Transport
Roads & Maritime
Services

Oxley Highway to Kempsey Upgrade Project

Construction compliance tracking report - 22 July 2015 to 21 January 2016

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Summary

Background

On behalf of the Australian and NSW governments, Roads and Maritime Services (Roads and Maritime) is currently constructing the Oxley Highway to Kempsey Pacific Highway Upgrade (the project). The project is 37 kilometres in length, commencing approximately 700 metres north of the Oxley Highway interchange and continuing northwards to tie in with the dual carriageways of the Kempsey to Eungai Pacific Highway Upgrade.

Roads and Maritime will construct and open the project in stages. The stages of the project are:

- The Sancrox Traffic Arrangement works located about two kilometres north of the Oxley Highway / Pacific Highway intersection. This stage of the project opened to traffic on 30 November 2015 with minor finishing works to be completed in early 2016.
- Kundabung to Kempsey Stage consisting of about 14 kilometres of dual carriageway, commencing north of Barrys Creek near Kundabung (chainage 24,000) and connecting to the Kempsey Bypass at Stumpy Creek (Chainage 37,800).
- Oxley Highway to Kundabung Stage consisting of about 24 kilometres of dual carriageway, commencing just north of the Oxley Highway / Pacific Highway intersection (chainage 700) and connecting with the Kundabung to Kempsey stage just north of Barrys Creek (chainage 24,000).

Compliance Tracking Program

Roads and Maritime prepared a Compliance Tracking Program (CTP) in response the MCoA B24. The CTP, among other things, details information that will typically be included in the construction compliance tracking reports, including:

- Scope of the activities undertaken during the reporting period.
- Performance of environmental controls that have been implemented.
- Compliance with CoA and revised SoCs as recorded in the compliance tracking tables.
- Non-compliances during the reporting period.
- Detail of all incidents recorded and action taken during the reporting period.
- Outcomes of monitoring undertaken over the reporting period and review of compliance against relevant criteria.
- Significant outcomes of audits and environmental review group (ERG) inspections undertaken during the reporting period.
- Detail of substantiated environmental complaints received, responses taken and current status (ie open or closed).

This report provides the information outlined above.

Key construction activities

Construction continued on all stages of Project during the reporting period. Some of the key activities included:

- Considerable paving on Stage 1 to allow for opening to traffic on 30 November 2015. Some finishing works including the surface treatment of the local / ring road of the traffic arrangement works will be completed in the first half of 2016.
- Operation of major site compounds on all stages including the installation and trial operation of batch plant facilities on Stage 2 and Stage 3. A number of minor satellite ancillary facilities continue to operate across the project.
- Some vegetation clearing including the implementation of a two-stage clearing process on Stage 2 and Stage 3 construction. Much of the vegetation cleared has been mulched, stored and is currently being reused in early landscape and rehabilitation activities.
- The use of stored topsoil during early restoration and landscaping activities across the project.
- Substantial progress on earthworks on Stage 2 and Stage 3.
- Installation of environmental controls including clean water diversions, temporary and permanent water quality control basins, sediment fencing and in-line check structures.
- Culvert and bridge works on Stage 2 and Stage of construction. This has included bridge works for crossings of the Pacific Highway, Hastings River and Wilsons River.
- Paving of some areas on Stage 2.
- Installation of boundary fencing, fauna fencing and other fauna features.

Approvals

There were 10 statutory approvals in effect during the reporting period:

- Commonwealth controlled action approval (held by Roads and Maritime).
- Part 3A project approval, as modified in 2012 and 2013 (held by Roads and Maritime).
- Environmental Protection Licence 20419 for Stage 1 works (held by Ferrovial Agroman (Australia) Pty Ltd).
- Environmental Protection Licence 20487 for Stage 2 works (held by McConnell Dowell Constructors (Australia) Pty Ltd).
- Environmental Protection Licence 20482 for Stage 3 works (held by Lend Lease Engineering Pty Ltd).
- Surface water permit (30PE002479) from NSW Office of Water (held by by McConnell Dowell Constructors (Australia) Pty Ltd).
- Surface water permit (30PE002489) from NSW Office of Water (held by by McConnell Dowell Constructors (Australia) Pty Ltd).
- Surface water permit (30PE002490) from NSW Office of Water (held by by McConnell Dowell Constructors (Australia) Pty Ltd).

- Surface water permit (30PE002491) from NSW Office of Water (held by by McConnell Dowell Constructors (Australia) Pty Ltd).
- Approval of Mockingbird Quarry Rehabilitation Review of Environmental Factors by National Parks and Wildlife Service (approval received on 1 July 2015).

Implementation and performance of environmental controls

Construction activities were undertaken commensurate with the implementation of environmental management measures and procedures documented in the Stage 1, Stage 2 and Stage 3 construction environmental management plans. Controls were generally affective at avoiding or minimising environmental impacts.

Impacts on adjacent landowners were minimised as far as practicable with the early implementation of project boundary fencing, alternative access arrangements and extensive landowner consultation. There were two complaints relating to access during the reporting period. One related to the unloading of equipment that blocked a private access and the other for the condition of the access. The project team responded urgently to these complaints and remedied the concerns to the satisfaction of the complainants.

Impacts on native vegetation were controlled through pre-clearing surveys, delineation of areas to be cleared and those to be protected, and the implementation of a two-stage clearing protocol. The loss of hollows attributable to vegetation clearing across the project is being offset by the installation of nest boxes and other salvaged habitat features (eg rocks, logs) on Stage 2 and Stage 3. More than 60 per cent of proposed nest boxes have been installed up to and including this reporting period (ie about 150 on Stage 2 and about 280 on Stage 3). The remaining nest boxes will be installed closer to opening of the project when final numbers have been confirmed.

Erosion and sediment controls, including temporary and permanent water quality control basins, continue to be installed or modified commensurate with construction. Management and maintenance of these basins has been a focus during this reporting period. Various other in-train erosion and sediment control measures continue to be installed and maintained in accordance with the “Blue Book”.

Managing the propagation of airborne dust particulates has been a high priority during this reporting period. The exposure of large areas of unconsolidated soils, extensive earthwork operations including haulage, and periods of low rainfall and high wind have necessitated the implantation of various mitigation measures including, but not limited to, sterile cover crops to stabilise areas, use of water carts, sealing high trafficked areas such as compounds with bitumen and adapting construction activities. While a number of dust complaints have been received during the reporting period, dust monitored across the project indicates that dust levels remain below the annual rolling average criteria of 4g/m^2/month.

Heritage sites to be retained have been protected during construction. Sensitive areas have been delineated with barrier fence and signage. These sites are inspected routinely as part of an ongoing environmental inspection programme.

Environmental monitoring

Air quality monitoring on the project indicates that dust deposition rates are within the requirements of the respective construction environmental management plans. Individual monthly exceedances were experience on all stages of the project.

However, these were generally attributable to factors unrelated to the project. Dust deposition rates remain below the annual rolling average criteria of 4g/m^2/month.

Construction noise monitoring was undertaken on all stages of the project during the reporting period. There were a number of exceedances of the calculated noise management levels. However, in nearly all instances these were unrelated to noise attributable to the project. Existing traffic on the Pacific Highway was the primary source of elevated noise levels experienced during monitoring.

Surface water and groundwater quality monitoring has continued during construction. The results of this monitoring and an associated discussion will be provided in a separate water quality report.

Community engagement

Forty-nine complaints were received during the reporting period. The main broad categories related to traffic management, dust, worker behaviour and damage to property. Roads and Maritime and its construction partners respond to complaints on a case by case basis and have invested substantial resources to investigated the causes and implementing additional management practices where necessary. This has included at times additional site resources, changes or improvements to site practices and direct liaison with complainants with the provision of additional information as required. All complaints, with the exception of two, were closed out during the reporting period. The open complaints relate to road drainage design and final property boundary fencing. Complainants have been kept informed of progress.

Roads and Maritime has engaged the community and stakeholders in a number of ways during the reporting period. In excess of 175 face to face meetings have been held, more than 55 householder letters/notification distributed and the project website updated. There have also been two public displays during the reporting period.

Other matters

Roads and Maritime's construction partners on Stage 1, Stage 2 and Stage 3 carried out a diversity of general induction and subject-specific training during the reporting period. In excess of 5000 general inductions have been carried out to date covering environmental awareness, safety and quality matters. Other specific training has included, but not limited to, reviewing the requirements of the construction environmental management plan, erosion and sediment control plans, and environmental work method statements.

Inspections by the Environmental Representative generally occur fortnightly and resulted in minor improvement suggestions on topics such as maintenance of erosion and sedimentation controls. While some issues and deficiencies were identified during the inspections, positive feedback was also received on good site planning and management practices.

There were 34 incidents on the project during the reporting period. Nine were categorised as category 1 incidents in accordance with the Roads and Maritime environmental incident reporting and classification procedure. Category 1 incidents related to water quality impacts, failure of erosion and sediment controls and vegetation clearing. A number of actions were initiated in response to the incidents both at the time and following debriefs to prevent reoccurrences. Follow up action included further training of staff and contractors, amendments to procedures and the implementation of additional controls. Almost 50 per cent of incidents during the period related to minor fuel and/or hydraulic oil spills due to equipment failures. All of these were minor and contained to the immediate works site.

Innovations and highlights

To promote environmental best practices on the Oxley Highway to Kempsey Upgrade project, environmental innovations that benefit the upgrade and reduce environmental impacts are encouraged and tabled for discussion in many forums: daily pre-start talks, toolbox talks, weekly construction team meetings, environmental team meetings, management team meetings, regulatory inspections and internal and external audits.

Innovations and highlights during the reporting period have included, but are not limited to:

- Restoration of Mockingbird Quarry near the Maria River in conjunction with NSW National Parks and Wildlife Service.
- Donation of surplus office and construction material to the NSW Fire Brigade and an adjacent landowner.
- Provision of surplus timber from clearing operations to a business based near Newcastle.
- Development of an engineering solution at piling operations on the Wilsons River to minimise / eliminate the risk of a pollution incident during the extraction of material from pile casings.
- Development and use of a closed system to capture and reuse concrete curing runoff during bridge paving operations on the Wilsons River.

Contents

1 Introduction

1.1 The Project

On behalf of the Australian and NSW governments, Roads and Maritime Services (Roads and Maritime) is currently constructing the Oxley Highway to Kempsey Pacific Highway Upgrade (the project). The project is 37 kilometres in length, commencing approximately 700 metres north of the Oxley Highway interchange and continuing northwards to tie in with the dual carriageways of the Kempsey to Eungai Pacific Highway Upgrade. The project involves the duplication of the existing highway, except for sections in the vicinity of the Hastings River and Wilsons River that deviate from the existing highway, and a bypass of Telegraph Point. The existing highway will be retained wherever possible for use as a service road or local road connection. Figure 1-1 shows the location of the project.

Roads and Maritime will construct and open the project in stages. The stages of the project are:

- The Sancrox Traffic Arrangement works located about two kilometres north of the Oxley Highway / Pacific Highway intersection. This stage of the project was opened to traffic on 30 November 2015.
- Kundabung to Kempsey Stage consisting of about 14 kilometres of dual carriageway, commencing north of Barrys Creek near Kundabung (chainage 24,000) and connecting to the Kempsey Bypass at Stumpy Creek (Chainage 37,800). It is anticipated that this stage of the project will open to traffic in early 2017.
- Oxley Highway to Kundabung Stage consisting of about 24 kilometres of dual carriageway, commencing just north of the Oxley Highway / Pacific Highway intersection (chainage 700) and connecting with the Kundabung to Kempsey stage just north of Barrys Creek (chainage 24,000). It is anticipated that this stage of the project will open to traffic mid 2017.

1.2 Project approval

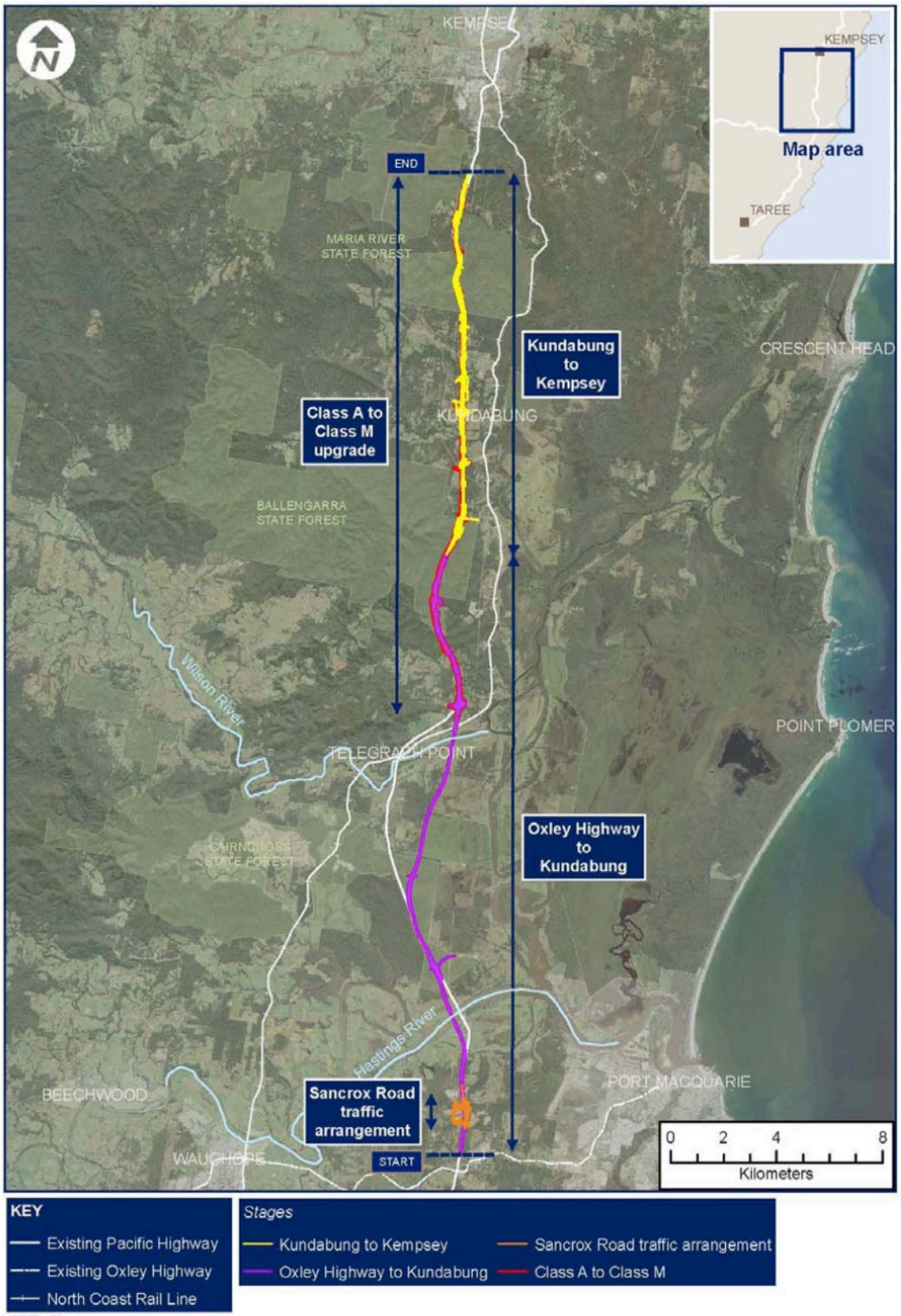
On 8 December 2006, the Project was declared by the then Minister for Planning to be a project to which Part 3A of the *Environmental Planning and Assessment Act 1979 applies*. An environmental assessment was prepared and placed on public exhibition for 30 days between September and October 2010. Following consideration of submissions made during the exhibition period, the submissions report, including changes to the proposal following consideration of submissions, was submitted to the Minister for Planning and Infrastructure seeking approval. Approval of the project was granted on 8 February 2012, subject to a number of Conditions of Approval (MCoA).

At the request of Roads and Maritime, the Minister modified the approval on 20 November 2012 to allow for minor ancillary facilities (lunch sheds, office sheds and portable toilet facilities) that do not comply with the locational criteria for ancillary facilities (MCoA C28) to be assessed and approved by the Environmental Representative. On 15 November 2013, the approval was further modified to provide certainty with regard to the management of heritage during construction and allow for pre-construction detailed survey and salvage of heritage sites not listed in the MCoA and/or environmental assessment.

On 24 January 2014, the project (inclusive of all modifications) was approved under the *Commonwealth Environment Protection Biodiversity Conservation Act 1999* (EPBC Act), subject to 15 conditions. At the request of Roads and Maritime, a variation to the approval was provided on 3 June 2014 to extending the timeframe for submission of the Biodiversity

Offset Management Plan under condition 5. On 10 October 2014, a further variation to the approval was provided in relation to the definition of the project corridor detailed at definition I of the approval.

Figure 1-1 Location of Oxley Highway to Kempsey Project



1.3 Commencement of construction

Under MCoA B24 (a) of the project approval, Roads and Maritime notified the Director-General that construction of the Oxley Highway to Kempsey Pacific Highway Upgrade commenced on 22 July 2014.

1.4 Purpose of this report

This report has been prepared to address MCoA B24 (c) of the planning approval that deals primarily with compliance matters. Under MCoA B24 (c) a report outlining the status of compliance must be provided to the Director-General at least one month prior to the commencement of construction and operation, and at other intervals during construction.

Roads and Maritime prepared a Compliance Tracking Program (CTP) in response the MCoA B24. The CTP was subsequently approved by the Director-General on 22 July 2013, and among other things, outlines the frequency and nature of compliance reporting. Pre-construction compliance reports for each stage of construction have previously been submitted to the Director-General. This report has been prepared to address Roads and Maritime's commitment to provide a report on the status of compliance at six monthly intervals during construction.

Section 2.3 of the CTP details information that will typically be included in the construction compliance tracking reports. Table 1-1 lists the commitments made by Roads and Maritime and where each has been addressed in this report.

Table 1-1 Requirements for six monthly construction compliance tracking reports

Req. No	Requirement	Where presented in this report
1	Scope of the activities undertaken during the reporting period.	Section 1
2	Performance of environmental controls that have been implemented.	Section 3
3	Compliance with CoA and revised SoCs as recorded in the compliance tracking tables.	Section 2
4	Non-compliances during the reporting period.	Section 6
5	Detail of all incidents recorded and action taken during the reporting period.	Section 6
6	Outcomes of monitoring undertaken over the reporting period and review of compliance against relevant criteria.	Section 4
7	Significant outcomes of audits and environmental review group (ERG) inspections undertaken during the reporting period.	Section 6
8	Detail of substantiated environmental complaints received, responses taken and current status (ie open or closed).	Section 5

Roads and Maritime will make this, and future compliance tracking reports, publically available on the project website.

1.5 Construction activities and progress during the reporting period

Between 22 July 2015 and 21 January 2016, construction activities were undertaken on all stages of the project. Table 1-2 outlines the key construction activities either in progress or completed during the reporting period.

Table 1-2 Key construction activities during the reporting period

Activity	Detail of progress
Stage 1 – Sancrox	
Environmental controls	Sancrox Traffic Arrangement Works opened to traffic on 30 November 2015. Adjacent landscape features have been installed and are establishing. Sediment controls in the form of sandbag checks, sediment fence and geotextile fabric filter fence remain in place in locations where vegetation growth is in the early stages. Landscape restoration continues in locations where ground disturbance has been required to repair defects or where vegetation growth has been delayed or failed.
Compounds	The main site compound off Sancrox Road was demobilised in early December 2015. The hardstand area and temporary fencing has remained in place with the agreement of the landowner.
Vegetation clearing	Minor clearing was undertaken during the reporting period to install minor changes to drainage infrastructure.
Earthworks	Nearly all earthworks were completed during the reporting period. Minor earthworks will likely be required for defect repairs and remaining stockpile management.
Structures	All structures were completed during the reporting period. Minor repairs are likely during the defects period.
Paving	All sub-base paving to design and some finished paving was completed during the reporting period eg Sancrox Road, and roundabouts. The final surface treatment on the local / ring road component of Stage 1 will be completed during the subsequent reporting period.
Rehabilitation	All areas either not landscaped or deficient with cover were treated with hydromulch during the reporting period. Hand seeding was used in locations where defects repairs have disturbed the ground and in other isolated areas where vegetation has yet to establish. Rehabilitation efforts will continue in locations where cover is insufficient and below the minimum 70 per cent cover required to surrender the licence.
Stage 2 – K2K	
Environmental controls	Various environmental controls were installed at key locations along the corridor in preparation for, or subject to, construction works during the reporting period. These controls included: • 16 temporary water quality basins of which three were removed during the progress of construction. Basins were removed in accordance the basin decommissioning process

Activity	Detail of progress
	outlined in the EPL • Sixteen permanent water quality basins • Clean water catch drains • Sacrificial pipes in clean water flow lines • Sediment fencing, mulch bunds and silt traps • Clearing limit temporary fencing • Sensitive area fencing and signage • Temporary and permanent revegetation
Fauna mitigation	Both permanent and temporary fauna fencing have been installed through this reporting period. The main focus has been on the areas of high ecological significance ie state forests areas. Temporary giant Barred and Green Thighed frog exclusion fencing has also been installed adjacent to the works at Smiths and Pipers creeks, as well as Maria River.
Compounds	The main site compound off Kundabung Road and a number of other satellite compounds continued to operate during the reporting period. A concrete batch plant located at the main compound was also commissioned during this period.
Vegetation clearing	Clearing of about 2.5 hectares of vegetation.
Earthworks	Earthwork cut and fill operations progressed during the reporting period with 743, 5000 cubic metres of material processed.
Structures	Bridge works continued at: • Pipers Creek • Smiths Creek • Stumpy Creek • Kundabung Road overpass. Works at these sites include the installation of piling and concrete works (headstocks and piers), bridge beams, decks and parapets. The installation of box culverts continued at various locations across the project. Sacrificial pipes / waterway diversions were installed at a number of locations to facilitate the offline installation of permanent drainage infrastructure.
Paving	Paving commenced from Fill 1 and progressed to Cut 7 with 11,394 cubic metres poured.
Rehabilitation	About 19 hectares of native vegetation rehabilitation was undertaken during the reporting period. This has included the hydromulch application of seed from: • Native grasses • Frangible shrubs • Tall shrubs. This has been applied to areas such as cut faces, permanent basins and vegetated drains.
Stage 3 – OH2Ku	
Environmental Controls	Various environmental controls were installed at key locations along the corridor in preparation for, or subject to, construction

Activity	Detail of progress
	works during the reporting period. These controls included: • A further eight temporary water quality basins, two of which will be converted to permanent basins • Clean water diversion drains • Temporary waterway crossings were constructed and some were decommissioned • Sediment fencing, mulch berms, bunding around stockpiles with pump-out capabilities, and geotextile fabric lined drains • Clearing limit fencing • Sensitive area fencing and signage • Silt curtains and hydrocarbon booms at bridge construction sites.
Fauna mitigation	Construction is underway on all dedicated and combined fauna/waterway culverts. Interim inspections commenced with EPA biodiversity representatives, the project ecologist, Roads and Maritime and Lend Lease personnel. Construction of frog ponds north of Blackmans Point Road was in progress. Construction of fauna fencing continues.
Compounds	The main site compound north of the Hastings River and a number of satellite compounds established during the previous reporting period continued to operate. A concrete batch plant at the main site compound was established during this reporting period, but is yet to commence operation.
Vegetation Clearing	Clearing of about 17.5 hectares of vegetation.
Earthworks	Cut to fill operations continued across the project with approximately 772,236 cubic metres of material cut during the reporting period.
Paving	Hand pour sub base pavement has been installed at Blackmans Point Interchange during the reporting period.
Rehabilitation	Permanent rehabilitation works have been undertaken during the reporting period with about 285, 716 square metres of hydromulch applied.
Other	About 8.9 kilometres of boundary fencing has been installed on Stage 3 to date.

View northwest of Sancrox Traffic Arrangement works (St 1)

View of northeast roundabout where access is provided to Cassegrain Winery (St 1)

View looking south from Sancrox Traffic Arrangement Works (St 3)

View north along alignment from Oxley Highway interchange (St 3)

View of southern approach to the Hastings River crossing (St 3)

View north of the Hastings River crossing (St 3)

View south from about Bill Hill Road toward the Hastings River (St 3)

View north of Wilsons River crossing (St 3)

View south along alignment of Pipers Creek (St 2)

View of Pipers Creek crossing (St 2)

View north along alignment toward deep cutting north of waterway SW11 (St 2)

View south along alignment from the Kempsey Bypass tie-in (St 2)

2 Approvals

2.1 Statutory approval

Table 2-1 lists the statutory approvals in effect during the reporting period.

Table 2-1 Statutory approvals

Stage	Approval	Authority	Holder	Date of issue
All	Commonwealth controlled action approval as modified in June and October 2014	Department of the Environment	Roads and Maritime	24 January 2014
All	Part 3A project approval as modified in 2012 and 2013	NSW Planning and Environment	Roads and Maritime	8 February 2012
1	Environmental Protection Licence 20419 Scheduled activities: • Crushing, grinding or separating • Land-based extractive activity	Environmental Protection Authority - NSW	Ferrovial Agroman (Australia) Pty Ltd	10 April 2014
2	Environmental Protection Licence 20487 Scheduled activities: • Crushing, grinding or separating • Land-based extractive activity • Road construction	Environmental Protection Authority - NSW	McConnell Dowell Constructors (Australia) Pty Ltd	10 November 2014
2	Surface Water Permit 30PE002479	NSW Office of Water	McConnell Dowell Constructors (Australia) Pty Ltd	31 October 2014

Stage	Approval	Authority	Holder	Date of issue
2	Surface Water Permit 30PE002489	NSW Office of Water	McConnell Dowell Constructors (Australia) Pty Ltd	27 April 2015
2	Surface Water Permit 30PE002490	NSW Office of Water	McConnell Dowell Constructors (Australia) Pty Ltd	27 April 2015
2	Surface Water Permit 30PE002491	NSW Office of Water	McConnell Dowell Constructors (Australia) Pty Ltd	27 April 2015
2	Review of Environmental Factors – Mockingbird Quarry Rehabilitation	National Parks and Wildlife Service	McConnell Dowell Constructors (Australia) Pty Ltd	1 July 2015
3	Environmental Protection Licence 20482 Scheduled activities: • Crushing, grinding or separating • Land-based extractive activity • Road construction	Environmental Protection Authority - NSW	Lend Lease Engineering Pty Limited	19 September 2014

2.2 Compliance with approvals

Appendix A of this report present the conditions of the NSW Minister for Planning Project approval and associated Roads and Maritime's statement of commitments, and provides detail on the status of compliance for each.

2.3 Compliance management system

2.3.1 Commitments, obligations, undertakings and requirements

Roads and Maritime has identified relevant commitments, obligations, undertakings and requirements (COURs) in the environmental assessment and approval documents for the Oxley Highway to Kempsey Pacific Highway Upgrade Project. The COURs are held in a database and assist Roads and Maritime to manage compliance and contractual risks.

2.3.2 Project-wide compliance system

The Oxley Highway to Kempsey Pacific Highway Upgrade Project is being constructed in three construction stages by three separate construction partners. Consequently, Roads and Maritime maintains a project-wide system to hold all COURs. Roads and Maritime's three construction partners use similar systems and have primary responsibility for complying with

COURs relevant to their construction stage and maintaining their compliance status. Roads and Maritime compiles their information into its project-wide system.

Reporting templates have been created for Environmental COURs from the Project approval and associated statement of commitments. The compliance status of these COURs is updated by the three construction partners and Roads and Maritime every six months and is linked to the internal audit under MCoA B24(d). Depending on each COUR's requirement, some were closed during the detailed design or pre-construction periods; others will remain open until the operation phase.

2.3.3 Stage 1 compliance management

On Stage 1, a web-based system (Team Binder) is used to ensure that project requirements are fulfilled and implemented as required. The system allows for the easy tracking of compliance with hold points. It also allows compilation of registers related to training undertaken by staff, and a system of document management to ensure that all previous iterations and revised copies of documents are available to all staff. A program of review and revision for all plans is scheduled within the system.

In addition, a series of spreadsheet registers to record complaints, inductions, incidents and other related matters are also maintained.

2.3.4 Stages 2 compliance management

Roads and Maritime's construction partners on Stage 2 have implemented an ISO 14001 accredited Environmental Management System (EMS) that forms part of the integrated McConnell Dowell Management System (MMS). The MMS provides the framework for managers to implement specified corporate standards and practices in a consistent manner. It defines the application of work practices, processes, and systems for engineering, acquisition of materials, equipment and services, construction, and other services related to tendering and project execution.

The Stage 2 EMS contains:

- Hazard and Risk Identification.
- A Construction Environmental Management Plan (Environmental Management Sub-Plans and strategies) and associated approval requirements.
- Environmental Work Method Statements.
- Progressive Erosion and Sediment Control Plans.
- Sensitive Area Plans.
- Construction Execution Plans.
- System procedures and forms.

2.3.5 Stage 3 compliance management

On Stage 3, compliance with the COURs are tracked and managed using a series of compliance tables that are updated at frequent intervals. These tables list individual approval requirements, when a requirement needs to be completed, the person(s) responsible, whether the status is compliant or not, and a link to documentation or records used as supportive evidence.

3 Implementation and performance of environmental controls

The environmental assessment, subsequent environmental assessments and approved construction management documentation outlined a comprehensive suite of environmental controls and management practices to minimise the project's impacts on the environment. Table 3-1 provides a summary of the key environmental controls implemented during this reporting period and their effectiveness.

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Table 3-1 Key environmental controls and their ongoing performance

Environmental issue	Environmental controls	Performance of environmental controls
Land use and social	• Installation of new property boundary fencing • Maintenance and/or provision of alternative property access • Consultation with directly and indirectly affected landowners	• More than 18 kilometres of boundary fencing (eg stock proof and fauna fence) has been installed on the project to date (about 2.5 kilometres on Stage 1, 7 kilometres on Stage 2 and 8.9 kilometres on Stage 3). Efforts have concentrated on areas of agricultural land where stock grazing activities abut the corridor. • Access has been maintained to all affected properties on the project. A number alternative accesses to residential / rural / commercial properties on Stage 2 and Stage 3 have been installed where the project had impacted original formalised accesses. On Stage 1, modified access arrangements have been implemented for Cassegrain Winery and will continue until Stage 3 of the project is completed. Permanent access arrangements are now in place for the Roads and Maritime's regional depot. Business accesses adjacent to Sancrox Road have been maintained for the entirety of the project. Sancrox Road opened to traffic on 30 November 2015. • Extensive consultation with directly and indirectly affected landowners, local road users and other community groups, has continued during this reporting period across the project. Consultation has focused on when specific impacts might be experienced, the implementation of alternative arrangements (eg detours and access arrangements) and duration of anticipated impacts. On Stage 1, consultation has delivered benefits for the project and Expressway Spares with an agreement to retain the hardstand and perimeter fencing installed for construction on leased land. • There have been two property/business access related complaints during the reporting period.
Hydrology	• Installation waterway diversions and/or sacrificial pipes to maintain capacity during offline culvert works • Temporary creek crossing designed to ensure flood impacts are avoided or minimised • Implementation of permanent flood mitigation measures eg raising property access levels,	• Temporary waterway crossings have been installed extensively across the project with consideration given to monthly average rainfall and likely storm events. Consideration of existing waterway characteristics is also an important factor with temporary pipes sized to accommodate normal flows and high-flow large aggregate causeways incorporated for moderate flood events. At a number of locations waterway diversions have also been installed to facilitate the offline construction of culvert structures that substantially

Environmental issue	Environmental controls	Performance of environmental controls
	optimising capacity of cross drainage structures to minimise afflux • Installation of suitable scour protection at culvert inlets and outlets, and bridge abutments and piers • Placement of scour protection rock adjacent to temporary working platforms in the Hastings and Wilsons rivers.	reducing the need for in-water work. On Stage 2, a number of sacrificial extension pipes have also been installed on existing culverts. These sacrificial structures will be grouted following commissioning of adjacent new culvert structures and remain in-situ. • The commissioning of permanent culverts has been a priority throughout the reporting period. Permanent scour protection has also been installed where possible. Where this has not been possible due to the construction schedule, temporary treatments have been provided by geotextile fabric lining, sediment fencing and gravel bags to stabilise exposed surfaces. Soft treatments such as jute mesh and seed, as well as salvaged lomandra have also been used for scour treatments. • All temporary and permanent waterway crossings, associated stabilising treatments and diversions were regularly monitored during site inspections and have generally performed successfully. Any damage caused during rain events is repaired at the earliest opportunity with improvements to crossings and/or treatment measures implemented where possible. • Rainfall during the reporting period for three of the six months was above historical averages (ie November, December, January). December experiencing more than two times the historical average for the month. • Permanent flood mitigation measures have not been constructed during the reporting period. • Riverbed scour attributable to the project has not been observed within either the Hastings or Wilsons rivers over the reporting period.
Water quality	• Design and construction of clean water diversion drains prior to site grubbing and topsoil stripping • Construction of temporary and permanent sediment basins • Effective capture and reuse of water for construction activities	• About 50 temporary/permanent construction basins have been commissioned across the project to date (18 on Stage 2 and 30 on Stage 3). • Two unplanned basin releases occurred on Stage 2 and one on Stage 3 during the reporting period. On Stage 2, the FOWL1 temporary basin was discharged prior to approval. The TSS was confirmed at 28mg/L. No material harm was caused to the environment. In addition, a low flow valve in basin PB35.40 failed

Environmental issue	Environmental controls	Performance of environmental controls
	• Water treatment and management • Implementation of best practice management for the storage and use of fuels and chemicals • Implementation of hydrocarbon capture and management techniques on temporary bridge construction platforms and barges within the Hastings and Wilsons rivers. These controls included the use of hydraulic hose sheathing, bunding of machinery on, or bunding of the entire barge decks and bunding of cranes and other equipment working on temporary platforms • An extensive system of custom made silt curtains on temporary bridge working platforms and other in-stream works in accordance with Roads and Maritime, EPA and DPI recommendations. Curtains are positioned in accordance with Progressive Erosion and Sediment Control Plans to ensure effective sediment management during a variety of in-stream works	during a 120mm rain event. No material harm to the environment was caused. The low flow pipe has since been re-designed and reconstructed. On Stage 3, during water transfer between basins a hose connection failed releasing between 50-100 litres of water to a standing pool in Barrys Creek. The operation was stopped with water transfers in this location no longer permitted. The Stage 2 events were categorised as a category 1 incidents. The Stage 3 event a category 2 (see Appendix C). No other unplanned basin releases occurred across the project during the reporting period, outside of rainfall events that were greater than the event design capacity. In these circumstances the basins overflowed via incorporated spillways as designed. • Capture and treatment of site runoff continued to ensure water discharged from the project meets acceptable EPL water quality limits. A substantial proportion of water collected in temporary and permanent water quality basins has been used for construction purposes and dust suppression. • Clean water diversion drains were constructed across the project prior to grubbing activities and monitored during regular site inspections. • Minor hydraulic spills from on-site plant and equipment were recorded across the project. All spills were contained and cleaned up promptly, and details recorded in the incident report system. Further detail on all incidents of this nature during the reporting period is contained in Appendix C.
Groundwater	• Monitoring of groundwater levels and quality	• Monitoring of groundwater continued during the reporting period. Groundwater has not been intercepted during the reporting period.
Flora and fauna	• Sensitive areas and vegetation to be protected with highly visible barriers prior to and during clearing operations • Two-stage clearing procedures • Nesting box replacement and habitat rehabilitation • Installation of frog exclusion fencing and implementation of frog hygiene protocols	• Ecologically sensitive areas were delineated and signage installed to inform construction personnel and the public of these sensitive areas. Physical barriers in the form of orange barrier fence (or similar) were installed prior to the commencement of vegetation clearing activities. • Clearing for all stages of the project was undertaken in accordance with the Roads and Maritime two-stage habitat clearing procedures. An ecologist must be on-site during all clearing activities to reduce mortality and injuries to individual animals and to facilitate fauna

Environmental issue	Environmental controls	Performance of environmental controls
	• In-situ topsoil stripping and direct placement.	relocations and safe passage. There were a number of fauna relocations on Stage 2 and Stage 3 prior to and during the clearing operation. There were a total of nine casualties recorded during the reporting period on Stage 2. No other causalities were recorded across the project. Details of fauna relocations, injuries and mortalities are located in Appendix D. • Three vegetation clearing related incidents occurred across the project during the reporting period (one on Stage 2 and two on Stage 3). All incidents were of a minor nature and related to trees being felled falling outside the flagged limited of clearing. Minimal damage to native vegetation occurred in these instances. Procedures across stages 2 and 3 of the project were reviewed and amended to avoid the reoccurrence of further vegetation clearing related incidents. Further training of staff and contractors involved in clearing operations has also undertaken. • 60 per cent of nest boxes (or about 430) for various species have been installed prior to and during clearing works across Stage 2 (about 150) and Stage 3 (about 280) of the project to date. • Frog exclusion fencing, and vehicle and machinery wash down procedures have been implemented in Giant barred and Green-thighed frog habitats during clearing works. • Weed spraying was successfully carried out at various locations across the project. • Topsoil stripping and stockpiling for reuse during rehabilitation has occurred extensively across the project, particularly during the previous reporting period, in accordance with the approved soil and water management plans. In places, this topsoil has already been applied to revegetation areas and treated with native seed hydromulch mixtures. • Aquatic fauna protection measures were implemented on Stage 2 for all water pumping within sensitive aquatic habitats.
Noise and vibration	• Standard construction hours • Assessment and consultation procedures for out of works work and potential high vibration generating activities	• All works were undertaken within standard construction hours or as approved out of hours works. • Out of hours works generally included concrete barrier placement, finishing minor road works, rock crushing, traffic switches, drainage and pothole patching, line marking on the Pacific Highway to

Environmental issue	Environmental controls	Performance of environmental controls
	• Monitoring of construction noise and vibration, and adaptation of construction practices.	minimise impacts on highway traffic. • Noise monitoring was typically undertaken on a monthly basis on all stages of the project during the reporting period. Monitoring was not undertaken on Stage 2 during December. • While monitoring indicates that noise management levels were exceeded at least once on all stages of project, in the majority of cases these exceedances were considered attributable to noise unrelated to construction eg traffic on the Pacific Highway. Where construction noise was found to be the predominant noise source (eg bridge piling on Stage 3), these were within the predicted noise levels in the CNVMP and measures including respite and further consultation with affected receivers were implemented. • There were no complaints relating to out of hours works on the project. • One vibration related enquiry was received on Stage 2 during road construction works. The enquiry was treated as complaint. Monitoring undertaken in response to the complaint indicates that vibration levels were within acceptable human comfort and structural damage criteria detailed in the Stage 2 Construction Noise and Vibration Management Sub Plan.
Visual amenity	• Early revegetation and implementation of landscaping • Introduction of landscape features • Implement urban design principles established in the Environmental Assessment and urban design and landscape plans.	• On Stage 1, final landscaping has been completed with defect rectification and maintenance ongoing. • About 19 hectares of permanent rehabilitation has been completed on Stage 2. This has included the hydromulch application of seed from native grasses, frangible shrubs and tall shrubs. Hydromulch application has been undertaken on areas such as cut faces, permanent basins and vegetated drains. • Revegetation in the form of topsoil and hydromulch application has also been completed on a number of batters and permanent landscape mounds across Stage 3. • Due to the proximity of the project to the existing road network visual amenity impacts associated with clearing and earthworks will continue for sometime. Efforts continue across the project to ensure the site is kept neat and tidy eg placing mulch and earth stockpiles between the new alignment and the existing road

Environmental issue	Environmental controls	Performance of environmental controls
		network and/or residents, removing surplus material no longer required for construction from site as soon as possible.
Traffic	• Traffic control plans, including safety zones, diversions, access control, maximum queue lengths during road occupancy • Community notification (advertisements, letter drops, road signage, radio announcements).	• Traffic control plans have been prepared and are in place across the project to minimise impacts from interactions between construction traffic and other road users. A number of changes to site access points have been made since the commencement of construction including the implementation of entry and exit slip lanes. Other measures include the placement of concrete barriers between work areas and the highway to separate construction activities and road users. This serves to improve the safety of both construction works and road users, and also facilitates higher construction speeds zone than would otherwise be permitted without barriers. • There were 11 complaints broadly categories as “Traffic Management” related during the reporting period. Due to much of the project being constructed under traffic this figure is not unexpected. However, efforts by community communication teams aim to keep the community informed as thoroughly as possible and minimise impacts through tools including, but not limited to, community notifications, traffic alerts, variable message signage, letterbox drops, face-to-face meetings, community displays, information sessions and telephone contact.
Heritage	• Implementation of Heritage Management plan • Site monitoring • Environmental Review Group (ERG) meetings • Training and awareness program • Preconstruction identification and installation of temporary or permanent fencing • Vibration monitoring when working close to heritage sites.	• Known heritage sites are delineated with protective fencing and signage, and are highlighted on sensitive area maps that form part of work package documentation. The presence of known heritage items are highlighted in project inductions and include advice regarding the need to avoid entry unless authorised to do so. These inductions also outline the Roads and Maritime unexpected finds procedure. There were no unexpected heritage finds during this reporting period. • A cultural heritage training package was developed and review completed by the relevant LALC during a previous reporting period. The training package has since been presented in a site wide toolbox talk on Stage 2 with a local Elder in attendance. • Vibration monitoring was undertaken adjacent to the heritage site referred to as OHK9 while piling during previous reporting periods.

Environmental issue	Environmental controls	Performance of environmental controls
		This monitoring determined the vibration generated during piling was within acceptable criteria for heritage items as detailed within the Stage 3 NVMSP.
Air quality	• Monitoring of weather conditions and adapting construction activities to prevailing conditions • Use of dust suppression measures including water carts, surface treatments, soil bonding polymers and ceasing work during high wind conditions • Use of tarpaulins and geotextile fabric on exposed areas • Early stabilisation of exposed surfaces including cover crop seeding • Shaker grids and wash-down facilities at exits to public roads to prevent mud tracking onto public roads • Reduced speed limits for light vehicles during dry conditions in high dust areas • Highly trafficked areas such as compounds and site entry/exit points treated with a bitumen spray-seal or similar to reduce dust generation • Installation of additional dust deposition gauge monitoring sites.	• The project teams monitor weather conditions on a regular basis through both the Bureau of Meteorology website and one of three Roads and Maritime site based weather stations. The project teams are able to identify and respond to prevailing hot, dry and windy conditions through the deployment of water carts for dust suppression as required. In the event conditions become too adverse to allow the appropriate control of dust, construction works that exacerbate dust generation (ie heavy plant hauling material on unseal haul roads) can be suspended and efforts concentrated on minimising dust generation. • There were 10 dust complaints received during the reporting period. • A number of techniques are being implemented across the project to minimise the potential for dust generation including, but not limited to, geotextile fabric lining unstable surface such as drainage lines and batters, hydromulch application on stockpiles if remaining unused for extended periods, application of proprietary products that bond fines together to prevent mobilisation from construction traffic, and reducing site speed limits on unseal surfaces. The project teams have also spray sealed access roads and main site compounds, installing rumble grids at access points to the road network and are using street sweepers to collect any material unintentionally tracked beyond the construction site. On Stage 3, during wet weather the project team has also set up a vehicle wash bay to further minimise the potential for mud tracking. • There are 19 dust deposition gauges installed across the project. While there have been individual monthly exceedances of the 4g/m^2/month criteria for total insoluble solids, some appear to have been unrelated to construction within that area (eg debris from animals). Across all 19 monitoring stations the annual rolling average remains below the 4g/m^2/month criteria for total insoluble solids.
Geology and soils	• Retaining topsoil and ground cover vegetation	• Progressive erosion and sedimentation control plans (PESCP)

Environmental issue	Environmental controls	Performance of environmental controls
	wherever possible, for as long as possible • Preparation and implementation of Progressive Erosion and Sedimentation Control Plans • Quick stabilisation of disturbed areas • Review and advice on erosion and sediment controls by external soil conservationist • Management of acid sulfate soils.	have been prepared and implemented across all stages of the project in the lead up to and following clearing and grubbing, topsoil stripping and earthwork activities. The requirements of the PESCP are communicated to site teams through toolbox training sessions and daily prestart meetings. The PESCP will continue to evolve as site conditions change. A soil conservationist undertakes regular reviews of this documentation. • Tailored erosion and sediment control training courses have been run for key personnel across all stages of the project including foreman, engineers, leading hands, environmental advisors. • Weekly inspections by an external soil conservationist have been curtailed to a fortnightly basis on all stages of the project since the completion of most high-risk clearing and grubbing, and topsoil stripping activities. However, regular inspections will be ongoing while bulk earthworks continue and the site is subject to change. • Weed free topsoil containing native seed has been stockpile locally on site for reuse within the general area from which has been collected. Localised rehabilitation efforts using this material has commenced in some areas. • Areas within 15 metres of waterways were stump cut and soil left stable until construction of culverts commenced. • Acid sulfate soil discovered during bridge construction and drainage works on Stage 3 has been progressively tested and treated in accordance with the approved Soil and Water Management Sub Plan. • Progressive stabilisation of disturbed areas such as stockpiles and open drains has been undertaken. Methods employed include the application of geotextile fabric, jute mesh, sterile cover crop and proprietary soil binding products. • Rehabilitation has commenced in some areas on all stages of the project to control erosion and reduce the potential for impacts during wet weather events.
Waste	• Waste minimisation principles adopted and reinforced with personnel during induction and other training	• Waste segregation facilities have been set up at the main site compounds across the project. The importance of segregating waste is communicated to all staff, construction personnel and

Environmental issue	Environmental controls	Performance of environmental controls
	• Segregation, classification and adaptive management of all waste streams • Reuse of material on-site wherever possible.	contractors via the project inductions. • Topsoil and mulch derived during the clearing and site preparatory activities has been stored for reuse extensively across the project. The early reuse of topsoil and mulch in landscaping and rehabilitation activities is a priority for Roads and Maritime and its construction partners and has commenced in some areas across the project. • Construction steel is being stored when no longer required and will be transported for recycling as required and/or at the conclusion of the related stage of the project.

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Hydromulching on Service Road 2 (St 1)

Stabilisation of drainage line on North Eastern Roundabout (St 1)

Preparation of table drain on Service Road 3 with topsoil and jute mesh (St 1)

Sediment basin with baffle boards to increase sediment settling time (St 2)

Temporary bunding of pumps and chemicals at Pipers Creek (St 3)

Custom silt curtain around temporary working platform on the south arm of Wilsons River (St 3)

Custom silt curtain around temporary working platform on the south arm of Wilsons River (St 3)

Pipers Creek October 2015 prior to removal of temporary low-flow pipe culvert (St 2)

Pipers Creek January 2016 with natural streambed level restored. Landscaping outstanding (St 2)

4 Environmental monitoring

Roads and Maritime has undertaken background dust, noise and water quality monitoring (surface and groundwater) in the lead up to construction of the project. Since the commencement of construction, the respective construction partners have continued to monitor dust and noise. Roads and Maritime have retained responsibility for the monitoring of water quality and this will continue during construction and for a period of up to three years following completion of the project. Detailed water quality monitoring and analysis of results are contained in stand-alone reports and will be provided separately to this construction compliance tracking report.

This section details key monitoring results and analysis of the findings for the reporting period.

4.1 Flora and fauna

A two-stage clearing procedure was implemented across the project. The procedure included the delineation of clearing areas with coloured tape/exclusion fencing, clearing non-habitat trees, stag watching and spotlighting before clearing habitat trees, leaving all habitat trees for 48 hours before clearing, shaking habitat trees prior to felling to encourage animals to leave or show themselves, soft-dropping trees using grabs and chainsaws, inspecting felled tree hollows and limbs for animals, assisting animals that were injured, and relocating uninjured animals.

Ecologists were on site for all clearing activities to carry out pre-clearing surveys, monitor clearing, relocate animals and care for those injured. Appendix D contains a list of species, where available, that were relocated, injured, euthanased or killed during this period.

On Stage 1, the ecologists carried out pre-clearance surveys on road drainage modifications. There was no fauna encountered or relocation during the activity.

On Stage 2, there were 20 species of animal relocated during pre-clearing and clearing surveys and inspections. There were nine individuals euthanased during the reporting period.

On Stage 3, there were 5 species of animal relocated during pre-clearing and clearing surveys and inspections. There were no injuries or casualties recorded during the reporting period.

A total of 60 per cent of all nest boxes have been installed on the project to date. This has included more than 150 on Stage 2 and more than 280 on Stage 3. The nest boxes include various sizes and features for a diversity of animals including, but not limited to, bats, gliders, possums, large and small owls, and various sizes of parrots. A number of these have been used to relocated individuals rescued during pre-clearing and clearing surveys. It should also be noted that a number of habitat features including logs, rocks and similar features have also been relocated within the project boundary during the clearing process. These features supplement the extensive nest box installation program.

A substantial proportion of vegetation clearing has been completed during this, and the previous reporting period. All clearing has been completed on Stage 1 (about 7 hectares), about 91 per cent (about 77 hectares) has been completed on Stage 2 and more than 95 per cent completed on Stage 3 (ie about 115 hectares). Appendix D contains detail of vegetation clearing by community type for each stage of the project where currently available. This information will be provided in greater detail in subsequent construction compliance tracking reports.

Finishing works and low flow treatment for fish passage (St 2)

Widened median with fauna connectivity between shared water/fauna culverts (St 3)

4.2 Heritage

All non-Aboriginal and Aboriginal heritage sites across the project to be retained have, or will be, protected with barrier fence and suitable signage where appropriate. Sensitive area

plans, that form part of construction work packages for all construction areas, also include a visual reference to the location of these sites.

There were no impacts on non-Aboriginal or Aboriginal heritage sites attributable to any stage of the project during the reporting period. Works continued on Stage 1 in close proximity to heritage sites known as the Sancrox ochre site and sandstone kerb stockpile. Roads and Maritime's Stage 1 construction partner through the installation of temporary fencing and signage have protected both sites.

Vibration monitoring was undertaken adjacent to the heritage site referred to as OHK9 by Roads and Maritime's Stage 3 construction partner during piling operations. Monitoring confirmed that levels remained below relevant thresholds for heritage items as detailed within the Stage 3 Construction Noise and Vibration Management Sub Plan.

There were no unexpected heritage finds during the reporting period.

A final salvage report for the test and salvage excavations at the heritage site at 6 Ravenswood Road, Kundabung has been prepared, and submitted to the Office of Environment and Heritage, and the Department of Planning & Environment. Artefacts have been transferred to the care of the Macleay River Historical Society. Roads and Maritime is currently preparing a report for the relevant Pacific Highway publication, and local print media.

4.3 Noise and vibration

Noise monitoring was undertaken on all stages of the project in accordance with the respective construction noise and vibration management sub plans.

On Stage 1, noise monitoring was undertaken at two locations on a monthly basis between July 2015 and November 2015 (inclusive). Construction monitoring on Stage 1 did not continue beyond November as this stage of the project opened to traffic on 30 November 2015. Monitoring indicated that construction noise remained below relevant noise management levels during this period.

Noise monitoring was undertaken on a monthly basis at 11 locations on Stage 2 with the exception of December 2015. Two of the 29 monitoring events during the reporting period recorded levels above those predicted in the approved construction noise and vibration management plan. However, elevated noise levels were considered attributable to traffic on the Pacific Highway. There were no noise related complaints on Stage 2.

On Stage 3, noise monitoring was undertaken at 12 locations on a monthly basis between July 2015 and January 2016. While there were 32 exceedances of the calculated noise management levels, these were considered to be largely attributable to noise from existing Pacific Highway traffic, or other localised activities unrelated to the project (eg animals/pets, farming equipment). In addition, noise monitoring was also undertaken on Stage 3 at the commencement of potentially high noise generating works such as piling. While noise levels during piling were found to be below the highly noise affected level, exceedances of relevant noise management levels as detailed within the Stage 3 Construction Noise and Vibration Management Sub Plan were experienced. Despite this, the noise levels were within the predicted noise levels detailed in the Construction Noise and Vibration Management Sub Plan for the activity being monitored. Roads and Maritime's Stage 3 construction partner implemented additional measures including respite periods and ongoing consultation with potentially affected receivers in accordance with the Construction Noise and Vibration Management Sub Plan.

Vibration monitoring was undertaken on a number of occasions on Stage 2 and Stage 3 during blasting and other vibration inducing activities eg piling. In all instances vibration

levels were below respective human comfort and structural damage criteria. There was one vibration related complaint experienced on Stage 2 during the reporting period.

Appendix D presents detailed noise and vibration monitoring data for all stages of construction.

4.4 Air quality

Background air quality monitoring commenced on the project in March 2013. Monitoring at that time focused on the area around what would be the Stage 1 section of the project. Similarly, Roads and Maritime's construction partners commenced background air quality monitoring for their respective stages prior to the commencement of construction on those stages. Monitoring on all stages has continued throughout construction.

On Stage 1, air quality has been monitored at two locations. There was one monthly exceedance during the monitoring period. The exceedance occurred during a time (August 2015) when low to nil dust generating activities were in progress eg concrete pours, laying heavy bound material and drainage works. The other monitoring location showed low levels of insoluble matter for the same period and was considered to be more representative of the works taking place on Stage 1. A review of wind data from the Bureau of Meteorology for the period supported this view as the predominant wind direction was from regions not generally subject to Stage 1 work. The annual rolling average remained below the $4g/m^2$/month criteria.

On Stage 2, air quality is monitored at 11 locations. There were four monthly exceedances of the $4g/m^2$/month criteria during the reporting period. One of the exceedances coincided with an increase in project activity including new bus stop installation and drainage works. For all monitoring locations, the annual rolling average remained below the $4g/m^2$/month criteria.

On Stage 3, air quality is monitored at six locations. There were two monthly exceedances of the $4g/m^2$/month criteria. Observations at the time suggested that the samples had been contaminated with material unrelated to airborne dust particulates. At all monitoring locations, the annual rolling average remained below the $4g/m^2$/month criteria.

Considerable effort is made to minimise the potential for dust emissions on the Project. Mitigation measures in place during the reporting period included:

- Frequent use of water carts during dry periods
- Minimising drop distances when tipping loads
- Covering loads
- Establishing and using designated haul road that have been stabilised for that purpose
- Sealing main site compounds and exit roads
- Installing shaker grids at exit points to the local road network
- Reduced speed limits and minimising the use of some machinery in high wind conditions
- Stabilising stockpiles and exposed areas with sterile cover crop and native seed species when inactive for long periods (ie greater than two weeks)
- Early progress of rehabilitation where possible.

Appendix D presents detailed air quality data for all stages of the Project.

4.5 Landscaping and revegetation

Due to the general state of construction on the project, opportunities to implement permanent landscaping and/or revegetation has generally been limited. However, due to the early commencement of Stage 1 and the conclusion of those works in November 2015, much of the permanent rehabilitation has occurred. Rehabilitation has been undertaken by the application of hydromulch over larger areas, hand-seeding smaller areas and landscape plantings within and around roundabout intersections.

On Stage 2, permanent revegetation of about 19 hectares of disturbed lands has been completed. This has included the hydromulch application of seed from native grasses, frangible shrubs and tall shrubs on areas such as cut faces, permanent basins and vegetated drains. In addition, surplus spoil was used for the restoration of the old Mockingbird Quarry for the National Parks and Wildlife Service.

As additional areas are completed, further landscaping and rehabilitation activities will commence in accordance with the urban design and landscape plans for the respective stages.

Service Road 1 following the application of hydromulch (St 1).

Barrys Creek waterway and culvert restoration (St 2)

Restoration of Smiths Creek under the new northbound bridge (St 2)

View of batter treatment and temporary ERSED controls on southbound rest area (St 2)

Batter preparation for revegetation (St 3)

Finish treatment of drainage line near Smiths Creek (St 2)

5 Community engagement

Roads and Maritime and its construction partners have developed and are implementing a community communication strategy (CCS) for each stage of the Oxley Highway to Kempsey Upgrade Project. The CCSs were approved by the Director-General prior to the commencement of each stage of construction. The strategies outline and promote a diversity of tools to proactively inform and interact with the community, regulatory authorities and interested stakeholders.

5.1 Complaint number and type

49 complaints were received during the reporting period. General themes included:

- Traffic management generally related to construction vehicle / truck movements
- Dust from construction works
- Damage to property relating to private property or motor vehicle damage
- Worker behaviour generally associated construction vehicles
- Construction noise and vibration
- Impacts on property access

5.1.1 Traffic management

11 complaints broadly categorised as “traffic management” have been received across the project between 22 July 2015 and 21 January 2016. Table 5-1 provides a breakdown of traffic management related complaints.

Table 5-1 Breakdown of traffic management complaints

Complaint type	Number of complaints
Construction vehicles parking in public areas used by other road users	4
Condition of road after construction vehicle use	4
Additional construction vehicle movements on local road network	1
Unauthorised use of local road by construction vehicles	1
Traffic hazard following work on local road	1

Traffic management complaints were investigated and addressed on a case-by-case basis. Where construction vehicles were found to be using public areas for parking or other movements not authorised by traffic management plans, additional sign was erected. Signage was used to remind construction personnel of off-limit areas. Further training was also provided during toolbox training sessions and pre-start meetings.

Where members of the public raised concerns about the condition of road surfaces or related traffic hazards, the project team investigated. In all instances repair measures were undertaken and included grading of unsealed roads, repairing asphalt as required and eliminating traffic hazards through specific treatments.

5.1.2 Dust

Ten complaints categorised as “dust” have been received across the project between 22 July 2015 and 21 January 2016. Nearly all dust related complaints were from adjacent properties where dust either affected or was visible from those properties. One complaint was from a motorist who commutes through the project daily and noted elevated dust levels on a particular day.

Complaints relating to dust emissions from site have been dealt with directly by construction personnel. The increased frequency of water cart use has been a direct response to drier conditions where either increased construction traffic or strong winds have results in dust emissions from site. While it is noted that complaints relating to dust were received during the reporting period, it should be noted that dust monitoring results from 19 locations across the project remain below the annual rolling average of 4g/m^2/month.

5.1.3 Worker behaviour

There were ten complaints regarding worker behaviour. All but one of these complaints related to the operation of construction vehicles on the local road network eg speeding, maneuvers performed. In all cases the complaints were investigated. Toolbox training sessions were implemented on the respective stages of the project to reinforce expectations for worker behaviour when travelling on the public road network. The operation of construction vehicles on public roads will continue to be monitored and issues addressed should they arise.

5.1.4 Damage to property

Six complaints broadly categories as “damage to property” have been received across the project between 22 July 2015 and 21 January 2016. Table 5-2 provides a breakdown of damage to property related complaints.

Table 5-2 Breakdown of damage to property complaints

Complaint type	Number of complaints
Damage to fencing	3
Damage to motor vehicle from debris on road	2
Poor management of water stored in dam and property fencing on land leased for the project	1

Property damage related complaints were generally addressed by one of two ways. In all instances the nature of the complaints were investigated to determine whether actions on the project were the cause of the damage. Where this was confirmed to be the case, the following actions were implemented:

- Damage to fencing was repaired by the project and workers reminded of their responsibility (through toolbox train sessions) to prevent damage and/or repair where caused accidently.
- Where motor vehicle damage was caused by use of the road network, complainants were provided with claim for damage forms and informed of the process for making a claim.

5.1.5 Noise and vibration

Three complaints broadly categorised as “noise and vibration” have been received across the project between 22 July 2015 and 21 January 2016. Table 5-1 provides a breakdown of noise and vibration related complaints.

Table 5-3 Breakdown of noise and vibration complaints

Complaint type	Number of complaints
Noise from plant reversing beepers	2
Vibration from vibratory rollers	1

Complaints relating to noise and vibration were investigated in all cases. Activities relating to the two noise related complaints were found to be consistent with the descriptions and predicted noise levels documented in the approved construction noise and vibration management sub plans. However, in one instance the reversing beeper was changed to a low frequency squawker alarm with a positive response from the complainant received following the change. The project teams from all stages are implementing considerable resources to minimise the propagation of noise from construction activities and this is reflected in the relatively low number of noise complaints. Measures implemented included, but not limited to:

- Respite periods
- Intensive community consultation including one-on-one meetings
- Replacing reversing beepers with squawker alarms
- Site awareness training detailing noise mitigation measures
- Tool-box training and signage of permitted working hours.

The complaint relating to vibration from vibratory roller activity was also investigated. Monitoring undertaken during subsequent vibratory rolling works concluded that vibration levels were below human comfort and structural damage criteria detailed in the construction noise and vibration management sub plans. The complainant was accepting of the project teams response.

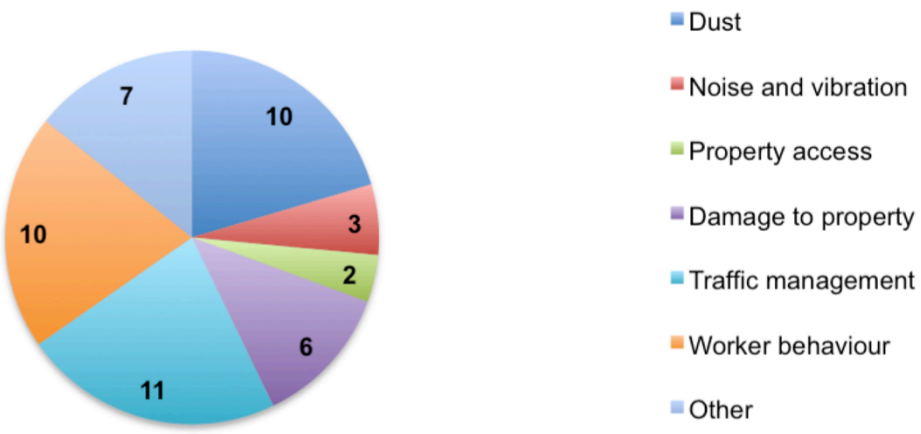
5.1.6 One off complaints

A number of one-off complaints were made during the reporting period. One-off complaints were managed and closed successfully generally by providing information to the resident/s, through one-on-one meetings, or a commitment to implement specific actions in the future.

5.1.7 Breakdown of complaints by type

Figure 5-1 shows the breakdown of complaints by type and number. Appendix B presents a summary of complaints during the reporting period and includes detail on the type of complaint, description, action taken and status.

Figure 5-1 Complaints by type and number



5.2 Complaint management

The community communication team maintains a register of all complaints received from key stakeholders and the public. Complaints are received directly during meetings, by email, letter or via the 1800 number. The team responds to complaints and where practical puts into place mitigation measures to address the issue and reduce the likelihood of future complaints.

The details contained within the community communication register include:

- Date and time of complaint
- Format (email, phone, person, letter)
- Name, association and contact details
- Nature of complaint
- Responding officer and date and details of response.

The community communication team has advised local residents of upcoming construction activities by sending letterbox drops, issuing community updates, emailing, displaying information on the Project website, media releases and by direct consultation. More than 180 meetings were held with property owners and/or relevant stakeholders during the reporting period. These meetings discussed general construction activity in the area.

5.3 Community communication initiatives

A number of community engagement initiatives consistent with the community communications strategy have been implemented during the reporting period. Some of these include:

- Five council liaison group meetings with Port Macquarie Hastings Council, Roads and Maritime and engineering staff from Stage 3 and four with Kempsey Shire Council
- Two community information sessions were held at Wauchope Outdoor Show from 7-9 August 2015 to provide information about the project's progress to the general public. Over 225 people spoke to staff who answered questions and provide information. On 26 November the broader community was invited to the Kundabung Hall to view and discuss the proposed access design refinements relating to Stage 2. 25 local residents attended and were presented with information about the new design, questions were answered and feedback forms provided.
- Roads and Maritime's Stage 2 construction partner opened a community display centre at the site main compound. This is open and staffed Monday to Friday, 9am to 5pm. At the centre community members can read a full project overview, environmental management plans, urban design and landscape plans as well as view display material on environmental management and traffic staging plans
- Six community updates were issued during the reporting period. Information contained within the updates included upcoming construction activities on all stages of the project and information about traffic changes. Community updates are distributed at least every three months updating the local community about construction activities and future planned work. Specific notifications on work activities are distributed more frequently informing local residents about construction activities that may affect them or their property, such as out of hours work, or increased haulage on local roads
- Since the start of blasting in May 2015 there have been weekly email notifications sent to the email database about blasting dates and times for the following week. The website and local media have also carried these dates.

Table 5-4 Summary of community communication between July 2015 and January 2016

Communication activity	Number
Advertisements in local papers	2
Presentations to interest groups (eg schools, Australian Trucking Association)	1
Council liaison group meetings	5
Aboriginal focus groups	0
Meetings with adjacent residents and affected businesses	177
Media releases and traffic alerts	28
Community site tours	0
Monthly construction updates	6
Community updates and brochures	6
Project fact sheets	2
Staffed displays / information sessions	4
Householder letters/notifications	55

6 Other compliance matters

6.1 Training and awareness

Training and awareness for management, field staff and contractors is integral to the successful delivery of the Oxley Highway to Kempsey Upgrade Project.

Prior to working on site, all personnel are required to attend a project stage site-specific induction. Induction training is tailored specifically for each stage, but all share common themes and objectives. Induction training on each of the stages provided an overview of:

- Relevant details of the CEMP including purpose and objectives
- Key environmental issues on topics such as flora and fauna, noise and vibration, soil and water, waste, air quality and heritage
- Conditions of environmental licenses, permits and approvals
- Specific environmental management requirements and responsibilities
- Mitigation measures for the control of environmental issues (for example threatened species, EECs, frog hygiene protocols)
- Incident response and reporting requirements.

A substantial number of staff, construction personnel, contractors and special service providers were inducted during the reporting period. The total number of inductions for each stage on the project to date exceeds:

- 870 on Stage 1
- 2000 on Stage 2
- 2650 on stage 3.

Each stage of the project has also conducted individual training needs analysis and has tailored further training to meet the needs of the respective stage.

On Stage 1, further training has included:

- Weekly toolbox talks, including but not limited to, spill response and reporting requirements, environmental controls during the transition from construction to opening, environmental inspections and required actions
- In the field erosion and sediment control training. In field training held at the time of control installation where the method of installation, purpose and alternatives of unique situations are conveyed.

On Stage 2, further training has included:

- Environmental work method statement (EWMS) training. EWMS covered during this training have included clearing and grubbing, sediment basin operation and dewatering, working near waterways, and paving.
- Weekly toolbox training sessions on various topics including, but not limited to, approved construction hours, corrective actions from environmental incidents, mud tracking, air quality, de-watering, and out of hours work.

On Stage 3, further training has included:

- Environmental work method statement training on clearing, grubbing and mulching, minor and major bridge construction, coffer dam, maundia management/protection and dewatering.
- Pollution Incident Response Management Plan (PIRMP) training for high risk work areas.
- Project team toolbox training sessions covering various broad and specific issues such as management of acid sulphate material and hazardous materials management.

6.2 Internal and Environmental Representative inspections

Internal inspections are undertaken by the environmental teams on all stages of the project. These routine inspections, typically weekly, pick up on minor environmental management improvements such as maintenance of clearing boundary delineation, sediment control maintenance and installation of controls in accordance with progressive erosion and sedimentation control plans.

The Environmental Representative and Roads and Maritime staff undertake environmental inspections generally on a fortnightly basis. These inspections typically cover active work sites where risk to the environment is highest. The total number of Environmental Representative and Roads and Maritime inspections conducted on each stage of the project for the reporting period was:

- 9 on Stage 1
- 13 on Stage 2
- 12 on Stage 3.

Feedback from the Environmental Representative has been specific for each stage, but has generally related to improvements on clearing and mulch stockpile management, and erosion and sediment control installation and maintenance.

On Stage 1, positive feedback was provided on native vegetation growth and diversity on the cut batters, and the progressive revegetation and restoration of table drainage leading to a watercourse on the north-eastern roundabout.

On Stage 2, positive feedback has been provided in relation to creek restoration, restoration of Mockingbird Quarry, and the general management of erosion and sediment controls.

On Stage 3, positive feedback was provided on a number of occasions regarding the timely and effective installation of erosion and sediment controls and generally high standard of housekeeping at bridge construction sites.

6.3 Audits

There were five audits conducted on the project during the reporting period.

There were no audits on Stage 1 during the reporting period.

Stage 2 audits included:

- A Principal environmental management audit
- An internal audit of the Construction Noise and Vibration Management Sub Plan, Construction Air Quality Management Sub Plan, Construction Heritage Management Sub Plan, Construction Flora and Fauna Management Sub Plan, Construction Waste and Energy Management Sub Plan.

Table 6-1 Stage 2 audit corrective actions and response

No.	Corrective actions	Project team response
1	The Roads and Maritime Environmental Incident Learning, Avoidance and Management on the Pacific Highway presentation was not given to staff and contractors.	The presentation was incorporated into the project's induction presentation.
2	An observation of concern relating to EWMS for topsoil removal from a previous audit was not closed out. The EWMS noted a minimum 10 metres offset for stockpile locations from waterways rather than the minimum of 50 metres.	The EWMS was subsequently updated to reflect G38 requirement and was submitted to the Roads and Maritime and the Environmental Representative for approval.
3	The internal audit of the Flora and Fauna Management Plan was not conducted in accordance with the Internal Audit Program.	An audit of the Flora and Fauna Sub Plan was subsquently conducted. All future internal audits are to be conducted in accordance with the program outline in the internal audit schedule.

Stage 3 audits included:

- A Principal environmental management audit
- An internal CEMP audit
- An Environmental Representative environmental audit.

Table 6-2 Stage 3 audit corrective actions and response

No.	Corrective actions	Project team response
1	No evidence that daily inspections were undertaken during rainfall events, closed out inspection reports were not available for all Roads and Maritime inspections and there was no evidence that closed out inspection reports were submitted to Roads and Maritime within seven days.	Diary notes are generally used to document informal daily inspections although not all records were available. The weekly inspection checklists will detail all daily inspections during rainfall from the time of the audit onwards. Although Lend Lease did not have the closed Roads and Maritime inspection reports on file, they are routinely submitted to Roads and Maritime for their records when actions have been completed. To stop this issue arising again, all closed out Roads and Maritime inspection reports will be saved locally on the project drive.
2	The basin discharge register did not include discharge volumes and treatments, some discharge permits did not have the location of discharge and person monitoring the discharge completed. There were no records available showing submission of basin performance reports to Environmental Representative, PV and Roads and Maritime within 48 hours of a rainfall event and basin performance reports did not include a maintenance and operations log or actions to	Basin performance reports now form part of the Roads and Maritime Notifiable Event Reports and are submitted to the relevant parties. The basin discharge register includes the capacity of the basin before and after discharge, a formula will be included to convert this to a volume based on the as built volume of the basin. Treatment details are on discharge permits.

No.	Corrective actions	Project team response
	be implemented.	
3	Daily road kill monitoring was not undertaken in accordance with the Ecological Monitoring Program (EMP) between 6 November 2014 and 5 January 2015, all data required was also not available and clearing dates were not available to show compliance with daily monitoring a month after clearing.	Non-compliance with roadkill monitoring frequencies was reported in the annual ecological monitoring report. Clearing dates: • South Stage 1 – 3/11/14 – 2/7/15 • South Stage 2 – 15/7/15 – 28/8/15 • North Stage 1 – 10/11/14 – 8/5/15 • North Stage 2 – not yet commenced. The roadkill data will be presented in the clearing report.
4	Evidence that ecological monitoring was undertaken in accordance with the EMP was not available, including monitoring methodologies for all surveys, location where giant bared frogs were relocated to, sex, breeding condition and snout-vent length of giant bared frogs relocated, and rain, wind, cloud cover, temperature and habitat changes during bat roost box monitoring.	At the time of audit the clearing for the project had not been completed, and as such the clearing report had not been completed by the Project Ecologist. The report will be finalised at the end of clearing and will be supplied to Roads and Maritime.
5	Unattended fuel containers were observed outside of a bunded area at two compounds, a Material Safety Data Sheet (MSDS) folder at one compound did not include MSDSs for all chemicals stored and at another compound the MSDS folder could not be found at the time of the inspection.	The unattended fuel containers were relocated into bunded areas at the two compounds, the Material Safety Data Sheet (MSDS) folder at the Hacks Ferry Road compound has been updated to include MSDSs for all chemicals stored at this site. The MSDS folder at the workshop (“other compound”) had been moved inside the office and the workshop foreman was not present to show where it was. The folder was brought into the main office to show the auditor during the audit.

6.4 Environmental Protection Licence performance

Roads and Maritime’s construction partners have obtained an implement the requirements of an Environmental Protection Licence (EPL) for each stage of the project. Licence details include:

- Stage 1 EPL number 20419 issued on 10 April 2014. There were no amendments to the licence during the reporting period.
- Stage 2 EPL number 20487 issued on 10 November 2014. There were three amendments to the licence during the reporting period. The amendments were for scheduled premises boundary adjustments for the Mockingbird Quarry restoration, property adjustment works, and extension of the premise boundary to include, then subsequently exclude, the section required for completion of Milestone 1 between the project and the Oxley Highway to Kundabung Project.
- Stage 3 EPL number 20482 issued on 19 September 2014. There were two amendments to the licence submitted during the reporting period. The amendments related to scheduled premises boundary adjustments.

On Stage 1, there was one non-compliances with the licence during the reporting period. The non-compliance was in relation to Condition O5.4 that requires the control of suspended solids through appropriate erosion and sediment controls. Specific non-compliances included:

- Failure of a water main pipe seal during pressure testing causing water to be released from site. The water was discharged and contained to a nearby grassed area (refer to Incident 3 in Appendix C)

On Stage 2, there were two non-compliances with the EPL during the reporting period. Specific non-compliance included:

- Sediment basin TB 25.50 was decommissioned without providing the EPA the required notification 21 days prior to decommissioning (refer to Incident 7 in Appendix C)
- Erosion and sediment controls at Fill 20 were not constructed and maintained in accordance with the guideline "Managing Urban Stormwater – Soils and Construction, Volume 2D, Main Road Construction.

There were no reported non-compliances on Stage 3 during the reporting period.

6.5 Incidents

Roads and Maritime, and its contractors, take the view that any environmental related unplanned events, whether they impact the environment or not, are reported and recorded as incidents. This type of approach allows for the analysis of trends and encourages a culture within the workforce for continual improvement. This approach is well accepted within the Workplace Health and Safety industry as a tool to recognise unsafe practices and put in place appropriate controls before significant incidents occur.

A total of 34 environmental unplanned events categorised as environmental incidents have occurred on the project between 22 July 2015 and 21 January 2016. 25 incidents were of a minor nature, with the remaining nine classified as category 1 incidents within the Roads and Maritime environmental incident reporting and classification procedure. The procedure states that:

"*An environmental incident…need not necessarily be an incident that comprises a breach of legislation. Nonetheless, it is important to capture this information to improve RMS's environmental practices and contractor performance.*

- *Category 1 : Generally breaches of environmental legislation, such as pollution of waters, non-compliance with EPL / approval conditions, and unauthorised.*
- *Category 2: Generally less environmental serious with no or minimal offsite environmental impact. eg Minor non-compliances with CEMP, small spills."*

A break down of incidents by stage is provided below.

Table 6-3 Stage 1 incidents by type

Incident type	Category	Number
Hydraulic fuel or fuel spillage	2	Three
Pumping of water containing sediment within project boundary	2	One
Temporary removal of site boundary controls	2	One

All incidents involving hydraulic oil / fuel spillages were contained to the construction site. Spill containment equipment was deployed and contaminated material collected and securely stored on site prior to offsite disposal at a suitably licensed facility. It is important to note that hydraulic oil / fuel spillages are symptomatic of infrastructure construction projects of this magnitude. Every effort is made through regular plant and equipment servicing and daily pre-start inspections to minimise the risk of occurrence.

The incident involving the temporary removal of site boundary delineation caused no impact. However, a meeting was held with the subcontractor undertaking the activity (pressure test of sewer main) to reinforce the importance of site controls, and to remind them that authorisation from Ferrovial Agroman and Roads and Maritime is required before any such actions are taken.

The incident involving the pumping of water containing sediment following the water main seal failure was addressed specifically. Pumping was found not to have reached the downstream drainage line so additional controls were not required. Instead the subcontractor was reminded about appropriate discharge procedures and permits.

Table 6-4 Stage 2 incidents by type

Incident type	Category	Number
Compound site sewerage system failure	1	One
Non-compliance with licence (decommission of basin prior to approval)	1	One
Release of water containing sediment due to non-compliance with PESCP	1	One
Pollution incident involving tannin leachate discharge from site to adjacent land.	1	One
Basin low-flow pipe failure and release of water from site	1	One
Unauthorised clearing of vegetation outside delineated contractual clearing area, but within project clearing limits / boundary	1	One
Removal for clearing delineation to carryout restoration activities	2	One
Hydraulic oil or diesel spillage	2	Five
Pumping of site water into basin during licence discharge	2	One
Partial clearing of habitat tree without implementing two-stage clearing process	2	One
Discharge of sediment basin to site prior to testing	2	One
Release of concrete curing agent to construction basin during rainfall event	2	One

Specific management responses for the six category 1 incidents were identified and implemented. These responses included both engineering solutions and procedural changes. Specific training, and more general site wide spread training where appropriate, has also been carried out to minimise the likelihood of reoccurrences.

While the category 1 incidents were considered to present no material harm to the environment, as a key stakeholder, Roads and Maritime took the opportunity to notify the EPA of incidents that had the potential to cause harm.

As indicated previously, hydraulic oil / fuel spillages are symptomatic of infrastructure construction projects of this magnitude. Spills were contained to the construction site and cleaned up immediately. It should be noted that across the entire Project there has been a comprehensive plant and equipment inspection and maintenance program that minimises the frequency of these incidents.

For the remaining category 2 incidents, efforts have focused on site wide refresher training and as necessary crew specific training of relevant procedures, work methods, and roles and responsibilities.

Table 6-5 Stage 3 incidents by type

Incident type	Category	Number
Damage to vegetation beyond clearing beyond clearing limit	1	One
On-site water quality release (turbidity)	1	One
Works outside delineated project boundary	1	One
Hydraulic oil spillage	2	Eight
Vegetation being cleared falling outside the delineated clearing area	2	One
On-site water release from equipment failure during basin to basin transfer operations	2	One

All, but three, incidents on Stage 3 were considered to be of a minor nature and appropriately categorised as category 2 incidents. The category 1 incidents related to incidental vegetation clearing from trees falling outside the delineated limits of clearing without following appropriate procedures, the release of water containing sediment and works outside of the project boundary.

Five incidents, including the three category 1 incidents, while differing in nature can all generally be attributable to systems failures (eg procedures not being fully and/or correctly implemented), insufficient planning, or poor supervision. In all instances a review of work methods has been undertaken, with procedural changes and/or remedial training for relevant personnel completed. In some instance, information deemed to be applicable to all construction personnel is circulated and discussed during site wide weekly toolbox training sessions.

As indicated previously for stages 1 and 2, despite the relatively high number of hydraulic oil/fuel spillages during the reporting period, they are considered symptomatic of infrastructure construction projects of this magnitude. Spills were contained to the construction site and cleaned up immediately. It should be noted that across the entire project there has been a comprehensive plant and equipment inspection and maintenance program that minimises the frequency of these incidents.

Appendix C presents details of incidents and actions taken to minimise the likelihood reoccurrences.

7 Environmental initiatives, best practices and highlights

To promote environmental best practices, environmental innovations that reduce environmental impacts are encouraged and tabled for discussion in many forums: daily pre-start talks, toolbox training sessions, weekly construction team meetings, environmental team meetings, management team meetings, regulatory inspections and internal and external audits.

The following examples were implemented and demonstrate best practice environmental initiatives to advance positive environmental outcomes on the Oxley Highway to Kempsey Upgrade Project. In addition, a number of highlights were experienced during the reporting period and these also have been presented.

Restoration of Mockingbird Quarry

The Stage 2 project team, in consultation with NSW National Parks and Wildlife Service developed a solution for reuse of excess spoil. The disused Mockingbird Quarry is located immediately adjacent the project within the Maria State Forest. The project team, in partnership with NSW National Parks and Wildlife Service, has filled quarry site with spoil, shaped and contoured to match/recreate the existing landform. A local landscaping company has been engaged to cultivate, supply and install tube stock required to complete the rehabilitation. This has been good outcome for the project, the client, and the environment.

Recycled concrete and excess heavily bound base material utilised for temporary access track Excess concrete and heavily bound base material was utilised in the construction of an Essential Energy easement access track. This allowed for the reuse of an excess construction product and provision of a high quality access (with a higher strength and improved trafficable surface than the topsoil track originally planned).
Excess construction materials donation to fire brigade and adjacent landowner Surplus office equipment such as tables, chairs, filing cabinets, shelves were provided to the local rural fire brigade. Surplus construction supplies were diverted away from landfill by donating to an adjacent landowner who was able to reuse the materials for future construction purposes.
Cleared vegetation reuse During August 2015 approximately 180 tonnes of paperbark trees were delivered to Weathertex (company based at Heatherbrae) from Stage 3 of the project to produce weatherboard.
Pile top hopper A 'pile top hopper' has been developed for the Hastings River piling operation. This hopper sits on-top of pile casings and funnels any dropped spoil from the spoil grab back into the casing. This minimises the risk of spoil falling onto the pile platform or into the river. This innovation also increases productivity by removing the need for a silt curtain as sediment generation potential can be eliminated.
Bee relocation A large swarm of bees was identified within a busy project works area on the Wilson River Coffer Dam, and had the potential to stop work. Rather than destroying the bees, a local bee keeper was contacted and offered to take the swarm. The bees were removed the next day by the beekeeper and will be used for commercial honey production.
Rehabilitation of riparian areas On 2 November representatives from the Department of Planning and Environment, Roads and Maritime and Lend Lease undertook inspections of best practice riparian and aquatic rehabilitation projects within the nearby Nambucca and Kalang Rivers. The collaboration between these parties assisted in the development of best practice designs and implementation strategies for rehabilitation of riparian areas of the Hastings and Wilson Rivers within the project footprint.
Recycling construction water The Stage 3 construction team has developed an innovative management system for bridge deck curing. It incorporates water being captured in a spoon drain alongside a freshly poured bridge span and run down a PVC pipe into an intermediate bulk carrier (IBC). The IBC overtops into a 10,000 litre tank. A solar powered timed pump then recirculates the water back onto the deck. This closed system runs without fuel or mains power to reuse 100 per cent of the deck curing water.

Terms and acronyms

Term	Meaning
CEMP	Construction environmental management plan
Director General	Director General of the NSW Department of Planning and Environment (or delegate)
P&E	The Department of Planning and the Environment (formerly P&I)
P&I	The Department of Planning and Infrastructure (now P&E)
DPI (Fishing and Aquaculture)	The Department of Primary Industry (Fishing and Aquaculture)
EA	Environmental Assessment
EMS	Environmental management system
EPA	Environmental Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979*
ER	Environmental Representative
K2K	Kundabung to Kempsey stage of the Oxley Highway to Kempsey project
MCoA	The Department of Planning and Infrastructure Ministers Condition of Approval
Minister, the	Minister for Planning and Environment (formerly “Minister for Planning and Infrastructure”)
OH2Ku	Oxley Highway to Kundabung stage of the Oxley Highway to Kempsey project
NOW	The NSW Office of Water
OEH	Office of Environment and Heritage
Project, the	Oxley Highway to Kempsey Pacific Highway Upgrade
Roads and Maritime	Roads and Maritime Services
SoC	Revised statement of commitments (March 2011)
Stage 1	Sancrox Traffic Arrangement works
Stage 2	Kundabung to Kempsey stage of the Oxley Highway to Kempsey project
Stage 3	Oxley Highway to Kundabung stage of the Oxley Highway to Kempsey project

Appendix A
Compliance tables

Table 1 - Minister's conditions of approval

CoA no.	Requirement	Stage	Status / Reference
	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_0090; (b) *Upgrading the Pacific Highway – Oxley Highway to Kempsey – Environmental Assessment (volumes 1, 2, and 3)*, prepared by GHD Pty Ltd for the NSW Roads and Traffic Authority and dated September 2010; (c) *Upgrading the Pacific Highway – Oxley Highway to Kempsey – Environmental Assessment Submissions Report*, prepared by the NSW Roads and Traffic Authority and dated March 2011, including the revised Statement of Commitments contained therein; (d) *Oxley Highway to Kempsey – Pacific Highway Upgrade Ecological Review of Fauna Crossings in the Ballengarra State Forrest*, Roads and Maritime Services, dated October 2011; (e) The Roads and Maritime Services modification request and letter dated 25 October 2012 (07_0090 MOD1); (f) The Roads and Maritime Services modification requests and letters dated 17 April 2013 and 9 September 2013; the document titled *Pacific Highway Upgrade – Oxley Highway to Kempsey: Aboriginal Archaeological Assessment and Artefact Salvage Methodology and Cultural Heritage Assessment Report*, prepared by Kelleher Nightingale Consulting Pty Ltd, dated September 2012; the document titled *Oxley Highway to Kempsey - Pacific Highway Upgrade OHK85 Test Excavation - Preliminary Results*, prepared by Kelleher Nightingale Consulting Pty Ltd, dated 2013; and the document titled *Pacific Highway Upgrade — Oxley Highway to Kempsey — Non-Indigenous Heritage Impact Assessment Report*, prepared by Peter Kuskie and Christopher Carter (South East Archaeology Pty Limited), dated December 2007 (07_0090 MOD2); and (g) The conditions of this approval.	Construction and operation	Roads and Maritime has identified relevant commitments, obligations, undertakings and requirements (COURs) in the environmental assessment and approval documentation for the Oxley Highway to Kempsey upgrade project. A COURs database has been development; the database will assist Roads and Maritime to manage compliance and contractual risk. Further confirmation will be provided through this, and future compliance tracking reports, and independent audit program developed in response to condition B24(d). Compliance with the condition is ongoing throughout all stages of the project.
A2	In the event of an inconsistency between: (a) the conditions of this approval and any document listed from condition A1(a) to A1(f) 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(f) inclusive, and any other document listed from condition A1(a) to A1(f) inclusive, the most recent document shall prevail to the extent of the inconsistency.	Construction and operation	Compliance with the condition is ongoing throughout all stages of the project.
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	Construction and operation	Compliance with the condition is ongoing throughout all stages of the project.

CoA no.	Requirement	Stage	Status / Reference
	approval; and (b) the implementation of any actions or measures contained within these reports, plans or correspondence.		
A4	Subject to confidentiality, the Proponent shall make all documents required under this approval available for public inspection on request.	Construction and operation	A project website has been established and is accessible through the Roads and Maritime corporate website. The website is updated at regular intervals and contains information, as a minimum, required by MCoA B25. Any documentation unable to be made available through the project website and not subject to restrictions imposed by confidentiality, will be made available upon request at a nominated project site office or Roads and Maritime regional office.
	Limits of Approval		
A5	This approval shall lapse ten years after the date on which it is granted, unless construction works the subject of this project approval are physically commenced on or before that date.	Construction and operation	Construction of the project commenced on 22 July 2014.
	Statutory Requirements		
A6	The Proponent shall ensure that all necessary licenses, 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 licenses, 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.	Construction and operation	Roads and Maritime, or its construction partners, will obtain all necessary licenses and approvals relevant to the project. Where appropriate, these licenses will be displayed on the project website and/or nominated project site office. Compliance with the condition is ongoing throughout all stages of the project.
	Staging		
A7	The Proponent may elect to construct and/ or operate the project in stages. Where staging is proposed, the Proponent shall submit a Staging Report to the Director General prior to the commencement of the first proposed stage. The Staging Report shall 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. 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 stage(s). 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 the proposed staging or applicable conditions. The Proponent shall ensure that all plans, sub-plans and other management documents required by the conditions of this approval and relevant to each stage (as identified in the	Pre-construction for each stage	Roads and Maritime prepared an initial Staging Report and provided it to the P&I for approval on 8 February 2013. Following minor revisions to address P&I comments, the plan was approved on 14 March 2013. Subsequent to this approval, Roads and Maritime made further updates to Appendix A of the Staging Report to ensure compliance with MCoA B20 and B28 across and between the stages, and to include the requirements of MCoA E1. The revised plan was sent to P&I on 5 November 2013 and subsequently approved by the department on 24 January 2014. On 21 May 2014 Roads and Maritime wrote to P&E advising of the anticipated schedule for the commencement of construction on Stage 1 of the project and that no changes to the Staging Plan were proposed. On 9 September 2014 Roads and Maritime wrote to the P&E advising of the anticipated schedule for the commencement of

CoA no.	Requirement	Stage	Status / Reference
	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.		construction on Stage 2 of the project and that no changes to the Staging Plan were proposed. On 31 July 2014 Roads and Maritime wrote to the P&E advising of the anticipated schedule for the commencement of construction on Stage 3 of the project and that no changes to the Staging Plan were proposed.
	Part B – Prior to construction		
	Biodiversity		
	Mitigation Measures – Fauna and Waterway Crossings		
B1	The Proponent shall design (and implement) the fauna and waterway crossings identified in Table 6-2 of Appendix B of the document listed under condition A1(d), at the locations and in accordance with the minimum design principles identified in Table 6-2, unless otherwise agreed by the Director-General.		Detailed design of fauna and waterway crossings has been completed for Stage 2. Roads and Maritime wrote to the P&I on 26 July 2013 advising that there were changes to the final design of some fauna crossing locations and dimensions compared to that presented in Table 6-2 of Appendix B of the document listed under condition A1(d). A report prepared in consultation with DPI (Fishing and Aquaculture) and EPA outlining those changes, among other things, was provided at the same time and approval for those changes sought. The P&I approved the changes in correspondence provided to Roads and Maritime on 25 September 2013. Detailed design of fauna and waterway crossings has also been completed for Stage 3. Roads and Maritime wrote to the P&E on 9 December 2014 advising that there were changes to the final design of some fauna crossing locations and dimensions compared to that presented in Table 6-2 of Appendix B of the document listed under condition A1(d). A report prepared in consultation with DPI (Fishing and Aquaculture) and EPA outlining those changes, among other things, was provided at the same time and approval for those changes sought. P&E approved the changes in correspondence provided to Roads and Maritime on 2 February 2015.
B2	Investigations into the design of fauna and waterway crossings identified in Table 6-2 of Appendix B of the document listed under condition A1(d) during detailed design shall be undertaken with the input of a suitably qualified and experienced ecologist and in consultation with the OEH and DPI (Fishing and Aquaculture).		See response provide to condition B1.
B3	The Proponent shall prepare a report on the final design of fauna and/or waterway crossings identified in Table 6-2 of Appendix B of the document listed under condition A1(d), where the location of the crossing has changed and/or the crossing does not meet the minimum design principles identified in Table 6-2. The report shall be submitted to the Director General prior		See response provide to condition B1.

CoA no.	Requirement	Stage	Status / Reference
	to the commencement of construction of the relevant crossing, and shall demonstrate how the new location and/ or design would result in acceptable biodiversity outcomes. The report shall clearly identify how the fauna and/or waterway crossing will work in conjunction with complementary fauna exclusion fencing measures to be implemented for the project. The report shall be accompanied by evidence of consultation with the OEH and DPI (Fishing and Aquaculture) in relation to the suitability of any changes to the location and/or crossing design.		
B4	The Proponent shall investigate the provision of widened medians (with the aim of retaining existing vegetation in a widened median where feasible and reasonable) as an alternative to the provision of glider poles and rope bridges to facilitate the movement of gliders across the project at the following locations: (a) Cairncross 1 – between station 10000 to 11600; (b) Ballengarra 1b - between station 23200 to 24100; and (c) Maria River 1b - between station 33760 to 34380. The investigation shall be undertaken by a suitably qualified and experienced ecologist and in consultation with the OEH and DPI (Forests). The Proponent shall prepare a report on the median widening investigation, including the location and final design of the glider crossing measures and consequential impacts on other ecologically significant elements potentially affected by the widening. The report shall be submitted for the approval of the Director General no later than six months prior to the commencement of work that would result in the disturbance of native vegetation in the median widening investigation areas, or within such period otherwise agreed by the Director General. Work within the median investigation areas shall not commence until written approval has been received from the Director General.		Roads and Maritime prepared an Oxley Highway to Kempsey Widened Median Assessment and provided it to P&I for approval on 19 September 2013. The department reviewed the assessment and indicated that they had no objections to the conclusions drawn by the assessment, but noted that further matters needed to be addressed to fully satisfy conditions B4 and B5. Roads and Maritime subsequently prepared an Oxley Highway to Kempsey Widened Median Assessment Supplementary Report and provided it to P&I for approval on 11 February 2014. Following a review, the department advised that the original and supplementary assessments satisfied both conditions B4 and B5 with respect to Stage 2 of the project. However, noted that the two reports satisfied only condition B4 with respect to Stage 3 of the Project. The department indicated that a further supplementary report for Stage 3 would be required to satisfy the outstanding requirements outlined in earlier correspondence. Roads and Maritime and its construction partners prepared a further supplementary report to address the outstanding requirements and provided it to P&E on 15 September 2014. P&E subsequently approved the supplementary report on 8 January 2015.
B5	As part of the investigation into widened medians under condition B4, the Proponent shall investigate and report on the provision of widened medians at Barrys Creek (station 23967) as an alternative fauna crossing design for Koalas and Quolls.		See comments provide in response to condition B4.
B6	The Proponent shall, in consultation with the OEH and DPI (Fishing and Aquaculture), ensure that all waterway crossings are designed and constructed consistent with the principles of the *Guidelines for Controlled Activities Watercourse Crossings* (Department of Water and Energy, February 2008), *Policy and Guidelines for Fish Friendly Waterway Crossings* (NSW Fisheries, February 2004) and *Policy and Guidelines for Design and Construction of Bridges, Roads, Causeways, Culverts and Similar Structures* (NSW Fisheries 1999). Where multiple cell culverts are proposed for creek crossings, at least one cell shall be provided for fish passage, with an invert or bed level that mimics creek flows.		Waterway crossings have been designed in accordance with the requirements of this condition. See further detailed provided in response to conditions B1.

CoA no.	Requirement	Stage	Status / Reference
	Mitigation Measures – Nest Boxes		
B7	Prior to the commencement of construction work that would result in the disturbance of native vegetation (or as otherwise agreed by the Director General), the Proponent shall, in consultation with the OEH, prepare and submit for the approval of the Director General a **Nest Box Plan** to provide replacement hollows for displaced fauna. 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.		Roads and Maritime prepared a Nest Box Plan to address the requirements of this condition and submitted to the P&I for approval on 30 July 2013. P&I subsequently approved the plan on 14 October 2013.
	Biodiversity Offsets		
B8	The Proponent shall, in consultation with the OEH and DPI (Fishing and Aquaculture), develop a **Biodiversity Offset Strategy** that identifies the available options for offsetting the biodiversity impacts of the project in perpetuity, with consideration to the Principles for the use of biodiversity offsets in NSW (Office of Environment and Heritage website http://www.environment.nsw.gov.au/biocertification/offsets.htm dated 17 June 2011). Unless otherwise agreed to by the OEH and DPI (Fishing and Aquaculture), 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, salt marsh 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, and non-EEC riparian vegetation). The Strategy shall include, but not necessarily be limited to: (a) the aims and objectives of the biodiversity offset strategy; (b) confirmation of the vegetation type/ habitat (in hectares) to be cleared and their condition, and the size of offsets required (in hectares); (c) details of the type of available offset measures that have been identified to compensate for the loss of threatened species and vulnerable and endangered ecological communities and/ or their habitats, and native vegetation (including mangroves, seagrasses, salt marsh and riparian vegetation). The measures shall achieve a neutral or net beneficial outcome for all the biodiversity values likely to be impacted directly or indirectly during both the construction and operation of the project; (d) 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; (e) a process for addressing and incorporating offset measures arising from changes in biodiversity impacts (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 the footprint due to detailed design; (ii) changes to predicted impacts as a result of changes to mitigation measures;		Roads and Maritime have developed a Biodiversity Offset Strategy to address the requirements of this condition in consultation with OEH and DPI (Fishing and Aquaculture). The report was provided to the P&I for approval on 31 October 2013. The P&I subsequently approved the strategy on 27 January 2014.

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	(iii) the identification of additional species/ habitat through pre-clearance surveys and construction; and (iv) additional impacts associated with the establishment of ancillary facilities; and (f) options for the securing and management of biodiversity offsets in perpetuity. The Biodiversity Offset Strategy shall be submitted to the Director General for approval no later than 6 weeks prior to the commencement of construction that would result in the disturbance of native vegetation, unless otherwise agreed by the Director General. The Proponent may elect to satisfy the requirements of this condition by identifying a suitable offset strategy which addresses impacts from multiple Pacific Highway Upgrade projects within the North Coast Bio-region. Any such strategy, including an agreement made with the OEH, 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 date of approval of the Biodiversity Offset Strategy, unless otherwise agreed by the Director General, the Proponent shall prepare and submit a **Biodiversity Offset Package** for the approval of the Director General. The Package shall be developed in consultation with the OEH and DPI (Fishing and Aquaculture), and shall include, but not necessarily be limited to: (a) details of the final suite of the biodiversity offset measures to be implemented for the project demonstrating how it achieves the requirements of the Biodiversity Offset Strategy (including specified offset ratios); (b) the final selected means of securing the biodiversity values of the Package in perpetuity, including ongoing management, maintenance and monitoring 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, unless otherwise agreed by the Director General.	Construction	Roads and Maritime have engaged a suitably qualified and experienced ecological consultant to identify and assess requisite lands to fulfill the requirements of the approved Biodiversity Offset Strategy. The final offset package was to be submitted to the P&E on or before 27 January 2016, or as otherwise agreed. In a letter dated 2 February 2016, Roads and Maritime requested an extension for the submission of the Biodiversity Offset Package to allow Roads and Maritime to explore the option to utilise the Clybucca floodplain as a biodiversity offset. An approval for the extension request to 27 January 2016 remains outstanding.
	Ecological monitoring		
B10	The Proponent shall develop an **Ecological Monitoring Program** to monitor the effectiveness of the biodiversity mitigation measures implemented as part of the project. The program shall be developed by a suitably qualified and experienced ecologist in consultation with the OEH and DPI (Fishing and Aquaculture) and shall include but not necessarily be limited to: (a) an adaptive monitoring program to assess the effectiveness of the mitigation measures identified in conditions B1, B4, B7 and B31(b) and allow amendment to the measures if necessary. The monitoring program shall nominate performance parameters and criteria against which effectiveness will be measured and include operational road kill surveys to assess the effectiveness of fauna crossings and exclusion fencing implemented as part of the project; (b) mechanisms for developing additional monitoring protocols to assess the effectiveness		Roads and Maritime have developed an Ecological Monitoring Program to address the requirements of this condition in consultation with OEH and DPI (Fishing and Aquaculture). The report was provided to the P&I for approval on 4 December 2013. The P&I subsequently approved the program on 29 January 2014. The first annual ecological monitoring report was submitted to the DP&E, EPA and DPI (Fishing and Aquaculture) on 4 November 2015. This monitoring report covered the ecological monitoring conducted in the first year of construction, and, for completeness, during baseline surveys. Reports will continue to be prepared and submitted at yearly intervals. Roads and Maritime and its construction partners continue to fulfill

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	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 three successive monitoring periods (i.e 6 years) after opening of the project to traffic, unless otherwise agreed by the Director General. The monitoring period may be reduced with the agreement of the Director General in consultation with the OEH and DPI (Fishing and Aquaculture), depending on the outcomes of the monitoring; (d) provision for the assessment of the data to identify changes to habitat usage and whether this can be directly 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 the OEH and DPI (Fishing and Aquaculture), or as otherwise agreed by those agencies. The Program shall be submitted to the Director General for approval no later than 6 weeks prior to the commencement of construction that would result in the disturbance of native vegetation (unless otherwise agreed by the Director General).		all requirements of the EMP as necessary for each stage of the project. Any subsequent requirements will be implemented throughout the remainder of construction and operation as stipulated.
	Hydrology and Flooding		
B11	The Proponent shall ensure, where feasible and reasonable, that the project is designed to not exceed the afflux and other flooding criteria within the vicinity of the project as identified or predicted in the documents listed under condition A1. New or duplicated drainage structures shall be designed to minimise changes to afflux and flooding to waterways that traverse the project alignment to the greatest extent practicable.		Roads and Maritime and its construction partners have completed the detailed design for all stages of the project, that where feasible and reasonable, and in consultation with adjacent landowners, satisfies the requirements of this condition.
B12	The Proponent shall develop a **Hydrological Mitigation Report** for properties in the Hastings River and Wilson River floodplain areas 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 in those areas. The Report shall: (a) identify properties in those areas likely to have an increased flooding impact and detail the predicted increased flooding impact; (b) identify mitigation measures to be implemented where increased flooding is predicted to adversely affect access, property or infrastructure; (c) identify measures to be implemented to minimise scour and dissipate energy at locations where flood velocities are predicted to increase as a result of the project and cause localised soil erosion and/or pasture damage; (d) be developed in consultation with the relevant council, NSW State Emergency Service		Roads and Maritime and its construction partners have developed and finalised a Hydrological Mitigation Report (November 2014) to satisfy the requirements of this condition in consultation with Port Macquarie – Hastings Council, NSW State Emergency Services and directly affected landowners. The report concluded that there would be negligible change to the existing flood regime and therefore mitigation measures have not been proposed.

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	and directly-affected property owners; and (e) identify operational and maintenance responsibilities for items (a) to (c) inclusive. The Proponent shall not commence construction of the project on or within those 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.		
B13	Based on the mitigation measures identified in condition B12, 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) prior to the implementation/ construction 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 Department and the relevant council prior to the implementation/ construction of the mitigation measures on the property.		The Hydrological Mitigation Report concluded that there would be negligible change to the existing flood regime and therefore mitigation measures have not been proposed.
B14	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 B13), 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 in the Hastings River and Wilson River floodplain areas affected by increased afflux from the project to advise and assist affected property owners in negotiating feasible and reasonable mitigation measures.		The Hydrological Mitigation Report concluded that there would be negligible change to the existing flood regime and therefore mitigation measures have not been proposed. On this basis, the need to establish agreements with property owners was not required.
B15	The Proponent shall provide assistance to the relevant council 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.		The Hydrological Mitigation Report concluded that there would be negligible change to the existing flood regime and therefore mitigation measures have not been proposed. On this basis, the need to prepare and/or update flood management documentation was not required.
	Sedimentation, Erosion and Water		
B16	Prior to the commencement of construction, unless otherwise agreed by the Director General, the Proponent shall in consultation with the OEH and NOW, undertake groundwater modeling on the concept design for the project, subject to the modelling being revised should the detailed design have a significantly different impact on groundwater than the concept design. The modeling shall be undertaken by a suitably qualified and experienced groundwater expert and assess the construction and operational impacts of the proposal on the groundwater resources, groundwater quality, groundwater hydrology and groundwater dependent ecosystems and provide details of contingency and management measures in the groundwater management strategy required under condition B31(vii).		Roads and Maritime have developed a Water Quality Monitoring Program that includes relevant information and analysis to address the requirements of this condition. The program was developed in consultation with OEH and NOW. The report was provided to the P&I for approval on 11 February 2014. The P&I subsequently approved the program on 5 March 2014. In the event any future changes to the detailed design are predicted to have a significantly different impact on groundwater than that modelled for the concept design, further modelling would be undertaken in accordance with the requirements of this condition. Where necessary, and to ensure the potential for impacts are adequately monitored, the Water Quality Monitoring Program would be updated accordingly.

B17	The Proponent shall prepare and implement a Water Quality Monitoring Program to monitor the impacts of the project on surface and groundwater quality and resources and wetlands, during construction and operation. The Program shall be developed in consultation with the OEH, DPI (Fishing and Aquaculture) and NOW and shall include but not necessarily be limited to: a. identification of surface and groundwater quality monitoring locations (including watercourses, waterbodies and SEPP14 wetlands) which are representative of the potential extent of impacts from the project; b. the results of the groundwater modelling undertaken under condition B16; c. 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 of potentially affected waterways, including the risks to oyster farming in the Hastings River; d. development and presentation of parameters and standards against which any changes to water quality will be assessed, having regard to the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2000* (Australian and New Zealand Environment Conservation Council, 2000); e. representative background monitoring of surface and groundwater quality parameters for a minimum of twelve months (considering seasonality) prior to the commencement of construction, to establish baseline water conditions, unless otherwise agreed by the Director General; f. a minimum monitoring period of three years following the completion of construction or until the affected waterways and/ or 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 basins and vegetation swales); g. contingency and ameliorative measures in the event that adverse impacts to water quality are identified; and h. reporting of the monitoring results to the Department, OEH and NOW. 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 the OEH, DPI (Fishing and Aquaculture) and NOW prior to its implementation.		Roads and Maritime have developed a Water Quality Monitoring Program in consultation with OEH and NOW to address the requirements of this condition. The report was provided to the P&I for approval on 11 February 2014. The P&I subsequently approved the program on 5 March 2014. Pre-construction surface and groundwater quality monitoring reports in accordance with the approved Water Quality Monitoring Program were prepared and provided to P&E, OEH and NOW during June 2015. Construction water quality monitoring reports have since been provided to P&E, DPI, EPA and NOW on: • 20 August 2015 (first construction report) • 16 December 2015 (second construction report The third six-monthly construction water quality monitoring report is currently under development and will be provided to P&E, DPI, EPA and NOW in the coming months. Subsequent construction monitoring reports will be prepared for six monthly intervals and provided to P&E, OEH and NOW for all stages during construction of the project. The requirements of this condition are ongoing for all stages throughout construction and up to three years following completion of the project.
	Heritage impacts		
B18	Prior to the commencement of pre-construction and construction in Aboriginal sites OHK46/A, OHK47/A, OHK54/A, OHK90/A, OHK91/A and OHK219/A, the Proponent shall undertake the relevant salvage mitigation measures outlined in section 19.4.1 of Volume 1 of the EA for these sites. The results of the salvage program shall be provided to the Department, the OEH and Aboriginal stakeholders within six months of the completion of the salvage program, unless otherwise agreed by the Director General.		Roads and Maritime completed salvage works required by this condition in February 2013. Following a modification to the project approval on 15 November 2013, that among other things, allowed for the salvage of additional heritage sites, Roads and Maritime sought an extension to the provision of a report detailing the results of the salvage program required by this condition. The P&I approved the extension request on 30 January 2014 with a requirement that the report be provided by 31 December 2014. The report was subsequently provided to the department, OEH

			and Aboriginal stakeholders on 18 December 2014. P&E subsequently wrote to Roads and Maritime on 9 June 2015 advising that the report satisfactorily fulfilled the requirements of Condition B18A and B18C.
B18A	Prior to the commencement of pre-construction and construction activities affecting the Pipers Creek PAD site, the Proponent shall: (a) undertake archaeological investigations at the Pipers Creek PAD site generally consistent with section 6 of the September 2012 Kelleher Nightingale report referenced in condition A1(f), or a methodology prepared in consultation with OEH and approved by the Director General; and (b) report on the results of the investigations, including recommendations (such as for salvage), in consultation with OEH and to the satisfaction of the Director General. The report shall include but not necessarily be limited to: (i) consideration of measures to minimise disturbance to archaeology, where significant archaeological deposits are found to be present; (i) where impacts cannot be avoided, recommendations for any further investigations for significant archaeological deposits; and (ii) management and mitigation measures to ensure there are no additional impacts due to pre-construction and construction activities; and (c) undertake any salvage works recommended by the results of the archaeological investigations, in accordance with the report required under condition B18A(b).		See further detail provided in response to condition B18 with respect to items (a) and (b) of this condition. Salvage under item (c) is not required.
B18B	Prior to the commencement of pre-construction and construction activities affecting site OHK85, the Proponent shall undertake any salvage works recommended by the results of the archaeological investigations described in the 2013 Kelleher Nightingale document referenced in condition A1(f), in accordance with the relevant salvage mitigation measures outlined in section 19.4.1 of Volume 1 of the EA.		Salvage works have been completed in accordance with the requirements of this condition. The outcomes of the salvage have been documented in the report prepared in response to Condition B18.
B18C	Within 12 months of completing any salvage work in accordance with conditions B18A and/or B18B, or at such time otherwise agreed by the Director General, the Proponent shall submit a report containing the findings of the salvage works, prepared in consultation with OEH and to the satisfaction of the Director General.		Noted. See detailed status in response to Condition B18.
B19	Prior to the commencement of pre-construction and construction that affects the farm complex identified as OHK11 in Table 20-1 of Volume 1 of the EA, the Proponent shall prepare an archaeological assessment, which includes a research design and methodology to guide any proposed archaeological investigation, in accordance with the relevant Heritage Council of NSW guidelines. The archaeological assessment shall be prepared in consultation with the Office of Environment and Heritage (Heritage Branch) and submitted for the approval of the Director General prior to work commencing on site OHK11, unless otherwise agreed to by the Director General. The Excavation Director for the archaeological program shall meet the requirements of the Heritage Council of NSW's Excavation Director Criteria (Heritage Council of NSW website http://www.heritage.nsw.gov.au/docs/excavationdirectors.pdf dated July 2011). Any further archaeological work recommended on this site by the assessment shall be		Investigations in accordance with the requirements of this condition were completed on 29 May 2014. The outcomes of the investigation are summarised in the final excavation report provided to P&E and OEH on 15 September 2014. P&E subsequently wrote to Roads and Maritime advising that they had reviewed the report and were providing no further comment.

	undertaken by the Proponent in consultation with the Office of Environment and Heritage (Heritage Branch). A final report on the excavation shall be submitted to the Director General and the Heritage Council of NSW within six months of the completion of the archaeological fieldwork, unless otherwise agreed to by the Director General.		
	Urban Design and Landscaping		
B20	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) principal goal of achieving the urban design objectives outlined in Table 17-4 of Volume 1 of the EA; (b) location of existing vegetation and proposed landscaping (including use of indigenous and endemic species where possible) and design features; (c) graphics such as sections, perspective views and sketches for key elements of the project (including, but not limited to built elements such as retaining walls, cuttings, embankments, bridges, and noise barriers); (d) a description of 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.) and details of the strategies to progressively rehabilitate regenerate and/ or revegetate the locations with the objective of promoting 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; (e) an assessment of the visual screening affects of existing vegetation and the proposed landscaping. Where residences and businesses have been identified as likely to experience high visual impact as a result of the project and high residual impacts are likely to remain, the Proponent 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; (f) strategies for progressive landscaping of other environmental controls such as erosion and sedimentation controls, drainage and noise mitigation; (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 relevant council and community on the proposed urban design and landscape measures prior to its finalisation; and (i) monitoring and maintenance procedures for the built elements, rehabilitated vegetation and landscaping (including weed control) including performance indicators, responsibilities, timing and duration and contingencies where rehabilitation of vegetation and landscaping measures fail. The Plan shall be submitted for the approval of the Director General prior to the commencement of permanent built works and/ or landscaping, unless otherwise agreed by the Director General. The Plan may be submitted in stages to suit the staged construction program of the project.		Roads and Maritime and its construction partners have completed an Urban Design and Landscape Plan for each stage of the project in consultation with council, relevant stakeholders and the community. On 21 May 2014 Roads and Maritime wrote to P&E seeking approval for the Stage 1 Sancrox Traffic Arrangement works Urban Design and Landscape Plan. The plan was subsequently approved on 10 November 2014. On 29 April 2014 Roads and Maritime submitted a request for a six month extension for submission of the Stage 2 plan to the Director General for approval. The request was approved on 20 June 2014 and required the plan to be submitted for approval on or before 1 December 2014. P&I also advised that in the absence of submission, progress on development of the plan must be provided to the P&I by 1 September 2014. An update to the department was subsequently provided on 28 August 2014. The final plan was provided to P&E on 27 November 2014. Following minor revisions in response to further comments, the plan was subsequently approved on 18 February 2015. On 28 July 2014 Roads and Maritime submitted a request for an extension for submission of the Stage 3 plan to the Director General for approval. The request was approved on 28 August 2014 and required the plan to be submitted for approval on or before 1 December 2014. P&I also advised that in the absences of submission, progress on development of the plan must be provided to the P&I by 1 September 2014. An update to the department was subsequently provided on 16 October 2014 and a further request for an extension on submission of the plan was submitted on 27 November 2014. The extension request was approved on 21 February 2015 and required submission of the final plan by 1 June 2015. The final plan was subsequently provided to P&E on 1 June 2015 for approval. Further comments were received by P&E on 19 June 2015. On 25 August 2015 a further revision to the final plan was provided to P&E and additional advice on 21 September 2015. The final plan along with the subsequent advice provided in September 2015 was reviewed by P&E and an approval provided 9 October 2015. The approval letter required Roads and Maritime to provide a complete UDLP, which addressed formatting errors and missing pages. This was

			provided to DP&E on 2 February 2016.
	Traffic and Access		
B21	The Proponent shall ensure that the project is designed in consultation with DPI (Forests) 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 state forests to enable continued forestry operations, fire management and recreation during construction and operation unless otherwise agreed with DPI (Forests).		Noted. Design of accesses into Forestry Corporation reserves have been finalised in consultation with Forestry Corporation.
B22	The Proponent shall ensure that the project is designed to incorporate appropriate signage for townships along the existing highway that are bypassed by the project, in consultation with the relevant council and community. The signage policy shall be consistent with the Roads and Maritime Service's standard signposting 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 to the highway.		Noted. Consultation is ongoing in accordance with requirements of this condition, and forms part of a wider consultation strategy for the whole Pacific Highway upgrade program.
	Property and Landuse		
B23	The Proponent shall ensure that the project is designed to minimise land take impacts to surrounding properties (including agricultural properties) as far as feasible and reasonable, in consultation with the affected landowners. Where the viability of existing agricultural operations are identified to be highly affected by the land requirements of the project, the Proponent shall as part of detailed design employ a suitably qualified and experienced independent agricultural specialist (that is approved by the Director General for the purpose of this condition), to assist in the following (where agreed to by the relevant landowner): (a) identifying alternative farming opportunities for the relevant properties including purchase of other residual land to enable existing/new agricultural activities to continue; and/ or (b) negotiating appropriate compensation and/or arrangements for the purchase of the property under the *Land Acquisition (Just Terms Compensation) Act 1991*.		The design of the project has been optimised to minimise land take and best serve adjacent business and private land use practices. The viability of agricultural operations would not be substantially affected by the project.
	Compliance tracking		
B24	The Proponent shall develop and implement a Compliance Tracking Program to track compliance with the requirements of this approval. The Program shall be submitted to the Director General for approval prior to the commencement of construction and relate to both the construction and operational phases of the project, and include, but not necessarily be limited to: (a) provisions for the notification of the Director General of the commencement of works prior to the commencement of construction and prior to the 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 and the documents listed under condition A1, including the Statement of Commitments; (c) provisions for periodic reporting of compliance status against the requirements of this approval and the documents listed under condition A1, including the Statement of Commitments, 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	Pre-construction and construction	Roads and Maritime has developed a Compliance Tracking Program to address the requirements of this condition. The program was submitted to the P&I for approval on 12 April 2013. P&I subsequently approved the plan, subject to two additional conditions, on 22 July 2013. Roads and Maritime provided pre-construction compliance tracking reports for each stage of construction in the lead up to the commencement of each stage. These reports were provided on: • Stage 1 – 21 May 2014. • Stage 2 – 12 September 2014. • Stage 3 – 31 July 2014 P&E were notified on 25 August 2014 that construction on the project commenced on 22 July 2014. The first construction compliance tracking report for the period 22

	the construction and operation, as identified in the Program; (d) a program for independent environmental auditing in accordance with ISO 19011:2003 - Guidelines for Quality and/ or Environmental Management Systems Auditing; (e) mechanisms for reporting and recording incidents and actions taken in response to those incidents; (f) provisions for reporting environmental incidents to the Director General during construction and operation; and (g) procedures for rectifying any non-compliance identified during environmental auditing, review of compliance or incident management.		July 2014 to 21 January 2015 was provided to P&E on 24 March 2015. The report for the second period (22 January – 21 July 2015) was provided on 17 September 2015. This construction compliance tracking report outlines the status of compliance in accordance with the approved compliance tracking program developed in response to this condition. This report covers the third construction compliance tracking period between 22 July 2015 and 21 January 2016. Roads and Maritime informed P&E in writing on 2 November 2015 of the anticipated opening of Stage 1 of the project and provided a pre-operational compliance report in accordance with the condition at the same time. P&E wrote to Roads and Maritime on 18 November 2015 and advised they had no further comments on the matters. Stage 1 opened to traffic on 30 November 2015.
	Community Information and Involvement		
	Provision of Electronic Information		
B25	Prior to the commencement of construction, the Proponent shall establish and maintain a new website, or dedicated pages within an existing website, for the provision of electronic information associated with the project. The Proponent shall, subject to confidentiality, publish and maintain up-to-date information on the website or dedicated pages including, but not necessarily limited to: (a) information on the current implementation status of the project; (b) a copy of the documents referred to under condition A1 of this approval, and any documentation supporting modifications to this approval that may be granted from time to time; (c) a copy of this approval and any future modification to this approval; (d) a copy of each relevant environmental approval, licence or permit required and obtained in relation to the project; (e) a copy of each current strategy, plan, program or other document required under this approval; and (f) the outcomes of compliance tracking in accordance with the requirements of condition B24.	Pre-construction and construction	A project website has been established and is accessible through the Roads and Maritime corporate website. The website is updated at regular intervals and will contain all information, as a minimum, required by this condition.
	Complaints and Enquiries Procedure		
B26	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		Roads and Maritime and its construction partners have developed a Community Communications Strategy for each stage of the project that among other things, address the requirements of this condition. Further detail on the status of these strategies is provided in response to MCoA B28. Advertisements were placed local newspapers and sent to registered stakeholders in July and October 2014 advising the community of the anticipated commencement of the various stages of construction and also how to establish contact with

	to the commencement of project operation. The above details shall also be provided on the website (or dedicated pages) required by this approval.		Roads and Maritime and its construction partners via telephone, post and email. This information is also supplied with all community notifications and published on the project website.
B27	The Proponent shall 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, shall be maintained by the Proponent and included in a complaints register. The information contained within the System shall be made available to the Director General on request.		Roads and Maritime and its construction partners have developed a Community Communications Strategy for each stage of the project that among other things, address the requirements of this condition. Further detail on the status of these strategies is provided in response to MCoA B28.
	Community Involvement		
B28	The Proponent shall prepare and implement a **Community Communication Strategy** for the project. This Strategy shall be designed to provide mechanisms to facilitate communication between the Proponent, the Contractor, the Environmental Representative, the relevant council and the local community (broader and local stakeholders) on the construction and environmental management of the project. The Strategy shall include, but not necessarily be limited to: (a) identification of stakeholders to be consulted as part of the Strategy, including affected and adjoining landowners; (b) procedures and mechanisms for the regular distribution of information to stakeholders on the progress of the project and matters associated with environmental management; (c) procedures and mechanisms through which 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 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 issues/ disputes that may arise between parties on the matters relating to environmental management and the delivery of the project. This may include the use of an appropriately qualified and experienced independent mediator. The Proponent shall maintain and implement the Strategy throughout construction of the project. The Strategy shall be approved by the Director General prior to the commencement of construction, or as otherwise agreed by the Director General.		Roads and Maritime and its construction partners have developed a Community Communications Strategy for each stage of the Project that among other things, address the requirements of this condition. The Stage 1 Construction Community Liaison Management Plan prepared to address the requirements of this condition was submitted to P&E for approval on 19 May 2014. The plan was subsequently approved by the P&E on 10 June 2014. The Stage 2 Community Communications Strategy was submitted to P&E for approval on 9 September 2014. The plan was subsequently approved by the P&E on 4 November 2014. The Stage 3 Community Communications Strategy was submitted to P&E for approval on 31 July 2014. The plan was subsequently approved by the P&E on 13 October 2014.

	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 in condition A1), and construction personnel. The Proponent shall employ the Environmental Representative(s) for the duration of construction, or as otherwise agreed by the Director General. The Environment Representative(s) shall: (a) be the principal point of advice in relation to the environmental performance of the project; (b) be consulted in responding to the community concerning the environmental performance of the project where the resolution of points of conflict between the Proponent and the community is required; (c) monitor the implementation of environmental management plans and monitoring programs required under this approval; (d) monitor the outcome of environmental management plans and advise the Proponent upon the achievement of project environmental outcomes; (e) have responsibility for considering and advising the Proponent on matters specified in the conditions of this approval, and 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 B24 and the project's 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 (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.	Pre-construction and construction	Roads and Maritime sought approval for Mr Ben Luffman (GHD) as the Environmental Representative and Mr Maurice Pignatelli (GHD) as the alternative Environmental Representative on 17 May 2013. The P&I approved the nominations on 18 June 2013. Compliance with the condition is ongoing throughout all stages of the project.
	Construction Environmental Management Plan		
B30	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 relevant agencies and in accordance with the Guideline for the Preparation of Environmental Management Plans (Department of Infrastructure, Planning and Natural Resources, 2004). The Plan shall include, but not necessarily be limited to: (a) a description of 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 approvals, consultations and agreements required from agencies and key		A Construction Environmental Management Plan (CEMP), including relevant sub-plans, was prepared for each stage of the project in consultation with OEH and DPI (Fishing and Aquaculture) to address the relevant requirements of this condition. Roads and Maritime wrote to P&E on 3 April and 21 May 2014 seeking approval for the Stage 1 CEMP a number of sub plans. The CEMP and sub plans required by MCoA B31(a) to (e) were approved on 7 July 2014. Roads and Maritime wrote to P&E on 9 and 12 September 2014 seeking approval for the Stage 2 CEMP a number of sub plans.

	legislation and policies. Evidence of consultation with relevant agencies shall be included identifying how issues raised by these agencies have been addressed in the Plan; (c) a description of the roles and responsibilities for relevant employees involved in the construction of the project including relevant training and induction provisions for ensuring that 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 C28; (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 the staging of the construction of the project and/ or 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 emissions** including dust from stockpiles, blasting, traffic on unsealed public roads and materials tracking from construction sites onto public roads; (ii) measures to minimise **hydrology** impacts, including measures to stabilise bed and bank structures as required, (iii) measures to monitor and manage impacts associated with the construction and operation of **ancillary facilities**, (iv) measures for the handling, treatment and management of **contaminated materials**, (v) measures to monitor and manage waste generated during construction including but not necessarily limited to: general procedures for waste classification, handling, reuse, and disposal; use of secondary waste material in construction wherever feasible and reasonable; procedures for dealing with green waste including timber and mulch from clearing activities; and measures for reducing demand on water resources (including the potential for reuse of treated water from sediment control basins); (vi) measures to monitor and manage spoil, fill and materials **stockpile sites** including details of how spoil, fill or material would be handled, stockpiled, reused and disposed and a stockpile management protocol detailing locational criteria that would guide the placement of stockpiles and management measures that would be implemented to avoid/ minimize amenity impacts to surrounding residents and environmental risks (including to surrounding water courses). Stockpile sites that affect heritage, threatened species, populations or endangered ecological communities require the approval of the Director General, in consultation with the OEH; (vii) measures to monitor and manage **hazard and risks** including emergency management; and (viii) the issues identified in condition B31; (f) details of community involvement and complaints handling procedures during construction, consistent with the requirements of conditions B25 to B28; (g) details of compliance and incident management consistent with the requirements of condition B24; and		The CEMP and sub plans required by MCoA B31(a) to (e) were approved on 4 November 2014. Three minor changes to the Stage 2 CEMP have been endorsed by the environmental representative during a previous reporting periods. Roads and Maritime wrote to P&E on 30 July and 29 August 2014 seeking approval for the Stage 3 CEMP a number of sub plans. The CEMP and sub plans required by MCoA B31(a) to (e) were approved on 13 October 2014. Two minor changes to the Stage 3 CEMP have been endorsed by the environmental representative during a previous reporting period. One further change to the CEMP and or related sub plans was endorsed by the environmental representative during this reporting period. The change included: • An update to the CEMP to provide more options for conducting acoustic assessments, rather than just requiring the use of sound advice. There was also one update to the Stage 3 CNVMP approved by DP&E during this reporting period. In a letter dated 21 August 2015, Roads and Maritime requested an update to the Out of Hours Work Procedure within the CNVMP. The request was to remove the Director-General notification requirements for certain out of hours work, which were agreed to be errors not picked up during the preparation of the document. DP&E approved the update in a letter dated 27 August 2015.

	(h) procedures for the periodic review and update of the Construction Environmental Management Plan and sub-plans required under condition B31, 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.		
B31	As part of the Construction Environment Management Plan for the project required under condition B30, the Proponent shall prepare and implement the following sub plan(s):		
	(a) a **Construction Traffic Management Sub-plan**, prepared in accordance with the Roads and Maritime Service's QA Specification G10 – Control of Traffic and Traffic Control at Work Sites Manual (2003) to manage disruptions to traffic movements as a result of construction traffic associated with the project. The sub-plan shall be developed in consultation with the relevant 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) details of potential impacts to traffic on the existing highway and associated local roads, including intersection level of service and potential disruptions to pedestrians, public transport, parking, cyclists and property access; (iv) details of temporary and interim traffic arrangements to address potential impacts; (v) a response procedure for dealing with traffic incidents; and (vi) mechanism for the monitoring, review and amendment of this sub-plan;		A Construction Traffic Management Plan (TMP) to address the requirements of this condition was prepared for each stage of the Project. Roads and Maritime wrote to P&E on 21 May 2014 seeking approval for the Stage 1 TMP. The TMP required by this condition was approved on 7 July 2014. Roads and Maritime wrote to P&E on 9 September 2014 seeking approval for the Stage 2 TMP. The TMP required by this condition was approved on 4 November 2014. Roads and Maritime wrote to P&E on 29 August 2014 seeking approval for the Stage 3 TMP. The TMP required by this condition was approved on 13 October 2014.
	(b) a **Construction Flora and Fauna Management Sub-plan** to detail how construction impacts on ecology will be minimised and managed. The sub-plan shall be developed in consultation with the OEH and DPI (Fishing and Aquaculture) 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, seagrass and riparian vegetation). The surveys shall be undertaken by a suitably qualified and experienced ecologist and include targeted surveys during suitable conditions for Koalas, Green-thighed Frog, Giant Barred Frog and microbats within and in the vicinity of the project corridor; (ii) updated sensitive area/ vegetation maps based on B31(b)(i) above and previous survey work; (iii) details of general work practices and mitigation measures to be implemented during construction to minimise impacts on native fauna and native vegetation (particularly threatened species and EECs) not proposed to be cleared as part of the project, including, but not necessarily limited to: fencing of sensitive areas, a protocol for the removal and relocation of fauna during clearing, presence of a suitably qualified and		A Construction Flora and Fauna Management Plan (FFMP) to address the requirements of this condition was prepared in consultation with OEH and DPI (Fishing and Aquaculture) for each stage of the Project. Roads and Maritime wrote to P&E on 21 May 2014 seeking approval for the Stage 1 FFMP. The FFMP required by this condition was approved on 7 July 2014. Roads and Maritime wrote to P&E on 12 September 2014 seeking approval for the Stage 2 FFMP. The FFMP required by this condition was approved on 4 November 2014. Roads and Maritime wrote to P&E on 30 July 2014 seeking approval for the Stage 3 FFMP. The FFMP required by this condition was approved on 13 October 2014.

	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 (including controls to prevent the introduction or spread of Phytophthora cinnamomi), erosion and sediment control and progressive re-vegetation; (iv) 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; (v) a management strategy for the Green-thighed Frog and Giant Barred Frog in the case that the pre-construction surveys identify the presence of these species or its habitats in the project corridor or its vicinity. The strategy shall include details of the measures to avoid, minimise and mitigate impacts to these species; (vi) a Microbat management strategy in the case that the pre-construction surveys (undertaken at least 12 months in advance of disturbance to potential roosting structures, or as agreed by the Director General) identify the presence of or evidence of microbat roosting in the project corridor or its vicinity. The strategy shall detail measures to avoid, minimise and mitigate impacts to microbats and identified roost sites, including short and long term management measures; (vii) an aquatic vegetation management strategy for mangroves and seagrass. The strategy shall: i. identify the potential for the translocation of mangroves and/ or seagrass impacted by the project; ii. if translocation is feasible, include details of a translocation plan consistent with Policy and Guidelines for Fish Habitat Conservation and Management (NSW Fisheries 1999) including details of ongoing maintenance such as responsibilities, timing and duration; iii. identify a process for incorporating appropriate compensatory habitat for mangroves and/ or seagrass impacted by the project in the Biodiversity Offset Strategy referred to in condition B8 of this approval, should the information obtained during the investigation find that translocation is not feasible or where the monitoring undertaken finds that translocation measures have not been successful (as identified through performance criteria); and iv. include detail of mitigation measures to be implemented during construction to avoid and minimise impacts to areas identified to contain these species, including impacts from the use and storage of construction plant, equipment, materials and entry by personnel; (viii) a procedure for dealing with unexpected EEC/ threatened species identified during construction including cessation of work and notification of the OEH, determination of appropriate mitigation measures in consultation with the OEH (including relevant re-location measures) and update of ecological monitoring and/ or biodiversity offset requirements consistent with conditions B8 and B10; and		

	(ix) mechanism for the monitoring, review and amendment of this sub-plan;		
	(c) a **Construction Noise and Vibration Management Sub-plan** to detail how construction noise and vibration impacts will be minimised and managed. The sub-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 to the project; (ii) identification of key noise and/or vibration generating construction activities (based on representative construction scenarios, including at ancillary facilities) that have the potential to impact on surrounding sensitive receivers including expected noise/ vibration levels; (iii) identification of feasible and reasonable measures proposed to be implemented to minimize construction noise and vibration impacts (including construction traffic noise impacts); (iv) procedures for dealing with out-of-hour works in accordance with condition C4, including procedures for notifying the Director General concerning complaints received in relation to the extended hours approved under condition C4(d); (v) procedures and mitigation measures to ensure relevant vibration and blasting criteria are achieved, including a suitable blast program, 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 damage to buildings and structures (including surveys being undertaken immediately following a monitored exceedance of the criteria); (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 exceedences of relevant noise and vibration goals are detected;		A Construction Noise and Vibration Management Plan (NVMP) to address the requirements of this condition was prepared in consultation with EPA for each stage of the Project. Roads and Maritime wrote to P&E on 21 May 2014 seeking approval for the Stage 1 NVMP. The NVMP required by this condition was approved on 7 July 2014. Roads and Maritime have since submitted a revision to the Stage 1 CNVMP in relation to the Out of Hours Work Procedure. The submission was made on 9 July 2015 and an approval remains outstanding. Roads and Maritime wrote to P&E on 12 September 2014 seeking approval for the Stage 2 NVMP. The NVMP required by this condition was approved on 4 November 2014. Roads and Maritime wrote to P&E on 29 August 2014 seeking approval for the Stage 3 NVMP. The NVMP required by this condition was approved on 13 October 2014.
	(d) a **Construction Soil and Water Quality Management Sub-plan** to manage surface and groundwater impacts during construction of the project. The sub-plan shall be developed in consultation with the OEH, DPI (Fishing and Aquaculture) and NOW and include, but not necessarily be limited to: (i) identification of potential sources of erosion and sedimentation, and water pollution (including those resulting from maintenance activities); (ii) details of how construction activities would be managed and mitigated to minimise erosion and sedimentation consistent with condition C17; (iii) 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 stream hydrology impacts as far as practicable, including measures to stabilise bed and/ or bank structures where		A Construction Soil and Water Management Plan (SWMP) to address the requirements of this condition was prepared in consultation with OEH, DPI (Fishing and Aquaculture) and NOW for each stage of the Project. Roads and Maritime wrote to P&E on 21 May 2014 seeking approval for the Stage 1 SWMP. The SWMP required by this condition was approved on 7 July 2014. Roads and Maritime wrote to P&E on 9 September 2014 seeking approval for the Stage 2 SWMP. The SWMP required by this condition was approved on 4 November 2014. Roads and Maritime wrote to P&E on 30 July 2014 seeking approval for the Stage 3 SWMP. The SWMP required by this

	feasible and reasonable, and to rehabilitate affected riparian vegetation to existing or better condition. The timing of rehabilitation of the waterways shall be identified in the sub-plan; (iv) a contingency plan, consistent with the Acid Sulfate Soils Manual, to deal with the unexpected discovery of actual or potential acid sulfate soils, including procedures for the investigation, handling, treatment and management of such soils and water seepage; (v) a tannin leachate management protocol to manage the stockpiling of mulch and use of cleared vegetation and mulch filters for erosion and sediment control; (vi) construction water quality monitoring requirements consistent with condition B16; and (vii) a groundwater management strategy, including (but not necessarily limited to): i. description and identification of groundwater resources (including depths of the water table and water quality) potentially affected by the project based on baseline groundwater monitoring undertaken in accordance with condition B16; ii. identification of surrounding licensed bores, dams or other water supplies and groundwater dependant ecosystems and potential groundwater risks associated with the construction of the project on these groundwater users and ecosystems; iii. measures to manage identified impacts on water table, flow regimes and quality and to groundwater users and ecosystems; iv. groundwater inflow control, handling, treatment and disposal methods; and v. a detailed monitoring plan to identify monitoring methods, locations, frequency, duration and analysis requirements; and		condition was approved on 13 October 2014.
	(e) a **Construction Heritage Management Sub-plan** to detail how construction impacts on Aboriginal and non-Aboriginal heritage will be minimised and managed. The sub-plan shall be developed in consultation with the OEH and registered Aboriginal stakeholders (for Aboriginal heritage), and include, but not necessarily be limited to: (i) In relation to Aboriginal Heritage: i. details of management measures to be carried out in relation to recorded sites and potential Aboriginal deposits (including further archaeological investigations, salvage measures and/ or measures to protect unaffected sites during construction works in the vicinity); ii. procedures for dealing with previously unidentified Aboriginal objects (excluding human remains) including cessation 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 suitably qualified archaeologist in consultation with the Department, OEH and registered Aboriginal stakeholders and 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's Aboriginal Heritage Information Management System (AHIMS) register; iii. procedures for dealing with human remains, including cessation of works in the		A Construction Heritage Management Plan (HMP) to address the requirements of this condition was prepared in consultation with OEH, DPI (Fishing and Aquaculture) and NOW for each stage of the Project. Roads and Maritime wrote to P&E on 21 May 2014 seeking approval for the Stage 1 HMP. The HMP required by this condition was approved on 7 July 2014. Roads and Maritime wrote to P&E on 9 September 2014 seeking approval for the Stage 2 HMP. The HMP required by this condition was approved on 4 November 2014. Roads and Maritime wrote to P&E on 30 July 2014 seeking approval for the Stage 3 HMP. The HMP required by this condition was approved on 13 October 2014.

	vicinity and notification of the Department, NSW Police Force, OEH and registered Aboriginal stakeholders and not recommencing any works in the area unless authorised by the Department and/ or the NSW Police Force); and iv. Aboriginal cultural heritage induction processes for construction personnel (including procedures for keeping records of inductions) and procedures for ongoing Aboriginal consultation and involvement; and (ii) In relation to non-Aboriginal Heritage: i. details of management measures to be carried out in relation to recorded sites (including further heritage investigations, archival recordings and/ or measures to protect unaffected sites during construction works in the vicinity), consistent with the Mitigation and Management Strategies listed in Section 9 of the Non-Indigenous Heritage Impact Assessment prepared by South East Archaeology Pty Limited (dated December 2007); ii. procedures for dealing with previously unidentified non-Aboriginal objects, (including cessation 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 suitably qualified and experienced archaeologist in consultation with the Department and Office of Environment and Heritage (Heritage Branch) and assessment of the consistency of any new non-Aboriginal heritage impacts against the approved impacts of the project; and iii. non-Aboriginal heritage induction processes for construction personnel (including procedures for keeping records of inductions).		
	Part C – During Construction		
	Biodiversity		
C1	The Proponent shall employ feasible and reasonable measures to minimise the clearing of native vegetation during the construction of the project.		The requirements of this condition have been incorporated into the CEMPs and associated FFMP for each stage of the project. See discussion provided for MCoA B30 and MCoA B31(b).
	Air Quality Impacts		
C2	The Proponent shall employ feasible and reasonable measures (including cessation of relevant works, as appropriate) to ensure that the project is constructed in a manner that minimises dust generation, including wind-blown dust, traffic-generated dust, dust from stockpiles and material tracking from construction and ancillary facility sites onto public roads.		The requirements of this condition have been incorporated into a Construction Air Quality Management Sub-plan (AQMP) prepared as part of the CEMP for each stage of the project. See discussion provided for MCoA B30.
	Noise and Vibration Impacts		
	Construction Hours		
C3	The Proponent shall only undertake construction activities associated with the project during the following standard construction hours: (a) 7:00am to 6:00pm Mondays to Fridays, inclusive; and (b) 8:00am to 1:00pm Saturdays; and		The requirements of this condition have been incorporated into the NVMP for each stage of the Project. See discussion provided for MCoA B31(c).

	(c) at no time on Sundays or public holidays.		
C4	Works outside of the standard construction hours identified in condition C3 may be undertaken in the following circumstances: (a) works that generate noise that is: (i) no more that 5 dB(A) above rating background level at any residence; or (ii) no more than the noise management levels specified in Table 3 of the Interim Construction Noise Guideline (Department of Environment and Climate Change, 2009) at other sensitive land uses; or (b) for delivery of materials required outside these hours by the NSW Police Force 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 (being those areas in which sensitive receptors are located greater than 200 metres away from the project boundary). In this case construction is permissible during the following hours: 6.00am to 6.00pm Monday to Friday and 7.00am to 4.00pm Saturdays and at no time on Sundays or public holidays. These works hours may be reviewed and/ or revoked by the Director General in consultation with the EPA in the case of excessive or unresolved noise complaints; or (e) with the approval of the Director General in accordance with condition C5.		The requirements of this condition have been incorporated into the NVMP for each stage of the project. See discussion provided for MCoA B31(c). Compliance with the requirements of this condition continues across all stages of the project.
C5	Construction activities (Out of Hours work) may be allowed to occur outside the construction hours specified in condition 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 condition C3 for technical or other justifiable reasons and will be considered on a case by case or activity-specific basis. Request for Out of Hours work 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 General that activities undertaken during the varied construction hours are justified, appropriate consultation with potentially affected receivers and notification of the relevant 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 work may also occur in accordance with an approved Construction Environment Management Plan or Construction Noise and Vibration Management Sub-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.		The requirements of this condition have been incorporated into the NVMP for each stage of the Project. See discussion provided for MCoA B31(c). There have been no out of hours approval requests during the reporting period.
C6	Blasting associated with the project shall only be undertaken during the following hours:		The requirements of this condition have been incorporated into the NVMP for each stage of the project. See discussion provided for

<table>
<tr><td></td><td>(a) 9:00am to 5:00pm, Mondays to Fridays, inclusive;
(b) 9:00am to 1:00pm on Saturdays; and
(c) at no time on Sundays or public holidays.
This condition does not apply in the event of a direction from the NSW Police Force or other relevant authority for safety or emergency reasons to avoid loss of life, property loss and/or to prevent environmental harm.</td><td></td><td>MCoA B31(c).
Compliance with the requirements of this condition continues across all stages of the project.</td></tr>
<tr><td></td><td>Construction Noise and Vibration Goals</td><td></td><td></td></tr>
<tr><td>C7</td><td>The Proponent shall implement feasible and reasonable noise mitigation measures with the aim of achieving the construction noise management levels detailed in the Interim Construction Noise Guideline (Department of Environment and Climate Change, 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 Sub-plan required under condition B31.</td><td></td><td>The requirements of this condition have been incorporated into the NVMP for each stage of the project. See discussion provided for MCoA B31(c).</td></tr>
<tr><td>C8</td><td>The Proponent shall implement all feasible and reasonable mitigation measures with the aim of achieving the following construction vibration goals:
(a) for structural damage, the vibration limits set out in the German Standard DIN 4150-3: Structural Vibration - effects of vibration on structures; and
(b) for human exposure, the acceptable vibration values set out in the Environmental Noise Management Assessing Vibration: A Technical Guideline (Department of Environment and Conservation, 2006).</td><td></td><td>The requirements of this condition have been incorporated into the NVMP for each stage of the project. See discussion provided for MCoA B31(c).</td></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.
Table 1 – Airblast overpressure criteria
<table><tr><th>Airblast overpressure (dB(Lin Peak))</th><th>Allowable exceedance</th></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></td><td>The requirements of this condition have been incorporated into the NVMP for each stage of the project. See discussion provided for MCoA B31(c).
Compliance with the requirements of this condition continues across all stages of the project.
Note, Roads and Maritime’s Stage 3 construction partner have sought and received an approval from P&E to increase blasting limits. Monitoring to ensure compliance with the new limits is in progress at the two closest residents for all blasts.
Roads and Maritime’s Stage 2 construction partner, while not having sought a change to the blasting limits, is also conducting monitoring at the closest residential receiver (approximately 1.5 kilometres from blasting activities).</td></tr>
</table>

<table>
<tr>
<td>C10</td>
<td>The Proponent shall ensure that ground vibration generated by blasting associated with the project does not exceed the criteria specified in Table 2 when measured at the most affected residence or other sensitive receiver.

Table 2 – Peak particle velocity criteria
<table>
<tr><th>Receiver</th><th>Peak particle velocity (mm/s)</th><th>Allowable exceedance</th></tr>
<tr><td rowspan="2">Residence on privately owned land</td><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>
<tr><td>Non-Aboriginal Heritage item</td><td>3</td><td>0%</td></tr>
</table></td>
<td></td>
<td>The requirements of this condition have been incorporated into the NVMP for each stage of the project. See discussion provided for MCoA B31(c).

Compliance with the requirements of this condition continues across all stages of the project. See additional comments provided for C9.</td>
</tr>
<tr>
<td>C11</td>
<td>To ensure that the criteria specified in conditions C9 and C10 are satisfied at the most affected residence or other sensitive receiver, blasting trials shall be undertaken prior to the commencement of the project‘s blasting program, with results from the trial blasts used to determine site specific blast design to satisfy the relevant criteria.</td>
<td></td>
<td>The requirements of this condition have been incorporated into the NVMP for each stage of the Project. See discussion provided for MCoA B31(c).

Trial blasts were undertaken on both Stage 2 and Stage 3 prior to commencing the routine blasting programs.</td>
</tr>
<tr>
<td>C12</td>
<td>The blasting criteria identified in conditions C9 and/or C10 may be exceeded where the Proponent has a written agreement with the EPA and the relevant landowner to exceed the criteria identified in conditions C9 and/ or C10 and the Director General has approved the exceedance. In obtaining the Director General approval for any such exceedance 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 (including clear identification of proposed blast limits and potential property impacts) and agreement reached with the relevant landowners and EPA (including a copy of the agreement in relation to increased blasting limits).

Unless otherwise agreed by the Director-General, the following exclusions apply to the application of this condition:

(a) any agreements reached may be terminated by the landowner at any time should concerns about the increased blasting limits be unresolved;

(b) the blasting limit agreed to under any agreement can at no time exceed a maximum Peak Particle Velocity vibration level of 25 mm/s or maximum Airblast Overpressure level of 125 dBL; and</td>
<td></td>
<td>The requirements of this condition have been incorporated into the NVMP for each stage of the Project. See discussion provided for MCoA B31(c).

Compliance with the requirements of this condition continues across all stages of the project.

Roads and Maritime’s Stage 3 construction partner sought and obtained approval under this condition for an increase to the blasting criteria in three locations across the project. The request was submitted in a letter dated 7 April 2015, and approved by DP&E in a letter dated 5 May 2015.</td>
</tr>
</table>

	(c) these provisions under condition C12 (to increase applicable blast criteria in agreement with the relevant landowners) do not apply where the property is a non-Aboriginal heritage item.		
	Operational Noise Mitigation Review		
C13	Unless otherwise agreed by the Director General, within six months of commencing construction, the Proponent shall, in consultation with the 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 the Mingaletta Road rest areas, based on additional noise monitoring undertaken at this location; (b) review the suitability of the operational noise mitigation measures identified in the documents listed under condition A1 to achieve the criteria outlined in the Environmental Criteria for Road Traffic Noise (Environment Protection Authority, 1999), 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 (Environment Protection Authority, 1999).	Construction	Roads and Maritime prepared an operational noise management report to address the requirements of this condition for Stage 2 and submitted it to P&I for approval on 5 November 2013. The Director General subsequently approved the plan on 29 January 2014. As detailed in the Staging Report, within six months of the commencement of Stage 3, or as otherwise agreed with P&E, Roads and Maritime was to prepare and submit a report that reviews operational noise mitigation for Stage 1 and Stage 3 of the project. On 1 May 2015 Roads and Maritime sought approval to extend the submission of this report to 30 June 2015. The extension request was approved by Director General on 16 June 2015 and required submission of the report on or before 30 June 2015. Roads and Maritime subsequently submitted the report for approval on 22 June 2015. Comments were provided by the department on 7 July 2015. After review of these comments, and a revision of the noise model and report to include the Sancrox Traffic Arrangement Works, Roads and Maritime resubmitted the report to the department on 19 February 2016. An approval remains outstanding.
	Heritage		
C14	This approval does not allow the Proponent to destroy, modify or otherwise physically affect any human remains as part of the project.		Noted. Compliance with the condition is ongoing throughout all stages of the project.
C14A	The proponent shall not destroy, modify or otherwise physically affect any heritage items outside the approved project footprint, except where this has been approved by the Director General in accordance with condition C28 of this project approval.		Noted. Compliance with the condition is ongoing throughout all stages of the project. There have been no requests by Roads and Maritime during the reporting period.
C15	The Proponent shall not destroy, modify or otherwise physically affect the Maria River bridge (OHK14), unless otherwise agreed by the Director General.		Noted. Compliance with the condition is ongoing throughout Stage 2 of the project. There have been no requests by Roads and Maritime during the reporting period.
C16	The measures to protect Aboriginal or historic heritage sites near or adjacent to the project during construction shall be detailed in the Heritage Management Sub-plan required under		The requirements of this condition have been incorporated into the HMP for each stage of the project. See discussion provided for

	condition B31.		MCoA B31(e).
	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* (Department of Environment and Climate Change, 2008) shall be employed during the construction of the project for erosion and sediment control.		The requirements of this condition have been incorporated into the SWMPs for each stage of the project. See discussion provided for MCoA B31(d).
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.		The requirements of this condition have been incorporated into the SWMPs for each stage of the project. See discussion provided for MCoA B31(d).
	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 such property or structure, the Proponent shall arrange and fund repair of the damage to a standard comparable to that in existence prior to the damage occurring, unless otherwise agreed by the relevant property or utility owner.		Noted. Compliance with the condition is ongoing throughout all stages of the project.
C20	The Proponent shall ensure that access to property is maintained during construction unless otherwise agreed with the property owner in advance and that access physically affected by the project is reinstated to at least an equivalent standard, in consultation with the property owner.		The requirements of this condition have been incorporated into the TMPs for each stage of the project. See discussion provided for MCoA B31(a).
C21	The Proponent shall, in consultation with relevant property owners, 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), unless otherwise agreed by the relevant property owner.		Noted. Compliance with the condition is ongoing throughout all stages of the project.
	Forestry Impacts		
C22	Where the project traverses the Cairncross, Ballengarra and Maria River state forests, the Proponent shall, in consultation with DPI (Forests), ensure that construction activities do not unduly disrupt existing forestry activities, access for fire fighting and recreation activities during construction, unless otherwise agreed by DPI (Forests).		Noted. Compliance with the condition where relevant is ongoing throughout Stage 2 and Stage 3 of the project.
	Traffic Impacts		
C23	The roads likely to be used by the project's heavy construction vehicles shall be identified in the Traffic Management Sub-plan required under condition B31(a). Road dilapidation reports shall be prepared for local roads likely to be used by the project's construction traffic, and a copy of the report(s) shall be provided to the relevant council, prior to use by the project's heavy construction vehicles. Any damage resulting from the use of the identified local roads by the project's heavy construction vehicles, aside from that resulting from normal wear and tear, shall be repaired at the cost of the Proponent, unless otherwise agreed by the relevant		The requirements of this condition have been incorporated into the TMP for all stages of the Project. See discussion provided for MCoA B31(a). Road dilapidation reports were not required within the Stage 1 scope of works. All traffic movements for Stage 1 are on roads that will be upgraded throughout the course of the project by either

	council.		the Stage 1 or Stage 3 contractor. Dilapidation assessments of local roads used by the Stage 2 and Stage 3 contractors have been undertaken prior to the commencement of construction with extensive involvement from Kempsey and Port Macquarie Hastings councils, respectively. The reports have been finalised and issued. Agreements to repair damage due to construction traffic have been documented in regular meeting minutes and will be formalised in the final dilapidation reports.
	Waste Management		
C24	The Proponent shall not cause, permit or allow 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.		The requirements of this condition have been incorporated into a Construction Waste and Energy Management Sub-plan prepared as part of the CEMP for each stage of the project. See discussion provided for MCoA B30.
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.		The requirements of this condition have been incorporated into a Construction Waste and Energy Management Sub-plan prepared as part of the CEMP for each stage of the project. See discussion provided for MCoA B30.
C26	The Proponent shall ensure that liquid and/or non-liquid waste generated on the site is assessed and classified in accordance with *Waste Classification Guidelines* (Department of Environment and Climate Change, 2008) and where removed from the site is directed to a waste management facility lawfully permitted to accept the materials.		The requirements of this condition have been incorporated into a Construction Waste and Energy Management Sub-plan prepared as part of the CEMP for each stage of the project. See discussion provided for MCoA B30.
	Hazards and Risks		
C27	The Proponent shall store and handle dangerous goods, as defined by the Australian Dangerous Goods Code, strictly in accordance with: (a) relevant Australian Standards; (b) for liquids, a minimum bund volume requirement of 110% of the volume of the largest single stored volume within the bund; and (c) the *Environment Protection Manual for Authorised Officers: Bunding and Spill Management*, Technical Bulletin (Environment Protection Authority, 1997). In the event of an inconsistency between the requirements listed from (a) to (c) above, the most stringent requirement shall prevail to the extent of the inconsistency.		The requirements of this condition have been incorporated into a Construction Waste and Energy Management Sub-plan prepared as part of the CEMP for each stage of the project. See discussion provided for MCoA B30.
	Ancillary Facilities		
C28	Unless otherwise approved by the Director General in accordance with this condition, the sites for ancillary facilities (except stockpiles) 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;		The requirements of this condition have been incorporated into the CEMPs prepared for each stage of construction. See discussion provided for MCoA B30. There have been no requests for approval been sought during this reporting period?

	(c) be located in areas of low ecological significance and require minimal clearing of native vegetation (not beyond that already required by the project); (d) be located on relatively level land; (e) be separated from the nearest residences by at least 200 metres (or at least 300 metres for a temporary batching plant); (f) not unreasonably affect the land use of adjacent properties; (g) be above the 20 ARI flood level unless a contingency plan to manage flooding is prepared and implemented; (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 A1, to the satisfaction of the Director General. Such assessment(s) can be submitted separately or as part of the Construction Environmental Management Plan required under condition B30.		
C28A	The proponent may request to establish and operate an ancillary facility prior to commencement of construction under condition C28. Where establishment and operation of an ancillary facility prior to commencement of construction is proposed, the proponent shall demonstrate that establishment and operation of that ancillary facility prior to commencement of construction complies with all relevant conditions of approval, to the satisfaction of the Director General.		Noted. Roads and Maritime wrote to P&E on 23 May 2014 seeking approval to establish and operate an ancillary facility at chainage 7000 (Stage 3) subject to the requirements of this condition. Following revisions to the initial environmental review, P&E approved operation of the facility on 15 October 2014.
C29	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 C28 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 mpacts 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.		Noted. Compliance with the condition is ongoing throughout all stages of the project. One facility (Stage 2) deemed to have minimal environmental impact was endorsed by the Environmental Representative during the reporting period.
	Part D – Prior to operation		

	Operational Environmental Management System		
D1	Prior to the commencement of operation, the Proponent shall incorporate the project into its existing environmental management systems.	Construction Operation	Ongoing operational requirements, subject to this approval, will be incorporated into the Roads and Maritime operational management system.
	Part E – During operation		
	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 C13, 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 C13 and documents specified under condition A1 of this approval; (b) a review of the operational noise levels in terms of criteria and noise goals established in the Environmental Criteria for Road Traffic Noise (Environment Protection Authority, 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 additional feasible and reasonable measures to those identified in the review of noise mitigation measures required by condition C13, that would be implemented with the objective of meeting the criteria outlined in the Environmental Criteria for Road Traffic Noise (Environment Protection Authority, 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 in (a) above or as otherwise agreed by the Director General.	Operation	Noted. As detailed in the Staging Report, within 12 months of the commencement of operation of each stage of the project, or as otherwise agreed, Roads and Maritime will undertake operational noise monitoring, and prepare and submit a report addressing the requirements of this condition. Due to the geographical relationship between Stage 1 and Stage 3, one operational noise report would be prepared to cover both stages. The report would be prepared and submitted within 60 days of completion of the operation noise monitoring as prescribed by this condition.

Table 2 - Revised statement of commitments (March 2011)

CoA no.	Requirement	Stage	Status / Reference
	Environmental Management		
EM1	The head contractor for the Proposal will have an environmental management system.	Construction	Ferrovial Agroman (Australia) Pty Ltd were appointed the Roads and Maritime construction partner for Stage 1 McConnell Dowell & OHL Joint Venture were appointed the Roads and Maritime construction partner for Stage 2. Lend Lease Engineering Pty Limited were appointed the Roads and Maritime construction partner for Stage 3 All of Roads and Maritime construction partners for the project have an environmental management system in place that fulfills the requirements of ISO 14001.
EM2	Suitable qualified and experienced personnel will develop and implement project-specific environmental management plans and procedures. The environmental management plans and procedures will incorporate management measures identified in the environmental assessment.	Construction	A CEMP and associated sub-plans were developed to address the requirements of this commitment for each stage of the project. See further detail in Table 1 / MCoA B30.
EM3	A construction resource plan will be developed to ensure there are adequate resources to undertake the proposed works according to programme.	Pre-construction	Roads and Maritime has developed an overarching resource plan for the Pacific Highway and one specifically for the Oxley Highway to Kempsey upgrade project. Specific measures and/or considerations that form part of these plans, and others developed by Roads and Maritime's construction partners that would otherwise be included in a project specific construction resource plan, have been incorporated into various other construction related documentation including: construction programs, earthworks plans, quality management system and plans, and the CEMPs.
EM4	The head contractor will implement a construction environmental management plan.	Construction	A CEMP and associated sub-plans have been developed for each stage of the project for implementation to address the requirements of this condition. See further detail in Table 1 / MCoA B30.
	Community consultation		
CC1	The community will be provided with regular project updates, given prior notice of project activities and provided contact details for enquiries. Where required, affected individuals or groups will be consulted directly and provided with targeted notifications (eg watercourse users and noise affected residences).	Construction	Roads and Maritime and its construction partners for each stage have developed community communications strategies to outline, among other things, how the requirements of this commitment will be addressed. See further detail in Table 1 / MCoA B26. Four community updates were published during the reporting period and included information about works anticipated during the

CoA no.	Requirement	Stage	Status / Reference
			reporting period, changed conditions for motorists including opening of Sancrox traffic arrangement works, bus stop information, road closures, out of hours works, blasting information and the location of community displays. Further community updates will be issued during subsequent compliance tracking reporting periods.
CC2	The community will be able to make complaints using the project's 24-hour toll free complaints number or the project web page. The number will be publicised and the project-specific web page will include directions on how to register a complaint. All complaints will be acknowledged within a specified timeframe, recorded and tracked until resolved.	Construction	Refer above to CC1. A toll free 24-hour complaint number has been publicised on the project webpage.
CC3	A community consultation plan will be implemented.	Construction	Refer above to CC1.
CC4	Consultation will take place between the RTA and Forests NSW and all other necessary agencies to agree management principles for Crown land.	Construction	Noted. There is no known crown land adjacent to the project. If circumstances were to change, the requirements of this commitment would be met by Roads and Maritime.
	Land use and property		
LP1	All property acquisitions will be negotiated in accordance with the RTA Land Acquisitions, Policy Statement and compensation will be assessed under the provisions of the *Land Acquisition (Just Terms Compensation) Act 1991*.	Pre-construction	All property acquisitions associated with the project have been undertaken in accordance with the requirements of this condition.
LP2	Where alternative access arrangements are not feasible or practical and a property is left with no access to a public road, negotiations will be undertaken with the relevant property owners for the acquisition of the property in accordance with the provisions of the *Land Acquisition (Just Terms Compensation) Act 1991*.	Pre-construction and Construction	Noted. Compliance with the condition is ongoing throughout all stages of the project.
LP3	Forests NSW will have access to areas of state forest land identified for acquisition to remove any harvestable timber within the footprint of the Proposal.	Pre-construction and Construction	Noted. Compliance with the condition is ongoing throughout Stage 2 and Stage 3 of the project. Harvestable timber was set aside during the clearing operation and has since been provided to Forest NSW.
LP4	Where a licensed bore, dam or other property water supply is adversely affected the RTA will investigate an alternative source of water or negotiate compensation with the property owner.	Pre-construction and Construction	A number of private bores and one spring fed dam may be affected during construction of Stage 2 and Stage 3 of the project. Monitoring and/or mitigation of any impacts at these locations has been, or will be, conducted in accordance with the approved Water Quality Monitoring Program. Compliance with the condition is ongoing throughout Stage 2 and Stage 3.
	Socio-economic		

CoA no.	Requirement	Stage	Status / Reference
SE1	On-going consultation with potentially affected community and businesses will occur prior to and during construction to address concerns and issues and to identify any adaptive management requirements where feasible and reasonable.	Pre-construction and Construction	Roads and Maritime and its construction partners for the project have developed community communications strategies to outline, among other things, how the requirements of this commitment will be addressed. Further detail is provided in Table 1 / MCoA B26.
SE2	Adequate signage will be implemented during construction and operation to ensure businesses and their patrons are aware of new access routes and/or potential disruptions.	Pre-construction / Construction / Operation	Roads and Maritime and its construction partners have developed traffic management sub-plan with a process to ensure the requirements of this condition are fulfilled. Further detail is provided in Table 1 / MCoA B26.
SE3	Occupation and use of compounds and work sites will minimise disturbance to adjacent residents by managing, and minimising where possible: the movement of vehicles, particularly outside of standard working hours; providing temporary noise attenuation (eg, shielding) if practicable; and providing screening to minimise visual intrusion.	Construction	CEMPs that incorporate a construction traffic management sub-plans have been prepared for each stage of the project to address the relevant requirements of this commitment. Further detail is provided in Table 1 / B31(a).
SE4	Traffic management procedures to minimise disruption.	Construction	See comment above for SE3.
SE5	Adopt a construction environmental management plan to minimise amenity impact.	Construction	The CEMPs and Urban Design and Landscape Management Plans developed for each stage of the project contain a number of measures to minimise amenity impacts during construction. Further detail is provided in Table 1 / B20 and B30.
SE6	Management of acid sulfate soils to minimise impacts on priority oyster aquaculture areas.	Construction	The requirements of this condition have been incorporated into the SWMP for Stage 3 of the project. Further detail is provided in Table 1 / B31(d).
	Surface and groundwater		
SGW1	Bunded areas will be used for storage of oils, chemicals, toxic substances and combustible liquids, and for potentially hazardous and contaminating activities (eg washing construction vehicles, plant and equipment, handling and pouring hazardous materials and liquids etc).	Construction	CEMPs and associated sub-plan (eg SWMP) for each stage of the project have been prepared in consultation with the EPA, DPI (Fishing and Aquaculture) and NOW to address the requirements of this commitment. Further detail is provided in Table 1 / MCoA B31(d).
SGW 2	Spills will be contained immediately and will be stored in bunded areas until disposal. Spills will be disposed of at a facility that is licensed to receive the waste, or may be disposed of after appropriate treatment.	Construction	Roads and Maritime's Environmental Incident Classification and Reporting Procedure has been adopted by all the construction partners on the project and will be implemented to address the requirements of this commitment.
SGW 3	Water quality will be monitored upstream and downstream of the Proposal site during construction to determine the effectiveness of mitigation strategies. The monitoring program will be developed in consultation with DECCW.	Construction	Roads and Maritime have developed a Water Quality Monitoring Program in consultation with OEH and NOW to address the requirements of this commitment. The program was provided to the P&I for approval on 11 February 2014. The P&I subsequently approved the program on 5 March 2014. The WQMP has been

CoA no.	Requirement	Stage	Status / Reference
			implemented throughout reporting period, with results to be reported separately in a construction water quality monitoring report for the reporting period. Further detail is provided in Table 1 / MCoA B17.
SGW 4	Specific work method statements for in-stream works will be developed and implemented in consultation with relevant government agencies.	Construction	See comment above for SGW1.
SGW 5	Sediment and erosion control measures will be implemented during the construction and the post construction rehabilitation process.	Construction	See comment above for SGW1.
SGW 6	The potential for changes in the groundwater table will be further investigated before any major earthworks (defined as a cut or fill with a depth or height exceeding five metres) are undertaken. Where a potential for change is identified, the significance of the change and any resultant impacts will be determined. Where necessary, measures to manage the changes will be designed and implemented.	Pre-construction	Roads and Maritime have developed a Water Quality Monitoring Program in consultation with OEH and NOW to document and address the requirements of this commitment. The report was provided to the P&I for approval on 11 February 2014. The P&I subsequently approved the program on 5 March 2014.
SGW 7	Areas of potential acid sulfate soils and actual acid sulfate soils will be confirmed and managed in accordance with standard environmental management measures.	Construction	See comment above for SGW1. The SWMPs for each stage of the project contain a Construction Acid Sulfate Management Sub-Plan that outlines how the requirements of this commitment will be addressed.
SGW 8	Design to be sensitive to stream morphology, reduce scour and minimise impacts to vegetation.	Pre-construction and Construction	SWMPs for each stage of the project have been prepared in consultation with the EPA, DPI (Fishing and Aquaculture) and NOW to address the requirements of this commitment. Further detail is provided in Table 1 / MCoA B31(d).
SGW 9	The detailed design of minor waterway crossing structures will be refined during detailed design to maximise hydraulic performance.	Pre-construction and Construction	Roads and Maritime and its construction partners have completed the detailed design for the project. The design incorporates the requirements of this commitment.
SGW 10	Measures to mitigate potential impacts on local geomorphology will be investigated during detailed design.	Pre-construction and Construction	Roads and Maritime and its construction partners have completed the detailed design for the project. The design incorporates the requirements of this commitment.
SGW 11	A water management plan will be developed to ensure water resources are used in the most efficient manner with a focus on achieving water savings and targeting water recycling and re-use.	Construction	See comment above for SGW1.
	Flora and fauna		
F1	Detailed design will minimise the area of native vegetation and habitat to be cleared wherever reasonable and feasible.		Roads and Maritime and its construction partners have completed the detailed design for the project and have taken into consideration the requirements of this commitment. Minimising the extent of native vegetation clearing has remained a focus

CoA no.	Requirement	Stage	Status / Reference
			throughout this detailed design process. Any further refinements adopted during construction of the Project would also consider this commitment.
F2	The limits of clearing and other native vegetation disturbance will be clearly marked on relevant work plans and on site with temporary fencing installed prior to clearing.		The CEMP and associated FFMPs prepared for each stage of the project outline how the requirements of this commitment have been addressed.
F3	Rehabilitation and revegetation will be undertaken in stages and as early as practicable to restore and enhance habitat opportunities.		The FFMP and SWMP prepared for each stage of the project in consultation with the EPA, and DPI (Fishing and Aquaculture) outline how the requirements of this commitment have been addressed.
F4	Habitat features and resources for native fauna (such as hollow-bearing trees, hollow logs, nest boxes and bush rocks) impacted by the Proposal will be relocated where feasible and reasonable. Such relocation will be undertaken in a manner to limit damage to existing vegetation and will not occur in high condition remnant vegetation.		The FFMP prepared for each stage of the project in consultation with the EPA, and DPI (Fishing and Aquaculture) outline how the requirements of this commitment have been addressed.
F5	Native and locally indigenous plants will be used in the landscaping and disturbed areas will be progressively revegetated.		The FFMP and Urban Design and Landscape Plan (UDLP) prepared for each stage of the project in consultation with the EPA outline how the requirements of this commitment have been addressed. Further detail is provided in Table 1 / MCoA B20, MCoA B31.
F6	Watercourse crossings will be designed to facilitate fish passage where appropriate and in consultation with relevant government agencies.		Waterway crossings associated with the project have been design with reference to the NSW Department of Primary Industries, *Why Do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings*, 2003 and in consultation with the DP&I (Fishing and Aquaculture) to fulfill the requirements of this commitment.
F7	Water quality control measures will be installed as early as possible in the construction program and will be designed / selected to meet identified receiving water objectives.		SWMPs have been prepared for each stage of the project in consultation with the EPA, DPI (Fishing and Aquaculture) and NOW to address the requirements of this commitment. In addition, EPLs issued for the project required a number of temporary and/or permanent water quality control basins to be installed prior to broad-scale clearing and earthworks. This has occurred extensively across the project.
F8	A weed management strategy would be developed as part of the construction environmental management plan.		FFMPs that include Weed Management Strategies have been prepared for each stage of the project to address the requirements of this commitment.
F9	Threatened plants in proximity to the Proposal that are to be retained will be identified by pre construction surveys and protected during construction through exclusion fencing and education of construction workers through the site induction process.		FFMPs have been prepared in consultation with OEH for each stage of the project to address the requirements of this commitment.

CoA no.	Requirement	Stage	Status / Reference
F10	The feasibility of relocating individuals of threatened species to suitable habitat will be investigated.		FFMPs prepared in consultation with OEH for each stage of the project include a consideration of the feasibility of relocating individuals of threatened species to address the requirements of this commitment. One threatened plant species (*Maundia triglochinoides*) has been directly impacted by the project. The species occurs at four locations within the project corridor and has been directly impacted at two of these locations. Due to the species requisite habitat requirements and the relatively small impact attributable to the project, relocation of individual plants was not proposed. Rather, further direct impacts attributable to the project will be avoided by the implementation of mitigation measures that define clearing limits and protect water quality in adjacent waterways.
F11	Consideration would be given to constructing artificial frog ponds if appropriate.		CFFMPs prepared for Stage 2 and Stage 3 of the project detail the location of four artificial frog ponds to be constructed to address the requirements of this commitment. There will be two ponds in each stage.
F12	A suitably qualified ecologist will undertake preclearance surveys. Searches will include nests and large hollow-bearing trees and target habitats of hollow-dwelling species, koalas and frogs. Fauna species found in pre-clearance surveys will be relocated to suitable habitat as close as possible to the area in which they were found.		FFMPs prepared for the project in consultation with the EPA outline how the requirements of this commitment will be addressed. Pre-clearing surveys have occurred extensively during this reporting period.
F13	Where feasible and reasonable, removal of frog habitat along drainage lines will not be undertaken during periods of wet weather.		Roads and Maritime and its construction partners have prepared FFMPs for each stage of the project to address the requirements of this commitment.
F14	The construction contractor will maintain contact details for local DECCW officers, WIRES and/or other relevant local wildlife carer groups.		Contact details for local OEH officers, WIRES and/or other relevant local carer groups have been included in the FFMPs prepared for each stage of the project. The plans will be updated as required by the mechanisms outlined in Section 9 of the respective CEMPs.
F15	Surveys will be undertaken for threatened bat species by a suitably qualified ecologist to identify any roosting bats prior to the demolition of the existing highway bridges. Any bats will be moved and relocated following consultation with DECCW.		Roads and Maritime has developed a micro-bat strategy in consultation with OEH to address the requirements of this commitment. The micro-bat strategy forms an important comment of the FFMPs prepared for each stage of the Project. See further detail at Table 1 / MCoA B31(b)(vi) This activity was completed across the project in September 2014.
F16	Development of a nest box strategy will be undertaken.		Roads and Maritime prepared a Nest Box Plan to address the requirements of this commitment and submitted it to the P&I for approval on 30 July 2013. P&I subsequently approved the plan on 14 October 2013. The nest box strategy has been incorporated

CoA no.	Requirement	Stage	Status / Reference
			into the FFMPs prepared for each stage of the project.
F17	Culverts and bridges identified in the Environmental Assessment as having a potential role in fauna crossing will be designed to facilitate fauna movements where feasible and reasonable.		Detailed design of fauna and waterway crossings has been completed for the project. Roads and Maritime wrote to the P&I on 26 July 2013 regarding Stage 2 advising that there were changes to the final design of some fauna crossing locations and dimensions compared to that presented in Table 6-2 of Appendix B of the document listed under MCoA A1(d). A report prepared in consultation with DPI (Fishing and Aquaculture) and EPA outlining those changes, among other things, was provided at the same time and approval for those changes sought. The P&I approved the changes in correspondence provided to Roads and Maritime on 25 September 2013. Detailed design of fauna and waterway crossings has also been completed for Stage 3. Roads and Maritime wrote to the P&E on 9 December 2014 advising that there were changes to the final design of some fauna crossing locations and dimensions compared to that presented in Table 6-2 of Appendix B of the document listed under condition A1(d). A report prepared in consultation with DPI (Fishing and Aquaculture) and EPA outlining those changes, among other things, was provided at the same time and approval for those changes sought. P&E approved the changes in correspondence provided to Roads and Maritime on 2 February 2015.
F18	The feasibility of widening the median will be further investigated in consultation with DECCW during the detailed design.		Roads and Maritime prepared an Oxley Highway to Kempsey Widened Median Assessment and provided it to P&I for approval on 19 September 2013. The department reviewed the assessment and indicated that they had no objections to the conclusions drawn by the assessment, but noted that further matters needed to be addressed to fully satisfy conditions B4 and B5. Roads and Maritime subsequently prepared an Oxley Highway to Kempsey Widened Median Assessment Supplementary Report and provided it to P&I for approval on 11 February 2014. Following a review, the department advised that the original and supplementary assessments satisfied both conditions B4 and B5 with respect to Stage 3 of the Project. However, noted that the two reports satisfied only condition B4 with respect to Stage 3 of the Project. The department indicated that a further supplementary report for Stage 3 would be required to satisfy the outstanding requirements outlined in earlier correspondence. Roads and Maritime and its

CoA no.	Requirement	Stage	Status / Reference
			construction partners prepared a further supplementary report to address the outstanding requirements and provided it to P&E on 15 September 2014. P&E subsequently approved the supplementary report on 8 January 2015.
F19	Fauna exclusion fencing (eg floppy-top fencing) will be erected along the Proposal at appropriate locations to direct fauna movement towards fauna crossing structures.		Detailed design has been completed for the project and includes the provision of about 50 kilometres of fauna exclusion fencing (eg floppy top fencing, frog fencing) consistent with the requirements of this commitment.
F20	An agreement will be developed in negotiation with Department of Planning and in consultation with DECCW for habitat offsets.		Roads and Maritime have developed a Biodiversity Offset Strategy to address the requirements of this commitment in consultation with OEH and DPI (Fishing and Aquaculture). The report was provided to the P&I for approval on 31 October 2013. The P&I subsequently approved the strategy on 27 January 2014.
F21	A monitoring program will be developed to allow the effectiveness of mitigation and offset measures to be assessed and allow for their modification if necessary. The program will be for a minimum of 12 months after construction completion.		Roads and Maritime have developed an Ecological Monitoring Program to address the requirements of this commitment in consultation with OEH and DPI (Fishing and Aquaculture). The report was provided to the P&I for approval on 4 December 2013. The P&I subsequently approved the program on 29 January 2014.
	Noise and vibration – construction noise		
CN1	All feasible and reasonable mitigation and management measures to minimise construction noise and vibration at sensitive receivers will be investigated. Noise and vibration will be monitored to measure against predicted levels. Where required, feasible and reasonable mitigation measures will be implemented.	Construction	NVMPs prepared for the project in consultation with the EPA address the relevant requirements of this commitment. Further detail is provided in Table 1 / B31(c).
CN2	All reasonable attempts will be made to contact sensitive receivers that will be affected by blasting at least 48 hours prior. Blasting will normally be limited to between 9am and 5pm Monday to Friday and between 9am and 1pm Saturday. No blasting will take place outside these hours without approval from Department of Planning and following consultation with and/or notification of local residents and DECCW.	Construction	See comment above for CN1.
CN3	Construction will normally be limited to the following hours: • Between 6am and 6pm Monday to Friday. • Between 7am and 4pm Saturday. There would be no works outside these hours, or on Sundays or public holidays, except: (a) For 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 work is required in an emergency to avoid the loss of lives, property and/or to prevent environmental harm. (d) For any other work as agreed through negotiations between the RTA and potentially	Construction	See comment above for CN1.

CoA no.	Requirement	Stage	Status / Reference
	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 construction noise and vibration management plan and approved as part of the construction environmental management plan. (f) As otherwise agreed by the DECCW. Local residents and the DECCW will be informed of the timing and duration of work approved under items (d) and (e) at least 48 hours before that work commences. Hours of work will be addressed in the construction noise and vibration management plan, which will be finalised in consultation with the Department of Planning and the DECCW.		
	Noise and vibration – operational noise		
ON1	Where required, reasonable and feasible noise and vibration management measures will be further developed and implemented during detailed design in consultation with relevant property owners.		Roads and Maritime prepared an operational noise management report to address the requirements of this commitment for Stage 2 and submitted it to P&I for approval on 5 November 2013. The Director General subsequently approved the plan on 29 January 2014. As detailed in the Staging Report, within six months of the commencement of Stage 3, or as otherwise agreed with P&E, Roads and Maritime was to prepare and submit a report that reviews operational noise mitigation for Stage 1 and Stage 3 of the project. On 1 May 2015 Roads and Maritime sought approval to extend the submission of this report to 30 June 2015. The extension request was approved by Director General on 16 June 2015 and required submission of the report on or before 30 June 2015. Roads and Maritime subsequently submitted the report for approval on 22 June 2015. Comments were provided by the department on 7 July 2015. After review of these comments, and a revision of the noise model and report to include the Sancrox Traffic Arrangement Works, Roads and Maritime resubmitted the report to the department on 19 February 2016. An approval remains outstanding.
ON2	Operational noise will be monitored within one year after construction is finished. If monitoring indicates a clear trend that traffic noise levels exceed those predicted, all further feasible and reasonable measure will be investigated. Any additional mitigation measures will be developed in consultation with a suitably qualified and experienced acoustic specialist and the affected property owner.		Noted. Further detail is provided in Table 1 / E1.

CoA no.	Requirement	Stage	Status / Reference
	Visual amenity and design		
VAD1	A detailed urban and landscape design plan would be developed during the detailed design phase. The detailed design and implementation of built elements (such as new carriageways, bridges and roadside furniture) and landscapes, and the mitigation of residual impacts will be undertaken in accordance with the visual and design objectives and principles of the Proposal.		Urban design and landscape plans have been developed for each stage of the project and approved by P&E. These plans address this and other visual amenity and design commitments. Further detail on each plan is provided in Table 1 / MCoA 20.
VAD2	Built elements will be robust, long-lasting, replaceable and easy to maintain materials and designs.		See comment above for VAD1.
VAD3	The schedule of species to be used in the landscaping treatments will include self-sustaining native and locally indigenous plants that will be selected in consultation with a qualified landscape officer.		See comment above for VAD1.
VAD4	Disturbed areas will be progressively revegetated with consideration to related controls such as erosion and sedimentation controls, drainage and future road user safety requirements.		See comment above for VAD1.
VAD5	Design criteria will be applied during detailed design to reduce any potential adverse visual impacts to the existing landscape character and visual amenity.		See comment above for VAD1.
VAD6	Landscaped or rehabilitated areas will be monitored and maintained for a minimum of two years after opening.		An Ecological Monitoring Program in response to MCoA B10 has been prepared to address the requirements of this commitment. Also see comment above for VAD1.
	Traffic and transport		
T1	Pre-construction dilapidation reports will be prepared for all non-arterial roads likely to be used by construction traffic. Copies of the reports will be provided to the relevant roads authority.	Pre-construction	The requirements of this commitment have been incorporated into the TMP for all stages of the Project. See discussion provided for MCoA B31(a). Road dilapidation reports were not required within the Stage 1 scope of works. All traffic movements for Stage 1 are on roads that will be upgraded throughout the course of the project by either the Stage 1 or Stage 3 contractor. Dilapidation assessments of local roads used by the Stage 2 and Stage 3 contractors have been undertaken prior to the commencement of construction with extensive involvement from Kempsey and Port Macquarie Hastings councils, respectively. The reports been finalised and issued. Agreements to repair damage due to construction traffic have been documented in regular meeting minutes and will be formalised in the final dilapidation reports.
T2	Post–construction dilapidation reports will be prepared for the roads assessed in T1 above. Copies of the reports will be provided to the relevant roads authority. Any damage resulting from construction, (not normal wear and tear), will be repaired or an alternative arrangement	Operation	Traffic management plans have been developed for each stage of the project to address the requirements of this commitment. Further detail is provided in Table 1 / B31(a).

CoA no.	Requirement	Stage	Status / Reference
	for road damage will be agreed with the relevant roads authority.		
T3	Construction vehicle movements, work programs and traffic control measures will be planned to avoid or minimise impacts on traffic through the implementation of all feasible and reasonable design, and mitigation and management measures.	Construction	Traffic management plans have been developed for each stage of the project to address the requirements of this commitment. Further detail is provided in Table 1 / B31(a).
T4	The centre spans of the bridges over the Hastings River and the Wilson River will be no lower in height than the existing bridges to ensure navigational clearance is maintained.	Pre-construction	Detailed design for Stage 3 of the project addressed the requirements of this commitment.
T5	Consultation with those residents whose access will be affected during construction will be undertaken.	Construction	Roads and Maritime and its construction partner for the project have developed community communications strategies and traffic management plans to outline, among other things, how the requirements of this commitment will be addressed. Further detail is provided in Table 1 / MCoA B26, MCoA B31(a).
T6	Signposting and crossing points will be provided for cyclists at the on and off ramps at interchanges offering a safer cycling and pedestrian environment.	Operation	Detailed design for the project has been completed and includes features that address the requirements of this commitment.
T7	Provision will be made to maintain access for the existing bus operation.	Construction and Operation	Detailed design for the project has been completed and includes features that address the requirements of this commitment.
	Aboriginal heritage		
AH1	An Aboriginal heritage management plan will be developed to document procedures, management measures and protocols to minimise impacts.	Pre-construction	Construction heritage management sub-plans have been prepared for each stage of the project in consultation with OEH and registered Aboriginal stakeholders to address the relevant requirements of this commitment. Further detail is provided in Table 1 / B31(e).
AH2	Items and areas of archaeological significance not directly affected will be protected during construction.	Construction	See comment above for AH1.
AH3	Protocols will be established and implemented should any previously unidentified Aboriginal objects or human skeletal remains be encountered during construction works on the project. All works in the vicinity of the find will cease until Police and Aboriginal heritage specialist advice is obtained and the DECCW.	Construction	See comment above for AH1.
AH4	Any Aboriginal heritage items directly affected will be managed in consultation with Aboriginal stakeholders and the DECCW.	Construction	See comment above for AH1.
AH5	All construction personnel will receive Aboriginal heritage awareness training on their obligations for protection of Aboriginal cultural materials, including information on site locations, conservation management requirements and legal obligations in regard to Aboriginal cultural materials.	Construction	See comment above for AH1.
AH6	The RTA will comply with the NSW Government's Aboriginal Participation in Construction Guidelines.	Construction	Noted.

CoA no.	Requirement	Stage	Status / Reference
AH7	The RTA will consult with the Birpai Local Aboriginal Land Council regarding management of any potential adverse impacts on the identified sensitive site in accordance with the aboriginal heritage management plan.	Pre-construction and construction	Consultation with Birpai Local Aboriginal Land Council is ongoing with an agreement on appropriate management measures to protect sensitive sites reached. Design measures have been finalised and arrangements will be made for representation to be available during implementation of the measures.
	Air quality		
AQ1	Feasible and reasonable mitigation measures will be adopted to minimise windblown, traffic-generated or equipment-generated dust and emissions.	Construction	The requirements of this commitment have been incorporated into the construction air quality management sub-plans prepared for each stage of the project. Further detail is provided in Table 1 / MCoA B30.
AQ2	Dust generating activities will stop where visible dust is being emitted outside the construction corridor and when dust suppression methods are ineffective.	Construction	See comment above for AQ1.
	Greenhouse gases and energy		
G1	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. Minimise vegetation clearance where possible.	Construction	The requirements of this commitment have been incorporated into construction waste and energy management sub-plans prepared for each stage of the project and form part of the respective CEMPs. Further detail is provided in Table 1 / MCoA B30.
G2	A lighting scheme will be developed during detailed design. The aim of the design will be to minimise the use of lighting.	Pre-construction	Noted. Lighting was considered during detailed design, with the aim of minimising the use of lighting, where possible.
	Non-Aboriginal heritage		
NH1	The detailed design will minimise impacts to the identified non-Aboriginal heritage items where feasible and reasonable.	Pre-construction and Construction	Noted. In addition, HMPs have been prepared for each stage of the project in consultation with OEH and registered Aboriginal stakeholders to address the relevant requirements of this commitment. Further detail is provided in Table 1 / B31(e).
NH2	A non-Aboriginal heritage management plan will be developed.	Pre-construction	See comment above for NH1.
NH3	Staff will receive training with respect to identifying items of non-Aboriginal heritage during construction and the correct methods of communication on the worksite.	Construction	See comment above for NH1.
NH4	If any material of potential archaeological significance is unearthed, work will cease until specialist heritage advice has been obtained. Should any material of potential archaeological significance be unearthed, the Heritage Branch would be notified.	Construction	See comment above for NH1.

CoA no.	Requirement	Stage	Status / Reference
	Waste minimisation and management		
WMM1	The 'waste hierarchy' (avoid/reuse/recycle/ resource recovery/disposal) will be maximised during construction; incorporated into work programs, purchase strategies and site inductions; and will be assessed quarterly to identify opportunities for improvement. Recycled materials will be used where feasible.	Construction	The requirements of this commitment have been incorporated into construction waste and energy management sub-plans prepared for each stage of the project and form part of the respective CEMPs. Further detail is provided in Table 1 / MCoA B30.
WMM2	Staff to be trained in waste reduction.	Construction	See comment above for WMM1.
WMM3	A waste register to be developed during construction.	Construction	See comment above for WMM1.
WMM4	Any waste material that is unable to be re-used, reprocessed or recycled will be disposed at a facility approved to receive that type of waste. Waste will be disposed at a facility licensed to accept that classification of waste.	Construction	See comment above for WMM1.
	Contamination		
C1	Areas of potential contamination identified during preconstruction and construction activities will be further investigated and appropriately managed.	Pre-construction and Construction	The Environmental Assessment identified five areas of potential for contamination within the project. Further investigations have been undertaken to identify potential sources of contaminated soils. For Stage 1 and Stage 3, this includes Expressway Spares within the Sancrox Traffic Arrangement, Birdon Marine at Hastings River, and potential areas of opportunistic dumping of asbestos. In April 2013, Roads and Maritime finalised a targeted contamination report for areas within the Sancrox Traffic Arrangement works considered to present a contamination risk. The outcomes of this report, among other things, have been incorporated in the SWMPs prepared for Stage 1 and Stage 3 These SWMPs have been developed in consultation with the EPA, DPI (Fishing and Aquaculture) and NOW, and address contamination matters as they related to each specific stage. During the reporting period further asbestos dumping sites, sewage contaminated land, and a site contaminated by former underground storage tanks have been uncovered on Stage 3. The unexpected finds procedure contained within the SWMP was implemented in these cases. No specific sites either known to be contaminated or with the potential to be contaminated were identified in Stage 2 prior to construction. However, since then, a pit toilet and old rubbish dump have been uncovered. The unexpected finds procedure contained within the SWMP was implemented in these cases. Further detail on the approved SWMPs are provided in Table 1 / MCoA B31(d).

CoA no.	Requirement	Stage	Status / Reference
	Geology and soils		
GS1	Erosion and sedimentation management and control measures will be designed and installed with the advice of a soil conservationist. Controls will be inspected regularly, maintained and managed to maximize their effectiveness.	Construction	SWMPs have been prepared for each stage of the project in consultation with the EPA, DPI (Fishing and Aquaculture) and NOW to address this commitment. Further detail is provided in Table 1 / MCoA B31(d).
GS2	Acid Sulphate Soil Management Plan will be developed to outline strategies that will be implemented to manage potential impacts of development works that are likely to disturb acid sulfate soils.	Construction	See comment above for GS1. The SWMPs contain construction acid sulfate management sub-plans that outline how the requirements of this commitment will be addressed.
GS3	Geotechnical investigations will be undertaken as part of the detailed design phase to confirm preliminary geotechnical investigative works.	Pre-construction	Completed and incorporated into the project during development of the detailed design.
GS4	Geomorphologic investigations will be undertaken during the detailed design phase to determine bank and riverbed stability.	Pre-construction	Completed and incorporated into the project during development of the detailed design.
GS5	A spoil management strategy will be identifying opportunities for re-using the material onsite and locations outside the Proposal for re-use or disposal. Re-use onsite will be the priority.	Construction	Spoil management strategies were prepared as part of the detailed design phase and will be implemented as part of the SWMP for the respective stages.
GS6	Detailed design of cut slopes and embankments will be undertaken to ensure there will be minimal long term adverse impacts to banks.	Pre-construction	Completed and incorporated into the project during development of the detailed design.
	Utility services		
US1	Utilities and services potentially affected by construction will be identified and requirements for their diversion, protection and / or support identified. Alterations to services will be determined in negotiation with the service providers and will ensure that disruption to services resulting from the project are limited and advised to customers.	Pre-construction and Construction	Completed and incorporated into the project during development of the detailed design.

Appendix B
Complaints

Complaints

No.	Receipt	Entity	Category	Description of issue	Response	Action taken	Status
Stage 1 – Sancrox Traffic arrangement works							
1	16/10/2015	Neighbouring resident	Signage	Cassegrains winery raised concern regarding signage on the 16 October 2015. A sign that was present identifying that the winery was opened was removed and Cassegrains was concerned that it was relocated to a less noticeable location.	16/10/15	The sign was relocated to a mutually agreed location.	Closed
2	24/07/15	Rawdon Island Road Resident (Road used by construction traffic)	Traffic management	A member of the public contacted the Stage 1 contractor to discuss the extra truck movements on Sancrox Road following permission from Roads and Maritime and Port Macquarie Hastings Council to utilise the route for the Sancrox interchange construction. The complainant made a request to meet with the community liaison office and project manager to discuss the issue and review any risk assessments.	29/07/15	The Roads and Maritime Project Manager met with the complainant to discuss the frequency of truck movements on Sancrox Road and the restrictions around these movements. The agreement with council was also discussed, including the road dilapidation process. Following the discussion Roads and Maritime committed to additional measures to consider local school buses, particularly in narrow sections of the road.	Closed
Stage 2 – Kundabung to Kempsey							
3	24/07/2015	Resident	Damage to property	Stakeholder complained of poor management of water in his dam and fencing on his property that had been leased for the project site compound.	24/07/2015	Management formalised communication with the stakeholder to document the resolution of property management issues at the main site compound. Implementation of these measures is ongoing.	Closed
4	27/07/2015	Resident	Lighting	Resident complained about light spill from the main floodlight in the site compound.	2707//2015	Management investigated methods to minimise light spill from the main floodlight. The resident was consulted further as additional lighting would be required for the operation of the batch plant at night.	Closed
5	27/07/2015	Resident	Damage to property	Resident complained of damaged fencing and removal of trees from his property. The resident was concerned of a loss of income from the timber.	27/07/2015	The project clearing limits crossed an old property boundary fence in this area. The stakeholder was advised that timber cleared for the project would be provided to him as replacement during Stage 2 clearing works. This milestone has not been reached and is likely to be completed during May or June 2016.	Open
6	31/07/2015	Resident	Traffic management	Resident raised a number of concerns related to trucks parking in the U-turn bay, feeling unsafe to turn left into Scrubby Creek Road while travelling	31/07/2015	Instructions were issued to project drivers advising that no parking in the U-turn bay is permitted. No parking signs were installed in the	Closed

No.	Receipt	Entity	Category	Description of issue	Response	Action taken	Status
				north due to speeding trucks, and increased traffic noise experienced at their residence.		U-turn bay. The left turn slip lane into Scrubby Creek Road was reviewed. However, no further action could be taken. The resident is on the list of residents to receive architectural acoustic treatment as part of the project.	
7	31/07/2015	Resident	Traffic management	Resident complained of trucks parking in the U-turn bay.	31/07/2015	Instructions were issued to project drivers advising no parking in the U-turn bay is permitted. No parking signs were installed in the U-turn bay.	Closed
8	31/07/2015	Resident	Traffic management	Resident complained of trucks parking in the U-turn bay, and that the U-turn is not very clear when using it at night.	31/07/2015	Instructions were issued to project drivers advising no parking in the U-turn bay is permitted. No parking signs were installed in the U-turn bay. Reflective tape was installed in the U-turn to facilitate night time use.	Closed
9	07/08/2015	Motorist	Driver behaviour	Complainant stated construction traffic turned in front of him while he was travelling on the highway at night.	07/08/2015	Management investigated traffic movements. However, no further action was required as a construction gate was set up at the time along with traffic control. This was explained to the complainant in a follow up phone call	Closed
10	10/08/2015	Resident	Dust	Resident complained of dust near Kemps Road.	10/08/2015	Additional water carts were deployed to the northern zone. Dust monitoring in this location continue to show levels below the 12-montly rolling average of 4g/m^2/month.	Closed
11	13/08/2015	Motorist	Traffic management	Motorist complained of project truck and dogs taking up space in the Kundabung Rest Area. The motorist explained that a number of truck drivers use the rest area for a nap for a few hours before they continue onto Sydney.	13/08/2015	The Community Manager advised that the Truck Manager would investigate why project drivers were parking in the rest area for their lunch rather than in the works areas. The motorist was also advised that the rest area would be closed for construction and that an alternative would be the Kempsey Service Centre. Motorist was added to the project database to ensure he is kept informed of project changes.	Closed
12	20/08/2015	Motorist	Traffic management / dust	Motorist complained of a near miss with a site ute. Dust was generated when a ute left the project site then stopping abruptly for traffic control shortly afterwards.	20/08/2015	Management investigated dust and distances between site gates and traffic control to ensure project requirements were met.	Closed
13	21/08/2015	Resident	Dust	Resident complained of dust at house near Ravenswood Road.	21/08/2015	Additional water carts were dispatched to the area. It was noted by the Project team that wind at the time was blowing away from the	Closed

No.	Receipt	Entity	Category	Description of issue	Response	Action taken	Status
						complainant.	
14	24/08/2015	Resident	Traffic management	Resident complained of the condition of Old Coast Road after it had been used by construction traffic to access Mockingbird Quarry. Resident stated he had got his car bogged when driving home.	24/08/2015	Management investigated the issue. Road subsequently graded to improve surface condition.	Closed
15	25/08/2015	Resident	Safety / staff behaviour	Resident was concerned of the safety hazard posed by trees on Mingaletta Road and had approached project personnel onsite. The resident complained that project personnel had cautioned him about entering a construction zone rather than taking action. The resident subsequently felled the tree.	25/08/2015	Management investigated the safety hazard and removed the felled tree.	Closed
16	26/08/2015	Motorist	Traffic management	Motorist complained of a truck and dog turning out of Ravenswood Road North towards Kempsey, stating he was aware that the road is not to be used for haulage.	26/08/2015	Management investigated the issue and staff participated in a 'toolbox' talk to ensure the traffic management plan is adhered to.	Closed
17	31/08/2015	Resident	Lighting	Resident complained about light spill from the main floodlight in the site compound early morning and on weekends.	31/08/2015	Light box checked and lights switched off again. No further issues have been raised by resident regarding lighting.	Closed
18	10/09/2015	Resident	Design	Resident stated she is very unhappy with the design of the road.	10/09/2015	The residents concerns were noted.	Closed
19	15/09/2015	Resident	Dust	Resident complained about dust on Ravenswood Road.	15/09/2015	The Environmental Manager investigated dust management in the area and additional water carts were deployed.	Closed
20	16/09/2015	Resident	Dust	Resident complained about dust on Ravenswood Road, stating "it was twice as bad as yesterday".	16/09/2015	Additional water carts were deployed to the area.	Closed
21	29/09/2015	Motorist	Damage to property	Motorist complained that his car was splattered with concrete slurry when driving underneath Kundabung bridge, and that it has affected his paintwork.	29/09/2015	The issue was raised with the construction team for resolution. The motorist was requested to send in photos of the damage to his paintwork so that the damage could be rectified. The claim is currently subject to investigation by the insurer.	Closed
22	07/10/2015	Resident	Dust	Resident complained about dust on Ravenswood Road.	07/10/2015	Truck movements were ceased and water carts were deployed to mitigate the dust in the area.	Closed
23	22/10/2015	Resident	Traffic management	Resident complained about the condition of Mobbs Road.	22/10/2015	Management investigated the issue and the road was graded to improve surface condition.	Closed
24	13/11/2015	Resident	Traffic	Resident complained about the condition of the	13/11/2015	Management investigated the issue and	Closed.

No.	Receipt	Entity	Category	Description of issue	Response	Action taken	Status
			management	old Pacific Highway		potholes were filled and loose gravel swept.	
25	16/11/2015	Resident	Worker behaviour	Resident complained about the behaviour of a staff member who had approached him on Sunday when he was loading his truck with pieces of pipe that the resident reported the fencers said he could have. The staff member was reported to have made him unload the pipe and followed him to his nearby home. The resident was concerned that the staff member had a dog in his ute, which may impact on the residents' quarantine requirements for his pigs. The resident stated that he had reported the behaviour of the staff member to the police.	16/11/2015	The Community Manager advised the resident of the disposal policy. Management investigated the issue to ensure that appropriate actions had been taken.	Closed.
26	25/11/2015	Resident	Worker behaviour	Resident reported a truck pulled out in front of traffic from the Mingaletta / Mobbs Road access. The resident reported it to the spotter on site. However, did not receive a satisfactory response.	25/11/2015	Management investigated the issue and staff participated in a 'toolbox' talk to ensure the traffic management plan is adhered to.	Closed
27	27/11/2015	Resident	Worker behaviour	Resident reported a truck pulled out in front of her from Saw Mill Road, throwing gravel up as he tried to speed away.	27/11/2015	Management investigated the issue and staff participated in a 'toolbox' talk to ensure the traffic management plan is adhered to. A street sweeper was deployed to Saw Mill Road.	Closed
28	30/11/2015	Resident	Property access	Resident reported access to her property on Rodeo Drive was not maintained which had disrupted he business.	30/11/2015	Management investigated the issue to ensure that access is maintained 24 hours a day.	Closed
29	01/12/2015	Motorist	Dust	Motorist reported that he drives through the site four to five times a day, and reported the dust is the worst he has seen. The worst area was defined as adjacent to the southbound overtaking lane.	01/12/2015	The Environment team investigated and additional water cart movements were deployed to the area.	Closed.
30	15/12/2015	Resident	Noise and vibration	Resident called to report that he has felt some vibration in his house while the rollers have been working over the last couple of days. The resident reported that he wasn't too concerned about it, but had thought it best to report it.	15/12/2015	The resident was advised that the Environment Team would undertake monitoring when work resumed in the area. The resident was assured that the building condition survey undertaken before the project commenced would be used as a reference to address his concerns. Subsequently monitoring confirmed vibration was within project requirements and the results were discussed with the resident.	Closed
31	06/01/2016	Resident	Damage to property	The resident complained that his daughter had reported that a rock had fallen from a piece of	06/01/2015	The resident was provided the details of the Public Liability Claim form from the Roads and	Closed

No.	Receipt	Entity	Category	Description of issue	Response	Action taken	Status
				machinery onto her car as she drove through the project.		Maritime website. The Safety team and Roads and Maritime investigated the complaint and noted that the site was in full shut down due to bad weather. The resident was provided the details of the finding.	
Stage 3 – Oxley Highway to Kundabung							
32	22/7/15	Resident	Dust	A resident of Glen Ewan Road sent an email complaining about tyre ruts, muddy dam water and dust.	29/7/15	The complaints were investigated. The tyre ruts were on road reserve (not private property), the muddy water could not be attributed to construction activity and dust levels were compliant. A response was provided to the resident.	Closed
33	23/7/16	Resident	Worker Behaviour	A resident of Cooperabung Drive complained about speed of trucks on Cooperabung Drive. No specific details of a truck were provided.	23/7/15	All drivers were reminded to take care when using Cooperabung Drive. Resident was advised that the intersection of Cooperabung Drive and Pacific Highway is being upgraded to enable trucks to turn right. This will reduce the number of trucks using Cooperabung Drive.	Closed
34	23/7/15	Resident	Worker Behaviour	A resident of Cooperabung Drive complained that fencing contractors had entered the property without permission.	23/7/15	Investigation revealed that the fencing contractor had misunderstood private property access agreements. Procedure was explained again and message provided in weekly Toolbox. A project employee met with the resident to explain the action that had been taken.	Closed
35	30/7/15	Resident	Worker Behaviour	A resident of Cooperabung Drive complained about speed of some trucks using Cooperabung Drive. The resident provided video footage of truck movements.	30/7/15	The trucks did not appear to be speeding in the footage provided. However, the roadway is narrow and it looks like the trucks take up a lot of the roadway. The message was again given to drivers in the Toolbox training session and the residents asked to take note of the visible blue numbers on the side of our trucks to help us address individual drivers.	Closed
36	30/7/15	Resident	Traffic management	A resident of Wyndell Close complained about a traffic hazard as the trench left following a service relocation had started to subside.	30/7/15	The trench was repaired on the same day.	Closed
37	3/8/15	Resident	Noise and vibration	A resident of the Pacific Highway complained about the reversing beeper on a machine working in front of their property.	5/8/15	The beeper was changed to a low frequency squawker and the resident acknowledged that they could no longer hear it.	Closed
38	26/8/15	Business	Property	Workers at the Roads and Maritime depot	26/8/15	Reviewed times of this work and communication	Closed

No.	Receipt	Entity	Category	Description of issue	Response	Action taken	Status
		Operator	access	complained that their access was blocked while an excavator was loaded onto a float.		process with depot workers.	
39	14/9/15	Resident	Worker behaviour	Resident of Telegraph Point called into the Community Display Centre to complain about trucks turning around on the area across from the community hall.	14/9/15	Drivers received Toolbox training session and reminded not to turn around in the area which is owned by ARTC.	Closed
40	29/9/15	Motorist	Traffic management	A male called into the Community Display Centre to complain about the condition of Mooney Street between the school and the Wilson Bridge	29/9/15	An inspection was undertaken and minor repairs were done to the road surface. Monitoring will continue.	Closed
41	8/10/15	Resident	Out of hours work	Resident of Haydon's Wharf Road called to complain about not knowing about the night works the night before. She then commented on the noise and position of light towers.	8/10/15	The residents were notified about the planned night work in advance. The complainant acknowledged that other family members had been told about the night work, but they hadn't told her. The lighting towers were re-positioned to minimise the impact on the following nights work.	Closed
42	9/10/15	Business Operator	Dust	Business operator at Sancrox complained about excessive dust.	9/10/15	Additional water carts were sent to the area. It was acknowledged that another contractor was working in the area at the same time.	Closed
43	20/9/15	Resident	Property damage	A resident north of the Hastings River complained about a mulch bund resting on his fence. He believes the mulch will rust the new fencing wire.	1/10/15	The mulch bund was removed from the fence.	Closed
44	21/9/15	Business Operator	Dust	Business operator at Sancrox complained about excessive dust.	21/9/15	Additional water carts were sent to the area. It was acknowledged that another contractor was working in the area at the same time.	Closed
45	24/10/15	Resident	Property Damage	Residents of Hacks Ferry complained that a "worker had broken a gate latch" and that cows had escaped the property and were on the work site.	24/10/15	Investigated the claim and found that workers had not been near the gate as it was away from the work area. It is suspected that workers on the farm had damaged the gate.	Closed
46	2/11/15	Motorist	Worker behaviour	A motorist called the 1800 number to complain about a truck driver speeding and driving dangerously on the Pacific Highway between Mooney Street and Yarrabee Road. The caller provided the number plate of the truck.	2/11/15	Details of the incident were passed onto the relevant superintendent to address with the driver and the broader fleet.	Closed
47	12/11/15	Resident	Dust	A resident of Glen Ewan Road complained about excessive dust	12/11/15	Additional water carts was sent to the area.	Closed
48	17/11/15	Business Operator	Drainage	Business operator at Bill Hill Road complained about additional water being channelled from the	17/11/15	Stage 3 contractor and Roads and Maritime representatives met with the business owner	Open

No.	Receipt	Entity	Category	Description of issue	Response	Action taken	Status
				alignment into drains on their property. The owner believes this is overloading the drains and slowing down the rate at which his property drains, potentially damaging his crop.		and his representatives to identify a solution. During this meeting it was agreed a bund would be built to prevent additional water entering the drain. Further information is to be provided to the land owner.	
49	25/11/15	Resident	Noise and vibration	A resident opposite Cooperabung Close complained about the reversing beepers on the machines operating out the front of their property.	25/11/15	It was explained that reversing beepers are a safety requirement and required during operations. The resident was provided a program of work scheduled near their property.	Closed

Appendix C
Incidents

Stage 1 environmental incidents

No.	Activity in progress	Incident description	Damage caused	Contributing factor(s)	Action taken
1	Truck involved in construction moving across the site	Failure of hydraulic hose on truck.	Less than 15 litres of hydraulic fluid was released	None identified	• Spill kit was deployed immediately to contain the spill • Contractors reminded of the importance of undertaking regular maintenance and servicing of plant and equipment
2	Pressure testing of previously installed sewer infrastructure	Earthworks clearing limit flagging was removed, without prior permission	Failure to implement CEMP requirements regarding removal of clearing flagging. No vegetation was cleared beyond project clearing limits.	Contractors not understanding or obeying their environmental requirements	• The pressure testing was completed and the flagging was reinstated • A meeting was held with the subcontractor to outline the issue and reinforce that removal of clearing limit fencing could not occur without prior permission from Ferrovial and Roads and Maritime.
3	Pressure testing of water main	Failure of a water main seal required immediate excavation and pumping of water from pit before overflowing toward downstream clean water drain. Pumping occurred up-gradient to a grassed area outside of perimeter bunding but inside project boundary. Pump water runoff flowed overland outside of project boundary, but remained on grass filter strip, and did not enter the waterway	2000 litres of sediment laden water left site	Subcontractor treated water main failure as emergency work and did not instigate hold point and required procedures for dewatering approval. Primary decision was to control water flows further upgradient to grassed area rather than allow uncontrolled flows through disturbed areas towards sediment controls at clean water drain	• Pump stopped and site assessed for potential of offsite flows reaching downstream drainage line. By this time pumping of excess water from the pit was nearing completion. • Debrief between Stage 1 contractor and sub-contractor regarding incident. • Official warning issued to subcontractor – if breach of procedure occurs instant dismissal will be implemented.
4	Haulage	Hydraulic filter on truck and dog was unintentionally released under pressure, causing loss of hydraulic fluid	Less than 20 litres	Unintentional failure of equipment	• Spill kit was bought to the area to clean-up the spill site • Regular plant maintenance and inspections to be implemented to reduce the likelihood of equipment failure • Spill kit restocked
5	Topsoil placement	Hydraulic hose on an excavator ruptured releasing	Approximately 30 litres	None identified	• Spill kit was bought to the area to

No.	Activity in progress	Incident description	Damage caused	Contributing factor(s)	Action taken
		hydraulic fluid.			clean-up the spill site • Regular plant maintenance and inspections to be implemented to reduce the likelihood of equipment failure • Spill kit restocked

Stage 2 environmental incidents

No.	Activity in progress	Incident description	Damage caused	Contributing factor(s)	Action taken
6	Sewerage system	The onsite Aerated Wastewater Treatment System (AWTS) had a blockage that resulted in a leak.	Less than 100 litres left the compound site. The leak was 500 metres from a waterway. No material harm was caused.	Blockage at the top of the AWTS resulted in untreated water flowing over ground into an adjacent neighbour's property.	• Septic tanks were emptied and the blockage was removed • The AWTS was added to the site compound Weekly Inspection Checklist
7	Decommissioning of a sediment basin	A temporary licensed basin was decommissioned without the required notification to the EPA.	The Project Soil Conservationist confirmed the basin was not required. No material harm was caused.	The licensed basin encroached on an area required for permanent works on Mingaletta Road.	• The EPA was notified and the matter reported as a non-conformance to the Environment Protection Licence (EPL). • All engineering staff received an email regarding the EPL requirements for managing basins. • The incident was raised at a site wide 'toolbox' talk regarding the EPL requirements for the decommissioning of sediment basins.
8	Material haulage	A hydraulic hose burst on a truck during normal operations spilling approximately two litres of hydraulic onto the fill.	The spill was 20 metres from a waterway. No material harm was caused.	• There were no contributing factors.	• The operator deployed a spill kit to absorb the spill. • The material was taken to a licensed waste facility.
9	Parked in site compound.	Approximately 30 litres of diesel leaked from a valve tap outlet hose on a truck parked in the site compound.	The spill was 100 metres from a sediment basin. No material harm was caused.	• During the investigation it was noted that the tap was left in the 'on' position.	• Site staff turned the tap to the 'off' position. • The operator deployed a spill kit to absorb the spill. • The material was taken to a licensed waste facility. , • The tap was subsequently removed

No.	Activity in progress	Incident description	Damage caused	Contributing factor(s)	Action taken
					from the truck.
10	Material haulage	Truck was dumping a load of material when a hydraulic hose burst spilling approximately 20 litres of oil.	The spill occurred 100 metres to Pipers Creek. No material harm was caused.	• There were no contributing factors.	• The operator deployed a spill kit to absorb the spill. • The material was taken to a licensed waste facility.
11	Material haulage	A rear duo cone seal broke on a Moxy spilling 60 litres of hydraulic oil.	The spill occurred approximately 150 metres away from basin TB29.55. There was no material harm.	• There were no contributing factors.	• Work crews deployed a spill kit to absorb the spill. • The material was taken to a licensed waste facility
12	Discharging water	Sediment laden water was discharged to a basin while the basin was being released.	No sediment laden water left the basin. No material harm was caused.	• Ponded water was being pumped from a work area to prepare for fill placement. A Discharge Permit was in place for the area however it did not contain sufficient detail. As the basin was being discharge via the low flow pipe and no pump was evident, the work crew was not aware of the discharge. The incident was discovered quickly and the low flow pipe was closed before sediment laden water reached the low flow inlet.	• Environmental Advisors to ensure Discharge Permits contain sufficient detail regarding pumping to basins. • Work crews were reminded in a 'toolbox' talk regarding the requirements of Discharge Permits and pumping water to basins.
13	Clearing	Partial felling of habitat tree without having followed the two-stage clearing process (ie surrounding canopy had not been broken for 48 hours).	Pre-clearing survey had been undertaken an no fauna was found in tree	• Arborist carried out clearing from EWP and did not see the H marked on the tree	• Review of clearing work method statement to consider that an arborist is most likely to carry out Stage 2 clearing, and how best to ensure H trees are identified.
14	Stockpile management	Tannin laden waters leached from a tannin trap and discharged onto the neighbouring paddock.	No material harm was caused.	• The tannin sump wall was permeable.	• Water carts are used to dispose of tannin laden water after rain. All tannin sump walls were checked for permeability. Work crews were reminded in a 'toolbox' talk of the importance of monitoring and dewatering tannin traps.
15	Topsoil application	Clearing flagging was removed while topsoil application works in the vicinity were ongoing.	Topsoil application activities were contained within the clearing limit. No material harm was caused.	• The flagging was removed to complete topsoil works. The work crew was waiting for details of a Roads and Maritime design change prior to reinstating the	• Staff were reminded in a 'toolbox' talk of the requirements for ensuring flagging remains intact at all times. Subsequently, a procedure was developed for the removal of clearing

No.	Activity in progress	Incident description	Damage caused	Contributing factor(s)	Action taken
				flagging.	flagging that requires an inspection from the Roads and Maritime Environmental Officer and written instructions to the work crews.
16	Erosion and sediment control	Water quality monitoring in Barrys Creek found elevated sediment loads that potentially was from runoff from the southbound rest area.	Only 1-5 mm of rain was forecast however over 70mm of rain was recorded in Kempsey. No material harm was caused.	• Erosion and sediment controls in an area of the new southbound rest area directing water to sediment basin PB24.90 had not been installed as per the E&SC plan prior to a rain event. Two sediment traps were observed to be overtopping into a drainage line that flowed to Barrys Creek.	• All controls were immediately installed and the area was prioritised for completion. All staff were reminded of the importance of installing E&SC as per the E&SC plan. Any reoccurring actions will be escalated to the Project Manager for resolution.
17	Plant washout at site compound	A truck tipper was being washed out when the mechanism to lower the tipper was engaged causing the hydraulic hose to dislodge spilling 10 litres of hydraulic oil.	The truck was parked in the wash down bay in the batch plant. No material harm was caused.	• The hose dislodged during normal operation of the tipper.	• Work crews deployed a spill kit to absorb the spill. • The material was taken to a licensed waste facility.
18	Sediment basin management.	The FOWL01 temporary basin was discharged prior to testing and without approval from the environmental team.	The basin had been treated. Approximately 180,000 litres of water was discharged. The NTU of the water was 58 and the EPL discharge criteria was 55. Testing confirmed the TSS was 28mg / L. The basin is 200 metres from the nearest waterway. No material harm was observed.	• The pump was set up in readiness for approval to discharge. There had been confusion amongst the work crew as the status of approval.	• Pumps are not to be positioned until a Permit to Discharge has been received. • All staff were reminded in a 'toolbox' talk of the procedure for discharging basins. • Incident was reported to the EPA.
19	Sediment basin management	A low flow pipe in basin PB35.40 failed resulting in the release of the sediment basin water.	Water was identified leaching out of the basin wall around the low flow outlet. Approximately 250,000 litres was discharged. The remaining was pumped to TB35.55. No material harm was observed.	• The site had closed due to a rainfall event of 120 mm over three days. • The spillway wall was scraped back and a pipe joint was identified as the weak point. The joint was glued and additional bolts fixed.	• The design of the low flow valve joint was redesigned to position it more central in the sediment basin wall so as to alleviate the stress on the joint. • Incident was reported to the EPA.
20	Concrete curing	The PB25.80 sediment basin was observed to be	All runoff was captured within the basin. No material	• Curing compound had not fully dried prior to the commencement	• Crews were reminded in a 'toolbox' talk to check the weather forecast to ensure

No.	Activity in progress	Incident description	Damage caused	Contributing factor(s)	Action taken
		contaminated with concrete curing compound. Curing compound was applied and on the following day the site experienced approximately 12mm rainfall over an 11 hour period. Curing compound that had not fully dried was washed off the sub-base and into the basin.	harm was caused.	of rainfall.	adequate drying time, and to ensure that adequate controls are in place to prevent run off.
21	Clearing	After initial mainline clearing, clearing limit flagging was lowered to conduct clearing as per the drainage line survey string. When clearing limit was reinstated, a small area of vegetation outside the contractor's clearing limit was found to have been cleared. Note this area was not outside the approved clearing limits for the project, just the contractual boundary.	155m2 of Moist Slopes Forest. No large size trees (ie > 100mm diameter) were cleared.	• A number of clearing strings including one for main line clearing, boundary fence, utilities and drainage, rather than one combined string set out in the field. • This also caused confusion regarding clearing flagging.	• One overall clearing string created. • Development of a procedure for the removal of clearing flagging that requires an inspection from the Roads and Maritime Environmental Officer and written instructions to the work crews.

Stage 3 environmental incidents

No.	Activity in progress	Incident description	Damage caused	Contributing factor(s)	Action taken
22	Vegetation Clearing	During clearing operations a limb fell off a tree being felled and damaged vegetation outside the limited of clearing (but within project boundary). The damage was not reported to the Stage 3 contractor by the subcontractor until it was found during the pre-clearing inspection the following day.	35 square metres of native vegetation was damaged	• Clearing in close proximity to fence line created tight working area • Failure to report incident by subcontractor at the time it occurred.	• Works were stopped immediately • Exact extent of vegetation damage was added to the clearing total for the project • Clearing Grubbing and Mulching EWMS and incident reporting procedure was reviewed in tool box training session to all subcontractor personnel.
23	Earthworks	A D10 bulldozer was	Hydraulic oil spilt onto floor	• Bull dozer undertaking general	• Spill was contained immediately and

No.	Activity in progress	Incident description	Damage caused	Contributing factor(s)	Action taken
		undertaking works in a cutting (Cut 12) and burst a hydraulic hose.	of cutting (60 litres)	earthworks	cleaned up, with used spill kit material transported to workshop for subsequent offsite disposal at a licensed facility.
24	Vegetation Clearing	During clearing of a narrow drainage outlet the canopies of the trees being felled, landed outside the limit of clearing.	45 square metres of native vegetation damaged	Extremely narrow clearing corridor with large tree canopies	• 45 square metres of vegetation was added to the projects clearing limits
25	Piling	During the pile drilling process on Wilson River Bridge, the water level in the pile rose too high due to a blockage in the drill head. The water in the pile then over-topped into the Wilson River below. Coloured water was observed in the Wilson River immediately following the event. Environmental controls including a silt curtain were in place around the works area at the time of the event.	Approximately 50 litres of river water containing fines from piling spilled within environmental controls including a silt curtain in the Wilson River.	Need for continuous supervision of the subject piling activity to avoid overtopping.	• Update to the Wilson River Bridge Construction (Substructure) Environmental Work Method Statement to incorporate the requirement for the water level in the pile casing to be monitored at all times. This is intended to avoid the risk of future over-tops.
26	Piling	Approximately 15 litres of hydraulic fluid was spilt from a ruptured hydraulic hose on piling equipment.	Approximately 15 litres of biodegradable hydraulic fluid spilt into the Hastings River, within sheet piles, hydrocarbon boom and silt curtain. The spill was absorbed using material from a spill kit located immediately adjacent to the works.	Ruptured hydraulic line.	• Ongoing regular inspection and service of plant and equipment.
27	Piling	Approximately five litres of hydraulic fluid was spilt from a defect in a hydraulic hose on piling equipment. The leaking hydraulic fluid built up in a sheathe around the hose designed to prevent high pressure projection of fluid from the hose. This	Approximately five litres of biodegradable hydraulic fluid entered the Wilson River, but was contained within the works area and within a hydrocarbon boom and silt curtain.	Ruptured hydraulic line.	• Ongoing regular inspection and service of plant and equipment. Notification of the subject spill and previous marine spills associated with the Project was provided to the Project Environmental Review Group highlighting the positives and negatives of the use of sheathing on hydraulic hoses in accordance with the respective Project environmental

No.	Activity in progress	Incident description	Damage caused	Contributing factor(s)	Action taken
		prevented the timely identification of the defect, but also prevented projection of the material outside of the works area.			work method statements.
28	Piling	During piling operations, a leak in a hydraulic line caused the sheath to fill with hydraulic fluid to the point where 10 litres of hydraulic fluid spilled out of the sheath and into environmental controls within the Wilson River. The hydraulic fluid was fully contained within the hydrocarbon boom controls installed as a control.	10 litres of biodegradable hydraulic oil was spilt inside floating hydrocarbon boom.	Ruptured hydraulic line.	• Following review of the incident, the Stage 3 contractor, Roads and Maritime and Brady's Civil and Marine agreed to re-design the sheathing system to allow inspections of hydraulic lines and joints to be undertaken easily and still provide protection against ruptures during operation. The re-design was completed prior to works resuming.
29	Piling	Approximately thirty milliliters of hydraulic fluid was spilt from a minor defect in a hydraulic hose on piling equipment. The minor defect occurred on a bend in the hose that had been subject to solar exposure. This bend and solar exposure are thought to have caused the hose to begin perishing.	Approximately thirty milliliters of hydraulic fluid was spilt. The spill was absorbed using material from a spill kit located within the works area.	Ruptured hydraulic line.	• Following the event, the subcontract personnel were advised to continue to undertake regular inspections of plant and equipment and promptly repair any defects that are identified. The importance of regular inspection and service of plant and equipment was reviewed in a toolbox training session with Project personnel.
30	Piling	A hydraulic hose on piling equipment ruptured while removing sheet piles from Section 3 of the Wilson River Coffer Dam. This rupture caused biodegradable hydraulic fluid to leak through two layers of sheathing into a work area cordoned off by a hydrocarbon boom and two silt curtains in the Wilson River.	Biodegradable hydraulic fluid leaked through two layers of sheathing into a works area cordoned off by a hydrocarbon boom and two silt curtains in the Wilson River. The hydrocarbon boom in place to cordon off the works area was used to contain the spill. Absorbent pads from an adjacent spill kit were used to clean up the spill.	Ruptured hydraulic line.	• Ongoing inspection and maintenance of hydraulic lines. Ongoing training of Project personnel in spill avoidance, response and management techniques and procedures.
31	Piling	A transmission fluid line	Transmission fluid leak onto	Loose connection in hydraulic line.	• The auger was immediately slewed into

No.	Activity in progress	Incident description	Damage caused	Contributing factor(s)	Action taken
		connection on piling equipment was rattled loose during auguring of hard rock at Pier 6 of the Fernbank Creek Bridge. This loosening caused transmission fluid to leak onto a clay piling plug on the Fernbank Creek crane pad immediately beneath the auger.	a clay piling plug on the Fernbank Creek crane pad immediately beneath the auger.		an adjacent spoil skip bin to contain the spill. The piling equipment was then shut down to cease the hydraulic fluid leakage. Material from an adjacent spill kit was placed on the spilt fluid to absorb the spilt material. The drill rig was taken out of service until repairs were made. The entire transmission fluid line was inspected and serviced where required including tightening of any suspected loose connections. Additional daily inspections were undertaken to assist in identifying any future potential defects.
32	Installation of water supply	To facilitate the installation of a temporary water supply pipe a trench was excavated adjacent to the project boundary. Following excavation of the trench it was identified that a section of the trench was excavated outside the project boundary. The excavation is in the vicinity of a known heritage site. However, no impact occurred to the nominated area.	Excavation of 1-2 cubic metres of material	• Poor delineation	• Communication with the persons involved outlining the significance of impacts outside the project boundary. Boundary fencing repaired in the location. Boundary fencing undertaken across the site to ensure damage had not occurred to other sections potentially leading to a similar issue.
33	Earthworks	Minor oil spill	Less than one litres onto compacted fill, cleaned up by leading hand	Leaking fitting	• Fitting repaired, material removed
34	Water transfer	While transferring water between two sediment basins a connection failure occurred resulting in a small amount of sediment being mobilised into a pool of standing water within Barrys Creek. The pump was being monitored and was turned off immediately. However, due to the proximity to the creek the water was unable to be	Estimated 50-100 litres of water containing sediment entered the standing pool of water within Barrys Creek	Equipment failure	Toolbox reminder of dewatering requirements and to ensure all connections and fittings are checked prior to starting pumps. No further water transfers for onsite reuse in this location.

No.	Activity in progress	Incident description	Damage caused	Contributing factor(s)	Action taken
		stopped.			

Appendix D
Monitoring

Flora and fauna

Fauna relocations, injuries and mortalities by species

No. of species	Species / common name	Number	Status
	Stage 1 – Sancrox		
1	Nil during the reporting period	NA	NA
	Stage 2 – K2K		
1	Long Finned Eel *(Anguilla reinhardtii)*	6	Relocated
2	Tree Skink *(Egernia striolata)*	1	Relocated
3	Gambusia *(Gambusia holbrooki)*	5	Euthanased
4	Striped gudgeon *(Gobiomorphus australis)*	174	Relocated
	Striped gudgeon *(Gobiomorphus australis)*	3	Deceased
5	Cox's gudgeon *(Gobiomorphus coxii)*	185	Relocated
	Cox's gudgeon *(Gobiomorphus coxii)*	2	Deceased
6	Marsh Snake *(Hemiaspis signata)*	1	Relocated
7	Welcome Swallow *(Hirundo neoxena)*	4 eggs	Euthanesed
8	Carp gudgeon *(Hypseleotris sp.)*	7	Relocated
9	Garden Skink *(Lampropholis delicata)*	3	Relocated
	Garden Skink *(Lampropholis delicata)*	4	Escaped
10	Striped Marsh Frog *(Limnodynastes peronei)*	7	Relocated
	Striped Marsh Frog *(Limnodynastes peronii)*	2	Escaped
11	Spotted Marsh Frog *(Limnodynastes tasmaniensis)*	2	Relocated
12	Bleating tree frog *(Litoria dentata)*	3	Relocated
13	Eastern Sedge Frog *(Litoria fallax)*	4	Relocated
14	Stoney Creek Frog *(Litoria lesueuri)*	5	Relocated
15	Perons Tree Frog *(Litoria peronii)*	3	Relocated
16	Great Barred Frog *(Mixophyes fasciolatus)*	5	Relocated
17	Giant Barred Frog *(Mixophyes iteratus)*	2	Relocated
18	Spotted Pardalote *(Pardalotus punctatus)*	1	Preserved (nest fenced)
19	Water Dragon	1	Relocated
20	Masked Lapwing	2	Relocated
	Masked Lapwing	2	Deceased
	Stage 3 – OH2Ku		
1	Ringtail Possum (*Pseudocheirus peregrinus)*	2	Relocated
2	Trigona (hive)	1	Relocated
3	Eastern Small-eyed Snake (*Rhinoplocephalus nigrescens*)	1	Relocated
4	Peron's tree frog (*Litoria peronii*)	3	Relocated
5	Lace Monitor *(Varanus varius)*	1	Relocated

Vegetation clearing by vegetation type

Vegetation type	Total for period (hectares)	Total to date (hectares)	Remaining (hectares)
Stage 1 – Sancrox			
Moist Slopes Forest	0.0237	6.55	0.00
Moist Gully Forest	0	0.04	0.00
Riparian Forest	0	0.71	0.00
Total	**0.0237**	**7.3**	**0.0**
Stage 2 – K2K			
Moist Slopes Forest	1.291		
Riparian Forest	0.371		
Dry Ridgetop Forest	0.621		
Moist Floodplain Forest	0.157		
Moist Gully Forest	0.004		
Total	**2.4**	**77.4**	**8.4**
Stage 3 – OH2Ku			
Paperbark Swamp Forest	1.6966	8.6636	0.8583
Moist Floodplain Forest	2.0453	21.2363	0.0176
Dry Ridgetop Forest	3.7536	24.9186	0.9523
Moist Slopes Forest	4.2126	32.8946	0.4591
Moist Gully Forest	2.267	15.574	1.1006
Moist Floodplain closed Forest	0.0655	1.9615	0.8002
Riparian Forest	0.1447	0.6777	0.3911
Swamp Mahogany Forest	1.7922	10.1632	0.1766
Swamp Oak Forest	0.765	1.071	0.0393
Fresh Wetland	0.923	3.624	0.1938
Total	**17.67**	**120.78**	**4.99**

Air quality

Stage 1 air quality monitoring (dust)

Site reference number	Location	Deployed	Retrieved	Total insoluble matter g/m^2/month)	Comments (where applicable)
Sancrox D1	Cassegrain Winery access road	9/07/15	10/08/15	0.9	
		10/08/15	10/09/15	**10.7**	Work over August did not include major dust generating activities and were primarily concrete pours, laying of heavily bound (by its very nature low dust generating potential) and drainage works. A review of Port Macquarie wind data indicates that over the 31 day monitoring period only 4 mornings and 5 afternoons recorded wind direction from the south and south westerly quarter ie from site to dust gauge. Further the results for dust gauge D2 located adjacent to site works remained well within target levels. It is noted that new and potentially significant dust generating activities outside of the project boundaries have been evident during this monitoring period and that these activities are located north, north west, west, south west and south of the gauge site and are closer than current site activities.
		10/09/15	12/10/15	2	
		12/10/15	9/11/15	1.4	Last monitoring event of the project – road opened November 30 2015
		Annual rolling average		2.1	
Sancrox D2	Roads and Maritime depot south east of Sancrox Road and Pacific Highway	9/07/15	10/08/15	1.1	
		10/08/15	10/09/15	1.5	
		10/09/15	12/10/15	1.6	
		12/10/15	9/11/15	1	Last monitoring event of the project – road opened November 30 2015
		Annual rolling average		1.0	

Stage 2 air quality monitoring (dust)

Site reference number	Location	Deployed	Retrieved	Total insoluble matter g/m^2/month)	Comments (where applicable)
K2K 01	Mingaletta Road West	21/07/15	21/08/15	0.3	
		20/08/15	21/09/15	3.3	
		21/09/15	21/10/15	1.3	
		21/10/15	20/11/15	1.9	
		20/11/15	21/12/15	2.7	
		21/12/15	21/01/16	0.5	
		Annual rolling average		1.2	
K2K 02	Mingaletta Road East	21/07/15	21/08/15	0.2	
		20/08/15	21/09/15	1.2	
		21/09/15	21/10/15	0.7	
		21/10/15	20/11/15	0.4	
		20/11/15	21/12/15	1.6	
		21/12/15	21/01/16	0.2	
		Annual rolling average		1.0	
K2K 03	35 Old Pacific Highway	21/07/15	21/08/15	1.6	
		20/08/15	21/09/15	1.4	
		21/09/15	21/10/15	2.0	
		21/10/15	20/11/15	1.1	
		20/11/15	21/12/15	2.7	
		21/12/15	21/01/16	2.5	
		Annual rolling average		1.7	
K2K 04	183 Old Pacific Highway	21/07/15	21/08/15	0.4	
		20/08/15	21/09/15	2.6	
		21/09/15	21/10/15	1.1	
		21/10/15	20/11/15	0.8	
		20/11/15	21/12/15	1.3	

Site reference number	Location	Deployed	Retrieved	Total insoluble matter g/m^2/month)	Comments (where applicable)
		21/12/15	21/01/16	0.4	
		Annual rolling average		0.9	
K2K 05	8 Wharf Road	21/07/15	21/08/15	1.2	
		20/08/15	21/09/15	**6.3**	Increase in activity in the area including new bus stop and culvert works
		21/09/15	21/10/15	1.8	
		21/10/15	20/11/15	1.6	
		20/11/15	21/12/15	2.8	
		21/12/15	21/01/16	0.8	
		Annual rolling average		2.1	
K2K 06	Tipping Property	21/07/15	21/08/15	2.1	
		20/08/15	21/09/15	3.0	
		21/09/15	21/10/15	1.9	
		21/10/15	20/11/15	1.1	
		20/11/15	21/12/15	**4.4**	*
		21/12/15	21/01/16	0.7	
		Annual rolling average		2.5	
K2K 07	180 Rodeo Drive	21/07/15	21/08/15	0.4	
		20/08/15	21/09/15	1.6	
		21/09/15	21/10/15	0.8	
		21/10/15	20/11/15	0.8	
		20/11/15	21/12/15	2.4	
		21/12/15	21/01/16	0.5	
		Annual rolling average		0.9	
K2K 08	100 Ravenswood Road	21/07/15	21/08/15	0.4	
		20/08/15	21/09/15	2.7	
		21/09/15	21/10/15	1.6	

Site reference number	Location	Deployed	Retrieved	Total insoluble matter g/m^2/month)	Comments (where applicable)
		21/10/15	20/11/15	1.1	
		20/11/15	21/12/15	1.7	
		21/12/15	21/01/16	0.3	
		Annual rolling average		1.0	
K2K 09	1359 Pacific Highway	21/07/15	21/08/15	0.9	
		20/08/15	21/09/15	1.6	
		21/09/15	21/10/15	1.1	
		21/10/15	20/11/15	0.7	
		20/11/15	21/12/15	**4.1**	*
		21/12/15	21/01/16	0.3	
		Annual rolling average		0.9	
K2K 10	722 Pacific Highway	21/07/15	21/08/15	Removed by landholder.	
		20/08/15	21/09/15		
		21/09/15	21/10/15		
		21/10/15	20/11/15		
		20/11/15	21/12/15		
		21/12/15	21/01/16		
		Annual rolling average		NA	
K2K 11	38 Kemps Road	21/07/15	21/08/15	1.8	
		20/08/15	21/09/15	3.7	
		21/09/15	21/10/15	2.5	
		21/10/15	20/11/15	1.0	
		20/11/15	21/12/15	1.9	
		21/12/15	21/01/16	0.6	
		Annual rolling average		2.8	
K2K 12	74 Kemps Road	21/07/15	21/08/15	0.2	
		20/08/15	21/09/15	3.9	

Site reference number	Location	Deployed	Retrieved	Total insoluble matter g/m^2/month)	Comments (where applicable)
		21/09/15	21/10/15	2.3	
		21/10/15	20/11/15	1.9	
		20/11/15	21/12/15	**4.5**	*
		21/12/15	21/01/16	2.4	
		Annual rolling average		2.0	

Stage 3 air quality monitoring (dust)

Site reference number	Location	Deployed	Retrieved	Total insoluble matter g/m^2/month)	Comments (where applicable)
DML1	Pacific Highway – Chainage 1700 south bound carriageway	13/07/2015	13/08/2015	1.3	
		13/08/2015	14/09/2015	2.9	Vegetation
		14/09/2015	14/10/2015	3.4	Vegetation
		14/10/2015	12/11/2015	<0.1	
		12/11/2015	14/12/2015	1.3	
		14/12/2015	NA		Bottle broken when collected
		Annual rolling average		1.3	
DML2	Hastings River – Chainage 5500 south bound carriageway	13/07/2015	13/08/2015	2.5	
		13/08/2015	14/09/2015	1.6	Insects
		14/09/2015	14/10/2015	**8.8**	Insects, visible dirt
		14/10/2015	12/11/2015	**8.1**	Two dead frogs
		12/11/2015	14/12/2015	2.2	
		14/12/2015	14/01/2015	1.4	
		Annual rolling average		3.4	
DML3	Floodplain – Chainage 11400 south bound carriageway at Bill Hill Road (Gauge to be relocated following clearing of the corridor if required)	13/07/2015	13/08/2015	2.1	
		13/08/2015	14/09/2015	2.1	Vegetation, wattle
		14/09/2015	14/10/2015	2.3	Visible dirt
		14/10/2015	12/11/2015	1.8	
		12/11/2015	14/12/2015	1.3	
		14/12/2015	14/01/2015	0.9	
		Annual rolling average		1.4	
DML4	Private property Chainage 18000 north bound	13/07/2015	13/08/2015	3.5	
		13/08/2015	14/09/2015	5.3	Very Cloudy
		14/09/2015	14/10/2015	3.7	Visible dirt
		14/10/2015	12/11/2015	3.3	
		12/11/2015	14/12/2015	3.0	

Site reference number	Location	Deployed	Retrieved	Total insoluble matter g/m^2/month)	Comments (where applicable)
		14/12/2015	14/01/2015	0.8	
		Annual rolling average		3.0	
DML5	State Forest Chainage 21000 south bound	13/07/2015	13/08/2015	5.6	
		13/08/2015	14/09/2015	5.2	Vegetation, cloudy
		14/09/2015	14/10/2015	1.9	
		14/10/2015	12/11/2015	2.5	
		12/11/2015	14/12/2015	1.7	
		14/12/2015	14/01/2015	NA	Broken on receipt at lab from courier
		Annual rolling average		2.2	
DML2B	Hastings River – Chainage 5500 south bound carriageway, approximately 150m east of DML2	13/07/2015	13/08/2015	2.6	
		13/08/2015	14/09/2015	4.5	Egg in funnel, vegetation, cloudy
		14/09/2015	14/10/2015	<0.1	
		14/10/2015	12/11/2015	1	
		12/11/2015	14/12/2015	7.5	Cloudy, Insects (20-30 beetles)
		14/12/2015	14/01/2015	0.4	
		Annual rolling average		2.8	

Noise and vibration monitoring

Stage 1 noise monitoring

July 2015

Event No.	Date	Time / duration	Location	Calculated noise management level	Result ($L_{A\ eq(15\ min)}$)	Observations
1	28/07/2015	10:04 - 10:19 15 minutes	East	59dB	52.8dB	Construction activities included roller movements on North East Roundabout and Fernbank Creek stub road. Water cart operating and excavator placing topsoil on batters. Labourers installing jute mesh in the northern most drain. Vibratory roller was audible when vibrating. This occurred periodically during monitoring. Highway traffic was consistent noise source. Bird calls were frequent and dominant noise source. Noise from construction Stage 3 and quarry operations were audible at times during monitoring
2	28/07/2015	11:10 – 11:25 15 minutes	South	59dB	48.3dB	Construction activities included concrete pumping on the bridge, roller on the west abutment, Stage 3 clearing activities and excavator on HF Hands placing fill. Construction works are the dominant noise source. Birds and trucks were frequently audible.

August 2015

Event No.	Date	Time / duration	Location	Calculated noise management level	Result ($L_{A\ eq(15\ min)}$)	Observations
1	26/08/2015	9:00 - 9:18 15 minutes (paused for a three minutes during phone call)	East	59	52.1	Construction activities included concreting on North-east roundabout. Posi-track moving stockpiles on the NE Roundabout. Trucks in and out of the gate. Site works were audible throughout the monitoring. However, construction noise on Stage 3 was the predominant noise source.
2	26/08/2015	14:44-14:59 15 minutes	South	59	53.5	Construction activities included grader and roller operation on Service road 1 (immediately adjacent to monitoring location) were in progress during monitoring. A water cart, a front end loader, truck and grader were also working throughout monitoring on HF Hands Road. Construction activities also in

Event No.	Date	Time / duration	Location	Calculated noise management level	Result ($L_{A\ eq(15\ min)}$)	Observations
						progress on Stage 3 (eg excavator east of the monitoring location). Construction noise on both Stage 1 and Stage 3 were the predominant noise sources during monitoring.

September 2015

Event No.	Date	Time / duration	Location	Calculated noise management level	Result ($L_{A\ eq(15\ min)}$)	Observations
1	15/09/2015	11:29 - 11:44 15 minutes	East	59	49.6	Construction activities included roundabout stripping, tidy up and manual labour in progress during monitoring. An excavator was also on the Cassegrain stub road. Stage 3 construction works to the north and highway traffic were dominant noise sources during monitoring. Peaks in noise levels were attributable to planes fling over and adjacent horses in paddocks.
2	15/09/2015	12:24 - 12:39 15 minutes	South	59	51.8	Construction activities included heavily bound base placement using two rollers, one grader and a water cart in progress during monitoring. Stage 3 construction works were also in progress adjacent and to the east of the monitoring locationt. Construction works were audible throughout the monitoring, with some movements on the highway (trucks and associated engine braking) also audible at times.

October 2015

Event No.	Date	Time / duration	Location	Calculated noise management level	Result ($L_{A\ eq(15\ min)}$)	Observations
1	15/10/2015	14:02 - 14:17 15 minutes	South	59	54.1	Construction activities including a grader, a digger, a light vehicle, a roller and periodic truck movements on HF Hands Road in progress during monitoring. Construction noise on Stage 1 was the predominant noise source during construction.

Event No.	Date	Time / duration	Location	Calculated noise management level	Result ($L_{A\ eq(15\ min)}$)	Observations
						Highway traffic, birds and frogs were also audible during monitoring.
2	15/10/2015	9:25 - 9:40 15 minutes	East	59	50.6	Construction activities included saw cutting, labourers, pressure blasting on the roundabouts, a generator and occasional light vehicle movements. Site construction noise was barely audible. Construction noise was barely audible. Adjacent birds were dominant noise source and responsible for the peaks.

November 2015

Event No.	Date	Time / duration	Location	Calculated noise management level	Result ($L_{A\ eq(15\ min)}$)	Observations
1	10/11/15	8:21 - 8:36 15 minutes	East	59	51	Construction activities including steel fixing, rolling of verge, cutting of timber formwork, filling of roundabout with topsoil, light vehicle and excavator movements were in progress during monitoring Construction noise was the predominant noise source during monitoring. Nearby birds were also audible.
2	10/11/15	9:01 - 9:16 15 minutes	South	59	52	Construction activities including rolling of HF Hands access track, fencing, light vehicle, water cart and bobcat movements were in progress during monitoring. An excavator working nearby on the Pacific Highway was also audible. Construction noise was dominant noise source.

December 2015

Sancrox open to traffic on 30 November 2015.

Stage 2 noise monitoring

July 2015

Event No.	Date	Time / duration	Location	Calculated noise management level	Result ($L_{A\ eq(15\ min)}$)	Observations
1	July 2015	11:55am – 15mins	NCA10 - 383	42 - 57	49.6	Bulk earthworks in progress.
2	July 2015	02:30pm – 15mins	NCA07 - 438	48 - 62	**64.3**	Bulk earthworks and piling in progress Elevated noise levels attributable to road traffic noise on the Pacific Highway.
3	July 2015	12:20pm – 15mins	NCA09 - 409	45 - 57	56.3	Earthworks at Smiths Creek in progress.
4	July 2015	03:30pm – 15mins	NCA 04 - 1012	43 - 57	**68**	Earthworks (Moxies hauling) in progress. Elevated noise levels attributable to road traffic noise on the Pacific Highway.
5	July 2015	09:20am – 15mins	NCA 01 - 492	40-62	46.3	Dozer, Moxies and bogies operating within Mockingbird Quarry. Monitoring undertaken in preparation for planned Out of Hours works.

August 2015

Event No.	Date	Time / duration	Location	Calculated noise management level	Result ($L_{A\ eq(15\ min)}$)	Observations
1	10/08/15	03:34pm – 15mins	NCA 03 - 746	41-60	58.1	Dominant noise source was construction noise, with background noise from the Pacific Highway traffic. Intermittent noise from the traffic coming and going from the service station. Four private vehicles drove past the monitoring site at various times during monitoring.
2	11/08/15	08:00am – 15mins	NCA 08 – 833	43-63	54.2	Dominant noise source was traffic on Pacific Highway with intermittent construction noise from machinery loading at the stockpile. Background noise source was construction noise from further away. While monitoring was underway two water carts, one private vehicle and one traffic control vehicle drove past the monitoring site at different times.

Event No.	Date	Time / duration	Location	Calculated noise management level	Result ($L_{A\ eq(15\ min)}$)	Observations
3	11/08/15	07:32am – 15mins	NCA 10 - 688	42-57	55.1	Dominant noise source was construction noise, including intermittent use of reverse alarms. Background noise source was Pacific Highway traffic.
4	31/08/15	08:42am – 15mins	NCA 02-498	43-55	49.4	Dominant noise source was Pacific Highway traffic and construction noise.
5	31/08/15	10:38am – 15mins	NCA 10-383	42-57	49.9	Dominant noise source was construction noise, with background noise from the Pacific Highway traffic. Dogs barking audible continuously throughout monitoring. While monitoring was underway one private vehicle drove past the monitoring site.
6	31/08/15	11:03am – 15mins	NCA 09-396	45-57	54.1	Dominant noise source was Pacific Highway traffic. Background noise was intermittently audible construction machinery. While monitoring was underway one private vehicle drove past the monitoring site.
7	31/08/15	03:20pm – 15mins	NCA 03-746	41-60	59.5	Dominant noise source was Pacific Highway traffic, and background noise intermittently from the traffic coming and going from the service station. While monitoring was underway, six private vehicles, two trucks and one water car drove past the monitoring site.

September 2015

Event No.	Date	Time / duration	Location	Calculated noise management level	Result ($L_{A\ eq(15\ min)}$)	Observations
1	07/09/15	03:17pm – 15mins	NCA 06-729	42-67	60.2	Dominant noise source was Pacific Highway traffic and construction noise. While monitoring was underway three light vehicles drove past the monitoring site.
2	07/09/15	12:24pm – 15mins	NCA 01-492	40-62	57	Dominant noise source was construction noise from of earthworks. While monitoring was underway four bogies and one truck drove past the monitoring site.
3	07/09/2015	12:00pm – 15mins	NCA 03-466	41-60	58.8	Dominant noise source was construction noise from earthworks. Background noise was Pacific Highway traffic. While monitoring was underway two private

Event No.	Date	Time / duration	Location	Calculated noise management level	Result ($L_{A\ eq(15\ min)}$)	Observations
						vehicles, three light vehicles and two light trucks drove past the monitoring site.

October 2015

Event No.	Date	Time / duration	Location	Calculated noise management level	Result ($L_{A\ eq(15\ min)}$)	Observations
1	08/10/15	09:35am – 15mins	NCA 01-1000	40-62	49.7	Dominant noise sources were Pacific Highway traffic and construction noise. Background noise consisted of intermittently audible fauna including chirping birds and a crowing rooster.
2	08/10/15	08:30am – 15mins	NCA 08-398	43-63	53.3	Dominant noise source was Pacific Highway traffic noise and construction noise in the form of earthworks. Background noise was distant earthworks. While monitoring was underway two private vehicles, one water cart and light vehicles drove past the monitoring site.
3	09/10/15	10:33am – 15mins	NCA 07-439	48-62	55.6	Dominant noise sources were from Saw Mill operation and construction noise. Intermittent noise from a train passing and sounding horn, a nearby property owner starting and operating a bobcat, and two private vehicle and two passing the monitoring site while monitoring.
4	09/10/15	10:45am – 15mins	NCA 05-446	43-57	51	Dominant noise sources were Pacific Highway traffic and construction noise. Background noise consisted of local traffic coming and going from the nearby service station. Five private vehicles and two light vehicles drove past the monitoring site while monitoring.

November 2015

Event No.	Date	Time / duration	Location	Calculated noise management level	Result ($L_{A\ eq(15\ min)}$)	Observations
1	06/11/15	03:20pm – 15mins	NCA 06-436	42-67	51.4	Dominant noise source was Pacific Highway traffic. Construction noise was not audible at the time of monitoring.
2	06/11/15	03:00pm – 15mins	NCA 09-396	43-57	54.6	Dominant noise source was Pacific Highway traffic. Construction noise was not audible at the monitoring site. One private vehicle drove past the monitoring site while monitoring was underway.
3	06/11/15	02:40pm – 15mins	NCA 07-439	48-62	54.3	Dominant noise source was Pacific Highway traffic, with local fauna including goats audible at times during monitoring. Wind rustling through trees was also audible as background noise. Several local cars drove past the monitoring site while monitoring was underway.
4	06/11/15	03:40pm – 15mins	NCA 05-446	43-57	57	Dominant noise source was Pacific Highway traffic. Construction noise was not audible at the monitoring site. Two private vehicles drove past the monitoring site while monitoring was underway.
5	23/11/2015	12:48pm – 15mins	NCA 05-446	43-58	47	Construction noise was the dominant noise source. Five bogies drove past the monitoring site while monitoring was underway.
6	23/11/15	02:53pm – 15mins	NCA 06-436	42-67	65.6	Construction noise was the dominant noise source, primarily from machinery involved in earthworks (eg two excavators). Two light vehicles also drove past the monitoring site while monitoring was underway.
7	23/11/15	01:55pm – 15mins	NCA 09-396	43-57	57	Dominant noise source was Pacific Highway traffic noise with construction also audible. Intermittent thunder was audible. A water cart drove past the monitoring site while monitoring was underway.
8	23/11/15	01:25pm – 15mins	NCA 07-439	48-62	57.2	Dominant noise source was construction noise. Background noise from farm animals nearby was also audible. While monitoring was underway four private vehicles, one bogie and one truck drove past the monitoring site.

December 2015

No noise monitoring was undertaken during December 2015.

January 2016

Event No.	Date	Time / duration	Location	Calculated noise management level	Result ($L_{A\ eq(15\ min)}$)	Observations
1	11/01/16	10:10am – 15mins	NCA 02-498	43-55	54.9	Dominant noise source was Pacific Highway traffic noise, with intermittent construction noise also audible. Background noise was primarily cicadas, with an excavator and chainsaw used intermittently nearby.
2	11/01/16	12:42pm – 15mins	NCA 07-438	48-62	54.6	Construction noise was the dominant noise source in the form of earthworks machinery (eg two excavators). Nearby batch plant operation also in use while monitoring underway.
3	11/01/16	11:55am – 15mins	NCA 09-405	43-57	52.7	Construction noise was the dominant noise source in the form of earthworks machinery (eg two excavators). Reversing alarms were also audible at times during monitoring. A truck and a private vehicle drove past the monitoring site while monitoring was underway.
4	11/01/16	10:30am – 15mins	NCA 01-492	40-62	51.3	Dominant noise source was Pacific Highway traffic noise. Construction noise was audible and associated with the use of earthworks machinery. Reversing alarms were also audible at different times. Local fauna including birds intermittently audible. Private vehicles drove past the monitoring site on two occasions while monitoring was underway.

Stage 3 noise monitoring

August 2015

Event No.	Date	Time / duration	Location	Calculated noise management level	Result ($L_{A\ eq(15\ min)}$)	Observations
1	13/08/2015	11:21 am 15 minutes	404 Cooperabung Drive, Cooperabung	61	49.4	Noise sources included: Local and Pacific Highway traffic, construction included sweeper, excavator, franna and light vehicles
2	13/08/2015	11:58 am 15 minutes	Cooperabung Close, Cooperabung	59	54.9	Noise sources included: Pacific Highway traffic, construction included haulage and crane operation.
3	13/08/2015	11:01 am 15 minutes	Corner Cooperabung Drive and Wyndell Close, Cooperabung	53	51.9	Noise sources included: traffic on the Pacific Highway (especially trucks) and local roads. Construction noise was heard including haulage and excavators. Dominant noise source was traffic on the Pacific Highway.
4	13/08/2015	12:17 pm 15 minutes	8 Haydons Wharf Road, Cooperabung	57 (81 during cut operation)	**62.2**	Noise sources included: Cut 15 dozer and moxies (63-64) and Pacific Highway Traffic (60-68) The measurement was heavily impacted by Pacific Highway traffic. However, remained below the impacts identified in the CNVMP for the activity taking place (cut operation).
5	13/08/2015	08:17 am 15 minutes	540 Hacks Ferry Road, Hacks Ferry	37	**42.1**	Noise sources included: Birds, wind in trees and traffic. Construction not audible.
6	13/08/2015	09:54 am 15 minutes	Rollands, Plains Road, Telegraph Point	58	48.6	Noise sources included: Local traffic, Pacific Highway traffic and birds. Construction not audible.
7	13/08/2015	12:42 pm 15 minutes	52 Moorside Drive, Telegraph Point	57	50.9	Noise sources included: Pacific Highway traffic and birds. Construction not audible.
8	13/08/2015	1:53 pm 15 minutes	Bill Hill Rd, The Hatch	43 (52 during cut operation)	**45.8**	Noise sources included: Local traffic, Pacific Highway traffic and birds, construction included Cut 12 excavators, scrapers and traverse alarms. The measurement was impacted by non-construction traffic. However, remained below the impacts identified in the CNVMP for the activity taking place (cut operation).

Event No.	Date	Time / duration	Location	Calculated noise management level	Result ($L_{A\ eq(15\ min)}$)	Observations
9	13/08/2015	11:41 am 15 minutes	79 Glen Ewan Road, Pembrooke	43	42	Noise sources included: Local traffic, Pacific Highway traffic and birds, construction included crane operation, haulage and bridge works.
10	13/08/2015	2:30 pm 15 minutes	11 Glen Ewan Road, Pembrooke	56 (59 during fill placement)	**56.8**	Noise sources included: haulage (48-52), compactor (42-46) and intermittent piling (50-64). 'Place Fill' allowances in CEMP to 59dBA This measurement was heavily impacted by Pacific Highway traffic (48-54).
11	13/08/2015	11:09 am 15 minutes	26 Bushland Drive, Sancrox	51	42.6	Noise sources included: Local, Oxley Highway and Pacific Highway traffic. Construction not audible.
12	13/08/2015	10:43 am 15 minutes	764 Fernbank Creek Road, Fernbank Creek	59	48.5	Noise sources included: both local and Pacific Highway traffic, construction included clearing works.

September 2015

Event No.	Date	Time / duration	Location	Calculated noise management level	Result ($L_{A\ eq(15\ min)}$)	Observations
1	28/9/2015	11:46 am 15 minutes	404 Cooperabung Drive Cooperabung	61	52.8	Noise sources included: Pacific Highway traffic, construction included excavator, Franna, haulage and traverse alarms.
2	28/9/2015	12:05 pm 15 minutes	Cooperabung Close, Cooperabung	59	56.2	Noise sources included: both local and Pacific Highway traffic, construction included excavator and traverse alarms.
3	28/9/2015	11:26 am 15 minutes	Cnr Cooperabung Drive and Wyndell Close, Cooperabung	53 (62 during cut operation)	**57.4**	Noise sources included: both Local and Pacific Highway traffic, birds and motorbike. Construction included cut operation with hammering, tracking machines and haulage. The measurement was impacted by Pacific Highway traffic. However, remained below the impacts identified in the CNVMP for the activity taking place (cut operation).
4	28/9/2015	12:25 pm 15 minutes	8 Haydons Wharf Road, Cooperabung	57 (81 during cut operation)	**62**	Noise sources included: Cut 15 dozer, excavator with hammer and moxies (63) and Pacific Highway

Event No.	Date	Time / duration	Location	Calculated noise management level	Result ($L_{A\ eq(15\ min)}$)	Observations
						Traffic (to 65). The measurement was heavily impacted by Pacific Highway traffic. However, remained below the impacts identified in the CNVMP for the activity taking place (cut operation).
5	28/9/2015	10:30 am 15 minutes	540 Hacks Ferry Road, Hacks Ferry	37	**42.6**	Noise sources included: cows, birds insects and wind amongst trees. Construction noise was not measurable.
6	28/9/2015	10:58 am 15 minutes	Rollands, Plains Road, Telegraph Point	58	50.3	Noise sources included: both local and Pacific Highway traffic, birds and insects. Construction not audible.
7	28/9/2015	12:50 pm 15 minutes	52 Moorside Drive, Telegraph Point	57	46.5	Noise sources included: both local and Pacific Highway traffic, birds and dogs. Construction not audible.
8	24/9/2015	1:40 pm 15 minutes	Bill Hill Road, The Hatch	43	**46.6**	Noise sources included: Local traffic and wind amongst trees. Construction not audible.
9	24/9/2015	10:22am 15 minutes	79 Glen Ewan Road, Pembrooke	43	**53.2**	Noise sources included: Local traffic and wind amongst trees. Construction not audible.
10	24/9/2015	9:58 am 15 minutes	11 Glen Ewan Road, Pembrooke	56	**56.3**	Noise sources included: both local and Pacific Highway traffic (up to 60 constant), intermittent construction included light vehicles, haulage and crane operation (up to 58). The measurement was heavily impacted by Pacific Highway traffic. Pacific Highway traffic was considered to be the predominant and loudest noise.
11	24/9/2015	9:26am 15 minutes	26 Bushland Drive, Sancrox	51	**55.2**	Noise sources included: Local, Oxley Highway and Pacific Highway traffic dominated measurement. Construction not audible.
12	24/9/2015	9:05 am 15 minutes	764 Fernbank Creek Road, Fernbank Creek	59	53.8	Noise sources included: both local and Pacific Highway traffic, construction included faint traverse alarms and tracking machinery.

October 2015

Event No.	Date	Time / duration	Location	Calculated noise management level	Result ($L_{A\ eq(15\ min)}$)	Observations
1	28/10/2015	2:42 pm 15 minutes	404 Cooperabung Drive Cooperabung	61	53.1	Noise sources included: Pacific Highway traffic, construction included haulage, traverse alarms and tracking machinery.
2	28/10/2015	3:05 pm 15 minutes	Cooperabung Close, Cooperabung	59	**60.2**	Noise sources included: both local and Pacific Highway traffic (dominant), birds and insects. Construction not audible.
3	28/10/2015	2:22 pm 15 minutes	Corner Cooperabung Drive and Wyndell Close, Cooperabung	53	52.9	Noise sources included: Local traffic, construction included excavator loading and tracking, and haulage.
4	28/10/2015	3:40 pm 15 minutes	8 Haydons Wharf Road, Cooperabung	57	**61.3**	Noise sources included: both local and Pacific Highway traffic (~60), metal fabrication business (50-60) (@NML), construction included traverse alarms, Wyndell excavator and tracking machinery. This measurement was dominated by the Pacific Highway traffic and the metal fabrication business located adjacent to the noise monitoring location. Elevated noise levels considered not to be attributable to construction.
5	28/10/2015	11:17 am 15 minutes	540 Hacks Ferry Road, Hacks Ferry	37	51.3	Noise sources included: birds, cows and insects. Construction not audible.
6	28/10/2015	12:02 pm 15 minutes	Rollands, Plains Road, Telegraph Point	58	51.1	Noise sources included: both local and Pacific Highway traffic, a train, and construction included piling.
7	28/10/2015	9:07 am 15 minutes	52 Moorside Drive, Telegraph Point	57	48	Noise sources included: traffic, birds. Construction not audible.
8	28/10/2015	4:25 pm 15 minutes	Bill Hill Road, The Hatch	43	**50.1**	Noise sources included: Local traffic, birds, insects and wind amongst trees. Construction not audible.
9	28/10/2015	10:39 am 15 minutes	79 Glen Ewan Road, Pembrooke	43	**49.4**	Noise sources included: both local and Pacific Highway traffic, birds, insects. Construction noise was audible, but not measureable. Elevated result considered unrelated to construction.
10	28/10/2015	10:14 am 15 minutes	11 Glen Ewan Road, Pembrooke	56	**57**	Noise sources included: both local and Pacific Highway (57-60 constant) traffic, trucks from Birdon

Event No.	Date	Time / duration	Location	Calculated noise management level	Result ($L_{A\ eq(15\ min)}$)	Observations
						marine and resident working. Construction included a crane. Road traffic noise unrelated to the project considered to be the predominant noise source.
11	28/10/2015	9:50 am 15 minutes	26 Bushland Drive, Sancrox	51	56.7	Noise sources included: both local, Oxley Highway and Pacific Highway traffic, birds and insects. Construction not audible.
12	28/10/2015	9:25 am 15 minutes	764 Fernbank Creek Road, Fernbank Creek	59	49.5	Noise sources included: Pacific Highway traffic, construction included traverse alarms and tracking machinery.

November 2015

Event No.	Date	Time / duration	Location	Calculated noise management level	Result ($L_{A\ eq(15\ min)}$)	Observations
1	27/11/2015	8:45 am 15 minutes	404 Cooperabung Drive Cooperabung	61	53.4	Noise sources included: both local and Pacific Highway traffic, construction included traverse alarms, light vehicles and water cart.
2	27/11/2015	9:10 am 15 minutes	Cooperabung Close, Cooperabung	59	57.1	Noise sources included: Pacific Highway traffic, construction included traverse alarms, grader and excavator.
3	12/11/2015	10:25 am 15 minutes	Cnr Cooperabung Drive and Wyndell Close, Cooperabung	53 (62 during cut operation)	**59.4**	Noise sources included: both local and Pacific Highway traffic. Construction included cut operations such as grader, excavator, tracking machines and haulage. The measurement was impacted by Pacific Highway traffic. However, remains below the impacts identified in the CNVMP for the activity taking place (cut operation).
4	27/11/2015	9:50 am 15 minutes	8 Haydons Wharf Road, Cooperabung	57 (81 during cut operation)	**58.3**	Noise sources included: Pacific Highway traffic (54-65), residents/local business (53), construction included traverse alarms, haulage and tracking machinery (up to 57). The measurement was heavily impacted by Pacific Highway traffic. However, remains below the impacts identified in the CNVMP for the activity

Event No.	Date	Time / duration	Location	Calculated noise management level	Result ($L_{A\ eq(15\ min)}$)	Observations
						taking place (cut operation).
5	27/11/2015	7:50 am 15 minutes	540 Hacks Ferry Road, Hacks Ferry	37	36.8	Noise sources included: cows, birds and insects. Construction not audible.
6	27/11/2015	8:22 am 15 minutes	Rollands, Plains Road, Telegraph Point	58	49.4	Noise sources included: both local and Pacific Highway traffic. Construction not audible.
7	27/11/2015	10:16 am 15 minutes	52 Moorside Drive, Telegraph Point	57	44.2	Noise sources included: Pacific Highway traffic, birds. Construction audible but not measureable.
8	27/11/2015	10:40 am 15 minutes	Bill Hill Road, The Hatch	43	45.6	Noise sources included: Farmer/tractor and birds. Construction not audible.
9	26/11/2015	10:43 am 15 minutes	79 Glen Ewan Road, Pembrooke	43	**55.6**	Noise sources included: Local traffic, birds. Construction not audible.
10	26/11/2015	11:07 am 15 minutes	11 Glen Ewan Road, Pembrooke	56	**60.6**	Noise sources included: both local and Pacific Highway traffic. Construction not audible.
11	26/11/2015	10:13 am 15 minutes	26 Bushland Drive, Sancrox	51	50.5	Noise sources included: both local and Pacific Highway traffic, faint construction audible including traverse alarms and tracking machinery.
12	26/11/2015	9:50 am 15 minutes	764 Fernbank Creek Road, Fernbank Creek	59	50	Noise sources included: both local and Pacific Highway traffic, excavator in private winery (not project). Only faint construction audible.

December 2015

Event No.	Date	Time / duration	Location	Calculated noise management level	Result ($L_{A\ eq(15\ min)}$)	Observations
1	15/12/15	3:38 pm 15 minutes	849 Cooperabung Drive Cooperabung	61	57.5	Noise sources included: both local and Pacific Highway traffic, birds and insects. Construction included traverse alarms, excavator and haulage.
2	15/12/15	4:02 pm 15 minutes	Cooperabung Close, Cooperabung	59	57.7	Noise sources included: Pacific Highway traffic, birds and insects. Construction included traverse alarms, roller and machinery tracking.

Event No.	Date	Time / duration	Location	Calculated noise management level	Result ($L_{A\ eq(15\ min)}$)	Observations
3	15/12/15	3:16 pm 15 minutes	Corner Cooperabung Drive and Wyndell Close, Cooperabung	53 (62 during cut operation)	**58.1**	Noise sources included: both local and Pacific Highway traffic, birds and insects. Construction included traverse alarms, excavator and haulage. The measurement was impacted by Pacific Highway traffic. However, remained below the impacts identified in the CNVMP for the activity taking place (cut operation).
4	15/12/15	4:20 pm 15 minutes	8 Haydons Wharf Road, Cooperabung	57 (81 during cut operation)	**59.9**	Noise sources included: Pacific Highway traffic. Construction included traverse alarms and machines tracking. The measurement was heavily impacted by Pacific Highway traffic. However, remained below the impacts identified in the CNVMP for the activity taking place (cut operation).
5	15/12/15	2:26 pm 15 minutes	540 Hacks Ferry Road, Hacks Ferry	37	**61.6**	Noise sources included: Pacific Highway traffic, insects and birds. Construction not audible.
6	15/12/15	2:56 pm 15 minutes	Rollands, Plains Road, Telegraph Point	58	55.6	Noise sources included: both local and Pacific Highway traffic, birds and insects. Construction not audible.
7	15/12/15	4:43 pm 15 minutes	52 Moorside Drive, Telegraph Point	57	47.8	Noise sources included: both local and Pacific Highway traffic, construction included hammering.
8	15/12/15	5:04 pm 15 minutes	Bill Hill Road, The Hatch	43	**49.4**	Noise sources included: Local traffic, birds and insects. Construction not audible.
9	15/12/15	1:52 pm 15 minutes	79 Glen Ewan Road, Pembrooke	43	**51.5**	Noise sources included: Pacific Highway traffic (dominant), private boats on Hastings River, birds. Faint construction included traverse alarms was audible, but not measureable. Result attributable to Hastings River and Pacific Highway traffic.
10	15/12/15	1:30 pm 15 minutes	11 Glen Ewan Road, Pembrooke	56 (59 during fill placement)	**59.8**	Noise sources included: both local and Pacific Highway traffic (60), insects. Construction included traverse alarms, light vehicles and water cart. The measurement was dominated by the constant Pacific Highway traffic and as such the result is not

Event No.	Date	Time / duration	Location	Calculated noise management level	Result ($L_{A\ eq(15\ min)}$)	Observations
						attributable to construction.
11	15/12/15	12:26 pm 15 minutes	26 Bushland Drive, Sancrox	51	**51.3**	Noise sources included: both local and Pacific Highway traffic, birds and insects. Faint construction audible, but not measureable. Result not considered attributable to construction.
12	15/12/15	12:47pm 15 minutes	764 Fernbank Creek Road, Fernbank Creek	59	55.5	Noise sources included: insects, birds, local business. Construction included faint traverse alarms.

January 2016

Event No.	Date	Time / duration	Location	Calculated noise management level	Result ($L_{A\ eq(15\ min)}$)	Observations
1	11/1/2016	11:31 am 15 minutes	849 Cooperabung Drive Cooperabung	61	55.1	Noise sources included: Pacific Highway traffic, birds and insects. Construction included traverse alarms and machines tracking.
2	11/1/2016	11:53 am 15 minutes	Cooperabung Close, Cooperabung	59	57	Noise sources included: both local and Pacific Highway traffic, birds and insects. Construction not audible.
3	11/1/2016	11:12 am 15 minutes	Corner Cooperabung Drive and Wyndell Close, Cooperabung	53 (62 during cut operation)	**60.3**	Noise sources included: Both local and Pacific Highway traffic, birds, insects and local resident grinding (dominant). Construction included traverse alarms, machine tracking and light vehcles. The measurement was heavily impacted by the local resident. However, remained below the impacts identified in the CNVMP for the activity taking place (cut operation).
4	11/1/2016	12:15 pm 15 minutes	8 Haydons Wharf Road, Cooperabung	57	56.4	Noise sources included: Pacific Highway traffic (dominant). Construction included traverse alarms and machines tracking.
5	11/1/2016	10:23 am 15 minutes	540 Hacks Ferry Road, Hacks Ferry	37	**56.3**	Noise sources included: Local traffic, birds and insects. Construction not audible.
6	11/1/2016	10:51 am	Rollands, Plains Road, Telegraph Point	58	56.1	Noise sources included: both local and Pacific Highway traffic and insects.

Event No.	Date	Time / duration	Location	Calculated noise management level	Result ($L_{A\ eq(15\ min)}$)	Observations
		15 minutes				Construction not audible.
7	11/1/2016	12:38 pm 15 minutes	52 Moorside Drive, Telegraph Point	57	44.2	Noise sources included: Traffic, birds and insects. Construction audible included traverse alarms.
8	11/1/2016	1:00 pm 15 minutes	Bill Hill Road, The Hatch	43	**51.2**	Noise sources included: Local traffic, birds and wind amongst trees. Construction not audible.
9	11/1/2016	11:14 am 15 minutes	79 Glen Ewan Road, Pembrooke	43 (57 during bridge construction)	**47.4**	Noise sources included: Traffic, birds and cows. Construction included traverse alarms, crane operation and bridge works. The measurement was impacted by traffic. However, remained below the impacts identified in the CNVMP for the activity taking place (bridge works).
10	11/1/2016	9:04 am 15 minutes	11 Glen Ewan Road, Pembrooke	56	**58.6**	Noise sources included: Pacific Highway traffic including trucks. Construction not audible.
11	11/1/2016	8:39 am 15 minutes	26 Bushland Drive, Sancrox	51	**53.6**	Noise sources included: both local, Oxley Highway and Pacific Highway traffic, birds and insects. Construction not audible.
12	11/1/2016	9:17 am 15 minutes	764 Fernbank Creek Road, Fernbank Creek	59	53.8	Noise sources included: both local and Pacific Highway traffic and birds. Construction included traverse alarms and excavator.

Stage 1 vibration monitoring

Vibration monitoring on Stage 1 was not undertaken during the reporting period due to the distance of vibration inducing activities from relevant sensitive structures.

Stage 2 vibration monitoring

Vibration monitoring was undertaken on 24 occasions on Stage 2 during the reporting period in response to blasting activities. Vibration monitoring in relation to other forms of vibration inducting activities (eg piling, vibratory rolling, earthworks) was undertaken on one occasion due to the proximity of a sensitive structure.

Event No.	Date	Location	Distance to receiver	Activity	Vibration PPV (mm/s)			Overpressure (dB (l))	
					Licence limit	Trigger level	Results	Licence limit	Result
1	13/05/2015	NCA01 - 492	1.2km	Cut 20 blast	5	0.1	Nil trigger	115	Nil trigger
2	20/05/2015	NCA01 - 492	1.2km	Cut 20 blast	5	0.1	Nil trigger	115	Nil trigger
3	3/06/2015	NCA01 - 492	1.2km	Cut 20 blast	5	0.1	Nil trigger	115	Nil trigger
4	17/06/2015	NCA01 - 492	1.2km	Cut 20 blast	5	0.1	1.46	115	Nil trigger
5	8/07/2015	NCA01 - 493	1.2km	Cut 20 blast	5	0.1	0.8	115	Nil trigger
6	15/07/2015	NCA08 - 384	0.8km	Cut 3 blast	5	0.1	Nil trigger	115	Nil trigger
7	22/07/2015	NCA08 - 384	0.8km	Cut 3 blast	5	0.1	Nil trigger	115	Nil trigger
8	29/07/2015	NCA08 - 384	0.8km	Cut 3 blast	5	0.1	Nil trigger	115	Nil trigger
9	05/08/2015	NCA08 - 384	0.8km	Cut 3 blast	5	0.1	Nil trigger	115	Nil trigger
10	12/08/2015	NCA01 - 492	1.2km	Cut 20 blast	5	0.51	Nil trigger	115	Nil trigger
11	19/08/2015	NCA01 - 492	1.2km	Cut 20 blast	5	0.51	Nil trigger	115	Nil trigger
12	26/08/2015	NCA01 - 492	1.2km	Cut 20 blast	5	0.51	0.508	115	108.8
13	1/09/2015	NCA04 - 484	0.2km	Earthworks	N/A	3	3.461	N/A	N/A
14	02/09/2015	NCA01 - 492	1.2km	Cut 20 blast	5	0.51	Nil trigger	115	Nil trigger
15	9/09/2015	NCA01 - 492	1.4km	Cut 19 blast	5	0.51	Nil trigger	115	Nil trigger
16	10/09/2015	NCA08 - 384	0.8km	Cut 3 blast	5	0.51	Nil trigger	115	Nil trigger
17	23/09/2015	NCA01 - 492	1.4km	Cut 19 blast	5	0.51	Nil trigger	115	Nil trigger
18	30/09/2015	NCA01 - 492	1.2km	Cut 20 blast	5	0.51	Nil trigger	115	Nil trigger

Event No.	Date	Location	Distance to receiver	Activity	Vibration PPV (mm/s)			Overpressure (dB (l))	
19	01/10/2015	NCA08 - 384	0.8km	Cut 3 blast	5	0.51	Nil trigger	115	Nil trigger
20	07/10/2015	NCA08 - 384	0.8km	Cut 3 blast	5	0.51	Nil trigger	115	Nil trigger
21	21/10/2015	NCA01 - 492	1.4km	Cut 19 blast	5	0.51	Nil trigger	115	Nil trigger
22	21/10/2015	NCA01 - 492	1.2km	Cut 21 blast	5	0.51	Nil trigger	115	Nil trigger
23	28/10/2015	NCA01 - 492	1.4km	Cut 19 blast	5	0.51	Nil trigger	115	Nil trigger
24	14/12/2015	NCA01 - 492	1.1km	Cut 20 blast	5	0.51	Nil trigger	115	Nil trigger
25	03/02/2016	NCA08 - 384	0.6km	Cut 3 west blast	5	0.51	Nil trigger	115	Nil trigger

Stage 3 vibration monitoring

Vibration monitoring was undertaken on a number of occasions during the reporting period on Stage 3 for high-risk activities such as pile driving and blasting. The following table represents measurements taken against structural damage criteria.

Event No.	Date	Location	Distance to receiver	Activity	Vibration PPV (mm/s)			Overpressure (dB (l))	
					Licence limit	Trigger level	Results	Licence limit	Result
1	28/07/2015	157 Yarrabee Rd – Rec 378	170m	B2 - Cut 23	25	0.1	No Trigger	130	No Trigger
		49 Yarrabee Rd – Rec 380	730m		5	0.1	No Trigger	115	No Trigger
2	4/08/2015	157 Yarrabee Rd – Rec 378	170m	B8 - Cut 19B	25	0.1	2.785	130	117.9
		49 Yarrabee Rd – Rec 380	730m		5	0.1	No Trigger	115	No Trigger
3	4/08/2015	247 Cooperabung Dr - 330	500m	B1 - Cut 15	5	0.1	3.064	115	108
		Gean Marine - 315	60m		25	0.1	3.939	130	108
4	7/08/2015	157 Yarrabee Rd – Rec 378	170m	B3 - Cut 23	25	0.1	No Trigger	130	No Trigger
		49 Yarrabee Rd – Rec 380	730m		5	0.1	No Trigger	115	No Trigger
5	13/08/2015	157 Yarrabee Rd – Rec 378	170m	B4 - Cut 23	25	0.1	No Trigger	130	No Trigger

Event No.	Date	Location	Distance to receiver	Activity	Vibration PPV (mm/s)			Overpressure (dB (l))	
		49 Yarrabee Rd – Rec 380	730m		5	0.1	0.65	115	107
6	18/08/2015	247 Cooperabung Dr - 330	500m	B2 - Cut 15	5	0.1	No Trigger	115	No Trigger
		Gean Marine - 315	60m		25	0.1	4.67	130	113.3
7	21/08/2015	157 Yarrabee Rd – Rec 378	170m	B9 - Cut 19B	25	0.1	2.225	130	106
		49 Yarrabee Rd – Rec 380	730m		5	0.1	0.554	115	95.92
8	27/08/2015	247 Cooperabung Dr - 330	500m	B3 - Cut 15	5	0.1	No Trigger	115	No Trigger
		Gean Marine - 315	60m		25	0.1	14.21	130	117.4
9	28/08/2015	157 Yarrabee Rd – Rec 378	170m	B5 - Cut 23	25	0.1	No Trigger	130	No Trigger
		49 Yarrabee Rd – Rec 380	730m		5	0.1	No Trigger	115	No Trigger
10	1/09/2015	247 Cooperabung Dr - 330	500m	B4 - Cut 15	5	0.1	4.286	115	107
		Gean Marine - 315	60m		25	0.1	14.07	130	119.3
11	8/09/2015	157 Yarrabee Rd – Rec 378	170m	B10 - Cut 19B	25	0.1	5.95	130	124.9
		49 Yarrabee Rd – Rec 380	730m		5	0.1	0.65	115	108
12	15/09/2015	157 Yarrabee Rd – Rec 378	170m	B11 - Cut 19B	25	0.1	2.386	130	116.3
		49 Yarrabee Rd – Rec 380	730m		5	0.1	No Trigger	115	No Trigger
13	22/09/2015	49 Yarrabee Rd – Rec 380	730m	B6 - Cut 23	5	0.1	No Trigger	115	No Trigger
14	24/09/2015	157 Yarrabee Rd – Rec 378	170m	B12 - Cut 19B	25	0.1	2.59	130	119.1
		49 Yarrabee Rd – Rec 380	730m		5	0.1	No Trigger	115	No Trigger
15	8/10/2015	49 Yarrabee Rd – Rec 380	730m	B7 - Cut 23	5	0.1	No Trigger	115	No Trigger
16	15/10/2015	49 Yarrabee Rd – Rec 380	730m	B8 - Cut 23	5	0.1	No Trigger	115	No Trigger
17	22/10/2015	157 Yarrabee Rd – Rec 378	170m	B13 - Cut 19B	25	0.1	No Trigger	130	No Trigger

Event No.	Date	Location	Distance to receiver	Activity	Vibration PPV (mm/s)			Overpressure (dB (l))	
		49 Yarrabee Rd – Rec 380	730m		5	0.1	No Trigger	115	No Trigger
18	29/10/2015	157 Yarrabee Rd – Rec 378	170m	B14 - Cut 19B	25	0.1	6.361	130	117.6
		49 Yarrabee Rd – Rec 380	730m		5	0.1	No Trigger	115	No Trigger
19	1/12/2015	49 Yarrabee Rd – Rec 380	730m	B9 - Cut 23	5	0.1	No Trigger	115	No Trigger
20	10/12/2015	49 Yarrabee Rd – Rec 380	730m	B10 - Cut 23	5	0.1	No Trigger	115	No Trigger
21	17/12/2015	49 Yarrabee Rd – Rec 380	730m	B11 - Cut 23	5	0.1	No Trigger	115	No Trigger
22	12/01/2016	49 Yarrabee Rd – Rec 380	1600m	B1 - Cut 24	5	0.1	No Trigger	115	No Trigger

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