required ensuring there are no discrepancies with Condition C16A.

6. Concrete batch plant at north compound built within 300m of nearest affected resident realise di November 2015. NCR report issued DP&E December 2015. Disposition accepted enabling plant to remain as is with mitigative actions being to provide alternate construction access egress for trucks to be further away from resident and undertake offset works as agreed under separate negotiated agreement with affected resident. DP&E acceptance of deposition received 16 December 2015. Preventative action being to have the as designed foot print laid out and confirmed by survey to be outside of the prescribed distance before implementation occurs. A hold Point under contract to be raised to verify works outside of offset distance.

7. Failure by to maintain a complete compilation of all required documents on the project website. A monthly review of project documentation to be undertaken by AFJV and RMS and any changes noted and uploaded onto the website to reduce the potential for a reoccurrence.

8. Omission of the fortnightly Grey Headed Flying Fox Monitoring frequency. Project Environmental Representative endorsement of this frequency change shall be obtained and then a formal request submitted to DP&E to formalise the amended Grey Headed Flying Fox Management Plan.

5. Outcomes of ERG Inspections

The Project has held six Environmental Review Group meetings between September 2015 and February 2016. 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 clearing and grubbing, design refinements, basin inspections (including augmentation and decommissioning), stockpile management, utility relocations, erosion and sediment controls for works adjacent to sensitive areas, creek realignments (Williamson Creek), widened medians inspections, consistency assessment site inspections and bridge construction.

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 #17 15/09/2015	Chris Wicks – RMS Jim Steen – RMS Chris Clark – RMS Rowena Mitchell - RMS Brian Tolhurst – EPA Alex Dwyer – AFJV Justin McCarthy - AFJV Jason Haslett – AFJV Paul Masters – AFJV Vanessa Lahey – AFJV David Bone - ER	• Approval Update; • Blasting Update; • Design Update – North Facing Ramps; • Design Update – Cut 10 Batter Layback • Butchers Creek – Potential Giant Barred Frog Find; • Construction Update; • Monitoring Update; • Ecological Monitoring Update; • Out of Hours Works; • Incidents; • Complaints; • EWMS Update;
ERG #18 20/10/2015	Chris Wicks – RMS David Ledlin - RMS Jim Steen – RMS Chris Clark – RMS Rowena Mitchell - RMS Brian Tolhurst – EPA Craig Dunk – EPA James Sakker - DPI Alex Dwyer – AFJV Jason Haslett – AFJV Paul Masters – AFJV	• Approval Update; • Blasting Update; • Design Update – Cut 10 Batter Layback; • Construction Update; • Topsoil Placement and Hydromulching; • Butchers Creek – Giant Barred Frog Find; • Williamson Creek Realignment; • Monitoring Update; • Ecological Update; • Out of Hours Works; • Incidents;

Date	Stakeholder Attendees	Summary of Items Discussed
	David Bone - ER	• EWMS Update;
ERG #19 17/11/2015	Chris Wicks – RMS David Ledlin - RMS Jim Steen – RMS Chris Clark – RMS Rowena Mitchell - RMS Craig Dunk – EPA Peter Higgs - EPA James Sakker - DPI Alex Dwyer – AFJV Jason Haslett – AFJV Paul Masters – AFJV David Bone - ER	• Approvals Update; • Blasting Update; • Design Update – Urban Design and Landscaping (Stoney Creek); • Construction Update; • Roadkill Survey Update; • Christmas Shutdown Period – Plan Update; • Williamson Creek Realignment; • Monitoring Update; • Ecological Update; • Out of Hours Works; • Incidents; • Complaints; • EWMS Update;
ERG #20 15/12/2015	Chris Wicks – RMS Rowena Mitchell – RMS Jim Steen – RMS Chris Clark – RMS Brian Tolhurst – EPA Craig Dunk – EPA James Sakker – DPI Glenn Snow – DPE Lauren Rose - DPE Paul Masters – AFJV Justin McCarthy – AFJV Jason Haslett – AFJV Edward McPhillips – AFJV David Bone - ER	• Approvals Update; • Consistency Assessment – Old Coast Road Northern Side-track; • Christmas Shutdown Plan; • Asphalt Plant Selection Criteria; • Pile-caps and Pile Auguring (Nambucca River Bridge); • Fill 4 Basin Augmentation; • Out of Hours Works; • Incidents; • Complaints;

Date	Stakeholder Attendees	Summary of Items Discussed
ERG # 21 19/01/2016	Chris Wicks – RMS David Ledlin - RMS Jim Steen – RMS Chris Clark – RMS Rowena Mitchell – RMS Sean Hardiman - RMS Craig Dunk – EPA Peter Higgs - EPA James Sakker - DPI Alex Dwyer – AFJV Jason Haslett – AFJV Paul Masters – AFJV David Bone - ER	• Approvals Update; • North Facing Ramps Update; • Consistency Assessment – Scott's Head Road Side-track; • Consistency Assessment – Utility Adjustments; • Consistency Assessment – Forestry Trail Augmentation; • Construction Update; • First Flush System – Precast Yard; • Landscaping / Stabilisation Update; • Roadkill Survey Update; • Monitoring Update; • Out of Hours Works; • Incidents; • Complaints;
ERG # 22 16/02/2016	Chris Wicks – RMS Sean Hardiman – RMS Jim Steen – RMS Chris Clark – RMS Brian Tolhurst – EPA Craig Dunk – EPA Brett Nudd – RPA Alex Dwyer – AFJV Justin McCarthy – AFJV Jack Henderson – AFJV Jason Haslett – AFJV Noelene Rutherford – AFJV Chris Churcher – Alt ER	• Approval Update; • North Facing Ramps Update; • Design Update – Lowering of Raised Median Old Coast Road North; • Proposed Temporary Bridge – Lower Warrell Creek; • Biodiversity Update; • Glidability Assessment – Widened Median; • Blasting Update; • Site Access Standard Drawings; • Construction Update; • Landscaping / Stabilisation Update; • Roadkill Survey Update; • Monitoring Update; • Out of Hours Works;

Date	Stakeholder Attendees	Summary of Items Discussed
		• Incidents; • Complaints;

6. Incident Reporting

6.1. Incident Reports Raised

Thirty-one (31) incident reports have been raised by AFJV during the reporting period. A brief outline of the environmental incidents reported (EIR) are at Table 3. This is 17 additional incidents than during the last reporting period, however it should be noted that during this reporting period the construction site is in peak production and bulk earthworks have commenced onsite.

Table 3 – Incidents reported to RMS by AFJV during this reporting period (September 2015 – February 2016)

EIR No.	Date	Location	Brief Description	Corrective/ Preventative Action	Status	Reported to
015	10/08/2015	Cut 11 (Chainage 48700)	Crushing Activities at Cut 11 resulting in dust at a resident's property (Kerr Drive).	An additional mister spray was installed on the crushing machine. If misters get blocked / stop working crushing operations will cease until the misters are operational. Subcontractor to provide daily site diary monitoring of dust generation around the crusher.	Closed Out	RMS and EPA
016	13/08/2015	Old Coast Road Gate 18 (Chainage 60800)	During the Water main utilities relocation and the finalisation of the pipe relocation, council turned the water main on in an attempt to stop water flow issues upstream in the catchment without notification to AFJV. Water was discharged from the open works within the	Immediately notified Council to cease the water flow. Communication process between AFJV and council reviewed.	Closed Out	RMS

EIR No.	Date	Location	Brief Description	Corrective/ Preventative Action	Status	Reported to
			project boundary, travelled through the site and left the project boundary into a dry natural drainage line. (3000ltrs of water)			
017	05/09/2015	Nambucca River (Chainage 52500)	The fitting on the vibrating pile clamp failed causing a small hydraulic oil leak (100ml of hydraulic Oil)	Spill Kit utilised to clean up the spill.	Closed Out	RMS
018	23/09/2015	Old Coast Road Gate 4 (Chainage 54100)	Truck and dog delivering material to the stockpile area when a hydraulic hose bust (5 – 10 litres of hydraulic oils)	Ensure daily plant pre-starts are undertaken prior to starting works	Closed Out	RMS
020	17/09/2015	Old Coast Road Gate 6 (Chainage 55000)	The Northern Zone received 52mm of rainfall from 16/9/2015 – 17/09/2015. Contour bunds failed and directed water through a perimeter control instead of the sediment basin. This misdirected water caused sediment laden water to bypass the basin for a portion of the catchment resulting in sediment to leave the project boundary	Subcontractor reminded of their obligations with respect to Erosion and Sediment Control. A drain was installed to direct the water into B55.0	Closed Out	RMS and EPA
021	17/09/2015	Old Coast Road Gate 5 (Chainage 55450)	The Northern Zones received 52mm of rainfall from 16/9/2015 – 17/09/2015 causing the controls in OC5 to fail, this resulted in	Reinstate existing controls and additional contour bunds and controls installed.	Closed Out	RMS and EPA

EIR No.	Date	Location	Brief Description	Corrective/ Preventative Action	Status	Reported to
			sediment laden water leaving the property boundary.			
022	27/10/2015	Nursery Road (Chainage 52500)	Hydraulic Oil Spill from Manitou at Nursery Road (30 litres)	Ensure daily plant pre-starts are undertaken prior to starting works	Closed Out	RMS
023	28/10/2015	Albert Drive (Chainage 46200)	Turbid water (100 litres) discharged from site during subsoil drainage wash down at Albert Drive Intersection.	Reinstall Erosion and Sediment Controls as per blue book requirements.	Closed Out	RMS and EPA
024	03/11/2015	Albert Drive (Chainage 46900)	Truck delivering precast units tracked sediment onto Albert Drive (north)	Toolbox conducted with all staff relating to site access and egress post / during rainfall	Closed Out	RMS and EPA
025	03/11/2015	Browns Crossing (Chainage 42030)	Generator at Browns Crossing Crib Room leaked fuel (10 litres of diesel)	Spill Kit utilised to clean up the spill.	Closed Out	RMS
026	08/11/2015	Lower Warrell Creek (South) (Chainage 48100)	Slope Failure (after 59.6mm of rainfall) at Abutment A resulting sediment from the slope failure entering Lower Warrell Creek	ERSED Controls were as per blue book requirements. ERSED repairs undertaken	Closed Out	RMS and EPA
027	09/11/2015	Old Coast Road Gate 5 (Chainage 55450)	The enhanced local management controls at OC5 held but dirty water passed through the controls and entered the resident's farm dam. 55.4mm of rainfall was received from 11pm 7/11 to 1pm 8/11.	ERSED Controls enhanced at this location and additional controls installed. Additional 2 day basin installed.	Closed Out	RMS and EPA

EIR No.	Date	Location	Brief Description	Corrective/ Preventative Action	Status	Reported to
028	09/11/2015	Old Coat Road Gate 17 (Chainage 60500)	The Northern Zone received 81.4mm of rainfall from 04/11/2015 – 09/11/2015 which resulted in a contour bund failure due to misdirected water resulting in sediment laden water entering the clean water drain and off site. (1-2m3 of sediment)	Contour bund reinstalled to direction water into B60.5	Closed Out	RMS and EPA
029	11/11/2015	Pacific Highway (Browns Crossing Road) (Chainage 41750)	Gypsum container coupling broke while being towed on Pacific Highway, resulting in 150 litres of liquid gypsum being split on highway (did not enter highway table drains)	Metal coupling ordered to replace plastic coupling to limit reoccurrence.	Closed Out	RMS
030	17/11/2015	Nambucca River (Chainage 52300)	During Pile Driving activities a swage fitting on the hammer failed resulting in a release of biodegradable oil (Panolin) onto the barge deck with a small percentage entering the Nambucca River. (approx. 20l)	Emergency Response Plan enacted and contained the spill using absorbent pads and hydrocarbon booms	Closed Out	RMS and EPA
031	18/11/2015	Nambucca River (Chainage 52300)	During Pile Driving activities a swage fitting on the hammer failed resulting in a release of biodegradable oil (Panolin) onto the barge deck with a	Emergency Response Plan enacted and contained the spill using absorbent pads and hydrocarbon booms. Subcontractor piling	Closed Out	RMS and EPA

EIR No.	Date	Location	Brief Description	Corrective/ Preventative Action	Status	Reported to
			small percentage entering the Nambucca River. (approx. 15l - 20l)	activities were placed on hold until replacement of the hydraulic hoses on the hammer was completed with Pirtek (hammer manufacture) certified hoses. Pertek Representative also attended site checked and approved all other hydraulic hose fittings on the barge. Hold point was then released and piling recommenced.		
032	09/11/2015	Fill 14 (Chainage 49100)	A rainfall event (84.6mm) resulted in B49.20 overtopping. The geotextile lined clean water drain below the spillway scoured as a result of a section of the geotextile failing resulting in course sediment being deposited 1 – 2 metres from the project boundary (1m3 of sediment)	Removal of all course sediments, reinstatement of geofabric within the clean water drain with additional pins. Permanent works programme accelerated at this location to limit potential reoccurrence.	Closed Out	RMS
033	19/11/2015	Stockpile W1 (Chainage 57600)	Grader moved outside of the EPL Boundary by approximately 10m. Local grasses had been flattened and slightly disturbed. No trees, threatened flora or cultural heritage	Additional flagging installed on the site access to limit reoccurrence.	Closed Out	RMS and EPA

EIR No.	Date	Location	Brief Description	Corrective/ Preventative Action	Status	Reported to
			constraints were affected by the wheels of the grader.			
034	02/12/2015	Bald Hill Road North (Chainage 49300)	A EWP was setting up formwork for a column pour when its hydraulic hose burst and leaked 1 litre of oil onto the ground.	Check the hydraulic hoses during the daily prestart plant check	Closed Out	RMS
035	02/12/2015	Nambucca River (Chainage 52300)	During pile driving activities a hydraulic hose ruptured on the hammer resulting in a release of biodegradable oil (panolin) into the Nambucca River (approximately 5 litres)	Emergency Response Plan enacted and contained the spill using absorbent pads and hydrocarbon booms. Subcontractor piling activities were placed on hold until the hammer had been serviced by plant fitter. All six of the short lengths of hydraulic hoses attached to the hammer were replaced 3/12/2015 with new hoses to limit reoccurrence of this incident. AFJV personnel attended site and verified the replacement of the hydraulic hoses. Hold point released and piling recommenced post verification.	Closed Out	RMS and EPA
036	14/01/2016	Upper Warrell Creek (Chainage	Hydraulic Hose on the Crane attachment burst and 50ml to 100ml of hydraulic oil	Spill Kit utilised to clean up the spill.	Closed Out	RMS

EIR No.	Date	Location	Brief Description	Corrective/ Preventative Action	Status	Reported to
		42200)	landed on the ground adjacent to the Crain.			
037	01/02/2016	Upper Warrell Creek (Chainage 42470)	Hydraulic Hose burst on EWP resulting in 200ml spill of hydraulic oil (land)	Spill Kit utilised to clean up the spill	Closed Out	RMS
039	02/02/2016	Fill 5 (Chainage 44500)	Hydraulic Hose burst on Smooth Drum Roller resulting in 10 litres of hydraulic oil leaking onto the ground.	Spill Kit utilised to clean up the spill	Closed Out	RMS
040	04/02/2016	Fill 3 (Chainage 43520)	Hydraulic Hose burst on Pad Foot Roller resulting in 10 litres of hydraulic oil leaking onto the ground.	Spill Kit utilised to clean up the spill	Closed Out	RMS
041	16/02/2016	Browns Crossing Road (Chainage 42100)	Rock pierced fuel tank on ridged truck resulting in a fuel leak of approximately 50 litres, most was captured in a clean bin for reuse.	Spill Kit utilised to clean up the spill	Closed Out	RMS
042	16/02/2016	Browns Crossing Road (Chainage 42100)	Hydraulic Hose on Pad Foot Roller burst resulting in 10 litres of hydraulic oil leaking onto the ground	Spill Kit utilised to clean up the spill	Closed Out	RMS
043	22/02/2016	Rosewood Tributary (Chainage 44900)	Sediment laden water left the project boundary at Rosewood Tributary after overtopping the offline creek diversion bunds due to failure to replace Local Management Controls	In-house training of personnel regarding ERSED to be conducted. Plan being developed to ensure future compliance as administrative controls alone is no	On Going	RMS and EPA

EIR No.	Date	Location	Brief Description	Corrective/ Preventative Action	Status	Reported to
			prior to the rainfall event. Resulting in 0.1m3 of sediment outside of the project boundary.	guarantee of future compliance.		
044	22/02/2016	Butchers Creek (Chainage 43350)	Sediment laden water left the project boundary during a rain event. Sediment was a result of some surface water on the fill not reporting to basin B43.21 ponding onsite and then breaching the fill edge bunds into the clean water drain on the east side of the alignment Resulting in 0.1m3 of sediment outside of the project boundary.	In-house training of personnel regarding ERSED to be conducted. Plan being developed to ensure future compliance as administrative controls alone is no guarantee of future compliance.	On Going	RMS and EPA
045	23/02/2016	Browns Crossing Road (Chainage 42300)	Hydraulic Hose on 13t excavator burst resulting in 2 litres of hydraulic oil leaking onto the ground.	Spill kit utilised to clean up the spill	Closed Out	RMS
046	26/02/2016	Floodplain Bridge #2 (Chainage 51100)	Grader transmission failed resulting in 20 litres of oil leaking onto the fill at this location.	Spill Kit utilised to clean up the spill	Closed Out	RMS
047	27/02/2016	Gumma Road (Chainage 52050)	Hydraulic Hose burst on Crane resulting in 15 litres of hydraulic oil leaking onto the ground adjacent to the piece of plant.	Spill Kit utilised to clean up the spill.	Closed Out	RMS

7. Outcome of monitoring undertaken

Preconstruction and background monitoring / ground truthing have been undertaken to set trigger value 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.

7.1. Surface Water and Groundwater Monitoring

RMS have developed water quality parameter trigger levels based on the preconstruction surface water monitoring data for the construction phase as per MCoA Condition B17. Currently, AFJV are comparing construction phase data with these 80th and 20th percentile trigger values provided by RMS in October 2015, as well as ANZECC guidelines where no trigger values were provided in the final interpretive report.

The surface water monitoring has generally shown elevated nitrogen and nitrate levels, lower dissolved oxygen levels and occasionally elevated suspended solids in the creeks and rivers adjacent to the Project both upstream and downstream of the Project (not associated with the Project activities). The upper reaches of the creeks contain low pH levels, with the lower reaches containing higher pH levels.

RMS is in the process of developing groundwater parameter trigger levels based on monitoring data for the construction phase as per MCoA Condition B17. The groundwater quality has slightly elevated (above groundwater investigation levels (GIL) provided to Pacifico by RMS in the Coffey's Interpretive Report) Aluminium, Copper, Nickel, Zinc, and Lead in the vicinity of the Project. 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 27 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. High impact noise has also been monitored with readings above 70 dB(A) for intermittent noise recorded for piling (impact) activities for the Nambucca River Bridge at Gumma Road, triggering the need for respite periods for this work during the day in accordance with the Project NVMP.

Vibration and airblast overpressure monitoring has been undertaken for twenty-three production blasts that have been undertaken during the reporting period. The vibration and airblast overpressure results are available in Appendix B. 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 blasts required to approximately 50 from approximately 300. This has resulted in an increase in the percentage of exceedances, while resulting in fewer overall blasts and therefore fewer predicted exceedances compared with the original allowance. It is noted that the airblast overpressure monitored was below the criteria provided in Condition C9 for all twenty-three production blasts undertaken during the reporting period.

Vibration monitoring was also undertaken on Gumma Road on the 04/02/2016 due to the proximity of impact piling to a heritage building (Boulton Hotel). Maximum Peak Particle Velocity for the activity at the closest pile was 1.35mm/s, within allowable limit of 3mm/s for buildings with intrinsic value under the Noise and Vibration Management Plan.

7.3. Air Quality Monitoring

Air Quality Monitoring has been undertaken in accordance with the approved Air Quality Management Plan (AQMP). Nine dust deposition gauges were placed at strategic locations alongside the Project alignment, with an additional five installed in response to complaints or to further identify sources of dust exceedances. Nineteen dust related complaints were raised during the reporting period, the nature of these complaints and associated responses are detailed in Section 8, and below. Throughout the report period, elevated dust levels were recorded on 9 occasions:

10/8/2015 to 11/09/2015

An elevated level of 9g/m2/month total insoluble matter (TIM) was recorded at dust deposition gauge DDG5, Gumma Road (Ash Content 7.4g/m2/month).

An elevated level of 5.4g/m2/month TIM was recorded at DDG8, Old Coast Road (Ash content 4.5g/m2/month).

Surfactant additives have been procured for use on site in water carts. Planning for an out of hours works request was also undertaken during the month of September for weekend watercart use, outside of standard construction hours to assist in reducing dust emission on the project.

11/09/2015 to 12/10/2015

An elevated level of 7.3g/m2/month and 4.5g/m2/month TIM was recorded at dust deposition gauge DDG6 and DDG8, respectively. It was noted that at both of these gauges organic material (insects and gecko excretion) was present in the funnel as well as the gauge bottle itself, which would contribute to the increased TIM levels. Ash Content for both gauges were below 4g/m2/month, with DDG6 having 1.6g/m2/month and DDG8 having 3.6g/m2/month.

An elevated level of TIM was recorded at 9.2g/m2/month at DDG5. Extra traffic from abutment fill works has since been reduce. Street sweepers and water carts have been utilised in the area to reduce dust produced from site works, with the use of surfactants in water carts to further assist with dust suppression. Batters of the works have also been stabilised with hydromulch to reduce dust emissions.

A water cart schedule has also been enacted in the month of October for use of water carts when works occur in the area. Additionally, it was identified in the October Environmental Review Group that the dust gauge be relocated further from residence to reduce impact from nearby gardening works. This was actioned at the commencement of the next monitoring cycle.

12/10/2015 to 12-13/11/2015

An elevated level of 8.2g/m2/month TIM was recorded at dust deposition gauge DDG6. It was noted during changeover of the dust gauge bottle that the lawn around the gauge had been mowed, with a large amount of grass clippings and gecko excretion present in the gauge. It is likely that these contributed to the exceedance of total insoluble matter. The total ash content (typically more representative of construction activities vs. TIM) for DDG6 was below 4g/m2/month, with only 2.8g/m2/month.

An elevated level of 18.9g/m2/month TIM was recorded at dust deposition gauge DDG5, with an Ash Content level of 15.8g/m2/month. It was noted that the result was very unusual due to the hydromulching of abutment (26th Oct 15) nearby as well as the ceasing of the truck and dog movements through the area that were likely contributors to previous exceedances due to construction activities. The dust gauge was moved within the property to alleviate external contamination that may have been caused from grass clippings and general house maintenance of the private property.

Surfactant additives have been and will continue to be utilised on site in water carts to assist with dust mitigation. Extra water carts have also been utilised by the project to suppress dust emissions from site, as well as utilisation of water carts outside of standard construction hours to assist in reducing dust emissions from the project.

12-13/11/2015 to 11/12/2015

All dust deposition gauges were below the amenity criteria (4g/m2/month) during the monitoring period, as stipulated above. Surfactant additives have been utilised and will continue to be utilised onsite in water carts to assist with dust mitigation. Additional water carts have also been sources to assist with dust mitigation during the Christmas Shutdown Period. The utilisation of water carts outside of standard construction hours to assist with reducing dust emissions from the project.

The highest recorded level during the monitoring period was 3.3g/m2/month Total Insoluble Matter (TIM) recorded at dust deposition gauge DDG3, with an Ash Content of 2.3g/m2/month.

11/12/2015-08/01/2016

All dust deposition gauges were below the amenity criteria (4g/m2.month) during the monitoring period, with the exception of gauge DDG5, which recorded an elevated reading of 18.6g/m2.month for total insoluble matter. Ash content was slightly lower with a reading of 15.7g/m2.month. It was noted that the result was very unusual due to the hydromulching of abutment (26th Oct 15) nearby as well as the lack of construction activity over the time period, which captured the Christmas shutdown period.

Surfactant additives have been utilised and will continue to be utilised onsite in water carts to assist with dust mitigation. Water cart usage outside of standard construction hours has been utilised to assist with reducing dust emissions from the project, during the Christmas Shutdown period and continuing onwards.

08/01/2016-05/02/2016

All dust deposition gauges were below the amenity criteria (4g/m2.month) during the monitoring period, with the exception of DDG5, which recorded an elevated reading of 58.1g/m2.month for total insoluble matter. Ash content was slightly lower with a reading of 49.4g/m2.month. It was noted that the result was very unusual due to the lack of high impact construction activity over the time period. Further gauges have been installed to help verify the cause of the exceedance, as to whether this is related to construction activity or another source, such as the unsealed road near the council yard.

During the reporting period blasting, crushing and screening was undertaken 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 detected minimal arsenic levels consistent with the background levels (i.e. maximum of <0.013mg/kg – below the level of record) 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 September 2015 – February 2016:

- Flying Fox – monthly detailed population counts and daily pre works presence checks. This is a variance from the fortnightly monitoring prescribed as population counts over the 12months construction period has indicated one present with the camp relocated to outside of the project foot print. A request to change this monitoring frequency from fortnightly to monthly will be formalised upon ER endorsement and reported in the next CSR. An NCR is raised for this reporting period.
- Giant Barred Frog (Year 1 Spring and Summer Population monitoring);
- Microbat Monitoring including roost box, flyway monitoring, habitat monitoring and behaviour and persistence monitoring (Year 1 Spring and Summer and monthly for Microbat Habitat Monitoring).
- Koala Population Monitoring (Year 1 Spring monitoring)
- In situ threatened flora and translocated flora (Year 1 Spring and Quarterly for translocated areas).
- Roadkill monitoring in accordance with the Roadkill Monitoring Strategy
- Freshwater Wetland Rehabilitation Monitoring (Nursery Rd)
- Monthly Weed Monitoring Reports
- Yellow bellied glider presence checks are undertaken during pre and post cleating activities. It is noted that mainline clearing had not been completed in glider habitat areas and the detailed monitoring

The ecological monitoring program has confirmed there have been no changes to habitat usage from construction activities from the above listed monitoring of key threatened species conducted during the first year of construction activities.

7.5. Heritage Monitoring

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

An Aboriginal Focus Group Meeting also occurred during the reporting period (AFG#5 - September 2015). This meeting was attended by the LALC's, RMS, Pacifico and Jacobs. This meeting included a welcome to country, project update, an update on Pacifico's Aboriginal Participation Plan, Permanent Visual Mounds near the Rosewood Scared Tree, Urban Design and Landscaping and a discussion on the recent cultural heritage assessments for design refinements.

Cultural and Heritage Awareness Training, a requirement of the Heritage Management Sub plan also occurred during the reporting period (1/11/2015) and was delivered by the heritage consultant and a member of the LALC. This training was attended by Pacifico Management, RMS Management, Engineers, Foreman and Leading Hands.

A Cultural Heritage Assessment Report (CHAR) addendum was also completed during the reporting period and related to an additional ancillary facility and temporary side track at Scott's Head Road (Lower Warrell Creek Bridge). This report was developed by Jacobs and included a desktop assessment, site inspection and test excavations with no items of historical or aboriginal heritage significance being identified. This report was finalised on the 23rd of February 2016 and the Major

Consistency Assessment for Scott's Head Road Side track has now been approved by RMS and the Project Environmental Representative.

8. Complaints received regarding Environmental Issues

Table 4 – Issues and Queries Raised During Consultation Period (September 2015 – February 2016)

Issue / Query Raised	Response	Commitment
1. NOISE 01/09/2015 – resident contacted the community team to discuss piling duration at Nursery Road. A Piling Programme was also requested to provide the resident with information on when piling activities would be undertaken.	The community team requested structures team to provide a schedule / programme for the piling activities. The piling programme was forwarded to the resident for their information	Piling Programme provided to resident.
2. AIR QUALITY 01/09/2015 – business contacted the community team to discuss truck movements through Macksville and stated that he has started to suffer from headaches and sore eyes (Motor Vehicle Business adjacent to existing highway)	The community team looked into the number of truck movements at this location and also let the business know that trucks would cease to use this route at the end of the month (September 2015). The community team also asked the business if there was anything the project could do in the interim and the business responded 'no'.	N/A
3. DUST 03/09/2015 – resident contacted the community team to discuss dust generation from a stockpile adjacent to the property	The community team contacted the Southern Superintendent and a watercart was dispatched to undertake dust suppression on the stockpile. No further complaints were received.	Watercart dispatched to undertake dust suppression on the stockpile.
4. DUST 03/09/2015 – resident on Old Coast Road contacted the community team regard dust generation adjacent to the property	The community team contacted the Northern Superintended and a wart cart was dispatched to undertake dust suppression at this location.	Watercart dispatched to undertake dust suppression adjacent to the property
5. DUST 08/09/2015 – resident on Gumma Road contacted the community team relating to noise generation, dust generation, speeding and diesel fumes.	The community team contacted the foreman who attended the area and undertook some monitoring of street conditions (no visible dust or material deposits were noted). Dust Gauge is already installed at this location to monitor dust generation during construction.	Watercart schedule also developed for this location to further minimise dust generation during construction. Noise monitoring was undertaken and confirmed that noise was within the predicted levels for the activity undertaken. The number of items of plant operating at once was reduced to minimise

Issue / Query Raised	Response	Commitment
		the noise impacts.
6. DUST 08/09/2015 – resident on Gumma Road contacted the community team to complain about the presence of dust on the road which is giving the pavement a different colour.	The community team contacted the foreman who attended the area and undertook some monitoring of street conditions (no visible dust or material deposits were noted). Dust Gauge is already installed at this location to monitor dust generation during construction.	Watercart schedule also developed for this location to further minimise dust generation during construction. Additional dust gauges have been installed in the vicinity of Gumma Road to confirm if external additional contaminates not originating from the construction site are entering the dust gauge.
7. NOISE 15/09/2015 – resident reported high noise generation from construction activities at Nambucca River Northern Abutment.	The Environmental Coordinator visited the resident and explained that noise monitoring had been undertaken and was within the predicted levels and below high noise generating activities of 75dBA.	Engineering Team to investigate extending the stockpile along the boundary line to assist with the mitigation of noise, dust and visual impacts during construction.
8. DUST 28/09/2015 – resident on River Street reported high dust generation from Construction Activities. The resident also discussed the status of the at-house noise treatments and when enquired about when these were going to be completed on the property	The Community team notified the resident that truck movements would be reduced as earthworks programme at this location was scheduled for completion at the end of September 2015. Watercart was also sent to this location to undertake dust suppression and the frequency of watercarts at this location increased.	Watercart frequency increased at this location. At-house noise treatment update forwarded to GHD (RMS Subcontractor) to provided update to the resident on the status of the at-house noise treatment at this location.
9. DUST 30/09/2015 – resident reported about what dust mitigations were going to be put in place over the summer period.	The community team explained the mitigation measures including, but not limited to water carts, soil binders, temporary stabilisation of stockpiles, landscaping etc.	NA
10. DUST and WATER QUALITY 01/10/2015 – resident contacted the community team regarding water quality within the properties water tanks.	The community team discussed the first flush system was to be installed at the property and watercart / sweeper trucks would be monitoring the dust generation adjacent to his property. The new Albert Drive connection was also discussed and will minimise truck movements past his property	First Flush System installed at the property in January 2016.
11. DUST 15/10/2015 – resident contacted the community team regarding dust generation adjacent to the property and raised concerns	The Environmental team investigated the complaint with no extractive activities occurring from bores or surface water at Stoney Creek.	Dust gauge levels in the vicinity remain low, water cart operators to visit the area more frequently.

Issue / Query Raised	Response	Commitment
that his private property bore was dry	Waterway diversion was in place and only water ingress from culvert excavations required local dewatering.	
12. DUST 15/10/2015 – resident requested construction activities programme for Old Coast Road and Mattick Road and also mentioned dust generation from construction activities	Construction Update provided to community member. Environmental Team investigated further dust suppression options.	Polo Citrus (Dust Suppressant) to be trialled around Mattick Road and Siding Road in watercarts to provide further dust suppression for the Project. The dust gauge results for the Mattick Road area remain low.
13. DUST 19/10/2015 – resident contacted the community team to discuss dust generation adjacent to his property and expressed his interest in obtaining a vegetation screen for his property	The Community Team discussed the various dust mitigation measures the project was implementing onsite.	Meeting was held with resident to discuss options. Resident then chose new fence rather than vegetation screening. Fence installed in early 2016.
14. DUST 02/11/2015 – resident contacted the community team to discuss the first flush system installed on the property and that the system did not include a filter	The Community Team attempted to obtain additional information from the resident on the issue and to assess the basis of this complaint, as no prior issues relating to dust generation etc had been raised by this resident.	Community Team sent a letter to the resident to request further information to aid in the assessment of the claim (via letterbox drop) – no response to date.
15. DRAINAGE 09/11/2015 – resident inquired about permanent drainage adjacent to his property. The resident also wanted to know how run-off would be managed during construction and if water would still flow into his land once permanent drainage was completed.	The community team explained that the project team would need to inspect the area being referred to in order to better understand the drainage issues. A meeting was coordinated with the resident and respective members of the environmental, drainage team and area foreman for 10/11/2015	Permanent drainage plans were explained to resident at meeting on Nov 10 in addition to proposed remediation with resident's authorisation. No further issues have been raised by the resident to date.
16. DUST 20/11/2015 – resident inquired into additional dust mitigation measures to help prevent the impact of dust on the property.	The community team contacted the superintendent about dust mitigation outside of standard construction hours which was also discussed with the environmental team	Out of Hours Works Permit developed by Environmental Team to allow for watercarts to work on Sunday and Public Holidays.
17. DUST 24/11/2015 – resident called the community team to discuss noise and dust associated with truck movements on Albert Drive.	Inspection was undertaken at the affected area. Face to Face meeting with the resident was also conducted to explain additional mitigation measures including: house cleaning, tank cleaning and the opening of the new Albert Drive	Frequency of sweeper trucks increased at this location as a short term solution to dust generation on Albert Drive from Truck movements prior to the opening of the New Albert Drive Connection.

Issue / Query Raised	Response	Commitment
	Connection.	
18. VEGETATION 24/11/2015 – resident contacted RMS on 19/11/2015 regarding vegetation obstructing sight distances when turning onto the Pacific Highway at Warrell Creek.	The Community Team discussed the issue with the resident in more detail.	Trimming of the vegetation in questions to be undertaken by AFJV post inspection of the area by the AFJV Traffic Manager to assess the issue.
19. DUST 26/11/2015 – resident contacted the community team to discuss dust generation around the property. The resident acknowledged that weather conditions were also particularly bad on the 26/11/2015	The community team discussed the issue with the Northern Superintendent and the watercart frequency was increased at this location due to the weather conditions on the day	Watercart frequency increased at this location during the hot, dry and windy conditions experienced over the day 26/11/2015
20. NOISE & VISUAL 15/12/2015 – resident called to inquire about noise generation that can be distinctly heard at night (generator / lights were noted as a potential noise source by the resident)	The community team contacted the superintendent and confirmed that no works outside of standard construction hours were occurring at this location	Community team notified the resident that no construction works were occurring outside of standard construction hours.
21. VISUAL 17/12/2015 – resident reported that light from the precast yard at night was emanating from the precast yard.	The community team contacted the superintendent and discussed the light pollution from the precast yard.	The lights were adjusted prior to operation in the New Year. The lighting was also disconnected over the Christmas Shutdown Period. No further similar complaints have been made from this resident.
22. DUST 17/12/2015 – resident reported that dust generation was impacting the pool and water tank.	Community team investigating the installation of a first flush system on the property. Air Quality Monitoring results from Nov/Dec show dust was within amenity criteria in the dust catchment. Environmental team shall continue to monitor dust generation at this location and implement mitigation measures as required.	First Flush System was installed at the property.
23. DUST 04/01/2016 – resident raised concerns regarding dust generation in swimming pool and toilet.	Air Quality Monitoring results from Nov/Dec show dust was within amenity criteria in the dust catchment. Environmental team shall continue to monitor dust generation at this location and implement mitigation measures as required.	N/A
24. NOISE 11/01/2016 – resident reported	Toolbox held Wednesday 13/01/2016 detailing the usage	Toolbox on air brakes held Wednesday 13/11/2016.

Issue / Query Raised	Response	Commitment
trucks on the alignment using air brakes.	of air brakes onsite.	
25. NOISE & DUST 12/01/2016 – resident contacted the community team to discuss dust and noise generation during construction and at-house noise treatments.	The Community Team referred the at house noise treatment to GHD (RMS subcontractor). The resident commented that the reason for the request was due to the earthworks which have commenced adjacent to the property and an earthworks program was provided to the resident.	Earthworks Programme provided to the resident. At-house noise treatment referred to GHD to provide an update to the resident.
26. DUST 21/01/2016 – resident contracted the community team to discuss increase in works on the Gumma Floodplain and raised concerns regarding dust contamination in the water tank.	Environmental Team noted that a dust gauge was installed in close proximity to the resident, however an additional dust gauge would be installed	Environmental Team installed 2x additional dust gauges in close proximity to the resident (Feb 2016).
27. NOISE 01/02/2016 – resident contacted the community team to discuss the status of the at-house noise treatments	The Community Team referred the at house noise treatment to GHD (RMS subcontractor).	At-house noise treatment referred to GHD to provide an update to the resident.
28. NOISE 02/02/2016 – resident on River Street contacted the community team to discuss noise generation from piling activities.	The Community Team discussed the piling program with the resident and discussed temporary accommodation options.	N/A
29. NOISE 11/02/2016 – resident contacted community team to discuss noise generation from air brakes on the alignment	Community Team provided information to the resident that the use of air brakes on the alignment would be discussed at the next toolbox.	Toolbox included details of the use of air brakes on the alignment (17/02/2016)
30. VIBRATION 16/02/2016 – resident contacted community team to discuss a light fixture which had sustained damage and stated that this damage was sustained during piling activities	The Community Team discussed the issue with the resident and discussed payment for the repair of the light fixture	AFJV to undertake repairs to the light fixture on the property.
31. ROCK 19/02/2016 – resident / worker reported that a rock from a truck and dog leaving the project cracked the private vehicles windscreen.	The community team is processing the residents claim as per usual procedure.	AFJV to organise repair of the windscreen. AFJV have also initiated “rock spotters” on site that check the dual wheels of trucks prior to exiting site. Bitumen spray seal has also been used on site exit points to reduce the incidents of rocks and stones on the highway.
32. DUST 19/02/2016 – resident attended	RMS and Community Team working with the resident to	Environmental Team to install 2x additional dust gauges at

Issue / Query Raised	Response	Commitment
the community display centre to discuss dust generation adjacent to his property.	address his concerns.	the stockpile location to monitor ongoing dust generation at the property (March 2016)

AFJV has an approved Community Involvement Plan (which covers the requirements of the Condition B28 of the MCoA 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 on the 16/12/14.

AFJV has been maintaining and implementing the Strategy throughout construction of the project.

Since September 2015 the Community Team have:

1) Published and distributed

- 6 community notifications
- 2 fact sheets
- 2 project updates

2) Held community information and drop-in sessions on the following dates:

- 16 17 September 2015
- 7 November 2015
- 17 and 18 February 2016

3) Included a topic relevant to the community in the weekly Toolbox Talk/Presentation.

4) Made feedback options available at the following locations:

- Site compound at 124 Albert Drive, Warrell Creek
- The Friendly Grocer in Macksville
- The Friendly Grocer in Scotts Heads
- Nambucca Shire Council
- Macksville Library
- Nambucca Library
- Roads and Maritime Service motor registry office at Nambucca Heads.

9. Licencing, Permits and Changes

The Warrell Creek to Urunga Pacific Highway Upgrade project was referred to the Commonwealth Minister 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 issued 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
Groundwater Bore Licence – Industrial Use (Road Construction and dust suppression)	30BL207307	Lot 1 DP1209891
Groundwater Bore Licence – Industrial Use (Road Construction and dust suppression)	30BL207307	Lot 1 DP1209891
Groundwater Bore Licence – Industrial Use (Road Construction and dust suppression)	30BL207310	Lot 22 DP1185837
Groundwater Bore Licence – Industrial Use (Road Construction and dust suppression)	30BL207308	Lot 2 DP1018234
Surface Water Taking for industrial (road construction and	30PE002487	Warrell Creek Lot 66 DP 1175835

Type of Permit	Permit Number	Location
dust suppression)		
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 endorsed by the ER for works that are consistent with the Planning Approval during the reporting period (September 2015 – February 2016). A summary is provided below:

Table 9 – List of Consistency Assessments approved throughout the reporting period

Consistency Assessment	Date Approved	Reference to Approval Condition
Major Consistency Review – Cut 10 Batter Alignment Adjustment	22/10/2015	MCoA A6, B30
Major Consistency Review – Fill 24 Borrow Pit	01/12/2015	MCoA A6, B30
Major Consistency Review – Design Refinements	10/12/2015	MCoA A6, B30
Minor Consistency Review – Northern Old Coast Road Side Track	02/02/2016	MCoA A6, B30
Minor Consistency Review – Northern Water Access	02/02/2016	MCoA A6, B30

Submissions to Planning have been undertaken during the reporting period (September 2015 – February 2016) including:

1. Pacific Highway Upgrade Warrell Creek to Nambucca Heads – Urban Design and Landscaping Plan (Stage 2) – approval obtained from DPE on the 19th of February 2016 (MCoA B21)
2. Pacific Highway Upgrade Warrell Creek to Urunga – Warrell Creek to Nambucca Heads –

Amendment to the approved increase in blasting limit criteria – approval obtained from DPE on the 26th of February 2016 (MCoA C11)

3. Pacific Highway Upgrade Warrell Creek to Nambucca Heads – Amendment to the approved batch plant ancillary facility approved buffer distance, post landowner agreement – approval obtained by DPE on the 18/12/2015 (MCoA C27) to place batch plant within 300m of the nearest sensitive receiver

Minor changes to the CEMP accepted by the Project ER under MCoA B29(g) during the reporting period were:

a. Minor Change to Flora and Fauna Management Sub plan (Appendix E – Green Thighed Frog). Appendix was added which included the refinement of the likely Green Thighed Frog habitat developed by the AFJV project Ecologist. (Approved 06/10/15)
b. Minor change to the Compliance Tracking Program and CEMP to change the reporting frequency to every six months from yearly. (Approved 23/02/16).

Minor changes to the CEMP have been proposed and discussed with the Project ER and are currently ongoing. The proposed changes include:

a. Minor amendment to the TFMP to update the timing/frequency of monitoring periods for year 1 and year 2.
b. Reviewing the Groundwater Monitoring Program/ Groundwater Management Strategy to capture the baseline results and any changes to the sampling regime during construction;
c. Revision of Blast Management Program (Appendix A Noise and Vibration Management Sub Plan) incorporating approved changes to vibration and overpressure limits as per MCoA C11.

Sixteen minor ancillary sites including crib sheds and ablution blocks have been approved in total for the Project by the Project ER under conditions C27 and C28 of the MCoA. Two ancillary sites have been approved under condition C27 of the MCoA (Northern and Southern site compounds).

10. Summary of Compliance Status

As detailed in Appendix A (Compliance Tracking Table) there are a total of 136 conditions contained with the Ministers Conditions of Approval (MCoA) (File Number S02/01634) and Statement of Commitments. Of the 136 total conditions contained within the MCoA and SoC 41 are compliant (no further action required), 93 are ongoing throughout construction. Six conditions are currently non-compliant however these are currently being addressed as per Section 4.0 above,

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	Complies Currently	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 five 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.					

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
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 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.	Stage 1 and 2	Preconstruction, Construction and Operation	Contractor	Complies Currently	Status of Compliance with this condition is detailed in this document. No issues were prevalent during 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	Complies Currently	Status of Compliance with this condition is detailed in this document. No requests 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	Complies Currently	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

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						Drive, Warrell Creek. The documents currently available are: - Approved CEMP and Sub-plans - Nest Box Management Plan - Threatened Flora Management Plan - Ecological Monitoring Program - Water Quality Monitoring Program - Community Involvement Plan (Community Communications Strategy). Project Approval documents are available on the RMS Project Website: Link to website with project Documents

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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 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,	Stage 1 and 2	Preconstruction	Roads and Maritime	Compliant Closed	Initial staging report issued to DPE on 12 March 2013 in regards Stage 1 and Stage 2, stage 2 being Warrell Creek to 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
	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.					

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	Complies Currently	AFJV (Acciona Infrastructure) have obtained an Environmenl 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: Link to Acciona Website and Environmental Documents and RMS Website Link to Project Documents A list of the groundwater bore and surface water permits is 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	Stage 1	Preconstruction	Roads and	Complies	Construction for WC2NH

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	subject of this project approval are physically commenced on or before that date.	and 2		Maritime	currently	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	Complies	Option 2 has been adopted and has been incorporated into the detailed design of the Nambucca River bridge structure. Construction has commenced in February 2015 with construction commencing on the Nambucca Bridge structure in July 2015.
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 scope of this Project
	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	Stage 1 and 2	Preconstruction and Construction	Contractor	Complies Currently	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
	A1(d), unless otherwise agreed to by the Director General.					*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 EPA, DPI and DoE. Structures have been refined in consultation with EPA and DPI (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 58510 and 58560 (as 1 x 3m x 3m combined culvert and 1 x 3m x

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						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, 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

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						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 DPI (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. To date no response from DPE has been received and an update will be provided once received.
B2	As part of detailed design, the Proponent shall further investigate design refinements to improve	Stage 1	Preconstruction	Roads and	Complies	This is part of detailed design in Stages 1 and 2 as overlaps both

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	fauna connectivity between Chainages 19150 and 19820.	and 2		Maritime	Currently	stages. AFJV have proposed to increase the widened median 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. The potential glider trees have been identified to be retained. Post mainline clearing a Widened Median Detailed Glidability Assessment was completed on the 18/1/16 by Geolink (in consultant with Ross Goldingay) on behalf of AFJV to determine the retained glider trees and number of crossing points.

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						The assessment determined that due to the existing terrain causing the carriageways to remain grade separated, the opportunities for two-way complete alignment crossing points is limited. The retained glider crossing trees allowed movements in a mostly west-east direction with minimal crossing points in an east-west direction. AFJV are proposing to install glider poles at approximate CH59940 and 60380 to facilitate two-way glider movement. AFJV are proposing to install a rope bridge at approximate chainage 61030. The installation of additional glider poles will be determined with the EPA and RMS to allow further two-way glider movements. Three additional dedicated fauna connectivity culverts have been installed. The details have been

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						included in the Fauna Connectivity Report provided to DPE in July 2015. To date no response from DPE has been received and an update will be provided once received.
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	Stage 1 and 2	Preconstruction and Construction	Contractor	Complies	Initial fauna and fish design discussions with EPA and DPI (Fisheries) were held on 18 June 2014 (ERG 2). Onsite investigation / walkthrough with EPA, 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

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	evidence of consultation with EPA and DPI (Fisheries) in relation to the suitability of any changes to the crossings design.					detailed design will be issued to the EPA and Fisheries for comment and will also be discussed during upcoming ERG's. 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

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						August 2014. A review of the locations of the fauna drop down structures is due to take place during the next reporting period. The Fauna Connectivity Report was submitted to DPE 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	Complies Currently	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

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						trees has been undertaken by Geolink. The potential glider trees have been identified to be retained. Post mainline clearing a Widened Median Detailed Glidability Assessment was completed on the 18/1/16 by Geolink (in consultation with Ross Goldingay) to determine the retained glider trees and number of crossing points. The assessment determined that due to the existing terrain causing the carriageways to remain grade separated, the opportunities for two-way complete alignment crossing points is limited. The retained glider crossing trees allowed movements in a mostly west-east direction with minimal crossing points in an east-west direction. AFJV are proposing to install

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						glider poles at approximate CH59940 and 60380 to facilitate two-way glider movement. AFJV are proposing to install a rope bridge at approximate chainage 61030. The installation of additional glider poles will be determined with the EPA and RMS to allow further two-way glider movements.
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	Complies	Early design consultation with DPI (Fisheries) has 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.

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						The fish passage culverts have been designed to incorporate naturalised bases. Where multiple cell culvert have been proposed, an invert that mimics 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. An unexpected find of Giant Barred Frogs occurred at Butchers Creek during the reporting period. EPA provided advice regarding natural bases for the culvert cells to provide a robust surface treatment for the base slabs which would be conducive to frog movements. AFJV shall continue to liaise with the EPA during the detailed design and construction of this culvert structure to incorporate a natural base for this fauna specie. DPI (Fisheries) and the EPA have also raised the use of alternative “soft treatments” in creeklines and channel realignments in conjunction with the

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						use of scour rock. Soft treatments have been incorporated into the design at several creeklines along the Project alignment including Williamsons Creek, Stony Creek, Butchers Creek and Rosewood tributary. This detail has been included in the Urban Design and Landscaping Drawings (UD02) and has been reviewed by the EPA and DPI (Fisheries) as part of this process. Discussions on the implementation of the soft landscaping treatments will continue during the construction phase of the project via the ERG site inspections and design updates. Issues are being raised at the monthly ERG meetings and closed out through site visits and/or ongoing communication.

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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 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.	Stage 1 and 2	Preconstruction and Construction	Roads and Maritime	Complies	The Nest Box plan prepared by Roads and Maritime, was approved by DPE on 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. This is planned to take place in mid-2016 post clearing.

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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: 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	Stage 1 and 2	Preconstruction and Construction	Roads and Maritime	Complies, one NCR was raised during the reporting period regarding compliance with the approved TFMP	• Potential impacts to *Amorphospermum whitei* and *Marsdenia longiloba* are incorporated into the Threatened Flora Management Plan (Ver 4) (TFMP) which was provided to DPE and approved on the 16/12/14. The TFMP was further updated on the 24/12/14 to incorporate comments from the Federal Department of Environment. • 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

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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 prior to the commencement of any construction work that would result in the disturbance of *Amorphospermum whitei* and *Marsdenia longiloba*.					translocation of these species in accordance with the translocation plan detailed in the approved Plan. The translocation has been completed. • Translocated individuals and individuals noted to be "protected In situ" in the Plan have been protected on site using "No-Go Zone fencing" and signage. • Monitoring of the translocated individuals has been undertaken quarterly in accordance with the TFMP and a report produced in February 2016. The outcomes of the monitoring are summarised below: Assessment of the outcomes of the translocation project in Year 1 according to the performance criteria in Appendix 11 of the

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						WC2U Threatened Flora Management Plan Ver. 4 24/12/2014 found that all performance criteria had been achieved. Insitu Threatened Flora Monitoring has also been conducted over the reporting period with the key points from the first years monitoring including the below: • The overall number of in-situ threatened flora to be monitored has reduced due to additional translocation of a number of threatened plants occurring on the edge of cleared areas which were deemed by Ecos Environmental to be at increased risk of being impacted by edge effects. • All Tall Knotweed plants have completely died back

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						since the original monitoring survey undertaken, prior to clearing commencing. A reference population of Tall Knotweed located in the Maclean locality in the far north coast was surveyed at the same times and was also found to have had all plants die back. It is currently assumed that this finding is due to climatic events or the natural lifecycle of this species which is not currently well understood. Monitoring of the reference population at Maclean will continue as part of the in situ threatened flora monitoring in order to understand further observations in the WC2NH population. • Favourable growing conditions for Maundia were

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						present prior to and during construction in 2015. Large areas of Maundia occur adjacent to the project footprint and have been included in revised sensitive area plans. Areas of Maundia at Crouches Creek and the Nambucca floodplain are currently very healthy and dense. • In-situ Rusty Plums in the Cockburns Lane locality are generally healthy and in good condition, the one exception to this being NW56. This plant shows some signs of discolouration which may be due to its now exposed position. Remediation measures to protect this plant from edge effects will be initiated if no improvement is recorded in

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						its condition. • The in-situ Spider Orchid is in a healthy condition with recruitment of an additional individual occurring immediately below this plant on the same tree. • A number of Slender Marsdenia individuals have recently died back. This finding is not surprising given that this species is known to naturally die back as part of its natural lifecycle. Monitoring undertaken next year would expect to see continued recruitment of juvenile vines associated with dead vines
	Biodiversity offsets					
B8	The Proponent shall, in consultation with the EPA and DPI (Fisheries), develop a Biodiversity Offset Strategy that identifies available options for	Stage 1 and 2	Preconstruction and	Roads and Maritime	Complies	Comments were received from DPE on the draft Biodiversity Offset strategy for Warrell Creek

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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 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		Construction			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. Comments from the Federal Department of Environment received in February 2016, the document is currently being updated to address these comments.

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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 *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					

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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 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:	Stage 1 and 2	Construction and Operations	Roads and Maritime	Complies Currently	The acquisition of suitable offset properties was completed in January 2016.

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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.					
	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 by a suitably qualified ecologist and shall	Stage 1 and 2	Preconstruction and Construction	Roads and Maritime	Non-compliant, two NCR's raised during the reporting period due to non-	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 Ecological Monitoring Program The Ecological Monitoring Program was

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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				compliances with the Ecological Monitoring Program document	approved by DPE on the 16/12/14. The Ecological Monitoring Program has been implemented on site with the following monitoring undertaken between September 2015 – February 2016: - Giant Barred Frog (Year 1 Spring and Summer Population monitoring); - Microbat Monitoring including roost box, flyway monitoring, habitat monitoring and behaviour and persistence monitoring (Year 1 Winter, Spring and Summer and monthly for Microbat Habitat Monitoring). NCR raised as no winter roost box monitoring was conducted.

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	(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.					- Koala Population Monitoring (Year 1 Spring monitoring) - In situ threatened flora and translocated flora (Year 1 Spring and Quarterly for translocated areas). NCR raised as no November 2015 monitoring conducted for the translocated areas. - Roadkill monitoring in accordance with the Roadkill Monitoring Strategy - Flying Fox monitoring over the last 6 months - no present of GHFF noted reports on RMS web site. NCR raised as monthly monitoring for Grey Headed Flying Fox's undertaken where the GHFFMP stipulates

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						fortnightly monitoring. No impacts to habitat usage have been noted.
	Hydrology and flooding					
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	Complies	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.

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						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 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	Stage 2	Preconstruction	Roads and Maritime	Complies	AFJV have undertaken flood modelling based on the detailed design. The flood modelling

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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 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.					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 Conditions B11-B15 on the

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						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 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	Stage 1 and 2	Preconstruction and Construction	Contractor	Complies	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

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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 agreed by the Director General.					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, 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.

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						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	Complies	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, 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

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						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	Complies	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	Stage 1 and 2	Preconstruction and Construction	Roads and Maritime/Contractor	Complies Currently	AFJV will provide Roads and Maritime with all the information, details and data as a consequence of the Project Works that Roads and Maritime

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	identified in the documents listed under condition A1 and the modelling undertaken as part of condition B12.			.		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 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,	Stage 1 and 2	Preconstruction, Construction	Roads and Maritime to	Complies Currently	a) Shown in the Geolink approved WQMP plan as approved by DPE 23 May 2014. The interpretative

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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; 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		and Operation	prepare plan and implement the pre and post construction requirements. Contractor responsible to implement requirements during construction.		report recommends refinement of bore locations based on prior 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 sets were collected 6 months prior to start of

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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 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.					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 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.

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						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 (AFJV) are currently undertaking the Surface Water and Groundwater monitoring programs during the construction phase of the Project. Monitoring results are summarised in Section 7 above. The results are presented at the monthly ERG meetings and are discussed in detail. The surface water monitoring results are

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						compared with trigger values provided by RMS in October 2015 and ANZECC guidelines where the trigger value is absent. Groundwater monitoring values are compared with the Groundwater Investigation Levels provided in the Coffey's Interpretive Report (provided by RMS to Pacifico).
	Heritage impacts					
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);	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

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment

	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);
	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.
						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.

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	Stage 1	Preconstruction	Roads and Maritime	NA	Not applicable to the WC2NH Project.

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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.					
	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 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;	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 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.

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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 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;					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 were received from DPE on the 26/06/15. The comments were addressed by AFJV as part of the 85% UDLP Review Process. UDLP Community Consultation was undertaken by RMS/AFJV on the 07/11/2015 at the Macksville Senior Citizens Centre Stage 2 of the UDLP was provided to DPE on the 1/12/2016 and included details of the final design of built elements, evidence of community consultation and

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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 the staged construction program of the project.					other outstanding information. Comments were received from DPE on the 15/1/2016. The comments were addressed by AFJV and a response provided by RMS to DPE on the 5/2/2016. Approval of the Stage 2 of the UDLP was provided by DPE on 19/02/2016 Stage 3 of the UDLP will include the North Facing Ramps which due to the modification required cannot be approved under the current DP&E Approval. Once the modification has been approved by DP&E Stage 3 submission shall be developed and approval sought from DP&E prior to the commencement of landscaping for the North Facing Ramps.

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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	Complies Currently	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 notified Forests NSW in May 2015 that vegetation clearing operations were due to commence. Consultation on the property adjustment drawings was undertaken in December 2015, the design is currently being

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						updated to capture the outcomes of the consultation. AFJV to comply with requirements for merchantable timber and construction property adjustments as per 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	Complies Currently	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	Stage 1 and 2	Preconstruction	Roads and Maritime	Complies Currently	The acquisition for the final property to the south of the Project was executed in February 2016 No land use has been identified as being affected by the project to

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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 b negotiating appropriate compensation and/or arrangements for the purchase of the property under the Land Acquisition (Just Terms Compensation) Act 1991.					such an extent jeopardising continued agricultural use – the design has allowed for parcels 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	Stage 1 and 2	Preconstruction, Construction and Operation	Roads and Maritime to prepare and submit the Program for approval and	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

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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 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			implement the program during the operational phase. Contractor to implement the Program during construction.		WC2NH Project and submitted to DPE and approved on the 16/12/14 in a letter from DPE. 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). This report is the second Six (6) Monthly Compliance report prepared for the Project to cover the reporting period September 2015 – February 2016.

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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.					
	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;	Stage 1 and 2	Preconstruction and Construction	Roads and Maritime/Contractor	Non-compliant	Roads and Maritime managed web site for WC2NH is in place. Project documentation and information can be found at the link below: Link to Project Documents 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. Several documents are currently being made web accessible for uploading to the website. Currently, not all documents that

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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.					are required to be made publically available are uploaded to the website. Therefore, an NCR has been raised. AFJV are currently working with RMS to have the documents made web accessible for uploading to the website.
	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	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

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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 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.					enquiries may be transmitted: community@afjv.com.au ☐ An advertisement 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 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. Complaints received during the reporting period are provided in Section 8 above.
	Community involvement					
B28	The Proponent shall prepare and implement a Community Communication Strategy for the project.	Stage 1	Preconstruction and	Contractor	Compliant	AFJV has an approved Community Involvement Plan

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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 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	and 2	Construction			(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 on the 16/12/14. AFJV will maintain and implement the Strategy throughout construction of the project. Since September 2015 the Community Team have published and distributed • 6 community notifications

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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.					• 2 fact sheets • 2 project updates Held community information and drop-in sessions on the following dates: • 16 17 September 2015 • 7 November 2015 • 17 and 18 February 2016 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

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						• The Friendly Grocer in Scotts Heads • Nambucca Shire Council • Macksville Library • Nambucca Library Roads and Maritime Service motor registry office at Nambucca Heads.
	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 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:	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 has been signed and the ER is now engaged on the project and undertaking the requirements of this condition.

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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 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					

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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; 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,	Stage 1 and 2	Preconstruction and Construction	Contractor	Compliant	DPE approved the WC2NH CEMP and Sub-plans on the 16/12/14,. CoA B30 Requirements (a) to (e) are covered within the approved CEMP, prescribing: • Scope and description of all relevant activities to be undertaken during construction • Statutory and other obligations that AFJV is required to fulfil during construction

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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 particular, the following environmental performance issues shall be addressed in the Plan: *i.* measures to monitor and manage **dust**					• 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 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

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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 (including to					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-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

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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.					Involvement Plan (CIP) 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	Stage 1	Preconstruction and	Contractor	Compliant	DPE approved the WC2NH CEMP and associated Sub-plans

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	condition B30 of this approval, the Proponent shall prepare and implement the following sub plan(s): a a **Construction Traffic Management Plan**, prepared in 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	and 2	Construction			on the 16/12/14. The approved Traffic and Safety Management Plan has been prepared in accordance with RMS Specification G10 and complies with the requirements of this condition. An audit of the TSMP was conducted by RMS in December 2015, the results of the audit are still pending. The traffic arrangements are regularly inspected by both RMS and the site team.

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	routes; *v.* traffic and other arrangements to minimise impacts including safe pedestrian access at all 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	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

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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 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					Management Plan • Threatened Flora 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.

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	(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 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					In addition to these plans and 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. Pre-clearing surveys have been completed for the main Project alignment and mapping for EEC, hollow bearing trees, threatened species, etc has been updated to reflect ground-truthed data. No disturbance to bridge or culvert

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	viii. mechanism for the monitoring, review and amendment of this plan;					structures with the presence of micro-bats has occurred. A colony of micro-bats present in a bridge structure adjacent to the Project alignment at Crouches Creek (Williamson Creek) is being monitored in accordance with the approved *Microchiropteran* Bat Management Strategy. Targeted surveys for Giant barred Frog were also completed at Butchers Creek and Upper Warrell Creek prior to clearing commencing in accordance with the Giant Barred Frog Management Strategy. The majority of vegetation clearing on the Project is now complete. Vegetation clearing processes have been monitored regularly to ensure vegetation clearing is minimised. Exclusion flagging is checked during pre-clearing inspections and whilst clearing is being undertaken. Exclusion of sensitive habitat and retention of features for landscape rehabilitation are consistent with the requirements of the FFMP. Fauna rescue and retrieval has

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						been in accordance with the approved procedure attached to the FFMP.
	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: *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	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: 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

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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 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;					exceedances As required by the AFJV scope of work, AFJV will implement the requirements of the NVMP and subordinate procedures and programs. The Blast Management Program has been updated to reflect the vibration and airblast overpressure limit change approved by DPE on 17/7/2015. Implementation of the NVMP has been ongoing throughout construction. AFJV have monitored potentially high noise impact activities such as impact piling and provided respite periods in accordance with the mitigation measures listed in the NVMP. Out of hours activities are managed through a permit system to ensure compliance with the Out of Hours Approvals Procedure (attached to the NVMP) and the Project EPL. Vibration and airblast overpressure monitoring for the blasting activities is presented above in Section 7.

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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 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	Stage 1 and 2	Preconstruction and Construction	Contractor	Non-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: • 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

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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 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					• Stockpile Management Protocol • Unexpected Discovery of Contaminated Land Procedure • Arsenic Rock Management Strategy As required by the AFJV scope of work, AFJV will implement the requirements of the SWMP and subordinate procedures and programs. Implementation of the SWMP is monitored regularly by AFJV including weekly inspections by the Project Soil Conservationist to determine compliance with the "Blue Book". Site controls are also regularly inspected by AFJV staff prior to, during and after rainfall events. Monitoring results for groundwater and surface water are summarised in Section 7 above. NCR's raised relating to erosion and sediment controls are

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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					detailed in Section 4 above. Incidents raised relating to erosion and sediment controls are detailed in Section 6 above.
	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 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	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 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

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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 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					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 packages for heritage induction and training. Cultural Heritage Awareness training was undertaken on the 1st October 2015. HMP implementation is ongoing, AFJV are undertaking ongoing consultation with the RAP's in accordance with the approved HMP. Protective fencing around heritage significant areas is inspected regularly and reinstated where required.

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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 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	Stage 1 and 2	Preconstruction and	Contractor	In progress	AFJV has conducted ground truthing surveys whilst preparing the FFMP. The ecology surveys

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	during the construction of the project.		Construction			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 Register is maintained and compared with the approved clearing requirements. The approved clearing is consistent with the Biodiversity Offset

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						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. Exclusion flagging is provided on site along the clearing limits to prevent incidental clearing of unapproved areas. The majority of clearing for the Project is complete and no major incidents regarding breaches of the clearing limits have been recorded.
	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,	Stage 1 and 2	Preconstruction and Construction	Contractor	Complies Currently	AFJV has detailed management and mitigation measures to achieve this requirement within the approved Air Quality Management Plan (AQMP). The

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	stockpiles and material tracking from construction sites onto public roads.					AQMP includes **the** locations of dust sensitive areas and monitoring locations. The Project is currently using chemical suppressants on haul roads, stockpiles and for batter stabilisation. Dust monitoring is ongoing. 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. Results of the monitoring are provided above in Section 7. Improvements have been made to the crushing activities to increase water sprays and stabilised material has been used on haul roads to reduce dust where practical.
	Noise and vibration impacts – construction hours					

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
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	Complies Currently	The requirements of this condition are included within the NVMP Sub-plan for implementation by AFJV during construction. These construction hours have been implemented on the Project.
C4	Works outside of the construction hours identified in conditions C3 may be undertaken in the following 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	Stage 1 and 2	Preconstruction and Construction	Contractor	Complies Currently	The requirements of this condition are included within 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 a number of activities outside of standard construction hours in accordance with this condition and the conditions of the EPL. Works undertaken outside of

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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.					standard construction hours are managed in accordance with the Out of Hours Approval Procedure and require a Permit signed by the Environment and Community prior to commencement. Notification is also provided to the EPA, RMS and the ER in accordance with the procedure.
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 conducted during the varied construction hours; b written evidence to the EPA and the Director	Stage 1 and 2	Preconstruction and Construction	Contractor	Complies Currently	The NVMP contains an Out of Hours Works Procedure which covers the process for considering activities to be undertaken outside of standard construction hours. This has been approved by DPE in December 2014. All works undertaken outside of standard construction hours comply with the approved Out of Hours Works Procedure.

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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,	Stage 1 and 2	Construction	Contractor	Complies Currently	Blasting activities have commenced on the Project in July 2015. All blasts are undertaken in accordance with the hours specified in this condition.

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	property loss 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	Complies Currently	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

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						also undertaken.
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	Complies Currently	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. Results of monitoring is summarised in Section 7 above.

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						Noise monitoring is conducted in accordance with the NVMP. The results are summarised in Section 7 above.

<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>Complies Currently</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 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.

A request was submitted to DPE to increase the number of blasts in Cut 10. This was approved by DPE on the 26/2/2016.

Production blasting undertaken to</td></tr>
</table>

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						date has shown compliance with the airblast overpressure requirements of 125 dB(L).
C10	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 ensure that criteria are satisfied at the most affected residence or other sensitive receiver, blasting trials shall be	Stage 1 and 2	Construction	Contractor	Complies Currently.	The requirements of this condition are included within the NVMP Sub-plan and subordinate Blast Management program for implementation by AFJV during

<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></td><td>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>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.

A request was submitted to DPE to increase the number of blasts in Cut 10. This was approved by DPE on the 26/2/2016.

No exceedances of the approved limit increases have been measured.</td></tr>
<tr><td>C11</td><td>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</td><td>Stage 1 and 2</td><td>Construction</td><td>Contractor</td><td>Complies Currently</td><td>The requirements of this condition are included within the NVMP</td></tr>
</table>

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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 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					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. This approval request contained information to comply with this condition.

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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 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	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 approved the extension of time on 14/8/2015 for 9 months. The Operational Noise Review is now due to DPE on 8th

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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.					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	Complies Currently	The approved Heritage Management Plan includes the Standard Management Procedure: Unexpected Archaeological Finds Roads and Maritime August 2013. The HMP also includes Aboriginal and Non-Aboriginal heritage induction training packages. These

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						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	Complies Currently	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.
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	Complies Currently	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

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						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	Complies Currently	The requirement of this condition has been incorporated by AFJV into management and mitigation measures and procedures within the approved Heritage Management Plan
C16 A	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. 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	Stage 1 and 2	Preconstruction and Construction	Contractor	Non-compliant	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 advice. Heritage assessments have been undertaken for Public Utility realignment works, private property adjustments and design

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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 investigation is to include recommendations (such as for further archaeological work) and shall include, but not necessarily be limited to, consideration of					refinements outside of the previous 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. However, this condition is currently non-compliant as the reports have not been submitted to DPE in accordance with this condition. The reports will be provided to DPE by RMS in April 2016.

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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.					
	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	Non-compliant	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). Details of the NCR's and incidents raised for this condition during the reporting period are included in Section 4 above.

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
C18	Where available, and of appropriate chemical and biological quality, the Proponent shall use stormwater, recycled water or other water sources in preference to potable water for construction activities, including concrete mixing and dust control.	Stage 1 and 2	Preconstruction and Construction	Contractor	Complies Currently	The Project has constructed several large water holding dams to hold water captured during rainfall events in sediment basins located on site. AFJV have also sought approval from the NSW Office of Water to extract water from Upper Warrell Creek and Lower Warrell Creek. Groundwater bores have been installed. However, due to drier than usual weather and poor water yield from the groundwater bores, potable water is currently being used to supplement the water supply for dust suppression in the northern extent of the Project. Groundwater is used in preference to the potable water, however due to the high volume of water required during peak earthworks, a supplementary source of water was required. Due to community feedback, other local sources of surface

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						water were not available to the Project. The project is also currently investigating the use of the Macksville Recycling Plant for a reliable long term supply of water for the project, reducing the use of potable water onsite.
	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 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.	Stage 1 and 2	Preconstruction and Construction	Contractor	Complies Currently	The WC2NH Project has been designed to minimise the impacts to private property and 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	Stage 1 and 2	Construction	Contractor	Complies Currently	The AFJV will ensure that access to properties is maintained during construction.

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	reinstated to at least an equivalent standard, in consultation with the landowner.					
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	Complies Currently	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 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	Complies Currently	AFJV has consulted with Forestry Corporation to ensure that construction activities do not unduly disrupt existing forestry activities, access for firefighting and recreation activities during construction.

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						Forests NSW were notified in May 2015 that vegetation clearing was due to commence and access through the alignment would be limited. No issues were raised by Forests NSW regarding impacts to access, fire-fighting or recreational use.
	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	Compliant	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	Complies Currently	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	Complies Currently	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. The Project is also currently reusing mulch material generated on the Project and excess soil material is being incorporated into

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						noise and visual barriers.
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 to accept the materials.	Stage 1 and 2	Construction	Contractor	Complies Currently	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 to transportation and disposal. The waste classification is recorded in the Pacifico Waste Tracking register for all materials removed from site.
	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	Stage 1 and 2	Construction	Contractor Roads and Maritime to submit documentation for approval.	Non-compliant	Both the main site compounds in the northern and southern ends of the Project have been approved under Major Consistency Reviews and were both compliant with this condition. The approved methodology - Methodology for Aboriginal and Historical Heritage Investigation

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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 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					for Works Outside the Project Corridor", is incorporated as Appendix A to the approved Heritage Management Plan for implementation by AFJV. The Major Consistency Assessment – Northern Batch Plant and Precast Yard included the construction of a temporary concrete batching plant, complying with MCoA C27, specifically relating to the batch plant being a minimum of 300m from the nearest resident. Post survey set out and construction of the temporary batch plant it was noted that the measurement made to identify the 300m buffer was calculated utilising the centre of the property and not the façade of the property. This error led to Pacifico being non compliant with the minimum buffer distance of 300m stipulated under MCoA C27. However it should be noted that the batch plant was not operational prior to this error being identified and the issue was rectified prior to the comissioning

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	part of the Construction Environmental Management Plan required under condition B30.					of the batch plant and operations commencing onsite. Pacifico developed a landowner agreement with the property owner to faciliate the operation of the batch plant removing the requirement for the 300m buffer via landowner consent which was approved by the DPE on the 18/12/15. The batch plant was commissioned and commenced operation on the 22/1/16.
C27 A	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	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 impacts to areas

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	Director General. c The results of any relevant archaeological investigations undertaken under this condition must be described					or items of heritage significance have been undertaken for either of the Ancillary Site Facilities approved for the Project. The Project currently has a register of Minor Ancillary Facilities that is provided to the ER for approval. There are currently 15 approved Minor Ancillary Facilities on the Project. The register compares the Minor Ancillary Facility to this condition and also to C27.

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
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 environmental measures detailed in a Construction Environment Management Plan for the project.	Stage 1 and 2	Preconstruction and Construction	Contractor	Complies Currently	The Project currently has a register of Minor Ancillary Facilities that is provided to the ER for approval. There are currently 15 approved Minor Ancillary Facilities on the Project. The register compares the Minor Ancillary Facility to this condition and also to C27.
	Part D – Prior to Operations					
	Operational Environment Management System			Roads and	Open	

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
				Maritime		
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: a noise monitoring to assess compliance with the 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;	Stage 1 and 2	Operations	Roads and Maritime	Open	Not yet commenced.

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	b 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); c 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; d 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; e any required recalibrations of the noise model taking into consideration factors such as actual traffic numbers and proportions; f 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 g identification of any additional feasible and reasonable measures to those identified in the review of noise mitigation measures required by condition C12, that would be implemented with the objective of meeting the criteria outlined in the *Environmental Criteria for Road Traffic*					

CoA No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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
M2	Suitably qualified and experienced personnel will	Stage 1	Preconstruction	Contractor	Complies	AFJV has employed suitably

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	develop and implement project specific environmental management plans and procedures, incorporating as a minimum the mitigation and management measures in the environmental assessment.	and 2	and Construction		Currently	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	Complies Currently	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, and every 6mths after. The Project Construction Environmental Management Plan

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						includes 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. An independent audit on compliance with the Planning Approval and SoC was undertaken in October 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.	Stage 1 and 2	Preconstruction and Construction	Contractor	Complies Currently	Since September 2015 the Community Team has published and distributed • 6 community notifications • 2 fact sheets

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	Targeted consultation with affected individuals or groups will occur as necessary (e.g. waterway users, farmers, noise affected residents, etc.).					• 2 project updates Held community information and drop-in sessions on the following dates: • 16 17 September 2015 • 7 November 2015 • 17 and 18 February 2016 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 Grocer in Scotts Heads

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						• Nambucca Shire Council • Macksville Library • Nambucca Library • Roads and Maritime Service motor registry office at Nambucca Heads.
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	Complies Currently	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

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						(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 advertisement advising of the commencement of Early Works was undertaken on the 31/11/2015 and was presented in the Bellingen Shire Courier-Sun on 31/10/2015 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	Stage 1 and 2	Preconstruction and	Contractor	Complies Currently	The Traffic Management & Safety Plan (TM&SP) has been prepared by AFJV and approved

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	roads and the existing Pacific Highway.		Construction			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 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	Stage 1 and 2	Preconstruction and Construction	Contractor	Compliant	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

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	arrangements with the relevant roads authority.					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	Complies Currently	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 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.

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
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	Complies Currently	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	Complies Currently	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. AFJV notified Forests NSW in May 2015 that vegetation clearing operations were due to commence. Consultation on the property

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						adjustment drawings was undertaken in December 2015, the design is currently being updated to capture the outcomes of the consultation.
	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.	Complies Currently	Measures to minimise construction noise have been investigated by AFJV during detailed design. Mitigation measures have been incorporated into the approved 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

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						mitigation treatments in regards to operational noise mitigation early in the construction program.
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 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	Complies Currently	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:	Stage 1 and 2	Preconstruction and Construction	Contractor	Complies Currently	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

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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 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					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. All works undertaken outside of regular construction hours have been undertaken in accordance with the approved Out of Hours Works Procedure.

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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	Complies Currently	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.
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	Stage 1 and 2	Construction	Contractor	Complies Currently	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

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	to working hours will be made available to DoP and DECCW.					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	Complies Currently	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. These works have started with those highly affected targeted first this will be progressively rolled out over the course of the next 12 months. Two properties have received treatment with seventeen properties planning to receive treatment in the next reporting period.
N8	Monitoring of operational noise will be undertaken within one year after completion of construction. If monitoring indicates a clear trend that traffic noise	Stage 1 and 2	Operations	Roads and Maritime	Open	Not yet required

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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 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	Complies Currently	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

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						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 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	Stage 1	Preconstruction	Contractor	Complies	A qualified Project Ecologist has

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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.	and 2	and Construction		Currently	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 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. Flagging is inspected on a weekly basis and reinstated where needed.
F3	A threatened flora survey will be undertaken prior to clearing to identify individuals to be translocated	Stage 1	Preconstruction and	Contractor/Road	Complies	AFJV has undertaken ground truthing ecological surveys of the

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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.	and 2	Construction	s and Maritime	Currently	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. Additional threatened plants have been identified during the Pre-clearing inspections undertaken by the Project Ecologist. These plants have been translocated in accordance with the TFMP. **Note: requirements for Newry State Forest not applicable to Project (Newry State Forest north of WC2NH).** The Urban Design and Landscape Plan has been approved by the DPE. Permanent landscaping including batter

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						stabilisation has commenced in accordance with this Plan.
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	Complies Currently	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 clearing 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.	Complies Currently	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. All nest boxes to be installed prior to clearing commencing have been installed.
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	Complies Currently	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	Stage 1	Preconstruction	Contractor	Compliant	There are specific fauna crossings/ fish passage

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	will be confirmed with the DECCW and I&I (Fisheries) during the detailed design phase.	and 2	and Construction			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 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

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						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 detailed design phase.	Stage 1 and 2	Preconstruction and Construction	Contractor	Complies Currently	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. 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

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
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.	Complies Currently	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 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. Installation of fauna fencing has commenced on site and is ongoing.
F12	Development of an offset strategy will occur in consultation with the Department of Environment,	Stage 1 and 2	Preconstruction, Construction	Roads and Maritime	Approved	Comments were received from DPE on the draft Biodiversity Offset strategy for Warrell Creek

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	Climate Change and Water.		and Operations			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. Draft still with DotE and OEH Offset properties have been acquired
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	Complies Currently	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

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						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	Complies Currently	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 have been designed. AFJV has provided agencies with design drawings for review and comment. Issues are being raised at the monthly ERG meetings and closed out through site visits and/or ongoing communication.
	Aboriginal heritage					

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
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	Complies Currently	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 zone 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	Complies Currently	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 cleared to commence construction.

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						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. The Cultural Heritage Assessment for this work has been provided to the RAP's and the proposed design was discussed during the Aboriginal Focus Group, including OEH during a meeting in September 2015. 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	Complies Currently	The HMP includes an Aboriginal heritage education and training package. AFJV will implement the requirements of the HMP and subordinate management procedures, and training

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						packages for heritage induction and training. The first training session was held in October 2015.
AH5	The RTA will comply with the NSW Government's *Aboriginal Participation in Construction Guidelines*.	Stage 1 and 2	Preconstruction and Construction	Contractor	Complies Currently	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	Complies Currently	The approved HMP incorporates specific plans and procedures including Roads and Maritime

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						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 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	Complies Currently	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

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						exposing soil to erosion. Batter stabilisation and progressive rehabilitation has commenced and will be ongoing until earthworks is complete.
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 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	Stage 1 and 2	Preconstruction and Construction	Contractor/Roads and Maritime	Complies Currently	The SWMP incorporates a: • Water Quality Monitoring Program; and • Groundwater Management

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	measures will occur if necessary.					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.
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	Complies Currently	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*	Stage 1 and 2	Construction and Operations	Contractor/ Roads and	Complies Currently	Operational water quality basins are being designed in accordance

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	Management – Road Development and Management (1999).			Maritime		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	Complies Currently	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. 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	Stage 1 and 2	Preconstruction and Construction	Roads and Maritime/ Contractor.	Complies Currently	Roads and Maritime has undertaken baseline monitoring up to construction commencing.

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	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	Complies Currently	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 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

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						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	Complies Currently	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	Complies Currently	The AQMP includes the locations of dust sensitive areas and indicative monitoring locations. Specific controls for managing potential for air quality (dust) impacts is prescribed within the approved AQMP.
	Greenhouse gases and energy					

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
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	Complies Currently	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	Complies Currently	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	Compliant	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 Project). Stage 2 of the UDLP has been subject to Community Consultation and has been approved by DPE on the 19/2/16.
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	Compliant	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	Stage 1 and 2	Preconstruction and	Contractor	Complies Currently	These requirements are incorporated as part of the CEMP

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	floodplain below the 20 year ARI flood level. Use of hazardous materials in floodplain areas will be limited to a daily or weekly threshold. Containers, workshops, plant, material stores and storage tanks will not be sited on the floodplain of watercourses where avoidable.		Construction			in the approved SWMP. For site/activity specific works, EWMS's have been prepared and implemented for the prevention 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	Complies Currently	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	Stage 1 and 2	Preconstruction and Construction	Contractor	Complies Currently	AFJV has detailed the requirements of this SoC within the approved Waste and Energy

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	programs, purchase strategies and site inductions. Quarterly assessments will identify opportunities for improvement.					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 sent to an appropriately licensed facility.	Stage 1 and 2	Preconstruction and Construction	Contractor	Complies Currently	AFJV has detailed the requirements of this SoC within the approved Waste and Energy Management Plan (WEMP). Water is reused of or 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*	Stage 1 and 2	Preconstruction and Construction	Roads and Maritime	Compliant	Property purchases have all been completed in February 2016.

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
	Compensation) Act 1991.					
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. Access to state forest land adjacent to the Proposal will provide for forestry operations, fire management activities and recreation purposes.	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 Forestry Corporation on the work it will undertake in State Forests. CW Root balls have been stockpiled in readiness for OEH to collect.
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	Complies Currently	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	Complies Currently	AFJV has an approved Community Involvement Plan (which covers the requirements of the Condition B28 Community Communication Strategy) to

SoC No.	Requirement	Stage	Timing	Responsibility	Status	Reference / Comment
						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.
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	Complies Currently	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	Stage 1 and 2	Preconstruction and Construction	Contractor	Compliant	AFJV has prepared a Consistency Assessment for two Ancillary Site Facilities (Southern Compound and Northern Compound). The Consistency Assessments

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

APPENDIX B – Monitoring Data

Table 1a Air Quality Monitoring Results – August/September 2015

	Unit	Levels of Concern	LOR								
DDG ID				DDG1	DDG2	DDG3	DDG4	DDG5	DDG6	DDG7	DDG8	DDG A1	DDG A2
Start 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
Finish date of sampling				11/09/2015	11/09/2015	11/09/2015	11/09/2015	11/09/2015	11/09/2015	11/09/2015	11/09/2015	11/09/2015	11/09/2015
Ash Content	g/m².month	4 or increase of 2	0.1	0.3	0.7	2.7	1.1	7.4	1.4	0.6	4.5	----	----
	mg	N/A	1	6	13	50	20	139	26	11	84	----	----
Combustible Matter	g/m².month	N/A	0.1	0.2	0.5	0.8	<0.1	1.6	6.5	0.4	0.9	----	----
	mg	N/A	1	3	9	16	<1	31	123	7	18	----	----
Total Insoluble	g/m².month	4 or increase of 2	0.1	0.5	1.2	3.5	1.1	9	7.9	1	5.4	----	----
	mg	N/A	1	9	22	66	20	170	149	18	102	----	----
Arsenic	mg/L	0.001	0.001	----	----	----	----	----	----	----	----	<0.001	<0.001
Comments													

Table 1b – Air Quality Monitoring Results September/October 2015

	Unit	Levels of Concern	LOR								
DDG ID				DDG1	DDG2	DDG3	DDG4	DDG5	DDG6	DDG7	DDG8	DDG A1	DDG A2
Start date of sampling				11/09/2015	11/09/2015	11/09/2015	11/09/2015	11/09/2015	11/09/2015	11/09/2015	11/09/2015	11/09/2015	11/09/2015
Finish date of sampling				12/10/2015	12/10/2015	12/10/2015	12/10/2015	12/10/2015	12/10/2015	12/10/2015	12/10/2015	12/10/2015	12/10/2015
Ash Content	g/m².month	4 or increase of 2	0.1	0.2	0.7	2.5	0.8	7.7	1.6	0.5	3.6	----	----
	mg	N/A	1	4	12	45	15	141	29	10	65	----	----
Combustible Matter	g/m².month	N/A	0.1	0.4	0.8	0.7	0.4	1.5	5.7	0.3	0.9	----	----
	mg	N/A	1	7	15	13	6	27	105	4	18	----	----
Total Insoluble	g/m².month	4 or increase of 2	0.1	0.6	1.5	3.2	1.2	9.2	7.3	0.8	4.5	----	----
	mg	N/A	1	11	27	58	21	168	134	14	83	----	----
Arsenic	mg/L	0.001	0.001	----	----	----	----	----	----	----	----	0.013	0.013
Comments									Large amount of gecko/frog excretion in funnel		Ants in gauge		

Table 1c – Air Quality Monitoring Results October/November 2015

			DDG ID		DDG1	DDG2	DDG3	DDG4	DDG5	DDG6	DDG7	DDG8	DDG A1	DDG A2
			Start date of sampling		12/10/2015	12/10/2015	12/10/2015	12/10/2015	12/10/2015	12/10/2015	12/10/2015	12/10/2015	12/10/2015	12/10/2015
			Finish date of sampling		12/11/2015	13/11/2015	12/11/2015	13/11/2015	13/11/2015	12/11/2015	12/11/2015	12/11/2015	12/11/2015	13/11/2015
Analyte	Time Period	Unit	Levels of Concern	LOR										
Ash Content	Current Month	g/m².month	4	0.1	0.3	1.1	2	0.9	15.8	2.8	0.5	0.8	----	----
		mg	N/A	1	6	20	37	17	298	51	9	14	----	----
	Previous Month	g/m².month			0.2	0.7	2.5	0.8	7.7	1.6	0.5	3.6	----	----
	Change	g/m².month	Increase of 2		0.1	0.4	-0.5	0.1	8.1	1.2	0	-2.8	----	----
Combustible Matter	Current Month	g/m².month	N/A	0.1	0.2	0.7	0.5	0.4	3.1	5.4	0.1	0.4	----	----
		mg	N/A	1	4	14	8	7	58	98	2	7	----	----
Total Insoluble Matter (TIM)	Current Month	g/m².month	4	0.1	0.5	1.8	2.5	1.3	18.9	8.2	0.6	1.2	----	----
		mg	N/A	1	10	34	45	24	356	149	11	21	----	----
	Previous Month	g/m².month		0.1	0.6	1.5	3.2	1.2	9.2	7.3	0.8	4.5		
	Change	g/m².month	Increase of 2	0.1	-0.1	0.3	-0.7	0.1	9.7	0.9	-0.2	-3.3		
Arsenic	Current Month	mg/L	0.001	0.001	----	----	----	----	----	----	----	----	0.007	<0.001
Comments								Frog + insects (bees, beetles) in bottle		Large amount of gecko excretion- blocked funnel + lawns mowed recently - grass clippings in bottle	Bee in bottle	Leaves in bottle (resident moved funnel)	Frog in bottle	

Table 1d – Air Quality Monitoring Results November/December 2015

			DDG ID		DDG1	DDG2	DDG3	DDG4	DDG5	DDG6	DDG7	DDG8	DDG A1	DDG A2
			Start date of sampling		12/11/2015	13/11/2015	12/11/2015	13/11/2015	13/11/2015	12/11/2015	12/11/2015	12/11/2015	12/11/2015	13/11/2015
			Finish date of sampling		11/12/2015	11/12/2015	11/12/2015	11/12/2015	11/12/2015	11/12/2015	11/12/2015	11/12/2015	11/12/2015	11/12/2015
Analyte	Time Period	Unit	Levels of Concern	LOR										
Ash Content	Current Month	g/m².month	4	0.1	0.4	1	2.3	0.5	0.4	1.2	0.6	0.8	----	----
		mg	N/A	1	6	16	40	9	7	20	10	13	----	----
	Previous Month	g/m².month			0.3	1.1	2	0.9	15.8	2.8	0.5	0.8	----	----
	Change	g/m².month	Increase of 2		0.1	-0.1	0.3	-0.4	-15.4	-1.6	0.1	0	----	----
Combustible Matter	Current Month	g/m².month	N/A	0.1	0.1	0.7	1	0.1	<0.1	0.8	0.3	0.5	----	----
		mg	N/A	1	2	12	17	1	<1	15	6	9	----	----
Total Insoluble Matter (TIM)	Current Month	g/m².month	4	0.1	0.5	1.7	3.3	0.6	0.4	2	0.9	1.3	----	----
		mg	N/A	1	8	28	57	10	7	35	16	22	----	----
	Previous Month	g/m².month		0.1	0.5	1.8	2.5	1.3	18.9	8.2	0.6	1.2	----	----
	Change	g/m².month	Increase of 2	0.1	0	-0.1	0.8	-0.7	-18.5	-6.2	0.3	0.1	----	----
Arsenic	Current Month	mg/L		0.001	----	----	----	----	----	----	----	----	0.002	<.001
Comments														

Table 1e – Air Quality Monitoring Results December 2015/January 2016

			DDG ID		DDG1	DDG2	DDG3	DDG4	DDG5	DDG6	DDG7	DDG8	DDG A1	DDG A2
			Start date of sampling		11/12/2015	11/12/2015	11/12/2015	11/12/2015	11/12/2015	11/12/2015	11/12/2015	11/12/2015	11/12/2015	11/12/2015
			Finish date of sampling		8/01/2016	8/01/2016	8/01/2016	8/01/2016	8/01/2016	8/01/2016	8/01/2016	8/01/2016	8/01/2016	8/01/2016
Analyte	Time Period	Unit	Levels of Concern	LOR										
Ash Content	Current Month	g/m².month	4	0.1	0.1	0.4	0.9	0.4	15.7	0.8	0.4	0.7	----	----
		mg	N/A	1	2	7	15	6	259	13	7	11	----	----
	Previous Month	g/m².month			0.4	1	2.3	0.5	0.4	1.2	0.6	0.8	----	----
	Change	g/m².month	Increase of 2		-0.3	-0.6	-1.4	-0.1	15.3	-0.4	-0.2	-0.1	----	----
Combustible Matter	Current Month	g/m².month	N/A	0.1	0.1	0.5	0.6	<0.1	2.9	<0.1	0.3	0.6	----	----
		mg	N/A	1	1	8	9	1	47	<1	4	11	----	----
Total Insoluble Matter (TIM)	Current Month	g/m².month	4	0.1	0.2	0.9	1.5	0.4	18.6	0.8	0.7	1.3	----	----
		mg	N/A	1	3	15	24	7	306	13	11	22	----	----
	Previous Month	g/m².month		0.1	0.5	1.7	3.3	0.6	0.4	2	0.9	1.3	----	----
	Change	g/m².month	Increase of 2	0.1	-0.3	-0.8	-1.8	-0.2	18.2	-1.2	-0.2	0	----	----
Arsenic	Current Month	mg/L		0.001	----	----	----	----	----	----	----	----	0.001	<0.001
Comments														

Table 1f – Air Quality Monitoring January/February 2016

			DDG ID		DDG1	DDG2	DDG3	DDG4	DDG5	DDG6	DDG7	DDG8	DDG A1	DDG A2
			Start date of sampling		8/01/2016	8/01/2016	8/01/2016	8/01/2016	8/01/2016	8/01/2016	8/01/2016	8/01/2016	8/01/2016	8/01/2016
			Finish date of sampling		5/02/2016	5/02/2016	5/02/2016	5/02/2016	5/02/2016	5/02/2016	5/02/2016	5/02/2016	29/02/2016	5/02/2016
Analyte	Time Period	Unit	Levels of Concern	LOR										
Ash Content	Current Month	g/m².month	4	0.1	0.4	0.5	2.2	0.6	49.4	0.8	0.6	1.2	----	----
		mg	N/A	1	6	9	36	10	814	14	10	19	----	----
	Previous Month	g/m².month			0.1	0.4	0.9	0.4	15.7	0.8	0.4	0.7	----	----
	Change	g/m².month	Increase of 2		0.3	0.1	1.3	0.2	33.7	0	0.2	0.5	----	----
Combustible Matter	Current Month	g/m².month	N/A	0.1	0.5	0.5	0.5	0.4	8.7	0.5	0.1	0.5	----	----
		mg	N/A	1	9	7	9	6	144	7	2	9	----	----
Total Insoluble Matter (TIM)	Current Month	g/m².month	4	0.1	0.9	1	2.7	1	58.1	1.3	0.7	1.7	----	----
		mg	N/A	1	15	16	45	16	958	21	12	28	----	----
	Previous Month	g/m².month		0.1	0.2	0.9	1.5	0.4	18.6	0.8	0.7	1.3	----	----
	Change	g/m².month	Increase of 2	0.1	0.7	0.1	1.2	0.6	39.5	0.5	0	0.4	----	----
Arsenic	Current Month	mg/L		0.001	----	----	----	----	----	----	----	----		
Comments					Insects in gauge		Sprouted grass seeds in gauge	Insects in gauge	Vegetation + insects in gauge, appeared cloudy				Vegetation in gauge	insects in gauge

Table 2a – Noise Monitoring Results September 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
28/09/2015	12:38 PM	Albert Drive	74	1	50	Cut	62	54.8	66.7	47.4	77.4	59.4	44.5	42.2	55.5	Excavators, moxy			Within predicted levels
9/09/2015	3:00 PM	Cockburns Lane	16	1	50	Cut	65	50.6	65.9	43.2	65.2	54.1	52.6	49.4	47	Excavator tracking			Within predicted levels
28/09/2015	4:00 PM	Bald Hill Rd	197	3	50	Cut	72	60.1	82.8	46.3	73.1	64.1	59.3	52	49.2	Excavtors, moxy, dozer			Within predicted levels
21/09/2015	3:30 PM	Letitia Rd	410	4	59	Cut	60	47.9	68.7	41.6	62.9	51.4	50.1	46.8	44.5	Highway traffic			Background level
28/09/2015	1:59 PM	Mattick Rd	442	6	44	Cut	62	50.3	72.3	40.3	69.6	54.1	50.6	46.1	43.6	Excavtor loading moxy, water truck			Within predicted levels
28/09/2015	2:23 PM	Nursery Rd	415	4	59	N/A		55.3	74.4	48.3	65	52.6	56.4	53.3	51.1	Highway traffic			Background level
28/09/2015	1:26 PM	Wallace St	148	3	50	N/A		60	85.2	49.9	73.5	63.2	60	55	52.5				Background level, construction works not auditable (approximately 400m away)
28/09/2015	3:41 PM	Gumma Rd	383	3	50	Fill	66	65.9	85	52	78.7	72	67.6	59.6	55.9	Excavator, dozer, grader, truck+dog			Within predicted levels

Table 2b – Noise Monitoring Results October 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
26/10/2015	1:00 PM	Albert Drive	74	1	50	Cut	62	47.9	59.8	43.4	67.8	50.3	49.5	47.5	45.9	Excavator loading moxys	NA	NA	Within predicted levels for activity
26/10/2015	12:08 PM	Cockburns Lane	16	1	50	Cut	65	54.8	79	41.6	66.5	54.7	51	46.8	44.3	Excavator, moxys, wood mill	NA	NA	Within predicted levels for activity
26/10/2015	5:00 PM	Bald Hill Rd	197	3	50	Cut	72	54.3	76.2	44.4	73.8	55.6	53.9	49.9	47.1	Dozer, scrapers	NA	NA	Within predicted levels for activity
26/10/2015	2:20 PM	Letitia Rd	406	4	59	Cut	74	50.7	69.3	43	66.5	54.1	51.5	48.3	46.4	Excavator loading moxy, PCY trucks dumping	NA	NA	Within predicted levels for activity
26/10/2015	3:27 PM	Mattick Rd	442	6	44	Cut	62	50.9	74	42.8	68.8	55.3	53.3	48.5	45.8	Excavator, dozer, truck and dogs dumping	NA	NA	Within predicted levels for activity
26/10/2015	3:55 PM	Nursery Rd	415	4	59	N/A		56.9	78.2	48.1	71.7	58.9	58	54.6	51.4	NA	NA	NA	Background - highway + local traffic, birds
26/10/2015	4:20 PM	Wallace St	148	3	50	N/A		53	69.8	46	71.5	56.6	53.7	49.9	47.9	NA	NA	NA	Background - highway + local traffic
26/10/2015	4:40 PM	Gumma Rd	383	3	50	Mulching (Broad Clearing)	64	57.1	68.6	44.1	66.5	64.8	63.7	48.8	46	Mulching	NA	NA	Within predicted levels - Taken along project boundary to reduce additional noise from traffic

Table 2c – Noise Monitoring Results November 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
23/11/2015	2:45 PM	Albert Drive	74	1	50	Cut	62	54.4	64.1	48.4	70.4	57.1	56.3	53.9	51.7	Moxy, excavators, roller, drilling	NA	NA	Within predicted levels for activity
20/11/2015	4:06 PM	Cockburns Lane	16	1	50	Cut	65	50.6	75.6	42.3	63	54.3	52.4	47.5	44.9	Moxy - reverse beeper	NA	NA	Within predicted levels for activity
19/11/2015	5:26 PM	Bald Hill Rd	197	3	50	Cut	72	52.5	80.8	38.1	64.5	55.9	53	45.6	41.2	Dozer, truck + dogs	NA	NA	Within predicted levels for activity
19/11/2015	4:18 PM	Letitia Rd	406	4	59	Cut	74	47.6	69.3	40.2	63.3	51.6	50	45.6	43.1	Excavators, backhoe, roller	NA	NA	Within predicted levels for activity
19/11/2015	3:06 PM	Mattick Rd	442	6	44	Cut	62	53.8	75	45.1	75	57	55.3	51.6	48.5	Scrapers, truck + dog, dozer, excavators	NA	NA	Within predicted levels for activity
19/11/2015	4:00 PM	Nursery Rd	415	4	59	NA		57.6	81/4	41.1	67.6	54.9	52.5	48.5	44.6	Construction not audible	NA	NA	Background - Highway + local traffic, birds
20/11/2015	4:45 PM	Wallace St	148	3	50	NA		59.1	74	45.8	66.7	65.4	63.9	53.2	49.5	Construction not audible	NA	NA	Background - highway + local traffic, other construction site
19/11/2015	4:45 PM	Gumma Rd	383	3	50	Bridgeworks	67	50.4	62	44	66.1	54.6	53	49.2	46.9	Crane	NA	NA	Within predicted levels - Taken along project boundary to reduce additional noise from traffic

Table 2d – Noise Monitoring Results December 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
9/12/2015	11:05 AM	Albert Drive	74	1	50	Cut	62	51.6	68.9	44.2	66.8	55.6	53.5	49.2	47	Dozer, moxy, excavators	NA	NA	Within predicted levels for activity
9/12/2015	11:45 AM	Cockburns Lane	16	1	50	Cut	65	63.2	69.3	54.9	64.9	65.8	65.4	63.4	57.1	Construction not audible	NA	NA	Background - cicadas, traffic
9/12/2015	10:30 AM	Bald Hill Rd	197	3	50	Cut	72	48.4	69.3	40.8	68.4	51.7	49.9	46.2	43.5	Truck + dogs, excavators	NA	NA	Within predicted levels for activity
8/12/2015	2:16 PM	Letitia Rd	406	4	59	Cut	74	53	68.9	47.1	67.8	55.9	55	52.2	50	Scrapers, truck + dog	NA	NA	Within predicted levels for activity
8/12/2015	1:13 PM	Mattick Rd	442	6	44	Cut	62	60.7	76.2	47	76.8	65.8	64	54.9	50	Scrapers, truck + dog, dozer, excavators	NA	NA	Within predicted levels for activity
9/12/2015	10:00 AM	Nursery Rd	415	4	59	NA		61.1	79.5	45.5	63.9	64.7	64.4	59.6	49.3	Construction not audible	NA	NA	Background - cicadas, highway + local traffic, birds
8/12/2015	4:45 PM	Wallace St	148	3	50	NA		58.3	72.5	52.4	67.9	62.3	58.4	55.9	54.1	Construction not audible	NA	NA	Background - highway + local traffic, other construction site
8/12/2015	3:00 PM	Gumma Rd	383	3	50	Fill (abutment rock placement)	64	63	76.5	50.9	73.1	68.1	66.3	60.6	55.4	Crane, truck + dogs, backhoe	NA	NA	Within predicted levels - Taken along project boundary to reduce additional noise from traffic

Table 2e – Noise Monitoring Results January 2016

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
74	1	50	Crushing	57	51.7	67.9	42.7	66.6	56.5	53.2	47.3	45.3	Moxy, crusher, loader	NA	NA	Within predicted levels for activity
16	1	50	Cut	65	59.5	79.5	39.3	65.7	60.9	56	47.4	42.3	Reversing beeper	NA	NA	Within predicted levels for activity
197	3	50	Cut	72	56	82.3	38.2	65.5	51.1	48.6	44.2	41.2	Truck + dog, excavator	NA	NA	Within predicted levels for activity
406	4	59	NA		46.5	63	36.6	59.6	52.1	49.8	42.5	39.9	NA	NA	NA	Background
442	6	44	Cut	62	48.5	61.6	41.7	67	53.1	51.3	46.8	44.4	Excavator loading moxy, scraper, dozer	NA	NA	Within predicted levels for activity
415	4	59	NA		55.8	82.7	44.3	66.2	54.3	53.3	50.3	47.8	Construction not audible	NA	NA	Background - birds, highway, traffic, mower
148	3	50	NA		59.3	80.5	43.7	69.3	63.8	60.4	50.3	46.3	Construction not audible	NA	NA	Background - Local traffic.
383	3	50	Bridgeworks	67	55.9	66.8	41.5	70	63.5	59.9	49.6	44	Crane	NA	NA	Within predicted levels for activity

Table 2f – Noise Monitoring Results February 2016

Date	Time	Location	Rec ID	NCA	NML	Activity	Predicted levels for activity	LAeq	LAFMAX	LAFMIN	LCEQ	LAF05	LAF10	LAF50	LAF90	Principal sources/ operations	Measurements exceeding criteria, plant/ operations causing	Corrective actions	Notes
18/02/2016	1:40 PM	Albert Drive	74	1	50	Services	70	48.9	68	40.2	65.1	52.5	49.7	45.4	43.1	Utilities works	NA	NA	Within predicted levels for activity
18/02/2016	2:11 PM	Cockburns Lane	16	1	50	Cut	65	47.1	68.3	40	62.1	48.4	47.3	44.8	42.5	Excavator	NA	NA	Within predicted levels for activity
18/02/2016	1:15 PM	Bald Hill Rd	197	3	50	Cut	72	53.6	79.4	38.4	66.9	55.3	52.6	44	41.5	Moxy, truck + dog, excavator	NA	NA	Within predicted levels for activity
18/02/2016	12:09 PM	Letitia Rd	406	4	59	Cut	74	61.9	80.2	45	75.2	68.5	64.3	54.9	50.4	Scrapers, dozer	NA	NA	Within predicted levels for activity
24/02/2016	2:38 PM	Mattick Rd	442	6	44	Cut	62	57.3	86.6	45	73.9	61	57.5	50.4	47.3	Moxy, loader, utilities, trailer	NA	NA	Within predicted levels for activity
18/02/2016	12:30 PM	Nursery Rd	415	4	59	NA	NA	46.9	55.4	41.1	60.2	50.1	49	46.2	43.6	Highway Traffic	NA	NA	Background - construction not audible
18/02/2016	12:50 PM	Wallace St	148	3	50	NA	NA	57.4	74.2	43.1	65.7	61.9	58.5	50.7	43.2	Highway, local traffic	NA	NA	Background - construction not audible
18/02/2016	11:39 AM	Gumma Rd	383	3	50	Bridgeworks	67	54.1	64.1	42.8	79.2	56.9	56.4	54	49.4	Roller, crane	NA	NA	Within predicted levels for activity

Table 3a Surface Water Monitoring Results – September 2015 – 1st Wet

Location	Units	Levels of Concern		Upper Warrell Creek	Upper Warrell Creek	Stony Creek	Stony Creek	Lower Warrell Creek	Lower Warrell Creek	Unnamed Creek Gumma West	Unnamed Creek Gumma East	Unnamed Creek Gumma North	Nambucca River South	Nambucca River South
Type				Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Upstream	Downstream	Upstream	Downstream
Freshwater / Estuarine		ANZECC 2000 95% species protected		Freshwater	Freshwater	Freshwater	Freshwater	Freshwater	Freshwater	Freshwater	Freshwater	Freshwater	Estuarine	Estuarine
Date of Sampling				18-Sep-15	18-Sep-15	18-Sep-15	18-Sep-15	18-Sep-15	18-Sep-15	18-Sep-15	18-Sep-15	18-Sep-15	18-Sep-15	18-Sep-15
Time of Sampling		Freshwater	Marine	11:55 AM	11:47 AM	11:20 AM	11:30 AM	9:05 AM	9:11 AM	10:00 AM	10:15 AM	9:49 AM	8:30 AM	8:20 AM
Comments														
Laboratory data														
Metals														
Aluminium	mg/L	0.055	-	0.19	0.24	1.1	1.8	0.24	0.56	0.19	8.7	0.64	0.71	0.13
Arsenic	mg/L	0.024	0.0023	<0.001	<0.001	0.003	0.002	<0.001	<0.001	0.002	0.011	0.003	0.002	0.001
Cadmium	mg/L	0.0002	0.0055	<0.0001	0.0003	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0003	<0.0001	<0.0001	<0.0001
Chromium	mg/L	0.001	0.0044	<0.001	<0.001	0.002	0.002	<0.001	<0.001	<0.001	0.013	0.002	0.001	<0.001
Copper	mg/L	0.0014	0.0013	<0.001	0.002	0.002	0.003	<0.001	0.002	0.002	0.029	0.002	0.004	0.003
Lead	mg/L	0.0034	0.0044	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	0.014	<0.001	<0.001	<0.001
Manganese	mg/L	1.9	0.08	0.168	0.19	0.096	0.134	0.239	0.247	0.424	2.61	0.9	0.068	0.051
Nickel	mg/L	0.011	0.07	<0.001	0.007	0.001	0.002	0.002	0.002	0.004	0.018	0.003	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
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
Zinc	mg/L	0.008	0.015	<0.005	0.015	0.006	0.012	0.01	0.012	0.014	0.114	0.015	0.01	<0.005
Iron	mg/L	-	-	1.07	0.9	2.7	2.66	0.55	1.12	3.52	30.1	6.57	1.34	0.24
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
Total Recoverable Hydrocarbons														
Naphthalene	µg/L	16	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C6 - C10 Fraction	µg/L	-	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C6 - C10 Fraction minus BTEX (F1)	µg/L	-	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
>C10 - C16 Fraction	µg/L	-	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
>C16 - C34 Fraction	µg/L	-	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
>C34 - C40 Fraction	µg/L	-	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
>C10 - C40 Fraction (sum)	µg/L	-	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
>C10 - C16 Fraction minus Naphthalene (F2)	µg/L	-	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BTEX														
Benzene	µg/L	950	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	µg/L	180	180	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	µg/L	80	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m&p-Xylenes	µg/L	-	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	µg/L	350	350	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes - Total	µg/L	-	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum of BTEX	µg/L	-	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nutrients														
Total Phosphorus	mg/L	0.05	0.03	<0.03	<0.03	0.04	<0.03	<0.03	<0.03	<0.03	1.16	0.2	0.09	<0.03
Orthophosphate (reactive phosphorus)	mg/L	-	-	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Total Nitrogen	mg/L	0.5	0.3	0.67	0.59	0.99	0.59	0.66	0.59	1.32	30.2	2.82	0.79	0.29
Nitrate	mg/L	0.7	-	<0.05	0.05	<0.05	0.18	0.05	0.05	0.14	<0.05	<0.05	<0.05	<0.05
Nitrite	mg/L	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ammonia	mg/L	0.9	-	<0.05	<0.05	<0.05	<0.05	0.05	<0.05	<0.05	0.8	<0.05	<0.05	<0.05
TSS														
Turbidity		50	10	7.7	8.1	39	33	11	7.6	29	500	49	66	4.7
TSS	mg/L	<40	<10	12	10	69	22	18	7	16	2410	103	252	13
Field Physical data														
Temperature	°C	-	-	17.54	17.78	17.11	16.66	19.58	19.82	18.81	17.36	22.49	20.44	20.81
pH	pH	-	6.5-8	6.72	6.64	6.95	6.61	7.17	7.17	6.75	6.36	6.78	7.72	7.79
pHmV	pHmV	-	-	-31	-26	-43	-25	-56	-56	-32	-10	-34	-88	-92
ORPmV	ORPmV	-	-	209	205	145	186	142	133	45	44	-27	107	142
Conductivity	mS/cm	0.125-2.2	-	0.234	0.267	0.2	0.198	7.41	7.35	0.834	0.684	1.82	38.7	37.1
Turbidity	NTU	50	10	4.8	6.7	12.6	43	6.4	4.9	123	614	57.2	6.1	5
Dissolved Oxygen	mg/L	5	5	4.76	4.61	6.44	4.69	5.06	5.09	0.68	0	2.6	5.54	5.8
TDS	g/L	-	-	0.152	0.173	0.13	0.129	4.67	4.63	0.534	0.437	1.17	23.6	22.3

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

Table 3b – Surface Water Monitoring Results – September 2015 - 2nd Wet

Location	Units	Levels of Concern		Upper Warrell Creek	Upper Warrell Creek	Stony Creek	Stony Creek	Low er Warrell Creek	Low er Warrell Creek	Unnamed Creek Gumma West	Unnamed Creek Gumma East	Unnamed Creek Gumma North	Nambucca River South	Nambucca River South
Type		ANZECC 2000 95% species protected		Upstream	Dow nstream	Upstream	Dow nstream	Upstream	Dow nstream	Upstream	Upstream	Dow nstream	Upstream	Dow nstream
Freshw ater / Estuarine				Freshw ater	Freshw ater	Freshw ater	Freshw ater	Freshw ater	Freshw ater	Freshw ater	Freshw ater	Freshw ater	Estuarine	Estuarine
Date of Sampling				26-Sep-15	26-Sep-15	26-Sep-15	26-Sep-15	26-Sep-15	26-Sep-15	26-Sep-15	26-Sep-15	26-Sep-15	26-Sep-15	26-Sep-15
Time of Sampling		Freshw ater	Marine											
Comments														
Laboratory data														
Metals														
Aluminium	mg/L	0.055	-	0.03	0.02	<0.01	<0.01	0.01	0.02	0.04	0.03	<0.01	<0.10	<0.10
Arsenic	mg/L	0.024	0.0023	0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	0.001	<0.010	<0.010
Cadmium	mg/L	0.0002	0.0055	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0003	<0.0001	<0.0010	<0.0010
Chromium	mg/L	0.001	0.0044	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.010	<0.010
Copper	mg/L	0.0014	0.0013	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.006	<0.001	<0.010	<0.010
Lead	mg/L	0.0034	0.0044	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.010	<0.010
Manganese	mg/L	1.9	0.08	0.061	0.05	0.041	0.087	0.173	0.195	0.263	0.18	0.671	0.071	0.051
Nickel	mg/L	0.011	0.07	0.001	0.002	<0.001	0.001	0.001	<0.001	<0.001	0.011	0.005	<0.010	<0.010
Selenium	mg/L	11	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.10
Silver	mg/L	0.00005	0.0014	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.010	<0.010
Zinc	mg/L	0.008	0.015	0.009	<0.005	<0.005	0.006	<0.005	0.008	<0.005	0.012	<0.005	<0.050	<0.050
Iron	mg/L	-	-	0.53	0.46	<0.05	<0.05	<0.05	0.07	0.77	0.23	0.13	<0.50	<0.50
Mercury	mg/L	0.0006	0.0004	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Recoverable Hydrocarbons														
Naphthalene	µg/L	16	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C6 - C10 Fraction	µg/L	-	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C6 - C10 Fraction minus BTEX (F1)	µg/L	-	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
>C10 - C16 Fraction	µg/L	-	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
>C16 - C34 Fraction	µg/L	-	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
>C34 - C40 Fraction	µg/L	-	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
>C10 - C40 Fraction (sum)	µg/L	-	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
>C10 - C16 Fraction minus Naphthalene (F2)	µg/L	-	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BTEX														
Benzene	µg/L	950	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	µg/L	180	180	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	µg/L	80	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m&p-Xylenes	µg/L	-	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	µg/L	350	350	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes - Total	µg/L	-	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum of BTEX	µg/L	-	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nutrients														
Total Phosphorus	mg/L	0.05	0.03	<0.01	0.03	<0.01	<0.01	0.04	<0.01	0.18	0.02	0.08	0.07	0.08
Orthophosphate (reactive phosphorus)	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	mg/L	0.5	0.3	1.4	0.4	0.2	0.2	0.2	0.2	2.6	0.6	1.5	<0.2	0.3
Nitrate	mg/L	0.7	-	1.15	0.03	0.07	0.05	<0.01	0.01	<0.01	0.04	0.01	0.02	0.02
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
Ammonia	mg/L	0.9	-	<0.01	<0.01	0.03	0.02	0.03	0.03	0.06	0.01	0.79	<0.05	<0.05
TSS														
Turbidity		50	10	3.3	3.9	5.8	6.6	2	2.4	80.9	16	116	5.7	7.5
TSS	mg/L	<40	<10	10	12	11	11	19	21	204	14	31	12	11
Field Physical data														
Temperature	°C	-	-	16.39	16.38	16.3	16.96	20.19	19.95	18.8	17.63	22.07	20.55	20.36
pH	pH	-	6.5-8	6.81	6.66	6.61	6.61	7.27	7.02	6.25	6.07	6.85	7.83	7.72
pHmV	pHmV	-	-	-36	-27	-25	-25	-62	-48	-4	6	-38	-94	-87
ORPmV	ORPmV	-	-	210	244	256	233	139	131	236	125	178	166	174
Conductivity	mS/cm	0.125-2.2	-	0.248	0.251	0.261	0.241	9.04	9.2	0.695	0.525	1.03	41.4	39.3
Turbidity	NTU	50	10	0	0	0	1	0	0	12.8	53.8	109	0	6.7
Dissolved Oxygen	mg/L	5	5	4.39	4.69	4.31	3.95	5.68	4.43	3.49	1.44	4.76	5.16	6.02
TDS	g/L	-	-	0.161	0.163	0.169	0.157	5.7	5.8	0.455	0.336	0.658	25.2	24

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

Table 3c - Surface Water Monitoring Results September 2015 - Dry

Location	Units	Levels of Concern		Upper Warrell Creek	Upper Warrell Creek	Stony Creek	Stony Creek	Low er Warrell Creek	Low er Warrell Creek	Unnamed Creek Gumma West	Unnamed Creek Gumma East	Unnamed Creek Gumma North	Nambucca River South	Nambucca River South
Type		ANZECC 2000 95% species protected		Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Upstream	Downstream	Upstream	Downstream
Freshw ater / Estuarine				Freshw ater	Freshw ater	Freshw ater	Freshw ater	Freshw ater	Freshw ater	Freshw ater	Freshw ater	Freshw ater	Estuarine	Estuarine
Date of Sampling				30-Sep-15	30-Sep-15	29-Sep-15	29-Sep-15	30-Sep-15	30-Sep-15	30-Sep-15	30-Sep-15	30-Sep-15	30-Sep-15	30-Sep-15
Time of Sampling		Freshw ater	Marine	2:10 PM	1:57 PM	12:20 PM	12:14 PM	3:00 PM	3:10 PM	4:44 PM	5:10 PM	5:00 PM	5:40 PM	5:30 PM
Comments														
Field Physical data														
Temperature	°C	-	-	16.5	20.83	16.83	17.58	21.63	20.23	20.96	18.11	19.15	20.21	20.74
pH	pH	-	6.5-8	6.39	6.52	7.34	7.03	6.62	7.12	6.35	6.18	6.63	7.5	7.02
pHmV	pHmV	-	-	17	11	-66	-48	5	10	21	30	5	-65	-17
ORPmV	ORPmV	-	-	-110	-142	131	113	25	110	-167	-258	-103	-100	-120
Conductivity	mS/cm	0.125-2.2	-	0.272	0.246	0.273	0.264	8.97	8.7	0.756	0.754	1.29	38.2	37.3
Turbidity	NTU	50	10	4	3.2	20.1	3.4	4.2	9.1	81.2	38.1	8.8	48.2	49.5
Dissolved Oxygen	mg/L	5	5	4.97	6.31	5.89	5.65	5.43	5.5	3.57	0.24	0.3	5.65	5.82
TDS	g/L	-	-	0.177	0.16	0.178	0.172	5.65	5.49	0.484	0.482	0.824	26.5	23.3

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

Table 3d – Surface Water Monitoring Results – October 2015 – Dry

Location	Units	Levels of Concern		Upper Warrell Creek			Upper Warrell Creek			Stony Creek			Stony Creek			Lower Warrell Creek			Lower Warrell Creek			Unnamed Creek Gumma West			Unnamed Creek Gumma East			Unnamed Creek Gumma North			Nambucca River South			Nambucca River South		
				Upstream			Dow nstream			Upstream			Dow nstream			Upstream			Dow nstream			Upstream			Upstream			Dow nstream			Upstream			Dow nstream		
Freshw ater / Estuarine		ANZECC 2000 95% species protected		Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Estuarine			Estuarine		
Date of Sampling				8-Oct-15			8-Oct-15			8-Oct-15			8-Oct-15			8-Oct-15			8-Oct-15			8-Oct-15			8-Oct-15			8-Oct-15			8-Oct-15			8-Oct-15		
Time of Sampling				9:35 AM			9:10 AM			8:50 AM			8:22 AM			10:05 AM			10:20 AM			11:25 AM			11:45 AM			11:35 AM			10:45 AM			12:20 PM		
Type		Freshw ater ANZECC 2000 95%	Marine	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result
Comments																																				
Laboratory data																																				
Metals																																				
Aluminium	mg/L	0.055	-	0.06	0.01	<0.01	0.05	0.01	<0.01	0.05	0.01	<0.01	0.04	0.01	<0.01	0.06	0.01	<0.01	0.06	0.01	<0.01	0.1	0.01	0.05	0.1	0.01	0.03	0.1	0.01	0.05	0.02	0.01	<0.10	0.02	0.01	<0.10
Arsenic	mg/L	0.024	0.0023	-	-	<0.001	-	-	0.001	-	-	0.002	0.001	0.001	0.002	0.001	0.001	<0.001	0.001	0.001	0.001	0.002	0.001	0.002	0.002	0.001	0.002	0.002	0.001	0.003	0.002	0.001	<0.010	0.002	0.001	<0.010
Cadmium	mg/L	0.0002	0.0055	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	0.0001	0.0001	<0.0001	0.0001	0.0001	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0010	-	-	<0.0010
Chromium	mg/L	0.001	0.0044	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.010	-	-	<0.010
Copper	mg/L	0.0014	0.0013	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	0.001	0.001	<0.010	0.001	0.001	<0.010
Lead	mg/L	0.0034	0.0044	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.010	-	-	<0.010
Manganese	mg/L	1.9	0.08	0.21	0.02	0.112	0.2	0.03	0.086	0.06	0.02	0.069	0.052	0.013	0.261	0.26	0.08	0.192	0.26	0.08	0.166	0.23	0.019	0.818	0.23	0.019	0.323	0.23	0.019	0.967	0.03	0.002	0.088	0.03	0.002	0.06
Nickel	mg/L	0.011	0.07	-	-	<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	0.003	0.001	0.001	0.001	-	-	<0.010	-	-	<0.010
Selenium	mg/L	11	-	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.10	-	-	<0.10
Silver	mg/L	0.00005	0.0014	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.010	-	-	<0.010
Zinc	mg/L	0.008	0.015	-	-	<0.005	-	-	<0.005	0.005	0.005	<0.005	0.005	0.005	<0.005	0.006	0.005	0.012	0.006	0.005	0.008	0.005	0.005	0.01	0.005	0.005	<0.005	0.005	0.005	0.014	0.005	0.005	0.118	0.005	0.005	0.057
Iron	mg/L	-	-	0.99	0.46	0.06	0.93	0.31	0.07	0.82	0.42	0.05	0.78	0.37	<0.05	0.83	0.05	<0.05	0.83	0.05	<0.05	2.01	0.25	1.34	2.01	0.25	0.23	2.01	0.25	1.27	-	-	<0.10	-	-	<0.10
Mercury	mg/L	0.0006	0.0004	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001			<0.0001			<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001
Total Recoverable Hydrocarbons																																				
Naphthalene	µg/L	16	50			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA
C6 - C10 Fraction	µg/L	-	-			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA
C6 - C10 Fraction minus BTEX (F1)	µg/L	-	-			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA
>C10 - C16 Fraction	µg/L	-	-			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA
>C16 - C34 Fraction	µg/L	-	-			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA
>C34 - C40 Fraction	µg/L	-	-			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA
>C10 - C40 Fraction (sum)	µg/L	-	-			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA
>C10 - C16 Fraction minus Naphthalene (F2)	µg/L	-	-			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA
BTEX																																				
Benzene	µg/L	950	700			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA
Toluene	µg/L	180	180			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA
Ethylbenzene	µg/L	80	5			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA
m&p-Xylenes	µg/L	-	-			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA
o-Xylene	µg/L	350	350			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA
Xylenes - Total	µg/L	-	-			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA
Sum of BTEX	µg/L	-	-			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA
Nutrients																																				
Total Phosphorus	mg/L	0.05	0.03	0.04	0.01	0.01	0.03	0.01	0.01	0.04	0.01	<0.01	0.02	0.01	<0.01	0.04	0.01	0.01	0.04	0.01	0.02	0.12	0.03	0.95	0.12	0.03	0.23	0.12	0.03	1.23	0.04	0.02	0.08	0.04	0.02	0.04
Phosphate (reactive phosphorus)	mg/L	-	-	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	0.01	0.0044	<0.01	0.01	0.0044	<0.01	0.01	0.005	0.01	0.01	0.005	<0.01	0.01	0.005	0.04	0.01	0.008	0.02	0.01	0.008	0.01
Total Nitrogen	mg/L	0.5	0.3	0.62	0.2	0.8	0.6	0.2	0.9	0.3	0.1	0.3	0.41	0.1	0.7	0.5	0.2	0.2	0.5	0.2	0.5	2.8	1.1	9.7	2.8	1.1	3.2	2.8	1.1	8.7	0.5	0.2	0.7	0.5	0.2	<0.2
Total Kjeldahl Nitrogen	mg/L	-	-	0.6	0.2	0.3	0.6	0.2	0.3	0.3	0.1	0.2	0.4	0.1	0.2	0.5	0.2	0.2	0.5	0.2	0.2	2.4	1	9.6	2.4	1	3	2.4	1	8.3	0.5	0.2	0.3	0.5	0.2	<0.2
Nitrate	mg/L	0.7	-	0.04	0.01	0.55	0.03	0.01	0.59	0.03	0.01	0.13	0.03	0.01	0.48	0.04	0.01	0.02	0.04	0.01	0.31	0.04	0.01	0.1	0.04	0.01	0.17	0.04	0.01	0.44	0.02	0.01	0.43	0.02	0.01	0.15
Nitrite	mg/L	-	-	-	-	<0.01	0.01	0.01	<0.01	0.01	0.01	<0.01	0.01	0.01	<0.01	0.01	0.01	<0.01	0.01	0.01	<0.01	0.05	0.01	<0.01	0.05	0.01	<0.01	0.05	0.01	<0.01	0.02	0.01	<0.01	0.02	0.01	<0.01
Ammonia	mg/L	0.9	-	-	-	0.01	-	-	0.07	-	-	0.02	-	-	0.04	0.16	0.06	0.03	0.16	0.06	0.03	0.04	0.01	0.28	0.04	0.01	<0.01	0.04	0.01	0.18	0.03	0.01	<0.01	0.03	0.01	0.12
TSS																																				
Turbidity		50	10	10.96	4	2	9.9	3.5	2.9	6	3	4.6	5.97	3.74	5.8	6.82		1.5	6.82		5.8	52.78	11.3	1950	52.78	11.3	142	52.78	11.3	156	19.3	6.7	7	19.3	6.7	2.9
TSS	mg/L	<40	<10	14.8	5	<5	8	5	7	9	5	6	5.8	5	6	17.6	5	<5	17.6	5	<5	290	15	3690	290	15	178	290	15	332	71	19	<5	71	19	<5
Field Physical data																																				
Temperature	°C	-	-	24.86	14.99	18.93	25.1	16.3	19.83	24.4	16	17.82	26.46	15.94	19.92	27.9	18.4	23.52	27.9	18.4	23.04	26.5	16.3	19.55	26.5	16.3	18.38	26.5	16.3	20.93	27.9	18.1	23.6	27.9	18.1	24.03
pH	pH	-	6.5-8	7.25	6.48	6.55	7.3	6.4	6.65	7.5	6.6	6.67	7.33	6.26	6.67	7.02	6.57	6.99	7.02	6.57	6.98	7	6.1	6.66	7	6.1	6.23	7	6.1	652	7	7	7.72	7	7	7.74
Conductivity	mS/cm	0.125-2.2	-	0.316	0.232	0.326	0.348	0.227	0.309	0.348	0.227	0.278	0.3338	0.2168	0.372	20.946	0.679	9.68	20.946	0.679	9.22	0.808	0.4234	0.886	0.808	0.4234	0.599	0.808	0.4234	2.15	47.32	29.44	41.5	47.32	29.44	41.4
Turbidity	NTU	50	10	10.96	4	1.2	9.9	3.5	0.8	9.9	3.5	0.5	5.97	3.74	13.9	6.82	1.83	0.5	6.82	1.83	0.4	52.78	11.3	152	52.78	11.3	398	52.78	11.3	376	19.3	6.7	20.5	19.3	6.7	40.3
Dissolved Oxygen	mg/L	5	5	4.98	1.91	3.94	4.8	2.6	4.61	4.8	2.6	4.56	6.34	3.52	3.01	7.98	5.07	6.38	7.98	5.07	5.68	6.4	1.75	0	6.4	1.75	0.96	6.4	1.75	0	9.1	7.4	5.83	9.1	7.4	5.98
TDS	g/L	-	-	-		0.212	-		0.201	-		0.181	-		0.242	-		6.09	-		5.81	-		0.567	-		0.383	-		1.38	-		25.3	-		25.3

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

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

Exceedances of trigger values

Table 3e – Surface Water Monitoring Results – October Wet

Location	Units	Levels of Concern		Upper Warrell Creek			Upper Warrell Creek			Stony Creek			Stony Creek			Lower Warrell Creek			Lower Warrell Creek			Unnamed Creek Gumma West			Unnamed Creek Gumma East			Unnamed Creek Gumma North			Nambucca River South			Nambucca River South		
				Upstream			Downstream			Upstream			Downstream			Upstream			Downstream			Upstream			Upstream			Downstream			Upstream			Downstream		
Freshwater / Estuarine		ANZECC 2000 95% species protected		Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Estuarine			Estuarine		
Date of Sampling				23-Oct-15			23-Oct-15			23-Oct-15			23-Oct-15			23-Oct-15			23-Oct-15			23-Oct-15			23-Oct-15			23-Oct-15			23-Oct-15			23-Oct-15		
Time of Sampling		Freshwater	Marine	9:35 AM			9:10 AM			8:50 AM			8:22 AM			10:30 AM			10:20 AM			11:25 AM			11:45 AM			11:35 AM			10:45 AM			12:20 PM		
Type		ANZECC 2000 95%		80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result
Comments										Vegetative matter present			Vegetative matter present																							
Laboratory data																																				
Metals																																				
Aluminium	mg/L	0.055	-	0.244	0.0162	<0.01	0.194	0.016	<0.01	0.098	0.02	0.01	0.114	0.01	<0.01	0.28	0.01	0.02	0.28	0.01	0.01	0.25	0.02	0.03	0.25	0.02	0.01	0.25	0.02	0.04	0.11	0.01	<0.10	0.11	0.01	<0.10
Arsenic	mg/L	0.024	0.0023	0.001	0.001	0.001	0.001	0.001	<0.001	0.002	0.001	0.002	0.002	0.001	0.001	0.001	0.001	0.003	0.001	0.001	0.003	0.002	0.001	0.001	0.002	0.001	0.002	0.002	0.001	0.007	0.002	0.001	<0.010	0.002	0.001	<0.010
Cadmium	mg/L	0.0002	0.0055	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	0.0002	0.0001	<0.0001	0.0002	0.0001	<0.0001	-	-	<0.0001	-	-	0.0002	-	-	<0.0001	-	-	<0.0010	-	-	<0.0010
Chromium	mg/L	0.001	0.0044	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001			<0.001			<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.010	-	-	<0.010
Copper	mg/L	0.0014	0.0013	-	-	0.001	-	-	<0.001	-	-	0.002	-	-	<0.001			0.001			<0.001	0.001	0.001	0.001	0.001	0.001	0.003	0.001	0.001	<0.001	0.001	0.001	0.082	0.001	0.001	0.062
Lead	mg/L	0.0034	0.0044	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001			<0.001			<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.010	-	-	<0.010
Manganese	mg/L	1.9	0.08	0.3	0.01	0.208	0.158	0.0178	0.265	0.0726	0.0218	0.051	0.083	0.0164	0.187	0.35	0.087	0.186	0.35	0.087	0.169	0.49	0.011	0.346	0.49	0.011	1.79	0.49	0.011	1.46	0.076	0.006	0.054	0.076	0.006	0.052
Nickel	mg/L	0.011	0.07	-	-	0.002	-	-	0.002	-	-	0.002	-	-	0.001	0.0034	0.001	0.003	0.0034	0.001	0.002	0.002	0.001	0.003	0.002	0.001	0.016	0.002	0.001	0.005	-	-	<0.010	-	-	<0.010
Selenium	mg/L	11	-	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.10	-	-	<0.10
Silver	mg/L	0.00005	0.0014	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.010	-	-	<0.010
Zinc	mg/L	0.008	0.015	0.007	0.005	<0.005	0.0062	0.0042	<0.005	0.0064	0.005	0.007	0.006	0.005	0.008	0.018	0.005	0.005	0.018	0.005	<0.005	0.011	0.005	<0.005	0.011	0.005	0.018	0.011	0.005	0.01	0.005	0.005	<0.050	0.005	0.005	<0.050
Iron	mg/L	-	-	1.38	0.48	0.07	0.99	0.366	0.09	1.4	0.41	0.26	1.48	0.35	<0.05	0.52	0.05	0.17	0.52	0.05	0.07	1.65	0.37	0.45	1.65	0.37	0.08	1.65	0.37	7.16	0.26	0.05	<0.10	0.26	0.05	<0.10
Mercury	mg/L	0.0006	0.0004	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001			<0.0001			<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001
Total Recoverable Hydrocarbons																																				
Naphthalene	µg/L	16	50	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	50		NA	50		NA
C6 - C10 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
C6 - C10 Fraction minus BTEX (F1)	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
>C10 - C16 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
>C16 - C34 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
>C34 - C40 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
>C10 - C40 Fraction (sum)	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
>C10 - C16 Fraction minus Naphthalene (F2)	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
BTEX																																				
Benzene	µg/L	950	700	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	700		NA	700		NA
Toluene	µg/L	180	180	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA
Ethylbenzene	µg/L	80	5	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	5		NA	5		NA
m&p-Xylenes	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
o-Xylene	µg/L	350	350	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA
Xylenes - Total	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
Sum of BTEX	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
Nutrients																																				
Total Phosphorus	mg/L	0.05	0.03	0.05	0.02	0.02	0.044	0.016	0.02	0.03	0.016	0.03	0.034	0.01	0.02	0.04	0.01	0.02	0.04	0.01	0.02	0.11	0.03	0.04	0.11	0.03	0.04	0.11	0.03	0.21	0.07	0.02	0.05	0.07	0.02	0.04
Phosphate (reactive phosphorus)	mg/L	-	-	0.01	0.0034	<0.01	0.01	0.004	<0.01	0.018	0.0022	<0.01	0.01	0.003	<0.01	0.011	0.006	<0.01	0.011	0.006	0.01	0.013	0.005	<0.01	0.013	0.005	<0.01	0.013	0.005	0.01	0.029	0.01	0.02	0.029	0.01	0.03
Total Nitrogen	mg/L	0.5	0.3	0.56	0.3	0.4	0.52	0.2	0.5	0.48	0.2	0.4	0.63	0.2	0.7	0.54	0.31	0.4	0.54	0.31	0.4	3.1	0.9	1.3	3.1	0.9	3	3.1	0.9	2.2	0.46	0.2	<0.2	0.46	0.2	<0.2
Total Kjeldahl Nitrogen	mg/L	-	-	0.5	0.3	0.3	0.5	0.2	0.3	0.34	0.2	0.3	0.6	0.2	0.6	0.5	0.2	0.3	0.5	0.2	0.4	2.8	0.8	1.2	2.8	0.8	2.4	2.8	0.8	2.2	0.3	0.2	<0.2	0.3	0.2	<0.2
Nitrate	mg/L	0.7	-	0.102	0.01	0.15	0.054	0.01	0.18	0.208	0.01	0.06	0.2	0.01	0.09	0.05	0.01	0.05	0.05	0.01	0.05	0.03	0.01	0.07	0.03	0.01	0.62	0.03	0.01	0.03	0.04	0.01	0.02	0.04	0.01	0.04
Nitrite	mg/L	-	-	-	-	<0.01	-	-	<0.01	-	-	<0.01	0.02	0.01	<0.01	0.02	0.01	<0.01	0.02	0.01	<0.01	0.02	0.01	<0.01	0.02	0.01	0.02	0.02	0.01	<0.01	0.02	0.01	<0.01	0.02	0.01	<0.01
Ammonia	mg/L	0.9	-	0.036	0.01	0.02	0.02	0.01	0.03	0.046	0.02	<0.01	0.062	0.012	0.04	0.116	0.022	0.03	0.116	0.022	0.06	0.06	0.01	<0.01	0.06	0.01	1.63	0.06	0.01	<0.01	0.15	0.024	<0.05	0.15	0.024	0.14
TSS																																				
Turbidity		50	10	26.16	5.94	5	27.32	3.72	10	14.98	3.34	12	17.16	4.59	17	26.1	2.4	<5	26.1	2.4	<5	66.8	11.6	17	66.8	11.6	14	66.8	11.6	581	19.04	5.81	<5	19.04	5.81	<5
TSS	mg/L	<40	<10	19	5	2	12.8	5	2.1	14.8	5	5.2	8.7	5	16.4	25	5.5	5.4	25	5.5	2.8	350	9	22.7	350	9	22.7	350	9	236	78	15	3.6	78	15	2.8
Field Physical data																																				
Temperature	°C	-	-	24.3	16.27	20.82	24.52	16.79	20.58	23.98	17.36	19.62	24.7	17.65	19.86	25.9	19.5	23.89	25.9	19.5	24.26	25.84	19.1	19.06	25.84	19.1	19.19	25.84	19.1	20.73	26.56	21.32	25.82	26.56	21.32	25.9
pH	pH	-	6.5-8	7.478	6.23	6.69	7.192	6.42	6.7	7.138	6.61	6.81	6.98	6.21	6.71	6.86	6.46	6.98	6.86	6.46	7.13	6.9	6.08	7.15	6.9	6.08	6.91	6.9	6.08	6.36	7.56	6.58	7.99	7.56	6.58	7.95
Conductivity	mS/cm	0.125-2.2	-	0.3204	0.20184	0.321	0.3242	0.19076	0.326	0.313	0.2024	0.329	0.309	0.20188	0.263	20.918	0.50928	11.2	20.918	0.50928	11.1	0.842	0.334	1.03	0.842	0.334	1.42	0.842	0.334	3.89	48.42	12.65	43.8	48.42	12.65	43.9
Turbidity	NTU	50	10	26.16	5.94	3	27.32	3.72	3.7	14.98	3.34	13.6	17.16	4.59	15.5	26.1	2.4	40.3	26.1	2.4	21.7	66.8	11.6	1.09	66.8	11.6	18.8	66.8	11.6	1.77	19.04	5.81	6.6	19.04	5.81	17.3
Dissolved Oxygen	mg/L	5	5	7.43	1.5	1.61	6.88	2.28	1.76	8.472	5.08	3.03	7.59	2.63	1.04	6.65	5.02	7	6.65	5.02	4.58	7.3	1.78	3.8	7.3	1.78	3.43	7.3	1.78	2.74	8.47	6.88	5.3	8.47	6.88	5.14
TDS	g/L	-	-	-		0.208	-		0.212	-		0.214	-		0.171	-		6.94	-		6.91	-		0.657			0.912	-		2.49	-		26.7	-		26.8

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

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

Exceedances of trigger values

Table 3f – Surface Water Monitoring Results – November 2015 - 1st Wet

Location	Units	Levels of Concern		Upper Warrell Creek			Upper Warrell Creek			Stony Creek			Stony Creek			Lower Warrell Creek			Lower Warrell Creek			Unnamed Creek Gumma West			Unnamed Creek Gumma East			Unnamed Creek Gumma North			Nambucca River South			Nambucca River South		
				Upstream			Downstream			Upstream			Downstream			Upstream			Downstream			Upstream			Upstream			Downstream			Upstream			Downstream		
Freshwater / Estuarine		ANZECC 2000 95% species protected		Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Estuarine			Estuarine		
Date of Sampling				5-Nov-15			5-Nov-15			5-Nov-15			5-Nov-15			5-Nov-15			5-Nov-15			5-Nov-15			5-Nov-15			5-Nov-15			5-Nov-15			5-Nov-15		
Time of Sampling		Freshwater	Marine	8:45 AM			8:20 AM			9:30 AM			9:00 AM			12:45 PM			12:30 PM			11:30 AM			11:00 AM			11:15 AM			12:00 PM			11:50 AM		
				80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result
Comments																																			
Laboratory data																																			
Metals																																			
Aluminium	mg/L	0.055	-	0.244	0.0162	0.02	0.194	0.016	0.02	0.098	0.02	<0.01	0.114	0.01	<0.01	0.28	0.01	0.03	0.28	0.01	0.03	0.25	0.02	0.06	0.25	0.02	0.11	0.25	0.02	0.1	0.11	0.01	<0.01	0.11	0.01	0.01
Arsenic	mg/L	0.024	0.0023	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	<0.001	0.002	0.001	0.002	0.001	0.001	0.001	0.001	0.001	<0.001	0.002	0.001	0.003	0.002	0.001	0.001	0.002	0.001	0.002	0.002	0.001	0.004	0.002	0.001	0.003
Cadmium	mg/L	0.0002	0.0055	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	0.0002	0.0001	0.0002	0.0002	0.0001	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	0.0007	-	-	<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
Copper	mg/L	0.0014	0.0013	-	-	0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001			<0.001			<0.001	0.001	0.001	<0.001	0.001	0.001	0.001	0.001	0.001	0.002	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
Manganese	mg/L	1.9	0.08	0.3	0.01	0.441	0.158	0.0178	0.187	0.0726	0.0218	0.084	0.083	0.0164	0.168	0.35	0.087	0.6	0.35	0.087	0.209	0.49	0.011	0.684	0.49	0.011	0.598	0.49	0.011	1.53	0.076	0.006	0.038	0.076	0.006	0.041
Nickel	mg/L	0.011	0.07	-	-	0.002	-	-	0.004	-	-	<0.001	-	-	0.002	0.0034	0.001	0.02	0.0034	0.001	<0.001	0.002	0.001	0.003	0.002	0.001	0.001	0.002	0.001	0.012	-	-	<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	-	-	0.02	-	-	0.02
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
Zinc	mg/L	0.008	0.015	0.007	0.005	0.01	0.0062	0.0042	<0.005	0.0064	0.005	<0.005	0.006	0.005	0.01	0.018	0.005	0.059	0.018	0.005	<0.005	0.011	0.005	0.02	0.011	0.005	0.009	0.011	0.005	0.267	0.005	0.005	<0.005	0.005	0.005	<0.005
Iron	mg/L	-	-	1.38	0.48	0.42	0.99	0.366	0.28	1.4	0.41	0.5	1.48	0.35	<0.05	0.52	0.05	0.1	0.52	0.05	0.1	1.65	0.37	3.88	1.65	0.37	2.79	1.65	0.37	2.64	0.26	0.05	<0.05	0.26	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
Total Recoverable Hydrocarbons																																				
Naphthalene	µg/L	16	50	16		-	16		-	16		-	16		-	16		-	16		-	16		-	16		-	16		-	50		-	50		-
C6 - C10 Fraction	µg/L	-	-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-
C6 - C10 Fraction minus BTEX (F1)	µg/L	-	-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-
>C10 - C16 Fraction	µg/L	-	-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-
>C16 - C34 Fraction	µg/L	-	-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-
>C34 - C40 Fraction	µg/L	-	-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-
>C10 - C40 Fraction (sum)	µg/L	-	-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-
>C10 - C16 Fraction minus Naphthalene (F2)	µg/L	-	-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-
BTEX																																				
Benzene	µg/L	950	700	950		-	950		-	950		-	950		-	950		-	950		-	950		-	950		-	950		-	700		-	700		-
Toluene	µg/L	180	180	180		-	180		-	180		-	180		-	180		-	180		-	180		-	180		-	180		-	180		-	180		-
Ethylbenzene	µg/L	80	5	80		-	80		-	80		-	80		-	80		-	80		-	80		-	80		-	80		-	5		-	5		-
m&p-Xylenes	µg/L	-	-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-
o-Xylene	µg/L	350	350	350		-	350		-	350		-	350		-	350		-	350		-	350		-	350		-	350		-	350		-	350		-
Xylenes - Total	µg/L	-	-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-
Sum of BTEX	µg/L	-	-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-
Nutrients																																				
Total Phosphorus	mg/L	0.05	0.03	0.05	0.02	0.03	0.044	0.016	0.02	0.03	0.016	0.05	0.034	0.01	0.02	0.04	0.01	0.01	0.04	0.01	0.02	0.11	0.03	0.14	0.11	0.03	0.35	0.11	0.03	0.11	0.07	0.02	0.26	0.07	0.02	0.2
Phosphate (reactive phosphorus)	mg/L	-	-	0.01	0.0034	<0.01	0.01	0.004	<0.01	0.018	0.0022	<0.01	0.01	0.003	<0.01	0.011	0.006	<0.01	0.011	0.006	<0.01	0.013	0.005	<0.01	0.013	0.005	0.03	0.013	0.005	<0.01	0.029	0.01	<0.01	0.029	0.01	<0.01
Total Nitrogen	mg/L	0.5	0.3	0.56	0.3	1	0.52	0.2	1	0.48	0.2	1.7	0.63	0.2	2.3	0.54	0.31	0.8	0.54	0.31	1.2	3.1	0.9	2.5	3.1	0.9	6	3.1	0.9	2.6	0.46	0.2	0.8	0.46	0.2	1.4
Total Kjeldahl Nitrogen	mg/L	-	-	0.5	0.3	0.6	0.5	0.2	0.5	0.34	0.2	0.5	0.6	0.2	0.6	0.5	0.2	0.4	0.5	0.2	0.6	2.8	0.8	2.4	2.8	0.8	5.4	2.8	0.8	2	0.3	0.2	0.4	0.3	0.2	0.7
Nitrate	mg/L	0.7	-	0.102	0.01	0.35	0.054	0.01	0.49	0.208	0.01	1.17	0.2	0.01	1.72	0.05	0.01	0.38	0.05	0.01	0.65	0.03	0.01	0.13	0.03	0.01	0.64	0.03	0.01	0.56	0.04	0.01	0.38	0.04	0.01	0.66
Nitrite	mg/L	-	-	-	-	<0.01	-	-	<0.01	-	-	<0.01	0.02	0.01	<0.01	0.02	0.01	<0.01	0.02	0.01	<0.01	0.02	0.01	<0.01	0.02	0.01	<0.01	0.02	0.01	<0.01	0.02	0.01	<0.01	0.02	0.01	<0.01
Ammonia	mg/L	0.9	-	0.036	0.01	0.03	0.02	0.01	0.02	0.046	0.02	0.02	0.062	0.012	0.02	0.116	0.022	<0.01	0.116	0.022	0.1	0.06	0.01	0.07	0.06	0.01	0.25	0.06	0.01	0.06	0.15	0.024	<0.05	0.15	0.024	<0.05
TSS																																				
TSS	mg/L	<40	<10	19	5	<5	12.8	5	<5	14.8	5	<5	8.7	5	<5	25	5.5	18	25	5.5	<5	350	9	24	350	9	312	350	9	20	19.04	5.81	<5	19.04	5.81	68
Field Physical data																																				
Temperature	°C	-	-	24.3	16.27	21.24	24.52	16.79	21.69	23.98	17.36	19.8	24.7	17.65	20.93	25.9	19.5	22.27	25.9	19.5	22.29	25.84	19.1	21.15	25.84	19.1	19.95	25.84	19.1	21.29	26.56	21.32	23.24	26.56	21.32	23.28
pH	pH	-	6.5-8	7.478	6.23	6.77	7.192	6.42	6.51	7.138	6.61	6.51	6.98	6.21	6.43	6.86	6.46	6.78	6.86	6.46	6.85	6.9	6.08	6.48	6.9	6.08	5.97	6.9	6.08	6.23	7.56	6.58	7.74	7.56	6.58	7.69
Conductivity	mS/cm	0.125-2.2	-	0.3204	0.20184	0.288	0.3242	0.19076	0.291	0.313	0.2024	0.266	0.309	0.20188	0.241	20.918	0.50928	6.02	20.918	0.50928	9.22	0.842	0.334	1.05	0.842	0.334	0.471	0.842	0.334	2.56	48.42	12.65	41.8	48.42	12.65	41.7
Turbidity	NTU	50	10	26.16	5.94	3.3	27.32	3.72	2.7	14.98	3.34	4	17.16	4.59	17.1	26.1	2.4	8	26.1	2.4	2.9	66.8	11.6	48.3	66.8	11.6	39.9	66.8	11.6	26.2	19.04	5.81	5.2	19.04	5.81	15
Dissolved Oxygen	mg/L	5	5	7.43	1.5	9.35	6.88	2.28	3.14	8.472	5.08	4.14	7.59	2.63	2.36	6.65	5.02	4.9	6.65	5.02	4.28	7.3	1.78	0.56	7.3	1.78	1.44	7.3	1.78	2.41	8.47	6.88	5.48	8.47	6.88	5.34
TDS	g/L	-	-	-		0.187	-		0.189	-		0.173	-		0.157	-		3.78	-		5.81	-		0.67	-		0.306	-		1.64	-		25.5	-		25.5

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

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

Exceedances of trigger values

Table 3g – Surface Water Monitoring Results – November 2015 – 2nd Wet

Location	Units	Levels of Concern		Upper Warrell Creek			Upper Warrell Creek			Stony Creek			Stony Creek			Lower Warrell Creek			Lower Warrell Creek			Unnamed Creek Gumma West			Unnamed Creek Gumma East			Unnamed Creek Gumma North			Nambucca River South			Nambucca River South		
				Upstream			Downstream			Upstream			Downstream			Upstream			Downstream			Upstream			Upstream			Downstream			Upstream			Downstream		
Freshwater / Estuarine		ANZECC 2000 95% species protected		Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Estuarine			Estuarine		
Date of Sampling				16-Nov-15			16-Nov-15			16-Nov-15			16-Nov-15			16-Nov-15			16-Nov-15			16-Nov-15			16-Nov-15			16-Nov-15			16-Nov-15			16-Nov-15		
Time of Sampling		Freshwater	Marine	11:15 AM			11:00 AM			12:00 PM			11:45 AM			2:15 PM			2:10 PM			1:00 PM			1:10 PM			12:45 PM			1:30 PM			1:15 PM		
				80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result
Comments																																			
Field Physical data																																			
Temperature	°C	-	-	24.3	16.27	19.65	24.52	16.79	19.97	23.98	17.36	19.65	24.7	17.65	19.21	25.9	19.5	23.29	25.9	19.5	23.1	25.84	19.1	22.87	25.84	19.1	20.85	25.84	19.1	26.08	26.56	21.32	22.9	26.56	21.32	23.62
pH	pH	-	6.5-8	7.478	6.23	6.14	7.192	6.42	6.69	7.138	6.61	6.58	6.98	6.21	6.64	6.86	6.46	7.33	6.86	6.46	7.09	6.9	6.08	6.48	6.9	6.08	6.7	6.9	6.08	5.97	7.56	6.58	7.53	7.56	6.58	7.42
Conductivity	mS/cm	0.125-2.2	-	0.3204	0.20184	0.255	0.3242	0.19076	0.246	0.313	0.2024	0.266	0.309	0.20188	0.26	20.918	0.50928	3.35	20.918	0.50928	3.18	0.842	0.334	0.608	0.842	0.334	0.803	0.842	0.334	1.39	48.42	12.65	25.2	48.42	12.65	24
Turbidity	NTU	50	10	26.16	5.94	0.7	27.32	3.72	0.5	14.98	3.34	2.3	17.16	4.59	6	26.1	2.4	6.8	26.1	2.4	5.9	66.8	11.6	53	66.8	11.6	7.6	66.8	11.6	78.9	19.04	5.81	3.3	19.04	5.81	17.8
Dissolved Oxygen	mg/L	5	5	7.43	1.5	5.42	6.88	2.28	6.03	8.472	5.08	8.35	7.59	2.63	4.42	6.65	5.02	4.46	6.65	5.02	4.27	7.3	1.78	5.42	7.3	1.78	4.29	7.3	1.78	6.24	8.47	6.88	6.3	8.47	6.88	7.07
TDS	g/L	-	-	-		0.166	-		0.16	-		0.173	-		0.169	-		2.15	-		2.03	-		0.389	-		0.514	-		0.888	-		15.6	-		14.9

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

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

Exceedances of trigger values

Table 3h – Surface Water Monitoring Results – November 2015 – Dry

Location	Units	Levels of Concern		Upper Warrell Creek			Upper Warrell Creek			Stony Creek			Stony Creek			Lower Warrell Creek			Lower Warrell Creek			Unnamed Creek Gumma West			Unnamed Creek Gumma East			Unnamed Creek Gumma North			Nambucca River South			Nambucca River South		
				Upstream			Downstream			Upstream			Downstream			Upstream			Downstream			Upstream			Upstream			Downstream			Upstream			Downstream		
Freshwater / Estuarine		ANZECC 2000 95% species protected		Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Estuarine			Estuarine		
Date of Sampling				25-Nov-15			25-Nov-15			25-Nov-15			25-Nov-15			25-Nov-15			25-Nov-15			25-Nov-15			25-Nov-15			25-Nov-15			25-Nov-15			25-Nov-15		
Time of Sampling		Freshwater	Marine	11:15 AM			11:00 AM			11:50 AM			11:40 AM			2:35 PM			2:25 PM			1:10 PM			12:30 PM			1:00 PM			2:10 PM			2:00 PM		
Comments																													Unable to sample - water level too low								
Type				80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result
Field Physical data																																			
Temperature	°C	-	-	24.86	14.99	22.95	25.1	16.3	25.91	24.4	16	26.73	26.46	15.94	23.31	27.9	18.4	29.6	27.9	18.4	29.42	26.5	16.3	26.92	26.5	16.3	24.05	26.5	16.3	-	27.9	18.1	27.73	27.9	18.1	27.56
pH	pH	-	6.5-8	7.25	6.48	6.02	7.3	6.4	6.25	7.5	6.6	6.76	7.33	6.26	6.68	7.02	6.57	7.55	7.02	6.57	7.38	7	6.1	6.6	7	6.1	6.31	7	6.1	-	7	7	7.8	7	7	7.8
Conductivity	mS/cm	0.125-2.2	-	0.316	0.232	0.232	0.348	0.227	0.23	0.348	0.227	0.269	0.3338	0.2168	0.263	20.946	0.679	2.9	20.946	0.679	2.92	0.808	0.4234	0.626	0.808	0.4234	0.478	0.808	0.4234	-	47.32	29.44	32.7	47.32	29.44	33
Turbidity	NTU	50	10	10.96	4	6.8	9.9	3.5	6.2	9.9	3.5	7.2	5.97	3.74	9.3	6.82	1.83	17.5	6.82	1.83	10.4	52.78	11.3	10	52.78	11.3	4	52.78	11.3	-	19.3	6.7	17.4	19.3	6.7	18.2
Dissolved Oxygen	mg/L	5	5	4.98	1.91	7.1	4.8	2.6	7.1	4.8	2.6	5.29	6.34	3.52	3.37	7.98	5.07	6.6	7.98	5.07	6.4	6.4	1.75	3.83	6.4	1.75	2.66	6.4	1.75	-	9.1	7.4	8.1	9.1	7.4	8.5
TDS	g/L	-	-	-		0.151	-		0.149	-		0.175	-		0.171	-		1.86	-		1.87	-		0.4	-		0.31	-		-	-		19.9	-		20.1

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

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

Exceedances of trigger values

Table 3i – Surface Water Monitoring Results – December – 1st Wet

Location	Units	Levels of Concern		Upper Warrell Creek			Upper Warrell Creek			Stony Creek			Stony Creek			Lower Warrell Creek			Lower Warrell Creek			Unnamed Creek Gumma West			Unnamed Creek Gumma East			Unnamed Creek Gumma North			Nambucca River South			Nambucca River South		
				Upstream			Downstream			Upstream			Downstream			Upstream			Downstream			Upstream			Upstream			Downstream			Upstream			Downstream		
Freshwater / Estuarine		ANZECC 2000 95% species protected		Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Estuarine			Estuarine		
Date of Sampling				3-Dec-15			3-Dec-15			3-Dec-15			3-Dec-15			3-Dec-15			3-Dec-15			3-Dec-15			3-Dec-15			3-Dec-15			3-Dec-15			3-Dec-15		
Time of Sampling		Freshwater	Marine	1:10 PM			1:00 PM			12:40 PM			12:30 PM			5:00 PM			4:45 PM			2:40 PM			2:50 PM			3:00 PM			4:30 PM			4:00 PM		
Type		ANZECC 2000 95% species protected		80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result
Comments																													Water level low								
Laboratory data																																			
Metals																																			
Aluminium	mg/L	0.055	-	0.244	0.0162	0.06	0.194	0.016	0.04	0.098	0.02	0.01	0.114	0.01	0.03	0.28	0.01	<0.01	0.28	0.01	0.01	0.25	0.02	0.03	0.25	0.02	0.07	0.25	0.02	-	0.11	0.01	0.03	0.11	0.01	0.01
Arsenic	mg/L	0.024	0.0023	0.001	0.001	0.001	0.001	0.001	<0.001	0.002	0.001	<0.001	0.002	0.001	0.002	0.001	0.001	<0.001	0.001	0.001	0.001	0.002	0.001	0.002	0.002	0.001	<0.001	0.002	0.001	-	0.002	0.001	0.002	0.002	0.001	0.003
Cadmium	mg/L	0.0002	0.0055	-	-	0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	0.0002	0.0001	<0.0001	0.0002	0.0001	<0.0001	-	-	<0.0001	-	-	0.0001	-	-	-	-	-	<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
Copper	mg/L	0.0014	0.0013	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	0.002			<0.001			<0.001	0.001	0.001	0.001	0.001	0.001	<0.001	0.001	0.001	-	0.001	0.001	<0.001	0.001	0.001	<0.001
Lead	mg/L	0.0034	0.0044	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001			<0.001			<0.001	-	-	<0.001	-	-	<0.001	-	-	-	-	-	<0.001	-	-	<0.001
Manganese	mg/L	1.9	0.08	0.3	0.01	0.415	0.158	0.0178	0.23	0.0726	0.0218	0.071	0.083	0.0164	0.14	0.35	0.087	0.099	0.35	0.087	0.198	0.49	0.011	0.222	0.49	0.011	0.221	0.49	0.011	-	0.076	0.006	0.032	0.076	0.006	0.034
Nickel	mg/L	0.011	0.07	-	-	0.001	-	-	0.002	-	-	<0.001	-	-	0.002	0.0034	0.001	<0.001	0.0034	0.001	<0.001	0.002	0.001	0.003	0.002	0.001	0.001	0.002	0.001	-	-	-	<0.001	-	-	<0.001
Selenium	mg/L	11	-	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	-	-	-	0.01	-	-	<0.01
Silver	mg/L	0.00005	0.0014	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	-	-	-	<0.001	-	-	<0.001
Zinc	mg/L	0.008	0.015	0.007	0.005	0.008	0.0062	0.0042	0.01	0.0064	0.005	<0.005	0.006	0.005	0.005	0.018	0.005	<0.005	0.018	0.005	<0.005	0.011	0.005	0.009	0.011	0.005	0.018	0.011	0.005	-	0.005	0.005	0.006	0.005	0.005	<0.005
Iron	mg/L	-	-	1.38	0.48	0.6	0.99	0.366	0.67	1.4	0.41	0.38	1.48	0.35	0.15	0.52	0.05	0.24	0.52	0.05	0.21	1.65	0.37	0.53	1.65	0.37	1.52	1.65	0.37	-	0.26	0.05	<0.05	0.26	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
Total Recoverable Hydrocarbons																																			
Naphthalene	µg/L	16	50	16			16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	16		-	50		NA	50		NA
C6 - C10 Fraction	µg/L	-	-	-			-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		NA	-		NA
C6 - C10 Fraction minus BTEX (F1)	µg/L	-	-	-			-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		NA	-		NA
>C10 - C16 Fraction	µg/L	-	-	-			-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		NA	-		NA
>C16 - C34 Fraction	µg/L	-	-	-			-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		NA	-		NA
>C34 - C40 Fraction	µg/L	-	-	-			-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		NA	-		NA
>C10 - C40 Fraction (sum)	µg/L	-	-	-			-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		NA	-		NA
>C10 - C16 Fraction minus Naphthalene (F2)	µg/L	-	-	-			-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		NA	-		NA
BTEX																																			
Benzene	µg/L	950	700	950			950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	950		-	700		NA	700		NA
Toluene	µg/L	180	180	180			180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		-	180		NA	180		NA
Ethylbenzene	µg/L	80	5	80			80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	80		-	5		NA	5		NA
m&p-Xylenes	µg/L	-	-	-			-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		NA	-		NA
o-Xylene	µg/L	350	350	350			350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		-	350		NA	350		NA
Xylenes - Total	µg/L	-	-	-			-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		NA	-		NA
Sumof BTEX	µg/L	-	-	-			-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		NA	-		NA
Nutrients																																			
Total Phosphorus	mg/L	0.05	0.03	0.05	0.02	0.02	0.044	0.016	0.01	0.03	0.016	<0.01	0.034	0.01	0.01	0.04	0.01	0.02	0.04	0.01	0.02	0.11	0.03	0.02	0.11	0.03	0.08	0.11	0.03	-	0.07	0.02	<0.02	0.07	0.02	<0.02
Phosphate (reactive phosphorus)	mg/L	-	-	0.01	0.0034	<0.01	0.01	0.004	<0.01	0.018	0.0022	<0.01	0.01	0.003	<0.01	0.011	0.006	<0.01	0.011	0.006	<0.01	0.013	0.005	<0.01	0.013	0.005	<0.01	0.013	0.005	-	0.029	0.01	<0.01	0.029	0.01	<0.01
																														-						
Total Nitrogen	mg/L	0.5	0.3	0.56	0.3	1.9	0.52	0.2	0.4	0.48	0.2	1.2	0.63	0.2	0.7	0.54	0.31	0.4	0.54	0.31	0.6	3.1	0.9	1.3	3.1	0.9	2	3.1	0.9	-	0.46	0.2	0.4	0.46	0.2	<0.2
Total Kjeldahl Nitrogen	mg/L	-	-	0.5	0.3	0.5	0.5	0.2	0.4	0.34	0.2	0.2	0.6	0.2	0.2	0.5	0.2	0.4	0.5	0.2	0.6	2.8	0.8	0.9	2.8	0.8	1.9	2.8	0.8	-	0.3	0.2	0.4	0.3	0.2	<0.2
																														-						
Nitrate	mg/L	0.7	-	0.102	0.01	1.38	0.054	0.01	0.02	0.208	0.01	0.96	0.2	0.01	0.52	0.05	0.01	0.05	0.05	0.01	0.05	0.03	0.01	0.44	0.03	0.01	0.11	0.03	0.01	-	0.04	0.01	0.04	0.04	0.01	0.06
Nitrite	mg/L	-	-	-	-	<0.01	-	-	<0.01	-	-	<0.01	0.02	0.01	<0.01	0.02	0.01	<0.01	0.02	0.01	<0.01	0.02	0.01	<0.01	0.02	0.01	<0.01	0.02	0.01	-	0.02	0.01	<0.01	0.02	0.01	<0.01
Ammonia	mg/L	0.9	-	0.036	0.01	0.02	0.02	0.01	0.06	0.046	0.02	0.02	0.062	0.012	0.03	0.116	0.022	0.09	0.116	0.022	0.1	0.06	0.01	0.04	0.06	0.01	0.03	0.06	0.01	-	0.15	0.024	<0.05	0.15	0.024	<0.05
TSS																																			
Turbidity		50	10	26.16	5.94		27.32	3.72		14.98	3.34		17.16	4.59		26.1	2.4		26.1	2.4		66.8	11.6		66.8	11.6		66.8	11.6	-	19.04	5.81		19.04	5.81	
TSS	mg/L	<40	<10	19	5	8	12.8	5	<5	14.8	5	<5	8.7	5	11	25	5.5	8	25	5.5	8	350	9	10	350	9	88	350	9	-			<5			<5
Field Physical data																																			
Temperature	°C	-	-	24.3	16.27	22.06	24.52	16.79	22.41	23.98	17.36	20.84	24.7	17.65	21.43	25.9	19.5	25.2	25.9	19.5	24.85	25.84	19.1	22.11	25.84	19.1	21.31	25.84	19.1	-	26.56	21.32	23.94	26.56	21.32	23.9
pH	pH	-	6.5-8	7.478	6.23	6.56	7.192	6.42	6.81	7.138	6.61	6.94	6.98	6.21	6.06	6.86	6.46	7.32	6.86	6.46	7.5	6.9	6.08	6.61	6.9	6.08	6.23	6.9	6.08	-	7.56	6.58	7.76	7.56	6.58	7.85
Conductivity	mS/cm	0.125-2.2	-	0.3204	0.20184	0.237	0.3242	0.19076	0.239	0.313	0.2024	0.261	0.309	0.20188	0.24	20.918	0.50928	4.12	20.918	0.50928	3.9	0.842	0.334	0.669	0.842	0.334	0.499	0.842	0.334	-	48.42	12.65	37	48.42	12.65	37
Turbidity	NTU	50	10	26.16	5.94	5.7	27.32	3.72	4.9	14.98	3.34	7.3	17.16	4.59	7.4	26.1	2.4	12.9	26.1	2.4	22.2	66.8	11.6	22.1	66.8	11.6	10.4	66.8	11.6	-	19.04	5.81	14.3	19.04	5.81	7.3
Dissolved Oxygen	mg/L	5	5	7.43	1.5	1.88	6.88	2.28	2.47	8.472	5.08	6.79	7.59	2.63	2.63	6.65	5.02	4.44	6.65	5.02	4.18	7.3	1.78	4.55	7.3	1.78	1.82	7.3	1.78	-	8.47	6.88	8.19	8.47	6.88	8.56
TDS	g/L	-	-	-		0.154	-		0.155	-		0.169	-		0.156	-		2.63	-		2.5	-		0.428	-		0.324	-		-	-		22.6	-		90.6

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

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

Exceedances of trigger values

Table 3j – Surface Water Monitoring Results – December 2015 – Dry

Location	Units	Levels of Concern		Upper Warrell Creek			Upper Warrell Creek			Stony Creek			Stony Creek			Lower Warrell Creek			Lower Warrell Creek			Unnamed Creek Gumma West			Unnamed Creek Gumma East			Unnamed Creek Gumma North			Nambucca River South			Nambucca River South		
				Upstream			Downstream			Upstream			Downstream			Upstream			Downstream			Upstream			Upstream			Downstream			Upstream			Downstream		
Freshwater / Estuarine		ANZECC 2000 95% species protected		Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Estuarine			Estuarine		
Date of Sampling				9-Dec-15			9-Dec-15			9-Dec-15			9-Dec-15			9-Dec-15			9-Dec-15			9-Dec-15			9-Dec-15			9-Dec-15			9-Dec-15			9-Dec-15		
Time of Sampling		Freshwater	Marine	9:00 AM			8:30 AM			10:00 AM			9:30 AM			2:30 PM			2:00 PM			12:00 PM			11:00 AM			11:40 AM			1:00 PM			12:30 PM		
Comments																																			
Type		ANZECC 2000 95%		80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result
Laboratory data																																			
Metals																																			
Aluminium	mg/L	0.055	-	0.06	0.01	0.01	0.05	0.01	0.01	0.05	0.01	<0.01	0.04	0.01	<0.01	0.06	0.01	<0.01	0.06	0.01	<0.01	0.1	0.01	0.02	0.1	0.01	0.04	0.1	0.01	<0.01	0.02	0.01	<0.10	0.02	0.01	<0.10
Arsenic	mg/L	0.024	0.0023	-	-	<0.001	-	-	<0.001	-	-	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	0.001	0.001	<0.001	0.002	0.001	0.002	0.002	0.001	<0.001	0.002	0.001	<0.001	0.002	0.001	<0.010	0.002	0.001	<0.010
Cadmium	mg/L	0.0002	0.0055	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	0.0001	0.0001	<0.0001	0.0001	0.0001	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0010	-	-	<0.0010
Chromium	mg/L	0.001	0.0044	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.010	-	-	<0.010
Copper	mg/L	0.0014	0.0013	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	0.001	0.001	<0.010	0.001	0.001	<0.010
Lead	mg/L	0.0034	0.0044	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.010	-	-	<0.010
Manganese	mg/L	1.9	0.08	0.21	0.02	0.319	0.2	0.03	0.205	0.06	0.02	0.132	0.052	0.013	0.121	0.26	0.08	0.159	0.26	0.08	0.143	0.23	0.019	0.212	0.23	0.019	0.114	0.23	0.019	0.31	0.03	0.002	0.018	0.03	0.002	0.014
Nickel	mg/L	0.011	0.07	-	-	0.001	-	-	0.001	-	-	<0.001	-	-	<0.001	0.001	0.001	0.002	0.001	0.001	<0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	-	-	<0.010	-	-	<0.010
Selenium	mg/L	11	-	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.10	-	-	<0.10
Silver	mg/L	0.00005	0.0014	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.010	-	-	<0.010
Zinc	mg/L	0.008	0.015	-	-	<0.005	-	-	<0.005	0.005	0.005	<0.005	0.005	0.005	<0.005	0.006	0.005	<0.005	0.006	0.005	<0.005	0.005	0.005	<0.005	0.005	0.005	<0.005	0.005	0.005	<0.005	0.005	0.005	<0.050	0.005	0.005	<0.050
Iron	mg/L	-	-	0.99	0.46	0.46	0.93	0.31	0.47	0.82	0.42	0.25	0.78	0.37	0.06	0.83	0.05	0.09	0.83	0.05	0.07	2.01	0.25	0.5	2.01	0.25	1.01	2.01	0.25	0.22	-	-	<0.50	-	-	<0.50
Mercury	mg/L	0.0006	0.0004	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001			<0.0001			<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001
Total Recoverable Hydrocarbons																																				
Naphthalene	µg/L	16	50			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA
C6 - C10 Fraction	µg/L	-	-			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA
C6 - C10 Fraction minus BTEX (F1)	µg/L	-	-			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA
>C10 - C16 Fraction	µg/L	-	-			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA
>C16 - C34 Fraction	µg/L	-	-			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA
>C34 - C40 Fraction	µg/L	-	-			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA
>C10 - C40 Fraction (sum)	µg/L	-	-			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA
>C10 - C16 Fraction minus Naphthalene (F2)	µg/L	-	-			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA
BTEX																																				
Benzene	µg/L	950	700			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA
Toluene	µg/L	180	180			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA
Ethylbenzene	µg/L	80	5			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA
m&p-Xylenes	µg/L	-	-			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA
o-Xylene	µg/L	350	350			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA
Xylenes - Total	µg/L	-	-			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA
Sum of BTEX	µg/L	-	-			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA			NA
Nutrients																																				
Total Phosphorus	mg/L	0.05	0.03	0.04	0.01	0.03	0.03	0.01	<0.01	0.04	0.01	<0.01	0.02	0.01	<0.01	0.04	0.01	<0.01	0.04	0.01	<0.01	0.12	0.03	0.04	0.12	0.03	0.08	0.12	0.03	<0.01	0.04	0.02	<0.02	0.04	0.02	<0.05
Phosphate (reactive phosphorus)	mg/L	-	-	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	0.01	0.0044	<0.01	0.01	0.0044	<0.01	0.01	0.005	<0.01	0.01	0.005	<0.01	0.01	0.005	<0.01	0.01	0.008	<0.01	0.01	0.008	<0.01
Total Nitrogen	mg/L	0.5	0.3	0.62	0.2	0.5	0.6	0.2	0.5	0.3	0.1	0.2	0.41	0.1	0.2	0.5	0.2	0.4	0.5	0.2	0.5	2.8	1.1	1.7	2.8	1.1	1.7	2.8	1.1	0.6	0.5	0.2	<0.2	0.5	0.2	<0.5
Total Kjeldahl Nitrogen	mg/L	-	-	0.6	0.2	0.5	0.6	0.2	0.5	0.3	0.1	0.2	0.4	0.1	0.2	0.5	0.2	0.4	0.5	0.2	0.4	2.4	1	1.6	2.4	1	1.7	2.4	1	0.6	0.5	0.2	<0.2	0.5	0.2	<0.5
Nitrate	mg/L	0.7	-	0.04	0.01	0.01	0.03	0.01	0.02	0.03	0.01	0.02	0.03	0.01	<0.01	0.04	0.01	0.05	0.04	0.01	0.13	0.04	0.01	0.09	0.04	0.01	0.01	0.04	0.01	0.02	0.02	0.01	0.04	0.02	0.01	<0.01
Nitrite	mg/L	-	-	-	-	<0.01	0.01	0.01	<0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	<0.01	0.01	0.01	<0.01	0.05	0.01	<0.01	0.05	0.01	<0.01	0.05	0.01	<0.01	0.02	0.01	<0.01	0.02	0.01	<0.01
Ammonia	mg/L	0.9	-	-	-	0.02	-	-	0.05	-	-	0.06	-	-	0.03	0.16	0.06	0.03	0.16	0.06	0.04	0.04	0.01	0.08	0.04	0.01	<0.01	0.04	0.01	0.03	0.03	0.01	<0.10	0.03	0.01	<0.10
TSS																																				
TSS	mg/L	<40	<10	14.8	5	<5	8	5	<5	9	5	<5	5.8	5	<5	17.6	5	<5	17.6	5	<5	290	15	11	290	15	8	290	15	<5	71	19	10	71	19	<5
Field Physical data																																				
Temperature	°C	-	-	24.86	14.99	23.28	25.1	16.3	23.86	24.4	16	21.68	26.46	15.94	23.23	27.9	18.4	28.26	27.9	18.4	27.78	26.5	16.3	26.76	26.5	16.3	25.62	26.5	16.3	25.15	27.9	18.1	26.97	27.9	18.1	26.73
pH	pH	-	6.5-8	7.25	6.48	6.9	7.3	6.4	7.08	7.5	6.6	6.84	7.33	6.26	7.1	7.02	6.57	7.56	7.02	6.57	7.61	7	6.1	7.12	7	6.1	6.85	7	6.1	7.64	7	7	7.89	7	7	7.71
Conductivity	mS/cm	0.125-2.2	-	0.316	0.232	0.236	0.348	0.227	0.239	0.348	0.227	0.264	0.3338	0.2168	0.251	20.946	0.679	4.36	20.946	0.679	4.38	0.808	0.4234	0.336	0.808	0.4234	0.453	0.808	0.4234	1.64	47.32	29.44	36.4	47.32	29.44	36.8
Turbidity	NTU	50	10	10.96	4	1.3	9.9	3.5	4	9.9	3.5	0.2	5.97	3.74	0.9	6.82	1.83	38.60	6.82	1.83	5.7	52.78	11.3	13	52.78	11.3	35	52.78	11.3	52.4	19.3	6.7	1.6	19.3	6.7	4.4
Dissolved Oxygen	mg/L	5	5	4.98	1.91	4.27	4.8	2.6	5.08	4.8	2.6	4.43	6.34	3.52	4.29	7.98	5.07	6.52	7.98	5.07	6.45	6.4	1.75	7.32	6.4	1.75	3.36	6.4	1.75	8.65	9.1	7.4	6.4	9.1	7.4	7.1
TDS	g/L	-	-	-		0.153	-		0.156	-		0.171	-		0.163	-		2.78	-		2.8	-		0.218	-		0.304	-		1.07	-		22.2	-		22.2

Table 3k – Surface Water Monitoring Results – December 2015 – 2nd Wet

Location	Units	Levels of Concern		Upper Warrell Creek			Upper Warrell Creek			Stony Creek			Stony Creek			Lower Warrell Creek			Lower Warrell Creek			Unnamed Creek Gumma West			Unnamed Creek Gumma East			Unnamed Creek Gumma North			Nambucca River South			Nambucca River South		
				Upstream			Downstream			Upstream			Downstream			Upstream			Downstream			Upstream			Upstream			Downstream			Upstream			Downstream		
Freshwater / Estuarine		ANZECC 2000 95% species protected		Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Estuarine			Estuarine		
Date of Sampling				24-Dec-15			24-Dec-15			24-Dec-15			24-Dec-15			24-Dec-15			24-Dec-15			24-Dec-15			24-Dec-15			24-Dec-15			24-Dec-15			24-Dec-15		
Time of Sampling		Freshwater	Marine	11:10 AM			10:55 AM			10:40 AM			10:20 AM			8:35 AM			8:25 AM			9:45 AM			9:30 AM			9:20 AM			9:05 AM			8:55 AM		
Type		ANZECC 2000 95% species protected		80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result
Comments																																			
Laboratory data																																			
Field Physical data																																			
Temperature	°C	-	-	24.3	16.27	20.88	24.52	16.79	21.53	23.98	17.36	20.53	24.7	17.65	20.63	25.9	19.5	22.44	25.9	19.5	23.59	25.84	19.1	20.26	25.84	19.1	20.43	25.84	19.1	20.65	26.56	21.32	23.64	26.56	21.32	23.14
pH	pH	-	6.5-8	7.478	6.23	6.48	7.192	6.42	6.61	7.138	6.61	6.63	6.98	6.21	6.6	6.86	6.46	6.33	6.86	6.46	6.51	6.9	6.08	7.03	6.9	6.08	7.2	6.9	6.08	7.34	7.56	6.58	7.49	7.56	6.58	7.24
Conductivity	mS/cm	0.125-2.2	-	0.3204	0.20184	0.199	0.3242	0.19076	0.201	0.313	0.2024	0.214	0.309	0.20188	0.209	20.918	0.50928	2.64	20.918	0.50928	4.4	0.842	0.334	0.316	0.842	0.334	0.579	0.842	0.334	0.505	48.42	12.65	28.9	48.42	12.65	26.8
Turbidity	NTU	50	10	26.16	5.94	5.9	27.32	3.72	6.5	14.98	3.34	76	17.16	4.59	61.2	26.1	2.4	1.7	26.1	2.4	4.87	66.8	11.6	36	66.8	11.6	86.3	66.8	11.6	174	19.04	5.81	2	19.04	5.81	7.8
Dissolved Oxygen	mg/L	5	5	7.43	1.5	1.52	6.88	2.28	1.87	8.472	5.08	4.68	7.59	2.63	3.81	6.65	5.02	3.43	6.65	5.02	59.2	7.3	1.78	3.56	7.3	1.78	8.37	7.3	1.78	3.66	8.47	6.88	5.15	8.47	6.88	4.67
TDS	g/L	-	-	-		0.129	-		0.131	-		53.5	-		0.136	-		1.69	-		1.9	-		0.205	-		0.371	-		0.323	-		17.9	-		16.4

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

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

Exceedances of trigger values

Table 3l – Surface Water Monitoring Results – January 2016 – 1st Wet

Location	Units	Levels of Concern		Upper Warrell Creek			Upper Warrell Creek			Stony Creek			Stony Creek			Lower Warrell Creek			Lower Warrell Creek			Unnamed Creek Gumma West			Unnamed Creek Gumma East			Unnamed Creek Gumma North			Nambucca River South			Nambucca River South		
				Upstream			Downstream			Upstream			Downstream			Upstream			Downstream			Upstream			Upstream			Downstream			Upstream			Downstream		
Freshwater / Estuarine		ANZECC 2000 95% species protected		Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Estuarine			Estuarine		
Date of Sampling				6-Jan-16			6-Jan-16			6-Jan-16			6-Jan-16			6-Jan-16			6-Jan-16			6-Jan-16			6-Jan-16			6-Jan-16			6-Jan-16			6-Jan-16		
Time of Sampling		Freshwater	Marine	11:00 AM			10:50 AM			5:45 PM			5:30 PM			3:40 PM			3:30 PM			5:00 PM			4:40 PM			4:50 PM			4:10 PM			4:00 PM		
Type		ANZECC 2000 95%		80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result
Comments																													Unable to sample - water level too low								
Laboratory data																																				
Metals																																				
Aluminium	mg/L	0.055	-	0.244	0.0162	0.03	0.194	0.016	0.02	0.098	0.02	0.01	0.114	0.01	0.02	0.28	0.01	0.06	0.28	0.01	0.05	0.25	0.02	0.03	0.25	0.02	0.06	0.25	0.02	-	0.11	0.01	0.01	0.11	0.01	0.01
Arsenic	mg/L	0.024	0.0023	0.001	0.001	<0.001	0.001	0.001	<0.001	0.002	0.001	0.001	0.002	0.001	<0.001	0.001	0.001	<0.001	0.001	0.001	<0.001	0.002	0.001	0.001	0.002	0.001	0.003	0.002	0.001	-	0.002	0.001	<0.001	0.002	0.001	0.003
Cadmium	mg/L	0.0002	0.0055	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	0.0002	0.0001	<0.0001	0.0002	0.0001	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	-	-	-	<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
Copper	mg/L	0.0014	0.0013	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001			<0.001			<0.001	0.001	0.001	0.001	0.001	0.001	<0.001	0.001	0.001	-	0.001	0.001	<0.001	0.001	0.001	<0.001
Lead	mg/L	0.0034	0.0044	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001			<0.001			<0.001	-	-	<0.001	-	-	<0.001	-	-	-	-	-	<0.001	-	-	<0.001
Manganese	mg/L	1.9	0.08	0.3	0.01	0.159	0.158	0.0178	0.145	0.0726	0.0218	0.056	0.083	0.0164	0.146	0.35	0.087	0.155	0.35	0.087	0.129	0.49	0.011	0.066	0.49	0.011	0.224	0.49	0.011	-	0.076	0.006	0.066	0.076	0.006	0.061
Nickel	mg/L	0.011	0.07	-	-	<0.001	-	-	0.001	-	-	<0.001	-	-	0.001	0.0034	0.001	0.003	0.0034	0.001	0.003	0.002	0.001	0.003	0.002	0.001	0.003	0.002	0.001	-	-	-	<0.001	-	-	<0.001
Selenium	mg/L	11	-	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	-	-	-	<0.01	-	-	<0.01
Silver	mg/L	0.00005	0.0014	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	-	-	-	<0.001	-	-	<0.001
Zinc	mg/L	0.008	0.015	0.007	0.005	<0.005	0.0062	0.0042	<0.005	0.0064	0.005	<0.005	0.006	0.005	<0.005	0.018	0.005	0.016	0.018	0.005	0.015	0.011	0.005	0.013	0.011	0.005	0.011	0.011	0.005	-	0.005	0.005	<0.005	0.005	0.005	<0.005
Iron	mg/L	-	-	1.38	0.48	0.3	0.99	0.366	0.24	1.4	0.41	0.19	1.48	0.35	0.25	0.52	0.05	0.38	0.52	0.05	0.25	1.65	0.37	0.34	1.65	0.37	0.43	1.65	0.37	-	0.26	0.05	<0.05	0.26	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
Total Recoverable Hydrocarbons																																				
Naphthalene	µg/L	16	50	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	16		-	50		NA	50		NA
C6 - C10 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		NA	-		NA
C6 - C10 Fraction minus BTEX (F1)	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		NA	-		NA
>C10 - C16 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		NA	-		NA
>C16 - C34 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		NA	-		NA
>C34 - C40 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		NA	-		NA
>C10 - C40 Fraction (sum)	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		NA	-		NA
>C10 - C16 Fraction minus Naphthalene (F2)	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		NA	-		NA
BTEX																																				
Benzene	µg/L	950	700	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	950		-	700		NA	700		NA
Toluene	µg/L	180	180	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		-	180		NA	180		NA
Ethylbenzene	µg/L	80	5	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	80		-	5		NA	5		NA
m&p-Xylenes	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		NA	-		NA
o-Xylene	µg/L	350	350	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		-	350		NA	350		NA
Xylenes - Total	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		NA	-		NA
Sum of BTEX	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		NA	-		NA
Nutrients																																				
Total Phosphorus	mg/L	0.05	0.03	0.05	0.02	<0.01	0.044	0.016	<0.01	0.03	0.016	<0.01	0.034	0.01	<0.01	0.04	0.01	<0.01	0.04	0.01	<0.01	0.11	0.03	<0.01	0.11	0.03	0.07	0.11	0.03	-	0.07	0.02	<0.02	0.07	0.02	<0.02
Phosphate (reactive phosphorus)	mg/L	-	-	0.01	0.0034	<0.01	0.01	0.004	<0.01	0.018	0.0022	<0.01	0.01	0.003	<0.01	0.011	0.006	<0.01	0.011	0.006	<0.01	0.013	0.005	<0.01	0.013	0.005	<0.01	0.013	0.005	-	0.029	0.01	<0.01	0.029	0.01	<0.01
																														-						
Total Nitrogen	mg/L	0.5	0.3	0.56	0.3	1.3	0.52	0.2	1	0.48	0.2	0.3	0.63	0.2	0.7	0.54	0.31	0.8	0.54	0.31	1.8	3.1	0.9	10.6	3.1	0.9	1.1	3.1	0.9	-	0.46	0.2	0.5	0.46	0.2	0.7
Total Kjeldahl Nitrogen	mg/L	-	-	0.5	0.3	1.3	0.5	0.2	0.9	0.34	0.2	0.2	0.6	0.2	0.1	0.5	0.2	0.5	0.5	0.2	1.6	2.8	0.8	1.8	2.8	0.8	1	2.8	0.8	-	0.3	0.2	0.3	0.3	0.2	0.3
																														-						
Nitrate	mg/L	0.7	-	0.102	0.01	0.03	0.054	0.01	0.11	0.208	0.01	0.12	0.2	0.01	0.61	0.05	0.01	0.27	0.05	0.01	0.15	0.03	0.01	8.76	0.03	0.01	0.1	0.03	0.01	-	0.04	0.01	0.18	0.04	0.01	0.38
Nitrite	mg/L	-	-	-	-	<0.01	-	-	<0.01	-	-	<0.01	0.02	0.01	<0.01	0.02	0.01	<0.01	0.02	0.01	<0.01	0.02	0.01	<0.01	0.02	0.01	<0.01	0.02	0.01	-	0.02	0.01	<0.01	0.02	0.01	<0.01
Ammonia	mg/L	0.9	-	0.036	0.01	0.07	0.02	0.01	0.05	0.046	0.02	0.03	0.062	0.012	0.03	0.116	0.022	0.08	0.116	0.022	0.07	0.06	0.01	0.03	0.06	0.01	<0.01	0.06	0.01	-	0.15	0.024	0.06	0.15	0.024	0.05
TSS																																				
TSS	mg/L	<40	<10	19	5	<5	12.8	5	<5	14.8	5	<5	8.7	5	<5	25	5.5	38	25	5.5	<5	350	9	8	350	9	12	350	9	-			<5			<5
Field Physical data																																				
Temperature	°C	-	-	24.3	16.27	21.97	24.52	16.79	23.95	23.98	17.36	23.17	24.7	17.65	24.54	25.9	19.5	26.35	25.9	19.5	25.99	25.84	19.1	25.68	25.84	19.1	22.38	25.84	19.1	-	26.56	21.32	27.26	26.56	21.32	27.28
pH	pH	-	6.5-8	7.478	6.23	5.73	7.192	6.42	5.68	7.138	6.61	6.31	6.98	6.21	6.46	6.86	6.46	6.43	6.86	6.46	6.47	6.9	6.08	6.3	6.9	6.08	6.08	6.9	6.08	-	7.56	6.58	7.45	7.56	6.58	7.74
Conductivity	mS/cm	0.125-2.2	-	0.3204	0.20184	0.197	0.3242	0.19076	0.19	0.313	0.2024	0.217	0.309	0.20188	0.248	20.918	0.50928	1.1	20.918	0.50928	1.21	0.842	0.334	0.413	0.842	0.334	0.49	0.842	0.334	-	48.42	12.65	17.3	48.42	12.65	17.6
Turbidity	NTU	50	10	26.16	5.94	1.5	27.32	3.72	2.6	14.98	3.34	10.4	17.16	4.59	10.1	26.1	2.4	0	26.1	2.4	0	66.8	11.6	32.3	66.8	11.6	2.4	66.8	11.6	-	19.04	5.81	33.9	19.04	5.81	10.3
Dissolved Oxygen	mg/L	5	5	7.43	1.5	3.31	6.88	2.28	3.52	8.472	5.08	5.32	7.59	2.63	4.34	6.65	5.02	3.34	6.65	5.02	3.08	7.3	1.78	3.89	7.3	1.78	1.7	7.3	1.78	-	8.47	6.88	5.79	8.47	6.88	6.12
TDS	g/L	-	-	-		0.128	-		0.124	-		0.141	-		0.161	-		0.707	-		0.773	-		0.268	-		0.319	-		-	-		10.8	-		10.9

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

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

Exceedances of trigger values

Table 3m – Surface Water Monitoring Results – January 2016 – Dry

Location	Units	Levels of Concern		Upper Warrell Creek			Upper Warrell Creek			Stony Creek			Stony Creek			Lower Warrell Creek			Lower Warrell Creek			Unnamed Creek Gumma West			Unnamed Creek Gumma East			Unnamed Creek Gumma North			Nambucca River South			Nambucca River South		
				Upstream			Downstream			Upstream			Downstream			Upstream			Downstream			Upstream			Upstream			Downstream			Upstream			Downstream		
Freshwater / Estuarine		ANZECC 2000 95% species protected		Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Estuarine			Estuarine		
Date of Sampling				20-Jan-16			20-Jan-16			20-Jan-16			20-Jan-16			20-Jan-16			20-Jan-16			20-Jan-16			20-Jan-16			20-Jan-16			20-Jan-16			20-Jan-16		
Time of Sampling		Freshwater	Marine	8:15 AM			8:00 AM			8:50 AM			9:30 AM			12:00 PM			11:45 AM			11:00 AM			10:45 AM			10:30 AM			1:00 PM			12:30 PM		
Comments																													Unable to sample - water level too low								
Type				80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result
Field Physical data																																				
Temperature	°C	-	-	24.86	14.99	21.52	25.1	16.3	22.64	24.4	16	20.84	26.46	15.94	22.06	27.9	18.4	29.14	27.9	18.4	28.95	26.5	16.3	25.55	26.5	16.3	23.04	26.5	16.3	-	27.9	18.1	28.06	27.9	18.1	27.79
pH	pH	-	6.5-8	7.25	6.48	6.6	7.3	6.4	6.49	7.5	6.6	6.35	7.33	6.26	6.47	7.02	6.57	7.98	7.02	6.57	7.8	7	6.1	6.3	7	6.1	6.26	7	6.1	-	7	7	7.79	7	7	7.39
Conductivity	mS/cm	0.125-2.2	-	0.316	0.232	0.229	0.348	0.227	0.226	0.348	0.227	0.216	0.3338	0.2168	0.216	20.946	0.679	1.36	20.946	0.679	1.27	0.808	0.4234	0.494	0.808	0.4234	0.479	0.808	0.4234	-	47.32	29.44	26.3	47.32	29.44	26.4
Turbidity	NTU	50	10	10.96	4	1	9.9	3.5	3.2	9.9	3.5	5.3	5.97	3.74	1.2	6.82	1.83	24.0	6.82	1.83	10.4	52.78	11.3	54.2	52.78	11.3	5.5	52.78	11.3	-	19.3	6.7	12.2	19.3	6.7	16.9
Dissolved Oxygen	mg/L	5	5	4.98	1.91	1.9	4.8	2.6	2.01	4.8	2.6	3.23	6.34	3.52	2.44	7.98	5.07	4.43	7.98	5.07	4.56	6.4	1.75	1.77	6.4	1.75	1.49	6.4	1.75	-	9.1	7.4	6.22	9.1	7.4	5.11
TDS	g/L	-	-	-		0.149	-		0.147	-		0.144	-		0.144	-		0.87	-		0.814	-		0.321	-		0.311	-		-	-		16.3	-		16.3

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

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

Exceedances of trigger values

Table 3n – Surface Water Monitoring Results – January 2016 – 2nd Wet

Location	Units	Levels of Concern		Upper Warrell Creek			Upper Warrell Creek			Stony Creek			Stony Creek			Lower Warrell Creek			Lower Warrell Creek			Unnamed Creek Gumma West			Unnamed Creek Gumma East			Unnamed Creek Gumma North			Nambucca River South			Nambucca River South		
				Upstream			Downstream			Upstream			Downstream			Upstream			Downstream			Upstream			Upstream			Downstream			Upstream			Downstream		
Freshwater / Estuarine		ANZECC 2000 95% species protected		Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Estuarine			Estuarine		
Date of Sampling				25-Jan-16			25-Jan-16			25-Jan-16			25-Jan-16			25-Jan-16			25-Jan-16			25-Jan-16			25-Jan-16			25-Jan-16			25-Jan-16			25-Jan-16		
Time of Sampling		Freshwater	Marine	1:20 PM			1:00 PM			2:20 PM			2:00 PM			4:00 PM			4:15 PM			2:50 PM			3:15 PM			3:00 PM			3:45 PM			3:30 PM		
Type		ANZECC 2000 95%		80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result
Comments																													Unable to sample - water level too low								
Field Physical data																																				
Temperature	°C	-	-	24.3	16.27	25.4	24.52	16.79	27.55	23.98	17.36	24.58	24.7	17.65	24.62	25.9	19.5	28.04	25.9	19.5	28.32	25.84	19.1	26.82	25.84	19.1	24.13	25.84	19.1	-	26.56	21.32	27.73	26.56	21.32	28.01
pH	pH	-	6.5-8	7.478	6.23	6.35	7.192	6.42	6.17	7.138	6.61	5.89	6.98	6.21	5.95	6.86	6.46	8.03	6.86	6.46	7.75	6.9	6.08	6.39	6.9	6.08	6.05	6.9	6.08	-	7.56	6.58	7.96	7.56	6.58	7.9
Conductivity	mS/cm	0.125-2.2	-	0.3204	0.20184	0.214	0.3242	0.19076	0.221	0.313	0.2024	0.227	0.309	0.20188	0.212	20.918	0.50928	1.75	20.918	0.50928	1.63	0.842	0.334	0.504	0.842	0.334	0.489	0.842	0.334	-	48.42	12.65	30.1	48.42	12.65	31.1
Turbidity	NTU	50	10	26.16	5.94	0	27.32	3.72	4.1	14.98	3.34	0	17.16	4.59	1.5	26.1	2.4	12.6	26.1	2.4	11.8	66.8	11.6	81	66.8	11.6	1.9	66.8	11.6	-	19.04	5.81	6.6	19.04	5.81	45.7
Dissolved Oxygen	mg/L	5	5	7.43	1.5	2.42	6.88	2.28	2.49	8.472	5.08	5.06	7.59	2.63	2.98	6.65	5.02	4.79	6.65	5.02	4.59	7.3	1.78	2.32	7.3	1.78	1.45	7.3	1.78	-	8.47	6.88	4.66	8.47	6.88	4.96
TDS	g/L	-	-	-		0.139	-		0.144	-		0.148	-		0.137	-		1.12	-		1.05	-		0.322	-		0.318	-		-	-		18.4	-		19

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

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

Exceedances of trigger values

Table 3o – Surface Water Monitoring Results – February 2016 – 1st Wet

Location	Units	Levels of Concern		Upper Warrell Creek			Upper Warrell Creek			Stony Creek			Stony Creek			Lower Warrell Creek			Lower Warrell Creek			Unnamed Creek Gumma West			Unnamed Creek Gumma East			Unnamed Creek Gumma North			Nambucca River South			Nambucca River South		
				Upstream			Downstream			Upstream			Downstream			Upstream			Downstream			Upstream			Upstream			Downstream			Upstream			Downstream		
Freshwater / Estuarine		ANZECC 2000 95% species protected		Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Estuarine			Estuarine		
Date of Sampling				5-Feb-16			5-Feb-16			5-Feb-16			5-Feb-16			5-Feb-16			5-Feb-16			5-Feb-16			5-Feb-16			5-Feb-16			5-Feb-16			5-Feb-16		
Time of Sampling		Freshwater	Marine	8:45 AM			8:30 AM			11:50 AM			11:30 AM			3:45 PM			3:30 PM			1:30 PM			1:45 PM			1:50 PM			3:00 PM			2:45 PM		
Type		ANZECC 2000 95%		80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result
Comments																													Unable to sample - water level too low								
Laboratory data																																				
Metals																																				
Aluminium	mg/L	0.055	-	0.244	0.0162	<0.01	0.194	0.016	0.01	0.098	0.02	<0.01	0.114	0.01	<0.01	0.28	0.01	<0.01	0.28	0.01	<0.01	0.25	0.02	0.02	0.25	0.02	<0.01	0.25	0.02	-	0.11	0.01	<0.01	0.11	0.01	0.01
Arsenic	mg/L	0.024	0.0023	0.001	0.001	<0.001	0.001	0.001	0.001	0.002	0.001	0.001	0.002	0.001	0.002	0.001	0.001	<0.001	0.001	0.001	<0.001	0.002	0.001	0.002	0.002	0.001	0.001	0.002	0.001	-	0.002	0.001	<0.001	0.002	0.001	<0.001
Cadmium	mg/L	0.0002	0.0055	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	0.0002	0.0001	<0.0001	0.0002	0.0001	<0.0001	-	-	<0.0001	-	-	0.0003	-	-	-	-	-	<0.0001	-	-	<0.0001
Chromium	mg/L	0.001	0.0044	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001			<0.001			<0.001	-	-	<0.001	-	-	<0.001	-	-	-	-	-	<0.001	-	-	<0.001
Copper	mg/L	0.0014	0.0013	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001			<0.001			<0.001	0.001	0.001	<0.001	0.001	0.001	0.004	0.001	0.001	-	0.001	0.001	<0.001	0.001	0.001	<0.001
Lead	mg/L	0.0034	0.0044	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001			<0.001			<0.001	-	-	<0.001	-	-	<0.001	-	-	-	-	-	<0.001	-	-	<0.001
Manganese	mg/L	1.9	0.08	0.3	0.01	0.363	0.158	0.0178	0.264	0.0726	0.0218	0.252	0.083	0.0164	0.261	0.35	0.087	0.133	0.35	0.087	0.125	0.49	0.011	0.284	0.49	0.011	0.17	0.49	0.011	-	0.076	0.006	0.032	0.076	0.006	0.026
Nickel	mg/L	0.011	0.07	-	-	<0.001	-	-	<0.001	-	-	0.001	-	-	0.001	0.0034	0.001	<0.001	0.0034	0.001	<0.001	0.002	0.001	0.001	0.002	0.001	0.015	0.002	0.001	-	-	-	<0.001	-	-	<0.001
Selenium	mg/L	11	-	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	0.02	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	-	-	-	0.02	-	-	<0.01
Silver	mg/L	0.00005	0.0014	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	-	-	-	<0.001	-	-	<0.001
Zinc	mg/L	0.008	0.015	0.007	0.005	<0.005	0.0062	0.0042	<0.005	0.0064	0.005	<0.005	0.006	0.005	<0.005	0.018	0.005	<0.005	0.018	0.005	<0.005	0.011	0.005	0.005	0.011	0.005	0.036	0.011	0.005	-	0.005	0.005	<0.005	0.005	0.005	<0.005
Iron	mg/L	-	-	1.38	0.48	0.3	0.99	0.366	0.33	1.4	0.41	<0.05	1.48	0.35	<0.05	0.52	0.05	<0.05	0.52	0.05	<0.05	1.65	0.37	0.48	1.65	0.37	<0.05	1.65	0.37	-	0.26	0.05	<0.05	0.26	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
Total Recoverable Hydrocarbons																																				
Naphthalene	µg/L	16	50	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	16		-	50		NA	50		NA
C6 - C10 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		NA	-		NA
C6 - C10 Fraction minus BTEX (F1)	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		NA	-		NA
>C10 - C16 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		NA	-		NA
>C16 - C34 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		NA	-		NA
>C34 - C40 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		NA	-		NA
>C10 - C40 Fraction (sum)	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		NA	-		NA
>C10 - C16 Fraction minus Naphthalene (F2)	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		NA	-		NA
BTEX																																				
Benzene	µg/L	950	700	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	700		NA	700		NA
Toluene	µg/L	180	180	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA
Ethylbenzene	µg/L	80	5	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	5		NA	5		NA
m&p-Xylenes	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
o-Xylene	µg/L	350	350	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA
Xylenes - Total	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
Sum of BTEX	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
Nutrients																																				
Total Phosphorus	mg/L	0.05	0.03	0.05	0.02	0.02	0.044	0.016	0.01	0.03	0.016	0.01	0.034	0.01	<0.01	0.04	0.01	0.04	0.04	0.01	<0.01	0.11	0.03	0.03	0.11	0.03	<0.01	0.11	0.03	-	0.07	0.02	0.04	0.07	0.02	0.04
Phosphate (reactive phosphorus)	mg/L	-	-	0.01	0.0034	<0.01	0.01	0.004	<0.01	0.018	0.0022	<0.01	0.01	0.003	<0.01	0.011	0.006	<0.01	0.011	0.006	<0.01	0.013	0.005	<0.01	0.013	0.005	<0.01	0.013	0.005	-	0.029	0.01	<0.01	0.029	0.01	<0.01
																														-						
Total Nitrogen	mg/L	0.5	0.3	0.56	0.3	0.4	0.52	0.2	0.5	0.48	0.2	0.4	0.63	0.2	0.3	0.54	0.31	0.6	0.54	0.31	0.4	3.1	0.9	1.9	3.1	0.9	0.6	3.1	0.9	-	0.46	0.2	0.6	0.46	0.2	1.1
Total Kjeldahl Nitrogen	mg/L	-	-	0.5	0.3	0.4	0.5	0.2	0.4	0.34	0.2	0.3	0.6	0.2	0.3	0.5	0.2	0.5	0.5	0.2	0.4	2.8	0.8	1.9	2.8	0.8	0.6	2.8	0.8	-	0.3	0.2	0.4	0.3	0.2	1
																														-						
Nitrate	mg/L	0.7	-	0.102	0.01	0.02	0.054	0.01	0.06	0.208	0.01	0.06	0.2	0.01	0.04	0.05	0.01	0.06	0.05	0.01	0.04	0.03	0.01	0.04	0.03	0.01	0.05	0.03	0.01	-	0.04	0.01	0.15	0.04	0.01	0.06
Nitrite	mg/L	-	-	-	-	<0.01	-	-	<0.01	-	-	<0.01	0.02	0.01	<0.01	0.02	0.01	<0.01	0.02	0.01	<0.01	0.02	0.01	<0.01	0.02	0.01	<0.01	0.02	0.01	-	0.02	0.01	<0.01	0.02	0.01	<0.01
Ammonia	mg/L	0.9	-	0.036	0.01	<0.01	0.02	0.01	<0.01	0.046	0.02	0.04	0.062	0.012	0.03	0.116	0.022	0.02	0.116	0.022	0.01	0.06	0.01	<0.01	0.06	0.01	<0.01	0.06	0.01	-	0.15	0.024	<0.05	0.15	0.024	<0.05
TSS																																				
TSS	mg/L	<40	<10	19	5	10	12.8	5	6	14.8	5	10	8.7	5	11	25	5.5	13	25	5.5	8	350	9	12	350	9	8	350	9	-			7			11
Field Physical data																																				
Temperature	°C	-	-	24.3	16.27	26.47	24.52	16.79	23.69	23.98	17.36	24.04	24.7	17.65	23.19	25.9	19.5	27.89	25.9	19.5	27.37	25.84	19.1	25.34	25.84	19.1	24.63	25.84	19.1	-	26.56	21.32	26.35	26.56	21.32	27.2
pH	pH	-	6.5-8	7.478	6.23	6.28	7.192	6.42	6.04	7.138	6.61	6.58	6.98	6.21	6.67	6.86	6.46	7.53	6.86	6.46	7.7	6.9	6.08	6.31	6.9	6.08	6.43	6.9	6.08	-	7.56	6.58	7.25	7.56	6.58	7.29
Conductivity	mS/cm	0.125-2.2	-	0.3204	0.20184	0.434	0.3242	0.19076	0.244	0.313	0.2024	0.234	0.309	0.20188	0.22	20.918	0.50928	3.39	20.918	0.50928	3.63	0.842	0.334	0.567	0.842	0.334	0.542	0.842	0.334	-	48.42	12.65	28.3	48.42	12.65	31.8
Turbidity	NTU	50	10	26.16	5.94	16.1	27.32	3.72	2.9	14.98	3.34	58.3	17.16	4.59	58.5	26.1	2.4	4	26.1	2.4	19.5	66.8	11.6	92.9	66.8	11.6	16.7	66.8	11.6	-	19.04	5.81	70.6	19.04	5.81	89.9
Dissolved Oxygen	mg/L	5	5	7.43	1.5	5.96	6.88	2.28	1.72	8.472	5.08	3.42	7.59	2.63	3.67	6.65	5.02	4.66	6.65	5.02	3.92	7.3	1.78	3.61	7.3	1.78	4.08	7.3	1.78	-	8.47	6.88	4.05	8.47	6.88	5.34
TDS	g/L	-	-	-		0.283	-		0.158	-		0.142	-		0.147	-		2.17	-		2.32	-		0.363	-		0.298	-		-	-		18.3	-		20.3

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

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

Exceedances of trigger values

Table 3p – Surface Water Monitoring Results – February 2016 – 2nd Wet

Location	Units	Levels of Concern		Upper Warrell Creek			Upper Warrell Creek			Stony Creek			Stony Creek			Lower Warrell Creek			Lower Warrell Creek			Unnamed Creek Gumma West			Unnamed Creek Gumma East			Unnamed Creek Gumma North			Nambucca River South			Nambucca River South		
				Upstream			Dow nstream			Upstream			Dow nstream			Upstream			Dow nstream			Upstream			Upstream			Dow nstream			Upstream			Dow nstream		
Freshw ater / Estuarine		ANZECC 2000 95% species protected		Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Estuarine			Estuarine		
Date of Sampling				22-Feb-16			22-Feb-16			22-Feb-16			22-Feb-16			22-Feb-16			22-Feb-16			22-Feb-16			22-Feb-16			22-Feb-16			22-Feb-16			22-Feb-16		
Time of Sampling		Freshw ater	Marine	9:30 AM			9:00 AM			10:20 AM			9:50 AM			1:30 PM			1:10 PM			11:30 AM			12:00 PM			11:45 AM			12:45 PM			12:30 PM		
Type		ANZECC 2000 95%		80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result
Comments																																			
Field Physical data																																			
Temperature	°C	-	-	24.3	16.27	22.87	24.52	16.79	23.45	23.98	17.36	23.02	24.7	17.65	22.72	25.9	19.5	27.94	25.9	19.5	28.36	25.84	19.1	26.92	25.84	19.1	26.88	25.84	19.1	26.93	26.56	21.32	28.95	26.56	21.32	28.82
pH	pH	-	6.5-8	7.478	6.23	7.2	7.192	6.42	7.08	7.138	6.61	7.45	6.98	6.21	7.33	6.86	6.46	8.08	6.86	6.46	8.19	6.9	6.08	7.42	6.9	6.08	6.79	6.9	6.08	7.13	7.56	6.58	8.61	7.56	6.58	8.5
Conductivity	mS/cm	0.125-2.2	-	0.3204	0.20184	0.207	0.3242	0.19076	0.224	0.313	0.2024	0.234	0.309	0.20188	0.254	20.918	0.50928	6.06	20.918	0.50928	5.54	0.842	0.334	0.644	0.842	0.334	0.54	0.842	0.334	0.719	48.42	12.65	39.6	48.42	12.65	40.2
Turbidity	NTU	50	10	26.16	5.94	133	27.32	3.72	63.7	14.98	3.34	16.2	17.16	4.59	19.5	26.1	2.4	1.7	26.1	2.4	1.3	66.8	11.6	55.2	66.8	11.6	29.3	66.8	11.6	44.3	19.04	5.81	3.1	19.04	5.81	2
Dissolved Oxygen	mg/L	5	5	7.43	1.5	0.46	6.88	2.28	0.33	8.472	5.08	2.5	7.59	2.63	2.37	6.65	5.02	2.21	6.65	5.02	2.47	7.3	1.78	1.36	7.3	1.78	1.01	7.3	1.78	1.63	8.47	6.88	4.21	8.47	6.88	3.9
TDS	g/L	-	-	-		0.13	-		0.148	-		0.148	-		0.152	-		3.82	-		3.49	-		0.412	-		0.346	-		0.46	-		24.1	-		25.5

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

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

Exceedances of trigger values

Table 3q – Surface Water Monitoring Results – February 2016 - Dry

Location	Units	Levels of Concern		Upper Warrell Creek			Upper Warrell Creek			Stony Creek			Stony Creek			Lower Warrell Creek			Lower Warrell Creek			Unnamed Creek Gumma West			Unnamed Creek Gumma East			Unnamed Creek Gumma North			Nambucca River South			Nambucca River South		
				Upstream			Dow nstream			Upstream			Dow nstream			Upstream			Dow nstream			Upstream			Upstream			Dow nstream			Upstream			Dow nstream		
Freshw ater / Estuarine		ANZECC 2000 95% species protected		Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Estuarine			Estuarine		
Date of Sampling				26-Feb-16			26-Feb-16			26-Feb-16			26-Feb-16			26-Feb-16			26-Feb-16			26-Feb-16			26-Feb-16			26-Feb-16			26-Feb-16			26-Feb-16		
Time of Sampling		Freshw ater	Marine	1:25 PM			1:10 PM			12:42 PM			12:23 PM			3:14 PM			3:05 PM			2:13 PM			1:51 PM			2:03 PM			2:45 PM			2:36 PM		
Comments																												Unable to sample - w ater level low								
Type				80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result
Laboratory data																																			
Metals																																			
Aluminium	mg/L	0.055	-	0.06	0.01	0.01	0.05	0.01	0.02	0.05	0.01	<0.01	0.04	0.01	<0.01	0.06	0.01	<0.01	0.06	0.01	<0.01	0.1	0.01	0.01	0.1	0.01	0.02	0.1	0.01	NA	0.02	0.01	<0.10	0.02	0.01	<0.10
Arsenic	mg/L	0.024	0.0023	-	-	<0.001	-	-	<0.001	-	-	<0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	0.002	0.001	0.003	0.002	0.001	0.002	0.002	0.001	NA	0.002	0.001	<0.010	0.002	0.001	<0.010
Cadmium	mg/L	0.0002	0.0055	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	0.0001	0.0001	<0.0001	0.0001	0.0001	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	NA	-	-	<0.0010	-	-	<0.0010
Chromium	mg/L	0.001	0.0044	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	NA	-	-	<0.010	-	-	<0.010
Copper	mg/L	0.0014	0.0013	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	NA	0.001	0.001	<0.010	0.001	0.001	<0.010
Lead	mg/L	0.0034	0.0044	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	NA	-	-	<0.010	-	-	<0.010
Manganese	mg/L	1.9	0.08	0.21	0.02	0.266	0.2	0.03	0.368	0.06	0.02	0.09	0.052	0.013	0.154	0.26	0.08	0.254	0.26	0.08	0.172	0.23	0.019	0.347	0.23	0.019	0.201	0.23	0.019	NA	0.03	0.002	0.013	0.03	0.002	0.013
Nickel	mg/L	0.011	0.07	-	-	<0.001	-	-	0.001	-	-	<0.001	-	-	<0.001	0.001	0.001	<0.001	0.001	0.001	<0.001	0.001	0.001	<0.001	0.001	0.001	<0.001	0.001	0.001	NA	-	-	<0.010	-	-	<0.010
Selenium	mg/L	11	-	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	NA	-	-	<0.10	-	-	<0.10
Silver	mg/L	0.00005	0.0014	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	NA	-	-	<0.010	-	-	<0.010
Zinc	mg/L	0.008	0.015	-	-	<0.005	-	-	<0.005	0.005	0.005	<0.005	0.005	0.005	<0.005	0.006	0.005	<0.005	0.006	0.005	<0.005	0.005	0.005	0.006	0.005	0.005	<0.005	0.005	0.005	NA	0.005	0.005	<0.050	0.005	0.005	<0.050
Iron	mg/L	-	-	0.99	0.46	0.44	0.93	0.31	0.39	0.82	0.42	0.14	0.78	0.37	<0.05	0.83	0.05	<0.05	0.83	0.05	<0.05	2.01	0.25	0.36	2.01	0.25	0.72	2.01	0.25	NA	-	-	0.21	-	-	0.12
Mercury	mg/L	0.0006	0.0004	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001			<0.0001			<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	NA	-	-	<0.0001	-	-	<0.0001
Total Recoverable Hydrocarbons																																			
Naphthalene	µg/L	16	50	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	50		NA	50		NA
C6 - C10 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
C6 - C10 Fraction minus BTEX (F1)	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
>C10 - C16 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
>C16 - C34 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
>C34 - C40 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
>C10 - C40 Fraction (sum)	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
>C10 - C16 Fraction minus Naphthalene (F2)	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
BTEX																																			
Benzene	µg/L	950	700	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	700		NA	700		NA
Toluene	µg/L	180	180	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA
Ethylbenzene	µg/L	80	5	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	5		NA	5		NA
m&p-Xylenes	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
o-Xylene	µg/L	350	350	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA
Xylenes - Total	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
Sum of BTEX	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
Nutrients																																			
Total Phosphorus	mg/L	0.05	0.03	0.04	0.01	0.02	0.03	0.01	0.02	0.04	0.01	0.02	0.02	0.01	0.03	0.04	0.01	0.04	0.04	0.01	0.02	0.12	0.03	0.05	0.12	0.03	0.3	0.12	0.03	NA	0.04	0.02	0.02	0.04	0.02	0.06
Phosphate (reactive phosphorus)	mg/L	-	-	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	0.01	0.0044	<0.01	0.01	0.0044	<0.01	0.01	0.005	<0.01	0.01	0.005	<0.01	0.01	0.005	NA	0.01	0.008	<0.01	0.01	0.008	<0.01
																														NA						
Total Nitrogen	mg/L	0.5	0.3	0.62	0.2	0.5	0.6	0.2	0.4	0.3	0.1	0.2	0.41	0.1	0.5	0.5	0.2	0.7	0.5	0.2	0.4	2.8	1.1	0.8	2.8	1.1	3.4	2.8	1.1	NA	0.5	0.2	0.4	0.5	0.2	0.5
Total Kjeldahl Nitrogen	mg/L	-	-	0.6	0.2	0.5	0.6	0.2	0.4	0.3	0.1	0.2	0.4	0.1	0.5	0.5	0.2	0.7	0.5	0.2	0.4	2.4	1	0.8	2.4	1	3.4	2.4	1	NA	0.5	0.2	0.4	0.5	0.2	0.5
																														NA						
Nitrate	mg/L	0.7	-	0.04	0.01	0.03	0.03	0.01	0.01	0.03	0.01	0.03	0.03	0.01	0.04	0.04	0.01	0.02	0.04	0.01	<0.01	0.04	0.01	<0.01	0.04	0.01	<0.01	0.04	0.01	NA	0.02	0.01	<0.01	0.02	0.01	<0.01
Nitrite	mg/L	-	-	-	-	<0.01	0.01	0.01	<0.01	0.01	0.01	<0.01	0.01	0.01	<0.01	0.01	0.01	<0.01	0.01	0.01	<0.01	0.05	0.01	<0.01	0.05	0.01	<0.01	0.05	0.01	NA	0.02	0.01	<0.01	0.02	0.01	<0.01
Ammonia	mg/L	0.9	-	-	-	0.05	-	-	0.04	-	-	0.01	-	-	0.05	0.16	0.06	0.05	0.16	0.06	0.02	0.04	0.01	0.07	0.04	0.01	<0.01	0.04	0.01	NA	0.03	0.01	<0.05	0.03	0.01	<0.05
TSS																																			
Turbidity		50	10	10.96	4		9.9	3.5		6	3		5.97	3.74		6.82			6.82			52.78	11.3		52.78	11.3		52.78	11.3	NA	19.3	6.7		19.3	6.7	
TSS	mg/L	<40	<10	14.8	5	<5	8	5	6	9	5	5	5.8	5	12	17.6	5	14	17.6	5	<5	290	15	21	290	15	<5	290	15	NA	71	19	<5	71	19	10
Field Physical data																																			
Temperature	°C	-	-	24.86	14.99	25.75	25.1	16.3	24.3	24.4	16	24.5	26.46	15.94	23.67	27.9	18.4	30.20	27.9	18.4	30.32	26.5	16.3	30.26	26.5	16.3	24.51	26.5	16.3	NA	27.9	18.1	29.47	27.9	18.1	29.26
pH	pH	-	6.5-8	7.25	6.48	6.45	7.3	6.4	6.51	7.5	6.6	7.07	7.33	6.26	6.73	7.02	6.57	7.79	7.02	6.57	7.9	7	6.1	6.75	7	6.1	6.11	7	6.1	NA	7	7	8.53	7	7	8.41
Conductivity	mS/cm	0.125-2.2	-	0.316	0.232	0.265	0.348	0.227	0.263	0.348	0.227	0.259	0.3338	0.2168	0.241	20.946	0.679	7.87	20.946	0.679	7.09	0.808	0.4234	0.659	0.808	0.4234	0.576	0.808	0.4234	NA	47.32	29.44	42.9	47.32	29.44	44.5
Turbidity	NTU	50	10	10.96	4	2.9	9.9	3.5	5.3	9.9	3.5	3	5.97	3.74	3	6.82	1.83	2.5	6.82	1.83	1.4	52.78	11.3	85.3	52.78	11.3	51.4	52.78	11.3	NA	19.3	6.7	2.6	19.3	6.7	27.3
Dissolved Oxygen	mg/L	5	5	4.98	1.91	2.76	4.8	2.6	1.08	4.8	2.6	6.21	6.34	3.52	2.44	7.98	5.07	4.50	7.98	5.07	4.81	6.4	1.75	3.05	6.4	1.75	7.08	6.4	1.75	NA	9.1	7.4	4.55	9.1	7.4	4.69
TDS	g/L	-	-	-		0.172	-		0.171	-		0.168	-		0.157	-		4.64	-		4.47	-		0.422	-		0.369	-		NA	-		26.1	-		27.2

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

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

Exceedances of trigger values

Table 4a – Groiundwater Results September 2015

Location	Units	Groundwater Investigation Levels (GILs) from Interpretive Report	4BH007	4BH008	4BH010	4BH011	4BH021	4BH022	4BH025	4BH026	4BH037	4BH038	1BH49	4BH057	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			29/09/2015	29/09/2015	29/09/2015	29/09/2015	29/09/2015	29/09/2015	30/09/2015	30/09/2015	30/09/2015	30/09/2015	29/09/2015	29/09/2015	29/09/2015	29/09/2015
Comments			DRY	DRY		DRY				DRY	Unable to sample (damaged)		Pungent water (egg)		Dry - no logger	Dry - no logger
Field Physical data		-														
Depth to standing water level from TOC	m	-	-	-	15.57	-	8.18	15.00	6.66	-	-	0.94	15.97	0.23	-	-
pH	pH	-	-	-	5.02	-	5.89	6.21	6.69	-	-	5.66	5.85	6.70	-	-
Conductivity	mS/cm	-	-	-	5.140	-	0.137	0.193	0.200	-	-	4.230	1.140	0.125	-	-
Temperature	○C	-	-	-	22.01	-	25.36	21.15	19.86	-	-	19.42	22.21	23.57	-	-
Dissolved Oxygen	mg/L	-	-	-	0.80	-	1.76	2.96	7.83	-	-	4.25	0.53	1.02	-	-
Turbidity	NTU	-	-	-	52.10	-	0.00	13.60	148.00	-	-	8.20	160.00	11.40	-	-

Table 4b – Groundwater Results October 2015

Location	Units	Groundwater Investigation Levels (GILs) from Interpretive Report	4BH007	4BH008	4BH010	4BH011	4BH021	4BH022	4BH025	4BH026	4BH037	4BH038	1BH49 (replacement)	4BH057	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			30/10/2015	30/10/2015	30/10/2015	29/10/2015	29/10/2015	29/10/2015	29/10/2015	29/10/2015	29/10/2015	29/10/2015	29/10/2015	29/10/2015	29/10/2015	29/10/2015
Comments			DRY	DRY	DRY	DRY				DRY			Pungent water (egg)		Dry - no logger	Dry - no logger
Field Physical data																
Depth to standing water level from TOC	m	-	-	-	15.87	-	8.33	1.56	7.65	-	0.91	1.15	17.90	14.65	-	-
pH	pH	-	-	-	4.65	-	5.81	7.19	6.53	-	6.24	7.17	5.61	6.11	-	-
Conductivity	mS/cm	-	-	-	5.330	-	0.122	0.823	0.145	-	5.67	10.500	1.180	0.291	-	-
Temperature	○C	-	-	-	20.10	-	21.92	20.56	20.37	-	20.98	20.74	21.94	20.80	-	-

Table 4c – Groundwater Results November 2015

Location	Units	Groundwater Investigation Levels (GILs) from Interpretive Report	4BH007	4BH008	4BH010	4BH011	4LDBH009	1BH04	4LDBH011	4LDBH012	1BH10	1BH12	4BH021	4BH022	4BH025	4BH026	4BH037	4BH038	1BH49	4BH058	4BH061	4BH062	4BH065	4BH066	4BH064
Cut/Fill			Cut 4	Cut 4	Cut 6	Cut 6	Cut 7	Cut 7	Cut 8	Cut 9	Cut 9	Cut 10	Cut 11	Cut 11	Cut 12	Cut 12	Fill 15	Fill 15	Cut 17	Cut 17	Cut 26	Cut 26	Cut 28	Cut 28	Cut 28
Date of Sampling			26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015	27/11/2015	27/11/2015	27/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015	26/11/2015
Comments			DRY	DRY		DRY										DRY			Pungent water (egg)		Dry - no logger	Dry - no logger			Unable to sample - bore not located
Laboratory data																									
Metals		-																							
Aluminium	mg/L	0.055	-	-	0.2500	-	0.0100	<0.01	<0.01	0.0400	<0.01	0.0500	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	-	-	0.1100	<0.01	-
Arsenic	mg/L	0.024	-	-	<0.001	-	<0.001	<0.001	0.0010	0.0320	<0.001	0.0020	0.0020	<0.001	<0.001	-	<0.001	<0.001	<0.001	<0.001	-	-	0.0010	<0.001	-
Cadmium	mg/L	<LOR	-	-	0.0001	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0023	<0.0001	<0.0001	<0.0001	-	<0.0001	<0.0001	<0.0001	<0.0001	-	-	<0.0001	<0.0001	-
Chromium	mg/L	0.001	-	-	<0.001	-	<0.001	<0.001	<0.001	<0.001	<0.001	<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	-	-	0.0100	-	<0.001	<0.001	<0.001	<0.001	<0.001	0.0030	0.0050	<0.001	<0.001	-	<0.001	0.0010	<0.001	<0.001	-	-	<0.001	<0.001	-
Lead	mg/L	0.0034	-	-	0.0010	-	0.1430	0.2110	<0.001	<0.001	0.2710	1.2000	0.0010	0.0020	0.0040	-	<0.001	<0.001	0.0200	<0.001	-	-	<0.001	0.4170	-
Manganese	mg/L	-	-	-	0.2160	-	0.0340	0.1700	0.9880	4.4500	0.1050	4.4900	0.0130	0.2320	0.0060	-	5.2900	1.4700	0.0760	1.6900	-	-	0.3540	0.0780	-
Nickel	mg/L	0.011	-	-	0.0180	-	0.0030	0.0020	<0.001	0.0130	0.0030	0.0980	0.0050	0.0020	<0.001	-	0.0060	0.0040	0.0020	0.0100	-	-	0.0130	0.0060	-
Selenium	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	-
Silver	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	<0.001	<0.001	-	-	<0.001	<0.001	-
Zinc	mg/L	0.008	-	-	0.0540	-	0.0330	0.0160	<0.005	<0.005	0.0140	0.2190	0.0180	<0.005	0.0060	-	0.0160	0.0130	0.0080	0.0060	-	-	0.0200	0.0160	-
Iron	mg/L	-	-	-	4.5800	-	0.1000	0.0500	0.5000	8.0800	<0.05	1.7200	<0.05	0.5200	<0.05	-	74.0000	0.1800	<0.05	2.1200	-	-	0.2200	<0.05	-
Mercury	mg/L	0.0006	-	-	<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 Petroleum Hydrocarbons		-																							
C6-C9 Fraction	µg/L or ppb	-	-	-	<20	-	<20	<20	<20	<20	<20	<20	<20	<20	<20	-	<20	<20	<20	<20	-	-	<20	<20	-
C10-C14 Fraction	µg/L or ppb	-	-	-	280.0000	-	<50	<50	<50	<50	<50	<50	<50	<50	<50	-	<50	<50	<50	<50	-	-	<50	<50	-
C15-C28 Fraction	µg/L or ppb	-	-	-	<100	-	<100	<100	<100	<100	<100	660.0000	<100	<100	<100	-	<100	<100	<100	<100	-	-	<100	<100	-
C290C36 Fraction	µg/L or ppb	-	-	-	<50	-	<50	<50	<50	<50	<50	<50	<50	<50	<50	-	<50	<50	<50	<50	-	-	<50	<50	-
C10-C36 Fraction	µg/L or ppb	-	-	-	280.0000	-	<50	<50	<50	<50	<50	660.0000	<50	<50	<50	-	<50	<50	<50	<50	-	-	<50	<50	-
BTEX		-																							
Benzene	µg/L or ppb	950	-	-	<1	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	-	-	<1	<1	-
Toluene	µg/L or ppb	-	-	-	<2	-	<2	<2	<2	<2	<2	<2	<2	<2	<2	-	<2	<2	<2	<2	-	-	<2	<2	-
Ethylbenzene	µg/L or ppb	-	-	-	<2	-	<2	<2	<2	<2	<2	<2	<2	<2	<2	-	<2	<2	<2	<2	-	-	<2	<2	-
m+p-Xylene	µg/L or ppb	-	-	-	<2	-	<2	<2	<2	<2	<2	<2	<2	<2	<2	-	<2	<2	<2	<2	-	-	<2	<2	-
o-Xylene	µg/L or ppb	-	-	-	<2	-	<2	<2	<2	<2	<2	<2	<2	<2	<2	-	<2	<2	<2	<2	-	-	<2	<2	-
Naphthalene	µg/L or ppb	-	-	-	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	-	-	<5	<5	-
Nutrients		-																							
Total Phosphorus	mg/L	-	-	-	0.0300	-	0.1400	0.1600	0.1400	0.6700	0.0200	0.0400	0.0400	0.0500	0.0600	-	0.0500	0.0500	0.0500	0.7000	-	-	0.0500	<0.01	-
Phosphate	mg/L	-	-	-	<0.01	-	<0.01	<0.01	0.0200	0.0900	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	0.0400	<0.01	<0.01	-	-	<0.01	<0.01	-
Total Nitrogen	mg/L	-	-	-	0.6000	-	0.7000	0.4000	0.6000	5.5000	0.3000	14.3000	1.2000	0.6000	0.7000	-	1.9000	0.8000	0.5000	2.1000	-	-	0.8000	0.9000	-
Total Kjeldahl Nitrogen	mg/L	-	-	-	0.6000	-	0.6000	0.3000	0.5000	5.3000	0.2000	4.5000	0.2000	0.2000	0.3000	-	1.4000	0.4000	0.2000	2.1000	-	-	0.6000	0.2000	-
Nitrate	mg/L	-	-	-	<0.01	-	0.1000	0.0500	0.0700	<0.01	0.1400	7.7900	0.9900	0.4300	0.4200	-	0.4600	0.4100	0.3200	0.0300	-	-	0.1800	0.6900	-
Nitrite	mg/L	-	-	-	<0.01	-	<0.01	<0.01	<0.01	0.4200	<0.01	2.0100	<0.01	<0.01	<0.01	-	<0.01	0.0400	<0.01	<0.01	-	-	<0.01	<0.01	-
Ammonia	mg/L	-	-	-	0.1000	-	0.5500	0.0600	0.2400	1.7000	0.0700	0.7800	0.0700	0.0700	0.0200	-	0.7800	0.1300	0.0400	0.0800	-	-	0.0400	0.0300	-
Major anions		-																							
Chloride	mg/L	-	-	-	1410.0000	-	52.0000	27.0000	188.0000	137.0000	30.0000	115.0000	13.0000	116.0000	18.0000	-	940.0000	1940.0000	23.0000	360.0000	-	-	125.0000	72.0000	-
Sulfate	mg/L	-	-	-	46.0000	-	17.0000	14.0000	77.0000	897.0000	54.0000	400.0000	8.0000	64.0000	4.0000	-	2040.0000	2600.0000	13.0000	35.0000	-	-	8.0000	26.0000	-
Bicarbonate	mg/L	-	-	-	<1	-	45.0000	39.0000	463.0000	180.0000	61.0000	89.0000	25.0000	143.0000	22.0000	-	72.0000	990.0000	35.0000	17.0000	-	-	80.0000	44.0000	-
Major cations		-																							
Sodium	mg/L	-	-	-	713.0000	-	45.0000	32.0000	229.0000	295.0000	45.0000	161.0000	18.0000	80.0000	20.0000	-	700.0000	1690.0000	30.0000	179.0000	-	-	96.0000	65.0000	-
Potassium	mg/L	-	-	-	2.0000	-	1.0000	2.0000	2.0000	21.0000	1.0000	8.0000	<1	7.0000	<1	-	42.0000	93.0000	<1	10.0000	-	-	1.0000	1.0000	-
Calcium	mg/L	-	-	-	4.0000	-	9.0000	2.0000	68.0000	82.0000	8.0000	40.0000	1.0000	44.0000	2.0000	-	174.0000	241.0000	1.0000	8.0000	-	-	3.0000	4.0000	-
Magnesium	mg/L	-	-	-	109.0000	-	5.0000	2.0000	27.0000	63.0000	8.0000	42.0000	2.0000	13.0000	<1	-	303.0000	512.0000	2.0000	12.0000	-	-	6.0000	4.0000	-
Field Physical data		-																							
Depth to standing water level from TOC	m	-	-	-	15.78	-	11.29	11.49	2.79	9.94	12.35	13.12	0.85	7.35	6.07	-	0.77	0.92	16.40	18.03	-	-	13.55	7.30	-
pH	pH	-	-	-	4.78	-	5.93	7.31	7.19	6.51	5.80	6.25	7.10	6.08	6.19	-	6.06	7.05	5.92	5.96	-	-	6.39	5.83	-
Conductivity	mS/cm	-	-	-	4.830	-	0.253	0.197	1.290	2.140	0.364	1.040	0.757	0.132	0.136	-	5.520	9.720	0.175	1.050	-	-	0.317	0.245	-
Temperature	○C	-	-	-	23.09	-	27.47	30.48	22.77	27.57	27.50	31.04	22.36	20.30	21.74	-	21.80	0.25	30.82	29.49	-	-	28.63	28.65	-
Total Dissolved Solids	mg/L	-	-	-	3.0900	-	0.1640	0.1280	0.8230	1.3700	0.2370	0.6630	0.4840	0.0860	0.0880	-	3.4800	6.1300	0.1140	0.6700	-	-	0.2060	0.1600	-

Table 4d – Groundwater Results December 2015

Location	Units	Groundwater Investigation Levels (GILs) from Interpretive Report	4BH007	4BH008	4BH010	4BH011	4LDBH009	1BH04	4LDBH011	4LDBH012	1BH10	1BH12	4BH021	4BH022	4BH025	4BH026	4BH037	4BH038	1BH49	4BH058	4BH061	4BH062	4BH065	4BH066	4BH064
Cut/Fill			Cut 4	Cut 4	Cut 6	Cut 6	Cut 7	Cut 7	Cut 8	Cut 9	Cut 9	Cut 10	Cut 11	Cut 11	Cut 12	Cut 12	Fill 15	Fill 15	Cut 17	Cut 17	Cut 26	Cut 26	Cut 28	Cut 28	Cut 28
Date of Sampling			16/12/2015	16/12/2015	16/12/2015	16/12/2015	16/12/2015	16/12/2015	16/12/2015	16/12/2015	17/12/2015	16/12/2015	17/12/2015	17/12/2015	16/12/2015	16/12/2015	16/12/2015	16/12/2015	16/12/2015	16/12/2015	16/12/2015	16/12/2015	16/12/2015	16/12/2015	16/12/2015
Comments			DRY	DRY		DRY										DRY			Pungent water (egg)		Dry - no logger	Dry - no logger			Unable to sample - bore not located
Laboratory data																									
Metals		-																							
Aluminium	mg/L	0.055	-	-	0.2800	-	<0.01	<0.01	<0.01	0.0200	<0.01	0.0600	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	-	-	0.0700	<0.01	-
Arsenic	mg/L	0.024	-	-	<0.001	-	<0.001	<0.001	0.0010	0.0020	<0.001	0.0010	0.0020	<0.001	<0.001	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-
Cadmium	mg/L	<LOR	-	-	0.0001	-	<0.0001	<0.0001	<0.0001	0.0003	<0.0001	0.0030	<0.0001	<0.0001	<0.0001	-	<0.0001	<0.0001	<0.0001	<0.0001	-	-	<0.0001	<0.0001	-
Chromium	mg/L	0.001	-	-	<0.001	-	<0.001	<0.001	0.0010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	0.0010	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-
Copper	mg/L	0.0014	-	-	0.0420	-	0.0010	<0.001	<0.001	0.0030	<0.001	<0.001	0.0120	<0.001	<0.001	-	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-
Lead	mg/L	0.0034	-	-	<0.001	-	0.1360	0.1720	<0.001	0.0020	0.3300	1.2900	0.0020	0.0030	0.0010	-	<0.001	<0.001	<0.001	0.0160	-	-	<0.001	0.5520	-
Manganese	mg/L	-	-	-	0.2270	-	0.0390	0.1880	0.8840	0.7310	0.0990	5.0200	0.0190	0.2800	0.0220	-	4.9100	1.4600	1.7000	0.0330	-	-	0.4690	0.0890	-
Nickel	mg/L	0.011	-	-	0.0200	-	0.0040	0.0030	0.0020	0.0110	0.0040	0.1160	0.0060	0.0020	<0.001	-	0.0080	0.0040	0.0120	0.0010	-	-	0.0140	0.0080	-
Selenium	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	-
Silver	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	<0.001	<0.001	-	-	<0.001	<0.001	-
Zinc	mg/L	0.008	-	-	0.0860	-	0.0320	0.0240	<0.005	0.0990	0.0240	0.2540	0.0160	0.0090	0.0090	-	0.0180	0.0140	0.0120	0.0110	-	-	0.0310	0.0160	-
Iron	mg/L	-	-	-	7.0800	-	<0.05	<0.05	0.5000	0.0700	<0.05	1.8200	<0.05	1.3200	<0.05	-	92.6000	0.9400	1.2900	<0.05	-	-	0.1000	<0.05	-
Mercury	mg/L	0.0006	-	-	<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 Petroleum Hydrocarbons		-																							
C6-C9 Fraction	µg/L or ppb	-	-	-	<20	-	<20	<20	<20	<20	<20	----	<20	<20	<20	-	<20	<20	<20	<20	-	-	<20	<20	-
C10-C14 Fraction	µg/L or ppb	-	-	-	<50	-	<50	<50	<50	<50	<50	<50	<50	<50	<50	-	<50	<50	<50	<50	-	-	<50	<50	-
C15-C28 Fraction	µg/L or ppb	-	-	-	<100	-	<100	<100	<100	<100	<100	<100	<100	<100	<100	-	<100	<100	<100	<100	-	-	<100	<100	-
C290C36 Fraction	µg/L or ppb	-	-	-	<50	-	<50	<50	<50	<50	<50	<50	<50	<50	<50	-	<50	<50	<50	<50	-	-	<50	<50	-
C10-C36 Fraction	µg/L or ppb	-	-	-	<50	-	<50	<50	<50	<50	<50	<50	<50	<50	<50	-	<50	<50	<50	<50	-	-	<50	<50	-
BTEX		-																							
Benzene	µg/L or ppb	950	-	-	<1	-	<1	<1	<1	<1	<1	----	<1	<1	<1	-	<1	<1	<1	<1	-	-	<1	<1	-
Toluene	µg/L or ppb	-	-	-	<2	-	<2	<2	<2	<2	<2	----	<2	<2	<2	-	<2	<2	<2	<2	-	-	<2	<2	-
Ethylbenzene	µg/L or ppb	-	-	-	<2	-	<2	<2	<2	<2	<2	----	<2	<2	<2	-	<2	<2	<2	<2	-	-	<2	<2	-
m+p-Xylene	µg/L or ppb	-	-	-	<2	-	<2	<2	<2	<2	<2	----	<2	<2	<2	-	<2	<2	<2	<2	-	-	<2	<2	-
o-Xylene	µg/L or ppb	-	-	-	<2	-	<2	<2	<2	<2	<2	----	<2	<2	<2	-	<2	<2	<2	<2	-	-	<2	<2	-
Naphthalene	µg/L or ppb	-	-	-	<5	-	<5	<5	<5	<5	<5	----	<5	<5	<5	-	<5	<5	<5	<5	-	-	<5	<5	-
Nutrients		-																							
Total Phosphorus	mg/L	-	-	-	0.0100	-	0.0500	0.0700	0.0700	0.6900	0.0300	0.0200	0.0400	0.0800	0.0800	-	0.0100	0.1000	<0.01	0.0400	-	-	0.0400	<0.01	-
Phosphate	mg/L	-	-	-	<0.01	-	<0.01	<0.01	0.0300	0.0100	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.05	0.0200	<0.01	<0.01	-	-	0.0100	<0.01	-
Total Nitrogen	mg/L	-	-	-	0.5000	-	0.4000	0.2000	1.2000	6.2000	0.2000	14.8000	0.3000	0.2000	0.7000	-	2.0000	0.7000	0.4000	0.2000	-	-	0.4000	0.2000	-
Total Kjeldahl Nitrogen	mg/L	-	-	-	0.5000	-	0.4000	0.2000	1.2000	3.2000	0.2000	4.2000	0.1000	0.2000	0.4000	-	2.0000	0.7000	0.3000	<0.1	-	-	0.3000	0.1000	-
Nitrate	mg/L	-	-	-	0.0300	-	0.0400	0.0200	0.0300	2.9200	0.0100	8.6000	0.2300	0.0300	0.3300	-	<0.05	0.0300	0.0500	0.2400	-	-	0.0500	0.0500	-
Nitrite	mg/L	-	-	-	<0.01	-	<0.01	<0.01	<0.01	0.1200	<0.01	2.0000	<0.01	<0.01	<0.01	-	<0.05	0.0100	<0.01	<0.01	-	-	<0.01	<0.01	-
Ammonia	mg/L	-	-	-	0.1100	-	0.2900	0.0700	0.3000	0.2600	0.0900	0.8600	0.0400	0.1000	0.0400	-	0.8100	0.2300	0.1500	0.0300	-	-	0.0400	0.0500	-
Major anions		-																							
Chloride	mg/L	-	-	-	1480.0000	-	47.0000	29.0000	189.0000	62.0000	30.0000	129.0000	14.0000	79.0000	19.0000	-	930.0000	1940.0000	365.0000	22.0000	-	-	162.0000	72.0000	-
Sulfate	mg/L	-	-	-	49.0000	-	17.0000	14.0000	74.0000	704.0000	56.0000	416.0000	8.0000	53.0000	5.0000	-	2040.0000	2750.0000	35.0000	13.0000	-	-	12.0000	27.0000	-
Bicarbonate	mg/L	-	-	-	3.0000	-	32.0000	36.0000	382.0000	56.0000	55.0000	75.0000	22.0000	139.0000	16.0000	-	39.0000	859.0000	16.0000	29.0000	-	-	32.0000	39.0000	-
Major cations		-																							
Sodium	mg/L	-	-	-	878.0000	-	42.0000	39.0000	227.0000	234.0000	50.0000	179.0000	20.0000	72.0000	21.0000	-	718.0000	1820.0000	210.0000	33.0000	-	-	105.0000	72.0000	-
Potassium	mg/L	-	-	-	2.0000	-	<1	3.0000	2.0000	14.0000	1.0000	9.0000	1.0000	5.0000	<1	-	41.0000	96.0000	13.0000	<1	-	-	1.0000	1.0000	-
Calcium	mg/L	-	-	-	5.0000	-	8.0000	2.0000	68.0000	62.0000	9.0000	48.0000	1.0000	52.0000	1.0000	-	188.0000	253.0000	9.0000	<1	-	-	3.0000	4.0000	-
Magnesium	mg/L	-	-	-	135.0000	-	5.0000	2.0000	27.0000	50.0000	9.0000	53.0000	2.0000	11.0000	<1	-	311.0000	564.0000	17.0000	2.0000	-	-	8.0000	5.0000	-
Field Physical data		-																							
Depth to standing water level from TOC	m	-	-	-	15.99	-	11.84	11.75	3.32	10.85	13.82	13.09	18.80	1.07	6.84	-	1.12	1.40	18.77	15.22	-	-	13.74	7.52	-
pH	pH	-	-	-	4.67	-	6.46	6.75	7.29	6.92	7.33	7.18	6.23	7.09	6.98	-	7.58	7.00	6.69	6.47	-	-	7.68	7.00	-
Conductivity	mS/cm	-	-	-	2.670	-	0.351	0.195	1.300	1.440	0.334	0.720	0.108	0.682	0.304	-	2.620	10.000	1.050	0.175	-	-	0.339	0.247	-
Temperature	○C	-	-	-	25.78	-	22.95	26.66	23.87	25.43	23.64	22.24	21.45	22.98	22.82	-	25.21	21.90	26.62	24.01	-	-	26.56	27.36	-
Total Dissolved Solids	mg/L	-	-	-	1.7000	-	0.2280	0.1270	0.8310	0.9240	0.2170	0.4610	0.0700	0.4370	0.1980	-	3.1200	6.2200	0.6730	0.1140	-	-	2.6300	0.1600	-

Table 4e – Groundwater Results – January 2016

Location	Units	Groundwater Investigation Levels (GILs) from Interpretive Report	4BH007	4BH008	4BH010	4BH011	4LDBH009	1BH04	4LDBH011	4LDBH012	1BH10	1BH12	4BH021	4BH022	4BH025	4BH026	4BH037	4BH038	1BH49	4BH058	4BH061	4BH062	4BH065	4BH066	4BH064
Cut/Fill			Cut 4	Cut 4	Cut 6	Cut 6	Cut 7	Cut 7	Cut 8	Cut 9	Cut 9	Cut 10	Cut 11	Cut 11	Cut 12	Cut 12	Fill 15	Fill 15	Cut 17	Cut 17	Cut 26	Cut 26	Cut 28	Cut 28	Cut 28
Date of Sampling			29/01/2016	29/01/2016	28/01/2016	28/01/2016	28/01/2016	28/01/2016	29/01/2016	29/01/2016	29/01/2016	29/01/2016	29/01/2016	29/01/2016	29/01/2016	29/01/2016	29/01/2016	29/01/2016	28/01/2016	28/01/2016	28/01/2016	28/01/2016	28/01/2016	28/01/2016	28/01/2016
Comments			DRY	DRY		DRY										DRY			Pungent water (egg)		DRY	DRY			Unable to sample - bore not located
Laboratory data																									
Metals		-																							
Aluminium	mg/L	0.055	-	-	0.2400	-	<0.01	<0.01	<0.01	0.0300	<0.01	0.0500	<0.01	<0.01	0.0200	-	0.0100	<0.01	<0.01	<0.01	-	-	0.1800	<0.01	-
Arsenic	mg/L	0.024	-	-	<0.001	-	<0.001	<0.001	0.0020	0.0060	<0.001	0.0010	0.0020	<0.001	<0.001	-	<0.001	0.0010	<0.001	<0.001	-	-	0.0020	<0.001	-
Cadmium	mg/L	<LOR	-	-	<0.0001	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0031	<0.0001	<0.0001	<0.0001	-	<0.0001	<0.0001	<0.0001	<0.0001	-	-	<0.0001	<0.0001	-
Chromium	mg/L	0.001	-	-	<0.001	-	0.0010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	0.0010	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	-
Copper	mg/L	0.0014	-	-	0.0030	-	0.0020	<0.001	<0.001	0.0040	<0.001	0.0040	0.0330	<0.001	<0.001	-	<0.001	0.0020	<0.001	<0.001	-	-	0.0030	<0.001	-
Lead	mg/L	0.0034	-	-	<0.001	-	0.0830	0.0550	<0.001	<0.001	0.1760	1.2900	<0.001	<0.001	0.0010	-	<0.001	<0.001	<0.001	0.0240	-	-	<0.001	0.0020	-
Manganese	mg/L	-	-	-	0.2210	-	0.0310	0.2230	0.8790	0.4060	0.0410	4.9100	0.0140	0.3360	0.0050	-	5.2200	1.4900	2.0700	0.0340	-	-	0.2200	0.0920	-
Nickel	mg/L	0.011	-	-	0.0180	-	0.0080	0.0020	0.0020	0.0100	0.0030	0.1140	0.0060	<0.001	<0.001	-	0.0050	0.0060	0.0040	<0.001	-	-	0.0100	0.0050	-
Selenium	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	-
Silver	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	<0.001	<0.001	-	-	<0.001	<0.001	-
Zinc	mg/L	0.008	-	-	0.0500	-	0.0180	0.0100	<0.005	0.0330	0.0100	0.2990	0.0200	<0.005	0.0120	-	0.0220	0.0130	<0.005	0.0100	-	-	0.0140	<0.005	-
Iron	mg/L	-	-	-	10.3000	-	<0.05	<0.05	0.4100	0.1800	<0.05	1.6300	<0.05	0.1200	<0.05	-	79.2000	4.9900	3.6200	0.0600	-	-	0.6500	0.2600	-
Mercury	mg/L	0.0006	-	-	<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 Petroleum Hydrocarbons		-																							
C6-C9 Fraction	µg/L or ppb	-	-	-	<20	-	<20	<20	<20	<20	<20	<20	<20	<20	<20	-	<20	<20	<20	<20	-	-	<20	<20	-
C10-C14 Fraction	µg/L or ppb	-	-	-	<50	-	<50	<50	<50	<50	870.0000	330.0000	<50	490.0000	<50	-	510.0000	<50	2160.0000	180.0000	-	-	<50	640.0000	-
C15-C28 Fraction	µg/L or ppb	-	-	-	<100	-	<100	<100	<100	<100	<100	340.0000	<100	<100	<100	-	400.0000	<100	200.0000	<100	-	-	<100	<100	-
C290C36 Fraction	µg/L or ppb	-	-	-	<50	-	<50	<50	<50	<50	<50	<50	<50	<50	<50	-	<50	<50	<50	<50	-	-	<50	<50	-
C10-C36 Fraction	µg/L or ppb	-	-	-	<50	-	<50	<50	<50	<50	870.0000	670.0000	<50	490.0000	<50	-	910.0000	<50	2360.0000	180.0000	-	-	<50	640.0000	-
BTEX		-																							
Benzene	µg/L or ppb	950	-	-	<1	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	-	-	<1	<1	-
Toluene	µg/L or ppb	-	-	-	<2	-	<2	<2	<2	<2	<2	<2	<2	<2	<2	-	<2	<2	<2	<2	-	-	<2	<2	-
Ethylbenzene	µg/L or ppb	-	-	-	<2	-	<2	<2	<2	<2	<2	<2	<2	<2	<2	-	<2	<2	<2	<2	-	-	<2	<2	-
m+p-Xylene	µg/L or ppb	-	-	-	<2	-	<2	<2	<2	<2	<2	<2	<2	<2	<2	-	<2	<2	<2	<2	-	-	<2	<2	-
o-Xylene	µg/L or ppb	-	-	-	<2	-	<2	<2	<2	<2	<2	<2	<2	<2	<2	-	<2	<2	<2	<2	-	-	<2	<2	-
Naphthalene	µg/L or ppb	-	-	-	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	-	-	<5	<5	-
Nutrients		-																							
Total Phosphorus	mg/L	-	-	-	0.0200	-	0.0400	0.0400	0.0600	1.4800	0.0100	0.0100	0.1000	0.0400	0.0600	-	0.2400	0.3100	0.2000	<0.01	-	-	0.0600	<0.01	-
Phosphate	mg/L	-	-	-	<0.01	-	<0.01	<0.01	0.0500	0.0200	<0.01	<0.01	0.0100	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	-	-	0.0200	<0.01	-
Total Nitrogen	mg/L	-	-	-	0.3000	-	0.6000	0.4000	0.7000	5.0000	1.8000	12.6000	0.4000	1.1000	0.7000	-	2.4000	0.7000	4.2000	0.7000	-	-	0.3000	1.6000	-
Total Kjeldahl Nitrogen	mg/L	-	-	-	0.3000	-	0.2000	0.4000	0.7000	4.7000	1.8000	4.8000	0.2000	1.1000	0.4000	-	2.4000	0.6000	4.2000	0.7000	-	-	0.3000	1.6000	-
Nitrate	mg/L	-	-	-	0.0400	-	0.4500	0.0400	0.0300	0.1900	0.0300	6.1300	0.2500	0.0300	0.3000	-	0.0400	0.1300	0.0400	0.0300	-	-	0.0300	0.0400	-
Nitrite	mg/L	-	-	-	<0.01	-	<0.01	<0.01	0.0100	0.1200	<0.01	1.6500	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	-	-	<0.01	<0.01	-
Ammonia	mg/L	-	-	-	0.0500	-	0.0700	0.0400	0.3100	0.2400	0.0200	0.6900	0.0400	0.0100	0.0500	-	0.7000	0.2300	0.1700	0.0100	-	-	<0.01	0.0300	-
Major anions		-																							
Chloride	mg/L	-	-	-	1520.0000	-	39.0000	28.0000	186.0000	21.0000	18.0000	117.0000	11.0000	78.0000	18.0000	-	962.0000	2290.0000	343.0000	21.0000	-	-	81.0000	70.0000	-
Sulfate	mg/L	-	-	-	54.0000	-	10.0000	6.0000	56.0000	327.0000	33.0000	436.0000	9.0000	39.0000	6.0000	-	2080.0000	2760.0000	24.0000	14.0000	-	-	4.0000	26.0000	-
Bicarbonate	mg/L	-	-	-	3.0000	-	27.0000	28.0000	431.0000	143.0000	46.0000	78.0000	22.0000	148.0000	14.0000	-	54.0000	837.0000	31.0000	29.0000	-	-	44.0000	43.0000	-
Major cations		-																							
Sodium	mg/L	-	-	-	788.0000	-	34.0000	31.0000	223.0000	120.0000	36.0000	169.0000	18.0000	72.0000	23.0000	-	723.0000	1700.0000	207.0000	34.0000	-	-	73.0000	74.0000	-
Potassium	mg/L	-	-	-	2.0000	-	1.0000	3.0000	2.0000	11.0000	<1	10.0000	1.0000	5.0000	<1	-	41.0000	93.0000	13.0000	<1	-	-	<1	1.0000	-
Calcium	mg/L	-	-	-	5.0000	-	8.0000	1.0000	69.0000	54.0000	5.0000	48.0000	1.0000	55.0000	1.0000	-	192.0000	239.0000	9.0000	<1	-	-	3.0000	6.0000	-
Magnesium	mg/L	-	-	-	126.0000	-	4.0000	3.0000	27.0000	30.0000	5.0000	51.0000	2.0000	12.0000	<1	-	288.0000	509.0000	16.0000	2.0000	-	-	5.0000	5.0000	-
Field Physical data																									
Depth to standing water level from TOC	m	-	-	-	15.98	-	11.59	11.65	2.81	12.73	12.81	11.00	7.23	0.97	6.20	-	0.61	0.83	19.61	14.00	-	-	13.62	7.42	-
pH	pH	-	-	-	5.54	-	6.93	2.17	7.05	6.60	6.45	6.76	6.30	6.75	6.80	-	6.23	6.75	5.76	6.32	-	-	5.90	6.17	-
Conductivity	mS/cm	-	-	-	1.84	-	0.167	1.92	1.110	1.080	0.187	0.716	0.066	0.599	0.251	-	4.490	8.090	0.539	0.137	-	-	0.319	0.365	-
Temperature	○C	-	-	-	25.32	-	26.99	25.04	27.81	27.38	30.16	29.63	26.36	28.58	28.61	-	29.07	30.10	25.70	25.68	-	-	23.73	22.69	-
Total Dissolved Solids	mg/L	-	-	-	1.18	-	0.109	1.23	0.710	0.6900	0.1210	0.4580	0.0430	0.3830	0.1640	-	2.8700	5.0900	0.3450	0.0890	-	-	0.2070	0.2380	-

Table 4f – Groundwater Results – February 2016

Location	Units	Groundwater Investigation Levels (GILs) from Interpretive Report	4BH007	4BH008	4BH010	4BH011	4BH021	4BH022	4BH025	4BH026	4BH037	4BH038	1BH49	4BH058	4BH061	4BH062
Cut/Fill			Cut 4	Cut 4	Cut 6	Cut 6	Cut 11	Cut 11	Cut 12	Cut 12	Fill 15	Fill 15	Cut 17	Cut 17	Cut 26	Cut 26
Date of Sampling			24/02/2016	24/02/2016	24/02/2016	24/02/2016	25/02/2016	25/02/2016	25/02/2016	25/02/2016	25/02/2016	25/02/2016	25/02/2016	25/02/2016	25/02/2016	25/02/2016
Comments			DRY	DRY		DRY				DRY				DRY	DRY	DRY
Field Physical data																
Depth to standing water level from TOC	m	-	-	-	16.20	-	7.58	1.18	6.98	-	0.72	0.92	0.42	-	-	-
pH	pH	-	-	-	4.78	-	6.20	7.20	5.90	-	6.20	7.10	6.00	-	-	-
Conductivity	mS/cm	-	-	-	4.60	-	0.118	0.694	0.131	-	5.620	9.420	72.000	-	-	-
Temperature	○C	-	-	-	20.60	-	19.60	25.80	23.00	-	21.20	21.00	20.60	-	-	-

Vibration and Overblast Tracking Register for Production Blasting

Compliance Reporting Period 2

Date	Blast no.	Cut	BCM	Monitor 1 (PPV)	Monitor 2 (PPV)	Monitor 3 (PPV)	Monitor 1 (dB)	Monitor 2 (dB)	Monitor 3 (dB)
30-Jun	11-001	11	1008	5.46	2.67	2.67	106.00	108.40	101.90
07-Jul	11-002	11	1622	5.77	3.51	2.35	108.00	103.50	108.40
27-Jul	11-003	11	7002	6.17	3.96	0.00	104.20	103.50	0.00
03-Aug	11-004	11	3616	11.64	3.43	1.03	113.10	107.00	95.92
06-Aug	10-001	10	8319	6.08	0.73	0.00	118.20	107.00	0.00
10-Aug	11-005	11	7006	14.67	7.68	2.45	114.60	115.60	104.20
13-Aug	10-002	10	3500	4.35	1.20	0.47	117.09	103.50	109.90
17-Aug	11-006	11	5382	12.99	6.45	1.79	118.20	118.60	104.20
20-Aug	10-003	10	10263	4.46	1.35	1.45	107.50	112.10	103.50
25-Aug	11-007	11	16100	6.21	1.78	0.00	115.60	98.84	0.00
31-Aug	11-008	11	14430	10.07	5.18	5.37	113.50	111.50	106.50
7-Sep	10-004	10	10281	9.76	1.94	0.70	119.90	112.30	98.84
17-Sep	10-005	10	7901.25	16.940	5.520	3.533	119.40	114.80	114.20
25-Sep	10-006	10	13200	19.490	6.092	-	113.80	118.80	-
1-Oct	11-009	11	8190	5.173	2.831	1.426	110.60	110.20	88.00
1-Oct	10-007	10	4485	10.240	1.308	-	118.50	88.00	-
13-Oct	10-008	10	6563.75	24.150	6.717	-	117.50	117.90	-
16-Oct	11-010	11	4641.25	3.126	1.926	-	109.20	1.93	-
20-Oct	10-009	10	9034.375	5.337	1.442	-	116.10	107.00	-
27-Oct	10-010	10	12247.5	5.039	3.297	-	97.50	117.50	-
27-Oct	11-011	11	11708.75	2.973	1.295	1.308	104.90	107.50	98.84
3-Nov	10-011	10	14462.5	6.971	2.012	0.684	124.00	117.20	102.80
12-Nov	10-012	10		3.919	0.933	-	88.00	116.30	-
16-Nov	8-001	8		*	8.638	4.591	*	112.30	108.80
24-Nov	8-002	8		8.875	1.308	1.000	124.90	98.84	107.00
26-Nov	10-013	10		12.100	1.024	-	119.80	106.50	-
1-Dec	10-014	10		8.371	-	-	120.60	-	-
2-Dec	8-003	8		15.39**	1.332	-	106.50	95.12	-
8-Dec	10-015	10		8.951	1.157	-	113.80	116.60	-
15-Dec	10-016	10		20.120	6.275	3.295	117.20	118.50	112.30
17-Dec	10-017	10		4.879	1.301	-	106.00	109.50	-
14-Jan	10-018	10		5.180	2.010	-	113.10	105.50	-
28-Jan	10-019	10		16.410	-	-	115.20	-	-
9-Feb	10-020	10		8.716	8.344	-	124.00	119.80	-

DPE estimated viration compliance (12mth) 45 blasts to 30/06/16 **6.67 %**

Note
17 July blasting criteria increase approved by DP&E with signed agreements
Monitor 3 is the only monitor where an agreement does not exist for 25mm/s
DP&E Approval 26/02/16 to extend the duration of blasting upto 25mm/s and overpressure upto 125 dBA.
Monitor 3 is the only monitor where an agreement does not exist for increased limits

X.XX Exceedance
* Flat Battery
- Did not trigger
** Power Pole

APPENDIX C – Independent Audit Report

COMPLIANCE AUDIT REPORT

WARRELL CREEK TO NAMBUCCA HEADS PACIFIC HIGHWAY UPGRADE

Prepared for:
Acciona Ferrovial Joint Venture (Pacifico)

Prepared by:
SNC-Lavalin Australia Pty Ltd
Level 17
55 Clarence Street
Sydney NSW 2000

Telephone: (02) 9262 6011
Fax: (02) 9262 6077

Contact details:
Richard Peterson
Technical Director
Mobile: 0429 227 775
Email: richard.peterson@snclavalin.com

Document control log

Rev	Date	Comments	Prepared by	Reviewed by	Approved by
0	7 December 2015	Final	RP	SP	RP

TABLE OF CONTENTS

Page

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 audit is the second for the project, following the initial audit undertaken within 3 months of project commencement in April/May 2015.

In accordance with this requirement, the audit was undertaken between 27 and 29 October 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 audit 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**
  - Review of previous audit
  - Review and update of audit checklist
- **Conduct Site Audit**
  - Discussion with key personnel and undertake inspection(s) of the project and key work activities
  - Undertake detailed document review
  - Conduct closing meeting and report preliminary findings to Pacifico
- **Reporting**
  - Prepare draft report and finalise following receipt of Pacifico's comments

3.1 SITE INSPECTION

Site inspections were undertaken on 27, 28 and 29 October. This included:

- A general site inspection of the north and south work zones to observe the project activities and status of the project.
- An inspection of environmental controls and specific areas of high risk such as creek crossings

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

3.2 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's Compliance Tracking Schedule
- Incident reports
- Monthly EPL compliance reports for June, July, August and September 2015 (October report yet to be completed)
- Related project approvals including the Environment Protection Licence and Water Extraction Licence

- Project correspondence (RMS, Forestry Corporation NSW, DP&E, DPI, Environmental Representative)
- Project records including meeting minutes, forms and registers, waste records
- Specific environmental management plans and reports

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 or were in progress:

- Bulk earthworks
- Haul road construction
- Temporary property accesses
- Installation of erosion and sediment controls
- Production blasting
- Construction of temporary waterway crossings
- Permanent cross drainage (culverts)
- Permanent diversion drainage
- Service, utility, and electrical works
- Ongoing Installation of livestock protection fencing
- Establishment of hard stand and lay down areas
- Site survey and geotechnical investigations

Weather during the three days of the audit was generally overcast with patches of rain occurring intermittently.

4.1.2 Environmental Issues

The following observations were made during the site inspection(s).

- Wet weather inspections are being undertaken and a process for identifying and implementing actions has been implemented. Soil Conservation Services have been engaged to provide erosion and sediment control advice. SCS were on site undertaking an inspection during the time of the audit
- Temporary waterway crossings and cross drainage are in the process of being installed. Substantial progress has been made
- Water quality results from sediment basin discharges for the period June – September were reviewed and were within the range prescribed in the EPL.
- Site boundary, heritage and ecology no-go fencing and signage has been installed.

- Endangered ecological communities, threatened species, no-go zones and project boundary fencing has been clearly marked on site constraints map.
- Threatened species translocations have been completed
- Fencing to protect the Giant Barred Frog has been installed on site in high risk areas
- Hydrocarbon booms have been placed around the piling works adjacent to Lower Warrell Creek (Northern Bank)
- Stabilised creek crossings were being implemented allowing fish passage
- Livestock perimeter fencing was being progressively installed.

4.2 MAJOR NON-CONFORMANCES

There were no major non conformances identified.

4.3 MINOR NON-CONFORMANCES

No minor non-conformances were identified by the audit. It is acknowledged, that there has been one incident that involved unauthorised clearing (on 30 July) at the Albert Road Compound.

This incident is not explicitly a non-conformances with the either the MCoA or SoC, however is a potential non-conformance with the CEMP and the specialist subplans prescribed by MCoA B30 and B31.

4.4 OBSERVATIONS

The following observations were made:

- RMS has obtained dispensation from DPE for blasting limits prescribed by MCoA C9 and C10 (blast overpressure and vibration). The new limits are 125dBL and 25mm/s respectively. Recorded blast data complies with these new limits.
- The design of waterway crossings and fauna connectivity structures is being pro-actively managed in consultation with relevant stakeholders. DP&E have been written to and have been provided with a copy of the Fauna Connectivity Report, addressing MCoA B1-B5. A copy of the report was not sighted at the time of the audit. Further assessment of compliance with these conditions will be undertaken as part of future audits.
- An extension to the submission of the Urban Design and Landscape plan has been granted till November 2015 has been granted. The due date is approaching and the documents need to be finalised to meet this requirement.

4.5 OPPORTUNITIES FOR IMPROVEMENT

4.5.1 Opportunities for Improvement – May 2015

The status of recommended actions from the May 2015 Audit are provided in Table 1 below.

Table 1: Audit Actions – May 2015

Opportunity for Improvement	Status	Comment
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).	Yet to commence	The objective of this recommendation is to ensure there is no confusion at the point of discharge as to whether or not the water in sediment basins is able to be released.
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.	In progress	RMS have issued to DPE a report addressing this recommendation. Substantial consultation with relevant stakeholders has been undertaken.

4.5.2 Opportunities for Improvement – October 2015

Opportunities for improvement have been identified in Table 2. The relevant MCoA or SoC has been referenced as appropriate.

Table 2: Opportunities for Improvement – October 2015

MCoA/SoC	Opportunity For Improvement
A6	The project Pollution Response Management Plan (PIRMP) has been prepared as required by the EPL. and is available on the projects website. The PIRMP is due for its annual review. The following specific recommendations are made: • The Pollution Inventory (quantity and storage locations of chemicals to be used) is reviewed with respect to current and future works (particularly concreting and paving which will involve large quantities of chemicals) • A risk assessment of chemical storage and use is undertaken and mitigation measures are implemented where required • A desktop (mock) incident is undertaken to test the PIRMP so that roles and responsibilities are clear and any deficiencies in the PIRMP may be rectified
HR1	HR1 requires hazardous materials to be stored within bunded areas within construction sites and not on the floodplain below the 20 year ARI flood level. Although there did not appear to be any hazardous substances stored on the floodplain, it is recommended that this requirement is periodically audited so that the risk of major chemical or fuel spillage into any watercourse is reduced. This should be undertaken in conjunction with the review of the PIRM as above.

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, protection and management is generally high.
- Pacifico have implemented a management programme for tracking compliance with MCoA and SoC and this appears to be effective.
- While the degree of compliance with SoC and MCoA is high, it is recognised that the project is still relatively 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.

Appendix A – Site Photographs

Photo 1: Oil boom surrounding waterways working platform – Nambucca River

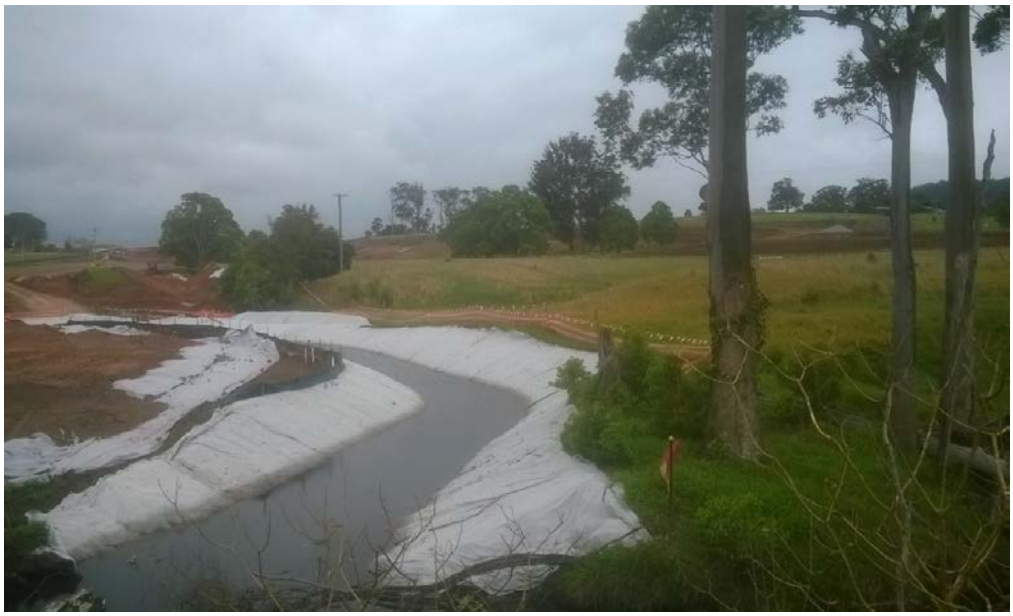

Photo 2: Temporary cross drainage (south zone)

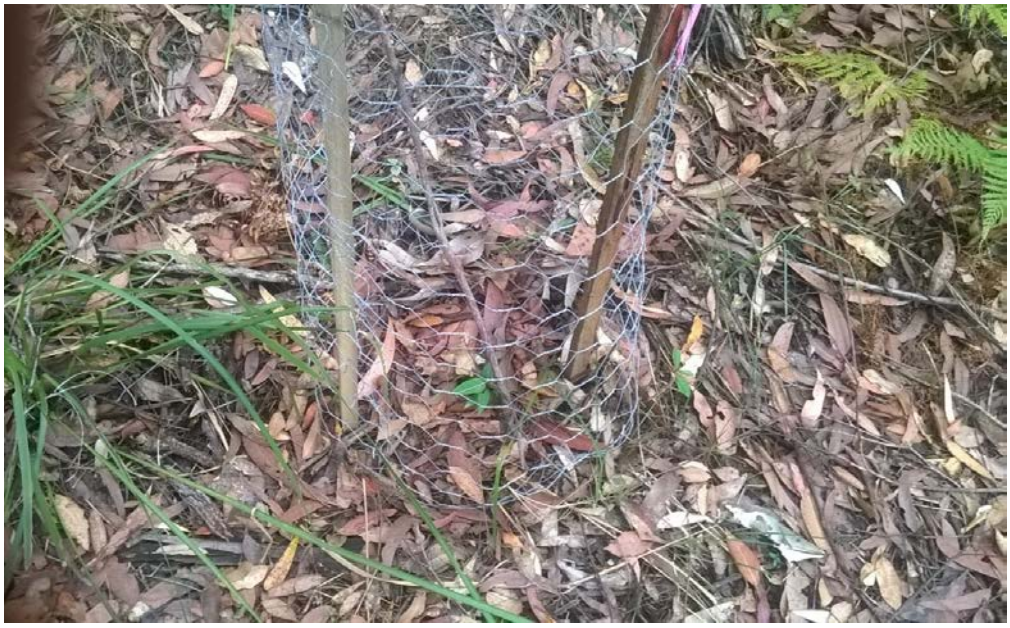

Photo 3: Threatened species translocations (northern zone)

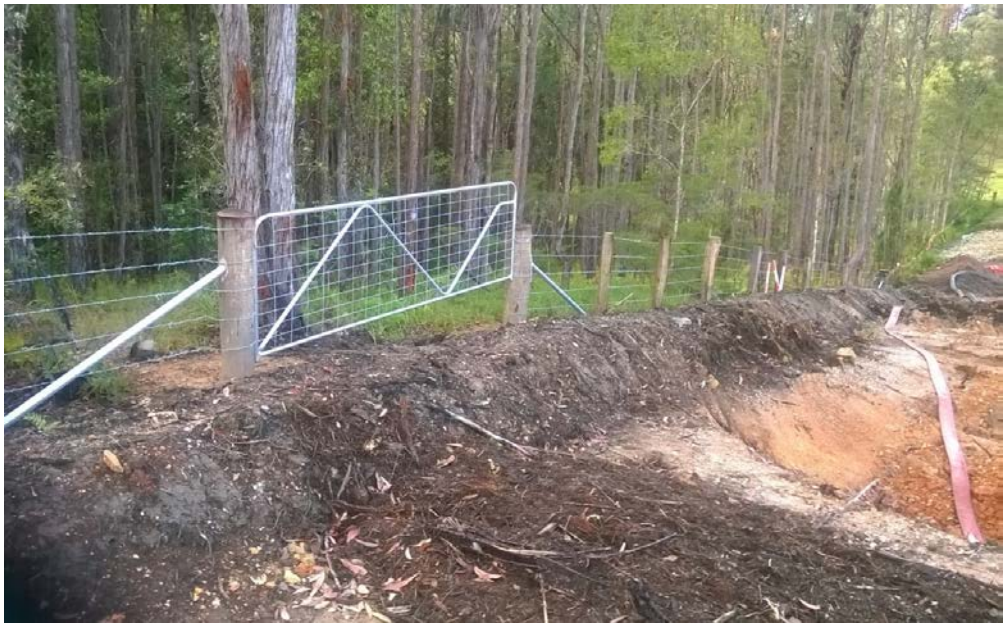

Photo 4: Permanent boundary fencing and property access (northern zone)

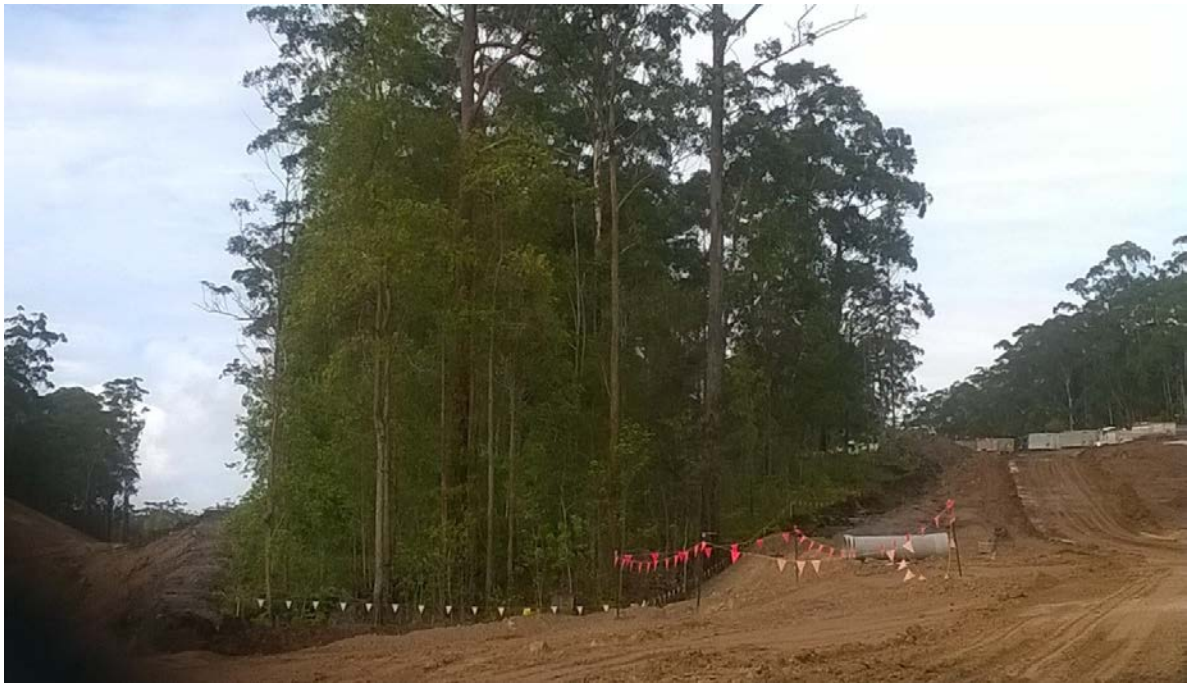

Photo 5: Widened median with retained vegetation for glider crossings (northern zone)

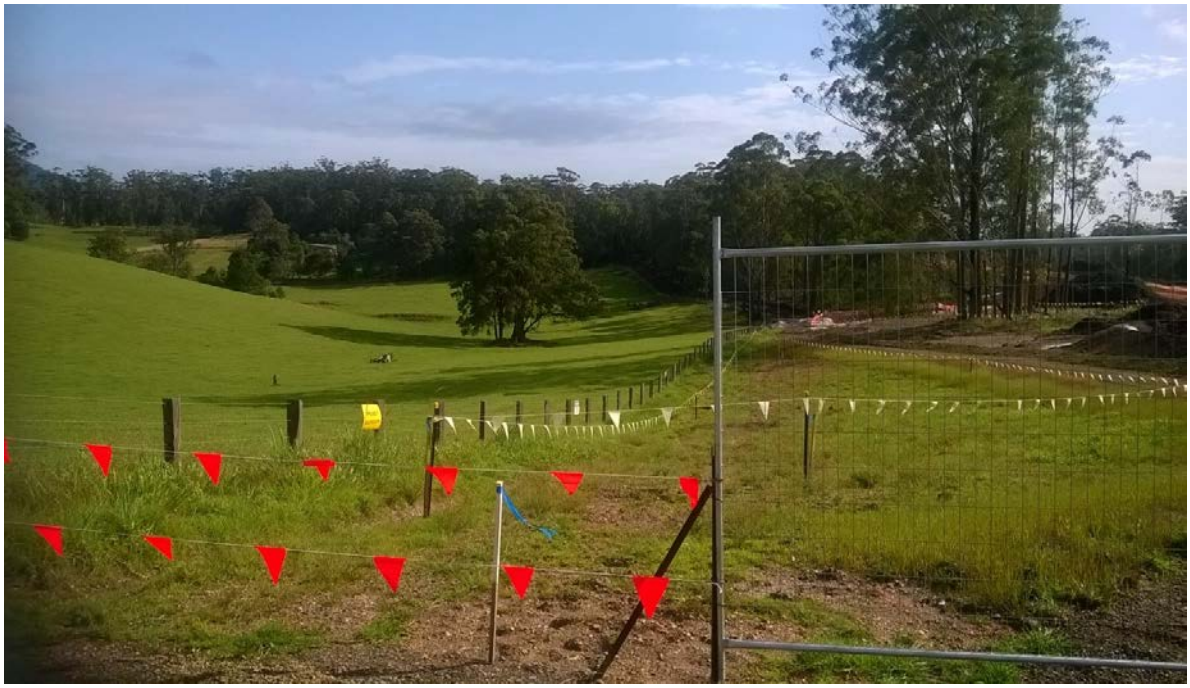

Photo 6: Project boundary and no go fencing (northern zone)

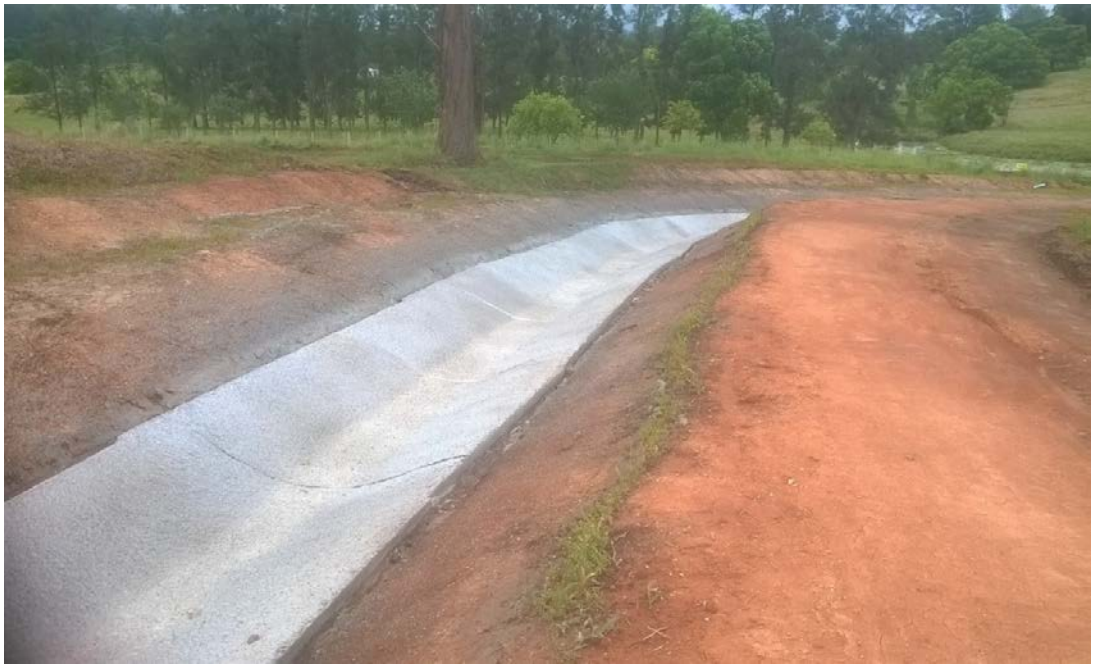

Photo 7: Permanent drainage works (northern zone)

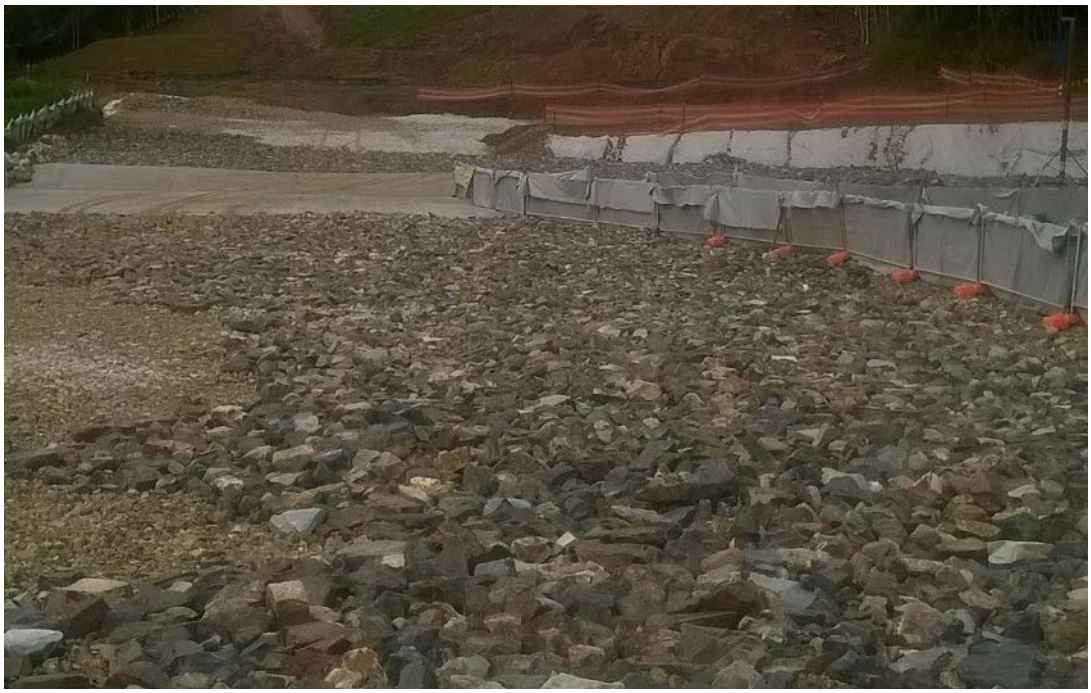

Photo 8: Temporary creek crossing (southern zone)

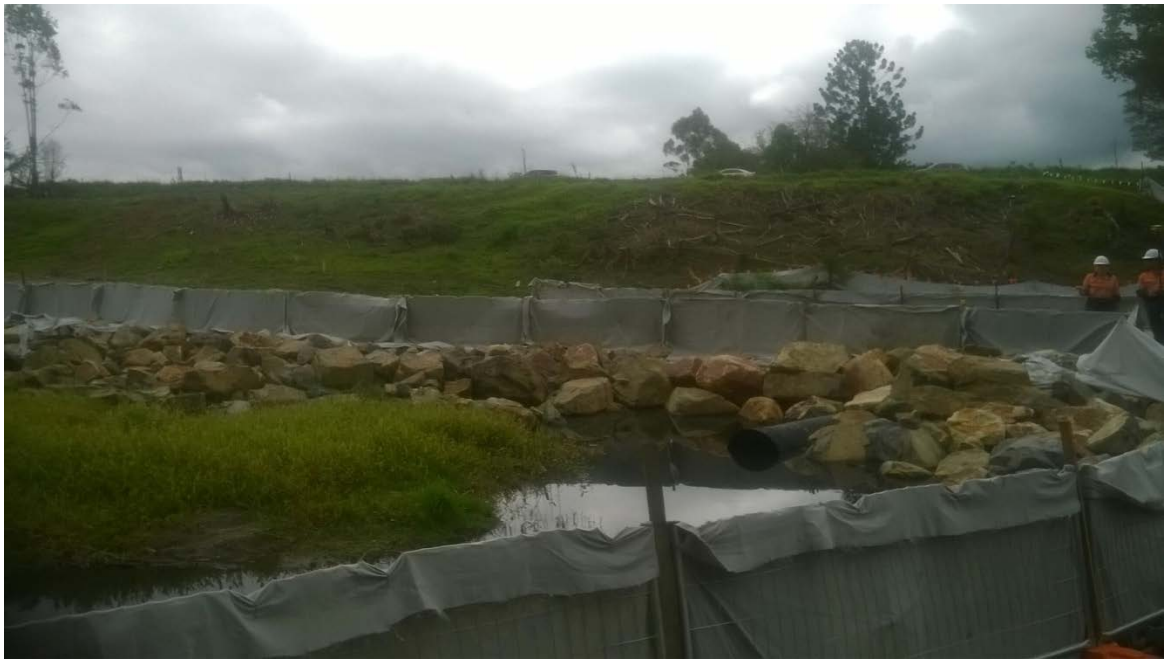

Photo 9: Frog fencing (southern zone)