



# **COMPLIANCE TRACKING PROGRAM**

Woolgoolga to Ballina Pacific  
Highway Upgrade (sections 3 to 11)

Six Monthly Construction Compliance  
Report (April 2016 – September  
2016)

APRIL 2017

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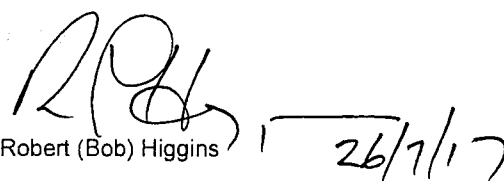
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## Revision history

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## Glossary / Abbreviations

CEMP	Construction Environmental Management Plan
CFFMP	Construction Flora and Fauna Management Plan
CHMP	Construction Heritage Management Plan
Compliance audit	Verification of how implementation is proceeding with respect to a construction environmental management plan (CEMP) (which incorporates the relevant approval conditions).
DoEE	Department of Environment and Energy
EEC	Endangered Ecological Community
Environmental incident	An unexpected event that has, or has the potential to, cause harm to the environment and requires some action to minimise the impact or restore the environment.
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPA	Environment Protection Authority
EPBC Act	<i>Environmental Protection and Biodiversity Conservation Act 1999</i>
EPL	Environment Protection License
ER	Environmental Representative – A suitably qualified and experienced person independent of project design and construction personnel employed for the duration of construction. The principal point of advice in relation to all questions and complaints concerning environmental performance.
ERG	Environment Review Group – comprising representatives of RMS, Environmental Representative, Project delivery team, regulatory authorities (EPA, DPI – Fisheries Conservation and Aquaculture, NOW) and councils (Coffs Harbour City Council, Clarence Valley Shire Council). The ERG will be maintained for the duration of the Project and will meet regularly and undertake environmental inspections. The role the ERG is to provide proactive advice on environmental management issues and review the environmental performance of the Project.
EWMS	Environmental Work Method Statements
MCoA	Minister's Conditions of Approval
Non-compliance	Failure to comply with the requirements of the Project approval or any applicable license, permit or legal requirements.
Non-conformance	Failure to conform to the requirements of Project system documentation including this CEMP or supporting documentation.
OEH	Office of Environment and Heritage
OPP	Oxleyan Pygmy Perch
Project, the	The Woolgoolga to Ballina Project (Sections 3 to 11)
PC	Pacific Complete
PPV	Peak particle velocity
Secretary	Secretary of the Department of Planning and Environment

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SPIR

Submission / Preferred Infrastructure Report

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RMS, Roads and Maritime

Roads and Maritime Services

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# 1 Introduction

## 1.1 Project description

NSW Roads and Maritime Services (Roads and Maritime) is upgrading the Pacific Highway between Woolgoolga and Ballina on the NSW North Coast. This is known as the Woolgoolga to Ballina Pacific Highway upgrade project. An overview of the project is shown in Figure 1-1.

The project would upgrade around 155 kilometres of highway and represents the last priority (known as 'Priority 3' in the upgrade program) in achieving a four-lane divided road between Hexham and the NSW/Queensland Border. The project therefore forms a major part of the overall upgrade program and when constructed, would complete the four-lane divided road program. It would be jointly funded by the NSW and Australian governments.

The Woolgoolga to Ballina project is Australia's largest regional infrastructure project and will duplicate about 155 kilometres to four-lane divided road. The project starts about six kilometres north of Woolgoolga (north of Coffs Harbour) and ends about six kilometres south of Ballina.

When complete, the project will:

- Reduce overall length from 180 kilometres to about 167 kilometres, saving about 13 kilometres in travel distance
- Allow for a higher posted speed limit of up to 110 km/h
- Reduce travel time from 130 minutes to about 105 minutes, saving 25 minutes
- Reduce crash rates by an expected 27 per cent due to divided carriageways
- Improve travel reliability through better flood immunity, fewer incidents and more readily available alternative routes.

Key features of the upgrade include:

- Duplication of 155 kilometres of the Pacific Highway to a motorway standard (Class M) or arterial road (Class A), with two lanes in each direction and room to add a third lane if required in the future
- Split-level (grade-separated) interchanges at Range Road, Glenugie, Tyndale, Maclean, Yamba / Harwood, Woombah (Iluka Road), Woodburn, Broadwater and Wardell
- Bypasses of South Grafton, Ulmarra, Woodburn, Broadwater and Wardell
- About 40 bridges over rivers, creeks and floodplains, including major bridges crossing the Clarence and Richmond rivers
- Fifty-five underpasses and bridges over and under the highway to maintain access to local roads that crossing the highway
- Access roads to maintain connections to existing local roads and properties
- Structures designed to encourage animals over and under the upgraded highway where it crosses key animal habitat or wildlife corridors
- Rest areas located at about 50 kilometre intervals at Arrawarra, Pine Brush (Tyndale), north of Mororo Road and north of the Richmond River
- A heavy vehicle checking station near Halfway Creek and north of the Richmond River.

The Woolgoolga to Ballina upgrade does not include the completed Devils Pulpit and Glenugie upgrade projects.

Sections of the project are located adjacent to previously approved highway upgrades, including the following:

- Sapphire to Woolgoolga Pacific Highway upgrade – NSW Approval (06\_0293) 13 January 2009
- Glenugie Pacific Highway upgrade – NSW Approval (09/0073) 17 December 2009, Commonwealth Approval (2009/5002) 13 January 2010
- Devils Pulpit Pacific Highway upgrade – NSW Approval (09\_0179), 1 February 2011, Commonwealth Approval (2010/8586) 20 January 2012
- Ballina Bypass Pacific Highway upgrade – NSW Approval 22 May, 2003.

The land to which the Woolgoolga to Ballina NSW Approval (SSI\_4963) applies is describe as follows:

*The Pacific Highway between Woolgoolga and Ballina, from about six kilometres north of Woolgoolga at Arrawarra Beach Road to Pimlico Road about six kilometres to the south of Ballina, excluding the Glenugie and Devils Pulpit upgrades but including the tie-ins to those project.*

Pacific Complete (PC) has been appointed by Roads and Maritime Services (Roads and Maritime) as the Delivery Partner (DP). Pacific Complete comprises Laing O'Rourke Australia Pty Ltd and Parsons Brinckerhoff Australia Pty Limited working in close collaboration with Roads and Maritime.

Pacific Complete is responsible for the procurement and management of the detailed design and construction phases associated with Pacific Highway Upgrade – Woolgoolga to Ballina (Sections 3 to 11).



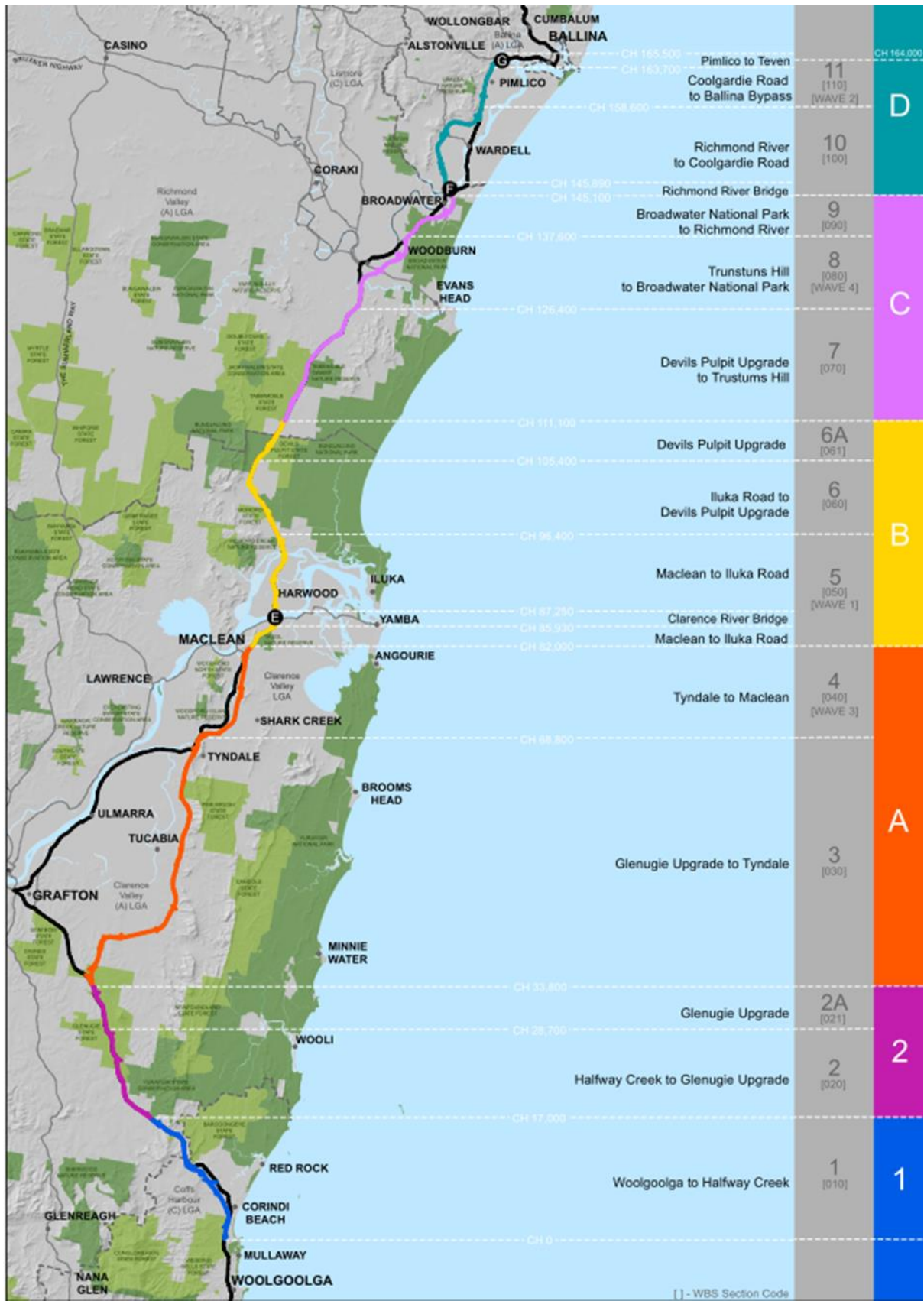


Figure 1-1 Woolgoolga to Ballina project

## 1.2 Staging

Staging Reports have been prepared in accordance with the requirements of the NSW Ministers Condition of Approval A7, which states:

*The Applicant may elect to construct and/or operate the SSI in stages. Where staging is proposed, the Applicant shall submit a Staging Report to the Secretary prior to the commencement of each proposed stage. The Staging Report shall provide details of:*

- a) how the SSI 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 SSI.*

*Where staging of the SSI 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 specified stage(s).*

The project is also approved under the Commonwealth *Environment Protection and Biodiversity Act 1999* (012/6394 approval dated 14 August 2014). EPBC CoA 1 requires that:

*The Staging Report as required by NSW approval conditions A7 must be submitted to the Minister prior to the commencement of each of the proposed stage(s). In accordance with NSW approval condition A7, the Staging Report must outline how the proposal will be staged. The Staging Report must also outline the threatened species and communities, and migratory species impacted in each stage.*

The Staging Report(s) describe the activities associated with the project stages and how compliance will be addressed across and between the stages.

Roads and Maritime has prepared and submitted the Woolgoolga to Ballina Pacific Highway Upgrade Staging Report (March 2015). This staging report addressed Stage 1 of the project which covers the following works:

- Section 1 (Woolgoolga to Halfway Creek)
- Section 2 (Halfway Creek to Glenugie)
- Soft Soil preloading construction at the following locations targeting deep soft soils:
  - Harwood (Wave 1)
  - Whytes Road to Pimlico (Wave 2)
  - Between Tyndale and Illuka Road and at Tuckombil Canal, Woodburn (Wave 3)

A second Staging Report (July 2016) has been prepared to address Stage 2 of the project, which covers the following works:

- Nine sections (3 to 11), which have been grouped into four portions (A to D)
- Two major bridges (portions E and F) at the Clarence River and Richmond River
- Four areas of soft soil works (Wave 1 to Wave 4)
- Three areas for early works (Wave 5a, 5b and 5c)
- Six bypasses (South Grafton, Grafton, Ulmarra, Woodburn, Broadwater and Wardell)
- 10 interchanges (Eight Mile Lane, Tyndale South (Sheeys Lane), Tyndale North, Goodwood Street, Watts Lane, Yamba Road, Illuka Road, Woodburn (Trustums Hill) Road, Broadwater (Evans Head Road) and Coolgardie Road)
- Three tie-ins to other projects (Glenugie Upgrade, Devils Pulpit Upgrade and Ballina Bypass)
- Three rest areas (Pine Brush (northbound), north of Mororo Road (north and southbound) and north of Richmond River (north and southbound)).

The Wave 3 works were outlined in the Stage 1 staging report, as above, but were subsequently carried out as part of the Stage 2 works and are therefore included as part of this construction compliance report. Roads and Maritime have procured Sections 3 to 11 of the overall Woolgoolga to Ballina Pacific Highway upgrade project through a Delivery Partner contract. Sections 3 to 11 will be delivered concurrently through this contract. Wave 1 and Wave 2 were identified and carried out as part of Stage 1, however are managed by the Delivery Partner and have therefore been included in this construction compliance report. The Wave 1 and Wave 2 contractors produced compliance reports for the first 6 months of their construction programs.

Wave 1 will conclude in December 2016 and the second compliance report information is included in this 6 Monthly Compliance Report.

Wave 2 construction works concluded in July 2016. The compliance information for the second part of the Wave 2 works are included in this 6 Monthly Compliance Report. The Wave 1 and Wave 2 works were identified and carried out as Stage 1 of the project, however have been included in this construction compliance report as they are located within Sections 3 to 11 of the overall project.

## 1.3 Purpose

The key objectives of this 6 Monthly Compliance Report is to track compliance with the requirements of both the NSW Minister's Conditions of Approval (MCoA) and the Commonwealth Department of Environment and Energy (DoEE) project approvals and the respective conditions of approval during the design and construction of the Project. Appendix A of the Compliance Tracking Program documents the construction compliance status of Stage 2 works (Sections 3 to 11) for the first six months of construction (April to September 2016).

## 1.4 Environmental management systems overview

The Construction Environmental Management Plan (CEMP) is the primary system to manage and control the environmental aspects of the Project during construction. It also provides the overall framework for the system and procedures to ensure environmental impacts are minimised and legislative and other requirements are fulfilled. The strategies defined in the CEMP have been developed with consideration of the Project approval requirement, safeguards and mitigation measures presented in the environmental assessment and approval documents. The CEMP establishes the system for implementation, monitoring and continuous improvement to minimize impacts from the Project on the environment.

This Compliance Tracking Program is separate to the CEMP, but is part of a suite of environmental management documents prepared for the Project.

## 1.5 Relevant documentation

Documentation relevant to the Compliance Tracking Program includes:

- RMS, Woolgoolga to Ballina. *Upgrading the Pacific Highway. Environmental Assessment* (December 2012)
- RMS, Woolgoolga to Ballina. *Upgrading the Pacific Highway. Submissions and Preferred Infrastructure Report* (November 2013)
- New South Wales *Environmental Planning and Assessment Act 1979* (SSI-4963), approval dated 24 June 2014 (including Modification 1 dated 15 January 2015 and Modification 2 dated 7 October 2015).
- Commonwealth *Environment Protection and Biodiversity Act 1999* (012/6394), approval dated 14 August 2014.

## **2 Scope of the activities undertaken during the reporting period**

A range of construction works have occurred during the reporting period of April to September 2016. The construction packages and a summary of the main works carried out under each package are outlined in Table 2-1. Figure 2-1 illustrates the location of these works.

**Table 2-1 Scope of activities undertaken during the reporting period**

Construction Package	Location	Summary of the main works
<b>Wave 1</b>	Section 4, Portion A Section 5 and 6, Portion B (CH 76,500 to CH98,500).	<p><b>Demolition works</b> Demolition of multiple premises.</p> <p><b>Utility relocation</b></p> <ul style="list-style-type: none"> <li>• Relocation of utility services at various locations.</li> </ul> <p><b>Soft soil treatment</b></p> <ul style="list-style-type: none"> <li>• Placement of fill</li> </ul> <p><b>Bulk earthworks (cut and fill)</b></p> <ul style="list-style-type: none"> <li>• Extraction of material from highway cutting at Tyndale</li> <li>• Extraction of material from cutting south of McIntyres Lane, Gulmarrad – Greenhills cutting</li> <li>• Excavation of material from Mororo cutting.</li> </ul>
<b>Wave 2</b>	Section 11, Portion D (CH 160,000 to CH163, 800).  Note – during this reporting period works in Wave 2 were carried out from April to July, with works completed on 22 July 2016.	<p><b>Soft soil treatment</b></p> <ul style="list-style-type: none"> <li>• Placement of general fill and high-strength fabric.</li> <li>• Batters cut to design.</li> </ul> <p><b>Implementation of erosion and sediment control</b></p> <ul style="list-style-type: none"> <li>• Ongoing maintenance of temporary erosion and sediment controls.</li> <li>• Final controls established for soft soil embankment settlement process including a combination of soilbinder on batters, bitumen emulsion and edge protection on the top surface of the embankment, scour protection/rock armouring around Jackson’s drain and batter chutes to convey concentrated flow.</li> </ul>
<b>Wave 3</b>	Section 4, Portion A (CH67,500 to CH81,000)	<p><b>Clearing and grubbing</b></p> <ul style="list-style-type: none"> <li>• Clearing of vegetation between McIntyres Lane and Maclean interchange</li> <li>• Clearing at Tyndale intersection</li> <li>• Clearing at Causley’s Cutting.</li> <li>• Slashing of cleared former agricultural land (sugar cane and pasture).</li> </ul> <p><b>Demolition works</b></p> <ul style="list-style-type: none"> <li>• Demolition of one former dwelling and shed at Green Hill.</li> </ul> <p><b>Establishment of ancillary facilities and stockpile sites</b></p> <ul style="list-style-type: none"> <li>• Ancillary facility at McIntyres Lane (CH 77,000)</li> <li>• Minor and major ancillary facility (CH69, 450)</li> </ul>

Construction Package	Location	Summary of the main works
		<ul style="list-style-type: none"> <li>• Minor ancillary facility and stockpile site at Edwards Drain (CH80,150)</li> <li>• Minor ancillary facility at T-Tree Lane (CH81,100).</li> </ul> <p><b>Soft soil treatment</b></p> <ul style="list-style-type: none"> <li>• Soft soil treatment at Maclean Interchange, Causleys North, Norleys Lane, Shark Creek Pad and Crackers Drain Pads.</li> </ul> <p><b>Bulk earthworks (cut and fill)</b></p> <ul style="list-style-type: none"> <li>• Extraction of material from Causley's Cutting.</li> <li>• Extraction of material from Tyndale cut (including blasting and crushing)</li> <li>• Placement of fill between McIntyres Lane and Maclean interchange</li> <li>• Placement of fill north and south of Shark Creek</li> <li>• Haul road construction and placement of fill between Tyndale and Crackers Drain.</li> </ul> <p><b>Structures</b></p> <ul style="list-style-type: none"> <li>• Temporary crossing at Crackers drain.</li> <li>• Construction of crane pad and abutments for temporary bridge over Shark Creek.</li> </ul> <p><b>Drainage</b></p> <ul style="list-style-type: none"> <li>• Drainage works between Tyndale and Crackers Drain, and at Maclean interchange.</li> </ul> <p><b>Implementation of environmental controls</b></p> <ul style="list-style-type: none"> <li>• Establishment of environmental controls at Green Hill cut and Tyndale south</li> <li>• Construction of sediment basins at Causley's Cut (4 basins), Green Hill (3 basins) and Tyndale (2 basins operational, additional basins currently under construction).</li> </ul>
<b>Wave 4</b>	Section 8, Portion C (CH128,900 to CH131,300). Note – construction activities commenced in Wave 4 in June 2016.	<p><b>Clearing and grubbing</b></p> <ul style="list-style-type: none"> <li>• Clearing of vegetation</li> </ul> <p><b>Establishment of ancillary facilities</b></p> <ul style="list-style-type: none"> <li>• Ancillary facility south of Tuckombil Canal</li> <li>• Minor ancillary facility north of Tuckombil Canal</li> </ul> <p><b>Utility relocation</b></p> <ul style="list-style-type: none"> <li>• Relocation of Telstra fibre optic cables located in the wick rock area under the southern embankment.</li> </ul> <p><b>Soft soil treatment</b></p> <ul style="list-style-type: none"> <li>• Placement of fill and wicks southern embankment</li> </ul>

Construction Package	Location	Summary of the main works
		<ul style="list-style-type: none"> <li>• Placement of fill and wicks on northern embankment</li> </ul> <p><b>Bulk earthworks (cut and fill)</b></p> <ul style="list-style-type: none"> <li>• Placement of general fill and fabric on southern embankment</li> <li>• Placement of general fill and fabric on northern embankment</li> </ul> <p><b>Structures</b></p> <ul style="list-style-type: none"> <li>• Waterway crossing at drainage channel (CH129,080) and Woodburn Town Drain (CH131,050).</li> <li>• Commencement of installation of temporary transverse drainage (CH129,740 to CH130,740).</li> </ul> <p><b>Implementation of environmental controls</b></p> <ul style="list-style-type: none"> <li>• Progressive establishment of erosion and sediment controls along the alignment</li> <li>• No sediment basins required during the report period.</li> </ul>
<b>Wave 5a</b>	Section 3, Portion A (CH67,200 to CH67,500). Note – the Wave 5a works commenced in the last week of September.	<p><b>Clearing and grubbing</b></p> <ul style="list-style-type: none"> <li>• Clearing of vegetation along the alignment.</li> </ul>
<b>Wave 5c</b>	Five discrete work locations within Section 7 (CH114,060 to CH115,900), Section 8 (CH126,700 to CH129,500, CH132,050 to CH132,400, CH132,400 to CH136,400) and Section 9 (CH142,500 to CH142,750), Portion C. Note – construction activities commenced in Wave 5c in July 2016.	<p><b>Clearing and grubbing</b></p> <ul style="list-style-type: none"> <li>• Clearing of vegetation along the alignment.</li> </ul> <p><b>Demolition works</b></p> <ul style="list-style-type: none"> <li>• Demolition of one former dwelling at Darky's Road.</li> </ul> <p><b>Establishment of ancillary facilities</b></p> <ul style="list-style-type: none"> <li>• Establishment of minor ancillary facility near CH 115,000</li> <li>• Establishment of minor ancillary facility near CH 132,100.</li> </ul> <p><b>Earthworks</b></p> <ul style="list-style-type: none"> <li>• Placement of rock foundation treatment</li> <li>• Placement of general fill.</li> </ul> <p><b>Utility relocation</b></p> <ul style="list-style-type: none"> <li>• Relocation of Telstra fibre optic cables</li> </ul> <p><b>Structures</b></p> <ul style="list-style-type: none"> <li>• Temporary waterway crossing at unnamed tributary of MacDonald's Creek</li> </ul>



Construction Package	Location	Summary of the main works
		<ul style="list-style-type: none"> <li>• Temporary bridge crossing at unnamed tributary of MacDonald's Creek.</li> </ul> <p><b>Waterway realignment</b></p> <ul style="list-style-type: none"> <li>• OPP habitat waterway realigned at unnamed tributary of MacDonald's Creek (CH135,540).</li> </ul> <p><b>Implementation of environmental controls</b></p> <ul style="list-style-type: none"> <li>• Progressive establishment of erosion and sediment controls along the alignment</li> <li>• Construction of one sediment basin.</li> </ul>
<b>Harwood Bridge</b>	Section 5, Portion B (CH85,725 to CH87,480). Note – activities commenced at Harwood Bridge in July 2016.	<p><b>Establishment of ancillary facilities</b></p> <ul style="list-style-type: none"> <li>• Minor ancillary facility.</li> </ul> <p><b>Clearing and grubbing</b></p> <ul style="list-style-type: none"> <li>• Slashing of vegetation.</li> </ul> <p><b>Ground investigations</b></p> <ul style="list-style-type: none"> <li>• Commencement of geotechnical investigations</li> <li>• Potholing to identify utilities.</li> </ul> <p><b>Implementation of environmental controls</b></p> <ul style="list-style-type: none"> <li>• Progressive establishment of erosion and sediment controls along the alignment.</li> </ul>
<b>Geotechnical Investigations</b>	Section 4 and 5, Portion A (CH34,400 to CH81,200), Section 5 and 6, Portion B (CH82,400 to CH105,700), Section 7, 8, and 9, Portion C (CH111,100 to CH145,100) and Section 10 and 11, Portion D (CH145,750 to CH158,600).	Some vegetation clearing was undertaken to allow for access to investigation sites and for the establishment of geotechnical investigation equipment.

# PACIFIC HIGHWAY UPGRADE

*Woolgoolga to Ballina*

**Figure 1-1**  
**Waves 1, 2, 3,**  
**4, 5a & 5c**  
**Apr-Sept, 2016**

**Map 1 of 1**



EIS/SPIR Project Boundary

**Soft Soil Sites And Wave Locations (Apr to Sept, 2016)**

- Wave 1
- Wave 2
- Wave 3
- Wave 4
- Wave 5a
- Wave 5c
- Harwood Bridge



**1:327,500**  
at A3

0 5 10  
Kilometres

Print Date: 17/10/2016  
Author: SPALDINGC

Map produced by Pacific Highway Branch, Infrastructure Development, RMS. Map data copyright 2014 Roads & Maritime Services, NSW. Spatial data used under licence from Land and Property Management Authority, NSW © 2016.

## 2.1 Ancillary facilities

Table 2-2 lists the ancillary facilities approved for use during the reporting period.

**Table 2-2 Ancillary facilities approved during the reporting period**

Facility name / ID number	Portion	Chainage	Approval Date
Tyndale (Section 3, Site 10)	A	67100 - 67400	15 June 2016
Avenue Road	A	41300 - 41800	8 July 2016
Causley's Lane (Section 4 Site 5)	A	78150 - 78400	16 August 2016
North East Carpark MiFA 3 (MINOR)	A	87350	23 August 2016
Wave 3 Tyndale/McIntyres (MINOR)	A	69300	25 August 2016
Firth Heinz Connor's MAFA	A	52200 to 52700	26 August 2016
Bondi Hill Rd (Section 4 Site 1)	A	69300	26 August 2016
Tyndale Addendum Area (car park) to the north of Section 3 Site 10	A	67500	26 August 2016
Six Mile Lane (Section 3 Site 2)	A	39500 - 40200	8 September 2016
Bensons Lane (Stockpile B7)	A	66900 - 67200	27 September 2016
Firth Heinz 2 –Ryan Site (Section 3 Site 6a)	A	51400	27 September 2016
Wooli Road Jefferies (Section 3 Site 4)	A	45500 - 45600	30 September 2016
Iluka Road (Section 5, Site 6 & 9)	B	94800-96000	31 August 2016
Section 8, Site 1 (8-1a)	C	129800 - 130100	28 July 2016
Wave 4 - North Site Office (MINOR)	C	130400 - 130460	28 July 2016
Wave 5C Area 4 (MINOR)	C	132030 - 132100	28 July 2016
Wave 5C Area 1 (MINOR)	C	115090 - 115160	29 July 2016
Section 8, Site 3	C	134800 - 135100	5 September 2016
South East Laydown MiAF 1 (MINOR)	E	85950	16 August 2016
North East Toilet Facility MiAF 2 (MINOR)	E	87200	17 August 2016
Wave 2 Ti-Tree Lane (MINOR)	E	80950-81050	25 August 2016

## **3 Performance of environmental controls that have been implemented**

### **3.1 Erosion and sediment control**

Erosion and sediment control measures have been implemented across the project to ensure the appropriate management of erosion and runoff during construction. Erosion and sediment control plans (ESCP) have been prepared in consultation with the Project Soil Conservationist, Pacific Complete, Roads and Maritime and DPI Fisheries (where required). Progressive ESCPs have also been prepared to allow for adaptation to changing site conditions and staging of the construction works. The Soil Conservation Service continues to actively provide guidance to contractors through performing regularly scheduled inspections and monitoring, provision of actions following inspections and the review and approval of ESCPs.

Major controls and measures implemented during the reporting include (but are not limited to):

- Temporary erosion and sediment controls prior to and during clearing and earthworks including sediment fences, geotextile filter fences, earth or mulch bunds, sand bags and clean water diversions
- Stabilised rock and rumble grids at entry and exist points to reduce vehicles tracking mud outside of the work sites
- Staged clearing, to reduce the amount of exposed area
- Reviewing the need for ground disturbance minimising disturbance where practicable
- Use of ground covering within areas of ongoing disturbance (such as ancillary sites and lay down areas)
- Spreading of mulch as a ground covering to minimise erosion during clearing phases
- Ongoing review of ESCP's to suite variable site conditions and construction phase.

Two major east coast low rainfall events occurred in June 2016 resulting in the failure of erosion and sediment controls and the deposition of sediments in adjacent Swamp Sclerophyll Forest, an Ecological Endangered Species (EEC), near Tyndale. The incident was cleaned up and ongoing monitoring of the vegetation has been undertaken during the reporting period, refer to Section 5.4.

Improvements to erosion and sediment controls were implemented at the Tyndale Cut site including additional sediment traps to minimise the volume of surface water applying pressure to lower site controls. Subsequently the site performed well during a multiple-day above-average rain event with positive feedback during ERG inspections.

A category 2 environmental incident was recorded at the Wave 5c works, outside of the OPP habitat area, from erosion and sediment controls not being fully implemented. Improvement measures including increased frequency of inspection of site controls and training in the need for correct implementation of controls were implemented. This was a procedural matter and there was no environmental harm.

Extensive erosion and sediment controls have been implemented at the Wave 5c works due to the proximity of the works to OPP habitat. The implementation of these controls has been challenging due to the lack of space to contain site water and the requirement to capture all water up to a 90<sup>th</sup> percentile event. A range of controls including diversion bunds, contour banks, sumps, transfer pumps, turkeys nest storage areas and land irrigation areas have been established to solve these challenges. This approach has been developed in close consultation with NSW Soil Conservation Service and DPI Fisheries. The complexity of the controls has resulted in some additional challenges as the construction works progress, however to date the controls are performing effectively.

Overall, erosion and sediment controls are performing effectively across the project with good implementation of controls during clearing, including initial perimeter controls and clean water diversions, prior to progressing to full scale clearing works. Sediment traps positioned within grassed swales have been identified as notable effective control measures, highlighting the effectiveness of vegetation cover to reduce sediment loss. Generally feedback during ERG inspections has been positive with minor repairs and maintenance required. The final ERG close-out inspection for the Wave 2 works was carried out in July 2016. Positive feedback was received from DPI Fisheries/ EPA regarding the performance of environmental controls.

### **3.2 Sediment basins**

Sediment basins associated with the EPL for the project are currently located at Greenhill Cutting, Mororo Cutting, Tyndale Cutting, Causley's and in Area 1 of the Wave 5c works. During the reporting period, runoff

has been treated, tested and discharged in accordance with the EPL conditions and the approved Threatened Fish Management Plan (where applicable).

Measures undertaken to manage sediment basins within the reporting period include (but are not limited to):

- Use of flocculent (such as fine grade gypsum) and pH treatments (such as hydrated lime)
- Utilising captured water for construction purposes and (where approved to do so) irrigating to land in accordance with the project EPL and approved Threatened Fish Management Plan.
- Where space permits, sediment basins have been built larger than design requirements, to assist with providing site water for construction/ dust control and to reduce risk during regular above-average rain events.

### 3.3 Protection of waterways

Works occurring during the reporting period have taken place in proximity to a number of waterways, minor and major farm drains, creeks and rivers. Specific waterways intersected by works during the reporting period include Serpentine Channel, Edwards Creek, Shark Creek, the Clarence River and a number of small unnamed waterways. A number of Oxleyan Pygmy Perch (OPP) habitat waterways were also intersected by works during the reporting period including Tabbimoble Floodway No. 1 and east of the proposed Lang Hill Borrow Site at bridges BC51 and BC52.

Measures undertaken to manage and protect waterways include (but are not limited to):

- Ongoing monitoring and maintenance of erosion and sediment controls and regular inspection of waterway controls by Soil Conservationists
- Minimising vegetation clearing near waterways where practicable
- Active work areas were stabilised at the end of each day's work and/or just prior to inclement weather, by means such as grading or smooth drum rolling to create a smooth surface
- No construction water runoff to waterways prior to design event exceedance
- Constructing blue book temporary crossings at minor farm drains and engineering temporary crossings at the major farm drains and creeks according to site conditions
- Minimising disturbance to creeks and banks during construction of crossings as far as is practicable
- Regular maintenance of controls adjacent to waterways to ensure effectiveness
- Ongoing maintenance of scour protection and silt curtains
- Revised design of underboring at Serpentine Channel to increase the overburden and reduce the risk of fluid from the drilling process reaching the surface.

An emergency spill drill was undertaken in August on the Clarence River due to the sensitivity of carrying out geotechnical investigations within the river. The drill assisted in the training of staff members, tested the effectiveness of response procedures and measures in place to stop the spread of any spills on the barge.

Measures undertaken to manage and protect OPP waterways include (but are not limited to):

- Consultation with appropriate government agencies regarding:
  - Development and implementation of ESCPs around OPP habitat waterways and in OPP Management Areas
  - Development of EWMS for OPP waterway crossings
  - Determination of culverts/pipes sizing and minimum size of rock material to be utilised for temporary crossings in OPP habitat
- Utilising a range of controls and early stabilisation of areas within 50 metres of OPP Habitat Waterways.
- Ceasing high risk construction activities (as defined in the *Threatened Fish Management Plan*) on days when the Bureau of Meteorology predicts a 90% chance of 10mm rainfall or more
- Completion of all high risk construction activities outside the OPP spawning period in areas within 50m of OPP habitat waterways (as defined in the *Threatened Fish Management Plan*)
- Stabilisation of active work areas at the end of each day's work and/or just prior to rainfall events.

Mostly positive feedback has been reported during ERG, Roads and Maritime and Pacific Complete inspections and agencies have appreciated the involvement and updates on the implementation of control measures to protect waterways. Contractors were commended for their implementation of controls including the use of geofabric to protect dry drainage lines and the use of spandek to access a site without impacting on a drainage line and associated vegetation.

### 3.4 Flora and Fauna

A wide range of Endangered Ecological Communities (EEC), threatened flora species and threatened fauna species are known to occur within and/or adjacent to the works that occurred during the reporting period.

Some works undertaken during the reporting period carried potential to impact threatened flora or fauna species. Such activities included clearing of vegetation near/within Flying-fox, Koala and Green-thighed Frog habitats, earthworks resulting in potential dust impacts to threatened flora species including the Slender Screw Fern, the establishment of Watermain 4 and site compound in Knotweed habitat. Myrtle Rust has been detected in the areas associated with the Wave 1 works on the southern side of the Yamba Interchange. A Myrtle Rust Procedure has been prepared for the works and has been implemented where required.

Measures undertaken to manage and protect EEC, threatened species and their habitats include (but are not limited to):

- Development of Environmental Work Method Statements (EWMS) and clear communication to work teams regarding risks to flora and fauna
- Undertaking ongoing training on threatened species requirements (induction, tool box and discussions at pre-start)
- Undertaking targeted surveys by the Project Ecologist and Aquatic Ecologist in accordance with the requirements of the applicable threatened fauna management plans including inspection and de-fishing water bodies prior to any dewatering in potential fish habitat and OPP Management Areas
- Delineation of protected areas, installation of project boundary/clearing limit and fauna exclusion fencing, and establishment of exclusion zones
- Undertaking pre-clearing surveys and ensuring a spotter catcher was present during clearing operations, and undertaking post-clearing surveys to quickly identify injured wildlife
- Developing monitoring regimes, data collection and reporting methods on mitigation measures and management recommendations
- Implementation of the Chytrid protocol and temporary frog fencing at locations where Wallum Froglet individuals were identified (in consultation with the EPA Biodiversity Unit)
- Managing construction water in OPP Management Areas through use of onsite capture and subsequent re-use or irrigation to land to ensure water quality met OPP habitat requirements
- Implementing ongoing weed management measures targeting specific weed infestations including
- physical removal techniques such as slashing within pastoral areas, covering weeds under the formation and removal in native vegetation clearing areas
- Providing weed and pathogen declarations and visually inspecting all plant prior to site introduction.
- Temp fencing for Emu's and koala as per threatened species management plans.

As outlined in Section 3.1 two major east coast low rainfall events occurred in June 2016 resulting in the failure of erosion and sediment controls and the deposition of sediments in adjacent Swamp Sclerophyll Forest, an Ecological Endangered Species (EEC), near Tyndale. The incident was cleaned up and ongoing monitoring of the vegetation has been undertaken during the reporting period, refer to Section 5.4.

Positive feedback mentioned during ERG inspections and other consultation with regulatory agencies has included:

- Good incident response and management relating to the Tyndale EEC Sand Spill and associated remediation of this area including prompt response to clean up and installation of additional Erosion and sediment controls to prevent reoccurrence
- Good outcomes with regard to retention of Green-leaved Rose Walnut in situ as a result of the Watermain 4 underbore design changes to avoid the plant location
- Pasteurisation of the Myrtle Rust affected mulch for re-use by local landowners for soil amelioration
- Good management of the Green Thighed Frog habitat and management zone
- Areas of Frog hygiene protocol implementation were well managed and compliant.

At the completion of clearing works, post clearing reports are prepared to provide a summary of the results of survey, fauna rescues, fauna injury and mortality. The following post clearing reports have been received for clearing works within the reporting period:

- W2B Wave 1 and 3 (part) Yamba On-Ramp Post Clearing Report (7 June 2016)
- W2B Wave 1 and 3 (part) Early Works Greenhill Cutting Post Clearing Report (8 June 2016)
- W2B Wave 1 and 3 (part) Early Works Post Clearing Report 3 – Mororo Cutting, Serpentine Channel and Yamba Road (24 August 2016)

- W2B Wave 4 Early Works: Post Clearing Report 2 (25 November 2016).

Fauna registers have been generated to capture opportunistic fauna encounters/ observations not specifically related to clearing activities. A number of fauna relocations were required during pre-clearing and clearing surveys. Threatened fauna encounters/observations during the reporting period included (but may not be limited to):

- 15 emu sightings – these were in proximity to the Wave 3 works
- Koala sightings – a number of sightings in Portion D during geotechnical investigations, one of these resulted in a 24 hour stop works to allow the koala to move out of the area. Another koala was sighted during clearing activities for the Wave 4 works. The project ecologist and specialist koala ecologist captured and relocated the koala away from the works.

All unexpected flora and fauna finds were managed in accordance with the Unexpected Threatened Species Finds Procedure, Appendix O of the approved Pacific Complete Construction Flora and Fauna Management Plan (CFFMP), Sections 3 to 11, the relevant species management plans approved for the project and site specific EWMS. The management of the koala relocation was commended by the EPA who provided positive feedback at the following ERG inspection.

In accordance with the approved Nest Box Strategies for the project, 162 nest boxes were installed during the reporting period.

### 3.5 Heritage

Works within the reporting period have occurred adjacent to several Aboriginal and non-Aboriginal items. The Roads and Maritime salvage package has continued throughout the reporting period to ensure heritage sites within the project boundary have been cleared prior to construction in that location. Clearance letters are prepared by the salvage contractor post salvage works. Where required additional mitigation measures (ie establishment of exclusion fencing) are including in these clearance letters.

The approved Pacific Complete Construction Heritage Management Plan (CHMP) Sections 3 to 11, Appendix B5 of the CEMP and subsequent CEMP's prepared by contractors are the main sources of information and guidance for the management and protection and heritage constraints within and adjacent to the footprint of the project.

As a result of the recent determination of the Yaegl native title claim, an agreement is currently being prepared between Roads and Maritime and the Yaegl people on the requirements for cultural heritage monitoring for Geotechnical Works within the bed and banks of the Clarence River.

Three potential heritage unexpected finds were reported during the reporting period. These included:

- A potential scar tree was identified during pre-clearing surveys at the Wave 5a site. Due to the age of the tree (30-40 years) and the height of the scar it was deemed to be of limited significance and therefore no further actions were required.
- A non-Aboriginal heritage artefact was also identified during the pre-clearing surveys at the Wave 5a site. Further investigation was carried out and the artefact was determined to be of no significance.
- A number of class bottles were uncovered during clearing activities near Tuckombil Canal at the Wave 4 site. The site was assessed and determined to be of no heritage significance.



**Figure 3-1 Potential scar tree identified during pre-clearing surveys**



**Figure 3-2 Potential non-Aboriginal artefact identified during pre-clearing surveys**

When these potential heritage items were identified works within the areas were ceased and the Roads and Maritime Standard Management Procedure – *Unexpected Archaeological Finds*, Appendix B of the approved Pacific Complete Construction Heritage Management, was followed until the appropriate clearance was provided for works to continue.

### **3.6 Noise and vibration**

Noise intensive activities undertaken during the reporting period include:

- Truck movements
- Heavy vehicles and plant used to carry out broad clearing and fill and compact
- Rock breaking
- Blasting (1 trial and 7 occurrences).

Exceedances of the EPL overpressure limits occurred during blasting activities within the reporting period at the Wave 3 works. Refer to Section 5.2 for more details.

Measures undertaken during the reporting period to manage and mitigate noise and vibration include:

- Considering potential noise impacts during the preparation of construction procedures, during the planning of Out of Hours Works and at pre-start meetings
- All project personnel, including relevant sub-contractors on noise and vibration requirements from this plan through inductions, toolbox talks and targeted awareness training
- Undertaken noise monitoring to refine construction methods or techniques to minimise noise
- Prepare EWMS
- Ongoing proactive engagement with sensitive receivers within close proximity before the commencement of works and throughout the duration of works via letterbox drop, telephone and doorknock.
- Maintain plant and equipment used on site to ensure it meets manufacturer specifications



- Positioning work compounds, parking areas, equipment and material stockpile sites and entry/exit points away from noise-sensitive receivers to the greatest extent possible
- Locating haulage routes as far away as possible from residential receivers where practicable.

### 3.6.1 Out of hours works

Out of hours works procedures are approved in accordance with Appendix C Out of Hours Work Procedure, of the approved Pacific Complete Construction Noise and Vibration Management Plan (CNVMP) Section 3 to 11 that references MCoA B16.

Four out of hours works applications were approved during the reporting period. These included:

- Wave 3 works prepared an out of hours works applications in case overnight pumping was required to transfer upstream waters downstream in the event of a rain event to prevent harm to a neighbouring property. No pumping out of hours work were required during this reporting period.
- Wave 1 works have an approved out of hours permit for flocculation of basins and water sampling at the Mororo and Greenhill cuttings sediment basins. This permit was utilised for two events in August 2016.
- Another permit was used for setting up underbore works at the Serpentine Channel that occurred in September 2016.
- An out of hours permit was approved for geotechnical investigations to occur on a Sunday in specific unpopulated locations.

Unapproved out of hours works occurred within the Wave 5c work site in September. Works occurred between 6pm-6:45pm as a cement treated base course took longer than expected. A category 2 environmental incident was reported (refer to Section 4.5). No complaints or environmental harm occurred as a result of the works and all actions have been addressed within the agreed timeframes.

## 3.7 Waste and chemical storage

Works within the reporting period have involved the generation of waste and the storage of chemicals and fuel. Waste management techniques utilised during the reporting period include:

- Utilising excess timber mulch for erosion and sediment controls
- Provision of pasteurised mulch to local landholders
- Segregation and recycling of demolition waste by demolition sub-contractor
- Ongoing re-use of onsite captured water for construction activities
- All waste generated by the project was classified and disposed of in accordance with EPA Waste Classification Guidelines to suitably licenced facilities
- Utilising separate skips for contaminated soil to collect any spill affected materials for off-site disposal at appropriately licensed facility
- Use of segregated construction and office waste skips within the main compound
- Undertaking asbestos contamination audits prior to the demolition of residential buildings
- Transporting surplus mulch material to Cape Byron Cogeneration Plant for beneficial electricity generation.

Measures undertaken to appropriately store, manage and monitor chemicals during the reporting period include:

- Placement of spill kits at appropriate locations and spill response training of staff.
- Appropriate storage and handling of hazardous products (e.g. fuels and chemicals) in bunded areas
- Utilising appropriately sized bunding around chemical storage containers
- Self-bunding bulk fuel tanks and installing in-ground grates for catching potential re-fuelling drips
- Locating all fuel storage away from waterways and drainage lines
- Weekly inspections of chemical and waste storage areas through the weekly Environmental Inspection process
- Utilising registers and material safety data sheets for all chemicals and fuel kept onsite.

Majority of the environmental incidents reported during the reporting period were due to minor fuel and hydraulic oil spills, refer to Section 4.5. Spill kits were used to contain the spills and incidents were reported through the Roads and Maritime Incident Classification and Reporting Procedure.

### 3.8 Acid Sulfate and (ASTA)

Potential acid sulfate soils (PASS) are prominent within the footprint of the project, due to the number of low lying wetland areas located along the alignment. Areas of PASS contain iron sulphides and when exposed to oxygen, chemical reactions between the iron sulphides and oxygen molecules can result in the formation of acid sulfate soils (ASS). These soils are highly acidic and can also result in the release of other substances occurring in soil such as heavy metals. In locations where PASS soils are likely to occur, and disturbance is unavoidable, testing for ASS is carried out prior to excavation. If the results are positive, the excavated material is taken to a designated Acid Sulfate Soil Treatment Area (ASTA). During the reporting period there were seven ASTAs in use across the project. These were established and operated in accordance with approved Acid Sulfate Soil Management Plans.

Measures undertaken to appropriately manage Acid Sulfate Soils (ASS) and Acid Sulfate Treatment Areas (ASTA) include:

- Management and diversion of surface runoff around potential acid sulfate material
- Modifying the installation methodology for transverse drainage to minimise soil disturbance
- Validating and subsequently remediating excavated acid sulfate material
- Monitoring the pH of water from wick drains and preloading areas and appropriately treating (where required) prior to discharge / re-use
- Applying an approved Inspection and Test Plan (ITP) with compliance documented using the associated Check Lists
- Training and awareness for all personnel during the site induction including toolbox talks on the ASS EWMS and ASS Unexpected Finds Procedure for all personnel involved in ASS excavation and management
- Collecting, separating and treating drilling spoil and disposing at licensed landfills
- Monitoring the acidity of pooled water
- Storage of adequate amounts of agricultural lime
- Testing pH where necessary to confirm effectiveness of treatment.

No non-compliances have occurred during the reporting period.

## 4 Program requirements

This Compliance Tracking Program has been prepared as a requirement of MCoA D27. The requirements, as stipulated by this MCoA are detailed in Table 4-1.

**Table 4-1 MCoA requirements for the Compliance Tracking Program**

MCoA No.	Requirement	Reference
D27	The Applicant shall prepare and implement a <b>Compliance Tracking Program</b> , to track compliance with the requirements of this approval, prior to the commencement of construction and operate from the date of its approval to a minimum of one year following commencement of operation, or as otherwise agreed by the Secretary. The Program shall be prepared for the approval of the Secretary, and include, but not necessarily be limited to:	This document
(a)	provisions for the notification of the Secretary prior to the commencement of construction and prior to the commencement of operation of the SSI (including prior to each stage, where works are being staged);	Section 4.1
(b)	provisions for periodic review of the compliance status of the SSI against the requirements of this approval;	Section 4.2
(c)	provisions for periodic reporting of compliance status to the Secretary, including a <b>Pre-Construction Compliance Report</b> , prior to the commencement of construction, and a Pre-Operation Compliance Report prior to the commencement of operation. These reports may be staged to suit the staged construction/operation of the SSI;	Section 4.3
(d)	a program for independent environmental auditing in accordance with ISO 19011:2003 - Guidelines for Quality and/or Environmental Management Systems Auditing;	Section 4.4
(e)	mechanisms for recording environmental incidents during construction and actions taken in response to those incidents;	Section 4.5
(f)	provisions for reporting environmental incidents to the Secretary and relevant public authorities during construction;	Section 4.6
(g)	procedures for rectifying any non-compliance identified during environmental auditing, review of compliance or incident management; and	Section 4.7
(h)	provisions for ensuring all employees, contractors and sub-contractors are aware of, and comply with, the conditions of this approval relevant to their respective activities.	Section 4.8

## 4.1 Secretary notification

MCoA D27 (a) requirement:

*“provisions for the notification of the Secretary prior to the commencement of construction and prior to the commencement of operation of the SSI (including prior to each stage, where works are being staged)”*

Construction will commence for each stage of the Project according to the Staging Report and following approval by the Secretary of the relevant CEMP, associated environmental plans and other relevant documentation required by the approval.

The CEMP and associated subplans for Sections 3 to 11 was conditionally approved by the Department of Planning and Environment on 23 October 2015, pending the submission of a Construction Noise and Vibration Management Plan D26(a) and heritage education and training package, Appendix A of the Construction Heritage Management Plan. The Construction Noise and Vibration Management Plan (sections 3 to 11) was approved by the Department of Planning and Environment on 3 December 2015. The heritage education and training package was submitted to the Department of Planning and Environment on 4 March 2016.

Stage 2 construction commenced on 8 April 2016. The Secretary was notified prior to the commencement of construction on 31 March 2016.

## 4.2 Period compliance review

MCoA D27 (b) requirement:

*“provisions for periodic review of the compliance status of the SSI against the requirements of this approval”*

Roads and Maritime will review the status of compliance and submit periodic compliance reports to the Secretary as follows:

- Prior to the commencement of construction
- Six months after the commencement of construction and then at six monthly intervals thereafter
- Prior to the commencement of operation.

This report captures the first six months of construction for the period 8 April 2016 to 30 September 2016. The compliance tracking tables (attached in Appendix A) form an integral part of this periodic review.

These tables establish a format for recording compliance and include:

- Description of the environmental obligation
- The stage of the project to which it relates
- Status
- Responsibility.

## 4.3 Period compliance reporting

MCoA D27 (c) requirement:

*“provisions for periodic reporting of compliance status to the Secretary, including a Pre-Construction Compliance Report, prior to the commencement of construction, and a Pre-Operation Compliance Report prior to the commencement of operation. These reports may be staged to suit the staged construction/operation of the SSI”*

Roads and Maritime submitted a Pre-construction Compliance Report to the Department of Planning on 4 March 2016. Appendix A of this document presents the compliance status at the first 6 months of the works associated with Sections 3 to 11.

At intervals prescribed in Section 4.2 the status of compliance will be reviewed and reported to the Secretary in the form of a Compliance Tracking Report. Compliance Tracking Reports will typically include the following:

- Scope of the activities undertaken during the reporting period.
- Performance of environmental controls that have been implemented.

- Compliance with MCoA, revised EMMs 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 ERG inspections undertaken during the reporting period.
- Detail of substantiated environmental complaints received, responses taken and current status (ie open or closed). The audits will assess compliance against the conditions of approval (both NSW and EPBC Act Approvals) and relevant environmental management measures as specified in the Construction Environment Plan (CEMP) for Sections 3 to 11.

## 4.4 Independent environmental auditing

MCoA D27 (d) requirement:

*“a program for independent environmental auditing in accordance with ISO 19011:2003 – Guidelines for Quality and/or Environmental Management Systems Auditing”*

### Environmental Audits

Roads and Maritime will ensure that independent audits are undertaken in accordance with ISO 19011:2003 – *Guidelines for Quality and/or Environmental Management Systems* at six monthly intervals throughout construction. The audits will assess compliance against the MCoA and EMMs.

Pacific Complete have undertaken two independent audits on contractors carrying out work during the reporting period including:

- 14 April 2016 – Wave 2
- 11 July 2016 – Wave 1.

No corrective action requests (CARs) were issued during the Wave 1 audit, however 11 observations of concerns (OoC) were issued for environment. These observations of concern were in relation to:

- updating the CEMP and other documentation
- appropriate recording of project documentation and use of the most up to date version number
- sufficient resourcing to effectively implement the CEMP
- the advertisement of important environmental information on notice boards
- updating the incident response procedure to include an unexpected heritage finds procedure and contact details of RAPs or relevant contact
- updating audit schedule to include internal audits.

One CAR, two OoC and one opportunity for improvement (OfI) were issues during the Wave 2 audit for environment. A CAR was raised as access to the SEECivil systems needs to be available to all project people to ensure efficient and integrated systems and minimise errors. The OoC's issued were in relation to updating the CEMP to clearly define environmental roles and responsibilities and the need to create a central location for official correspondence and actions that everyone can access. An OfI was also provided for the inclusion of revision numbers and approval status of EWMS in the Environment Register to ensure correct revisions are used.

RMS also organised for an independent audit on Pacific Complete on 5, 6 and 11 April. No CARs and 2 OoCs were issued for environment during the audit. These were in relation to the need to update management plans as well as the recording of sufficient details for complaints received to demonstrate compliance with response timeframes. These matters have been addressed and will be closed out in the audit scheduled for October 2016.

### Environmental Review Group Meetings/ Inspections

The Environmental Review Group (ERG) consists of representatives from Environment Protection Authority (POEO), Environment Protection Authority (biodiversity), DPI (Fisheries), Clarence Valley Council, Richmond Valley Council, Ballina Shire Council, Department of Planning and Environment (DP&E) and their Environmental Representative (ER), Soil Conservation Service, Roads and Maritime, Pacific Complete and contractors SEE Civil, Goldings, FKG, Seymour Whyte, Pacifico, Coffey and Douglas Partners.

Monthly ERG meetings/ inspections have occurred on the following dates, during the reporting period:

- 19 April – 21 April 2016
- 24 May – 26 May 2016
- 21 June – 23 June 2016
- 19 July – 21 July 2016
- 23 August – 25 August 2016
- 20 September – 22 September 2016.

Issues raised include but were not limited to the performance of erosion and sediment controls, dust monitoring, nest box installation, dewatering, mulch management and pasteurisation, fauna monitoring, weed management, out of hours works, community concerns and the use of water sources.

### **Weekly/ Fortnightly Environment Inspections**

Contractors, Soil Conservationists, Pacific Complete, the Environmental Representative and Roads and Maritime carry out regular environmental inspections throughout the project. Observations requiring action are recorded by the contractors on a register that is managed by their environment site representative. Actions not addressed within the requested timeframe are then elevated to senior management.

## **4.5 Incident reporting and response**

MCoA D27 (e) requirement:

*“mechanisms for recording environmental incidents during construction and actions taken in response to those incidents”*

Roads and Maritime’s Environmental Incident Classification and Reporting Procedure will be implemented for all environmental incidents for the Project. The full procedure is provided in Appendix A5 of CEMP.

Environmental incidents are generally notified verbally immediately and in writing within 24 hours of any incident occurring to the Roads and Maritime Representative and the Environmental Representative. Incident reports will be provided to Roads and Maritime Representative and the Environmental Representative within 24 hours of the incident occurring, including lessons learnt from each environmental incident and proposed measures to prevent the occurrence of a similar incident. All efforts will be undertaken immediately to avoid and reduce impacts of incidents and suitable controls put in place. Incidents will be closed out as quickly as possible, taking all required action to resolve each environmental incident.

In accordance with MCoA A12, Pacific Complete will notify the Secretary and relevant public authorities of any incident with actual or potential significant off-site impacts on people or the biophysical environment within 24 hours of becoming aware of the incident. The Applicant shall provide full written details of the incident to the Secretary within seven days of the date on which the incident occurred.

Where an incident also requires reporting to the EPA and/or OEH, the incident report prepared for the purposes of notifying the EPA and/or OEH would meet this requirement.

The EPA will be notified of any environmental incidents or pollution incidents on or around the site via the EPA Environment Line (telephone 131 555) in accordance with Part 5.7 of the

Protection of the Environment Operations Act 1997 (NSW) (POEO Act). The circumstances where this will take place include:

- If the actual or potential harm to the health or safety of human beings or ecosystems is not trivial.
- If actual or potential loss or property damage (including clean-up costs) associated with an environmental incident exceeds \$10,000.

The Project team comprising Roads and Maritime and its Delivery Partner will maintain all records relating to environmental incidents. Roads and Maritime Environment Branch will also provide assistance with maintaining records relating to environmental incidents.

Table 4-2 outlines the environment incidents that were reported during the reporting period.

**Table 4-2 Environmental incidents that occurred within the reporting period**

Date	Section/ Wave	Incident Category	Event Details	Corrective Actions	Event Status
<b>April</b>					
12/04/16	Wave 1 (Golding)	Category 2	Septic tank overflow at main Golding compound ablation facilities. 75% storage level alarm did not trigger, resulting in overflow to immediate area.	Ablution facilities tagged out. Portable toilets mobilised to site. Area of spill treated with lime. Waste contractor notified to collect tank waste immediately. Electrician that installed alarmed was notified to rectify alarm system.  Golding to reinforce with waste contractor the need to notify Golding if there is a delay to pump out of septic tanks. Golding to further investigate as to why alarm did not trigger. Golding to review tank capacity versus number of pump out events to ensure adequacy. Golding to review assigned responsibilities to ensure waste contractor undertakes pump outs.	Closed
14/04/16	Portion A (Coffey)	Category 2	Hydraulic hose began to leak on drill rig. Area of impact 200 mm in diameter, approximately 20 kg of soil removed for disposal off site.	Spill kit was deployed. Impacted soil removed for offsite disposal. Drill rig was removed from site for mechanical checks and repairs.  Crew to be tool-boxed on lead/spill response.	Closed
27/04/16	Portion C (Douglas Partners)	Category 2	Hydraulic hose fitting failure on drill rig. Loss of approximately 5 L of hydraulic fluid to ground.	Oil pressure sensor on drill rig shut rig down as a result of fluid loss. Spill kits were deployed. Impacted soil placed into plastic bags for off-site disposal.	Closed
<b>May</b>					
18/05/16	Portion A / Section 3	Category 2	Solenoid armature on drill rig burst. Approx. 2L of hydraulic fluid as a fine mist spray was released on to adjacent grass.  Event occurred while drill rig was tracking through a private property to access bridge A10 site.	Tarp placed under drill rig. Absorption pads and geofabric used to clean drill rig and impacted grass. Sand bags and absorption socks were placed on the down gradient side of the drill rig. As an interim measure, geofabric was placed over the spill area. The following morning an absorbent product was spread over the area and fencing put around the drill rig and spill site.  Absorbent product (peat) was subsequently removed from the site for disposal.	Closed
09/05/16	Wave 1 (Golding)	Category 2	During an inspection of the proposed extension at the south cut of the Greenhill worksite, it was identified that the emu fence (emu chick component of fence) had not been fully installed for approximately 150	All operations in the cut were shut down and not to recommence until fence repaired or new emu fence installed. Emu fence rectification was commenced and completed on the morning of 10 May.  Going forward, joint inspections at the completion of any temporary or permanent fauna fence will be undertaken to ensure works are fully completed.	Closed

Date	Section/ Wave	Incident Category	Event Details	Corrective Actions	Event Status
			m on the western side of the corridor.		
25/05/16	Wave 1 (Golding)	Category 1	Mulch material (approximately 43 m <sup>3</sup> ) generated from clearing activities on the north side of Serpentine Channel, within Golding Environmental Protection Licence (EPL) area, was hauled to and tipped off at the former RMS stockpile area within Mororo Cut. The former RMS stockpile area falls within the EPL area of Pacific Complete. This action was in breach of the Golding EPL.	Goldings were notified of the incident. The material was loaded out except for the bottom layer of the stockpile that was in contact with the hardstand and sent to the Broadwater cogen facility.  The remaining material as advised by Pacific Complete was disposed of in the on-site skip bin that was brought in for the initial mobilisation works for the Mororo Cut (which Golding has been contracted to undertake).  Requirements for further mulch disposal were discussed with the clearing contractor (i.e. to be taken to the Broadwater cogen facility). Tool box to be held regarding mulch/waste and the importance of understanding the different EPL conditions. EPL boundary plans and documents to be attached to EWMS for all future works.	Closed
30/05/16	Wave 1 (Golding)	Category 2	Incident report by Golding on 31 May.  Hydraulic oil spill from dog tipper hydraulic hose failure at soft soil embankment (SS5-1).  Approximately 50 L of hydraulic oil was spilled to the embankment fill beneath the truck resulting in an area of impact of approximately 1.5 m x 25 m. The spill did not leave the Golding EPL boundary or Goldings clearing limits.	RMS Incident Form prepared by Golding.  Driver of truck was notified of the spill by another truck driver. Dog tipper was safely lowered. Leading hand was contacted and the spill kit from the gate was brought to spill site. Extra spill response materials were brought in from the main compound.  Contaminated material (approximately 2.4 tonnes) was recovered, loaded into a covered truck and transported directly to Grafton Landfill.  The hydraulic hose of the truck was repaired on site.	Closed
31/05/16	Wave 1 (Golding)	Category 2	Oil spill from a hydraulic hose failure on a dog tipper at soft soil embankment SS5-4.  Approximately 50 L of hydraulic oil was spilled to the fill embankment. The spill did not leave the site or Golding EPL boundary.	RMS Incident Form prepared by Golding.  Dog tipper was safely lowered. Driver notified supervisor who mobilised a spill kit to the incident. The spill was cleaned up and affected material was loaded into a truck and taken to Grafton Landfill for disposal.  The hydraulic hose of the truck was repaired on site.	Closed
31/05/16	Wave 1 (Golding)	Category 1	Spill clean-up material associated with truck hydraulic oil spill event of 31 May at soft soil embankment SS5-4 was not disposed of at	RMS Incident Form was prepared by Golding.  Golding made initial engagement with personnel at Hydraulink business and then visited the premises.  Based on the premise visit by Goldings, the material was tipped off in the Hydraulink compound on a gravel pad. The material was recovered and	Closed



Date	Section/ Wave	Incident Category	Event Details	Corrective Actions	Event Status
			Grafton Landfill as directed by Golding. Material was instead tipped at Hydraulink business in Townsend. Hydraulink is not a licensed waste management facility and is not considered to be a premise lawfully permitted to accept the spill clean-up material (approximately 2 tonnes).	loaded into a truck following on site discussions with the owner/operation of the Hydraulink business premises. The truck driver was instructed by Goldings to take the material to Grafton Landfill on 1 June 2016 and obtain tip pass from Golding Supervisor and waste disposal receipts from Grafton Landfill. Golding undertook further investigation of this incident and obtained statements. Employee stood-down.	
25/05/16	Wave 1 (Golding)	Reportable Event	Unexpected find of potential bonded asbestos containing material. Subcontractor to Golding for the demolition of house at 10 Anderson Lane Chatsworth (Lot 7, DP735501) notified Golding of suspected bonded asbestos in three different areas at the property. The bulk of the material was buried under the existing house. The observation occurred after the hazmat clearance certificate was issued by the hazardous materials auditor.	The subcontractor advised that they had ceased all works in the area. Golding notified Pacific Complete. Golding instructed the sub-contractor to engage a Class A asbestos remover to assess the unexpected find. The site was fenced off to prevent unauthorised access and the area will be kept damp to prevent dust. Sediment fence has been installed on the downside of the area as per the Erosion and Sediment Control Plan. Works will remain on hold until further specialist advice is obtained. Class A asbestos removalist assessed the site on 28 May (including sampling of potential ACM). Additional consultation undertaken with RMS and Licenced Class A Assessor. Work to remediate identified asbestos is anticipated to continue in mid-October. Site clearance certification will be required from the Class A assessor.	Open - Ongoing
30/5/16	Wave 1 (Golding)	Reportable Event	Subcontractor to Golding for the demolition of house (at 5056 Pacific Highway Chatsworth) notified Golding of a small amount of potential bonded asbestos containing material fragment was observed underneath this house. Asbestos removal activities had been undertaken at the house, however demolition of the structure had not yet commenced.	Golding advised that work at this property is on hold until additional hazardous material inspection is undertaken and a hazardous materials management plan is received from the subcontractor. Work to remediate identified asbestos is anticipated to continue in mid-October. Majority of the material has been placed in hazibags and the site remains secured. Site clearance certification will be required from the Class A assessor.	Open - Ongoing
04/05/16	Wave 4 (SEE Civil)	Category 2	Plant and materials were stored overnight in the Watson Street road reserve prior to official permission being attained from Richmond Valley Council. Additionally the consistency	Toolbox talk with project team carried out on 6/05/16 discussing requirement for plant and material storage. EWMS will be updated to reflect plant and material storage requirements. Consistency assessment requirements will be communicated with project team in planning meetings	Closed

Date	Section/ Wave	Incident Category	Event Details	Corrective Actions	Event Status
			assessment developed for the works stated that overnight storage of machinery would occur offsite. Plant stored comprised 1 x 8T roller, 1 x 13T excavator. Material stored comprised 15 x RCPs 5 k/w.	to ensure all requirements are understood and implemented. If necessary, further approvals would be sought for alternative proposals. Verbal advice sought from the Environmental Representative indicated that temporary overnight storage of minor plant and material would not constitute an ancillary facility. Addendum to Consistency Assessment to be issued reflecting this clarification.	
05/05/16	Wave 4 (SEE Civil)	Category 1	30 m <sup>3</sup> of topsoil was transported to the temporary short-term Tuckombil Road stockpile prior to suitable community consultation being carried out and final signoff of file note (form of consistency assessment). Approval had been granted by Richmond Valley Council and material was transported/ placed under the Excavated Public Road Material Exemption 2014. The stockpile location is within the EPL and project boundary.	Placement of topsoil was immediately ceased. Erosion and sediment controls established around placed topsoil. Consultation carried out with all nearby residents. Toolbox talk with project team carried out 6/05/16 discussing stockpile management / offsite material transport to be approved by the Environmental Site Representative. Internal hold point 'offsite' material transport to be implemented. EWMS to be revised to capture changed scope of works. Pre-construction meeting to be held with construction team during planning phase / before commencement of all new activities.	Closed
<b>June</b>					
23/06/16	Wave 3 (FKG)	Category 2	Hydraulic cylinder failure on a small excavator resulted in approximately 10 L of hydraulic fluid spill at the McIntyres Lane ancillary facility.	Spill was contained using spill kit materials. Excavator stood down until repaired. Contaminated material to be disposed of in accordance with waste classification guidelines/system. Spill kit re-supplied immediately. FKG notification system activated. Requirement for close inspection of hydraulic seals on plant during initial inspections pre-work communicated to all safety managers.	Closed
17/06/2016	Wave 1 (Golding)	Category 1	Following the major rain event on 4 June and in preparation for the predicted rain on 19 June, water was being discharged onto fill 6-7 rock layer. It was identified that some dirty water was entering the Serpentine Channel from the northern bank.	All water cart discharging onto the fill 6-7 rock layer were stopped and the silt boom was secured close to the Northern bank of Serpentine Channel. Water has been tested and samples taken from within the boom and upstream/downstream of the site. An environmental Re-Start was conducted with all engineers and supervisors on Monday 20 June. A detailed investigation will be conducted and reported on into contributing factors and corrective actions.	Closed

Date	Section/ Wave	Incident Category	Event Details	Corrective Actions	Event Status
27/06/2016	Wave 1 (Golding)	Category 2	Hydraulic oil leak from boom of 1.6T excavator at the commencement of sand excavation/recovery in the vicinity of Tyndale Cut.  No more than 200 mL of hydraulic oil spilt to ground.	Crew stop work. Excavator walked out of work area with spotter. Spill reported, contained and cleaned up. Contaminated material (sand) was removed from the site.  The hydraulic reservoir of the excavator was found to have been overfilled during a recent service which resulted in oil dripping from the boom when under pressure. Subcontractor's mechanic came to site to remove the excess oil from the machine and re-inspect prior to recommencing work.  Goldings to issue an email to all subcontractors about the incident and to ensure that all fluid levels are at manufacturer's specifications and are not overfilled when being serviced.	Closed
30/06/2016	Wave 1 (Golding)	Category 2	Oil spill (approximately 5L) to fill embankment at SS5-1. Awaiting RMS Form 624 (Environmental Incident Report) from Goldings.	Advised that oil spill contained and disposed of appropriately.  Awaiting RMS Form 624 (Environmental Incident Report) from Goldings.	Closed
1/06/2016	Wave 4 (SEE Civil)	Category 2	Richmond Valley Council conducted water main cut-over works at the Watson Street intersection without providing a scope and timeframe for the works or signing onto Environmental Work Method Statement (EWMS). Water main cut-over was not detailed in the EWMS/MCR.	Richmond Valley Council contacted the SEE Civil supervisor the afternoon before they would commence the works. The SEE Civil supervisor did not intervene as the works were on a Council asset which were considered to be under Council jurisdiction.  PC were contacted by SEE Civil to ascertain whether Richmond Valley Council were required to operate under SEE Civil EWMS. After the works were completed, it was considered that Richmond Valley Council should have been inducted into Pacific Complete / SEE Civil procedures and been treated as a project sub-contractor.  All entities (including local councils) conducting works in any way associated with project works are to be inducted and signed onto EWMS. Clarity around local council involvement and induction requirement etc. to be communicated to wider project team.	Closed
06/06/2016	Wave 1 (Goldings)	Reportable Rainfall Event	201.8mm of rain recorded over the period of 3 to 5 June, 183.8mm received in last 24 hours. Sediment was deposited outside the project boundary within RMS property into Swamp Sclerophyll Forest (EEC vegetation).	The contractor's ecologist visited the site to inspect the impacts and prepare a report. Conclusion of the report was that the likelihood of impacts to the EEC was low if the sediment was removed.  Soil conservationist carried out inspection and developed update to plan for the site. Sediment was recovered and ongoing monitoring of the affected vegetation is currently being undertaken. Monitoring indicates that there is no impact to the EEC.	Closed
19/06/2016	Wave 1 (Goldings)	Reportable Rainfall Event	Rainfall records for 19 June are as follows: Tyndale 44.8mm, Greenhill Cutting 55.8mm, Wave 1 Compound	General erosion and sediment control maintenance activities post reportable rainfall event as required.	Closed

Date	Section/ Wave	Incident Category	Event Details	Corrective Actions	Event Status
			44.4mm, Watson Street/Wave 4 58mm, Wave 2 Compound 89mm.		
<b>July</b>					
04/07/16 1:00pm	Wave 3 (FKG)	Category 2	A scraper parked on a slope with fuel tank had a small diesel spill of approximately 2 litres from the valve due to pressure from the sloped park, full tank and temperature change.	The spill was contained and absorbent material applied. The plant was relocated onto level ground. The contaminated material was collected, banded and sealed to be disposed in accordance with Construction Environment Management Plan (CEMP) requirements at a licenced facility.	Closed
21/07/16 6:30am	Wave 3 (FKG)	Category 2	Minor overflow of ablutions storage tank at McIntyres Lane Site compound. Spill was approximately 20L.	The pump was manually restarted and a plumbing contractor was contacted to attend site and resolve. It was identified that the filter was blocked, thought to be due to an increase of people in the compound. Advice is to clean out filter on a weekly basis. Note: Storage had capacity from being serviced the previous day.	Closed
29/07/16	Wave 3 (FKG)	Category 1	A production blast was undertaken at the Tyndale Cut on 29 July 2016. The blast over pressure results exceeded the limits in the EPL. The overpressure was recorded as 137dB against the limit of 125dB.	FKG notification system activated. PC notified the EPA, RMS and the ER. FKG immediately consulted with the nearest affected residents. The residents did not raise any concerns. FKG prepared an incident report. A number of corrective actions were identified including; completing a detailed review of procedures, reducing the blast size for the next production blast, reduce the stemming stone size, increase the stemming length to increase the factor of safety, procedures to be tool boxed prior to the next blast and manually remove highlight weathered material from the cut surface prior to the next blast. This incident was reported to the Department of Planning and Environment.	Closed
01/07/16 10:30am	Wave 1 (Golding)	Category 2	During load out activities at the Greenhill Cut a front end loader burst a hydraulic hose line resulting in a discharge of less than 20L of oil to ground.	Plant was shut down and isolated – spilt material and impacted soil was removed and disposed of. Damaged line was replaced by fitter.	Closed
01/07/16 1:30pm	Wave 1 (Golding)	Category 2	Dozer pushing up materials at Greenhill Cut had a hydraulic hose blow during works, resulting in a spill of approx. 100ml to ground	Plant was shut down and isolated – spilt material and impacted soil was removed and disposed of. Damaged line was replaced by fitter.	Closed
09/07/16 9:00am	Wave 1 (Golding)	Category 2	Skid Steer Loader undertaking erosion and sediment control works at Tyndale Cut site, had an hydraulic hose failure during operations	Plant was shut down and isolated – spilt material and impacted soil was removed and disposed of. Damaged line was replaced by fitter.	Closed

Date	Section/ Wave	Incident Category	Event Details	Corrective Actions	Event Status
09/07/16 9:30am	Wave 1 (Golding)	Category 2	Whilst backhoe was heaping material of soft soil fill 5-4, an oil leak was identified in the front bucket hydraulic lines. This resulted in a spill to ground on the embankment of approx. 40 litres	Plant was shut down and isolated – spilt material and impacted soil was removed and disposed of. Damaged line was replaced by fitter.	Closed
28/07/16 9:00am	Wave 1 (Golding)	Category 2	Water cart operating in Fill 6-5 in the soft soils embankment when an employee noticed a small pooling of hydraulic oil where the water cart had temporarily stopped on the fill. Less than 1L has spilt to ground.	Water cart driver was alerted and the water cart was shutdown. Operator investigated the leak from a loose hose fitting bolt. Bolt was tightened and leak stopped.	Closed
28/07/16 10:45am	Wave 1 (Golding)	Category 2	Dozer parked on fill 5-4 embankment was identified to have leaked diesel onto the ground from its fuelling point. Less than 200ml was observed to have spilt to ground	The Dozer had been fuelled up that morning and not operated. Fitter to investigate fuel breather system and rectify as necessary. Impacted soil was removed and disposed of.	Closed
27/07/16 1:10pm	Wave 4 (SEE Civil)	Category 2	A hydraulic hose broke whilst moving drill rig into new position. The track on the drill had come off and the hydraulic hose blew off when the drill rig was raised to fix the drill.	The machine was shut down immediately and a spill kit was used to control the small amount of fluid that was dripping from the hose. In future, a more stable work pad will be used to prevent drill rig rolling a track.	Closed
<b>August</b>					
24/08/2016 10:00am	Wave 5C (SEE Civil)	Category 2	Significant rain (greater than 64mm i.e. 5 day 90 <sup>th</sup> percentile event) received at the site in less than 12 hours resulted in clean water bunds, site water bunds and mulch bunds around stockpiles overtopping.	All ERSED controls inspected by PC and SEE Civil environmental representatives. Sand bags and geofabric were added to key locations to bolster site controls. Additional bunds were installed to relieve pressure on existing controls. Bund heights increased and stabilised overtopping points. Overtopping points will be located to direct water away from sensitive areas wherever possible. ESCP Plan has been re-communicated to field operators highlighting importance of controlled overtopping points for bunds. Upper catchment has been inspected and previously unknown culverts have been identified.	Closed
01/08/2016 3:35pm	Wave 3 (FKG)	Category 2	A minor overflow of diesel spilled to ground during refuelling near chainage 77000.	The shut off vent was repaired.	Closed
02/08/2016 4:30pm	Wave 3 (FKG)	Category 2	An excavator hydraulic hose burst near chainage 69150.	Contractor committed to having more care when changing out attachments to avoid damage to hoses.	Closed

Date	Section/ Wave	Incident Category	Event Details	Corrective Actions	Event Status
03/08/2016 4:13pm	Wave 3 (FKG)	Category 2	Uncontrolled release of water from site during rain event.	Internal review was held with site team to reiterate that all activities must be carried out as per relevant documentation including ESCP.	Closed
15/08/16 10:50am	Wave 3 (Coffey)	Category 2	A metal fitting split releasing hydraulic oil spraying onto the ground and the cane drain near Edwards Creek, chainage 80200.	The leak occurred as the winch got caught on the hydraulic line. The driller should have checked the winch cable was not hooked on anything. This practice will be highlighted in the following mornings toolbox.	Closed
29/08/2016 6:30am	Wave 3 (FKG)	Category 2	A minor diesel spill to ground occurred near chainage 69200.	Continue to complete daily machinery inspection checklists and review these checklists.	Closed
29/08/2016 2:00pm	Wave 3 (FKG)	Category 2	Hydraulic fluid spill to ground near chainage 80420.	Ensure drill rig daily machinery pre-start has hose checks as a check item.	Closed
19/08/2016 12:50pm	Wave 1 (Golding)	Category 2	Minor oil spill. O-ring failed on a dozer whilst reversing within Mororo Cutting. The dozer operator identified the drip line and stopped the dozer. Approximately 10L of oil was spilled to the cutting.	An on-board spill kit was used to immediately contain the spill. The spill as cleaned up and the affected material was placed into the contractor's hydrocarbons bin at the Chatsworth Compound. The hydrocarbon bin is serviced by a subcontractor regularly and disposed of at a licenced waste facility (Grafton).	Closed
<b>September</b>					
01/09/16	Wave 4 (SEE Civil)	Category 2	Hydraulic Fluid leak (<2L) following a rupture of a hydraulic fluid line on a front end loader.	Undertake pre-start on machine and provide evidence.	Closed
03/09/16	Wave 4 (SEE Civil)	Category 2	Approximately 2L of diesel spilt during refuelling of a generator at the Wave 4 site compound.	Toolbox all personnel involved in refuelling activities and provide evidence.	Closed
12/09/16	Wave 5C (SEE Civil)	Category 1	Out of hours work undertaken without approval (18:00-18:45) at Area 4, Wave 5C.	During the planning phase of a project, ensure sufficient time is available and consider if works are likely to go beyond the standard construction hours. If so, prepare and submit an OOG works application.	Closed
05/09/16	Wave 1 (Goldings)	Category 2	Hydraulic fluid leak (<1L)	Plant checks and inspections carried out.	Closed
15/09/16	Wave 1 (Goldings)	Category 2	Hydraulic fluid leak (<1L)	Goldings fitter on site shortly after arrival. Plant company was contacted and instructed to collect the impacted item.	Closed

## 4.6 Incident reporting to Secretary

MCoA D27 (f) requirement:

*“provisions for reporting environmental incidents to the Secretary and relevant public authorities during construction”*

The Secretary will be notified of incidents in writing in circumstances where:

- The actual or potential harm to the health or safety of human beings or ecosystems is not trivial.
- The actual or potential loss or property damage (including clean-up costs) associated with an environmental incident exceeds \$10,000.

An initial notification to the Secretary will be made verbally within two working days. The written notification will be made within 10 working days.

Where incidents are considered to be minor, ie do not meet the criteria above, they will be reported to the Secretary in accordance with the compliance tracking program at frequencies prescribed in Section 4.3.

## 4.7 Addressing non-compliance

MCoA D27 (g) requirement:

*“procedures for rectifying any non-compliance identified during environmental auditing, review of compliance or incident management”*

Section 8.4 of the CEMP (Sections 3 to 11) describes in detail the system for tracking compliance prior to and during construction.

Where a non-compliance has been identified, a corrective/preventative action (or actions) will be implemented.

Corrective/ preventative actions will be entered into the contractor’s quality system database and include details of the issue, action required, timing and responsibilities. The record will be updated with the date of close out and any necessary notes. The contractor’s database will be reviewed regularly to ensure actions are closed out as required.

The close out of required actions will be reviewed during forums including Environmental Representative (ER) and Environmental Review Group (ERG) inspections. The ER will be actively involved in the review and resolution of non-compliances.

A number of non-compliances occurred during the reporting period including:

- Unauthorised out of hours works
- Exceedance of air blast overpressure limits.
- The transportation of waste to an unlicensed facility
- Exceedances of air quality limits.

Refer to the environmental incidents table in Section 4.5 and monitoring results in Section 5 for more detail of these non-compliances.

## 4.8 Employee inductions

Section 5.1 of the CEMP describes in detail how all personnel working on the Project are aware of their environmental obligations.

During construction, the Environmental Manager (or delegate) will conduct the environmental component of the site inductions. The environmental component will include, but not limited to, an overview of:

- Relevant details of the CEMP including purpose and objectives
- Key environmental issues
- Conditions of environmental licences, permits and approvals
- Specific environmental management requirements and responsibilities
- Mitigation measures for the control of environmental issues
- Incident response and reporting requirements
- Information relating to the location of environmental constraints.

Regular toolbox talks are also held where environmental issues are discussed to increase awareness, outline key constraints in relation to the construction site and remind staff of the environmental commitments outlined in the CEMP, EWMS, species management plans and other environmental documentation.

Pacific Complete run environmental inductions for all construction staff and contractors. The Pacific Complete induction covers sections 3 to 11 of the project and includes the above listed environmental components of the project. Contractors also run their own environmental inductions for all staff and sub-contractors. These inductions are focused more specifically on the environmental constraints located within and adjacent to their worksites.

A record of all environment inductions will be maintained and kept on-site.



## 5 Environmental monitoring

A range of environmental monitoring has occurred during the reporting period including surface water, noise, dust and flora and fauna monitoring in accordance with the project approvals, approved Pacific Complete CEMP and other project documentation. Monitoring results are provided in Appendix B. Further details on monitoring are outlined below.

### 5.1 Water quality

#### 5.1.1 Surface water

##### Upstream and downstream monitoring

Due diligence upstream and downstream water quality monitoring has occurred during the reporting period. The upstream water quality is used as a control to monitor whether construction works are causing changes in water quality downstream of construction. Parameters including temperature, pH, turbidity, conductivity and the presence of oil and grease have been monitored. Some fluctuations in water quality parameters were recorded overtime during the reporting period at the Wave 2 works, however these are considered to be within normal tidal/seasonal fluctuations. No changes to water quality attributable to construction activities were detected.

Water quality monitoring in OPP habitat was undertaken for the Wave 5c works at BC51 during the reporting period using a multi-function water quality monitoring (TPS-90FL) and turbidity tube. Water quality results remain consistent between upstream and downstream readings and are considered to be suitable OPP habitat conditions with no measurable degradation in water quality (pH, turbidity or dissolved oxygen) attributed to construction activities.

Refer to Appendix B1 for upstream and downstream monitoring locations and results.

##### Water quality monitoring program

The Woolgoolga to Ballina (Sections 3 to 11) Water Quality Monitoring Program is currently underway. Water quality monitoring was initially procured for the Wave 1 and Wave 2 works. This was discussed in the Wave 1 and Wave 2 six monthly compliance reports. Water quality monitoring as outlined in the Water Quality Monitoring Program did not occur in accordance with the program during the reporting period up until July 2016. A non-conformance was raised. The previous contractor was released and a new contractor, procured by Pacific Complete, took over water quality monitoring in early August 2016. The first quarterly report will be submitted by the contractor in late 2016. This report will include an analysis of data from the previous and current contractor. The results of this will be included in the next six monthly compliance report.

##### Sediment basin monitoring

Sediment basins associated with the EPL for the project are currently located at Greenhill Cutting, Mororo Cutting, Tyndale Cutting and Causley's. No basin discharges occurred during April, May, July and September.

There were two basin discharges during June 2016. Discharges were for the rainfall event on the 19 and 20 June 2016. Dewatering at Portion B using water carts for dust suppression and earthworks was undertaken in conjunction with discharging from the licensed discharge point. Refer to Appendix B1 for sediment basin monitoring results. The sediment basins at Tyndale and the Greenhill cutting required dewatering following the rainfall event between 3 June 2016 and 5 June 2016. These basins were not discharged. The water in the Tyndale basin was removed and used for dust suppression. The basin at the Greenhill cutting was dewatered to water carts for dust suppression and pumped to two turkey's nests within the cutting.

In July in Portion B, the Wave 1 contractor undertook 13 dewatering activities during July from swale buffers, diversion drains and basins for road construction water and watering of rehab areas.

Wave 1 and Wave 3 also had basin discharges in August. Refer to Appendix B2 for sediment basin monitoring results.

Results of sediment basin monitoring are provided to the EPA in the EPL monthly report.

## 5.2 Noise monitoring

Noise monitoring was carried out near Pimlico in May and June in relation to the Wave 2 works. No exceedances of the noise management levels for the area were recorded. The dominant noise sources at the monitoring locations were local and highway traffic. The highest levels were associated with vehicles passing on the adjacent highways and local roads. Only two receivers are located within the 400 - 600m radius from of the project. No noise complaints were received during the reporting period for this location.

Noise monitoring was carried out in response to community complaints in June and September in Maclean (Wave 1) and Tyndale (Wave 3) respectively. Highway traffic, birds and background noise from the house were attributed as the dominant noise sources during noise monitoring in Maclean. Average peak traffic noise was recorded to be within 10dB of the average ambient noise. At the time of recording, the average ambient traffic noise was below the noise management level for the area with a few minor exceedances recorded. The monitoring in Tyndale revealed noise levels above the noise management level for the area. For all four of the measurements, the dominant noise source was traffic along Pacific Highway. Noise monitoring results for these events are provided in Appendix B3.

Noise monitoring was also carried out in August during the out of hours Sunday work for geotechnical investigations. The monitoring location was approximately 900 metres east of the geotechnical activities. Drilling activities were not audible at this location, and noise levels were recorded to be below the out-of-hours noise criteria of 39dBA.

### 5.2.1 Blasting

During the reporting period one trial blast and seven blasts were carried out at the Tyndale cut. An Environmental Works Method Statement (EWMS) was prepared for the works and community consultation was carried out prior and during the blasting works. There are four receivers in proximity to the blasting works ranging from 250 metres to 400 metres away.

During the first production blast (28/07/2016), the overpressure reading exceeded the MCoA B22 and EPL condition. Roads and Maritime, the EPA and the ER were informed and a detailed incident report was prepared to determine the cause of the exceedances and future management measures to ensure further exceedances do not occur. A hold point was placed on the finalisation of the incident report to ensure further blasting was not carried out until the investigation process had been closed out. A number of corrective actions were identified including; completing a detailed review of procedures, reducing the blast size for the next production blast, reduce the stemming stone size, increase the stemming length to increase the factor of safety, manually remove highlight weathered material from the cut surface prior to the next blast and running through procedures at the toolbox prior to the next blast.

During the fifth blast (31/08/2016), there were two notable peak particle velocity (PPV) vibration measurements recorded. As outlined in the MCoA B23 and the EPL ground vibrations generated from blasting shall not exceed 5mm/s for 95% of blasts per year or 10mm/s as a maximum limit. The PPV did not exceed the 10mm/s, however exceeded the 5mm/s limit with recordings of 5.6 mm/s and 5.2 mm/s (refer to Appendix B4). An environmental near miss report was prepared for this incident. These results were likely caused by an increase of the MIC from 35kg to 40kg per hole, which was determined in consultation between FKG and Pacific Complete. With the priority on preventing PPV measurements of 5mm/s or above from all the remaining blasts, the MIC has been reduced back to 35kg per hole as per the previous 4 compliant blasts. No further exceedances have been recorded.

No formal complaints were received after either of the incidents. Ongoing community consultation continues to occur during blasting activities. Refer to Appendix B4 for the results on blast monitoring.

## 5.3 Air quality

Dust monitoring was undertaken on a monthly basis at a number of locations along the alignment during the reporting period in accordance with the approved Pacific Complete Construction Air Quality Management Plan (CAQMP), Appendix B6 of the CEMP. As construction works progressed throughout the reporting period, more dust monitoring locations were established. Dust monitoring was undertaken at 31 locations during the reporting period along the alignment.

Thirteen (13) exceedances above the air quality monitoring criteria set by the EPA for maximum total deposited dust level (4 g/m<sup>2</sup>/month) were recorded during the reporting period. Majority of these exceedances were recorded at the Wave 2 work site. These exceedances were within the range of the baseline results recorded

prior to commencement of construction and monitoring of background levels after the completion of the works has identified exceedances. Exceedances recorded have mostly been attributed to numerous cane burning events, high winds, adjacent mowing activities, the use of unsealed roads adjacent to dust deposition gauges as well as the present of bird excrement, ants and organic matter. Refer to Appendix B5 for the locations and results of dust monitoring collected during the reporting period.

Management measures implemented to minimise dust emissions from construction activities include:

- Regular use of water carts to dampen exposed areas of land
- Signage onsite to remind drivers of speed limits to minimise dust generation
- Rumble grids and rock shakedown at site exist gates to minimise the tracking of dirt and mud onto public roads
- Daily observations and weekly inspections by construction staff to identify locations at risk of dust emissions and to determine whether dust control measures are performing effectively
- Stabilisation of exposed area using geofabric and seeding.

## **5.4 Flora and fauna**

### **5.4.1 Fauna Monitoring**

#### **Serpentine Channel Flying-Fox Monitoring**

During the reporting period flying foxes were sighted at the serpentine channel in April, May, June and July. No flying-foxes have been observed at the site since 1 July 2016 when ten Black Flying-foxes and two Grey-headed Flying-fox were observed at the site. This may be attributable to localised disturbance from clearing operations at the Serpentine Channel soft soil treatment area however repeated periods of absence from the roost had been observed during previous monitoring events. Ongoing monitoring will continue and management measures from the approved Pacific Complete Construction Flora and Fauna Management Plan (CFFMP), Sections 3 to 11, Appendix B4 of the CEMP will continue to be implemented.

#### **Oxleyan Pygmy Perch**

Oxleyan Pygmy Perch (OPP) population monitoring was carried out on 29-30 September 2016 at all OPP waterways currently impacted by the construction works. The report is currently being prepared. Figure 5-1 shows a photograph from this monitoring event.



**Figure 5-1 Oxleyan Pygmy Perch captured during a population survey**

#### **5.4.2 Flora Monitoring**

##### **Slender Screw Fern Dust Monitoring**

Monitoring of Slender Screw Ferns has occurred monthly during the reporting period near the Mororo Cut to monitor the potential dust impacts from the project works.

There was a decrease in Slender Screw Fern fronds recorded at the site during June 2016 when compared with May 2016 results from 150 to 30 fronds. This was likely attributable to the disturbance caused by the East Coast Low weather event which occurred at the beginning of June 2016 causing large amounts of leaf litter to fall to the forest floor causing temporary damage or cover of fronds. Since June the counts of SSF fronds has steadily increased from 30 plants to 600 plants recorded during the September monitoring event. The noticeable increase in July, August and September records of Slender Screw Fern fronds is potentially due to suitable rainfall and favourable growing conditions during these months with plants re-emerging from the ground cover layer that was deposited during the June storm event.

No evidence of dust impacts to Slender Screw Fern is evident at the site or the control site.

## **Weed Monitoring**

Project wide weed monitoring is undertaken on a six monthly basis. Areas are surveyed and given a priority rating of high, medium or low. Areas described as high or medium priority are required to have weed control measures implemented based on the weed species and level of infestation.

### **Tyndale EEC Sand Spill Rehabilitation Monitoring**

Monitoring of Swamp Sclerophyll Forest, an Ecological Endangered Species (EEC), has been undertaken in Tyndale in response to an erosion and sediment control incident where sand was deposited in the vegetation after a rainfall event. Based on initial observations, trees present within the Swamp Sclerophyll Forest EEC have not been impacted. There is some evidence of surface damage to the roots of Camphor Laurels (a weed) which occurred during the sand removal process. Groundcover species have been smothered by the sand spill although there is now evidence of regeneration of False Bracken (*Calochlaena dubia*) a native groundcover species recorded as locally occurring at the site before the sand deposition event. No evidence of weed recruitment or emergence was recorded during August 2016 in either impacted quadrats. Camphor Laurel seedlings and Lantana are present with in the control site although these species account for <5% of the groundcover.

#### **5.4.3 Targeted flora and fauna surveys**

Targeted flora and fauna surveys have been carried out along the alignment in areas programmed for upcoming construction works to locate and previously identified unidentified threatened flora and fauna species. Targeted searches for threatened Southern Pink Underwing Moth, regionally restricted Richmond Birdwing Butterfly and Atlas Rainforest Ground Beetle habitat occurred in Portion D to ground truth existing data in preparation for construction.

#### **5.4.4 Flora and fauna monitoring program**

The tender package for the flora and fauna monitoring program has been released with the tender anticipated to be awarded in February 2017. This monitoring program will cover the monitoring requirements of threatened flora and fauna species outlined in the threatened species management plans for the project. A gap analysis of monitoring events required prior to the award of the monitoring program has been carried out. These events and any monitoring requirements not outlined in the tender package have been procured separately to ensure that the monitoring programs are delivered in accordance with the requirements.

## 6 Environmental complaints and consultation

### 6.1 Complaints

During the reporting period there were 60 complaints received. All complaints received by Roads and Maritime, Pacific Complete and contractors are entered into Consultation Manager and assigned to the appropriate person to follow up and close out the complaint. Complaints are handled in accordance with the approved Community Communication Strategy. Complaints received during the reporting period include issues such as:

- Traffic control set ups
- Farmers not having access to water
- Noisy machinery
- Flooding and drainage
- Lack of consultation and notification of construction works
- Damage and access on local roads
- Concerns about dust from batch plants
- Concerns for wildlife
- Dust and noise generated from construction vehicles
- Visual impacts
- Dust generated from the construction works
- Behaviour of project staff
- Project staff accessing properties without authorisation
- Construction work causing sleep disturbance
- Speeding construction vehicles
- Blockage of access to properties
- Damage to properties
- Contractors extracting water from a quarry that is causing reductions in water levels at nearby creeks
- Debris falling from construction vehicles
- Concerns about blasting.

Refer to Appendix C for a list of complaints received during the reporting period, their status and RMS/Pacific Complete/contractor responses.

### 6.2 Community consultation

Across all portions of the project a considerable amount of community consultation has occurred during the reporting period. A variety of communication methods have been utilised to ensure affected community members are up to date on the works associated with the project.

These methods include:

- Information and pop up sessions in a variety of towns along the alignment
- Focus groups
- Notification letters
- Door knocks
- One on one meetings
- Feedback forms to allow local residents to comment on aspects of the project including design refinements, urban design and landscape plans and proposed ancillary facilities and borrow sites.

Community consultation sessions that have occurred during the reporting are outlined in Table 6-1.

**Table 6-1 Community consultation sessions held during the reporting period**

Date	Type	Location
12 April	Information sessions	Plantation Motel, Tyndale
19 April	Information sessions	Wardell Memorial Hall, Wardell
20 April	Information sessions	Tucabia Community Hall, Tucabia

<b>Date</b>	<b>Type</b>	<b>Location</b>
21 April	Information sessions	Iluka Senior Citizens Community Hall, Iluka
26 April	Information sessions	New Italy Museum, New Italy
27 April	Information sessions	Ulmarra Public School, Ulmarra
28 April	Information sessions	Townsend Baptist Church, Townsend
2 May	Information sessions	Chatsworth Island Hall, Chatsworth
3 May	Information sessions	Pimlico Community Hall, Pimlico
4 May	Information sessions	Evans River K-12 School
5 May	Information sessions	Yamba Community Centre, Yamba
10 May	Information sessions	Meerschaum Vale Hall, Meerschaum Vale
12 May	Information sessions	Broadwater Community Hall, Broadwater
17 May	Information sessions	Macleans Community Hall, Maclean
24 May	Information sessions	Wooli Public Hall, Wooli
25 May	Information sessions	RFS Fire Shed, Pillar Valley
26 May	Information sessions	Woodburn Public School, Woodburn
28 July	Flood focus group – Clarence River	Harwood Town Hall, Harwood
10 August	Pop up-consultation for UDLP and design refinements	New Italy Museum
11 August	Pop up-consultation for UDLP and design refinements	Grafton shopping world
13 August	Pop up-consultation for UDLP and design refinements	Macleans markets
15 August	Pop up-consultation for UDLP and design refinements	Tucabia general store
16 August	Flood focus group – Richmond River	Broadwater Community Hall, Broadwater
17 August	Pop up-consultation for UDLP and design refinements	Woodburn Visitors Centres
19 August	Pop up-consultation for UDLP and design refinements	Harwood PO Evans Head Library
21 August	Pop up-consultation for UDLP and design refinements	Ashby Markets
22 August	Pop up-consultation for UDLP and design refinements	Meerschaum Vale community hall Wardell PO
23 August	Flood focus group – Shark Creek	Macleans Community Hall, Maclean
24 August	Pop up-consultation for UDLP and design refinements	Yamba Growers Markets
20 September	Flood focus group – Wardell	Wardell Memorial Hall, Wardell
21 September	Flood focus group – Pillar Valley	Tucabia Community Hall, Tucabia
22 September	Community information sessions	Harwood Town Hall, Harwood

# **Appendix A      Compliance Tables**



# COMPLIANCE TRACKING - NSW CONDITIONS OF APPROVAL

## Woolgoolga to Ballina SSI-4963

### PART A - Administrative Conditions



Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
<b>OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT</b>							
	A1	In addition to meeting the specific performance criteria established under this approval, the Applicant shall implement all feasible and reasonable measures to prevent and/or minimise any harm to the environment that may result from the construction or operation of the SSI.	All	Pre-construction and Construction	RMS and Contractor	Open	This is addressed within the approved Pacific Complete Construction Environmental Management Plan (CEMP) and associated sub plans, design drawing specification etc. Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
<b>TERMS OF APPROVAL</b>							
	A2	The Applicant shall carry out the SSI generally in accordance with the: (a) State significant infrastructure application SSI-4963; (b) Pacific Highway Upgrade Woolgoolga to Ballina Environmental Impact Statement Volumes 1A, 1B, 2, 3, 4A, 4B, 5, 6A, 6B, 6C, 7A, 7B and 8, prepared by Roads and Maritime Services, dated December 2012; (c) Pacific Highway Upgrade Woolgoolga to Ballina Submissions/Preferred Infrastructure Report Main Volume and Appendices, prepared by Roads and Maritime Services, dated November 2013; (d) Ancillary facility sites listed in Woolgoolga to Ballina Pacific Highway Upgrade - Ancillary descriptions and impact assessment, prepared by Roads and Maritime Services, dated 13 December 2013; (e) Connectivity structures listed in Woolgoolga to Ballina Alliance Update 20 Feb 2014 Structures Inventory (except Sections 1 and 2) and Woolgoolga to Glenugie Fauna Connectivity Tracking Register 11/02/2014, prepared by Roads and Maritime Services, and email correspondence from Roads and Maritime Services dated 14 March 2013; (f) Pacific Highway Upgrade Woolgoolga to Ballina: Utilities impact native vegetation (D00395_0102_Uilities Clearing Vegetation_v9), prepared by Roads and Maritime Services, dated 21 May 2014 (g) Modification request and letter dated 17 November 2014 to modify the definition of construction under subclause f in relation to section 4 utility adjustments and replacement of all references to OEH with EPA; and (h), Modification request and letter dated 24 September 2015 to modify the approval to capture additional works outside the project boundary that may impact on heritage items to require archaeological investigations; and (i) conditions of this approval.	All	Pre-construction, Construction and Operation	RMS and Contractor	Open	Noted
	A3	If there is any inconsistency between the above documents, the more recent document shall prevail to the extent of the inconsistency. However, the conditions of this approval shall prevail to the extent of any inconsistency.	All	Pre-construction, Construction and Operation	RMS and Contractor	Open	Noted.
	A4	The Applicant shall comply with any reasonable requirement(s) of the Secretary arising from the Department of Planning and Environment's assessment of: (a) any strategies, plans, programs, reviews, audits, reports or correspondence that are submitted in accordance with this approval; and (b) the implementation of any actions or measures contained in these documents.	All	Pre-construction and Construction	RMS and Contractor	Open	Noted.
<b>LIMITS OF APPROVAL</b>							
	A5	This approval shall lapse 10 years after the date on which it is granted, unless the works the subject of this SSI approval are physically commenced on or before that date.	All	Pre-construction	RMS	Closed	The project was approved by NSW Department of Planning and Environment in June 2014 and by the Federal Minister for the Environment in August 2014.  The project commenced in 2015 with construction officially commencing in April 2016.
<b>STATUTORY REQUIREMENTS</b>							
	A6	The Applicant shall ensure that all licences, permits and approvals are obtained as required by law and maintained as required throughout the life of the SSI. No condition of this approval removes the obligation for the Applicant to obtain, renew or comply with such licences, permits or approvals.	All	Pre-construction, Construction and Operation	RMS and Contractor	Open	Pacific Complete has obtained an Environment Protection Licence (EPL) for S3-S11 (No. 20713, 29 January 2016). This EPL is in addition to those obtained by contractors (Wave 1 (EPL No. 20674) and Wave 2 Soft Soil Works (EPL No. 20715)) directly procured by RMS. Other licences, permits and approvals will be obtained as required by law during the course of the project.
<b>STAGING</b>							
	A7	The Applicant may elect to construct and/or operate the SSI in stages. Where staging is proposed, the Applicant shall submit a Staging Report to the Secretary prior to the commencement of each proposed stage. The Staging Report shall provide details of: (a) how the SSI 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 SSI. Where staging of the SSI 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).	All	Pre-construction	RMS	Open	The Stage 2 Staging Report (dated July 2016, Revision 5) was acknowledged by the Department of Planning and Environment on 2 August 2016. The department have requested that an updated Staging Report (and Compliance Report) be submitted to the Secretary once a decision is made about the re-use of existing sections of the existing Pacific Highway and either Option A or Option B is selected.
<b>SUBMISSION OF ANY STRATEGY, PLAN OR PROGRAM</b>							

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
	A8	The Applicant shall ensure that any strategy, plan, program or other document required by the conditions of this approval and relevant to each stage (as identified in the Staging Report) is submitted to the Secretary no later than one month prior to the commencement of the relevant stage(s), unless otherwise agreed by the Secretary. Notes: • While any strategy, plan or program may be submitted on a progressive basis, the Applicant will need to ensure that the existing operations on site are covered by suitable strategies, plans or programs at all times; and • If the submission of any strategy, plan or program is to be staged, then the relevant strategy, plan or program shall clearly describe the specific stage to which the strategy, plan or program applies, the relationship of this stage to any future stages, and the trigger for updating the strategy, plan or program.	All	Pre-construction	RMS	Open	Noted.
<b>COMPLIANCE</b>							
	A9	The Applicant shall ensure that employees, contractors and sub-contractors are aware of, and comply with, the conditions of this approval relevant to their respective activities.	All	Pre-construction, Construction and Operation	RMS and Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Main Document - Section 5 Competence, Training and Awareness). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
	A10	The Applicant shall be responsible for environmental impacts resulting from the actions of all persons that it invites onto the site, including contractors, sub-contractors and visitors.	All	Pre-construction, Construction and Operation	RMS and Contractor	Open	Noted.
	A11	In the event of a dispute between the Applicant and a public authority, in relation to an applicable requirement in this approval or relevant matter relating to the SSI, either party may refer the matter to the Secretary for resolution. The Secretary's determination of any such dispute shall be final and binding on the parties.	All	Pre-construction, Construction and Operation	RMS	Open	Noted.
<b>INCIDENT REPORTING</b>							
	A12	The Applicant shall notify the Secretary and relevant public authorities of any incident with actual or potential significant off-site impacts on people or the biophysical environment within 24 hours of becoming aware of the incident. The Applicant shall provide full written details of the incident to the Secretary within seven days of the date on which the incident occurred. Note: • Where an incident also requires reporting to the EPA and/or OEHL, the incident report prepared for the purposes of notifying the EPA and/or OEHL would meet this requirement.	All	Pre-construction, Construction and Operation	RMS and Contractor	Open	This is addressed in the approved Pacific Complete CEMP (main document - Section 7.1 Incident Reporting) and RMS Environmental Incident Classification and Reporting Procedure as well as in Pacific Complete Compliance Tracking Program – Six Monthly Construction Compliance Report (April 2016 – September 2016) (Section 4.6 Incident Reporting to Secretary). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
	A13	The Applicant shall meet the requirements of the Secretary or relevant public authority (as determined by the Secretary) to address the cause or impact of any incident, as it relates to this approval, reported in accordance with condition A12, within such period as the Secretary may require.	All	Pre-construction, Construction and Operation	RMS and Contractor	Open	Noted.

 Modification 1  
 Modification 2

# COMPLIANCE TRACKING - NSW CONDITIONS OF APPROVAL

## Woolgoolga to Ballina SSI-4963

### PART B - Environmental Performance



Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
<b>BIODIVERSITY</b>							
	B1	The clearing of native vegetation shall be minimised with the objective of reducing impacts to any threatened species or EECs where feasible and reasonable, consistent with the following: (a) clearing of native vegetation shall be limited to a total area of 931.7 hectares, within the SSI boundary defined in the document referred to in condition A2(c), subject to condition B1(b); (b) clearing of native vegetation for ancillary facilities specified in the document referred to in condition A2(d) and outside the SSI boundary defined in the document referred to in condition A2(c) shall be limited to 4.75 hectares; (c) clearing of threatened ecological communities shall be limited to the areas specified in Table 6-1 (under the column titled: Revised—direct impact (hectares)) of Appendix J of the document referred to in condition A2(c), subject to condition B1(d); (d) clearing of the Littoral Rainforest in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions shall be limited to a total area of 0.5 hectares; and (e) clearing of Koala ( <i>Phascolarctos cinereus</i> ) primary and secondary habitat shall be limited to a total area of 375 hectares.	All	Pre-construction and Construction	RMS and Contractor	Open	RMS, Pacific Complete and the Contractors will ensure compliance with the approved clearing limits under the Planning Approval. Clearing of native vegetation has been minimised during detailed design with the objective being to reduce impacts to threatened species or EECs where feasible and reasonable. Clearing limits are clearly shown on relevant construction drawings and closely monitored and reported throughout the project.  Not all clauses of this condition will apply to each stage. An assessment will be made as to the applicability of specific clauses prior to construction.
	B2	Where feasible and reasonable, remnant vegetation shall be retained between the SSI boundary and the SSI footprint.	All	Pre-construction and Construction	RMS and Contractor	Open	Vegetation clearance limits will be defined during the detailed design. Overall vegetation clearance (design plus actual construction clearance) will be monitored on a regular basis during the W2B project.
	B3	Native vegetation shall be established in or adjacent to disturbed areas within the SSI boundary to provide habitat for wildlife following the completion of construction in the vicinity of the disturbed area, consistent with the Urban Design and Landscape Plan required under condition D20.	All	Construction and Operation	RMS and Contractor	Open	Urban Design and Landscape Plan(s) are currently being prepared as per the requirement of CoA D20. Soft soil works are considered to be an early construction phase activity and therefore do not require an Urban Design and Landscape Plan.
	B4	Light spill from the SSI shall be avoided on Pink Underwing Moth and Atlas Rainforest Ground Beetle habitat, where feasible and reasonable.	10	Pre-construction	RMS and Contractor	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
<b>PRE CLEARING</b>							
	B5	Prior to construction, pre clearing surveys and inspections for endangered and threatened species shall be undertaken. The surveys and inspections, and any subsequent relocation of species, shall be undertaken under the guidance of a suitably qualified ecologist and shall be in accordance with the methodology incorporated into the approved Construction Flora and Fauna Management Plan. All clearing of Koala habitat trees shall be undertaken in the presence of a Koala spotter.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B2 - Construction Flora and Fauna Management Plan, Section 5.4 Pre-Clearing Surveys, Section 5.4.3 Fauna Capture and Handling and Appendix N Fauna Handling and Rescue Procedure). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).  Qualified ecologists are engaged to carry out pre-clearing surveys and to be present during clearing activities as required under the Construction Flora and Fauna Management Plan.
	B6	Incidental or unanticipated threatened flora and fauna finds shall be immediately reported and clearing work stopped in the vicinity of the find to allow for an evaluation of an appropriate response in accordance with the Construction Flora and Fauna Management Plan.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B2 - Construction Flora and Fauna Management Plan, Section 5.4 Pre-Clearing Surveys, Section 5.4.3 Fauna Capture and Handling and Appendix N Fauna Handling and Rescue Procedure). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).  Qualified ecologists are engaged to carry out pre-clearing surveys and are to be present during clearing activities as required under the Construction Flora and Fauna Management Plan.  Refer to Section 3.4 of the Six Monthly Construction Compliance Report (April 2016 – September 2016) for unexpected finds of threatened flora and fauna during the reporting period.
<b>OXLEYAN PYGMY PERCH HABITAT</b>							
	B7	High risk construction activities in known Oxleyan Pygmy Perch habitat shall not be undertaken during the Oxleyan Pygmy Perch spawning period, or on days when the relevant Bureau of Meteorology site predicts a 90% chance of 10mm of rain or more, unless otherwise agreed by DPI (Fisheries).	6, 7, 8, 9	Construction	Contractor	Open	This requirement is addressed in Pacific Complete CEMP (Appendix B2 - Construction Flora and Fauna Management Plan, Appendix J Threatened Fish Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).  Wave 5c works are located within OPP habitat. OPP spawning period as outlined in MCoA is October to April. Therefore the spawning period did not occur during this reporting period. High risk activities were carried out in this area prior to the end of September.

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
	B8	Temporary bridge or arch structures in known Oxleyan Pygmy Perch habitat shall be used if the crossing is intended to be in place for more than 3 months.	6, 7, 8, 9	Construction	Contractor	Open	This requirement is addressed in Pacific Complete CEMP (Appendix B2 - Construction Flora and Fauna Management Plan, Appendix J Threatened Fish Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). This is being also considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
	B9	Where temporary crossings in known Oxleyan Pygmy Perch habitat are proposed with culverts or pipes, the Applicant shall, in consultation with DPI (Fisheries): (a) determine the size of the culverts or pipes to facilitate fish passage; and (b) identify the minimum size of clean rock to be used to ensure that rock material will not wash into the waterway in periods of high flows. Temporary culvert or pipe crossings shall be removed prior to the start of the Oxleyan Pygmy Perch spawning period.	6, 7, 8, 9	Construction	Contractor	Open	This requirement is addressed in Pacific Complete CEMP (Appendix B2 - Construction Flora and Fauna Management Plan, Appendix J Threatened Fish Management Plan and Appendix N Fauna Handling and Rescue Procedure). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). This is being also considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.  Temporary bridge structure has been established at BC52 for the Wave 5c works.
<b>CONNECTIVITY</b>							
	B10	Subject to conditions B11 and B12, the Applicant shall revise the Connectivity Strategy identified in the documents listed in condition A2(e), based on the outcomes of the Mitigation Framework required by condition D1. Note: • The requirements for the Connectivity Strategy are contained in condition D2.	All	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
	B11	As part of detailed design, the Applicant shall further investigate design refinements for fauna crossings and associated exclusionary measures, between station 41.500 and station 80.000 to improve connectivity for the Coastal Emu, and in the proximity of station 96.000 and between station 137.800 and station 159.700 to improve connectivity for the Koala. Any changes to fauna crossings and exclusionary measures shall be included in the Connectivity Strategy required under condition D2.	3, 4, 5, 9, 10, 11	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
	B12	Investigations into the location and design of connectivity structures, including but not limited to those identified in the documents listed under conditions A2(c) and A2(e), shall be undertaken during detailed design with the input of a suitably qualified and experienced ecologist. The investigations shall be undertaken in consultation with the OEH EPA, DPI (Fisheries) and DoE and include workshops and on-site ground verification. The results of these investigations shall be detailed in the Connectivity Strategy required under condition D2.	All	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
	B13	The Applicant shall minimise riparian vegetation clearing during construction and undertake a targeted rehabilitation program post construction to restore in-stream and riparian habitat to at least the pre-construction condition or better, unless otherwise agreed by DPI (Fisheries). All areas disturbed by the SSI that are in the vicinity of known Oxleyan Pygmy Perch habitat waterways shall be stabilised prior to the Oxleyan Pygmy Perch spawning period.	All	Construction	Contractor	Open	This requirement is addressed in Pacific Complete CEMP (Appendix B2 - Construction Flora and Fauna Management Plan, Appendix J Threatened Fish Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).  At the Wave 5c works riparian vegetation clearing has been minimised wherever possible. Altered construction methodology and changes to foundation resulted in the project being able to avoid a temporary crossing at Tabbimoble Floodway No.1. All disturbed areas in the vicinity of OPP have been stabilised to the satisfaction of DPI Fisheries prior to the OPP spawning period
<b>CONSTRUCTION NOISE</b>							
	B14	The SSI shall be constructed with the aim of achieving the construction noise management levels detailed in the Interim Construction Noise Guideline (DECC, 2009). All feasible and reasonable noise mitigation measures shall be implemented and any activities that could exceed the construction noise management levels shall be identified and managed in accordance with the Construction Noise and Vibration Management Plan. Note: • The Interim Construction Noise Guideline identifies 'particularly annoying' activities that require the addition of 5dB(A) to the predicted level before comparing to the construction Noise Management Level.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 - Construction Noise and Vibration Management Plan, Section 7 Environmental Control Measures). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
	B15	Construction activities associated with the SSI shall be undertaken during the following standard construction hours: (a) 7:00am to 6:00pm Monday to Friday, inclusive; and (b) 8:00am to 5:00pm Saturday; and (c) at no time on Sunday or public holidays.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan, Section 7 Environmental Control Measures and Appendix C Out of Hours Work Procedure). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
	B16	Construction works outside the standard construction hours may be undertaken in the following circumstances: (a) construction works that generate noise that is: (i) no more than 5 dB(A) above rating background level at any residence in accordance with the Interim Construction Noise Guideline (DECC, 2009); and (ii) no more than the noise management levels specified in Table 3 of the Interim Construction Noise Guideline (DECC 2009) at other sensitive receivers; or (b) for the delivery of materials required outside the standard construction 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) between 6.00am and 7.00am and 6.00pm and 7.00pm Monday to Friday (except public holidays) in sparsely populated areas (these construction hours may be reviewed and/or revoked by the Secretary in consultation with the EPA in the case of unresolved noise complaints); or (e) low noise impact activities and work between: (i) 6.00am and 7.00am Monday to Friday; and/or (ii) 6.00pm and 7.00pm Monday to Friday; or (f) works approved through an EPL; or (g) works approved by a Construction Environment Management Plan or Construction Noise and Vibration Management Plan for the SSI.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan, Appendix C Out of Hours Work Procedure) and Appendix N Fauna Handling and Rescue Procedure). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).  Out of hours permits have been approved in accordance with Appendix C Out of Hours Work Procedure, of the approved Pacific Complete Construction Noise and Vibration Management Plan (CNVMP). These out of hours works include works for overnight pumping to transfer waters downstream in the event of a rain event in Wave 3, the flocculation of basins and water sampling at Mororo and Greenhill cuttings sediment basins, underbore works at the Serpentine Channel and geotechnical investigations.
	B17	Construction activities which cannot be undertaken during the standard construction hours for technical or other justifiable reasons (Out of Hours work) may be permitted outside the standard construction hours with the approval of the Environmental Representative. Out of Hours work shall be undertaken in accordance with an approved Construction Environment Management Plan or Construction Noise and Vibration Management Plan for the SSI, where that plan provides a process for the consideration of Out of Hours work. This consideration includes: (a) process for obtaining the Environmental Representative's approval for Out of Hours work; (b) details of the nature and need for activities to be conducted during the varied construction hours; (c) justifies the varied construction hours in accordance with the Interim Construction Noise Guideline (DECC, 2009); (d) provides evidence that consultation with potentially affected receivers and notification of the relevant council has been undertaken, that the issues raised have been addressed and all feasible and reasonable mitigation measures have been put in place; and (e) provides evidence of consultation with the EPA on the proposed variation in standard construction hours.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan, Appendix C Out of Hours Work Procedure) and Appendix N Fauna Handling and Rescue Procedure). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).  Out of hours permits have been approved in accordance with Appendix C Out of Hours Work Procedure, of the approved Pacific Complete Construction Noise and Vibration Management Plan (CNVMP). These out of hours works include works for overnight pumping to transfer waters downstream in the event of a rain event in Wave 3, the flocculation of basins and water sampling at Mororo and Greenhill cuttings sediment basins, underbore works at the Serpentine Channel and geotechnical investigations.
	B18	Construction activities resulting in impulsive or tonal noise emission (such as rock breaking, rock hammering, pile driving) shall only be undertaken: (a) between the hours of 8:00am to 5:00pm Monday to Friday; (b) between the hours of 8:00am to 1:00pm Saturday; and (c) in continuous blocks not exceeding three hours each with a minimum respite from those activities and works of not less than one hour between each block. For the purposes of this condition 'continuous' includes any period during which there is less than a one hour respite between ceasing and recommencing any of the work the subject of this condition. The works subject to this condition may be undertaken in sparsely populated areas within the standard construction hours.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan, Section 7 Environmental Control Measures) and Appendix N Fauna Handling and Rescue Procedure). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). Works carried out in accordance with this condition include: – Crushing activities at Tyndale Cut (Wave 3)
	B19	The Applicant shall, where feasible and reasonable, limit high noise impact activities and work to the mid-morning and mid-afternoon periods, except in sparsely populated areas.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan, Section 7 Environmental Control Measures). Pacific Complete will approve Contractor EMPs and EWMSs to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
<b>CONSTRUCTION VIBRATION</b>							
	B20	The SSI shall be constructed with the aim of achieving the following construction vibration goals: (a) for structural damage to heritage structures, the vibration limits set out in the German Standard DIN 4150-3: Structural Vibration – Part 3 Effects of vibration on structures; (b) for damage to other buildings and/or structures, the vibration limits set out in the British Standard BS 7385-1:1990 – Evaluation and measurement of vibration in buildings—Guide for measurement of vibration and evaluation of their effects on buildings (and referenced in Australian Standard 2187.2 – 2006 Explosives – Storage and use – Use of explosives); and (c) for human exposure, the acceptable vibration values set out in Assessing Vibration: A Technical Guideline (Department of Environment and Conservation, 2006).	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan, Section 6.5 Construction Vibration and Blasting Assessment). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
	B21	Blasting associated with the SSI shall only be undertaken during the following hours: (a) 9:00am to 5:00pm, Monday to Friday, inclusive; (b) 9:00am to 1:00pm on Saturday; and (c) at no time on Sunday or public holidays. Blasting outside the above hours and in accordance with the standard construction hours where: (i) no sensitive receivers in sparsely populated areas would be impacted by blasting; or (ii) an agreement has been made with receivers within 200 metres of the blast zone to permit blasting in accordance with the standard construction hours. 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.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan, Section 6.5 Construction Vibration and Blasting Assessment, Section 7 Environmental Control Measures and Appendix B Blast Management Procedure). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).  Blasting for the Wave 3 works have been carried out during the required hours outlined in this condition.
	B22	The Applicant shall ensure that Airblast overpressure generated by blasting associated with the SSI shall not exceed the criteria specified in Table 1 when measured at the most affected residence or other sensitive receiver. Note • a sensitive site includes houses and low rise residential buildings, theatres, schools and other similar buildings occupied by people.	All	Construction	RMS	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan, Section 6.5 Construction Vibration and Blasting Assessment, Section 7 Environmental Control Measures and Appendix B Blast Management Procedure). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).  Refer to Section 5.2 of the 6 monthly construction compliance report (April to September 2016) for an outlined of airblast overpressure exceedances recorded during the reporting period.
	B23	The Applicant shall ensure that Ground vibration generated by blasting associated with the SSI shall not exceed the criteria specified in Table 2 and Table 3 when measured at the most affected residence or other sensitive receiver. Note • a sensitive site includes houses and low rise residential buildings, theatres, schools and other similar buildings occupied by people.	All	Construction	RMS	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan, Section 6.5 Construction Vibration and Blasting Assessment, Section 7 Environmental Control Measures and Appendix B Blast Management Procedure). Pacific Complete will approve Contractor EMPs and EWMSs to ensure compliance with this CoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).  Refer to Section 5.2 of the 6 monthly construction compliance report (April to September 2016) for an outlined of notable peak particle velocity (PPV) vibrations recorded during the reporting period.
	B24	The blasting criteria specified in conditions B22 and/or B23 may be increased where the Applicant has obtained the written agreement of the relevant landowner to increase the criteria. In obtaining the agreement the Applicant shall make available to the landowner: (a) details of the proposed blasting program and justification for the proposed increase to blasting criteria including alternatives considered (where relevant); (b) 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; and (c) the blast management and mitigation measures, and the procedures to be implemented to monitor blasting impacts. The Applicant shall provide a copy of the written agreement to the Secretary and the EPA, including details of the consultation undertaken (with clear identification of proposed blast limits and potential property impacts) prior to commencing blasting at the increased limits. Unless otherwise agreed by the Secretary, 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. Should an agreement be terminated by a landowner, the Applicant shall not exceed the criteria specified in conditions B22 and/or B23 for future blasting at that receiver. (b) The blasting limit agreed to under any agreement for an occupied residential building can at no time exceed a maximum Peak Particle Velocity vibration level of 25 mm/s or maximum Airblast Overpressure level of 125 dBL.	All	Construction	RMS	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan, Section 6.5 Construction Vibration and Blasting Assessment, Section 7 Environmental Control Measures and Appendix B Blast Management Procedure). Pacific Complete approves Contractor EMPs and EWMSs to ensure compliance with this CoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).  Negotiations are currently underway to increase the blasting criteria for the blasting works in Wave 3.
	B25	Wherever feasible and reasonable, piling activities shall be undertaken using quieter construction methods, such as bored piles or vibrated piles rather than impact or percussion piling methods.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan, Section 7 Environmental Control Measures). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).  No piling activities occurred during the reporting period.
	B26	Prior to the use of the dynamic compaction construction method, the Applicant shall undertake an assessment of vibration generated by dynamic compaction on nearby sensitive receivers. Feasible and reasonable mitigation measures shall be implemented to minimise vibration impacts.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan, Section 7 Environmental Control Measures). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).  Vibration assessments have been carried out where construction activities require dynamic compaction construction methods and additional mitigation measures have been implemented where required.
	B27	During construction, affected educational institutions shall be consulted and reasonable steps taken to ensure that noise generating construction works in the vicinity of affected buildings are not timetabled during examination periods where practicable, unless other reasonable arrangements to the affected institutions are made at no cost to the affected institution.	4, 5, 8, 9	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan, Section 7 Environmental Control Measures). Pacific Complete will manage consultation with potentially affected educational institutions. Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).  Consultation with Harwood School commenced during the reporting period in relation to the construction of Harwood Bridge. Further consultation will occur following noise modelling of construction works.

**OPERATIONAL NOISE**

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
	B28	The SSI shall be designed and operated with the objective of not exceeding the road noise criteria outlined in the NSW Road Noise Policy (DECCW, 2011).	All	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
	B29	Where feasible and reasonable, operational noise mitigation measures shall be implemented at the start of construction (or at other times during construction) to minimise construction noise impacts.	All	Pre-construction and Construction	RMS	Open	This is being considered as part of detailed design. Detailed design will determine what operational mitigation measures are needed – once detailed design is completed then Pacific Complete will determine when these measures will be implemented.
<b>WATER QUALITY</b>							
	B30	Except as may be expressly provided by an EPL, the Applicant shall comply with section 120 of the Protection of the Environment Operations Act 1997.	All	Construction	Contractor	Open	Pacific Complete has obtained an Environment Protection Licence (EPL) for S3-S11 (No. 20173, 29 January 2016). This EPL is in addition to those obtained by contractors (Wave 1 (EPL No. 20674) and Wave 2 Soft Soil Works (EPL No. 20715)) directly procured by RMS.
<b>HYDROLOGY AND FLOODING</b>							
	B31	The hydrological and flooding impacts resulting from the SSI are to be assessed during detailed design against the 'Design Objectives for Flood Management' described in Section 2.1 of the EIS Working Paper – Hydrology and Flooding. This shall include assessment against the 'Flood Management Objectives' and the 'Other Flood Impact Considerations' as well as the other requirements of this section of the EIS. The hydrology assessment shall include the refinement of or development of new flood models (where required) for the 14 catchments investigated during the EIS. These models shall be operated for the same design floods considered in the EIS, as well as the 2000 year ARI and the probable maximum flood (PMF) design events.	All	Pre-construction	RMS	Open	Flood modelling (final models) are being developed as part of detailed design. Pacific Complete will review relevant detailed design deliverables to ensure that they have taken into account this measure.
	B32	For the Corindi, Shark Creek and Farlows Flat areas, flooding and hydrological impacts resulting from existing highway infrastructure shall be assessed. As part of this assessment, flood models shall assess the impacts of recent highway upgrades in this area. Where the existing highway in these areas has resulted in adverse flooding and/or hydrological impacts, opportunities to reduce the quantum of these impacts shall be considered during the detailed design of the SSI, where feasible and reasonable.	4, 5	Pre-construction	RMS	Open	Corindi Creek is located within Section 1 which is outside the area of this part of the project and has been reported separately. For Shark Creek and Farlows Flat, flood modelling (final models) is being developed as part of detailed design. Pacific Complete is reviewing relevant detailed design deliverables to ensure that this measure has been taken into account.
	B33	Where the objectives and considerations referred to in condition B31 cannot be complied with, the Applicant shall: (a) achieve compliance through modified embankment or drainage design. This might include new or duplicated drainage structures designed to minimise afflux and other impacts to waterways that traverse the road alignment, to the greatest extent practicable; or (b) achieve an acceptable level of mitigation of impacts through alternative design measures (e.g. raised access tracks) in consultation with the affected land-owner; or (c) reach agreement with affected landowners on impacts to property.	All	Pre-construction	RMS and Contractor	Open	Noted. This will be assessed on completion of detailed design.
<b>CONSTRUCTION SOIL AND WATER MANAGEMENT</b>							
	B34	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 Soil and Construction Vols 2A and 2D Main Road Construction (Department of Environment and Climate Change, 2008) shall be employed during the construction of the SSI to minimise soil erosion and the discharge of sediment and other pollutants to land and/or water.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan, Chapter 6 Environmental Control Measures). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).  ESCPs are prepared in accordance with the Blue Book guidelines and RMS specifications in consultation with Project Soil Conservationist. ESCPs are updated as controls require and reviewed regularly.  Environmental Work Method Statements (EWMS) are prepared for activities assessed as having a high environmental risk and/or that pose a risk to receiving water quality. Including: clearing, ASS / PASS, Sediment basins and dewatering, working in waterways, underboring and culvert installation.
	B35	Where available, and of appropriate chemical and biological quality, stormwater, recycled water or other water sources shall be used, where feasible and reasonable, in preference to potable water for construction activities, including concrete mixing and dust control.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan, Chapter 6 Environmental Control Measures).  Water collected onsite from runoff in sediment basins, tannin treatment areas and other areas is recycled and reused where appropriate for activities such as dust suppression. Drillers recycle drilling water as much as possible to reduce the use of potable water. Ancillary facilities are designed to consider the capture and reuse of stormwater and include rainwater tanks where possible.
	B36	All surface water and groundwater shall be adequately treated as far as is practicable, prior to entering the stormwater system to protect the receiving water source quality.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan, Chapter 6 Environmental Control Measures). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).  Captured water onsite is reused where possible. Water does not leave the project boundary unless it has passed through a sediment basin or similar management control. All water discharged during the reporting period has been tested and discharged in accordance with the project EPL.
<b>LAND CONTAMINATION</b>							

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
	B37	<p>Prior to the commencement of site preparation and excavation activities, or as otherwise agreed by the Secretary, in areas identified as having a moderate to high risk of contamination, a site audit shall be carried out by a suitably accredited contaminated site auditor. A Site Audit Report is to be prepared by the site auditor detailing the outcomes of Phase 2 contamination investigations within these areas. The Site Audit Report shall detail, where relevant, whether the land is suitable (for the intended land use) or can be made suitable through remediation.</p> <p>Where the investigations identify that the site is suitable for the intended operations and that there is no need for a specific remediation strategy, measures to identify, handle and manage potential contaminated soils, materials and groundwater shall be identified in the Site Audit Report and incorporated into the Construction Environmental Management Plan. Where the investigations identify that the site is suitable for the intended operations and that a remediation strategy is required, the Site Audit Report shall include a remediation strategy for addressing the site contamination, and how the environmental and human health risks will be managed during the disturbance, remediation and/or removal of contaminated soil or groundwater, and be incorporated into the Construction Environmental Management Plan.</p> <p>Where remediation is required, a Site Audit Statement(s) shall be prepared verifying that the site has been remediated to a standard consistent with the intended land use.</p> <p>Note</p> <ul style="list-style-type: none"> <li>Terms used in this condition have the same meaning as in the Contaminated Land Management Act 1997.</li> </ul>	All	Pre-construction and Construction	RMS and Contractor	Open	<p>Potentially contaminated sites associated with the project will be reviewed during detailed design to determine those sites that will require a phase 2 contamination investigation. The results of phase 2 contamination investigations will determine whether the sites are suitable or unsuitable for their intended land use. For those sites found to be unsuitable for their intended land use, appropriate management or remediation/validation strategies will be developed and implemented.</p> <p>Wave 1 soft soils works will impact on a potential contaminated site at the Mills Truck depot. The Site Audit Report and associated requirements will be completed and implemented prior to the commencement of permanent construction activities.</p> <p>Additional contamination report has been prepared to identify asbestos prior to demolition of buildings.</p>
<b>WATERCOURSE CROSSINGS</b>							
	B38	Watercourse crossings shall be designed and constructed in consultation with the DPI (Fisheries), EPA, NOW and DoE, and where feasible and reasonable, be consistent with the Guidelines for Controlled Activities Watercourse Crossings (Department of Water and Energy, February 2008), Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings (Fairfull and Witheridge, 2003), Policy and Guidelines for Fish Friendly Waterway Crossings (NSW Fisheries, February 2004), and Policy and Guidelines for Fish Habitat Conservation and Management (DPI Fisheries, 2013). Where multiple cell culverts are proposed for crossings of fish habitat streams, at least one cell shall be provided for fish passage, with an invert or bed level that mimics watercourse flows.	All	Pre-construction and Construction	RMS and Contractor	Open	During the reporting period Consultation with agencies occurred during the installation of temporary waterway crossings. Hold points were implemented prior to construction of crossings to ensure appropriate management measures were in place and the required consultation had occurred.
	B39	<p>All crossings of known Giant Barred Frog habitat or waterways with the confirmed presence of the species shall be designed and constructed with bridges. Should the Applicant construct a crossing structure other than a bridge, the Applicant shall demonstrate maintained connectivity for the Giant Barred Frog upstream and downstream of that crossing for a monitoring period of three consecutive years, or such other period agreed by the Secretary in consultation with the OEH-EPA.</p> <p>Demonstration of maintained habitat connectivity shall:</p> <p>(a) be based on baseline data that confirms the presence, nature and distribution of Giant Barred Frog population using a survey methodology that has been endorsed by the OEH EPA, and detailed in the Mitigation Framework required in condition D1, and an assessment of the connectivity of the crossing site prior to commencement; or, if adequate baseline data is not provided to the satisfaction of the Secretary, be based on the assumption of occurrence of a population on either side of the crossing site; and</p> <p>(b) be based on evidence that the Giant Barred Frog has remained present upstream and downstream of the crossing site for the monitoring period, with periodic monitoring to occur at least biannually.</p> <p>Should the results of any instance of periodic monitoring record an absence of the Giant Barred Frog, the Applicant shall be required to demonstrate that this change is not as a result of the SSI within one month of the completion of that instance of periodic monitoring, to the satisfaction of the Secretary. Should the Secretary not be satisfied that the change is not a result of the SSI, the SSI will be deemed as the cause of the impact and the Applicant shall offset the loss of the habitat in accordance with this approval.</p>	NA	Pre-construction	RMS	Open	Not applicable to Sections 3-11. Habitat for Giant Barred Frog occurs only in Section 1 and 2
	B40	Unless otherwise agreed by DPI (Fisheries), all crossings of Class 1 watercourses in known Oxleyan Pygmy Perch habitat shall be designed and constructed with a bridge or arch structure and, where feasible and reasonable, no supporting structures shall be installed within affected waterways.	6, 7, 8, 9	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
	B41	Where an Oxleyan Pygmy Perch habitat waterway is realigned or its stream profile is changed, or an in-stream structure is installed in the waterway (both permanent and temporary construction structures), the Applicant shall ensure that the final design of that waterway does not result in water velocities exceeding 0.4 metres per second under normal flow conditions. The Applicant shall determine normal flow conditions to the satisfaction of DPI (Fisheries) through baseline monitoring of known Oxleyan Pygmy Perch habitat waterways.	6, 7, 8, 9	Pre-construction	RMS	Open	<p>This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.</p> <p>Realignment of waterway BC52 was designed and constructed to the satisfaction of DPI Fisheries. Monitoring of the realigned waterway indicated velocities of 0.1 metres per second during normal flow conditions</p>
	B42	The Applicant shall ensure that the SSI does not increase the afflux of waterways with known Oxleyan Pygmy Perch habitat by more than the relevant flood management objective in the documents referred to in condition A2 for flood events up to the 1 in 100 year event.	6, 7, 8, 9	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
	B43	The Applicant shall investigate the removal of the proposed embankment at station 145.2 and its replacement with an extension of the Richmond River bridge. The investigation shall consider issues around hydrology and flooding (including meeting the flooding objectives for bridges), constructability, cost, funding arrangements and visual impacts. The investigation shall include consideration of other relevant environmental impacts (noise, heritage, biodiversity, traffic etc.) and consider any alternative options. A copy of the investigation shall be submitted to the Secretary prior to the commencement of any bridge approach or embankment works in the vicinity.	10	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
<b>ABORIGINAL HERITAGE</b>							
	B44	<p>Prior to the commencement of construction affecting PAD site WWC Dirty Creek 1 and ancillary facilities at Section 4, Site 1; Section 4, Site 3; Section 7, Site 1; Section 10, Site 1a; and Section 11, Site 1a, the Applicant shall:</p> <p>(a) undertake field investigation, and where required, an archaeological investigation of the site(s) using a methodology generally consistent with testing undertaken for the Environmental Impact Statement, and prepared in consultation with the OEH-EPA (Aboriginal heritage) and the Registered Aboriginal Parties; and</p> <p>(b) prepare a report on the results of the archaeological investigation, including recommendations (such as further archaeological work) in consultation with the OEH-EPA and to the satisfaction of the Secretary, and shall include, but not necessarily be limited to:</p> <p>(i) consideration of measures to avoid or minimise disturbance to Aboriginal objects where objects of moderate to high significance are found to be present;</p> <p>(ii) recommendations for further investigations under condition B45 where impacts cannot be avoided; and</p> <p>(iii) details of management and mitigation measures to ensure there are no additional impacts due to pre-construction and construction activities; and</p> <p>(c) submit the report to the Registered Aboriginal Parties, the OEH-EPA (Aboriginal heritage) and the Secretary.</p>	4, 7, 10, 11	Pre-construction	RMS	Open	<p>- PAD site WWC Dirty Creek 1 does not occur within sections 3 to 11, however has been salvaged and clearance letter issued.</p> <p>- Section 4, Site 1 - has not been assessed, will be carried out as part of an ancillary facility assessment if it is proposed for use.</p> <p>- Section 4, Site 3 - has not been assessed, will be carried out as part of an ancillary facility assessment if it is proposed for use.</p> <p>- Section 7, Site 1 - results of a site assessment is pending.</p> <p>- Section 10, Site 1a - has not been assessed, will be carried out as part of an ancillary facility.</p> <p>- Section 11, Site 1a, heritage assessment prepared including test pitting.</p> <p>Recommended management measures have been implemented in Ancillary Facility Checklist for this site.</p>



Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
	B45	<p>Prior to the commencement of construction activities affecting Aboriginal sites WWC39, WWC46, Tyndale 2 site, IR2W4, Site 11, E2/2, WWC37, Dubaljeen site (New Italy 1), The Gap Road 1, WX21 Site 8, Site 1, Site 2, Site 3 and Site 4 and sites recommended by condition B44 for further investigation, the Applicant shall:</p> <p>(a) develop a detailed salvage strategy, prepared in consultation with the OEH EPA (Aboriginal heritage) and the Registered Aboriginal Parties. The salvage strategy shall be prepared to the satisfaction of the Secretary; and</p> <p>(b) undertake any further archaeological excavation works recommended by the results of the detailed salvage strategy.</p> <p>Within twelve months of completing the above work, unless otherwise agreed by the Secretary, the Applicant shall prepare a report containing the findings of the excavations, including artefact analysis and Aboriginal Site Impacts Recording Forms (ASIR), and the identification of final storage location for all Aboriginal objects recovered (testing and salvage), in consultation with the Registered Aboriginal Parties, the OEH EPA (Aboriginal heritage) and to the satisfaction of the Secretary.</p> <p>The report shall be submitted to the Registered Aboriginal Parties, the OEH EPA (Aboriginal heritage) and the Secretary.</p> <p>Note:</p> <ul style="list-style-type: none"> <li>Where archaeological testing has occurred as part of the environmental assessment and the results are included in the documents listed in condition A2, the sites tested shall be included in the final report prepared under condition B45.</li> </ul>	3, 4, 7, 8, 9, 10, 11	Pre-construction	RMS	Open	<p>A salvage strategy was prepared in consultation with RAPS. Salvage works are being completed on sites that require salvage. Clearance letters have been prepared post salvage that outline that the site is clear for construction and outlines any additional mitigation measures (i.e. fencing). Detailed reports will be prepared by the heritage consultant as required by this condition. An update on each site is listed below:</p> <p><b>WWC39</b>—not in Section 3 to 11. Site clearance letter has been done.</p> <p><b>WWC46</b>—not part of Section 3 to 11. Site clearance letter done. <b>Tyndale 2</b> – Site clearance letter done. Section 3 (SPIR CH69,550). <b>IR2W4</b>—Site clearance letter done. (SPIR CH128,550 - Section 8). <b>Site 11</b> – Site clearance letter done. <b>E2/2</b> – Site clearance letter done. Associated with Site 11, separate clearance letter. <b>WWC37</b> – not in Section 3 to 11. Dubaljeen Site (New Italy 1) – Site clearance letter done. <b>The Gap Road 1</b> – this site is located outside the approved project boundary (EIS/SPIR). Section 8 CH125,250. 250m west of project boundary. Near an ancillary site, will only be affected if ancillary site is used. <b>WX21 Site 8</b> – this site is located outside the approved project boundary (EIS/SPIR). South of Avenue Rd, west of SPIR boundary. No salvage. Section 10, CH156,000. <b>Site 1</b> – Salvage done. Site clearance letter done. Section 10 CH156,000. <b>Site 2</b> –Site clearance letter done. Section 10 CH150,750. <b>Site 3</b> – South of Site 2 CH 150,500 Section 10. Site clearance letter done. <b>Site 4</b> – CH152,500 site clearance letter done.</p>
	B46	<p>Identified impacts to Aboriginal heritage, shall be minimised to the greatest extent practicable through both detailed design and construction, particularly with regard to the Aboriginal sites Gittoes Jali and the Melino site, and the Aboriginal culturally significant places identified as Corindi Massacres (section 1), Burials (section 1), Halfway Creek Ceremonial Site, Birrugan and Mindi spiritual sites (sections 1, 2, 5 and 10), Pillar Valley men's and women's sites, Place H, Place I and Place J. Where impacts are unavoidable, works shall be undertaken in accordance with the strategy outlined in the Construction Heritage Management Plan.</p>	3, 8, 9, 10, 11	Pre-construction and Construction	RMS and Contractor	Open	<p>This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs. This requirement is also addressed in the Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan, Chapter 7 Environmental Mitigation and Management Measures). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).</p> <p>Gittoes Jali is located near the Wave 5c works. Gittoes Jali clearance letter was received prior to construction activities commencing on Lang Hill. This clearance letter outlines the required management measures for the protection of the site.</p> <p>Where impacts are unavoidable in construction, works would be undertaken in accordance with the strategy outlined in the Construction Heritage Management Plan.</p>
	B47	<p>The Applicant shall not destroy, modify or otherwise physically affect Aboriginal sites WWC5, WWC7, WWC26, WWC92, WWC115, WWC139, Tyndale 1, Scarred/engraved Tree (section 7), C3/2/2, Saw Pit Creek / New Italy, Gittoes Jali 2, Cooks Hill, Broadwater, Law PAD, Law Scarred Tree, MST 3, C21, Melino Scarred Tree 4, MST 2, MST1, Rudgley Scarred Tree or Saezza 1.</p>	4, 7, 8, 9, 10, 11	Pre-construction and Construction	RMS and Contractor	Open	<p>This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs. This requirement is also addressed in the Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan, Chapter 7 Environmental Mitigation and Management Measures). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).</p> <p><b>WWC5</b>– exclusion fencing installed, <b>WWC7</b> - exclusion fencing installed, <b>WWC26</b>- salvage done, fencing installed, <b>WWC92</b>- exclusion fencing installed, <b>WWC115</b> – Exclusion fencing installed, <b>WWC139</b> = Exclusion fencing installed, <b>Tyndale 1</b> = Exclusion fencing installed, <b>Scarred tree in Section 7</b> = Outside the project corridor. Exclusion fencing to be installed, <b>C3/2/2</b> = Outside the project corridor, Outside the project corridor, <b>Gittoes Jali 2</b> – ongoing, <b>Cooks Hill</b> = Outside of the project boundary, <b>Broadwater</b> – ongoing, <b>Law PAD</b> = To be fencing on vacant possession of the adjacent block, <b>MST 3</b> = Exclusion fencing is to be re-installed on vacant possession of the block, <b>C21</b> = Exclusion fencing is to be re-installed on vacant possession of the block, <b>Melino Scarred Tree 4</b> = Exclusion fencing is to be re-installed on vacant possession of the block, <b>MST2</b> = Exclusion fencing is to be re-installed on vacant possession of the block, <b>MST1</b> – ongoing, <b>Rudgley scarred tree</b> -Fencing to be established, <b>Saezza 1</b> = Exclusion fencing installed, awaiting site clearance letter.</p>
<b>NON - ABORIGINAL HERITAGE</b>							
	B48	<p>Prior to the commencement of construction affecting the Convent (12-14 Rivers Street), Harwood (item 21), the Applicant shall carry out further historical research and investigate the options for relocation of the convent building, in consultation with the Department of Planning and Environment and the OEH (Heritage Division), to the satisfaction of the Secretary.</p>	5	Pre-construction	RMS	Open	<p>Further historical research and investigation has been carried out for options to relocate the convent building. Community and agency consultation has been carried out. No compliant tenders were received for the removal and relocation of the Harwood Convent building and no suitable land in or adjacent to the Harwood Heritage Conservation Area where the building could be relocated was identified. DPE has provided approval for the demolition of the convent building, letter dated 5 December 2016.</p>

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
	B49	Prior to the commencement of construction in proximity to the following heritage items: 21; 23 (Roder's well and orchard); 26; 28; 29; and 43, the Applicant shall complete all archival recordings, including photographic recording of these heritage items, unless otherwise agreed by the Secretary. The archival recording shall be undertaken by an experienced heritage consultant, in accordance with the Guidelines issued by the Heritage Council of NSW. The areas containing these items shall be clearly identified and/or fenced until the completion of the archival recordings. Within 6 months of completing the archival recording, the Applicant shall submit a report containing the archival and photographic recordings and the historical research, where required, to the Department of Planning and Environment, the Heritage Council of NSW, and the local library and the local Historical Society in the relevant local government area(s).	5, 7, 9, 10	Pre-construction	RMS	Closed	Archival recordings completed for all items. Reports received and submitted to DPE.
	B50	Prior to construction affecting the following heritage items: 7; 23 (Roder's well and orchard) and 28, the Applicant shall carry out further historical and physical archaeological investigations of these heritage items, in consultation with the Department of Planning and Environment and the OEH (Heritage Division), to the satisfaction of the Secretary. These investigations shall: (a) include archaeological investigations and excavation in accordance with the Heritage Council's Archaeological Assessments Guideline (1996) using a methodology prepared, in consultation with the OEH (Heritage Division), and to the satisfaction of the Secretary. The archaeological investigation shall be undertaken by an archaeological heritage consultant, whose appointment has been endorsed by the Secretary. The nomination for the Excavation Director shall demonstrate ability to comply with the Heritage Council's Criteria for the Assessment of Excavation Directors (July 2011); (b) provide for the detailed analysis of any heritage items discovered during the investigations; (c) include management options for these heritage items (including options for relocation and display); and (d) if the findings of the investigations are significant, provide for the preparation and implementation of a heritage interpretation plan. Within 12 months of completing the above work, unless otherwise agreed by the Secretary, the Applicant shall prepare a report containing the findings of the excavations, including artefact analysis, and the identification of a final repository for finds, prepared in consultation with the OEH (Heritage Division) and to the satisfaction of the Secretary. The report shall be submitted to the Department of Planning and Environment, the Heritage Council of NSW, and the local library and the local Historical Society in the relevant local government area(s). Note: • Where archaeological testing has occurred as part of the environmental impact assessment for the SSI and the results are included in the documents listed in condition A2, the sites tested shall still form part of the methodology and final report prepared for the non-Aboriginal archaeological investigation program.	7, 9	Pre-construction	RMS	Open	Item 7 is not included in Section 3 to 11 and is therefore covered under a separate compliance report. Further historical and physical archaeological investigations has been carried out for Item 23 and 28. Reports received and submitted to DPE
	B51	The Applicant shall not destroy, modify or otherwise physically affect the heritage items listed in Table 5-1, Historic (non-Aboriginal) Heritage Assessment Working Paper and Table 3-38, Submissions/Preferred Infrastructure Report (RMS, November 2013).	5, 7, 10	Pre-construction and Construction	RMS and Contractor	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs. This requirement is also addressed in the Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan, Chapter 7 Environmental Mitigation and Management Measures) and these sites are also listed as being within or adjacent to the works. Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
<b>HERITAGE - GENERAL</b>							
	B52	Identified impacts to heritage sites shall be minimised where feasible and reasonable through both detailed design and construction, particularly with regard to the historic site known as the North Coast Railway Branch Tramway, Glenugie. Where impacts are unavoidable, works shall be undertaken in accordance with the actions to manage heritage construction impacts required by condition D26(d) and under the guidance of an appropriately qualified heritage specialist.	NA	Pre-construction and Construction	RMS and Contractor	Open	This heritage item occurs in Section 2, therefore will not be impacted by the works.
	B53	This approval does not allow the Applicant to destroy, modify or otherwise physically affect human remains as part of the SSI.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan, Chapter 7 Environmental Mitigation and Management Measures). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
	B54	The Applicant shall not destroy, modify or otherwise physically affect any heritage items outside the SSI footprint, unless otherwise agreed by the Secretary in accordance with condition B78-BB54A.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan, Chapter 7 Environmental Mitigation and Management Measures). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
	B54A	The Applicant may undertake archaeological investigations at sites outside the SSI boundary where the following works associated with the construction of the highway are proposed: i. ancillary sites that do not meet the criterion set out in condition B73; or ii. utilities or services, or iii. access and service roads and driveways; or iv. or similar works required for the project that are located within 5 metres of the SSI boundary (with the exception of drainage works in flood prone areas where such activities can be investigated within 20 metres of the SSI boundary). These investigations are permitted where this is required to assess the potential Aboriginal and non-Aboriginal archaeological impacts of the ancillary facility or other works on previously unidentified heritage sites, provided: (a) any archaeological investigations undertaken under this condition shall be consistent with the requirements in condition B44 for Aboriginal heritage and condition B50 for non-Aboriginal heritage and with the Construction Heritage Management Plan or a methodology prepared to the satisfaction of the Secretary in consultation with OEH; and (b) the results of any relevant archaeological investigations undertaken under this condition shall be consistent with the reporting requirements of condition B45 for Aboriginal heritage and condition B50 for non-Aboriginal heritage, and for ancillary sites, be described in the assessment of the ancillary facility required under conditions B74 and B75	All	Pre-construction and Construction	RMS and Contractor	Open	Noted. Addressed in Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan, Chapter 7 Environmental Mitigation and Management Measures). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
	B55	The measures to protect heritage sites near or adjacent to the SSI during construction shall be detailed in the Construction Heritage Management Plan.	All	Construction	Contractor	Closed	Pacific Complete CEMP including Appendix B5 Construction Heritage Management Plan has been approved (23 October 2015).
<b>TRANSPORT AND ACCESS</b>							
	B56	The SSI shall be designed with the objective of minimising adverse changes to existing access arrangements and services for other transport modes and, where feasible and reasonable, facilitate an improved level of access and service to other transport modes comparable to or better than the existing situation.	All	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
	B57	Safe pedestrian and cyclist access through or around worksites shall be maintained during construction. In circumstances where pedestrian and cyclist access is restricted due to construction activities, a satisfactory alternate route shall be provided and signposted.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B1 Construction Traffic and Access Management Plan, Section 5.4.1 Management of Pedestrians and Section 5.4.2 Management of Cyclists). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
	B58	Construction vehicles (including staff vehicles) associated with the SSI shall be managed to: (a) minimise parking or queuing on public roads; (b) minimise idling and queuing in local residential streets where practicable; (c) minimise the use of local roads (through residential streets and town centres) to gain access to construction sites and compounds; and (d) adhere to the nominated haulage routes identified in the Construction Traffic Management Plan.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B1 Construction Traffic and Access Management Plan, Section 4 Construction Activities and Impacts, Section 4.3 Road Network, Section 4.4 Construction Access Points, Section 4.5 Construction Site Office and Section 5.5 Construction Vehicle Management). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).  Construction sites provide ample parking to minimise parking on local roads. Access to work areas are via access gates, sufficient space for queuing is provided where feasible to prevent queuing on public roads.
	B59	In relation to new or modified local road, parking, pedestrian and cycle infrastructure, the SSI shall, where feasible and reasonable, be designed: (a) in consultation with the relevant council; (b) take into consideration existing and future demand, road safety and traffic network impacts; (c) to meet relevant design, engineering and safety guidelines, including Austroads Guide to Traffic Engineering Practice; and (d) be certified by an appropriately qualified person that has considered the above matters.	All	Pre-construction and Construction	RMS and Contractor	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
<b>PROPERTY AND LANDUSE</b>							
	B60	The Applicant shall ensure that the SSI 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.	All	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
	B61	Where the viability of existing agricultural operations are identified to be impacted by the land requirements of the SSI, the Applicant shall, at the request of these landowners, employ a suitably qualified and experienced independent agricultural expert, whose appointment has been endorsed by the Secretary, to assist in identifying alternative farming opportunities for the land, including purchase of other residual land to enable existing agricultural activities to continue.	All	Pre-construction	RMS	Open	No impacts to the viability of existing agricultural operations have been identified to date. No requests for agricultural expertise has been received to date.
	B62	Unencumbered access to private property shall be maintained during construction unless otherwise agreed with the landowner in advance. A landowner's access that is physically affected by the SSI shall be reinstated to at least an equivalent standard, in consultation with the landowner.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B1 Construction Traffic and Access Management Plan, Section 4.5.1 Site Office Locations, Section 4.6.1 Haulage Routes and Section 5.8.6 Removal of Temporary Roadways and Detours). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).  Access to private property has been maintained throughout construction of all current works and shall continue throughout the duration of construction. No issues or complaints have been received from residents.
	B63	The Applicant shall, in consultation with relevant landowners, construct the SSI 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 landowner.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B1 Construction Traffic and Access Management Plan, Section 4.6.1 Haulage Routes). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).  Landowners have been consulted regarding work potentially disruptive to agricultural operations / activities. This includes potential use of cane pads within the project boundary and realignment of fences through agricultural land. The project has assisted landowners with property access for cattle movement and prioritised the installation of the permanent boundary fence and gates for landowner cattle movements.
	B64	Any damage caused to property as a result of the SSI shall be rectified or the landowner compensated, within a reasonable timeframe, with the costs borne by the Applicant. This condition is not intended to limit any claims that the landowner may have against the Applicant.	All	Construction	Contractor	Open	Noted. No issues to date. Pre-construction building condition inspections have been completed, with post construction inspections to be completed following construction. Any damage identified due to the project works will be rectified.
<b>FORESTRY IMPACTS</b>							
	B65	Where the SSI traverses a state forest, the Applicant shall, in consultation with the NSW Forestry Corporation, ensure that construction does not unduly disrupt existing forestry activities, access for fire fighting and access for other activities within state forests, unless otherwise agreed by the NSW Forestry Corporation.	3, 6, 7	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B1 Construction Traffic and Access Management Plan, Section 4.7.3 Property Access and Section 4.7.8 State Forest Road Network). Pacific Complete will approve Contractor EMPs, EWMSs and related traffic management safety plans (or similar) to ensure compliance with this CoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).  Consultation with NSW Forestry regarding access to forestry areas has been ongoing. Access to Tabbimoble forest is maintained via Glencoe Road during the Wave 5c works.
<b>AIR QUALITY</b>							

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
	B66	The SSI shall be constructed in a manner that minimises dust emissions from the site, including wind-blown and traffic-generated dust and tracking of material onto public roads. All activities on the site shall be undertaken with the objective of preventing visible emissions of dust from the site. Should such visible dust emissions occur at any time, the Applicant shall identify and implement all feasible and reasonable dust mitigation measures, including cessation of relevant works, as appropriate, such that emissions of visible dust cease.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B6 Construction Air Quality Management Plan, Chapter 7 Environmental Control Measures). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).  Dust mitigation measures such as the use of watercarts are being implemented on all parts of the project. Contractor works are being monitored by Pacific Complete to ensure contractors are providing sufficient measures to control dust including monitoring and watercarts.
<b>HAZARDS AND RISK</b>							
	B67	Dangerous goods, as defined by the Australian Dangerous Goods Code, shall be stored and handled strictly in accordance with: (a) all 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.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan, Chapter 6 Environmental Control Measures). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
<b>WASTE MANAGEMENT</b>							
	B68	Waste generated outside the site shall not be received at the site for storage, treatment, processing, reprocessing, or disposal on the site, except as expressly permitted by a licence or waste exemption under the Protection of the Environment Operations Act 1997, if such a licence is required in relation to that waste.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B7 Construction Waste, Resource and Energy Management Plan, Chapter 6 Environmental Mitigation and Management Measures). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).  No waste from outside the project has been received.
	B69	The reuse and/or recycling of waste materials generated on site shall be maximised as far as practicable, to minimise the need for treatment or disposal of those materials off site.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B7 Construction Waste, Resource and Energy Management Plan, Chapter 6 Environmental Mitigation and Management Measures). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).  Waste generation and transport is being tracked by each contractor for the project and reported to PC/RMS on a monthly basis.
	B70	All liquid and/or non-liquid waste generated on the site shall be assessed and classified in accordance with Waste Classification Guidelines (Department of Environment, Climate Change and Water, 2009).	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B7 Construction Waste, Resource and Energy Management Plan, Chapter 6 Environmental Mitigation and Management Measures). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).  Waste generation and transport is being tracked by each contractor for the project and reported to PC/RMS on a monthly basis.
	B71	All waste materials removed from the site shall only be directed to a waste management facility or premises lawfully permitted to accept the materials.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B7 Construction Waste, Resource and Energy Management Plan, Chapter 6 Environmental Mitigation and Management Measures). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).  Refer to Section 4.5 of the 6 monthly construction compliance report (April to September 2016) for reportable incidents that occurred during the reporting period.
<b>UTILITIES AND SERVICES</b>							
	B72	Utilities, services and other infrastructure potentially affected by construction and operation shall be identified prior to construction to determine requirements for access to, diversion, protection, and/or support. Consultation with the relevant owner and/or provider of services that are likely to be affected by the SSI shall be undertaken to make suitable arrangements for access to, diversion, protection, and/or support of the affected infrastructure as required. The cost of any such arrangements shall be borne by the Applicant.	All	Pre-construction and Construction	RMS and Contractor	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.  Utilities have been relocated in areas where construction has commenced.
<b>ANCILLARY FACILITIES</b>							

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
	B73	<p>The sites for ancillary facilities that are associated with the construction of the SSI and that have not been identified and assessed in the documents listed in condition A2 shall:</p> <p>(a) be located more than 50 metres from a waterway (100 metres for a State Environmental Planning Policy No. 14 wetland or known Oxleyan Pygmy Perch habitat waterway);</p> <p>(b) not impact on connectivity structures or vegetation leading to a connectivity structure;</p> <p>(c) be located within or adjacent to the SSI boundary;</p> <p>(d) have ready access to the road network;</p> <p>(e) be located in areas of low ecological significance and require no clearing of native vegetation;</p> <p>(f) be located more than 50 metres from threatened species and endangered ecological communities and their habitats;</p> <p>(g) be located on relatively level land;</p> <p>(h) be separated from the nearest residences by at least 200 metres (or at least 300 metres for a temporary batching plant) and comply with construction noise management levels at sensitive receivers;</p> <p>(i) be above the 20 year ARI flood level unless a contingency plan to manage flooding is prepared and implemented;</p> <p>(j) have minor impacts on flood storage and not result in obstruction of floodplain flow or blockage of culverts and drains;</p> <p>(k) not unreasonably affect the land use of adjacent properties;</p> <p>(l) operate in accordance with the construction hours set out in conditions B15 and B16;</p> <p>(m) provide sufficient area for the storage of material to minimise, to the greatest extent practical, the number of deliveries required outside standard construction hours; and</p> <p>(n) be located in areas of low heritage conservation significance (including areas identified as being of Aboriginal cultural value) and not impact on heritage sites beyond those already impacted by the SSI.</p> <p>The Applicant shall undertake an assessment of the facility against the above criteria in consultation with the relevant public authority(s) and the relevant council. The assessment shall be approved by the Environmental Representative and included in the Ancillary Facilities Management Plan required under condition D21.</p>	All	Construction	Contractor	Open	<p>Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detailed how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. Site specific ancillary facility management plans have been and will continue to be prepared by Pacific Complete and contractors in accordance with the requirements of Appendix B9 Ancillary Facilities Management Plan (ER approved 10 February 2016). Ancillary Facility Management Plans are approved by the ER. If additional impacts are anticipated then the plan will be submitted to the Secretary for approval.</p> <p>Refer to Section 2.1 of the six monthly compliance report (April to September 2016) for a list of ancillary facilities approved for use during the reporting period.</p>
	B74	<p>Ancillary facilities that have not been previously identified and assessed in the documents listed in condition A2, and do not meet the criteria set out under condition B73, shall be approved by the Environmental Representative prior to its establishment. In obtaining this approval, the Applicant shall consult with the relevant public authority(s) and the relevant council, and demonstrate to the satisfaction of the Environmental Representative, how the potential environmental impacts can be mitigated and managed to acceptable standards. The outcomes of the assessment shall be documented in a report and include, but not necessarily be limited to:</p> <p>(a) details on the site location and access arrangements;</p> <p>(b) a description of the activities to be undertaken;</p> <p>(c) outcomes of the assessment of the site against the locational criteria set out in condition B73;</p> <p>(d) an assessment of the environmental impacts on the site and the surrounding environment, including, but not limited to noise, vibration, air quality, traffic and access during site establishment and operation, flora and fauna, heritage, erosion and sedimentation, water quality and light spill;</p> <p>(e) details of the mitigation, monitoring and management procedures specific to the ancillary facility that would be implemented to minimise environmental impacts; and</p> <p>(f) demonstrated overall consistency with the approved SSI (including impacts identified in the documents listed in condition A2).</p> <p>A copy of the report shall be included in the Ancillary Facilities Management Plan.</p>	All	Construction	Contractor	Open	<p>Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detailed how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. Site specific ancillary facility management plans have been and will continue to be prepared by Pacific Complete and contractors in accordance with the requirements of Appendix B9 Ancillary Facilities Management Plan (ER approved 10 February 2016). Ancillary Facility Management Plans are approved by the ER. If additional impacts are anticipated then the plan will be submitted to the Secretary for approval.</p> <p>Refer to Section 2.1 of the six monthly compliance report (April to September 2016) for a list of ancillary facilities approved for use during the reporting period.</p>
	B75	<p>Notwithstanding condition B74, ancillary facilities that that have not been previously identified and assessed in the documents listed in condition A2 and result in additional impacts to biodiversity, heritage, flooding and noise beyond those approved for the SSI, shall be approved by the Secretary prior to their establishment. In order to obtain this approval, the Applicant shall undertake an assessment of the ancillary facility in accordance with condition B74 and forward a copy of the assessment report to the Secretary, as part of the approval submission, at least one month prior to the establishment of the facility.</p>	All	Construction	Contractor	Open	<p>Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detailed how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. Site specific ancillary facility management plans have been and will continue to be prepared by Pacific Complete and contractors in accordance with the requirements of Appendix B9 Ancillary Facilities Management Plan (ER approved 10 February 2016). Ancillary Facility Management Plans are approved by the ER. If additional impacts are anticipated then the plan will be submitted to the Secretary for approval.</p> <p>Refer to Section 2.1 of the six monthly compliance report (April to September 2016) for a list of ancillary facilities approved for use during the reporting period.</p>
	B76	<p>The land on which ancillary facilities are located shall be rehabilitated to at least their pre-construction condition or better, unless otherwise agreed by the landowner.</p>	All	Construction	Contractor	Open	<p>Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detailed how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. Site specific ancillary facility management plans have been and will continue to be prepared by Pacific Complete and contractors in accordance with the requirements of Appendix B9 Ancillary Facilities Management Plan (ER approved 10 February 2016).</p> <p>Urban Design and Landscape Plans (UDLP) are currently being prepared for the project. These plans will outline rehabilitation commitments and principles for ancillary facilities.</p>
	B77	<p>Where changes are made to the boundary or use of an ancillary facility, including facilities identified in the documents listed in condition A2, the Applicant shall assess the facility against the criteria set out in condition B73. If the ancillary facility site:</p> <p>(a) does not meet the criteria set out under condition B73 the Applicant shall seek the approval of the Environmental Representative in accordance with condition B74; or</p> <p>(b) results in impacts to biodiversity, heritage, flooding and noise beyond those approved for the SSI, the Applicant shall seek the approval of the Secretary in accordance with condition B75.</p> <p>The relevant approval shall be obtained prior to the establishment of the ancillary facility.</p>	All	Construction	Contractor	Open	<p>Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detailed how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. Site specific ancillary facility management plans will be prepared by Pacific Complete in accordance with the requirements of Appendix B9 Ancillary Facilities Management Plan (ER approved 10 February 2016). Ancillary Facility Management Plans are approved by the ER. If additional impacts are anticipated then the plan will be submitted to the Secretary for approval.</p> <p>Refer to Section 2.1 of the six monthly compliance report (April to September 2016) for a list of ancillary facilities approved for use during the reporting period.</p>
	B78	<p><del>The Applicant may undertake archaeological investigations at ancillary sites that do not meet the criterion set out in condition B73, where this is required to assess the potential Aboriginal and non-Aboriginal archaeological impacts of the ancillary facility on previously unidentified heritage sites, provided:</del></p> <p><del>(a) any archaeological investigations undertaken under this condition shall be consistent with the requirements in condition B44 for Aboriginal heritage and condition B50 for non-Aboriginal heritage and with the Construction Heritage Management Plan or a methodology prepared to the satisfaction of the Secretary in consultation with OEH; and</del></p> <p><del>(b) the results of any relevant archaeological investigations undertaken under this condition shall be consistent with the reporting requirements of condition B45 for Aboriginal heritage and condition B50 for non-Aboriginal heritage and be described in the assessment of the ancillary facility required under conditions B74 and B75.</del></p>	P	Construction	Contractor	Noted.	

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
<b>BORROW SITES</b>							
	B79	The Applicant shall ensure that material extracted from the borrow sites established for the SSI, is only used for the construction of the SSI subject to this approval, and no other sections of the Pacific Highway or other works.	All	Construction	Contractor	Open	Pacific Complete will prepare site specific Borrow Site Management Plans as required by the project approval. This requirement will apply to all borrow site management plans prepared by Pacific Complete.  No borrow sites were operational during the reporting period. The Tyndale Borrow Site Management Plan (Portion A) was approved in August 2016 by DPE. The Lang Hill Borrow Site Management Plan (Portion C) was approved 23 November 2016 by DPE. Management Plans are currently being prepared for a number of borrow sites in Portion D.
<b>CONSTRUCTION ACTIVITIES</b>							
	B80	The Applicant shall ensure that all plant and equipment used at the site is: (a) maintained in a proper and efficient condition; and (b) operated in a proper and efficient manner.	All	Construction	Contractor	Open	Pacific Complete has an approved CEMP. Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
<b>OPERATIONAL PERFORMANCE</b>							
	B81	The Applicant shall ensure that during the operation of the SSI, water quality risks to the Woodburn Bore field drinking water catchment are minimised to the satisfaction of Rous Water.	8	Operation	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
		Modification 1					
		Modification 2					

# COMPLIANCE TRACKING - NSW CONDITIONS OF APPROVAL

## Woolgoolga to Ballina SSI-4963

### PART C - Community Information and Reporting



Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
<b>COMMUNITY INFORMATION, CONSULTATION AND INVOLVEMENT</b>							
	C1	<p>Prior to the commencement of construction or as otherwise agreed by the Secretary, the Applicant shall prepare and implement a Community Communication Strategy to the satisfaction of the Secretary. The Strategy shall provide mechanisms to facilitate communication between the Applicant (and its contractor(s)), the Environmental Representative (see condition D22), the relevant council and community stakeholders (particularly adjoining landowners) on the construction environmental management of the SSI. The Strategy shall include, but not be limited to:</p> <ul style="list-style-type: none"> <li>(a) identification of stakeholders to be consulted as part of the Strategy, including affected and adjoining landowners;</li> <li>(b) procedures and mechanisms for the regular distribution of information to community stakeholders on construction progress and matters associated with environmental management;</li> <li>(c) the formation of community-based focus groups for key environmental management issues for the SSI. The Strategy shall provide detail on the structure, scope, objectives and frequency of the community-based focus groups;</li> <li>(d) procedures and mechanisms through which the community stakeholders can discuss or provide feedback to the Applicant and/or Environmental Representative in relation to the environmental management and delivery of the SSI;</li> <li>(e) procedures and mechanisms through which the Applicant can respond to enquiries or feedback from the community stakeholders in relation to the environmental management and delivery of the SSI; and</li> <li>(f) 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 SSI. This may include the use of an appropriately qualified and experienced independent mediator.</li> </ul> <p>Issues that shall be addressed through the Community Communication Strategy include (but are not necessarily limited to):</p> <ul style="list-style-type: none"> <li>(i) traffic management (including property access, pedestrian access);</li> <li>(ii) heritage matters;</li> <li>(iii) landscaping and urban design matters;</li> <li>(iv) construction staging, hours and activities;</li> <li>(v) noise and vibration mitigation and management;</li> <li>(vi) air quality and dust;</li> <li>(vii) water quality, hydrology and flooding matters; and</li> <li>(viii) biodiversity matters.</li> </ul> <p>The Applicant shall maintain and implement the Strategy throughout construction of the SSI.</p>	All	Pre-construction	RMS	Closed	An overarching Woolgoolga to Ballina Communication and Stakeholder Engagement Strategy has been prepared and approved. DPE Approval dated 13 May 2015.
<b>COMPLAINTS AND ENQUIRIES PROCEDURE</b>							
	C2	<p>Prior to the commencement of pre-construction and construction, or as otherwise agreed by the Secretary, the Applicant shall ensure that the following are available for community enquiries and complaints for the duration of construction:</p> <ul style="list-style-type: none"> <li>(a) a 24 hour telephone number(s) on which complaints and enquiries about the SSI may be registered;</li> <li>(b) a postal address to which written complaints and enquiries may be sent;</li> <li>(c) an email address to which electronic complaints and enquiries may be transmitted; and</li> <li>(d) a mediation system for complaints unable to be resolved.</li> </ul> <p>The telephone number, the postal address and the email address shall be published in newspaper(s) circulating in the local area prior to the commencement of construction and prior to the commencement of operation. This information shall also be provided on the website (or dedicated pages) required by this approval.</p>	All	Pre-construction and Construction	RMS and Contractor	Closed	Information and systems required by this condition have been established. Refer to the overarching Woolgoolga to Ballina Communication and Stakeholder Engagement Strategy (DPE Approval dated 13 May 2015). Relevant details have been included in the approved Pacific Complete CEMP, refer to Section 6.3 Stakeholder and Community Communication. Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
	C3	<p>Prior to the commencement of pre-construction and construction, or as otherwise agreed by the Secretary, the Applicant shall prepare and implement a Construction Complaints Management System consistent with AS 4269: Complaints Handling and maintain the System for the duration of construction and up to 12 months following completion of the SSI. Information on all complaints received, including the means by which they were addressed and whether resolution was reached, with or without mediation, shall be maintained in a complaints register and included in the construction compliance reports required by this approval. The information contained within the System shall be made available to the Secretary on request.</p>	All	Pre-construction and Construction	RMS and Contractor	Closed	Information and systems required by this condition have been established. Refer to the overarching Woolgoolga to Ballina Communication and Stakeholder Engagement Strategy (DPE Approval dated 13 May 2015). Relevant details have been included in the approved Pacific Complete CEMP, refer to Section 6.3 Stakeholder and Community Communication and Section 6.3.2 Complaints and Enquiries Procedure. Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
<b>PROVISION OF ELECTRONIC INFORMATION</b>							
	C4	<p>Prior to the commencement of pre-construction and construction, or as otherwise agreed by the Secretary, the Applicant shall establish and maintain a new website, or dedicated pages within an existing website, for the provision of electronic information associated with the SSI, for the duration of construction and for 12 months following completion of the SSI. The Applicant shall, subject to confidentiality, publish and maintain up-to-date information on the website or dedicated pages including, but not necessarily limited to:</p> <ul style="list-style-type: none"> <li>(a) information on the current implementation status of the SSI;</li> <li>(b) a copy of the documents listed in condition A2, and any documentation supporting modifications to this approval that may be granted from time to time;</li> <li>(c) a copy of this approval and any future modification to this approval;</li> <li>(d) a copy of each relevant environmental approval, licence or permit required and obtained in relation to the SSI;</li> <li>(e) a copy of each current strategy, plan, program or other document required under this approval;</li> <li>(f) the outcomes of compliance tracking in accordance with condition D27 of this approval; and</li> <li>(g) details of contact point(s) to which community complaints and enquiries may be directed, including a telephone number, a postal address and an email address.</li> </ul>	All	Pre-construction and Construction	RMS and Contractor	Open	<p>The website for the project is <a href="http://www.rms.nsw.gov.au/projects/northern-nsw/woolgoolga-to-ballina/index.html">http://www.rms.nsw.gov.au/projects/northern-nsw/woolgoolga-to-ballina/index.html</a>.</p> <p>Copies of the project approval and management plans are available on the project website. The website is regularly updated.</p>
		Modification 1					
		Modification 2					

# COMPLIANCE TRACKING - NSW CONDITIONS OF APPROVAL

## Woolgoolga to Ballina SSI-4963



### PART D - Environmental Management, Reporting and Auditing

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
	D1	<p>The Applicant shall develop a framework for finalising mitigation measures for threatened species. This Mitigation Framework shall be developed by a suitably qualified and experienced ecologist in consultation with DPI (Fisheries), OEH EPA and DoE, and submitted to the satisfaction of the Secretary prior to commencement of detailed design of the relevant stage, unless otherwise agreed by the Secretary. The Mitigation Framework shall detail the process for finalising the biodiversity strategies, plans and programs required under this approval. The Mitigation Framework shall include:</p> <p>(a) a description of the methodology of all proposed pre-construction species and habitat surveys, including surveys undertaken in the 2013-2014 spring and summer seasons and as otherwise required under this project approval, and with reference where relevant to compliance with relevant NSW and Commonwealth field survey methods and guidelines;</p> <p>(b) a summary of potential changes to the avoidance, mitigation and/or offset measures specified in the documents listed in condition A2, as justified by the results of surveys described in condition D1(a);</p> <p>(c) a summary of the potential avoidance, mitigation and/or offset measures for all species for which the proposed level of impact or mitigation required differs from that assessed in the documents listed in condition A2, including evidence that those measures would achieve the same or an improved biodiversity outcome;</p> <p>(d) provision for updating the relevant Threatened Species Management Plans required under condition D8; and</p> <p>(e) a schedule for submission of all biodiversity strategies, plans and programs required under this approval in accordance with the requirements for submission in the conditions below.</p>	All	Pre-construction	RMS	Closed	Mitigation Framework approved by DPE on 8 May 2015.
	D2 (a)-(g)	<p>The Applicant shall prepare and implement a Connectivity Strategy, to be submitted and approved by the Secretary prior to the commencement of construction. The strategy shall describe the rationale for, and final design and location of, fauna connectivity structures for the SSI and shall demonstrate the effectiveness of connectivity measures for the species targeted for the crossing. The Strategy shall be developed from the draft Connectivity Strategy in the documents listed in condition A2 in consultation with the EPA OEH, DPI (Fisheries) and DoE, to the satisfaction of the Secretary. The Strategy shall include:</p> <p>(a) details of all crossings for terrestrial and aquatic fauna, including but not limited to land bridges, bridge, arch and culvert crossings, and crossings for arboreal fauna;</p> <p>(b) justification for the location and design, and spacing of the connectivity structures, with reference to relevant State and Commonwealth threatened species guidelines and the results of on-ground surveys as required by D2(d);</p> <p>(c) demonstration of the effectiveness of the connectivity structures (including exclusionary fencing) in terms of location, design and number of connectivity structures to mitigate impacts to the relevant threatened species, and that the crossings:</p> <p>(i) maintain or improve connectivity and movement pathways;</p> <p>(ii) reduce the risk of mortality for threatened species;</p> <p>(iii) are located at locations, at sufficient frequency along the alignment, based on the ecological requirements of the targeted species, including but not limited to home range size, movement patterns, and habitat use;</p> <p>(d) the results of surveys undertaken to determine the habitat, species movement patterns, distribution of species to confirm the design and location;</p> <p>(e) consideration of connectivity under the existing highway, service roads and local roads (servicing over 100 vehicles per day);</p> <p>(f) commitment that pathways to connectivity structures are not to be impeded by ancillary facilities, rest areas or service roads, or local roads (servicing over 100 vehicles per day) that are realigned as part of the SSI or experience an increase in traffic volumes during operation of the SSI;</p> <p>(g) commitment to implement the landscaping of vegetation leading to connectivity structures;</p>	All	Pre-construction	RMS	Open	This is being considered as part of detailed design. Each design Portion (i.e. A, B, C and D) will be required to prepare a Connectivity Strategy in accordance with the requirements of this CoA. Pacific Complete will review detailed design deliverables to ensure compliance with the relevant MCoAs.
	D2 (h)-(m)	<p>(h) a fencing strategy, describing the location, design and length of fencing, which must extend beyond the edges of habitat for threatened species;</p> <p>(i) the maintenance of connectivity measures and fencing for the life of the impact of the action, including the timing and frequency;</p> <p>(j) an assessment of the flooding risk for proposed structures, and measures to confirm and provide for flood immunity of those structures in light of this assessment. The agreement of the EPA OEH on flood immunity levels shall be obtained prior to the commencement of construction of the relevant stage;</p> <p>(k) commitment that all bridges in identified wildlife corridors, or adjacent to threatened species habitat, or are likely to provide connectivity for threatened species based on surveys undertaken in accordance with the Mitigation Framework required in condition D1, shall provide a minimum three metre wide dry passage from toe of the scour protection to the top of the bank, with natural substrate and refuge features. Where this criteria cannot be achieved and with the agreement of the EPA OEH, consideration shall be given to the use of suitable materials in, and the final form of, the scour protection to provide for the safe and effective passage of fauna;</p> <p>(l) detailed consideration of the effects of connectivity structures on the maintenance or improvement of population viability and gene flow; and</p> <p>(m) incorporate the outcomes of the Mitigation Framework required under condition D1.</p> <p>Unless connectivity measures can be demonstrated to be effective at successfully mitigating the barrier and fragmentation impact to relevant species, in accordance with the requirements of the construction flora and fauna management plan required under condition D26(e), and threatened species management plans required under conditions D8 and D9, the residual impact to connectivity shall be offset.</p> <p>Where the location and/or design of connectivity structures has changed from that identified in the documents listed under conditions A2(c) and A2(e), the Strategy shall demonstrate how the new location and/or design would result in an improved biodiversity outcome. The Strategy shall clearly identify how the connectivity structures will work in conjunction with other biodiversity measures, such as complementary fauna exclusion fencing measures and the regeneration/replanting of native vegetation, to be implemented for the SSI.</p> <p>The Applicant shall demonstrate to the satisfaction of the Secretary how public authority comments on the Strategy have been addressed.</p> <p>The Strategy may be submitted in stages to suit the staging of the SSI.</p>	All	Pre-construction	RMS	Open	This is being considered as part of detailed design. Each design Portion (i.e. A, B, C and D) will be required to prepare a Connectivity Strategy in accordance with the requirements of this CoA. Pacific Complete will review detailed design deliverables to ensure compliance with the relevant MCoAs.

BIODIVERSITY OFFSET STRATEGY



Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
	D3	<p>The Applicant shall prepare and implement a Biodiversity Offset Strategy to outline how the ecological values lost as a result of the SSI will be offset in perpetuity. The Strategy shall be developed from the draft Biodiversity Offset Strategy in the documents listed in condition A2, in consultation with the OEH-EPA, DPI (Fisheries) and DoE, to the satisfaction of the Secretary.</p> <p>Unless otherwise agreed to by the OEH-EPA, DPI (Fisheries) and DoE, offsets shall be provided on a like-for-like basis and at a minimum ratio of 4:1 for native vegetation (including salt marsh) impacted by the SSI or as required by the Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy (Commonwealth of Australia 2012) and Offsets Assessment Guide (Commonwealth of Australia 2012), whichever is the greater.</p> <p>The Strategy shall include, but not necessarily be limited to:</p> <p>(a) the objectives and outcomes that would be sought through a biodiversity offset package, including to achieve a neutral or net beneficial outcome for all threatened species and endangered ecological communities likely to be impacted directly or indirectly during both the construction and operation of the SSI;</p> <p>(b) confirmation of the vegetation type/habitat (in hectares) to be cleared and their condition, and the size of offsets required (in hectares);</p> <p>(c) details of the available offset measures that have been selected to compensate for the loss of existing native vegetation (including mangroves, salt marsh and riparian vegetation), threatened and vulnerable species and Endangered Ecological Communities and their habitats, and identification of potential offset sites;</p> <p>(d) consideration of contingency measures for offsets to address potential changes to impacted areas as a result of detailed design changes;</p> <p>(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 SSI in documents listed under condition A2), including:</p> <p>(i) changes to the SSI footprint due to detailed design;</p> <p>(ii) changes to predicted impacts as a result of changes to mitigation measures;</p> <p>(iii) the identification of additional species/habitat through pre-clearance surveys and construction; and</p> <p>(iv) additional impact associated with the establishment of ancillary facilities;</p> <p>(f) the decision-making framework that would be used to select the final suite of offset measures to achieve the objectives and outcomes established within the Strategy, including the ranking of offset measures; and</p> <p>(g) options for securing and management of biodiversity offsets in perpetuity.</p> <p>The Applicant 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 bioregion. Any such strategy, including an agreement made with OEH-EPA and DoE, shall be approved by the Secretary within a timeframe agreed to by the Secretary.</p> <p>The Biodiversity Offset Strategy shall be submitted to, and approved by, the Secretary prior to the commencement of construction work that would result in the disturbance of the relevant existing ecological communities, threatened species, or their habitat, unless otherwise agreed by the Secretary.</p>	All	Pre-construction and Construction	RMS	Open	Biodiversity Offset Strategy Approved (DPE 6 January 2016 and DoE 7 January 2016).
	D4	<p>Prior to the commencement of construction work that would result in the disturbance of the relevant existing ecological communities, threatened species, or their habitat, unless otherwise agreed by the Secretary, the Applicant shall submit for the approval of the Secretary, the offset sites for the species listed under condition D4(a). The selection of the offset sites should be undertaken in consultation with the OEH-EPA, DPI (Fisheries) and DoE. Submission of the offset sites for approval shall be accompanied by:</p> <p>(a) details of offset sites to compensate the impacts on:</p> <p>(i) Koala populations in Coolgardie/Bagotville, Broadwater and Woombah/Illuka;</p> <p>(ii) Moonee Quassia (Quassia sp. Moonee Creek);</p> <p>(iii) Sandstone Rough-Barked Apple (Angophora robur);</p> <p>(iv) Singleton Mint Bush (Prostanthera cineolifera); and</p> <p>(v) Lowland Rainforest in Sub-tropical Australia;</p> <p>(b) a map that defines the locations and boundaries of the sites;</p> <p>(c) demonstration, through ground truthing survey or an alternative method(s), the adequacy of the site(s), in terms of habitat suitability and presence of the relevant species, to offset the impacts of the SSI;</p> <p>(d) consideration of how the offsets achieve the outcomes required by the Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy to the satisfaction of DoE; and</p> <p>(e) details of how the offset sites would be secured and managed in perpetuity.</p>	3, 4, 6, 9, 10, 11	Pre-construction and Construction	RMS	Open	Threatened Biodiversity Offset Status Report, updated 3 was approved by DPE on 30 June 2016 and DOEE on 18 July 2016.
<b>BIODIVERSITY OFFSET STRATEGY</b>							
	D5 (a)-(g)	<p>The Applicant shall prepare and implement (following approval) a Biodiversity Offset Package, within twenty-four months of approval of the Biodiversity Offset Strategy, or as otherwise agreed by the Secretary. The package shall detail how the ecological values lost as a result of the SSI will be offset. The Biodiversity Offset Package shall be prepared in consultation with the OEH-EPA, DPI (Fisheries) and DoE, for the approval of the Secretary, and shall (unless otherwise agreed by the Secretary) include, but not necessarily be limited to:</p> <p>(a) the identification of the extent and types of habitat that would be lost or degraded as a result of the final design of the SSI;</p> <p>(b) the objectives and biodiversity outcomes to be achieved;</p> <p>(c) details of the final suite of the biodiversity offset measures selected and secured in accordance with the Biodiversity Offset Strategy including the identification of all offset sites, including, offset attributes, shapefiles, textual descriptions and maps that clearly define the location, boundaries of the offset areas;</p> <p>(d) an assessment demonstrating how the offset area(s) achieve the outcomes required by the Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy and user guide to the written satisfaction of DoE;</p> <p>(e) the management and monitoring requirements for compensatory habitat works and other biodiversity offset measures proposed to ensure the outcomes of the package are achieved, including:</p> <p>(i) the monitoring of the condition of species and ecological communities at offset locations;</p> <p>(ii) the methodology for the monitoring program(s), including the number and location of offset monitoring sites, and the sampling frequency at these sites;</p> <p>(iii) provisions for the annual reporting of the monitoring results for a set period of time as determined in consultation with the OEH-EPA, DPI (Fisheries) and DoE; and</p> <p>(iv) the monitoring and reporting on the effectiveness of these measures, and progress against the performance and completion criteria;</p> <p>(f) the results of targeted field surveys within the offset sites (undertaken at any ecologically appropriate time of the year) to assess and describe habitat suitability, presence/absence of threatened species and ecological communities and an assessment of the baseline population;</p> <p>(g) a description of the current quality (prior to any management activities) of the offset area(s);</p>	All	Pre-construction and Construction	RMS	Open	A Biodiversity Offset Package will be prepared. Program currently being prepared.

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
	D5(h)-(m)	<p>(h) targeted management actions, regeneration and/or revegetation strategies to be undertaken on the offset area(s) to improve the ecological quality of these areas for the relevant species and communities;</p> <p>(i) clear performance objectives for management actions that will enable maintenance and enhancement of habitat within the offset area, as well as contribute to the better protection of individuals and/or populations of the relevant species;</p> <p>(j) performance and completion criteria for evaluating the management of the offset area, including contingency actions, criteria for triggering contingency actions and a commitment to the implementation of these actions in the event that performance objectives are not met; a program to monitor and report on the effectiveness of these measures, and progress against the performance and completion criteria;</p> <p>(k) timing and responsibilities for the implementation of the provisions of the Biodiversity Offset Package and achieving performance objectives;</p> <p>(l) details of who would be responsible for monitoring, reviewing, and implementing the Biodiversity Offset Package; and</p> <p>(m) a description of funding arrangements or agreements including work programs and responsible entities.</p> <p>Land offsets shall be consistent with the Principles for the use of Biodiversity Offsets in NSW. Any land offset shall be enduring and be secured by a conservation mechanism which protects and manages the land in perpetuity. Where land offsets cannot solely achieve compensation for the loss of habitat, additional measures shall be provided to collectively deliver an improved or maintained biodiversity outcome for the region.</p> <p>The Biodiversity Offset Package shall include details of the offset sites approved under condition D4, and timeframe for the delivery of the offset sites.</p> <p>Where monitoring required under conditions D8 and/or D9 indicates that biodiversity outcomes are not being achieved, remedial actions, as approved by the Secretary, shall be undertaken to ensure that the objectives of the Biodiversity Offset Package are achieved.</p> <p>The requirements of the Biodiversity Offset Package shall be implemented by the responsible parties according to the timeframes set out in the Biodiversity Offset Package, unless otherwise agreed by the Secretary.</p> <p>Note:</p> <ul style="list-style-type: none"> <li>If an offset site proposed as a part of the Biodiversity Offset Strategy or Biodiversity Offset Package is already required to be protected as a result of a separate approval, only the management actions which can be demonstrated to be additional to those required for the separate approval, can be considered as an offset for this project in accordance with the EPBC Act Environmental Offsets Policy 2012 (or subsequent published revisions).</li> </ul>	All	Pre-construction and Construction	RMS	Open	A Biodiversity Offset Package will be prepared. Program currently being prepared.
	D6	<p>Prior to the commencement of construction of the relevant stage that would result in the disturbance of native vegetation (or as otherwise agreed by the Secretary), the Applicant shall prepare and implement a Nest Box Plan to provide replacement hollows for displaced fauna. The Plan shall be prepared in consultation with the EPA OEH and to the satisfaction of the Secretary. The Plan shall be prepared by a suitably qualified and experienced ecologist and detail the number and type of nest boxes to be installed, which shall be justified based on the number and type of hollows removed (based on pre clearing surveys), the density of hollows in the area to be cleared and in adjacent areas, 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.</p>	All	Pre-construction and Construction	RMS and Contractor	Open	Nest Box Plan approved (DPE approval 17 February 2015)
<b>BIODIVERSITY TRANSLOCATION STRATEGY</b>							
	D7	<p>The Applicant shall prepare and implement a Flora Translocation Strategy to determine the feasibility and potential efficacy of translocation measures (as identified in the threatened species management plans required under condition D8), prior to the commencement of construction work that would result in the disturbance of threatened flora species for which translocation is proposed. The Strategy shall be prepared by a suitably qualified and experienced ecologist, in consultation with the OEH-EPA and DoE, and to the satisfaction of the Secretary. The Strategy shall include:</p> <p>(a) a feasibility assessment of timeframe and staging requirements, availability of expertise, risk effectiveness analysis and availability/suitability of translocation sites;</p> <p>(b) detail of species specific information on the proposed methods of, and discussion of results of past recorded responses to, translocations;</p> <p>(c) a framework for the translocation process applicable to each affected species; and</p> <p>(d) consideration of appropriate compensatory habitat in the Biodiversity Offsets Package required under condition D5 where translocation is not reasonable or feasible.</p>	All	Pre-construction	RMS	Open	Translocation Strategy Update 3 (for Section 3 -11) Approved by DPE on 2 February 2016. DoE have confirmed no comment. Translocation Strategy Update 2 (Waves 1, 2 and 3) Approval by DPE on 11 June 2015.
<b>BIODIVERSITY THREATENED SPECIES MANAGEMENT PLANS</b>							
	D8 (a)-(h)	<p>The Applicant shall prepare and implement Threatened Species Management Plans to detail how impacts of the SSI will be minimised and managed specifically for each species identified as significantly impacted in the documents listed in condition A2 or in accordance with condition D1. The Plans shall be developed from the draft Threatened Species Management Plans included in the documents listed in condition A2(c) (subject to condition D9), in consultation with EPA OEH, DPI (Fisheries) and DoE, and to the satisfaction of the Secretary, and shall include but not necessarily be limited to:</p> <p>(a) demonstration that adequate surveys have been undertaken to assess the impacts of the SSI with reference to the Mitigation Framework developed under condition D1, including baseline data collected from surveys, undertaken by a suitably qualified and experienced ecologist on threatened species and ecological communities within all habitat areas to be cleared of vegetation for the SSI, that are likely to contain these species and that are likely to be adversely impacted by the SSI (as determined by a suitably qualified expert). The data shall address the densities, distribution, habitat use and movement patterns of these species;</p> <p>(b) identification of potential impacts on each species;</p> <p>(c) details of and demonstrated effectiveness of the proposed avoidance and mitigation and management measures to be implemented for each threatened species including measures to at least maintain habitat values of habitat areas compared to baseline data and maintain connectivity for the relevant species;</p> <p>(d) an adaptive monitoring program to assess the use of the mitigation measures identified in conditions B10 and D2. The monitoring program shall nominate appropriate and justified monitoring periods, performance parameters and criteria against which effectiveness of the mitigation measures will be measured and include operational road kill and fauna crossing surveys to assess the use of fauna crossings and exclusion fencing implemented as part of the SSI;</p> <p>(e) monitoring methodology for threatened flora and fauna adjacent to the SSI footprint;</p> <p>(f) goals and performance indicators to measure the success of mitigation measures, which shall be specific, measurable, achievable, realistic and timely (SMART), and be compared against baseline data;</p> <p>(g) methodology for the ongoing monitoring of road kill, the species densities, distribution, habitat use and movement patterns, and the use of fauna crossings during construction and operation of the SSI, including the proposed timing, and duration of that monitoring;</p> <p>(h) provision for the assessment of monitoring data to identify changes to habitat usage and whether this can be attributed to the SSI;</p>	All	Pre-construction and Construction	RMS and Contractor	Open	<p>The following Threatened Species Management Plans have been prepared and approved:</p> <p><b>Threatened Flora Management Plan</b> Update 1 (Section 1, Section 2, Waves 1, 2 and 3) DPE Approval 30 April 2015, DoE Approval 5 May 2015.</p> <p><b>Threatened Flora Management Plan</b> Update 2 (Sections 3 to 11) DPE Approval 21 August 2015, DoE Approval 4 September 2015.</p> <p><b>Threatened Rainforest Plants Management Plan</b> (Section 10) DPE Approval 11 September 2015.</p> <p><b>Threatened Mammal Management Plan</b> Update 1 DPE Approval 7 May 2015, DoE Approval 12 May 2015.</p> <p><b>Threatened Mammal Management Plan</b> Update 2 DPE Approval 21 October 2015, DoE Approval 25 October 2015.</p> <p><b>Threatened Invertebrates Management Plan</b> DPE Approval 29 July 2015.</p> <p><b>Threatened Fish Management Plan</b> DPE Approval 30 July 2015.</p> <p><b>Threatened Frog Management Plan</b> DPE Approval 7 May 2015.</p> <p><b>Threatened Glider Management Plan</b> DPE Approval 4 May 2015.</p> <p><b>Coastal Emu Management Plan</b> (Sections 3 and 4, excluding Wave 3) DPE Approval 3 June 2015.</p> <p><b>Coastal Emu Management Plan</b> (includes updates for Wave 3) DPE Approval 18 December 2015.</p> <p><b>Microbat Management Plan</b> (Section 3 to 11) DPE approval 25 May 2015.</p> <p><b>Koala Management Plan</b> (Section 1 to 11), DPE Approval 4 August 2016, DoE Approval 11 August 2016.</p>
	D8 (i)-(l)	<p>(i) details of contingency measures that would be implemented in the event of changes to habitat usage patterns, entities, distribution, and movement patterns attributable to the construction or operation of the SSI, based on adequate baseline data;</p> <p>(j) mechanisms for the monitoring, review and amendment of these plans;</p> <p>(k) provision for ongoing monitoring during operation of the SSI (for operation/ongoing impacts) until such time as the use and effectiveness of mitigation measures can be demonstrated to have been achieved over a minimum of three successive monitoring periods, unless otherwise agreed by the Secretary in consultation with the EPA OEH, DPI (Fisheries) and DoE; and</p> <p>(l) provision for annual reporting of monitoring results to the Secretary and the OEH-EPA, DPI (Fisheries) and DoE, or as otherwise agreed by those agencies.</p> <p>In developing the Plans, the Applicant shall demonstrate to the satisfaction of the Secretary and DoE, how the public authorities and expert reviewer recommendations provided for each draft plan in the documents listed in condition A2(c) have been addressed, including detailed justification of any variance from the recommendations of the expert reviewer of the management plans, including analysis of potential risk to the threatened species.</p> <p>The Plans must be submitted and approved by the Secretary prior to commencement of construction of the relevant stages of the action, and implemented prior to commencement of construction of the relevant stages, unless otherwise agreed by the Secretary.</p>	All	Pre-construction and Construction	RMS and Contractor	Closed	As above. Approved Threatened Species Management Plans form part of the approved Pacific Complete CEMP (i.e. Construction Flora and Fauna Management Plan). Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with the relevant requirements of the various Threatened Species Management Plans.

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
	D9 (a)-(c)	As part of the Threatened Species Management Plans required under condition D8, the Applicant shall prepare and implement a Koala Management Plan to demonstrate the ongoing survival of the Koala populations at Coolgardie/Bagotville, Broadwater and Woombah/Iluka. The Plan shall be prepared by a suitably qualified and experienced species expert and shall include, but not necessarily be limited to: (a) results of detailed surveys to determine: (i) the population status of the Coolgardie/Bagotville, Broadwater and Woombah/Iluka Koala populations; (ii) habitat use and movement patterns of Koala populations within five kilometres of the proposed upgrade, or such area as determined by the independent ecologist; and (iii) habitat areas likely to be fragmented by the SSI; including the results of SPOT assessment and radio tracking. The results and adequacy of surveys shall be verified by an independent suitably qualified and experienced ecologist with appropriate qualifications and experience in Koala and road ecology. Where appropriate, the Applicant may vary the required area of survey specified under condition D9(a)(ii) to the satisfaction of the independent ecologist; (b) a detailed assessment of the impacts to the Koala populations based on the survey results required by condition D9(a), including population impacts and the identification of habitat likely to be fragmented and/or isolated as a result of the SSI; (c) a detailed description, including the location and design, of all proposed avoidance and mitigation measures;	6, 9, 10	Pre-construction	RMS	Open	Koala Management Plan (Section 1 to 11) was approved by DPE on 4 August 2016 and DoE on 11 August 2016. This updated Koala Management Plan includes the management of the Coolgardie/Bagotville, Broadwater and Woombah/Iluka koala populations and a Population Viability Analysis (PVA) for the Ballina koala population.
	D9 (d)	(d) justification that the location and design of mitigation measures: (i) have been designed with the objective of no Koala road kill from the commencement of construction of the SSI. In the event that a Koala is injured or killed during construction or operation, this shall be reported on the Applicant's website within 24 hours of this occurring, and the record shall remain available for a period of at least five years, unless otherwise agreed by the Secretary; (ii) include permanent fencing of the entire SSI for the length of the distribution of the Coolgardie/Bagotville, Broadwater and Woombah/Iluka populations and for two kilometres beyond the distribution of the Coolgardie/Bagotville, Broadwater and Woombah/Iluka population, following the highway or to the nearest natural barrier to Koala movement (e.g. river), after baseline surveys are complete in accordance with condition D9(a) and prior to operation; (iii) result in the complete, safe crossing of fauna crossings by the Koala. Fauna crossings shall be provided at a sufficient frequency to ensure that habitat connectivity is maintained or improved from pre-construction conditions, as determined by the independent ecologist and agreed by EPA OEH; (iv) provide sufficient opportunities for species dispersal and re-colonisation as determined by the independent ecologist and EPA OEH; (v) are in areas that, and are at a sufficient frequency to, achieve (i) - (iv), based on site specific information contained in the survey results required by condition D9(a) and the ecological requirements of the Koala, including but not limited to home range size, local movement patterns and habitat use, in accordance with the advice of the independent ecologist and EPA OEH; (vi) all koala underpass structures shall have a minimum height and width of 2.4 metres and a maximum length of 40 metres, or a minimum height and width of 3 metres and a maximum length of 50 metres. The underpass/culvert entrance shall be located at ground level, and no higher in the fill. Structures that provide passage over the road shall have a minimum width of 30 metres and shall be treated with contiguous habitat features; (vii) provide passage for Koalas under or over the existing highway (where the existing highway forms part of the SSI) and service roads or local roads (servicing over 100 vehicles per day); (viii) effectively minimise the risk of predation from dogs in both dedicated and combined crossings; (ix) provide dry passage for dedicated fauna crossings and for combined fauna crossings to the satisfaction of EPA OEH and DoE, at a flood immunity level determined in accordance with condition D2(c)(j); (x) provide habitat linkages to crossing structures from adjacent Koala habitat; and (xi) ensures that pathways to connectivity structures are not impeded by ancillary facilities, rest areas, service roads or local roads;	6, 9, 10	Pre-construction	RMS	Open	Koala Management Plan (Section 1 to 11) was approved by DPE on 4 August 2016 and DoEE on 11 August 2016. This updated Koala Management Plan includes the management of the Coolgardie/Bagotville, Broadwater and Woombah/Iluka koala populations and a Population Viability Analysis (PVA) for the Ballina koala population.
	D9 (e)-(i)	(e) if the mitigation measures discussed in condition D9(d) cannot be demonstrated to be effective to the satisfaction of the Secretary, in consultation with EPA OEH and DoE, provision for the Plan to be revised to include the design and construction of a minimum of one dedicated underpass or land bridge every 500 metres. Underpass structures shall have a minimum height and width of three metres and a maximum length of 50 metres. (f) provision for the installation and vegetation planting of fauna overpasses prior to the commencement of construction; (g) a revegetation strategy to be implemented to increase connectivity adjacent to the SSI and leading to crossing locations, and the provision of vegetation planting on land bridges, to ensure the establishment of the vegetation prior to the commencement of construction; (h) details of the proposed monitoring methodology to ensure the effectiveness of the mitigation measures and the ongoing survival of the Coolgardie/Bagotville, Broadwater and Woombah/Iluka Koala populations. Monitoring shall: (i) include goals that demonstrate the mitigation measures are effective, including clear objectives, milestones, performance measures, corrective actions, and thresholds for corrective actions, and timeframes for completion; (ii) occur until such time as the mitigation measures are demonstrated to be effective for three consecutive monitoring periods, or as agreed by the Secretary, to the satisfaction of the independent ecologist and OEH; and (iii) for the purposes of the Coolgardie/Bagotville population, consider the results of the surveys undertaken in the Koala habitat and population assessment: Ballina Shire Council LGA (Biolink Ecological Consultants Pty Ltd, November 2013) in determining the baseline population; (i) where the results of monitoring undertaken in accordance with condition D9(h) suggests that the mitigation measures are ineffective or changes to the population have occurred, the Applicant shall provide the Secretary, within one month of recording the changes, the corrective actions that have been implemented or proposed to be implemented, or a procedure for demonstrating that this change is not a result of the SSI. Should the Applicant be unable to demonstrate to the satisfaction of the Secretary that any change to the population is not attributable to the SSI, the SSI shall be deemed as the cause of the impact and the Applicant shall, within one month of these findings, provide, to the satisfaction of the Secretary, in consultation with the EPA OEH and DoE, the proposed corrective actions to address the impacts of the SSI. Any required corrective actions shall include, but not necessarily be limited to: (i) installation of further crossings or modifications to existing crossings and the provision of evidence of the complete, safe crossing of these fauna crossings by the Koala. Any additional crossings shall be provided at a sufficient frequency to ensure that habitat connectivity is maintained or improved from pre-construction conditions, within two years of their installation; and (ii) reassessment of all revegetation areas and frequent reporting and maintenance including addressing failures;	6, 9, 10		RMS	Open	Koala Management Plan (Section 1 to 11) was approved by DPE on 4 August 2016 and DoEE on 11 August 2016. This updated Koala Management Plan includes the management of the Coolgardie/Bagotville, Broadwater and Woombah/Iluka koala populations and a Population Viability Analysis (PVA) for the Ballina koala population.
	D9 (j)-(k)	(j) if the measures in condition D9(i) cannot be demonstrated to be successful within one year of their implementation, procedure for the submission of further offsets in accordance with conditions D5 and D6(j), to be provided within one year of these findings. Further offsets may include: (i) the legal protection and conservation management of additional areas of existing habitat that actively regenerated and secured into conservation management; and/or (ii) strategic revegetation of cleared areas to improve connectivity; and/or (iii) development of a supplementary feeding program and/or breeding program; and/or (iv) development of a long term predator control program; and (k) evidence of consultation with species experts, EPA OEH and DoE in addressing the requirements of this condition, and demonstration of how comments provided by the species experts, EPA OEH and DoE, as a result of this consultation, have been addressed. The Koala Management Plan shall be submitted and approved by the Secretary prior to the commencement of construction of the relevant stages of the SSI. The approved Koala Management Plan shall be implemented prior to the commencement of construction of the relevant stages.	6, 9, 10	Pre-construction	RMS	Open	Koala Management Plan (Section 1 to 11) was approved by DPE on 4 August 2016 and DoEE on 11 August 2016. This updated Koala Management Plan includes the management of the Coolgardie/Bagotville, Broadwater and Woombah/Iluka koala populations and a Population Viability Analysis (PVA) for the Ballina koala population.
<b>NOISE AND VIBRATION LAND USE SURVEY</b>							
	D10	Prior to the commencement of construction, the Applicant shall undertake a land use survey to identify areas that are sensitive to construction vibration and construction ground-borne noise impacts. The results of the survey shall be incorporated into the Construction Noise and Vibration Management Plan.	All	Pre-construction and Construction	Contractor	Closed	Pacific Complete (Delivery Partner of Roads and Maritime Services) has an approved Construction Environmental Management Plan (CEMP) covering Sections 3 to 11. The land use survey was incorporated into the Construction Noise and Vibration Management Plan which was approved by DPE on 3 December 2015. Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
<b>NOISE AND VIBRATION OPERATIONAL NOISE REVIEW</b>							

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
	D11	The Applicant shall prepare a review of the operational noise mitigation measures proposed to be implemented for the SSI, within six months of commencing construction, unless otherwise agreed by the Secretary. The review shall be prepared in consultation with the EPA, to the satisfaction of the Secretary. The review may be submitted in stages to suit the staged construction of the SSI and shall: (a) confirm the operational noise predictions of the SSI 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); (b) review the suitability of the operational noise mitigation measures identified in the documents listed in condition A2. The review shall take into account the detailed design of the SSI and, where feasible and reasonable, and where necessary, refine the proposed measures with the objective of meeting the criteria outlined in the NSW Road Noise Policy (Department of Environment, Climate Change and Water, 2011), based on the operational noise performance of the SSI predicted under (a) above; and (c) where necessary, investigate additional feasible and reasonable noise mitigation measures to achieve the criteria outlined in the NSW Road Noise Policy (DECCW, 2011).	All	Pre-construction and Construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs. Pacific Complete approves Contractor EMPs and EWMSS and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
<b>WATER QUALITY MONITORING PROGRAM</b>							
	D12	The Applicant shall prepare and implement a Water Quality Monitoring Program, to monitor the construction and operation impacts of the SSI on surface and groundwater quality and resources and wetlands, prior to construction. The Program shall be prepared in consultation with the OEH, EPA, DPI (Fisheries), NOW, DoE and Rous Water (in relation to the Woodburn borefields), to the satisfaction of the Secretary, 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 SSI; (b) the results of any groundwater modelling undertaken; (c) identification of works and activities during construction and operation of the SSI, including emergencies and spill events, that have the potential to impact on surface water quality of potentially affected waterways and known Oxleyan Pygmy Perch habitat; (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) or relevant baseline data; (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 Secretary; (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 Department of Planning and Environment, OEH, EPA, DPI (Fisheries), NOW, DoE and Rous Water (in relation to the Woodburn borefields).	All	Pre-construction, Construction and Operation	RMS	Open	Pacific Highway Upgrade - Woolgoolga to Ballina Sections 3 to 11 Water Quality Monitoring Program (sixth issue, 21 August 2015) was approved on 24 August 2015. The Water Quality Monitoring Program forms part of the approved Pacific Complete CEMP (Appendix B4 - Construction Soil and Water Quality Management Plan). Pacific Complete will manage the procurement of required surface water and groundwater monitoring and reporting etc. during the construction and operational phase of the project as per the requirements of the Water Quality Monitoring Program.
<b>HYDROLOGICAL MITIGATION REPORT</b>							
	D13	The Applicant shall prepare and implement a Hydrological Mitigation Report for properties where flooding and/or hydrological impacts are predicted to exceed the relevant flood management objective in the documents listed in condition A2 as a result of the SSI. The Report shall be prepared by a suitably qualified expert and be based on detailed surveys (e.g. floor levels) and associated assessment of potentially flood affected properties in the Corindi, Clarence and Richmond river floodplains. The Report shall: (a) identify properties in those areas likely to have an increased/exacerbated impact and detail the predicted impact; The types of impacts to be considered include all those examined in the EIS including but not limited to changes in flood levels and velocities, alteration to drainage, reduction in flood evacuation access or capability, impacts on infrastructure, impacts on stock and agriculture, and impacts to the environment; (b) identify mitigation measures to be implemented to address these impacts; (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 SSI and cause localised soil erosion and/or pasture damage; (d) be developed in consultation with the relevant council, NSW State Emergency Service and directly-affected landowners; (e) identify operational and maintenance responsibilities for items (a) to (c) inclusive; and (f) refer to the assessments described in conditions B31 and B32. The report may be submitted in stages to suit the staged construction of the SSI. Construction shall not commence within those areas likely to have altered flood conditions until such time as works identified in the hydrological mitigation report have been completed, unless otherwise agreed by the Secretary.	All	Pre-construction	RMS	Open	Hydrological Mitigation Reports are currently being prepared by the design portions (A, B, C and D) which covers sections 3 to 11. PC is preparing the reports associated with major rivers (Richmond and Clarence) as part of the detailed design phase. Pacific Complete will review detailed design deliverables to ensure compliance with the relevant CoAs.
	D14	Based on the mitigation measures identified in condition D13, the Applicant shall prepare and implement a final schedule of feasible and reasonable flood mitigation measures proposed at each directly-affected property in consultation with the landowner. The schedule shall be provided to the relevant landowner(s) prior to the implementation/construction of the mitigation works, unless otherwise agreed by the Secretary. A copy of each schedule of flood mitigation measures shall be provided to the Department of Planning and Environment and the relevant council prior to the implementation/construction of the mitigation measures on the property.	All	Pre-construction	RMS	Open	The Hydrological Mitigation Reports will advise flood mitigation measures to be implemented at directly affected properties.
	D15	The Applicant shall employ a suitably qualified and experienced independent hydrological expert, whose appointment has been endorsed by the Secretary, to deal with all hydrological matters and assist landowners in negotiating feasible and reasonable mitigation measures.	All	Pre-construction	RMS	Open	Mark Babister from WMA Water has been appointed as the suitably qualified independent hydrological expert for the project.
	D16	The Applicant shall provide feasible and reasonable 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 SSI.	All	Pre-construction	RMS	Open	Noted.
<b>TRANSPORT AND ACCESS</b>							
	D17	The Applicant shall prepare and implement a Signage Policy to addresses the impact of towns (South Grafton, Ulmarra, Tyndale, Woodburn, Broadwater and Wardell) which are bypassed by the SSI, at least six months prior to operation, unless otherwise agreed by the Secretary. The Policy shall be prepared in consultation with the relevant council and to the satisfaction of the Secretary. The Policy shall be consistent with the Guide: Signposting (RTA July 2007), Tourist Signposting guide (RMS and Destination NSW 2012) and provide for signage that: (a) provides information on the range of services available within the bypassed towns of South Grafton, Ulmarra, Tyndale, Woodburn, Broadwater and Wardell; and (b) informs motorists of routes through the bypassed towns that may be taken as an alternative to the highway. The Policy may be submitted in stages to suit the staged construction of the SSI.	3, 8, 9 and 10	Construction and Operation	RMS	Open	Noted. To be prepared 6 months prior to operation.
	D18	The Applicant shall prepare and implement a Business Access Strategy to address changes to access to businesses along the highway, at least six months prior to operation. The Strategy shall be prepared in consultation with the relevant council, business owners and the New Italy Museum and to the satisfaction of the Secretary. Note • The Applicant may incorporate the requirements of this condition into the Signage Policy for the SSI under condition D17.	All	Construction and Operation	RMS	Open	Noted. To be prepared 6 months prior to operation.
<b>ROAD DILAPIDATION</b>							
	D19	Upon determining the haulage route(s) for construction vehicles associated with the SSI, and prior to construction, an independent and qualified expert shall prepare a Road Dilapidation Report. The Report shall assess the current condition of the road and describe mechanisms to restore any damage that may result due to its use by traffic and transport related to the construction of the SSI. The Report shall be submitted to the relevant council for review prior to the commencement of haulage. Following completion of construction, a subsequent Report shall be prepared to assess any damage to the road that may have resulted from the construction of the SSI. Measures undertaken to restore or reinstate roads affected by the SSI shall be undertaken in a timely manner, in accordance with the reasonable requirements of the relevant council, and at the full expense of the Applicant. Note: • Nothing in this condition restricts the Applicant commencing adjustments and minor upgrades to the existing road network to cater for construction traffic and installation of temporary project signage prior to the commencement of construction.	All	Pre-construction and Construction	Contractor	Open	Road dilapidation reports have been prepared for haulage roads utilised during the reporting period. Subsequent reports will be prepared following completion of corresponding construction activities.
<b>URBAN DESIGN AND LANDSCAPING</b>							

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
	D20 (a)-(d)	<p>The Applicant shall prepare and implement an Urban Design and Landscape Plan prior to the commencement of permanent built works and/or landscaping, unless otherwise agreed by the Secretary, to present an integrated landscape and design for the SSI. The Plan shall be prepared in accordance with the Roads and Maritime Services urban design and visual guidelines, the design principles outlined in the EIS, and the revegetation principles outlined in the EIS Working Paper—Biodiversity. The Plan shall be prepared by an appropriately qualified expert in consultation with the relevant council and community, to the satisfaction of the Secretary. The Plan shall include, but not necessarily be limited to:</p> <p>(a) identification of design principles and standards based on:</p> <ul style="list-style-type: none"> <li>(i) local environmental values;</li> <li>(ii) heritage values;</li> <li>(iii) urban design context;</li> <li>(iv) sustainable design and maintenance;</li> <li>(v) community amenity and privacy;</li> <li>(vi) relevant design standards and guidelines; and</li> <li>(vii) the urban design objectives outlined in Section 4.2 of the EIS Working Paper—Urban Design Landscape Character and Visual Impact;</li> </ul> <p>(b) the location of existing vegetation and proposed landscaping (including use of indigenous and endemic species where possible). Details of species to be replanted/revegetated shall be provided, including their appropriateness to the area and habitat for threatened species;</p> <p>(c) a description of locations along the corridor directly or indirectly impacted by the construction of the SSI (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;</p> <p>(d) take into account appropriate roadside plantings and landscaping in the vicinity of heritage items and ensure no additional heritage impacts;</p>	All	Pre-construction and Construction	RMS and Contractor	Open	Urban Design and Landscape Plans are currently being prepared by each design portion ((i.e. A, B, C and D) which covers Section 3 through to Section 11).
	D20 (e)-(k)	<p>(e) a description of disturbed areas (including borrow sites) and details of the strategies to progressively rehabilitate, regenerate and/or revegetate these areas, including clear objectives and timeframes for rehabilitation works, procedures for monitoring success of regeneration or revegetation, and corrective actions should regeneration or revegetation not conform to the objectives adopted;</p> <p>(f) 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, materials and signs;</p> <p>(g) an assessment of the visual screening effects of existing vegetation and the proposed landscaping and built elements. Where properties have been identified as likely to experience high visual impact as a result of the SSI and high residual impacts are likely to remain, the Applicant shall, in consultation with affected landowners, identify opportunities for providing at-property landscaping to further screen views of the SSI. Where agreed with the landowner, these measures shall be implemented during the construction of the SSI;</p> <p>(h) graphics such as sections, perspective views and sketches for key elements of the SSI, including, but not limited to built elements of the SSI;</p> <p>(i) strategies for progressive landscaping and other environmental controls such as erosion and sedimentation controls, drainage and noise mitigation;</p> <p>(j) 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; and</p> <p>(k) evidence of consultation with the relevant council and community on the proposed urban design and landscape measures prior to its finalisation.</p> <p>The Plan may be submitted in stages to suit the staged construction program of the SSI.</p>	All	Pre-construction and Construction	RMS and Contractor	Open	Urban Design and Landscape Plans are currently being prepared by each design portion ((i.e. A, B, C and D) which covers Section 3 through to Section 11).
<b>ANCILLARY FACILITIES</b>							
	D21	<p>The Applicant shall prepare and implement an Ancillary Facilities Management Plan to detail the management of ancillary facilities associated with the SSI. The Plan shall be prepared in consultation with the EPA, OEH, DPI (Fisheries), DoE, and the relevant council, and to the satisfaction of the Environmental Representative, and shall include, but not necessarily be limited to:</p> <p>(a) a description of the ancillary facility (including a site layout plan), its components and details of the existing environment on and in the vicinity of the site;</p> <p>(b) details of the activities to be carried out at the facility, including the hours of operation, staging of operation and predicted date of commissioning;</p> <p>(c) a description of the plant, equipment and materials to be used and/or stored on the site, including dangerous and hazardous goods;</p> <p>(d) details of the light and heavy construction vehicle movements to and from each facility, including site access and route(s) to be used during the establishment and operation of the facility, and an assessment of potential construction traffic impacts on the local road network and access tracks;</p> <p>(e) a summary of the potential environmental impacts associated with the construction and operation of the facility;</p> <p>(f) demonstrate compliance with the locational and environmental criteria in condition B73(a)—B73(n);</p> <p>(g) details of the mitigation, monitoring and management procedures specific to the facility that would be implemented to minimise environmental and amenity impacts or, where this is not possible, feasible and reasonable measures to offset these impacts;</p> <p>(h) a description of how the management and mitigation measures set out in the documents listed in condition A2 will be implemented on the site, and if not, justification for such decisions particularly on those sites assessed as having a high risk of flood impacts;</p> <p>(i) an assessment of alternative site layouts where either noise management levels are predicted to be exceeded and acoustic treatment of residences is not proposed, or where such treatment is proposed (consequent to the operational impacts of the SSI) but will not be provided prior to establishment of an ancillary facility;</p> <p>(j) a cumulative noise impact statement for the ancillary facility addressing the worst-case cumulative noise impacts resulting from the concurrent operation of the site (including construction traffic movements to and from the site), nearby construction works within the SSI corridor and any other nearby construction activities associated with other road upgrade projects;</p> <p>(k) identification of the timing for the completion of activities at the facility and how the site will be decommissioned (including any necessary rehabilitation); and</p> <p>(l) mechanisms for the monitoring, review and amendment of this plan.</p> <p>The plan shall be approved by the Environmental Representative prior to the establishment of the ancillary facilities described therein. In considering the approval of the plan, the Environmental Representative shall take into account the Applicant's response to public authority and council comments on the plan.</p> <p>The Applicant may prepare a separate plan for the facility or include multiple sites within a single or multiple management plans.</p>	All	Pre-construction and Construction	RMS and Contractor	Closed	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detail how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. Site specific ancillary facility management plans will be prepared by Pacific Complete and contractors in accordance with the requirements of Appendix B9 Ancillary Facilities Management Plan (ER approved 10 February 2016). Ancillary Facility Management Plans are approved by the ER. If additional impacts are anticipated then the plan will be submitted to the Secretary for approval.
<b>BORROW SITES</b>							
	D22	<p>The Applicant shall prepare and implement a Borrow Sites Management Plan, to manage the construction, operation and rehabilitation of the borrow sites used to source construction material for the SSI, prior to the commencement of construction at the borrow sites, or as otherwise agreed by the Secretary. The Plan shall be prepared in consultation with the EPA, OEH and DPI (Fisheries) and to the satisfaction of the Secretary, and shall include, but not necessarily be limited to:</p> <p>(a) details of construction/extraction methods and activities carried out at the borrow site;</p> <p>(b) management and mitigation measures to be used to minimise surface and groundwater impacts, Aboriginal and non-Aboriginal heritage, air quality, noise and vibration, biodiversity and visual impacts;</p> <p>(c) consultation with sensitive receivers; and</p> <p>(d) details of the rehabilitation of the borrow site, including future landform and use of the borrow site, landscaping and revegetation, and measures that would be implemented to minimise or manage the ongoing environmental effects of the site.</p> <p>The Plan shall demonstrate that the construction and operation of the Lang Hill borrow site has no adverse impact on the known Oxleyan Pygmy Perch habitat waterway.</p>	3, 8, 10	Construction	Contractor	Open	<p>Pacific Complete will prepare site specific Borrow Site Management Plans as required by the project approval. This requirement will apply to all borrow site management plans prepared by Pacific Complete.</p> <p>No borrow sites were operational during the reporting period. The Tyndale Borrow Site Management Plan (Portion A) was approved in August 2016 by DPE. The Lang Hill Borrow Site Management Plan (Portion C) was approved 23 November 2016 by DPE. Management Plans are currently being prepared for a number of borrow sites in Portion D.</p>
<b>ENVIRONMENTAL REPRESENTATIVE</b>							

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
	D23	<p>Prior to the commencement of construction of the SSI, or as otherwise agreed by the Secretary, the Applicant shall nominate for the approval of the Secretary a suitably qualified and experienced Environmental Representative(s) that is independent of the design and construction personnel. The Applicant shall employ the Environmental Representative(s) for the duration of construction, or as otherwise agreed by the Secretary. The Environmental Representative(s) shall:</p> <p>(a) be the principal point of advice in relation to the environmental performance of the SSI;</p> <p>(b) monitor the implementation of environmental management plans and monitoring programs required under this approval and advise the Applicant upon the achievement of these plans/programs;</p> <p>(c) have responsibility for considering and advising the Applicant on matters specified in the conditions of this approval, and other licences and approvals related to the environmental performance and impacts of the SSI;</p> <p>(d) ensure that environmental auditing is undertaken in accordance with the Applicant's Environmental Management System(s);</p> <p>(e) 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;</p> <p>(f) be given the authority to approve/reject Out of Hours Works in accordance with condition B17. These works shall be conducted in accordance with the Out of Hours Works Protocol (OOHW Protocol) required in accordance with condition D26(vi);</p> <p>(g) be given the authority to approve/reject ancillary facilities in accordance with conditions B73 and B74 and the Ancillary Facilities Management Plans under condition D21;</p> <p>(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; and</p> <p>(i) be consulted in responding to the community concerning the environmental performance of the SSI where the resolution of points of conflict between the Applicant and the community is required</p>	All	Pre-construction	RMS	Open	Environmental Representatives may be appointed for single or multiple construction packages. Nominations for Secretary's approval will be provided prior to the commencement of construction of the relevant works. RMS will engage and manage the services of the Environmental Representative. Pacific Complete will work collaboratively with the Environmental Representative and Roads and Maritime Services to ensure the Environmental Representative can discharge their assigned responsibilities. Murray Curtis, from ERM, is the Environmental Representative for the Stage 2 works (i.e. Sections 3 to 11).
	D24	The Environmental Representative shall prepare and submit to the Secretary a monthly report on the Environmental Representative's actions and decision on matters specified in condition D23 for the preceding month. The reports shall be submitted for the duration of construction of the SSI, unless otherwise agreed by the Secretary.	All	Pre-construction and Construction	RMS	Open	Noted.
<b>CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN</b>							
	D25 (a)-(c)	<p>The Applicant shall prepare and implement (following approval) a Construction Environmental Management Plan for the SSI, prior to the commencement of construction, or as otherwise agreed by the Secretary. The Plan shall be prepared in consultation with the EPA, OEH, DPI (Fisheries), NOW and DoE and outline the environmental management practices and procedures that are to be followed during construction, and shall be prepared in consultation with the relevant government 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:</p> <p>(a) a description of activities to be undertaken during construction of the SSI (including staging and scheduling);</p> <p>(b) statutory and other obligations that the Applicant is required to fulfil during construction, including approvals, consultations and agreements required from authorities and other stakeholders under key legislation and policies;</p> <p>(c) a description of the roles and responsibilities for relevant employees involved in the construction of the SSI, 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;</p>	All	Pre-construction and Construction	Contractor	Open	<p>Pacific Complete (Delivery Partner of Roads and Maritime Services) has an approved Construction Environmental Management Plan (CEMP) covering Sections 3 to 11. The Pacific Complete CEMP was approved by DPE on 23 October 2015. Pacific Complete will approve Contractor EMPs, EWWs and ESCPs to ensure compliance with the Pacific Complete CEMP, relevant RMS/PC environmental specifications and the requirements of this CoA. CEMPs approved by Pacific Complete include Wave 3, Wave 4, Wave 5a, Wave 5c, Harwood Bridge and two separate CEMP's for geotechnical investigation works.</p> <p>Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). The Wave 1 &amp; 3 (part) CEMP was approved 8 September 2016. The Wave 2 CEMP was approved on 10 November 2015.</p>
	D25 (d)	<p>(d) an environmental risk analysis to identify the key environmental performance issues associated with the construction phase and details of how environmental performance would be managed and monitored 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 SSI). In particular, the following environmental performance issues shall be addressed in the Plan:</p> <p>(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;</p> <p>(ii) measures to minimise hydrology impacts, including measures to stabilise bed and bank structures as required;</p> <p>(iii) measures for the handling, treatment and management of contaminated materials;</p> <p>(iv) 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 or dealing with green waste including timber and mulch from clearing activities; and measures for reducing demand on water resources (including potential for reuse of treated water from sediment control basins);</p> <p>(v) 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 in a Stockpile Management Protocol. The Protocol shall include details of the locational criteria that would guide the placement of temporary stockpiles, and management measures that would be implemented to avoid/minimise amenity impacts to surrounding residents and environmental risks (including surrounding water courses). Stockpile sites that affect heritage, threatened species, populations or endangered ecological communities require the approval of the Secretary, in consultation with the EPA, OEH and DPI (Fisheries);</p> <p>(vi) measures to monitor and manage hazard and risks including emergency management and management measures to address potential risks to the Woodburn borefield drinking water catchment. These measures shall be developed in consultation with Rous Water;</p> <p>(vii) the issues identified in condition D26;</p> <p>(viii) details of community involvement and complaints handling procedures during construction, consistent with the requirement of conditions C1 to C4;</p> <p>(ix) details of compliance and incident management consistent with the requirements of condition D27; and</p> <p>(x) procedures for the periodic review and update of the Construction Environmental Management Plan and Plans required under condition D26, as necessary (including where minor changes can be approved by the Environmental Representative).</p> <p>The Plan shall be submitted for the approval of the Secretary no later than one month prior to the commencement of construction, or as otherwise agreed by the Secretary. The Plan may be prepared in stages, however, construction works shall not commence until written approval of the relevant stage has been received from the Secretary.</p> <p>The approval of a Construction Environmental Management Plan does not relieve the Applicant of any requirement associated with this SSI approval. If there is an inconsistency with an approved Construction Environmental Management Plan and the conditions of this SSI approval, the requirements of this SSI approval shall prevail.</p>	All	Pre-construction and Construction	Contractor	Open	<p>Pacific Complete (Delivery Partner of Roads and Maritime Services) has an approved Construction Environmental Management Plan (CEMP) covering Sections 3 to 11. The Pacific Complete CEMP was approved by DPE on 23 October 2015. Pacific Complete will approve Contractor EMPs, EWWs and ESCPs to ensure compliance with the Pacific Complete CEMP, relevant RMS/PC environmental specifications and the requirements of this CoA. CEMPs approved by Pacific Complete include Wave 3, Wave 4, Wave 5a, Wave 5c, Harwood Bridge and two separate CEMP's for geotechnical investigation works.</p> <p>Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). The Wave 1 &amp; 3 (part) CEMP was approved 8 September 2016. The Wave 2 CEMP was approved on 10 November 2015.</p>

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	D26 (a)	<p>As part of the Construction Environmental Management Plan for the SSI, the Applicant shall prepare and implement:</p> <p>(a) a Construction Noise and Vibration Management Plan to detail how construction noise and vibration impacts will be minimised and managed. The Plan shall be developed in consultation with the EPA and shall be consistent with the guidelines contained in the Interim Construction Noise Guidelines (DECC, 2009) and shall include, but not necessarily be limited to:</p> <p>(i) identification of sensitive receivers and relevant construction noise and vibration goals applicable to the SSI stipulated in this approval;</p> <p>(ii) details of construction activities and an indicative schedule for construction works; including the identification of key noise and/or vibration generating construction activities (based on representative construction scenarios, including at ancillary facilities) that have the potential to generate noise and/or vibration impacts on surrounding sensitive receivers, particularly residential areas;</p> <p>(iii) identification of feasible and reasonable measures proposed to be implemented to minimise and manage construction noise and vibration impacts (including construction traffic noise impacts);</p> <p>(iv) 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); and</p> <p>(v) a description of how the effectiveness of these actions and measures would be monitored during the proposed works, clearly indicating how often this monitoring would be conducted, the locations where monitoring would take place, how the results of this monitoring would be recorded and reported, and, if any exceedance is detected, how any non-compliance would be rectified;</p> <p>(vi) an out-of-hours work (OOHW) protocol for the assessment, management and approval of works outside of standard construction hours as defined in condition B15, including a risk assessment process under which the Environmental Representative may approve out-of-hour construction activities. The OOHW protocol shall detail standard assessment, mitigation and notification requirements for high and low risk out-of-hour works, consultation procedures with the EPA, the relevant council and affected landowners;</p> <p>(i) 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;</p> <p>(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 exceedances of relevant noise and vibration goals are detected; and</p> <p>(viii) mechanisms for the monitoring, review and amendment of this plan.</p>	All	Pre-construction and Construction	Contractor	Open	<p>This requirement is addressed in the Pacific Complete CEMP (Appendix B3 - Construction Noise and Vibration Management Plan). The Pacific Complete Construction Noise and Vibration Management Plan was approved by DPE on 3 December 2015. Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with the PC CEMP, relevant RMS/PC environmental specifications and the requirements of this CoA. CEMPs approved by Pacific Complete include Wave 3, Wave 4, Wave 5a, Wave 5c, Harwood Bridge and two separate CEMP's for geotechnical investigation works.</p> <p>Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). The Wave 1 &amp; 3 (part) CEMP was approved 8 September 2016. The Wave 2 CEMP was approved on 10 November 2015.</p>
	D26 (b)	<p>(b) a Construction Traffic and Access Management Plan to manage construction traffic and access impacts of the SSI. The Plan shall be developed in consultation with the relevant council and shall include, but not necessarily be limited to:</p> <p>(i) identification of construction traffic routes and construction traffic volumes (including heavy vehicle/spoil haulage) on these routes;</p> <p>(ii) details of vehicle movements for construction sites and site compounds including parking, dedicated vehicle turning areas, and ingress and egress points;</p> <p>(iii) identification of construction impacts that could result in disruption of traffic, public transport, pedestrian and cycle access, property access, including details of oversize load movements;</p> <p>(iv) details of management measures to minimise traffic impacts, including temporary road work traffic control measures, onsite vehicle queuing and parking areas and management measures to minimise peak time congestion and measures to ensure safe pedestrian and cycle access;</p> <p>(v) details of measures to manage traffic movements, parking, loading and unloading at ancillary facilities during out-of-hours work;</p> <p>(vi) a response plan which sets out a proposed response to any traffic, construction or other incident; and</p> <p>(vii) mechanisms for the monitoring, review and amendment of this plan.</p>	All	Pre-construction and Construction	Contractor	Open	<p>This requirement is addressed in the Pacific Complete CEMP (Appendix B1 Construction Traffic and Access Management Plan) which was approved by DPE on 23 October 2015. Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with the PC CEMP, relevant RMS/PC environmental specifications and the requirements of this CoA. CEMPs approved by Pacific Complete include Wave 3, Wave 4, Wave 5a, Wave 5c, Harwood Bridge and two separate CEMP's for geotechnical investigation works.</p> <p>Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). The Wave 1 &amp; 3 (part) CEMP was approved 8 September 2016. The Wave 2 CEMP was approved on 10 November 2015.</p>
	D26 (c)	<p>(c) a Construction Soil and Water Quality Management Plan to manage surface and groundwater impacts during construction of the SSI. The Plan shall be developed in consultation with the EPA, DPI (Fisheries), NOW, Rous Water (in relation to the Woodburn borefield), DoE and the relevant council and include, but not necessarily be limited to:</p> <p>(i) details of construction activities and their locations, which have the potential to impact on water courses, storage facilities, stormwater flows, and groundwater;</p> <p>(ii) surface water and ground water impact assessment criteria consistent with Australian and New Zealand Environment Conservation Council (ANZECC) guidelines or relevant site specific baseline data collected for known Oxleyan Pygmy Perch waterways;</p> <p>(iii) management measures to be used to minimise surface and groundwater impacts, including details of how spoil and fill material required by the SSI will be sourced, handled, stockpiled, reused and managed; erosion and sediment control measures; salinity control measures and the consideration of flood events;</p> <p>(iv) a Groundwater and Soil Salinity report should geotechnical investigations determine the presence, extent and severity of soil salinity within the SSI boundary, The report shall detail the outcomes of geotechnical investigations and identify and mitigate impacts to groundwater resources;</p> <p>(v) an Acid Sulfate Soils 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;</p> <p>(vi) a tannin leachate management protocol to manage the stockpiling of mulch and use of cleared vegetation and mulch filters for erosion and sediment control;</p> <p>(vii) an Oxleyan Pygmy Perch habitat waterway management framework to detail the measures and construction methods that will be employed to avoid direct discharge of construction water to known Oxleyan Pygmy Perch habitat waterways and downstream impacts to suitable habitat;</p> <p>(viii) management measures for contaminated material and a contingency plan to be implemented in the case of unanticipated discovery of contaminated material during construction;</p> <p>(ix) a description of how the effectiveness of these actions and measures would be monitored during the proposed works, clearly indicating how often this monitoring would be undertaken, the locations where monitoring would take place, how the results of the monitoring would be recorded and reported, and, if any exceedance of the criteria is detected how any non-compliance can be rectified; and mechanisms for the monitoring, review and amendment of this plan.</p>	All	Pre-construction and Construction	Contractor	Open	<p>This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan) which was approved by DPE on 23 October 2015. Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with the PC CEMP, relevant RMS/PC environmental specifications and the requirements of this CoA. CEMPs approved by Pacific Complete include Wave 3, Wave 4, Wave 5a, Wave 5c, Harwood Bridge and two separate CEMP's for geotechnical investigation works.</p> <p>Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). The Wave 1 &amp; 3 (part) CEMP was approved 8 September 2016. The Wave 2 CEMP was approved on 10 November 2015.</p>
	D26 (d)	<p>(d) a Construction Heritage Management Plan to detail how construction impacts on Aboriginal and non-Aboriginal heritage will be minimised and managed. The Plan shall be developed in consultation with the EPA OEH, the NSW Heritage Council (for non-Aboriginal heritage) and Registered Aboriginal Parties (for Aboriginal heritage), and include, but not necessarily be limited to:</p> <p>(i) in relation to Aboriginal Heritage:</p> <p>(A) details of further investigation and identification of Aboriginal cultural heritage sites within the SSI boundary;</p> <p>(B) details of management measures to be carried out in relation to Aboriginal heritage, including a detailed methodology and strategies for protection, monitoring, salvage, and conservation, of sites and items associated with the SSI;</p> <p>(C) 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 Department of Planning and Environment, EPA OEH and Registered Aboriginal Parties and assessment of the consistency of any new Aboriginal heritage impacts against the approved impacts of the SSI, and registering of the new site in the EPA OEH's Aboriginal Heritage Information Management System (AHIMS) register;</p> <p>(D) procedures for dealing with human remains, including cessation of works in the vicinity and notification of Department of Planning and Environment, NSW Police Force, EPA OEH and Registered Aboriginal Parties and not recommencing any works in the area unless authorised by the EPA OEH and/or the NSW Police Force;</p> <p>(E) heritage training and induction processes for construction personnel (including procedures for keeping records of inductions) and obligations under the conditions of this approval including site identification, protection and conservation of Aboriginal cultural heritage; and</p> <p>(F) procedures for ongoing Aboriginal consultation and involvement for the duration of the SSI; and</p> <p>(ii) in relation to non-Aboriginal Heritage:</p> <p>(A) identification of heritage items directly and indirectly affected by the SSI;</p> <p>(B) details of management measures to be implemented to prevent and minimise impacts on heritage items (including further heritage investigations, archival recordings and/or measures to protect unaffected sites during construction works in the vicinity);</p> <p>(C) details of monitoring and reporting requirements for impacts on heritage items;</p> <p>(D) procedures for dealing with previously unidentified heritage 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 OEH, NSW Heritage Council and Department of Planning and Environment, and assessment of the consistency of any new heritage impacts against the approved impacts of the SSI; and</p> <p>(E) heritage training and induction processes for construction personnel (including procedures for keeping records of inductions and obligations under this approval including site identification, protection and conservation of non-Aboriginal cultural heritage; and</p> <p>(iii) mechanisms for the monitoring, review and amendment of this plan.</p>	All	Pre-construction and Construction	Contractor	Open	<p>This requirement is addressed in the Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan) which was approved by DPE on 23 October 2015. Pacific Complete will be submitting the Aboriginal and Non-Aboriginal Heritage and Education Training Package which forms Appendix A of the Construction Heritage Management Plan in February 2015 following the completion of the consultation period as of 12 February 2015. Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with the PC CEMP, relevant RMS/PC environmental specifications and the requirements of this CoA. CEMPs approved by Pacific Complete include Wave 3, Wave 4, Wave 5a, Wave 5c, Harwood Bridge and two separate CEMP's for geotechnical investigation works.</p> <p>Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). The Wave 1 &amp; 3 (part) CEMP was approved 8 September 2016. The Wave 2 CEMP was approved on 10 November 2015.</p>

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
	D26 (e)	<p>(e) a Construction Flora and Fauna Management Plan to detail how construction impacts on ecology will be minimised and managed. The Plan shall be prepared by a suitably qualified and experienced ecologist and developed in consultation with the EPA OEH, DPI (Fisheries) and DoE, and shall include, but not necessarily be limited to:</p> <p>(i) details of pre-construction surveys undertaken by a suitably qualified and experienced ecologist to verify the SSI footprint based on detailed design;</p> <p>(ii) plans for impacted and adjoining areas showing vegetation communities; important flora and fauna habitat areas; locations where threatened species, populations or ecological communities have been recorded; including pre-clearing surveys to confirm the location of threatened flora and fauna species and associated habitat features;</p> <p>(iii) the identification of areas to be cleared and details of management measures (such as fencing, clearing procedures, removal and relocation of fauna during clearing, habitat tree management and construction worker education) to avoid any residual habitat damage or loss and to minimise or eliminate time lags between the removal and subsequent replacement of habitat;</p> <p>(iv) a protocol for the removal and relocation of fauna during clearing, including provision for engagement of a suitably qualified and experienced ecologist to identify locations where they would be present; to oversee clearing activities and facilitate fauna rescue and re-location; and consideration of timing of vegetation clearing with consideration to the avoidance of clearing native vegetation during the breeding/nesting periods of threatened species, where feasible and reasonable;</p> <p>(v) details of general work practices and mitigation measures to be implemented during construction and operation to minimise impacts on native fauna and native vegetation (particularly threatened species and their habitats and EEC) not proposed to be cleared as part of the SSI, including, but not necessarily limited to: fencing of sensitive areas; 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 <i>Phytophthora cinnamomi</i> and myrtle rust (<i>Puccinia psidii</i> s.l.); erosion and sediment control, including measures to at least maintain habitat values downstream; and progressive re-vegetation;</p> <p>(vi) rehabilitation details, including identification of flora species and sources, and measures for the management and maintenance of rehabilitated areas;</p> <p>(vii) weed management measures focusing on early identification, suppression and control of invasive weeds and effective management controls;</p> <p>(viii) a protocol for managing aquatic and terrestrial pest animal/invasive species and plant species, and pathogens;</p> <p>(ix) consideration of the Threatened Species Management Plans;</p> <p>(x) a description of how the effectiveness of these management measures would be monitored and linked to the monitoring undertaken as part of the Threatened Species Management Plans;</p> <p>(xi) a procedure for dealing with unexpected EEC/threatened species identified during construction, including cessation of work and notification of the EPA OEH, DPI (Fisheries) and DoE, determination of appropriate mitigation measures in consultation with these agencies (including relevant re-location measures) and updating of ecological monitoring and/or biodiversity offset requirements; and</p> <p>(xii) mechanisms for the monitoring, review and amendment of this plan.</p>	All	Pre-construction and Construction	Contractor	Open	<p>This requirement is addressed in the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Sub-Plan). The Pacific Complete CEMP was approved by DPE on 23 October 2015. Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with the PC CEMP, relevant RMS/PC environmental specifications and the requirements of this CoA. CEMPs approved by Pacific Complete include Wave 3, Wave 4, Wave 5a, Wave 5c, Harwood Bridge and two separate CEMP's for geotechnical investigation works.</p> <p>Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). The Wave 1 &amp; 3 (part) CEMP was approved 8 September 2016. The Wave 2 CEMP was approved on 10 November 2015.</p>
<b>COMPLIANCE MONITORING AND TRACKING</b>							
	D27	<p>The Applicant shall prepare and implement a Compliance Tracking Program, to track compliance with the requirements of this approval, prior to the commencement of construction and operate from the date of its approval to a minimum of one year following commencement of operation, or as otherwise agreed by the Secretary. The Program shall be prepared for the approval of the Secretary, and include, but not necessarily be limited to:</p> <p>(a) provisions for the notification of the Secretary prior to the commencement of construction and prior to the commencement of operation of the SSI (including prior to each stage, where works are being staged);</p> <p>(b) provisions for periodic review of the compliance status of the SSI against the requirements of this approval;</p> <p>(c) provisions for periodic reporting of compliance status to the Secretary, including a Pre-Construction Compliance Report, prior to the commencement of construction, and a Pre-Operation Compliance Report prior to the commencement of operation. These reports may be staged to suit the staged construction/operation of the SSI;</p> <p>(d) a program for independent environmental auditing in accordance with ISO 19011:2003 - Guidelines for Quality and/or Environmental Management Systems Auditing;</p> <p>(e) mechanisms for recording environmental incidents during construction and actions taken in response to those incidents;</p> <p>(f) provisions for reporting environmental incidents to the Secretary and relevant public authorities during construction;</p> <p>(g) procedures for rectifying any non-compliance identified during environmental auditing, review of compliance or incident management; and</p> <p>(h) provisions for ensuring all employees, contractors and sub-contractors are aware of, and comply with, the conditions of this approval relevant to their respective activities.</p>	All	Pre-construction and Construction	RMS and Contractor	Open	<p>This submission is the 6 Monthly Construction Compliance Report (April to September 2016) for Sections 3 to 11 of the Woolgoolga to Ballina Pacific Highway Upgrade Project. The Compliance Tracking Program, including the Pre-Construction Compliance Report was approved by DPE on 16 March 2016.</p>
<b>OPERATIONAL NOISE AND VIBRATION COMPLIANCE</b>							
	D28	<p>The Applicant shall undertake operational noise monitoring, to compare actual noise performance of the SSI against noise performance predicted in the review of noise mitigation measures required by condition D11, within 12 months of the commencement of operation of the SSI, or as otherwise agreed by the Secretary.</p> <p>The Applicant shall subsequently prepare an Operational Noise Compliance Report to document this monitoring. The Report shall include, but not necessarily be limited to:</p> <p>(a) noise monitoring to assess compliance with the operational noise levels predicted in the review of operational noise mitigation measures required under condition D11 and documents listed in condition A2;</p> <p>(b) a review of the operational noise levels in terms of criteria and noise goals established in the NSW Road Noise Policy 2011;</p> <p>(c) methodology, location and frequency of noise monitoring undertaken, including monitoring sites at which SSI noise levels are ascertained, with specific reference to locations indicative of impacts on sensitive receivers;</p> <p>(d) details of any complaints and enquiries received in relation to operational noise generated by the SSI between the date of commencement of operation and the date the report was prepared;</p> <p>(e) any required recalibrations of the noise model taking into consideration factors such as noise monitoring and actual traffic numbers and proportions;</p> <p>(f) an assessment of the performance and effectiveness of applied noise mitigation measures together with a review and if necessary, reassessment of feasible and reasonable mitigation measures; and</p> <p>(g) identification of additional feasible and reasonable measures to those identified in the review of noise mitigation measures required by condition D11, that would be implemented with the objective of meeting the criteria outlined in the NSW Road Noise Policy 2011, when these measures would be implemented and how their effectiveness would be measured and reported to the Secretary and the EPA.</p> <p>The Applicant shall provide the Secretary 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 Secretary.</p> <p>Note:</p> <ul style="list-style-type: none"> <li>The audit may be staged to suit the staged operation of the SSI.</li> </ul>	All	Operation	RMS	Open	<p>The requirements of this CoA relate to the operational phase of the project.</p>
<b>ENVIRONMENTAL MANAGEMENT SYSTEMS</b>							
	D29	<p>Prior to the commencement of operation, the Applicant shall incorporate the SSI into existing environmental management systems administered by the Applicant and prepared in accordance with the AS/NZS ISO 14000 Environmental Management System series.</p> <p>If there is an inconsistency between the existing environmental management systems and the conditions of this SSI approval, the requirements of this SSI approval shall prevail.</p>	All	Construction and Operation	RMS	Open	<p>The requirements of this CoA relate to the operational phase of the project.</p>
<b>INDEPENDENT ENVIRONMENTAL AUDIT</b>							
	D30	<p>Within 12 months of the commencement of operation, and then as required by the Secretary, the Applicant shall commission and pay the full cost of an Independent Environmental Audit of the SSI. This audit shall:</p> <p>(a) be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Secretary;</p> <p>(b) include consultation with the relevant agencies;</p> <p>(c) assess the environmental performance of the SSI and assess whether it is complying with the requirements in this approval, and any other relevant approvals (including any assessment, plan or program required under these approvals);</p> <p>(d) review the adequacy of any approved strategy, plan or program required under the abovementioned approvals; and</p> <p>(e) recommend measures or actions to improve the environmental performance of the SSI, and/or any strategy, plan or program required under these approvals.</p> <p>Note:</p> <ul style="list-style-type: none"> <li>This audit team shall be led by a suitably qualified auditor, and include experts in biodiversity, noise and vibration, hydrology and any other fields specified by the Secretary.</li> <li>The audit may be staged to suit the staged operation of the SSI.</li> </ul>	All	Operation	RMS	Open	<p>The requirements of this CoA relate to the operational phase of the project.</p>
	D31	<p>Within 60 days of commissioning this audit, or as otherwise agreed by the Secretary, the Applicant shall submit a copy of the audit report to the Secretary and relevant public authorities, together with its response to any recommendations contained in the audit report.</p>	All	Operation	RMS	Open	<p>The requirements of this CoA relate to the operational phase of the project.</p>



Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
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# COMPLIANCE TRACKING - FEDERAL CONDITIONS OF APPROVAL Woolgoolga to Ballina EPBC 2012/6394



Transport  
Roads & Maritime  
Services

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
<b>STAGING OF THE ACTION</b>							
	1	The Staging Report as required by NSW approval condition A7 must be submitted to the Minister prior to the commencement of each of the proposed stage(s). In accordance with NSW approval condition A7, the Staging Report must outline how the proposal will be staged. The Staging Report must also outline the threatened species and communities, and migratory species impacted in each stage.	All	Pre-construction	RMS	Open	The Stage 2 Staging Report (dated July 2016, Revision 5) was acknowledged by the Department of Planning and Environment on 2 August 2016. The department have requested that an updated Staging Report (and Compliance Report) be submitted to the Secretary once a decision is made about the re-use of existing sections of the existing Pacific Highway and either Option A or Option B is selected.
<b>AVOIDANCE AND MITIGATION OF IMPACTS</b>							
	2	In order to minimise impacts to threatened species and communities, and migratory species, the approval holder must: a) Adhere to the clearance limits outlined in the NSW approval condition B1 b) Undertake pre-clearance surveys in accordance with NSW approval condition B5 c) Undertake all soil and water management measures in accordance with NSW approval condition B34 d) Design and construct any additional ancillary facilities in accordance with the requirements of NSW approval condition B73 to ensure that no impacts occur to threatened species and communities, and migratory species or their habitat.	All	Pre-construction and Construction	RMS and Contractor	Open	A) RMS/Pacific Complete will ensure compliance (measuring, monitoring, reviewing, reporting) with the approved clearing limits specified by the NSW Project Approval during the detailed phase and construction phase of the project. The aim of any works will be to minimise the need to clear vegetation and reduce impacts to threatened species or EECs where reasonable and feasible. Clearing limits will be clearly shown on relevant issued for construction drawings and closely monitored and report. B) This requirement is addressed in the Pacific Complete CEMP (Appendix B2 - Construction Flora and Fauna Management Plan). Pacific Complete will approve Contractor EMPs, EWMSs and apply RMS/PC environmental specifications to ensure compliance with this requirement. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). C) This requirement is addressed in Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with this requirement. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). D) Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the ER on 10 February 2016. The purpose of the AFMP is to detailed how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. Site specific ancillary facility management plans will be prepared by Pacific Complete in accordance with the requirements of the Ancillary Facilities Management Plan.
	3	In order to minimise impacts to the Oxleyan Pygmy Perch, the approval holder must undertake the action in accordance with NSW approval conditions B7, B8, B9, B13, B40, B41 and B42.	6, 7, 8, 9	Pre-construction and Construction	RMS and Contractor	Open	Requirements relating to the detailed design phase - to be addressed during detailed design. Detailed design lots are required to detail how the design complies with the relevant environmental design criteria. Pacific Complete will review detailed design lot reports to ensure compliance with relevant CoAs. Requirements relating to the construction phase - These requirements are addressed in the Pacific Complete CEMP (Appendix B2 - Construction Flora and Fauna Management Plan). Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs and apply RMS/PC environmental specifications to ensure compliance with relevant CoAs. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
	4	In order to minimise impacts to the Giant Barred Frog, the approval holder must undertake the action in accordance with the requirements of NSW approval condition B39.	NA	Pre-construction	RMS	Closed	This is not applicable to sections 3-11. Habitat for the Giant Barred Frog only occurs in sections 1 and 2
	5	In order to ensure the long-term viability of the Ballina Koala population, the approval holder must engage a suitably qualified expert to undertake population viability modelling of the Ballina Koala population over a time period of no less than 50 years, taking into account the impacts resulting from the road upgrade in Section 10. This modelling should consider the current proposed route and any proposed avoidance or mitigation measures as appropriate.	10, 11	Pre-construction	RMS	Closed	RMS have engaged Niche Environment and Heritage (Dr Rod Kavanagh) to complete the PVA and Ballina Koala Plan. The Ballina Koala Plan was approved by DoEE on 19 July 2016. The Ballina Koala Plan forms part of the Koala Management Plan (Section 1 to 11) that was approved by DPE on 4 August 2016 and approved by DoEE on 11 August 2016.
	6	The approval holder must have the modelling required by Condition 5 peer reviewed by a second suitably qualified expert.	10, 11	Pre-construction	RMS	Closed	Dr Jonathan Rhodes was the Independent Reviewer.
	7	In addition to the Koala Management Plan(s) required by NSW approval conditions D8 and D9, to ensure that an unacceptable impact will not occur to the Ballina Koala population, the approval holder must submit for the Minister's approval, a Ballina Koala Plan no less than 3 months prior to commencement of Section 10. The Minister will only approve the plan and the commencement of Section 10 of the action, if the impacts to the Ballina Koala population are demonstrated to be acceptable within the Ballina Koala Plan. The Ballina Koala Plan must include: a) the modelling required by Condition 5 and the results of this modelling, and the peer review required by Condition 6 b) discussion of the future viability of the Ballina Koala population c) in the context of relevant environmental social and economic considerations, any additional avoidance, mitigation or offsets, beyond those required by the NSW approval conditions, proposed to minimise the impacts to the Ballina Koala population; and d) evidence that any additional avoidance and mitigation measures proposed have been considered in the modelling required in Condition 5. The approval holder must not commence Section 10 unless the Ballina Koala Plan has been approved by the Minister. The approved Plan must be implemented.	10, 11	Pre-construction	RMS	Closed	RMS have engaged Niche Environment and Heritage (Dr Rod Kavanagh) to complete the PVA and Ballina Koala Plan. The Ballina Koala Plan was approved by DoEE on 19 July 2016. The Ballina Koala Plan forms part of the Koala Management Plan (Section 1 to 11) that was approved by DPE on 4 August 2016 and approved by DoEE on 11 August 2016. Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with the relevant requirements of the Koala Management Plans.

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
	8	The approval holder must develop a Koala Management Plan(s) pursuant to the requirements of NSW approval conditions D8 and D9 for each relevant stage(s). The Koala Management Plan must minimise impacts to the Koala to the satisfaction of the Minister and must be submitted to the Minister for approval. The relevant stage(s) cannot commence until the Koala Management Plan for that stage is approved by the Minister. The approved Plan(s) must be implemented.	All	Pre-construction	RMS	Closed	The Koala Management Plan (Section 1 to 11) was approved by DPE on 4 August 2016 and DoEE on 11 August 2016. Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with the relevant requirements of the Koala Management Plans.
	9	The Koala Management Plan, relevant to Section 10, must be consistent with the approved Ballina Koala Plan and can only be submitted to the Minister for approval after the Ballina Koala Plan has been approved by the Minister.	10	Pre-construction	RMS	Closed	The Ballina Koala Plan was approved by DoEE on 19 July 2016. The Koala Management Plan was subsequently updated to include the Ballina Koala Plan. The updated plan was approved by DPE on 4 August 2016 and approved by DoEE on 11 August 2016. Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with the relevant requirements of the Koala Management Plans
	10	Should further offsets be required in accordance with NSW approval condition 09(d) or be proposed as part of the Ballina Koala Plan, these must be in accordance with the EPBC Offsets Policy.	6, 7, 10	Pre-construction	RMS	Open	Noted.
	11	The approval holder must develop a Threatened Mammal Management Plan(s) pursuant to the requirements of NSW approval condition D8 for each stage impacting on the Spotted-tail Quoll and the Long-nosed Potoroo. The Threatened Mammal Management Plan must minimise impacts to the Spotted-tail Quoll and Long-nosed Potoroo to the satisfaction of the Minister and must be submitted to the Minister for approval. The relevant stage(s) cannot commence until the Threatened Mammal Management Plan for that stage is approved by the Minister. The approved Plan(s) must be implemented.	6, 7, 10	Pre-construction	RMS	Closed	Threatened Mammal Management Plan Update 1 DPE Approval 7 May 2015, DoE Approval 12 May 2015. Threatened Mammal Management Plan Update 2 DPE Approval 21 October 2015, DoE Approval 25 October 2015.
	12	The approval holder must develop a Threatened Flora Management Plan(s) pursuant to the requirements of NSW approval condition D8 for each stage impacting on EPBC Act listed flora species. The Threatened Flora Management Plan must minimise impacts to EPBC Act listed flora species to the satisfaction of the Minister and be submitted to the Minister for approval. The relevant stage(s) cannot commence until the Threatened Flora Management Plan for that stage is approved by the Minister. The approved Plan(s) must be implemented.	All	Pre-construction	RMS	Closed	Threatened Flora Management Plan Update 1 (Section 1, Section 2, Waves 1, 2 and 3) DPE Approved 30 April 2015, DoE Approval 5 May 2015. Threatened Flora Management Plan Update 2 (Sections 3 to 11) DPE Approval 21 August 2015, DoE Approval 4 September 2015.
	13	The approval holder must develop a Connectivity Strategy(ies) pursuant to the requirements of NSW approval conditions D2 for each stage impacting on Threatened species and ecological communities. The Connectivity Strategy must minimise impacts to Threatened species and ecological communities to the satisfaction of the Minister and must be submitted to the Minister for approval. Commencement of the relevant stage(s) cannot occur until the Connectivity Strategy for that stage is approved by the Minister. The approved strategy(ies) must be implemented.	All	Pre-construction	RMS	Open	Each design Portion (i.e. A, B, C and D which cover Sections 3 to 11) are preparing a Connectivity Strategy in accordance with the requirements of this CoA. Pacific Complete will review detailed design deliverables to ensure compliance with the relevant CoAs.

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
	14	In order to minimise impacts to threatened species and communities, and migratory species, the approval holder must develop and implement all Frameworks, Strategies, Plans or Programs, in accordance with the requirements of the following NSW approval conditions: a) The Mitigation Framework required by NSW approval condition D1 b) The Connectivity Strategy required by NSW approval condition D2 and the requirements of NSW approval condition B12 c) The Threatened Species Management Plans required by NSW approval condition D8 and D9 d) The Construction Soil and Water Quality Management Plan required by NSW approval condition D26(c) e) The Construction Flora and Fauna Management Plan required by NSW approval condition D26(e) f) The Borrow Site Management Plan required by NSW approval condition D22 g) The Water Quality Monitoring Program required by NSW approval condition D12 h) The Ancillary Facilities Management Plan required by NSW approval condition D21.	All	Pre-construction and Construction	RMS and Contractor	Open	A) NSW CoA D1 - Mitigation Framework approved by DPE on 8 May 2015. B) NSW CoAs D2 and B12 - Currently being prepared during detailed design. Each design Portion (i.e. A, B, C and D which cover Sections 3 to 11) will be required to prepare a Connectivity Strategy in accordance with the requirements of the CoAs. Pacific Complete will review detailed design deliverables to ensure compliance with CoA requirements. C) The following Threatened Species Management Plans have been prepared and approved: Threatened Flora Management Plan Update 1 (Section 1, Section 2, Waves 1, 2 and 3) DPE Approval 30 April 2015, DoE Approval 5 May 2015. Threatened Flora Management Plan Update 2 (Sections 3 to 11) DPE Approval 21 August 2015, DoE Approval 4 September 2015. Threatened Rainforest Plants Management Plan (Section 10) DPE Approval 11 September 2015. Threatened Mammal Management Plan Update 1 DPE Approval 7 May 2015, DoE Approval 12 May 2015. Threatened Mammal Management Plan Update 2 DPE Approval 21 October 2015, DoE Approval 25 October 2015. Threatened Invertebrates Management Plan DPE Approval 29 July 2015. Threatened Fish Management Plan DPE Approval 30 July 2015. Threatened Frog Management Plan DPE Approval 7 May 2015. Threatened Glider Management Plan DPE Approval 4 May 2015. Coastal Emu Management Plan (Sections 3 and 4, excluding Wave 3) DPE Approval 3 June 2015. Coastal Emu Management Plan (includes updates for Wave 3) DPE Approval 18 December 2015. Microbat Management Plan (Section 3 to 11) DPE approval 25 May 2015. Koala Management Plan (Section 1 to 11), DPE Approval 4 August 2016, DoEE Approval 11 August 2016. D) This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan) which was approved by DPE on 23 October 2015. E) This requirement is addressed in the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Sub-Plan). The Pacific Complete CEMP was approved by DPE on 23 October 2015. F) Pacific Complete will prepare site specific Borrow site Management Plans and obtain the required approvals of the plans prior to construction activities commencing at the borrow sites. G) The Water Quality Monitoring Program (sixth issue, 21 August 2015) was approved by DPE on 24 August 2015 and forms part of the Pacific Complete CEMP. H) Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detail how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. Site specific ancillary facility management plans will be prepared by Pacific Complete in accordance with the requirements of the AFMP (ER approved on 10 February 2016). Note that separate and approved CEMP documentation is in place for soft soil works (Waves 1 and Wave 2).
<b>OFFSETTING OF RESIDUAL IMPACTS</b>							
	15	The approval holder must prepare and implement a Biodiversity Offset Strategy and Biodiversity Offset Package that compensates for any residual significant impacts on threatened species and communities. The Biodiversity Offset Strategy and Biodiversity Offset Package must meet the requirements of the EPBC Offsets Policy and must be submitted to the Minister for approval.	All	Pre-construction and Construction	RMS	Open	Biodiversity Offset Strategy approved by DPE 6 January 2016 and DoE 7 January 2016. A Biodiversity Offset Package will be prepared (Program currently being prepared).
	16	The Biodiversity Offset Strategy and Biodiversity Offset Package must be prepared in accordance with the requirements NSW approval conditions D3, D4 and D5.	All	Pre-construction and Construction	RMS	Open	Biodiversity Offset Strategy approval by DPE 6 January 2016 and DoE 7 January 2016. A Biodiversity Offset Package will be prepared (Program currently being prepared).
	17	Commencement cannot occur until the Biodiversity Offset Strategy required by Condition 15 is approved by the Minister. Commencement of the relevant stage(s) cannot occur until the information required by NSW approval condition D4 is approved by the Minister.	All	Pre-construction and Construction	RMS	Open	Biodiversity Offset Strategy approval by DPE 6 January 2016 and DoE 7 January 2016. A Biodiversity Offset Package will be prepared (Program currently being prepared). Note - The BOS excludes Section 9 and Section 10 which will be updated for Koala Population Coolgardie & Broadwater as well as Littoral Rainforest.
	18	The Biodiversity Offset Package required by Condition 15 must be approved by the Minister and the approved Biodiversity Offset Package must be implemented within 24 months of the approval of the Biodiversity Offset Strategy.	All	Pre-construction and Construction	RMS	Open	A Biodiversity Offset Package will be prepared noting it is required to be submitted within 24 months of 7 January 2016.
<b>REPORTING AND AUDITING</b>							
	19	Any survey data collected for the project must be collected and recorded so as to conform to a reasonable standard such that it can be readily used by a third party or to data standards notified from time to time by the Department. When requested by the Department, the proponent must provide to the Department all species and ecological survey data and related survey information from ecological surveys undertaken for matters of national environmental significance. This survey data must be provided within 30 business days of request, or in a timeframe agreed to by the Department in writing. The Department may use the survey data for other purposes.	All	Pre-construction, Construction and Operation	RMS and Contractor	Open	Noted.
	20	Within 14 days after the commencement of the action, the approval holder must advise the Department in writing of the actual date of commencement.	All	Construction	RMS	Closed	The proponent advised DoEE of commencement of the project.
	21	Within three months of every 12 month anniversary of the commencement of the action, the approval holder must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of any Frameworks, Strategies, Plans, or Package as specified in the conditions. Documentary evidence providing proof of the date of publication and non-compliance with any of the conditions of this approval must be provided to the Department at the same time as the compliance report is published. The approval holder must continue to publish the report until such time as agreed in writing by the Minister.	All	Pre-construction, Construction and Operation	RMS	Open	The first annual compliance report that outlined compliance with federal conditions of approval was published on the W2B project web site on the 19/08/216.
	22	Upon the direction of the Minister, the approval holder must ensure that an independent audit of compliance with the conditions of approval is conducted and a report submitted to the Minister. The independent auditor must be approved by the Minister prior to the commencement of the audit. Audit criteria must be agreed to by the Minister and the audit report must address the criteria to the satisfaction of the Minister.	All	Pre-construction, Construction and Operation	RMS	Open	Noted.
<b>REVISIONS</b>							

Category	Part	Requirement	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Comment
	23	If the approval holder wishes to carry out any activity otherwise than in accordance with Frameworks, Strategies, Plans, Report or Package required by Conditions 7, 8, 10, 11, 12, 14, 15, 16 and 17, the approval holder must submit to the Department for the Minister's written approval a revised version of those Frameworks, Strategies, Plans, Report or Package. The varied activity shall not commence until the Minister has approved the revised plan or agreement in writing. The Minister will not approve a revised plan or agreement, unless the revised plan or agreement would result in an equivalent or improved environmental outcome. If the Minister approves the revised plan or agreement that plan or agreement must be implemented in place of the plan or agreement originally approved.	All	Pre-construction and Construction	RMS	Open	Noted.
	24	If the Minister believes that it is necessary or convenient for the better protection of listed threatened species or communities to do so, the Minister may request that the approval holder submit for the Minister approval, or make revisions to any Frameworks, Strategies, Plans, Package, or Program specified in the conditions and submit the revised Frameworks, Strategies, Plans, Package, or Program for the Minister's written approval. The approval holder must comply with any such request. The approved or revised approved Frameworks, Strategies, Plans, Package, or Program must be implemented. Unless the Minister has approved the revised management plans, then the approval holder must continue to implement the management plans originally approved, as specified in the conditions.	All	Pre-construction and Construction	RMS	Open	Noted.
	25	If, at any time after 5 years from the date of this approval, the approval holder has not substantially commenced the action, then the approval holder must not substantially commence the action without the written agreement of the Minister.	All	Pre-construction	RMS	Open	Noted. Action has been substantially commenced.
<b>PUBLICATION OF PLANS</b>							
	26	The approval holder must maintain accurate records substantiating all activities associated with or relevant to the conditions of approval, including measures taken to implement the Frameworks, Strategies, Plans, or Package required by this approval, and make them available upon request to the Department. Such records may be subject to audit by the Department or an independent auditor in accordance with section 458 of the EPBC Act, or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the Department's website. The results of audits may also be publicised through the general media.	All	Pre-construction and Construction	RMS	Open	Measures are implemented on the project, to track, record and monitoring compliance with the approval conditions including this compliance tracking program, site checklists and inspections and audits.
	27	Unless otherwise agreed to in writing by the Minister, the approval holder must publish all Frameworks, Strategies, Plans, or Package referred to in these conditions of approval on their website. Each management plan must be published on the website within 1 month of being approved.	All	Pre-construction and Construction	RMS	Open	The website for the project is <a href="http://www.rms.nsw.gov.au/projects/northern-nsw/woolgoolga-to-ballina/index.html">http://www.rms.nsw.gov.au/projects/northern-nsw/woolgoolga-to-ballina/index.html</a> . Copies of the project approval and management plans are available on the project website. The website is regularly updated.

# COMPLIANCE TRACKING - MITIGATION MEASURES

## Woolgoolga to Ballina SSI-4963



Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Reference / Comment
<b>HYDROLOGY AND FLOODING</b>								
HF1	Hydrology and Flooding	Flood models	Flood models for the areas of the project that are in the Clarence, mid Richmond and lower Richmond rivers will be updated to inform detailed design.	4, 5, 6, 8, 9, 10	Pre-construction	RMS	Open	Flood modelling (final models) is currently being developed as part of detailed design. Pacific Complete will review relevant detailed design deliverables to ensure that they have taken into account the updated/final flood models.
HF2	Hydrology and Flooding	Flood models	Roads and Maritime will update the bathymetrical data at the relevant crossing of the Clarence River to inform detailed design of the crossing.	4, 5	Pre-construction	RMS	Open	Pacific Complete will ensure that bathymetric data at the Clarence River crossing is obtained as part of detailed design. Pacific Complete will review relevant detailed design deliverables to ensure that they have taken into account updated bathymetric data at the Clarence River crossing.
HF3	Hydrology and Flooding	Operational impacts on cane drains	Cane drain diversions will be designed and constructed in consultation with the relevant cane industry stakeholders and impacted landowners. This will consider the potential diversions detailed in the Working Paper – Hydrology and flooding and the additional assessment provided in Chapter 3 of the Submissions / Preferred Infrastructure Report.	All	Pre-construction and construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.  This requirement is also addressed in Pacific Complete CEMP. Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). During construction relevant stakeholders have been consulted where required.
HF4	Hydrology and Flooding	Permanent road fencing	Any permanent fencing at culvert and bridge crossings will consider the potential for blockage and be designed and operated to maintain the existing flood regime.	All	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
HF5	Hydrology and Flooding	Permanent road fencing	Detailed design for permanent road fencing will consider hydrology and flooding impacts.	All	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
HF6	Hydrology and Flooding	Scour protection	Scour and erosion protection measures at temporary and permanent waterway crossings will be provided upstream and downstream of the highway, particularly within 50 metres of Class 1 waterways or within the range of the Oxleyan Pygmy Perch as identified in section 3.9.6 of the Working paper – Biodiversity and the supplementary biodiversity assessment in Appendix J of the Submissions / Preferred Infrastructure Report. This will be undertaken in consultation with the Department of Primary Industries (Fisheries).	All	Pre-construction.	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
HF7	Hydrology and Flooding	Waterway diversions	Waterway diversions will be designed in consultation with Office of Environment and Heritage, NSW Office of Water and Department of Primary Industries (Fisheries) so that the final diversion mimics, where feasible and reasonable, the characteristics of the waterway that is being diverted. Characteristics include flow regime, flow velocity, base material, vegetation and habitat for aquatic fauna.	All	Pre-construction and Construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.  This is also addressed within the approved Pacific Complete Construction Soil and Water Quality Management Plan. Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).  During construction EWMS for waterway diversions/crossings have been developed in consultation with the relevant agencies.
HF8	Hydrology and Flooding	Waterway diversions	Revegetation of waterway diversions and surrounding areas will be undertaken in accordance with the following principles: • Diversions will be stabilised prior to the diversion receiving flows, in conjunction with the establishment of other scour and erosion control measures. • Diversions will establish appropriate vegetation communities along the channel bed and banks, using endemic native species.	All	Construction	RMS and Contractor	Open	This has been addressed within the approved Pacific Complete Construction Soil and Water Quality Management Plan. Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
HF9	Hydrology and Flooding	Management of flows for aquatic habitat and movement	Velocities of flood flows through watercourse and floodplain structures (i.e. bridges and culverts) will be assessed during detailed design in areas identified as known and potential habitat for the Oxleyan Pygmy Perch and the Purple-spotted Gudgeon in consultation with Department of Primary Industries (Fisheries). The design of these structures will consider the predicted changes to velocities from the existing case due to the project.	All	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
HF10	Hydrology and Flooding	Picaninny Creek diversion	Batter stability will be assessed and sufficient room provided on both sides of the diversion to allow access for maintenance and to meet batter stability requirements.	3	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
HF11	Hydrology and Flooding	Impacts on farm dams	Farm dams located within or partially within the project boundary will be acquired as part of the acquisition process in accordance with the <i>Land Acquisition (Just Terms Compensation) Act 1991</i> .	All	Pre-construction	RMS	Open	Noted.
HF12	Hydrology and Flooding	Impacts on farm dams	Potential impacts to farm dams located downstream of the project that are fed by catchments upstream, and that have a diversion of rainfall as a result of the project, will be considered during the relevant property acquisition process.	All	Pre-construction	RMS	Open	Noted.
HF13	Hydrology and Flooding	Evacuation and access	Detailed design will consider flood access and evacuation for affected landowners including changes in stock access routes.	All	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
HF14	Hydrology and Flooding	Evacuation and access	The level of flood immunity of Eggins Drive into Corindi will be built at a 100 year ARI as agreed with Coffs Harbour City Council.	1	Construction	RMS	NA	This six monthly compliance report applies to sections 3 to 11. For Sections 1 and 2, refer to Stage 1 Compliance Program.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Reference / Comment
HF15	Hydrology and Flooding	Construction impacts on cane drains	The potential impacts of ancillary facilities and haul roads on cane drains will be further investigated and addressed when ancillary facility locations are confirmed. The design of these ancillary facilities will be developed in consultation with relevant cane industry stakeholders, affected landowners, and in accordance with the following principles: <ul style="list-style-type: none"> <li>• Maintain conveyance characteristics of existing cane drains.</li> <li>• Provide adequate capacity in temporary drainage to prevent blockages.</li> </ul>	4, 5, 6, 8,9,10,11	Pre-construction and construction	RMS	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detail how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. Site specific ancillary facility management plans will be prepared by Pacific Complete and construction contractors. Ancillary Facilities required for soft soil works will be managed separately via existing approved CEMPs and associated management plans (e.g. AFMPs).
HF16	Hydrology and Flooding	Goodwood Street underpass	A drainage structure with an equivalent capacity of the current Goodwood Street underpass will be installed for the duration of construction.	4	Pre-construction	RMS and Contractor	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
HF17	Hydrology and Flooding	Bridge pier construction	Any temporary infrastructure associated with the construction of bridges in the Clarence River, Clarence North Arm, Richmond River, Tuckombil Canal and Emigrant Creek will be secured or removed from the river and floodplain during flood events so not to create a debris hazard or blockage during a flood event.	5, 8 and 10	Construction	Contractor	Open	This requirement is addressed in Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). During construction relevant stakeholders have been consulted where required.
HF18	Hydrology and Flooding	Bridge pier construction	Appropriate span lengths of bridges will be specified during detailed design that considers the susceptibility of individual watercourse crossings to debris blockage.	All	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
HF19	Hydrology and Flooding	Bridge pier construction	All work within 40 metres of a permanent watercourse, crossed by the project, will be undertaken in accordance with the NSW Office of Water 'Guidelines for Controlled Actions' and industry best practice including maintaining where feasible and reasonable the geomorphic integrity and natural hydrological flow regime.	All	Construction	Contractor	Open	This requirement is addressed in Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). During construction relevant stakeholders have been consulted where required.
HF20	Hydrology and Flooding	Temporary fencing	The design of temporary fencing at culvert and bridge crossings will consider the potential for blockage and be designed and operated in a manner that does not result in impacts on flooding.	All	Construction	Contractor	Open	This requirement is addressed in Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). Where design of temporary fencing is required, Pacific Complete will review relevant design deliverables to ensure that they have taken into account this measure.
HF21	Hydrology and Flooding	Climate change impacts	The need for design modifications to address changes in flood behaviour as a result of climate change will be considered in accordance with Roads and Maritime' Climate Change Plan (Roads and Maritime, 2012).	All	Pre-construction and operation	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
HF22	Hydrology and Flooding	Impacts of ancillary facilities on flooding	Recommendations made in Table 8-8 of Working paper – Hydrology and flooding to minimise the flood impacts of ancillary facilities will be considered in the final location and layout of ancillary facilities.	All	Pre-construction	RMS and Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detail how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. Site specific ancillary facility management plans will be prepared by Pacific Complete and construction contractors. These will be approved by the ER or the Secretary, if additional impacts are anticipated. If additional impacts are anticipated then the plan will be submitted to the Secretary for approval.
HF23	Hydrology and Flooding	Meeting flood management objectives	Design objectives (for road flood immunity and flood management will apply during the detailed design phase. Where these objectives are not met, Roads and Maritime will work to either: <ul style="list-style-type: none"> <li>• Achieve compliance through modified embankment or drainage design.</li> <li>• Achieve an acceptable level of mitigation of impacts through alternative design measures (e.g. raised access tracks) in consultation with the affected land owner.</li> </ul>	All	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
HF24	Hydrology and Flooding	Drainage structures	The design of drainage structures across Chatsworth Island will be further reviewed during detailed design to enable the most appropriate and cost-effective structures to be installed.	5	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
HF25	Hydrology and Flooding	Drainage structures	Maintenance regime of drainage structures will be considered during detailed design.	All	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
HF 26	Hydrology and Flooding	Drainage structures	Additional culverts north of Chaffin Creek at the overflow channel around station 52.6, will be hydraulically modelled and confirmed during the detailed design to manage potential flood impacts, to meet the flood management objectives detailed in the EIS.	3	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
HF 27	Hydrology and Flooding	Drainage structures	Roads and Maritime, in consultation with Clarence Valley Council and the relevant landowner, will consider opportunities to improve the drainage system performance in the Shark Creek area, where feasible and reasonable, during the detailed design phase.	4	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
HF 28	Hydrology and Flooding	Drainage structures	The detailed design of the bridges over Shark Creek and Tyndale cane drain 1 and 2 (Crackers and Lee drain) will consider fauna connectivity in addition to the hydraulic function of these structures.	4	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
HF 29	Hydrology and Flooding	Drainage structures	Detailed design will investigate viable options to maintain the existing flood behaviour in James Creek.	5	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Reference / Comment
HF 30	Hydrology and Flooding	On-going consultation on drainage matters	Consultation with affected landowners will be undertaken during detailed design and construction regarding flooding impacts on properties, residences and other structures.	All	Pre-construction and construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs. This requirement is also addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
<b>SOILS, SEDIMENT AND WATER</b>								
SSW1	Soils, sediment and water	Design of cut-and-fill batters	Batter slope gradients will be designed to minimise erosion of select topsoil.	All	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
SSW2	Soils, sediment and water	Design of cut-and-fill batters	Where feasible, bench cuttings will be diverted onto contours and surface flow drainage paths designed to spread flow at the source in preference to concentrating the flow and treating it further downstream.	All	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
SSW3	Soils, sediment and water	Management of soils, sediment and water issues	As part of the Construction Environmental Management Plan, a soils and water management plan will be prepared and include (but not limited to): <ul style="list-style-type: none"> <li>Erosion and sediment control plans for all stages of construction.</li> <li>Consideration of soil erodibility.</li> <li>At-source erosion controls (e.g. check dams).</li> <li>Sedimentation basin construction and management.</li> <li>Protection of waterways.</li> <li>Acid sulfate soil sub-plan issues (including from groundwater drawdown).</li> <li>Management of stockpiles.</li> <li>Tannin leachate management control.</li> <li>Batch plant/ chemical storage controls.</li> <li>Water quality monitoring and checklists.</li> <li>Detailed consideration of measures to prevent, where possible, or minimise any water quality impacts.</li> </ul>	All	Pre-construction	RMS and Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).  CEMPs approved by Pacific Complete include Wave 3, Wave 4, Wave 5a, Wave 5c, Harwood Bridge and two separate CEMP's for geotechnical investigation works.
SSW4	Soils, sediment and water	Management of soils, sediment and water issues	Erosion and sediment control plans will be developed in line with current Roads and Maritime specifications and as detailed in the Working paper – Water quality.	All	Pre-construction	RMS and Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with this requirement. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
SSW5	Soils, sediment and water	Management of soils, sediment and water issues	A soil conservationist will be engaged during detailed design to inform the soils and water management plan.	All	Pre-construction	RMS	Open	Soil conservations have been engaged to inform erosion and sediment control plans prepared by contractors that form part of the soil and water management plans.
SSW6	Soils, sediment and water	Management of soils, sediment and water issues	Sedimentation basins and water quality ponds will be sized and located in accordance with the principles identified in the Working paper – Water quality.	All	Pre-construction and construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs. This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
SSW7	Soils, sediment and water	Management of soils, sediment and water issues	Exposed areas will be progressively rehabilitated. Methods will include permanent revegetation, or temporary protection with spray mulching or cover crops.	All	Construction	RMS and Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
SSW8	Soils, sediment and water	Management of soils, sediment and water issues	Any necessary approvals will be obtained in accordance with Roads and Maritime specification G36 for permanent and temporary waterway crossings.	All	Construction	Contractor	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs. This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
SSW9	Soils, sediment and water	Management of soils, sediment and water issues	All work potentially affecting wetlands will be undertaken in consideration of the requirements outlined in the NSW Wetlands Management Policy 2010.	All	Construction	Contractor	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs. This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).



Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Reference / Comment
SSW10	Soils, sediment and water	Stockpile management	Topsoil, earthworks and other excess spoil material will be stockpiled and managed in accordance with Roads and Maritime Stockpile Management Guidelines (Roads and Maritime, 2011a) and the "Management of Surplus Material" in Section 3.9 of the Submissions / Preferred Infrastructure Report.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
SSW11	Soils, sediment and water	Stockpile management	Where reasonable and feasible, stockpiles will: <ul style="list-style-type: none"> <li>• Not require removal of areas of native vegetation.</li> <li>• Be located outside of known areas of weed infestation.</li> <li>• Be located such that waterways and drainage lines are not directly or indirectly impacted.</li> </ul>	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
SSW12	Soils, sediment and water	Stockpile management	Where practicable, stockpiles will be located away from areas subject to concentrated overland flow. Stockpiles located on a floodplain be finished and contoured so as to minimise loss of material in flood or rainfall events.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with this requirement. Separate and approved CEMP documentation is in place for soft soil works (i.e. Wave 1 and Wave 2).
SSW13	Soils, sediment and water	Stockpile management	Topsoil will be stockpiled separately and inspected for noxious weed seedlings at six monthly intervals and controlled with herbicide as required.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
SSW14	Soils, sediment and water	Stockpile management	All construction stockpiles will comply with the requirements of the <i>Protection of the Environment Operations Act 1997</i> and NSW Waste Avoidance and Resource Recovery Strategy 2007 for any waste activities that involve the generation, storage and/or disposal of waste and also consider the NSW Resource Recovery Exemptions as applying the storage of stockpiled material.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
SSW15	Soils, sediment and water	Stockpile management	Stockpiles containing potential acid sulfate soils will be lined, bunded and covered in accordance with relevant guidelines.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
SSW16	Soils, sediment and water	Stockpile management	Management of tannin leaching from vegetation mulch will be in accordance with Roads and Maritime' Environmental Direction – Management of Tannins from Vegetation Mulch (Roads and Maritime, 2012).	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Reference / Comment
SSW17	Soils, sediment and water	Management of contamination	A Stage 1 Preliminary Site Investigation will be conducted to verify past and present potentially contaminating activities, potential contaminants of concern and the need for further investigation. This will include a review of past highway crashes and spills and the associated contamination risks.	All	Pre-construction	RMS	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B8 Construction Contamination Land Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).  The EIS identified potential contamination sites along the alignment. Further investigations have been carried out where disturbance of these sites was anticipated from construction activities.
SSW18	Soils, sediment and water	Management of contamination	If necessary, a Stage 2 Detailed Site Investigation will be undertaken to: <ul style="list-style-type: none"> <li>• Provide information on the type, nature, extent and concentrations of contamination present, and the corresponding risks to human health and the environment.</li> <li>• Examine pathways of contaminant dispersal and exposure, the potential for off-site impacts and the management requirements and options.</li> </ul>	All	Pre-construction	RMS	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B8 Construction Contamination Land Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).  The EIS identified potential contamination sites along the alignment. Further investigations have been carried out where disturbance of these sites was anticipated from construction activities. Stage 2 investigations have been carried out where required.
SSW19	Soils, sediment and water	Management of contamination	If required, a Stage 3 Remedial Action Plan will be produced, detailing the remediation goals, environmental safeguards, and any necessary approval and licence requirements in accordance with NSW Office of Environment and Heritage guidelines.	All	Pre-construction	RMS	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B8 Construction Contamination Land Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).  The EIS identified potential contamination sites along the alignment. Further investigations have been carried out where disturbance of these sites was anticipated from construction activities. Stage 3 remediation action plans have been /will be carried out where required.
SSW20	Soils, sediment and water	Management of contamination	Where further assessment indicates that further action is not required, Roads and Maritime' Contaminated Land Management Guideline (RTA, 2005a) will be applied to address any contamination issues and prevent any associated adverse impacts.	All	Pre-construction	RMS	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
SSW21	Soils, sediment and water	Management of contamination	A hazardous materials buildings assessment will be carried out before the demolition of any structures or buildings to identify the issues of concern and the management requirements. This is required under Clause 1.6 of Australian Standard AS 2601 – 2001 The Demolition of Structures.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B8 Construction Contamination Land Management Plan). Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with this requirement. Separate and approved CEMP documentation is in place for soft soil works (i.e. Waves 1 and 2).  Hazardous materials buildings assessments have been carried out for structures that have been demolished as part of the project.
SSW22	Soils, sediment and water	Emergency spill response	An emergency spill response plan will be developed and incorporated into the soils and water management plan. This plan will detail measures for the prevention, containment and clean-up of accidental spills of fuels and chemicals.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
SSW23	Soils, sediment and water	Emergency spill response	The storage, handling and use of the chemicals and fuels will be in accordance with the Work Health and Safety Act 2000 and Workcover's Storage and Handling of Dangerous Goods Code of Practice (WorkCover, 2005).	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
SSW24	Soils, sediment and water	Acid sulfate soils	Strategies to remove / reduce risks associated with acid sulfate soils will be identified.	All	Pre-construction and Construction	RMS and Contractor	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs. This requirement is also addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
SSW25	Soils, sediment and water	Acid sulfate soils	An acid sulfate soils management plan will be implemented in accordance with Guidelines for the Management of Acid Sulfate Materials (Roads and Maritime 2005) and Waste Classification Guidelines Part 4: Acid Sulfate Soils (DECC 2008), where there is a probability of encountering acid sulfate soils during construction.	All	Construction	Contractor	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs. This requirement is also addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Reference / Comment
SSW26	Soils, sediment and water	Soil erosion and sedimentation control	Appropriate erosion and sediment controls, following the guidelines of the 'Blue Books' (Landcom, 2004 and DECC, 2008a), and Roads and Maritime' Technical Guideline – Temporary Stormwater Drainage for Main Road Construction (Roads and Maritime, 2010b) will be established before the start of construction and maintained in effective working order for the duration of the construction period until site stabilisation.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
SSW27	Soils, sediment and water	Soil erosion and sedimentation control	Works within waterways will consider the need to maintain fish passage, in consultation with the Department of Primary Industries (Fisheries).	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
SSW28	Soils, sediment and water	Soil erosion and sedimentation control	Flow discharge points will be designed with erosion controls to manage the flow velocities.	All	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
SSW29	Soils, sediment and water	Design and maintenance of construction sedimentation basins	Where appropriate, construction phase sedimentations basins will be designed so they could be retained and used as permanent operational water quality ponds, where required for operational purposes.	All	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
SSW30	Soils, sediment and water	Design and maintenance of construction sedimentation basins	Sizing of sedimentation basins that drain into the Solitary Islands Marine Park will be reviewed to consider the use of 90th percentile sedimentation basins.	1	Pre-construction	RMS	NA	Not Applicable for Sections 3 to 11. Only applies to Section 1.
SSW31	Soils, sediment and water	Design and maintenance of construction sedimentation basins	Sedimentation basins will be inspected at regular intervals and following significant rainfall events to assess available water storage capacity, water quality, structural integrity and debris levels.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
SSW32	Soils, sediment and water	Design and maintenance of construction sedimentation basins	Where appropriate, an approved flocculent will be applied to sedimentation basins as early as possible so that early mixing of flocculants occurs. Water quality will be tested prior to discharge in accordance with any licence requirements.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
SSW33	Soils, sediment and water	Design and maintenance of construction sedimentation basins	Where sediment has built up in a basin to a point where the total sediment storage zone has reached capacity, sediment will be removed and appropriately disposed of.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
SSW34	Soils, sediment and water	Design and maintenance of construction sedimentation basins	Water from sedimentation basins will be used for construction purposes, such as dust suppression, where feasible.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
SSW35	Soils, sediment and water	Design and maintenance of construction sedimentation basins	When sedimentation basins require pumping out rather than discharge via a flow outlet, a float will be attached to the suction hose or the hose will be located inside a bucket to prevent sediment from the basin floor from being discharged.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
SSW36	Soils, sediment and water	Design and maintenance of construction sedimentation basins	Records will be kept of water quality monitoring and erosion and sediment control inspections, including details of rain events, use of flocculants, discharge, sediment removal and dewatering activities.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Reference / Comment
SSW37	Soils, sediment and water	Chemical use and storage	Physical controls to address the potential risks associated with the use and storage of chemicals on site will include: <ul style="list-style-type: none"> <li>• Use of appropriately banded storage facilities for chemicals and fuels.</li> <li>• Use of appropriately banded areas for refuelling and washdown.</li> <li>• Availability of effective spill kits at all construction sites.</li> </ul>	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the ER on 10 February 2016. The purpose of the AFMP is to detailed how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project.
SSW38	Soils, sediment and water	Ancillary facility management	At ancillary facilities, management of runoff and spills will include: <ul style="list-style-type: none"> <li>• Restricting vehicle movements to designated pathways where feasible.</li> <li>• Paving areas that will be exposed for extended periods, such as car parks and main access roads, where reasonable and feasible.</li> <li>• Diverting off-site runoff around sites where required.</li> <li>• Locating chemical or other hazardous material storage areas away from areas of known near-surface groundwater supplies, in areas where the water table is more than five metres below the surface; otherwise, areas be lined if they are to be located over a shallow groundwater source less than two metres deep.</li> </ul>	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the ER on 10 February 2016. The purpose of the AFMP is to detailed how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project.
SSW39	Soils, sediment and water	Ancillary facility management	Soil and water management at borrow source sites will be in line with Volume 2E of the Blue Book which covers water management of mines and quarries.	3, 8 and 10	Construction	Contractor	Open	Pacific Complete will prepare site specific Borrow Site Management Plans as required by the project. This requirement will apply to all borrow site management plans prepared by Pacific Complete. No borrow sites were operational during the reporting period. The Tyndale Borrow Site Management Plan (Portion A) was approved in August 2016 by DPE. The Lang Hill Borrow Site Management Plan (Portion C) was approved 23 November 2016 by DPE. Management Plans are currently being prepared for a number of borrow sites in Portion D.
SSW40	Soils, sediment and water		Discharges from the sediment basins during construction that do not meet the water quality parameters for Oxleyan Pygmy Perch habitat should not be discharged into the waterways that are known habitat for Oxleyan Pygmy Perch. Strategies will be implemented during construction to manage discharge of basin water, so that water depth and physico-chemical conditions are not changed in areas of Oxleyan Pygmy Perch habitat. Discharge protocols and criteria will be developed in consultation with Department of Primary Industries (Fisheries) and Office of Environment and Heritage during detailed design.	1, 2, 7, 8 and 9	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Details regarding OPP is also addressed in the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).  Discharge protocols have been developed with DPI Fisheries for works in OPP habitat.
SSW41	Soils, sediment and water	Management of groundwater intersection	Further assessment involving geotechnical boreholes, monitoring boreholes and water quality testing at cutting sites will be undertaken at Type A cutting sites to monitor impacts on local groundwater reserves.	All	Pre-construction	Contractor	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
SSW42	Soils, sediment and water	Management of groundwater intersection	Where groundwater is released, recharge of the water table is the preferred option of managing groundwater. This will be facilitated by collecting groundwater in grassed swales for infiltration back to the groundwater source. Where possible, these swales will divert the groundwater around the construction area so that the groundwater does not further mix with construction runoff.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
SSW43	Soils, sediment and water	Management of groundwater intersection	If recharging is not possible or suitable, then discharging groundwater will be collected via the sedimentation basins before discharge into natural waterways. If discharging to downstream groundwater, then the potential effects of mounding[1] will be mitigated.	All	Pre-construction	RMS	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
SSW44	Soils, sediment and water	Management of groundwater intersection	Dewatering of excavations will be undertaken in line with Roads and Maritime' Technical Guideline – Environmental Management of Construction Site Dewatering (Roads and Maritime, 2011c), and in accordance with any licence conditions.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
SSW45	Soils, sediment and water	Contaminated groundwater	Further investigations will be undertaken to identify any impacts from contaminated groundwater from the former landfill sites at Firth Heinz Road and Crowleys Road.	3	Pre-construction	RMS	Open	Groundwater monitoring is being undertaken near Firth Heinz Rd at CH52100 (GWB3-24b and GWB3-23b) and CH64900 (GWB3-41 and GWB3-42b).

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Reference / Comment
SSW46	Soils, sediment and water	Prevention of groundwater impacts	The proposed management strategy to address potential impacts at type A cuttings includes: <ul style="list-style-type: none"> <li>• Pre-works investigations — geotechnical investigations to determine groundwater condition (quality parameters: electrical conductivity, groundwater depth, geological information), presence of actual or potential acid sulfate soils, presence or potential of salinisation, establishing groundwater monitoring sites, and gathering of other pertinent information.</li> <li>• Assessment – including the EIS assessment, the pre-works investigations carried out, groundwater modelling of cuts (and the Rous Water Woodburn borefield site), and predictions made from those results.</li> <li>• Monitoring – to assess whether the investigation and its predictions are accurate and to instigate early intervention in the unlikely case/s that the actual outcomes deviate from predictions. Monitoring start before construction, and continue during construction. Monitoring also continue into the operation phase of the project.</li> <li>• Mitigation – implement environmental and engineering management measures where predictions and/or modelling and monitoring suggest that these are required to minimise impacts on groundwater.</li> </ul>	All	Pre-construction and construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs. This requirement is also addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Details regarding OPP is also addressed in the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
SSW47	Soils, sediment and water	Prevention of groundwater impacts	The monitoring of locations in the vicinity of type B cuttings and major embankments will commence before construction to identify the need to implement any mitigation measure.	All	Pre-construction, construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs. This requirement is also addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Details regarding OPP is also addressed in the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
SSW48	Soils, sediment and water	Prevention of groundwater impacts	If required to manage groundwater impacts at type A and type B cuttings and major embankments, the following engineering mitigation measures will be considered: <ul style="list-style-type: none"> <li>• Engineering measures that transfer the seepage water downstream. Standard practice will be to collect the seepage from the cut face in the drainage system for the highway, which will be diverted into water quality basins before being released back into the creek or natural drainage system at some point downstream.</li> <li>• Engineering impact mitigation measures that transfer the seepage water (where present) into the groundwater ecosystem immediately downslope of the cutting or embankments.</li> </ul>	All	Pre-construction and construction	RMS and Contractor	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs. This requirement is also addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Details regarding OPP is also addressed in the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
SSW49	Soils, sediment and water	Prevention of groundwater impacts	Major embankments will be designed to enable distributed flow of surface waters.	All	Pre-construction and construction	RMS and Contractor	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs. This requirement is also addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). Separate and approved CEMP documentation is in place for soft soil works (i.e. Waves 1 and 2).
SSW50	Soils, sediment and water	Prevention of potential impacts on groundwater quality	Measures to manage high-risk groundwater impact areas will continue to be considered through the detailed design process. In identified areas, the design of water quality controls will be reviewed and the need for additional controls may be identified.	All	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs. This requirement is also addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). Separate and approved CEMP documentation is in place for soft soil works (i.e. Waves 1 and 2).
SSW51	Soils, sediment and water	Prevention of potential impacts on groundwater quality	Where reasonable and feasible, sites used for batch plants, refuelling and chemical storage will be managed so that no groundwater intrusion occurs.	All	Pre-construction and construction	RMS and Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the ER on 10 February 2016. The purpose of the AFMP is to detail how Pacific Complete will assess, consult, gain approval and manage individual ancillary facilities during the project. Separate and approved CEMP documentation is in place for soft soil works (i.e. Waves 1 and 2).

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Reference / Comment
SSW52	Soils, sediment and water	Prevention of impacts on Rous Water bore fields	All construction runoff to the Rous Water bore fields will be diverted to appropriate sedimentation controls basins. No runoff will bypass the basins untreated, regardless of the size of the footprint of the work. In addition, all basins in the bore fields will be clay lined to prevent seepage. If required, the depth of the basins will be reduced from the standard depth of two metres to one metre in these areas to avoid penetration of the natural clay layer, with the volume of the basins maintained by increasing their footprint where reasonable and feasible.	8	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). Wave 4 has carried out consultation with Rous Water regarding ESCP design where required.
SSW53	Soils, sediment and water	Prevention of impacts on Rous Water bore fields	Sizing of sedimentation basins in the Rous Water bore fields will be reviewed to consider the use of 90th percentile basins.	8	Construction	RMS and Contractor	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs. This requirement is also addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
SSW54	Soils, sediment and water	Prevention of impacts on Rous Water bore fields	The following construction activities will not be permitted within the Rous Water bore field catchment without additional control measures to reduce risk of impact to the borefield and groundwater: <ul style="list-style-type: none"> <li>• Refuelling.</li> <li>• Washdown.</li> <li>• Storage of chemicals or other hazardous substances.</li> <li>• Installation of concrete batch plants.</li> </ul>	8	Construction	Contractor	Closed	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
SSW55	Soils, sediment and water	Prevention of impacts on Rous Water bore fields	Water quality ponds will be designed to be shallower between stations 131.1 and 134.0 (namely one metre compared to two metres) to avoid penetration of the natural clay layer, where possible. Alternatively, where not feasible, clay capping/ lining of the basin will be undertaken or consideration of appropriately designed swales.	8	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
SSW56	Soils, sediment and water	Prevention of impacts on Rous Water bore fields	Alternative operational water quality management measures such as the use of biofilters, sand filters or measures used in the Tintenbar to Ewingsdale Pacific Highway upgrade project will be considered during detailed design.	8	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
SSW57	Soils, sediment and water		Consultation will be undertaken with Rous Water to co-ordinate mitigation actions including the definition of appropriate buffer zones between the project and bores.	8	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
SSW58	Soils, sediment and water		Consultation will be undertaken with Rous Water to address the 12 elements of the Australian Drinking Water Guidelines Management Framework.	8	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
SSW59	Soils, sediment and water	Protection of water quality	All permanent water quality basins will incorporate measures to contain accidental fuel and chemical spills resulting from vehicle accidents on the highway. Basins will be designed to accommodate a spill volume of up to 40,000 litres.	All	Operation	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
SSW60	Soils, sediment and water	Protection of water quality	For water quality treatment in floodplains and other locations with minimal changes in gradient, grassed swales will be considered during detailed design.	All	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
SSW61	Soils, sediment and water	Protection of water quality	Appropriate scour protection for drainage measures will be determined during detailed design.	All	Operation	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
SSW62	Soils, sediment and water	Monitoring programs	Surface water quality monitoring will be undertaken in accordance with Roads and Maritime' Guideline for Construction Water quality Monitoring (RTA, 2003), and as per the framework outlined in the Working paper – Water quality.	All	Pre-construction	RMS	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan) which includes the Section 3 to 11 Water Quality Monitoring Program. Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with this requirement. Separate and approved CEMP documentation is in place for soft soil works (i.e. Waves 1 and 2).
SSW63	Soils, sediment and water	Monitoring programs	Groundwater monitoring will be undertaken in accordance with the framework outlined in the Working paper – Groundwater (Section 5.2).	All	Construction	RMS	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan) which includes the Section 3 to 11 Water Quality Monitoring Program. Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
SSW64	Soils, sediment and water	Ordnance contamination	Consultation will be undertaken with Department of Defence regarding the potential for unexploded ordnance to be encountered east of Broadwater.	9	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs. This requirement is also addressed in the Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
<b>BIODIVERSITY</b>								

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Reference / Comment
B1	Biodiversity	Monitoring strategy	The Ecological Monitoring Program (Appendix K) will be finalised in consultation with relevant State and Commonwealth agencies and incorporate any specific conditions of approval and feedback from the expert review.	All	Pre-construction	RMS	Closed	The Ecological Monitoring Program has been superseded by the Biodiversity Mitigation Framework required by MCoA D1. The Biodiversity Mitigation Framework was approved by DoE on 8 May 2015. Pacific Complete is responsible for ensuring that required ecological monitoring is undertaken during the course of the project. Ecological monitoring will be procured directly by Pacific Complete and in some cases included in the scope of works to be undertaken by the contractors.
B2	Biodiversity	Fauna connectivity	The Connectivity Strategy will be further developed during detailed design, in consultation with relevant State and Commonwealth agencies, building upon the Connectivity Strategy in Appendix A of the Working paper – Biodiversity and the Supplementary Biodiversity Assessment in Appendix J of the Submissions / Preferred Infrastructure Report.	All	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
B3	Biodiversity	Fauna connectivity	All fauna connectivity structures will be developed in accordance with the design principles outlined in the Connectivity Strategy in Appendix A of the Working paper – Biodiversity and the Supplementary Biodiversity Assessment in Appendix J of the Submissions / Preferred Infrastructure Report.	All	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
B4	Biodiversity		Opportunities for improved connectivity for koala and Long-nosed Potoroo will be further investigated between station 144.2 and station 146.6.	9 and 10	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
B5	Biodiversity	Fauna exclusion fencing	Fauna exclusion fencing locations and design will be further developed in accordance with the design principles outlined in the Connectivity Strategy in Appendix A of the Working paper – Biodiversity.	All	Pre-construction and construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
B6	Biodiversity	Fauna exclusion fencing	Fauna exclusion fencing in low-lying floodplains between stations 35.0 and 80.2 will where feasible and reasonable, be placed higher on fill embankments to reduce damage from flooding.	3 and 4	Construction	Contractor	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs. This requirement is also addressed in the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Sub-Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
B7	Biodiversity	Arboreal crossings	Tree height surveys will be conducted at proposed arboreal crossing zones to determine the most appropriate location to place rope or pole structures. Where feasible, the design will place arboreal crossing zones where average tree heights exceed 20 metres, and/ or taller trees are able to be safely retained close to the road edge.	All	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
B8	Biodiversity	Widened median	The design and construction of fauna exclusion fencing, drainage or fauna underpass structures in widened medians minimise vegetation clearing.	1, 2 and 7	Pre-construction and construction	RMS and Contractor	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
B9	Biodiversity	Widened median	Where feasible and reasonable, native vegetation forming part of the identified widened medians will not be disturbed for any ancillary construction purpose including access tracks, stockpiles, materials laydown and ancillary facilities.	1, 2 and 7	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Sub-Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
B10	Biodiversity	Flora and fauna management plan	A Flora and Fauna Management Plan will be prepared in accordance with Roads and Maritime Biodiversity Guidelines – Protecting and managing biodiversity on RTA projects (RTA, 2011a).	All	Pre-construction	RMS	Open	This requirement is addressed by the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
B11	Biodiversity	Threatened species management sub-plans	The threatened species management plans prepared for the project will be finalised, as relevant to the element of the project to be constructed. Development of the plans will include responding, where feasible and reasonable to: <ul style="list-style-type: none"> <li>• Recommendations from expert review undertaken as part of the Submissions / Preferred Infrastructure Report (and detailed in section 1.4 of the management plans).</li> <li>• Any conditions of approval.</li> <li>• Results from baseline monitoring undertaken.</li> </ul> The threatened species management plans will be finalised in consultation with the relevant State and Federal government agencies.	All	Pre-construction	RMS	Open	The following Threatened Species Management Plans have been prepared and approved: Threatened Flora Management Plan Update 1 (Section 1, Section 2, Waves 1, 2 and 3) DPE Approval 30 April 2015, DoE Approval 5 May 2015. Threatened Flora Management Plan Update 2 (Sections 3 to 11) DPE Approval 21 August 2015, DoE Approval 4 September 2015. Threatened Rainforest Plants Management Plan (Section 10) DPE Approval 11 September 2015. Threatened Mammal Management Plan Update 1 DPE Approval 7 May 2015, DoE Approval 12 May 2015. Threatened Mammal Management Plan Update 2 DPE Approval 21 October 2015, DoE Approval 25 October 2015. Threatened Invertebrates Management Plan DPE Approval 29 July 2015. Threatened Fish Management Plan DPE Approval 30 July 2015. Threatened Frog Management Plan DPE Approval 7 May 2015. Threatened Glider Management Plan DPE Approval 4 May 2015. Coastal Emu Management Plan (Sections 3 and 4, excluding Wave 3) DPE Approval 3 June 2015. Coastal Emu Management Plan (includes updates for Wave 3) DPE Approval 18 December 2015. Microbat Management Plan (Section 3 to 11) DPE approval 25 May 2015. Koala Management Plan (Section 1 to 11), DPE Approval 4 August 2016, DoEE Approval 11 August 2016.

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B12	Biodiversity	Re-establishment of native vegetation	A landscape management plan will be developed to provide specific details for the re-establishment of native vegetation on batters, cut faces, surrounding sediment basins and other areas disturbed during construction. This includes details for the appropriate removal and restoration of temporary creek crossings. The landscape management plan will be developed in line with Roads and Maritime Biodiversity Guidelines (RTA, 2011a), the design principles identified in the Connectivity Strategy and the design principles in Working paper – Urban design, landscape character and visual impact.	All	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Each design Portion (i.e. A, B, C and D) which covers Section 3 through to Section 11 will be required to prepare an Urban Design and Landscape Plan in accordance with the requirements of this CoA. Pacific Complete will review detailed design deliverables to ensure compliance with the relevant CoA.  Early works do not require urban design or landscaping.
B13	Biodiversity	Minimising loss of vegetation and habitat	Disturbance and clearing of vegetation will be minimised, particularly: <ul style="list-style-type: none"> <li>• Avoiding and minimising vegetation removal wherever possible through the detailed design process.</li> <li>• Placing water quality basins in the optimal location for treating surface runoff. During detailed design, the location of water quality treatment measures will consider minimising vegetation removal, particularly where there is the potential for threatened plant species, threatened fauna habitat or in identified regional wildlife corridors.</li> </ul>	All	Pre-construction and construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs. This requirement is addressed by Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
B14	Biodiversity	Bridge and culvert design	Instream structures such as bridges and culverts will be designed and managed to minimise any potential impact to flow regimes and fish passage, in accordance with Fairfull and Witheridge (2003).	All	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
B15	Biodiversity	Bridge and culvert design	During detailed design, the waterway class will be confirmed and the design will be reviewed to include appropriate crossing structures for the relevant waterway class at the following locations: <ul style="list-style-type: none"> <li>• Unnamed waterway station 114.0</li> <li>• Oaky Creek station 122.5</li> <li>• Nortons Gully station 123.6</li> <li>• Unnamed waterway station 133.4</li> <li>• Unnamed waterway at station 134.7</li> <li>• Tributary of Macdonalds Creek at station 135.5</li> <li>• Montis Gully tributary at station 141.8</li> <li>• Eversons Creek station 143.6</li> </ul>	7 and 8	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
B16	Biodiversity	Bridge and culvert design	All drainage structures between stations 134.5 to 143.0 will be reviewed in consultation with Department of Primary Industries (Fisheries) to ensure suitable connectivity for threatened fish species is maintained.	8 and 9	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
B17	Biodiversity	Bridge and culvert design	Each permanent waterway crossing is to be designed to ensure no physical, hydraulic and behavioural barriers to aquatic fauna movements. Impacts be minimised by ensuring that: <ul style="list-style-type: none"> <li>• The natural stream flow and velocity are maintained as closely as possible.</li> <li>• Surface level of any causeway is the same or lower than the natural stream bed to reduce interference with flow.</li> <li>• Habitat within a culvert is as natural as possible (e.g. allow rock and bed materials to infill the culvert base).</li> <li>• There is the maximum light penetration.</li> <li>• Fauna and fish passage standards are maintained, as detailed in the Connectivity Strategy, including minimum design widths, including for natural banks, while also providing for scour protection and cut and fill batters.</li> <li>• Bridges will be designed and sized to ensure peak flood velocities are not increased by more than one metre per second than the existing flood event, where Oxleyan Pygmy Perch have been confirmed.</li> </ul>	All	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
B18	Biodiversity	Bridge and culvert design	Bridge structures will be designed to minimise impacts to flow regimes and fish passage. Where feasible and reasonable the following principles will apply: <ul style="list-style-type: none"> <li>• Bridge piers to be located outside the main channel.</li> <li>• Bridge structures to be designed to prevent an increase of backup of water during times of flood that will enable Plague Minnow to access waterbodies where they are currently not found (e.g. Broadwater National Park).</li> <li>• Construction not alter or reduce flow where there are existing or potential Oxleyan Pygmy Perch populations (primarily within Sections 7, 8 and 9).</li> </ul>	All	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
B19	Biodiversity	Temporary and permanent waterway diversions/crossings	Where temporary access tracks are required over drainage lines with no flow, fords may be installed.	All	Construction	Contractor	Open	This requirement is addressed by the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). Temporary crossing designs have been developed in consultation / approved by PC in accordance with the CEMP.
B20	Biodiversity	Temporary and permanent waterway diversions/crossings	Where possible, existing crossings will be used. Where this is not feasible or reasonable, the temporary crossings will be designed to minimise impacts on the existing aquatic ecology and water quality.	All	Construction	Contractor	Open	This requirement is addressed by the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). Where possible, low flow pipes have been installed at temporary drainage line crossings in accordance with Blue Book requirements.
B21	Biodiversity	Temporary and permanent waterway diversions/crossings	Temporary waterway access track mitigation measures include: <ul style="list-style-type: none"> <li>• Installation and subsequent decommissioning of temporary crossings will be undertaken outside of Oxleyan Pygmy Perch spawning seasons (October to December), where Oxleyan Pygmy Perch have been confirmed.</li> <li>• Temporary crossings will be constructed from clean fill using pipe or box culvert cells to carry flows.</li> <li>• All temporary works (e.g. crossings, flow diversion barriers) will be removed as soon as practicable and in a way that does not promote future channel erosion.</li> <li>• The preferred temporary structure for crossing waterways will be consistent with Witheridge (2002).</li> <li>• Scour protection works will be established at temporary crossings as required.</li> <li>• At the completion of construction, the temporary crossings will be removed and rehabilitated.</li> </ul>	All	Construction	Contractor	Open	This requirement is addressed by the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). Temporary Crossings have been designed and implemented in accordance with the Blue Book and in consultation with ERG, including these provisions.



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B22	Biodiversity	Fish translocation	Fish that become stranded due to temporary access crossings or construction of temporary or permanent creek diversions must be captured and translocated following the Department of Primary Industries Fisheries Guidelines – A Guide to Acceptable Procedures and Practices for Aquaculture and Fisheries Research.	All	Construction	Contractor	Open	This requirement is addressed by the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). Appropriately qualified aquatic ecologists have been used to clear drainage channels when closing or moving.
B23	Biodiversity	Pre-clearing surveys	The pre-clearing process will be consistent with Roads and Maritime Biodiversity Guidelines: Protecting and Managing Biodiversity on RTA projects (RTA, 2011a) and include: <ul style="list-style-type: none"> <li>• Pre-clearing surveys by an experienced ecologist for large bird nests, particularly for listed species such as the Black-necked Stork, Eastern Osprey, Square-tailed Kite and Little Eagle during the nesting and breeding season (July to December) and tree roosting (e.g. Southern Myotis) or cave dwelling bats in trees or existing culvert/bridge structures. If the species is present in or directly adjacent to the project footprint (including ancillary facilities), measures to manage any species be considered, if required.</li> <li>• Mapping the location of any threatened flora and/or fauna species, Threatened Ecological Communities and habitat.</li> <li>• Construction traffic will be restricted to defined access tracks, fenced prior to the start of construction and maintained until construction is complete.</li> </ul>	All	Pre-construction and construction	Contractor	Open	This requirement is addressed by the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). Clearing limits and access delineation are clearly shown on relevant construction drawings, surveyed and flagged in the field and closely tracked throughout the project. Suitably Qualified Ecologist is present undertake pre-clearing survey prior to commencement of all clearing in any area and to complete inspections and complete checklist and also during clearing of any habitat trees in accordance with the Construction Flora and Fauna Management Plan and Vegetation Clearing and Ground Disturbance construction procedure.
B24	Biodiversity	Exclusion zones	The location of exclusion zones will be identified, with temporary fencing or flagging tape to indicate the limits of clearing (in accordance with the Roads and Maritime Biodiversity Guidelines (RTA, 2011a)). Permanent fauna exclusion fencing for the project (as described in the Connectivity Strategy), where reasonable and feasible, will be installed prior to clearing and can function as exclusion fencing.	All	Construction	Contractor	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs. This requirement is addressed by the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
B25	Biodiversity	Staged removal process	A staged habitat removal process will be implemented consistent with the Roads and Maritime Biodiversity Guidelines (RTA, 2011a).	All	Construction	Contractor	Open	This requirement is addressed by the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
B26	Biodiversity	Re-use of woody debris and bushrock	Woody debris and bushrock will be re-used on site for habitat improvement where possible and will be detailed in the landscape management plan in accordance with the Roads and Maritime Biodiversity Guidelines (RTA, 2011a).	All	Construction	RMS and Contractor	Open	This requirement is addressed by the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
B27	Biodiversity	Weed management	A weed management plan will be developed as part of the CEMP, in accordance with the Roads and Maritime Biodiversity Guidelines (RTA, 2011a) and the Introductory Weed Management Manual (Richards, 2004).	All	Pre-construction and construction	RMS	Open	This requirement is addressed by the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
B28	Biodiversity	Weed management	A site assessment by an ecologist or person trained in weed identification will be undertaken to identify the presence and extent of Alligator weed. If present, management measures in the Weed Management Plan will be in accordance with the Department of Primary Industries Alligator Weed control manual (van Oosterhout, 2007).	7 to 10	Pre-construction	Contractor	Open	This requirement is addressed by the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
B29	Biodiversity	Pathogen management	Measures to prevent the introduction and/or spread of pests and disease causing agents such as bacteria and fungi will be incorporated into the CEMP, in accordance with the Roads and Maritime Biodiversity Guidelines (RTA, 2011a).	All	Pre-construction and construction	RMS and Contractor	Open	This requirement is addressed by the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
B30	Biodiversity	Pathogen management	If pathogens are identified on site: <ul style="list-style-type: none"> <li>• Testing may be required to confirm the presence of pathogens.</li> <li>• Advice from government departments will be sought on practical hygiene management measures.</li> <li>• Fenced exclusion zones will be identified to restrict access into contaminated areas.</li> </ul>	All	Construction	RMS and Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Plan). Pacific Complete is in the process of procuring an investigation to determine whether Phytophthora is present within Sections 3 to 11. Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).

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B31	Biodiversity	Nest boxes	Nest boxes be installed as per Roads and Maritime Biodiversity Guidelines (RTA, 2011a) and a nest box strategy developed as part of the CEMP, detailing: <ul style="list-style-type: none"> <li>The number and type of nest boxes required based on the number, quality and size of the hollows that be removed.</li> <li>Specifications for nest box dimensions, installation requirements, locations of nest boxes and ongoing monitoring and maintenance.</li> <li>Installation timeframes, including the installation of 70 % of nest boxes prior to the removal of any vegetation in the vicinity of the hollows.</li> </ul>	All	Pre-construction and construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
B32	Biodiversity	Fauna handling	To prevent injury and mortality of fauna during the clearing of vegetation and drainage of farm dams, an experienced and licensed wildlife carer and/or ecologist will be present to capture and relocate fauna where required. Further details regarding fauna handling and vegetation clearing procedures are provided in the Roads and Maritime Biodiversity Guidelines (RTA, 2011a).	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Plan). Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with this requirement. Separate and approved CEMP documentation is in place for soft soil works (i.e. Waves 1 and 2). An ecologist was present during all clearing works.
B33	Biodiversity	Riparian and aquatic habitat management	Prior to any disturbance of waterway banks, a thorough inspection by a qualified ecologist will be undertaken for aquatic fauna such as turtle nests.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). Ecologist pre-inspection undertaken in accordance with approved CFFMP
B34	Biodiversity	Riparian and aquatic habitat management	Where possible, streams will be crossed perpendicular to flow, with crossing sites selected to avoid unstable banks, bends in the channel, deep pools and confluences with other channels.	All	Pre-construction	RMS and Contractor	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
B35	Biodiversity	Riparian and aquatic habitat management	The bed and banks are to be reinstated to a condition similar to or better than the original condition ensuring that there are no adverse impacts on the aquatic values (different measures may be required for each crossing) and where feasible and reasonable, avoid impacts on geomorphic processes.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Plan). Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with this requirement. Separate and approved CEMP documentation is in place for soft soil works (i.e. Waves 1 and 2). where possible, disturbance to the bed and banks will be avoided as well as any impacts on geomorphic processes.
B36	Biodiversity	Riparian and aquatic habitat management	All construction materials used for permanent watercourse crossings (rocks and gravel) are to be free of fine particles to minimise turbidity.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). Clean rock used for the installation of permanent water crossings.
B37	Biodiversity	Riparian and aquatic habitat management	Instream and riparian disturbance will be minimised and sediment, woody snags or debris removed from a stream or stream channel will be minimised. Trimming or 'lopping' of branches and logs will be considered as a first option before moving.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
B38	Biodiversity	Riparian and aquatic habitat management	Any instream woody debris removed during construction will be replaced at the completion of the works within the same waterways from which it was removed, where feasible and reasonable.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
B39	Biodiversity	Riparian and aquatic habitat management	Where feasible and reasonable within the road corridor, existing pools will be retained upstream and downstream of crossings within known habitat of the Oxleyan Pygmy Perch to provide resting and refuge habitat near crossing structures.	1,2,7,8, and 9	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
B40	Biodiversity	Riparian and aquatic habitat management	Appropriate plant species will be incorporated into the rehabilitation of disturbed aquatic habitats and drains as a result of construction.	All	Construction	RMS and Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). During detailed design, Urban Design and Landscape Plans will be prepared in accordance with MCoA D20. Pacific Complete will review the relevant detailed design deliverables to ensure compliance with MCoA D20.

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B41	Biodiversity	Riparian and aquatic habitat management	All construction sediment and erosion control measures will be put in place during the construction process and may include sediment and erosion control curtains in the waterways to control turbidity generated during the construction and restoration process.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). Where appropriate, Sediment curtains will be included for works in waterways in consultation with DPI (Fisheries) and EPA.
B42	Biodiversity	Riparian and aquatic habitat management	No turbid water generated from the construction corridor or construction area is to be discharged to any waterway unless in accordance with relevant Environment Protection Licence conditions and developed in consultation with Environment Protection Authority and Department of Primary Industries (Fisheries).	All	Construction	Contractor	Open	Pacific Complete has obtained an Environment Protection Licence (EPL) for Sections 3 to 11 (No. 20173, 29 January 2016). This EPL is in addition to those obtained directly by Contractors engaged by RMS to undertake soft soil works (i.e. Waves 1 and 2). This requirement is also addressed in Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). All discharges to waterways were undertaken in accordance with relevant EPL conditions.
B43	Biodiversity	Timing of in-stream works	No in-stream work will occur in known Oxleyan Pygmy Perch habitat during the Oxleyan Pygmy Perch spawning season (October to December inclusive) or within 24 hours of the commencement of any rainfall event (>10 millimetres).	1,2,7,8, and 9	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). Required in-stream work in known OPP habitat was carried out prior to October 2016.
B44	Biodiversity	Water quality	Operational spill basins are to be installed at key locations i.e. near Broadwater National Park and other key drainage lines that lead directly into threatened fish habitat.	All	Operation	RMS and Contractor	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
B45	Biodiversity	Water quality	Chemicals and fuels will be appropriately stored and banded, away from waterways and drainage lines.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
B46	Biodiversity	Water quality	Discharges from sediment basins and/or treatment wetlands located in Oxleyan Pygmy Perch habitat that do not meet the water quality parameters for Oxleyan Pygmy Perch (to be determined through pre-construction water quality monitoring) will not be discharged directly into waterways, with other methods or uses employed to discharge. This could include, but not be limited to: <ul style="list-style-type: none"> <li>• Spraying onto adjacent open grass areas or used for construction purposes such as dust.</li> <li>• Treating the water to ensure the pH is between 5.0 and 6.5 and total suspended solids of less than 50 mg/L, before discharging, depending on environmental protection licensing requirements.</li> </ul>	1,2,7,8, and 9	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
B47	Biodiversity	Water quality	Water quality monitoring will be undertaken to assess the effectiveness of (and where necessary amend) water, sediment and erosion management strategies that aim to protect native fish species, their habitat and other aquatic flora and fauna species. Water quality monitoring program be undertaken in line with details in Appendix B of the Working paper – Biodiversity.	All	Construction	Contractor	Open	Following project approval water quality monitoring requirements are detailed in the Water Quality Monitoring Program (S3-S11) as required by MCoA D12 and approved by DPE on 24 August 2015 and the Threatened Fish Management Plan which was approved by DPE on 30 July 2015. Both these plans form part of the Pacific Complete CEMP (i.e. Appendix B4 Construction Soil and Water Quality Management Plan and Appendix B2 Construction Flora and Fauna Management Plan respectively). Pacific Complete is responsible for ensuring that the required water quality monitoring is undertaken during the course of the project. Water quality monitoring may be procured directly by Pacific Complete or included in the scope of works to be undertaken by works contractors.
B48	Biodiversity	Stockpile and ancillary facilities management	Where feasible and reasonable, stockpiles will be located above the 1:100 year flood level with appropriate management control measures in place such as bunding.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the ER on 10 February 2016. The purpose of the AFMP is to detail how Pacific Complete will assess, consult, gain approval and manage individual ancillary facilities during the project.
B49	Biodiversity	Stockpile and ancillary facilities management	Specific management measures will be implemented to limit impacts from stockpiling of material for bridgeworks at known and potential areas of Oxleyan Pygmy Perch during the spawning seasons of October to December.	1,2,7,8, and 9	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Plan). Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with this requirement.
B50	Biodiversity	Stockpile and ancillary facilities management	Batch plants will be located at least 300 metres away from Oxleyan Pygmy Perch habitat where sediment erosion not runoff into waterways (due to the risk of high alkaline runoff).	1,2,7,8, and 9	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Plan). Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with this requirement. Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the ER on 10 February 2016. The purpose of the AFMP is to detail how Pacific Complete will assess, consult, gain approval and manage individual ancillary facilities during the project. Existing ancillary facilities are in compliance with this condition.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Reference / Comment
B51	Biodiversity	Stockpile and ancillary facilities management	Ancillary facilities will be located in cleared or sparsely treed portions of the ancillary facility sites, and avoid unnecessary clearing of native vegetation.	All	Pre-construction and construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Plan). Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with this requirement. Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the ER on 10 February 2016. The purpose of the AFMP is to detail how Pacific Complete will assess, consult, gain approval and manage individual ancillary facilities during the project. Separate and approved CEMP documentation is in place for soft soil works (i.e. Waves 1 and 2). Clearing has been avoiding where possible for the establishment of ancillary facilities.
B52a	Biodiversity	Stockpile and ancillary facilities management	Ancillary facility - Section 2 site 1a: <ul style="list-style-type: none"> <li>Flag and avoid hollow bearing trees</li> <li>Revegetation of the section of the site in the road reserve or the entire site (if practicable).</li> </ul>	2	Construction	Contractor	NA	This Tracking Program applies to sections 3 to 11. For Sections 1 and 2, refer to Stage 1 Compliance Program.
B52b	Biodiversity	Stockpile and ancillary facilities management	Ancillary facility - Section 2 site 5a: <ul style="list-style-type: none"> <li>Avoid isolated trees and flag and avoid hollow bearing trees where possible. Site to remain cleared to benefit emus.</li> </ul>	2	Construction	Contractor	NA	This Tracking Program applies to sections 3 to 11. For Sections 1 and 2, refer to Stage 1 Compliance Program.
B52c	Biodiversity	Stockpile and ancillary facilities management	Ancillary facility - Section 2 site 6a and 6b: <ul style="list-style-type: none"> <li>Site to remain clear (not vegetated) to benefit emus.</li> </ul>	2	Construction	Contractor	NA	This Tracking Program applies to sections 3 to 11. For Sections 1 and 2, refer to Stage 1 Compliance Program.
B52d	Biodiversity	Stockpile and ancillary facilities management	Ancillary facility - Section 3 Site 1: <ul style="list-style-type: none"> <li>This compound site that was used for the Glenugie Upgrade and has been revegetated post-construction. A site inspection and survey is required prior to construction to determine its suitability for future use as an ancillary site.</li> <li>Avoid mature trees.</li> <li>Revegetation of the section of the site in the road reserve or the entire site (if practicable).</li> </ul>	3	Construction	Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detail how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. Site specific ancillary facility management plans will be prepared by Pacific Complete. Ancillary Facilities required for soft soil works (i.e. Waves 1 and 2) will be managed separately via existing approved CEMPs and associated management plans (e.g. AFMPs). Ancillary facility has not been assessed and approved for use.
B52e	Biodiversity	Stockpile and ancillary facilities management	Ancillary facility - Section 3 Site 2: <ul style="list-style-type: none"> <li>Provide a buffer of 50 metres minimum from creek and sediment fencing where required.</li> <li>Avoid mature trees.</li> <li>Revegetation of the section of the site in the road reserve or the entire site (if practicable).</li> </ul>	3	Construction	Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detail how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. Site specific ancillary facility management plans will be prepared by Pacific Complete. Ancillary Facilities required for soft soil works (i.e. Waves 1 and 2) will be managed separately via existing approved CEMPs and associated management plans (e.g. AFMPs). Ancillary facility management plan/ checklist has been prepared and approved for this site by the ER on 8 September 2016
B52f	Biodiversity	Stockpile and ancillary facilities management	Ancillary facility - Section 3 Site 4: <ul style="list-style-type: none"> <li>Ancillary site to be restricted to the western parts of the site adjoining Wooli Road.</li> <li>Vegetation in the road reserve along Wooli Road to be protected from disturbance.</li> <li>The population of the Slender Screw Fern plants is to be avoided.</li> <li>Existing trails or disturbed areas to be used for access to site. Bostock Road not to be used for access.</li> </ul>	3	Construction	Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detail how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. Site specific ancillary facility management plans will be prepared by Pacific Complete. Ancillary Facilities required for soft soil works (i.e. Waves 1 and 2) will be managed separately via existing approved CEMPs and associated management plans (e.g. AFMPs). Ancillary facility management plan/ checklist has been prepared and approved for this site by the ER on 30 September 2016.
B52g	Biodiversity	Stockpile and ancillary facilities management	Ancillary facility - Section 3 Site 8: <ul style="list-style-type: none"> <li>Identify and mark Angophora robur during pre-clearing and provide exclusion fencing.</li> </ul>	3	Construction	Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detail how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. Site specific ancillary facility management plans will be prepared by Pacific Complete. Ancillary Facilities required for soft soil works (i.e. Waves 1 and 2) will be managed separately via existing approved CEMPs and associated management plans (e.g. AFMPs). Ancillary facility has not been assessed and approved for use.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Reference / Comment
B52i	Biodiversity	Stockpile and ancillary facilities management	Ancillary facility - Section 3 Site 9: <ul style="list-style-type: none"> <li>• Provide buffer to the surrounding forest.</li> <li>• Identify and mark Angophora robur during pre-clearing and provide exclusion fencing</li> <li>• Provide sediment fencing on eastern boundary where required.</li> <li>• Avoid and buffer koala feed trees in the northwest corner of the site. Buffer required from edge of the forest to reduce edge effects, sediment fencing where required.</li> </ul>	3	Construction	Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detail how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. Site specific ancillary facility management plans will be prepared by Pacific Complete. Ancillary Facilities required for soft soil works (i.e. Waves 1 and 2) will be managed separately via existing approved CEMPs and associated management plans (e.g. AFMPs). Ancillary facility management plan/ checklist has been prepared and approved for this site by the ER on 19 October 2016.
B52j	Biodiversity	Stockpile and ancillary facilities management	Ancillary facility - Section 5 Site 6: <ul style="list-style-type: none"> <li>• Consult with OEH on future use of this site post-construction, which may have offset potential with assisted regeneration and could be considered as a potential addition to Mororo Creek Nature Reserve</li> <li>• Flag and buffer habitat patch on southern boundary.</li> </ul>	5	Construction	Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detail how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. Site specific ancillary facility management plans will be prepared by Pacific Complete. Ancillary Facilities required for soft soil works (i.e. Waves 1 and 2) will be managed separately via existing approved CEMPs and associated management plans (e.g. AFMPs).  Ancillary facility is proposed for use. Consultation is ongoing with OEH.
B52k	Biodiversity	Stockpile and ancillary facilities management	Ancillary facility - Section 5 Additional site 9: Provide buffer around Mororo Creek and sediment fencing to protect riparian areas Flag and buffer habitat patch on southern boundary	5	Construction	Contractor	Closed	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detail how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. Site specific ancillary facility management plans will be prepared by Pacific Complete. Ancillary Facilities required for soft soil works (i.e. Waves 1 and 2) will be managed separately via existing approved CEMPs and associated management plans (e.g. AFMPs). Ancillary facility management plan/ checklist has been prepared and approved for this site by the ER on 31 August 2016.
B52l	Biodiversity	Stockpile and ancillary facilities management	Ancillary facility - Section 6 Site 3a and 3b: <ul style="list-style-type: none"> <li>• Mark and avoid small dam in north-west corner of site and buffer activities from a large remnant patch adjoining to the north.</li> <li>• Avoid scattered mature trees where possible.</li> </ul>	6	Construction	Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detail how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. Site specific ancillary facility management plans will be prepared by Pacific Complete. Ancillary Facilities required for soft soil works (i.e. Waves 1 and 2) will be managed separately via existing approved CEMPs and associated management plans (e.g. AFMPs). Ancillary facility has not been assessed and approved for use.
B52m	Biodiversity	Stockpile and ancillary facilities management	Ancillary facility - Section 6 site 5: <ul style="list-style-type: none"> <li>• Site is currently being used as a compound site for the Devils Pulpit upgrade. On completion of construction for that project, the site would be stabilised with a quick growing cover crop to stabilise the site.</li> <li>• A site inspection and survey is required prior to construction to confirm the suitability of the site.</li> <li>• Site to be rehabilitated post- construction.</li> </ul>	6	Pre-construction, construction	Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detail how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. Site specific ancillary facility management plans will be prepared by Pacific Complete. Ancillary Facilities required for soft soil works (i.e. Waves 1 and 2) will be managed separately via existing approved CEMPs and associated management plans (e.g. AFMPs). The hard stand from the Devils Pulpit Upgrade has not been removed from the site. The ancillary facility is currently being assessed for use on the Ancillary facility management plan/ checklist has been prepared and approved for this site by the ER on 4 December 2016.
B52n	Biodiversity	Stockpile and ancillary facilities management	Ancillary facility - Section 7 Site 1: <ul style="list-style-type: none"> <li>• To be used for only low risk activities, no chemical or fuel storage on site.</li> </ul>	7	Construction	Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detail how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. Site specific ancillary facility management plans will be prepared by Pacific Complete. Ancillary Facilities required for soft soil works (i.e. Waves 1 and 2) will be managed separately via existing approved CEMPs and associated management plans (e.g. AFMPs). Ancillary facility assessment/management plan is currently being prepared for this site.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Reference / Comment
B52o	Biodiversity	Stockpile and ancillary facilities management	Ancillary facility - Section 7 Site 2a and 2b: • To be used for only low risk activities, no chemical or fuel storage on site.	7	Construction	Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detail how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. Site specific ancillary facility management plans will be prepared by Pacific Complete. Ancillary Facilities required for soft soil works (i.e. Waves 1 and 2) will be managed separately via existing approved CEMPs and associated management plans (e.g. AFMPs). Ancillary facility has not been assessed and approved for use.
B52p	Biodiversity	Stockpile and ancillary facilities management	Ancillary facility - Section 7 site 3: • Provide sediment fencing along eastern boundary.	7	Construction	Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detail how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. Site specific ancillary facility management plans will be prepared by Pacific Complete. Ancillary Facilities required for soft soil works (i.e. Waves 1 and 2) will be managed separately via existing approved CEMPs and associated management plans (e.g. AFMPs). Ancillary facilities have not been assessed and approved for use.
B52q	Biodiversity	Stockpile and ancillary facilities management	Ancillary facility - Section 7 Site 4: • Provide buffer of minimum 50 metres from the wetland on northern boundary and sediment fencing where required. Avoid tree removal where possible	7	Construction	Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detail how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. Site specific ancillary facility management plans will be prepared by Pacific Complete. Ancillary Facilities required for soft soil works (i.e. Waves 1 and 2) will be managed separately via existing approved CEMPs and associated management plans (e.g. AFMPs). Ancillary facilities have not been assessed and approved for use.
B52r	Biodiversity	Stockpile and ancillary facilities management	Ancillary facility - Section 8 Site 2a, 2b and 2c: • Recommend use for stockpile only, no chemical or fuel storage on site.	8	Construction	Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detail how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. Site specific ancillary facility management plans will be prepared by Pacific Complete. Ancillary Facilities required for soft soil works (i.e. Waves 1 and 2) will be managed separately via existing approved CEMPs and associated management plans (e.g. AFMPs). Ancillary facility has not been assessed and approved for use.
B52s	Biodiversity	Stockpile and ancillary facilities management	Ancillary facility - Section 8 Site 3: • Provide bunding around the site. No chemical storage.	8	Construction	Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detail how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. Site specific ancillary facility management plans will be prepared by Pacific Complete. Ancillary Facilities required for soft soil works (i.e. Waves 1 and 2) will be managed separately via existing approved CEMPs and associated management plans (e.g. AFMPs). Ancillary facility management plan/checklist is currently being prepared for this site.
B52t	Biodiversity	Stockpile and ancillary facilities management	Ancillary facility - Section 9 Site 1: • Provide buffer and sediment fencing at southern end. • Provide sediment fencing at southern end of site, stockpiling only at northern half, no chemical storage	9	Construction	Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detail how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. Site specific ancillary facility management plans will be prepared by Pacific Complete. Ancillary Facilities required for soft soil works (i.e. Waves 1 and 2) will be managed separately via existing approved CEMPs and associated management plans (e.g. AFMPs). Ancillary facility management plan/checklist is currently being prepared for this site.
B52u	Biodiversity	Stockpile and ancillary facilities management	Ancillary facility - Section 9 site 2: • Provide sediment fencing at southern end of site, stockpiling only at northern half, no chemical storage	9	Construction	Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detail how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. Site specific ancillary facility management plans will be prepared by Pacific Complete. Ancillary Facilities required for soft soil works (i.e. Waves 1 and 2) will be managed separately via existing approved CEMPs and associated management plans (e.g. AFMPs). Ancillary facility has not been assessed and approved for use.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Reference / Comment
B52v	Biodiversity	Stockpile and ancillary facilities management	Ancillary facility - Section 9 site 3: • Provide sediment fencing at southern end of site, stockpiling only at northern half, no chemical storage	9	Construction	Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detail how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. Site specific ancillary facility management plans will be prepared by Pacific Complete. Ancillary Facilities required for soft soil works (i.e. Waves 1 and 2) will be managed separately via existing approved CEMPs and associated management plans (e.g. AFMPs). Ancillary facility assessment/management plan is currently being prepared for this facility.
B52w	Biodiversity	Stockpile and ancillary facilities management	Ancillary facility - Section 10 site 1b: • Revegetation of the section of the site in the road reserve or the entire site (if practicable).	10	Construction	Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detail how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. Site specific ancillary facility management plans will be prepared by Pacific Complete. Ancillary Facilities required for soft soil works (i.e. Waves 1 and 2) will be managed separately via existing approved CEMPs and associated management plans (e.g. AFMPs). Ancillary facility has not been assessed and approved for use.
B52x	Biodiversity	Stockpile and ancillary facilities management	Ancillary facility - Section 10 site 3b: • Map and avoid strip of trees along northern boundary	10	Construction	Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detail how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. Site specific ancillary facility management plans will be prepared by Pacific Complete. Ancillary Facilities required for soft soil works (i.e. Waves 1 and 2) will be managed separately via existing approved CEMPs and associated management plans (e.g. AFMPs). Ancillary facility has not been assessed and approved for use.
B52y	Biodiversity	Stockpile and ancillary facilities management	Ancillary facility - Section 10 site 4: • Revegetate site post-construction, focus on approaches to land bridge and avoid Arthraxon hispidus.	10	Construction	Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detail how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. Site specific ancillary facility management plans will be prepared by Pacific Complete. Ancillary Facilities required for soft soil works (i.e. Waves 1 and 2) will be managed separately via existing approved CEMPs and associated management plans (e.g. AFMPs). Assessment/management plan has not been prepared for this site.
B53	Biodiversity	Slender Screw Fern	The project footprint in section 1 will be reviewed to identify any opportunities to avoid significant impacts to the existing population.	1	Pre-construction	RMS	NA	This Tracking Program applies to sections 3 to 11. For Sections 1 and 2, refer to Stage 1 Compliance Program.
B54	Biodiversity	Slender Screw Fern	The project footprint and placement of sedimentation basins will be evaluated to minimise impacts to Slender Screw Fern.	6	Pre-construction	RMS	Open	This will be covered during detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete will review detailed design lot reports to ensure compliance with relevant CoAs.
B55	Biodiversity	Biodiversity Offset Strategy	The Biodiversity Offset Strategy (detailed in Appendix C of the Working paper – Biodiversity) will be developed further, in consultation with relevant State and Commonwealth agencies, and implemented during detailed design.	All	Pre-construction	RMS	Closed	Biodiversity Offset Strategy Approved (DPE 6 January 2016 and DoE 7 January 2016).
B56	Biodiversity	Interchange at Wardell	Street lighting on the western roundabout at the interchange at Wardell will be designed to reduce light spill during detailed design. This could include using deflection shields around the lights or using a UV light, with reduced UV light emissions.	10	Pre-construction	RMS	Open	This will be covered during detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete will review detailed design lot reports to ensure compliance with relevant CoAs.
B57	Biodiversity	Interchange at Wardell	Further investigation will be undertaken of the road runoff capture and storage to the east side of the existing Pacific Highway between station 158.2 and 159.4 to protect remaining in situ aquatic habitats south of Laws Road.	11	Pre-construction	RMS	Open	This will be covered during detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete will review detailed design lot reports to ensure compliance with relevant CoAs.
B58	Biodiversity	Interchange at Wardell	Roads and Maritime owned land surrounding the dedicated landbridge at station 156.0 be revegetated in accordance with the connectivity strategy and the landscape management plan.	10	Construction	Contractor	Open	This is being considered as part of detailed design. Design Portion D (which includes Section 10) will be required to prepare a Connectivity Strategy as per MCoA D2) and an Urban Design Landscape Plan as per MCoA D20. Pacific Complete will review detailed design deliverables to ensure they comply with their respective requirements. This requirement is also addressed in the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Sub-Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
B59	Biodiversity	Impacts to Lang Hill	The Lang Hill Environmental Management Work Statement be further developed and implemented during the use and rehabilitation of the borrow site.	8	Pre-construction and construction	RMS and Contractor	Open	The Lang Hill Borrow Site Management Plan (Portion C) was approved 23 November 2016 by DPE. Draft EWMS prepared for the site that was included in the SPIR has been included in the management plan. Approval for this site is anticipated in November 2016.
B60	Biodiversity	Impacts to Lang Hill	The creek line on the 'Lang Hill' property will should be fenced off from cattle and the vegetation allowed to regenerate to improve the habitat conditions downstream.	8	Construction and operation	Contractor	Open	The Lang Hill Borrow Site Management Plan (Portion C) was approved 23 November 2016 by DPE.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Reference / Comment
B61	Biodiversity	<i>Maundia triglochinos</i>	Detailed design will investigate measures to reduce impacts to <i>Maundia triglochinos</i> : <ul style="list-style-type: none"> <li>Near Redbank Creek (population 14).</li> <li>Near North of New Italy (population 12).</li> </ul>	1 and 7	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs. This Tracking Program applies to sections 3 to 11. For Sections 1 and 2, refer to Stage 1 Compliance Program.
<b>URBAN DESIGN AND LANDSCAPE</b>								
UD1	Urban Design and Landscape	Noise wall visual impacts	If further noise modelling identifies that noise walls are required, further visual assessment address the visual implications of the change. Their location and design will be in accordance with the Noise Wall Design Guideline (RTA, 2007) and the principles identified in Working Paper – Urban design, Landscape Character and Visual Impact (Section 4.6.3).	All	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs. Urban Design and Landscape Plans are currently being prepared by each design portion (i.e. A, B, C and D) which covers Section 3 through to Section 11).
UD2	Urban Design and Landscape	Clarence River and Richmond River bridge impacts	Changes to the design of the Clarence and Richmond rivers bridges from this EIS, will require further visual assessment. Any changes will consider the principles identified in Working Paper – Urban design, Landscape Character and Visual Impact (Section 4.6.2), the performance criteria outlined in Chapter 5 of the EIS and funding arrangements.	5, 9 and 10	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs. Urban Design and Landscape Plans are currently being prepared by each design portion (i.e. A, B, C and D) which covers Section 3 through to Section 11).
UD3	Urban Design and Landscape	Landscaping and planting strategy	The project will be carried out in accordance with the urban design and landscaping strategy, as identified in Section 11.4.1 of this EIS. Detailed landscape design for all project batters, and median planting areas will be developed in accordance with the Landscape Guidelines (RTA, 2008), the requirements of the Working Paper – Biodiversity (Section 5.2.2) and the landscape strategy to provide a robust, successful and effective planting design.	All	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs. Urban Design and Landscape Plans are currently being prepared by each design portion (i.e. A, B, C and D) which covers Section 3 through to Section 11).
UD4	Urban Design and Landscape	Design of urban design features and road furniture	The built form of the project, including consideration of the height, bulk, scale, materials and finishes for: <ul style="list-style-type: none"> <li>Bridges.</li> <li>Retaining walls.</li> <li>Cuttings and embankments.</li> <li>Road barriers.</li> <li>Signage.</li> <li>Fences.</li> <li>Clear zones.</li> <li>Topsoil management.</li> <li>Water quality control ponds.</li> <li>Fauna crossing.</li> <li>Place marking and cultural plantings.</li> </ul> The project will be designed in accordance with the design principles identified in Working Paper – Urban Design, Landscape Character and Visual Impact, and relevant Roads and Maritime guidelines.	All	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs. Urban Design and Landscape Plans are currently being prepared by each design portion (i.e. A, B, C and D) which covers Section 3 through to Section 11).
UD5	Urban Design and Landscape	Shadowing	Further assessment will be undertaken of the impact of overshadowing on areas surrounding the project, particularly around Harwood Bridge, interchanges and overpasses near residential properties.	5	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs. Urban Design and Landscape Plans are currently being prepared by each design portion (i.e. A, B, C and D) which covers Section 3 through to Section 11).
UD6	Urban Design and Landscape	Visual impacts from viewpoints	Measures to mitigate visual impacts to viewpoints will be implemented, as identified in Table 11-42 and Working Paper – Urban Design, Landscape Character and Visual Impact. If any further viewpoints were identified during detailed design that have a moderate-high or high impact, screen planting also be considered.	All	Construction	Contractor	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs. Urban Design and Landscape Plans are currently being prepared by each design portion (i.e. A, B, C and D) which covers Section 3 through to Section 11).
UD7	Urban Design and Landscape	Construction visual impacts	Disturbed areas will be progressively revegetated throughout the construction period.	All	Construction	Contractor	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs. Urban Design and Landscape Plans are currently being prepared by each design portion (i.e. A, B, C and D) which covers Section 3 through to Section 11).
UD8	Urban Design and Landscape	Visual impacts of ancillary facilities	Where required, typical landscape treatments for ancillary facilities in forest areas will include: <ul style="list-style-type: none"> <li>Providing screen planting.</li> <li>Considering reinstatement of disturbed forest in heavily forested.</li> <li>Considering the importance of the visual landscape at each location and allowing restoration of important forest vegetation to prominent ridge lines or other landscape elements where feasible and reasonable.</li> <li>Negotiating with private landowners, as applicable, to determine future treatments for other non-forested ancillary facility locations.</li> <li>Re-grading disturbed areas to achieve a sustainable and functional landform.</li> <li>Stabilising all surfaces in accordance with good engineering and environmental practice.</li> </ul>	All	Construction	Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detail how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. Site specific ancillary facility management plans will be prepared by Pacific Complete. Ancillary Facilities required for soft soil works (i.e. Waves 1 and 2) are managed separately via existing approved CEMPs and associated management plans (e.g. AFMPs).
UD9	Urban Design and Landscape	Visual impacts of ancillary facilities	Typical landscape treatments for ancillary facilities in agricultural areas will include: <ul style="list-style-type: none"> <li>Considering returning remnant agricultural land to agricultural uses.</li> <li>Providing screen planting.</li> <li>Reinstating riparian vegetation through ancillary facilities, where practicable, in the open landscape.</li> <li>Considering the visual landscape at each ancillary facility and considering restoration of important forest vegetation to prominent ridge lines or other landscape elements where feasible and reasonable.</li> <li>Re-grading disturbed areas to achieve a sustainable and functional landform.</li> <li>Stabilising all surfaces in accordance with good engineering and environmental practice.</li> </ul>	All	Construction	Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detail how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. Site specific ancillary facility management plans will be prepared by Pacific Complete. Ancillary Facilities required for soft soil works (i.e. Waves 1 and 2) are managed separately via existing approved CEMPs and associated management plans (e.g. AFMPs).



Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Reference / Comment
UD10	Urban Design and Landscape	Visual impact of borrow sites	The extent of excavation and the landscaping strategy at borrow sites will be reviewed considering material requirements on the project and the visual impact on the resultant cuttings.	All	Pre-construction	RMS and Contractor	Open	Pacific Complete will prepare site specific Borrow Site Management Plans as required by the project approval. This requirement will apply to all borrow site management plans prepared by Pacific Complete. No borrow sites were operational during the reporting period. The Tyndale Borrow Site Management Plan (Portion A) was approved in August 2016 by DPE. The Lang Hill Borrow Site Management Plan (Portion C) was approved 23 November 2016 by DPE. Management Plans are currently being prepared for a number of borrow sites in Portion D.
UD11	Urban Design and Landscape	Visual impact of borrow sites	Any backfilling of the Lang Hill and West of Wardell borrow sites will be undertaken with available surplus material from the project. Rehabilitation of the sites will be undertaken in accordance of the landscape strategy (UD3), design principles (UD5) and the intended future land use of the sites.	3, 8 10	Construction	Contractor	Open	Pacific Complete will prepare site specific Borrow Site Management Plans as required by the project approval. This requirement will apply to all borrow site management plans prepared by Pacific Complete. No borrow sites were operational during the reporting period. The Tyndale Borrow Site Management Plan (Portion A) was approved in August 2016 by DPE. The Lang Hill Borrow Site Management Plan (Portion C) was approved 23 November 2016 by DPE. Management Plans are currently being prepared for a number of borrow sites in Portion D.
UD12	Urban Design and Landscape	Visual impact of borrow sites	Any backfilling of the Eatons and Gibson borrow sites will be undertaken with available surplus material from the project. Landscaping on the site use indigenous species, including those species suitable for Koala. The landscaping will connect to the existing vegetation to the east of the project by a fauna land bridge to be constructed at station 147.6. Rehabilitation of the sites will be undertaken in accordance of the landscape strategy (UD3) and design principles (UD5).	10	Construction	Contractor	Open	Pacific Complete will prepare site specific Borrow Site Management Plans as required by the project approval. This requirement will apply to all borrow site management plans prepared by Pacific Complete. No borrow sites were operational during the reporting period. The Tyndale Borrow Site Management Plan (Portion A) was approved in August 2016 by DPE. The Lang Hill Borrow Site Management Plan (Portion C) was approved 23 November 2016 by DPE. Management Plans are currently being prepared for a number of borrow sites in Portion D.
UD13	Urban Design and Landscape	Monitoring of landscaping and rehabilitation	Landscape and rehabilitation works will be monitored and remedial measures implemented where required until vegetation has stabilised.	All	Operation	RMS	Open	Noted.
UD14	Urban Design and Landscape	Earth mounds	The mounding profile of any earth mound will blend suitably into the existing landscape setting. Any mounding to be landscaped will be compacted in 1.5 metre layers with 1:3 maximum batter slopes where reasonable in consideration of constraints within the project corridor. Where feasible and reasonable, permanent mounds will be treated with ameliorants and overlaid with topsoil to minimum 150 millimetres to ensure suitable planting conditions are achieved.	All	Construction	Contractor	Open	Noted.
<b>ABORIGINAL HERITAGE</b>								
AH1	Aboriginal Heritage	General impacts to Aboriginal archaeological sites	Where artefact concentrations per square metre (over all depths) encountered are 50 per cent greater than previously encountered, additional salvage excavation using hand tools will be undertaken. If these artefact concentrations are encountered during machine excavation, then machine excavation will stop within 20 metres of the artefact concentrations. Up to, but no more than, an additional six square metres will be excavated in this situation at that site, unless rare features are encountered, in which case discussions with the registered Aboriginal stakeholders and NSW Office of Environment and Heritage will be undertaken to agree on a suitable approach.	All	Pre-construction and construction	RMS and Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
AH2	Aboriginal Heritage	General impacts to Aboriginal archaeological sites	For areas avoided by construction, exclusion zones will be put in place. These will be fenced with high visibility construction webbing or other similar fencing and have a 'Do Not Enter' sign. Exclusion zones will be marked on construction plans and be maintained until construction is completed. A representative of the Local Aboriginal Land Council will be present during establishment of the fencing.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). All required fencing has been installed prior to commencement of works during the reporting period. A representative of the local Aboriginal Land Council was present for the establishment of heritage exclusion fencing.
AH3	Aboriginal Heritage	General impacts to Aboriginal archaeological sites	If any part of the project (such as an ancillary facility) is located in an area which has not been subject to Aboriginal heritage field survey and assessment, an assessment will be undertaken before that part of the project proceeds.	All	Pre-construction	RMS and Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detail how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. Ancillary facilities required for soft soil works (i.e. Waves 1 and 2) are managed separately via existing approved CEMPs and associated management plans (e.g. AFMPs).  Due diligence heritage assessments have been carried out prior to any works outside the SSI project boundary.
AH4	Aboriginal Heritage	General impacts to Aboriginal archaeological sites	Salvage excavation and systematic collection of previously recorded artefacts that will be impacted by the project, along with any other impacted sites that are identified prior to or during construction, are to be undertaken by qualified archaeologists in conjunction with the registered Aboriginal stakeholders:  The location of excavations will be within the area of the site to be impacted, and be decided upon in the field by a qualified archaeologist and registered Aboriginal stakeholders.  If any datable material is located, a minimum of two samples (per archaeological site) will be subject to radiocarbon, standard or accelerated mass spectrometry dating.  For all salvaged material, suitable storage will be agreed upon with the registered Aboriginal stakeholders prior to commencing salvage in those areas.	All	Construction	RMS and Contractor	Open	As per RMS salvage program of works carried out prior to construction. This requirement is addressed in Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Reference / Comment
AH5	Aboriginal Heritage	General impacts to Aboriginal archaeological sites	Heritage evidence collected will be curated in an appropriate manner, as determined in consultation with the registered Aboriginal stakeholders and the NSW Office of Environment and Heritage and in accordance with the National Parks and Wildlife Act 1974, details of the material's nature and context will also be provided.	All	Construction and post-construction	RMS and Contractor	Open	As per RMS salvage program of works carried out prior to construction. This requirement is addressed in Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
AH6	Aboriginal Heritage	General impacts to Aboriginal archaeological sites	A detailed technical report documenting the results of the salvage excavations and the archaeological material analysis will be prepared. A summary report (to be made public) will be developed to accompany the technical report.	All	Construction and post-construction	RMS and Contractor	Open	As per RMS salvage program of works carried out prior to construction. This requirement is addressed in Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
AH7	Aboriginal Heritage	General impacts to Aboriginal archaeological sites	Site records will be lodged with NSW Office of Environment and Heritage for any previously unrecorded evidence that is identified and for any evidence that is salvaged.	All	Construction and post-construction	RMS and Contractor	Open	As per RMS salvage program of works carried out prior to construction. This requirement is addressed in Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
AH8	Aboriginal Heritage	General impacts to Aboriginal archaeological sites	Aboriginal Site Impact Recording (ASIR) forms will be lodged with the Aboriginal Heritage Information Management Systems (AHIMS) Register within three months of sites being impacted.	All	Construction	RMS and Contractor	Open	As per RMS salvage program of works carried out prior to construction. This requirement is addressed in Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
AH9	Aboriginal Heritage	Human skeletal remains	An unexpected finds (including human skeletal remains) procedure will be developed in accordance with Roads and Maritime' Standard Management Procedures: Unexpected Archaeological Finds 2012.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
AH10	Aboriginal Heritage	Aboriginal stakeholder consultation	Aboriginal focus group consultation (through letters or meetings); will occur at least once every six months, prior to and during construction (unless management actions have been completed).	All	Pre-construction and construction	RMS and Contractor	Open	RMS has an established AFG meeting schedule in place which Pacific Complete will support and attended.
AH11	Aboriginal Heritage	Awareness of Aboriginal heritage	Aboriginal culture awareness training for all relevant staff and contractors will occur prior to commencing work on-site. This could include information about the Aboriginal culture and history of the locality, the location of sites and items that require protection and movement corridors within the project boundary, heritage management measures and protocols, and legal obligations. This training will be developed in consultation with suitably trained personnel from local Aboriginal organisations represented by the relevant registered stakeholders for that area.	All	Pre-construction and construction	RMS and Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan) which was approved by DPE on 23 October 2015. Pacific Complete will be submitting the Aboriginal and Non-Aboriginal Heritage and Education Training Package which forms Appendix A of the Construction Heritage Management Plan in February 2015 following the completion of the consultation period as of 12 February 2015. Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
AH12	Aboriginal Heritage	Awareness of Aboriginal heritage	An Aboriginal heritage interpretation strategy will be prepared as part of the Aboriginal heritage management plan. Measures will include opportunities for promoting salvage and investigation, the recovery of information, permanent installations and ways of marking the presence of Aboriginal people in the landscape, including, signage, interpretation products such as written materials, and through place naming.	All	Pre-construction and construction	RMS	Open	As per RMS salvage program of works (prior to construction). This requirement is addressed in Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
AH13	Aboriginal Heritage	Awareness of Aboriginal heritage	Compliance auditing of the cultural heritage management measures will be undertaken as part of the environmental management audit regime.	All	Construction	Contractor	Open	This requirement is addressed by the Pacific Complete CEMP (main document). Separate and approved CEMPs are in place for soft soil works (i.e. Waves 1 and 2). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
AH14a	Aboriginal Heritage	Ancillary facilities	<p>Ancillary facility - Section 1, Site 1a (at Taylors Run 2):</p> <ul style="list-style-type: none"> <li>All previously recorded artefacts must be recovered and removed off-site, and passed to registered Aboriginal stakeholders for reburial or storage at a chosen location, subject to a care agreement being established.</li> <li>If the Aboriginal archaeological site is not to be impacted, an exclusion zone will be established as per management measure AH2.</li> </ul> <p>Ancillary facility - Section 1, Site 1a (at Taylors Run 3):</p> <ul style="list-style-type: none"> <li>Exclusion zones will be established as per management measure AH2.</li> </ul> <p>Ancillary facility - Section 1, Site 1a (at Taylors Run 1):</p> <ul style="list-style-type: none"> <li>The surface scatter portion of this Aboriginal archaeological site outside the proposed ancillary facility will be avoided. An exclusion zone with a buffer of 15 metres of the surface artefact point will be established as per management measure AH2.</li> <li>Any ground disturbance impacts to the archaeological site in the ancillary facility, will require the top soil down to the sterile clay layer to be graded, stockpiled separately (within a portion of the ancillary facility area), and reinstated at the same area following completion of the activity.</li> <li>Any portions of the Aboriginal archaeological site not to be impacted will be protected by exclusion zones as per management measure AH2.</li> </ul> <p>Ancillary facility - Section 1, Site 1a (at WWC37 (22-1-0344)):</p> <ul style="list-style-type: none"> <li>Within the Aboriginal archaeological site in the boundary of the project, after salvage activities, but before any other ground disturbance, the top soil down to the sterile clay layer will be graded from the area, stockpiled separately and used in batters (not fill) of the road/bridge. This will be undertaken in consultation with the relevant registered Aboriginal stakeholders and will be engaged to direct this activity. In addition: <ul style="list-style-type: none"> <li>The salvage to be excavated by machine is 30 % of the Aboriginal archaeological site.</li> <li>The older house nearest to the river within the Aboriginal archaeological site will be removed, with minimal ground disturbance, before salvage excavations being undertaken, so that this area may be targeted for a portion of the salvage.</li> <li>Their nominated site officers are present during removal of the plastic covering the blueberry bush rows, to identify artefacts on the surface under the plastic – an archaeologist will also be present to document finds.</li> <li>All cultural material recovered will be subject to detailed analysis, which will be included in a technical report, including detailed discussion and interpretation.</li> <li>Any portions of the Aboriginal archaeological site that are not to be impacted will be protected by exclusion zones as per management measure AH2.</li> </ul> </li> </ul>	1	Pre-construction and construction	Contractor	NA	This Tracking Program applies to sections 3 to 11. For Sections 1 and 2, refer to Stage 1 Compliance Program.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Reference / Comment
AH14b	Aboriginal Heritage	Ancillary facilities	Ancillary facility - Section 1, Site 1a, 1b (at WWC39 (22-1-0343)): <ul style="list-style-type: none"> <li>If impact to WWC39 is necessary, salvage excavation of the portion of the Aboriginal archaeological site to be impacted will be undertaken as detailed in the Ancillary facility and design change CHAR (Appendix D of the Submissions/ Preferred Infrastructure Report) and in consultation with RAPs.</li> <li>If impacts to the Aboriginal archaeological site are necessary, following archaeological salvage the top soil down to the sterile clay layer will be graded from the area, stockpiled separately and placed in batters.</li> <li>Where ground disturbance is not necessary, geotextile fabric and crushed rock or similar will be used to protect the ground from compaction.</li> <li>The area of the Aboriginal archaeological site not to be impacted will be protected by an exclusion zone as per management measure AH2.</li> </ul>	1	Pre-construction	Contractor	NA	This Tracking Program applies to sections 3 to 11. For Sections 1 and 2, refer to Stage 1 Compliance Program.
AH14c	Aboriginal Heritage	Ancillary facilities	Ancillary facility - Section 1, Additional site 5: <ul style="list-style-type: none"> <li>Sub-surface test excavation will be undertaken prior to the use of the ancillary facility. This will be conducted in accordance with the methodology used in the working paper, and will occur several months before any ground disturbance in this location. Further recommendations for the Aboriginal archaeological site will then be made in consultation with the registered Aboriginal stakeholders.</li> </ul>	1	Pre-construction	Contractor	NA	This Tracking Program applies to sections 3 to 11. For Sections 1 and 2, refer to Stage 1 Compliance Program.
AH14d	Aboriginal Heritage	Ancillary facilities	Ancillary facility - Section 2, Site 1b (at Lemon Tree Road 1 (13-4-0180)): <ul style="list-style-type: none"> <li>An exclusion zone will be established around this Aboriginal site as per management measure AH2.</li> </ul>	2	Construction	Contractor	N A	This Tracking Program applies to sections 3 to 11. For Sections 1 and 2, refer to Stage 1 Compliance Program.
AH14e	Aboriginal Heritage	Ancillary facilities	Ancillary facility - Section 2, Site 3 (at Kungala Road 1 (13-4-0181)): <ul style="list-style-type: none"> <li>Sub-surface test excavation will be undertaken prior to construction, conducted in accordance with the methodology used in the working paper, and occur several months before any ground disturbance at this location. Further recommendations for the Aboriginal archaeological site will then be made in consultation with the registered Aboriginal stakeholders, including potentially establishing a care agreement will be necessary to enable this.</li> <li>Any portions of the Aboriginal archaeological site that are not to be impacted will be protected by exclusion zones as per management measure AH2.</li> </ul>	2	Pre-construction and construction	Contractor	NA	This Tracking Program applies to sections 3 to 11. For Sections 1 and 2, refer to Stage 1 Compliance Program.
AH14f	Aboriginal Heritage	Ancillary facilities	Ancillary facility - Section 2, Site 4 (at Wells Crossing Artefacts 1 (13-4-0183)): <ul style="list-style-type: none"> <li>If this Aboriginal archaeological site is to be impacted, salvage excavation of the portion of the Aboriginal archaeological site to be impacted will be undertaken as detailed in the Ancillary facility and design change CHAR (Appendix D of the Submissions/ Preferred Infrastructure Report) and in consultation with RAPs.</li> </ul>	2	Pre-construction	Contractor	NA	This Tracking Program applies to sections 3 to 11. For Sections 1 and 2, refer to Stage 1 Compliance Program.
AH14g	Aboriginal Heritage	Ancillary facilities	Ancillary facility - Section 2, Site 5b (at WWC139 (13-4-0157)): <ul style="list-style-type: none"> <li>The Aboriginal archaeological site that is not to be impacted will be protected by exclusion zones as per management measure AH2.</li> </ul>	2	Construction	Contractor	NA	This Tracking Program applies to sections 3 to 11. For Sections 1 and 2, refer to Stage 1 Compliance Program.
AH14h	Aboriginal Heritage	Ancillary facilities	Ancillary facility - Section 3, Site 3b (at WX2I Site 8 (09-4-0108)): <ul style="list-style-type: none"> <li>All previously recorded artefacts will be recovered and removed off-site before construction, subject to a care agreement being established.</li> <li>All cultural material recovered will be subject to detailed analysis, which will be included in a technical report, including detailed discussion and interpretation.</li> </ul>	3	Pre-construction	Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detailed how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. Site specific ancillary facility management plans will be prepared by Pacific Complete in accordance with the requirements of Appendix B9 Ancillary Facilities Management Plan (ER approved 10 February 2016).  An ancillary facility management plan/checklist has not been prepared for this site.
AH14i	Aboriginal Heritage	Ancillary facilities	Ancillary facility - Section 3, Site 6b (at Old Tucabia Dump 1 (13-4-0184)): <ul style="list-style-type: none"> <li>An exclusion zone will be established at the boundary of the Aboriginal archaeological site (including a buffer based on the drip zone of the tree) as per management measure AH2.</li> </ul>	3	Construction	Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detailed how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. Site specific ancillary facility management plans will be prepared by Pacific Complete in accordance with the requirements of Appendix B9 Ancillary Facilities Management Plan (ER approved 10 February 2016).  An ancillary facility management plan/checklist has not been prepared for this site.
AH14j	Aboriginal Heritage	Ancillary facilities	Ancillary facility - Section 3, Site 9 (at Upper Coldstream 1 (13-4-0182)): <ul style="list-style-type: none"> <li>All previously recorded artefacts will be recovered and removed off-site, subject to a care agreement being established.</li> <li>Any portions of the Aboriginal archaeological site not to be impacted will be protected by exclusion zones as per management measure AH2.</li> </ul>	3	Pre-construction and construction	Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detailed how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. Site specific ancillary facility management plans will be prepared by Pacific Complete in accordance with the requirements of Appendix B9 Ancillary Facilities Management Plan (ER approved 10 February 2016).  Ancillary site Section 3, Site 9 has been approved for use. A heritage assessment was included as part of the ancillary facility management plan. Fencing will be established in accordance with this condition and the ancillary facility management plan during establishment of the site.
AH14k	Aboriginal Heritage	Ancillary facilities	Ancillary facility - Section 4, Site 1: <ul style="list-style-type: none"> <li>Sub-surface test excavations will be undertaken in accordance with the methodology used in the working paper, and will occur before any ground disturbance at this location. Further recommendations for the Aboriginal archaeological site will then be made in consultation with the registered Aboriginal stakeholders.</li> </ul>	4	Pre-construction	Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detailed how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. specific ancillary facility management plans will be prepared by Pacific Complete in accordance with the requirements of Appendix B9 Ancillary Facilities Management Plan (ER approved 10 February 2016).  An ancillary facility management plan/checklist has not been prepared for this site.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Reference / Comment
AH14l	Aboriginal Heritage	Ancillary facilities	Ancillary facility - Section 4, Site 3: <ul style="list-style-type: none"> <li>This property could not be accessed for field investigations. Sub-surface test excavations are to be undertaken. This will be conducted in accordance with the methodology used in the working paper, and will occur before ground disturbing work for the project or ancillary activities being undertaken at this location. Further recommendations for the Aboriginal archaeological site will then be made in consultation with the RAPs.</li> </ul>	4	Pre-construction	Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detailed how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. specific ancillary facility management plans will be prepared by Pacific Complete in accordance with the requirements of Appendix B9 Ancillary Facilities Management Plan (ER approved 10 February 2016).  An ancillary facility management plan/checklist has not been prepared for this site.
AH14m	Aboriginal Heritage	Ancillary facilities	Ancillary facility - Section 4, Site 5 (at Hirst 3 (13-1-0192): <ul style="list-style-type: none"> <li>This Aboriginal archaeological site is to be avoided if possible unless agreement can be reached with the RAPs. An exclusion zone will be established as per management measure AH2.</li> <li>If agreement to use the site is reached with RAPs, salvage excavation of the portion of the Aboriginal archaeological site to be impacted will be undertaken as detailed in the Ancillary facility and design change CHAR (Appendix D of the Submissions/ Preferred Infrastructure Report) and in consultation with RAPs.</li> </ul>	4	Pre-construction	Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detailed how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. specific ancillary facility management plans will be prepared by Pacific Complete in accordance with the requirements of Appendix B9 Ancillary Facilities Management Plan (ER approved 10 February 2016).  Section 4, Site 5 has been approved for use. The Hirst 3 pad has been salvaged. The clearance letter for the site advises no further mitigation measures are required.
AH14n	Aboriginal Heritage	Ancillary facilities	Ancillary facility - Section 5, Site 7 (at Mororo Creek 1 (13-1-0191)): <ul style="list-style-type: none"> <li>This Aboriginal archaeological site within the ancillary facility location will be avoided. An exclusion zone at least five metres outside the boundary of the Aboriginal archaeological site will be established as per management measure AH2.</li> </ul>	5	Construction	Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detailed how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. specific ancillary facility management plans will be prepared by Pacific Complete in accordance with the requirements of Appendix B9 Ancillary Facilities Management Plan (ER approved 10 February 2016).  Section 5, Site 7 has been approved for use. Mororo Creek 1 will be fenced during the establishment of the site in accordance with this condition and the ancillary facility management plan.
AH14o	Aboriginal Heritage	Ancillary facilities	Ancillary facility - Section 5, Site 5 and Site 7 (at Mororo Creek 2 (13-1-0193): <ul style="list-style-type: none"> <li>This Aboriginal archaeological site within the ancillary facility location will be avoided. An exclusion zone at least five metres outside the boundary of the Aboriginal archaeological site will be established as per management measure AH2.</li> </ul>	5	Construction	Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detailed how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. specific ancillary facility management plans will be prepared by Pacific Complete in accordance with the requirements of Appendix B9 Ancillary Facilities Management Plan (ER approved 10 February 2016).  Section 5, Site 7 has been approved for use. Mororo Creek 1 will be fenced during the establishment of the site in accordance with this condition and the ancillary facility management plan.
AH14p	Aboriginal Heritage	Ancillary facilities	Ancillary facility - Section 7, Site 1: <ul style="list-style-type: none"> <li>A site walk over survey will be undertaken to confirm whether sub-surface test excavations are required. This will be conducted in accordance with the methodology used in the working paper, and will occur several months before any ground disturbance at this location. Further recommendations and use of the Aboriginal archaeological site will be developed in agreement with the registered Aboriginal stakeholders.</li> </ul>	7	Pre-construction	Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detailed how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. specific ancillary facility management plans will be prepared by Pacific Complete in accordance with the requirements of Appendix B9 Ancillary Facilities Management Plan (ER approved 10 February 2016).  Section 7, Site 1 is proposed for use. During the preparation of the ancillary facility management plan a site walkover will be carried out.
AH14q	Aboriginal Heritage	Ancillary facilities	Ancillary facility - Section 7, Site 3 (Dubaijeen Site (New Italy 1): <ul style="list-style-type: none"> <li>Salvage excavation of the portion of the Aboriginal archaeological site to be used will be undertaken as detailed in the Ancillary facility and design change CHAR (Appendix D of the Submissions/ Preferred Infrastructure Report) and in consultation with RAPs. The excavations apply to the portion of the site that be impacted by the project as well as the ancillary facility.</li> <li>Any portions of the Aboriginal archaeological site that are not to be impacted will be protected by exclusion zones as per management measure AH2.</li> </ul>	7	Pre-construction and construction	Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detailed how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. specific ancillary facility management plans will be prepared by Pacific Complete in accordance with the requirements of Appendix B9 Ancillary Facilities Management Plan (ER approved 10 February 2016).  An ancillary facility management plan/checklist has not been prepared for this site. Salvage complete, Site Clearance Letter received.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Reference / Comment
AH14r	Aboriginal Heritage	Ancillary facilities	Ancillary facility - Section 7, Site 4 (The Gap Rd 1(13-1-0194)): <ul style="list-style-type: none"> <li>If impact to The Gap Rd 1 is necessary, salvage excavation of the portion of the Aboriginal archaeological site to be impacted will be undertaken as detailed in the Ancillary facility and design change CHAR (Appendix D of the Submissions/ Preferred Infrastructure Report) and in consultation with RAPs.</li> <li>Any portions of the Aboriginal archaeological site that are not to be impacted will be protected by exclusion zones will be established as per management measure AH2.</li> </ul>	7	Pre-construction and construction	Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detailed how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. specific ancillary facility management plans will be prepared by Pacific Complete in accordance with the requirements of Appendix B9 Ancillary Facilities Management Plan (ER approved 10 February 2016).  An ancillary facility management plan/checklist has not been prepared for this site. Gap Road 1 – this site is located outside the approved project boundary (EIS/SPIR). Section 8 CH125,250. 250m west of project boundary. Near an ancillary site, will only be affect if ancillary site is used.
AH14s	Aboriginal Heritage	Ancillary facilities	Ancillary facility - Section 10, Site 1a: <ul style="list-style-type: none"> <li>A site walk over survey will be undertaken to confirm whether sub-surface test excavation is required. This will be conducted in accordance with the methodology used in the working paper, and will occur several months before any ground disturbance at this location. Further recommendations for the Aboriginal archaeological site will then be made in consultation with the registered Aboriginal stakeholders.</li> </ul>	10	Pre-construction	Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detailed how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. specific ancillary facility management plans will be prepared by Pacific Complete in accordance with the requirements of Appendix B9 Ancillary Facilities Management Plan (ER approved 10 February 2016).  An ancillary facility management plan/checklist has not been prepared for this site.
AH14t	Aboriginal Heritage	Ancillary facilities	Ancillary facility - Section 10, ancillary facility 5At Rudgley Site 1 (04-4-0167): <ul style="list-style-type: none"> <li>This Aboriginal archaeological site will be avoided, where practical, using an exclusion zone as per management measure AH2.</li> <li>If avoidance is not possible, salvage excavation of the portion of the Aboriginal archaeological site to be impacted will be undertaken as detailed in the Ancillary facility and design change CHAR (Appendix D of the Submissions/ Preferred Infrastructure Report) and in consultation with RAPs.</li> <li>Any portions of the Aboriginal archaeological site that are not to be impacted will be protected by exclusion zones as per management measure AH2.</li> </ul>	10	Pre-construction and construction	Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detailed how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. specific ancillary facility management plans will be prepared by Pacific Complete in accordance with the requirements of Appendix B9 Ancillary Facilities Management Plan (ER approved 10 February 2016).  An ancillary facility management plan/checklist has not been prepared for this site.
AH14u	Aboriginal Heritage	Ancillary facilities	Ancillary facility - Section 10, Site 6 (Site 12 (11-2-0082)): <ul style="list-style-type: none"> <li>If avoidance is not possible, salvage excavation of all portions of the Aboriginal archaeological site to be impacted will be undertaken as detailed in the Ancillary facility and design change CHAR (Appendix D of the Submissions/ Preferred Infrastructure Report) and in consultation with RAPs.</li> <li>Any portions of the Aboriginal archaeological site that are not to be impacted will be protected by exclusion zones as per management measure AH2.</li> </ul>	10	Pre-construction and construction	Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detailed how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. specific ancillary facility management plans will be prepared by Pacific Complete in accordance with the requirements of Appendix B9 Ancillary Facilities Management Plan (ER approved 10 February 2016).  An ancillary facility management plan/checklist has not been prepared for this site.
AH14v	Aboriginal Heritage	Ancillary facilities	Ancillary facility - Section 11, Site 1a: <ul style="list-style-type: none"> <li>The ground will be inspected for any Aboriginal archaeological material by an archaeologist and registered Aboriginal stakeholders during and following clearing activities. Any archaeological material will be recorded, removed from the Aboriginal archaeological site, and a suitable location for the material determined in consultation with the stakeholders. An AHIMS record will be submitted for any finds and any locations where the material is to be stored – unless reburied on or near Aboriginal archaeological site, establishing a care agreement will also be necessary.</li> </ul>	11	Pre-construction and construction	Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detailed how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. specific ancillary facility management plans will be prepared by Pacific Complete in accordance with the requirements of Appendix B9 Ancillary Facilities Management Plan (ER approved 10 February 2016). A separate and approved CEMP is in place for soft soil work (i.e. Wave 2).  Section 11, Site 1a, heritage assessment prepared including test pitting. Recommended management measures have been implemented in Ancillary Facility Checklist for this site.
AH15	Aboriginal Heritage	Impacts on WWC39	Salvage excavation will be undertaken within the portion of the site to be impacted by the project footprint as detailed in the Working paper Aboriginal Cultural Heritage (Woolgoolga to Wells Crossing) and in consultation with RAPs. An exclusion zone will be erected around 40% of the site that will be avoided by construction as per management measure AH2.	1	Pre-construction	RMS	NA	This Tracking Program applies to sections 3 to 11. For Sections 1 and 2, refer to Stage 1 Compliance Program.
AH16	Aboriginal Heritage	Impacts on WWC46	Salvage excavation will be undertaken within the portion of the site to be impacted by the project footprint as detailed in the Working paper Aboriginal Cultural Heritage (Woolgoolga to Wells Crossing) and in consultation with RAPs.	1	Pre-construction	RMS	NA	This Tracking Program applies to sections 3 to 11. For Sections 1 and 2, refer to Stage 1 Compliance Program.
AH17	Aboriginal Heritage	Impacts on WWC Dirty Creek 1	Prior to ground disturbance to WWC Dirty Creek 1c (22-1-0403), the ground surface be inspected within 50 m of the site for any Aboriginal archaeological material by an archaeologist and RAP nominated site officers. Any archaeological material be recorded, removed from the site, and a suitable location for the material determined in consultation with the RAPs. The AHIMS record will be updated with any new finds and any locations where the material is to be stored – unless reburied on or near site, establishing a care agreement be necessary.	1	Pre-construction	RMS	NA	This Tracking Program applies to sections 3 to 11. For Sections 1 and 2, refer to Stage 1 Compliance Program.
AH18	Aboriginal Heritage	Impacts on Tyndale 2	Salvage excavation be undertaken within the portion of the site to be impacted by the project footprint as detailed in the Working paper Aboriginal Cultural Heritage (Wells Crossing to Iluka Road) and in consultation with RAPs.	4	Pre-construction	RMS	Closed	Salvage completed. Additional mitigations outlined in the site clearance letter received.
AH19	Aboriginal Heritage	Impacts to Chaffin Creek Scarred tree	Chaffin Creek scarred tree (Chaffin Creek Tree 2): <ul style="list-style-type: none"> <li>Before construction, an exclusion zone will be established as per management measure AH2. An arborist will be consulted to develop a management strategy to ensure the health and preservation of the tree.</li> </ul>	3	Pre-construction	Contractor	Closed	Salvage completed, clearance letter received. Exclusion fencing and signage has been established outside the drip zone of the tree.
AH20	Aboriginal Heritage	Impacts on IR2W4	Salvage excavation will be undertaken within the portion of the site to be impacted by the project footprint as detailed in the Working paper Aboriginal Cultural Heritage (Iluka Road to Woodburn) and in consultation with RAPs.	8	Pre-construction	RMS	Closed	Salvage completed. Additional mitigations outlined in the site clearance letter received.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Reference / Comment
AH21	Aboriginal Heritage	Impacts on Gittoes Jali	For the Gittoes Jali (09-1-0204, 09-1-0205, 09-1-0203) site: <ul style="list-style-type: none"> <li>Where possible, impacts on the Gittoes Jali site will be reduced or avoided. Avoided areas will be protected by an exclusion fence as per management measure AH2. If avoidance is not an option, then extensive salvage will be undertaken as per the methodology detailed in the Ancillary facilities and design change CHAR (refer to Appendix D of the Submissions/ Preferred Infrastructure Report).</li> <li>Any sediment from the site to 0.6 metre depth proposed to be used outside the site will be sieved to remove any cultural material.</li> </ul> Paint wells and grinding rock: <ul style="list-style-type: none"> <li>Residue analysis will be undertaken to determine if any pigment is found within the wells. This will be undertaken by a suitably qualified consultant.</li> <li>The location of these paint wells will be accurately plotted and drawn.</li> <li>If the paint wells cannot be avoided, they will be relocated; this requires consultation with the registered Aboriginal stakeholders.</li> </ul> Geomorphology assessment: <ul style="list-style-type: none"> <li>A geomorphology assessment will be undertaken. The assessment will be non-invasive, but could use observations of the machine salvage excavation.</li> </ul> Borrow site: <ul style="list-style-type: none"> <li>Haul routes from the project formation to the borrow source that limit direct impacts to Aboriginal heritage will be confirmed in consultation with Registered Aboriginal Parties.</li> </ul>	8	Pre-construction and construction	RMS and Contractor	Open	Salvage completed. Additional mitigations outlined in the site clearance letter received. Works still to be completed (residue analysis) and geomorphological assessment to be done.
AH22	Aboriginal Heritage	Impacts on E2/2	For the E2/2 (13-1-01-09) site: <ul style="list-style-type: none"> <li>Salvage excavation will be undertaken at and around the shell midden by the project footprint as detailed in the Working paper Aboriginal Cultural Heritage (Woodburn to Ballina) and in consultation with RAPs.</li> <li>Any sediment from the site to 1.5 m metre depth proposed to be used outside sites will be sieved to remove any cultural material.</li> </ul> Shell Midden: <ul style="list-style-type: none"> <li>A sequence of dates (radiocarbon or AMS) will be collected from the hand excavation.</li> <li>All shell recovered will be subject to analysis including minimum number of individuals (MNI) and weight (g). An analysis of the number of individual specimens (NISP) may also be undertaken if deemed appropriate.</li> </ul> Overburden: <ul style="list-style-type: none"> <li>All overburden will be removed and sieved for cultural materials.</li> </ul> Geomorphology assessment: <ul style="list-style-type: none"> <li>A geomorphology assessment will be undertaken. The assessment will be non-invasive, but could use observations of the machine salvage excavation.</li> </ul>	9	Pre-construction and construction	RMS and Contractor	Open	Salvage completed. Additional mitigations outlined in the site clearance letter received.
AH23	Aboriginal Heritage	Impacts on Aboriginal heritage Site 11	For Site 11 (13-1-0189): <ul style="list-style-type: none"> <li>Salvage excavation will be undertaken by the project footprint as detailed in the Working paper Aboriginal Cultural Heritage (Woodburn to Ballina) and in consultation with RAPs.</li> <li>Any sediment from the sites to 1.5 metre depth proposed to be used outside the site will be sieved to remove any cultural material.</li> </ul> Geomorphology assessment: <ul style="list-style-type: none"> <li>A geomorphology assessment will be undertaken. The assessment will be non-invasive, but could use observations of the machine salvage excavation.</li> </ul>	9	Pre-construction and construction	RMS and Contractor	Open	Salvage completed. Additional mitigations outlined in the site clearance letter received.
AH24	Aboriginal Heritage	Impacts on Melino site	For the Melino (04-4-0173) site: <ul style="list-style-type: none"> <li>Salvage excavation will be undertaken at the artefact scatter including a discrete knapping floor as detailed in the Working paper Aboriginal Cultural Heritage (Woodburn to Ballina) and in consultation with RAPs.</li> <li>Any sediment from the sites to 1.5 metre depth proposed to be used outside the site will be sieved to remove any cultural material.</li> </ul> Shell Midden: <ul style="list-style-type: none"> <li>Salvage excavations as detailed in the Working paper Aboriginal Cultural Heritage (Woodburn to Ballina) and in consultation with RAPs.</li> <li>A sequence of dates (radiocarbon or AMS) will be collected from the hand excavation.</li> <li>All shell recovered will be subject to analysis including minimum number of individuals (MNI) and weight (g). An analysis of the number of individual specimens (NISP) may also be undertaken if deemed appropriate.</li> </ul> Area surrounding the shell midden: <ul style="list-style-type: none"> <li>Salvage excavations will be undertaken as detailed in the Working paper Aboriginal Cultural Heritage (Woodburn to Ballina) and in consultation with RAPs.</li> </ul> Geomorphology assessment: <ul style="list-style-type: none"> <li>A geomorphology assessment will be undertaken. The assessment will be non-invasive, but could use observations of the machine salvage excavation.</li> </ul>	10	Pre-construction and construction	RMS and Contractor	Open	Salvage completed. Additional mitigations outlined in the site clearance letter received.
AH25	Aboriginal Heritage	Impacts on Site 1	For Site 1 (04-4-0179): <ul style="list-style-type: none"> <li>Further salvage excavations will be undertaken as detailed in the Working paper Aboriginal Cultural Heritage (Woodburn to Ballina) and in consultation with RAPs.</li> <li>Any sediment to one metre depth from the site proposed to be used outside the site will be sieved to remove any cultural material.</li> </ul>	10	Pre-construction and construction	RMS and Contractor	Open	Salvage complete. Additional mitigations outlined in the site clearance letter received.
AH26	Aboriginal Heritage	Impacts on Site 2	For Site 2 (04-4-0178): <ul style="list-style-type: none"> <li>Salvage excavation will be undertaken as detailed in the Working paper Aboriginal Cultural Heritage (Woodburn to Ballina) and in consultation with RAPs.</li> <li>Any sediment to 1.5 metres depth from the site proposed to be used outside the site will be sieved to remove any cultural material.</li> <li>Excavation at Site 2 will be undertaken at a time of the year when the water table is at its lowest, to ensure maximum depth can be reached with a machine.</li> </ul>	10	Pre-construction and construction	RMS and Contractor	Open	Salvage completed. Additional mitigations outlined in the site clearance letter received.
AH27	Aboriginal Heritage	Impacts on Site 3	For Site 3 (04-4-0175): <ul style="list-style-type: none"> <li>Further salvage excavations will be undertaken as detailed in the Working paper Aboriginal Cultural Heritage (Woodburn to Ballina) and in consultation with RAPs.</li> <li>Any sediment to 1.5 metres depth from the site proposed to be used outside the site will be sieved to remove any cultural material.</li> <li>Excavation at Site 3 will be undertaken at a time of the year when the water table is at its lowest, to ensure maximum depth can be reached with a machine.</li> </ul>	10	Pre-construction and construction	RMS and Contractor	Open	Salvage completed. Additional mitigations outlined in the site clearance letter received.
AH28	Aboriginal Heritage	Impacts on Site 4	For Site 4 (04-04-0132): <ul style="list-style-type: none"> <li>Further salvage excavations will be undertaken as detailed in the Working paper Aboriginal Cultural Heritage (Woodburn to Ballina) and in consultation with RAPs.</li> <li>Any sediment to 0.5 metre depth from the site proposed to be used outside the site will be sieved to remove any cultural material.</li> </ul>	10	Pre-construction and construction	RMS and Contractor	Open	Salvage completed. Additional mitigations outlined in the site clearance letter received.
AH29	Aboriginal Heritage	Impacts on Site 12	For Site 12 (04-4-0176): <ul style="list-style-type: none"> <li>An exclusion zone be established at the boundary of the site where construction is to occur within 10 m of the site, as per management measure AH2.</li> </ul>	10, 11	Pre-construction and construction	RMS and Contractor	Open	Salvage completed. Additional mitigations outlined in the site clearance letter received.
AH30	Aboriginal Heritage	Impacts on the Gumi Site	For the Gumi site (04-4-0180): <ul style="list-style-type: none"> <li>The tree (registered on AHIMS database) will be removed and the trunk will be relocated to an area agreed to with the registered stakeholder groups and Roads and Maritime – an arborist will be consulted to guide in the removal of the tree.</li> <li>The final tree location will be visually protected with culturally sensitive plantings or by existing vegetation.</li> <li>Access to the tree will be provided for local Aboriginal people to enable them to be able to use the tree as a teaching site.</li> </ul>	10	Pre-construction and construction	RMS and Contractor	Open	This requirement is addressed in Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan). Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with this measures. Arborist report has been prepared. Negotiations for relocation are ongoing.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Reference / Comment
AH31	Aboriginal Heritage	Impacts on the Melino Scarred Tree	For the Melino Scarred Tree 4 (04-4-0166) site: <ul style="list-style-type: none"> <li>• Prior to construction a 15 metre exclusion zone will be established around the scarred tree as per management measure AH2.</li> <li>• An arborist will be consulted to develop an ongoing management strategy to ensure the preservation and health of the tree.</li> </ul>	10	Pre-construction and construction	RMS and Contractor	Open	This requirement is addressed in Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan). Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with this measures. Arborist report has been prepared. Exclusion fencing is to be re-installed on vacant possession of the block
AH32	Aboriginal Heritage	Impacts on the MST3 Scarred Tree	For the MST3 (04-4-0131) site: <ul style="list-style-type: none"> <li>• Prior to construction a 15 metre exclusion zone will be established around the scarred trees as per management measure AH2.</li> <li>• An arborist will be consulted to develop an ongoing management strategy to ensure the preservation and health of the tree.</li> </ul>	10	Pre-construction and construction	RMS and Contractor	Open	This requirement is addressed in Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan). Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with this measures. Exclusion fencing is to be re-installed on vacant possession of the block
AH33	Aboriginal Heritage	Impacts on the C21 Scarred Tree	For the C21 (04-4-0107) site: <ul style="list-style-type: none"> <li>• Prior to construction a 15 metre exclusion zone will be established around the scarred trees as per management measure AH2.</li> <li>• An arborist will be consulted to develop an ongoing management strategy to ensure the preservation and health of the tree.</li> </ul>	10	Pre-construction and construction	RMS and Contractor	Open	This requirement is addressed in Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan). Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with this measures. Exclusion fencing is to be re-installed on vacant possession of the block.
AH34	Aboriginal Heritage	Impacts on the MSRT2 Scarred Tree	For the MSRT2 (04-4-0130) site: <ul style="list-style-type: none"> <li>• Prior to construction a 15 metre exclusion zone will be established around the scarred trees as per management measure AH2.</li> <li>• An arborist will be consulted to develop an ongoing management strategy to ensure the preservation and health of the tree.</li> </ul>	10	Pre-construction and construction	RMS and Contractor	Open	This requirement is addressed in Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan). Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with this measures. Exclusion fencing is to be re-installed on vacant possession of the block
AH35	Aboriginal Heritage	Impacts on the Rudgley Scarred Tree	For the Rudgley Scarred Tree (04-4-0170) site: <ul style="list-style-type: none"> <li>• Prior to construction a 15 metre exclusion zone will be established around the scarred trees as per management measure AH2.</li> <li>• An arborist will be consulted to develop an ongoing management strategy to ensure the preservation and health of the tree.</li> </ul>	10	Pre-construction and construction	RMS and Contractor	Open	This requirement is addressed in Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan). Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with this measures. Fencing to be established.
AH36	Aboriginal Heritage	Coolgardie Road, Rudgley Scarred Tree 2	An exclusion zone will be established 5 metres from the boundary of Rudgley Scarred Tree 2 as per management measure AH2.	10	Pre-construction	RMS and Contractor	Open	This requirement is addressed in Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan). Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with this measures. Arborist report has been prepared. Fencing to be established as per report.
AH37	Aboriginal Heritage	Coolgardie Road, Rudgley Site 2	The area of site to be impacted be subject to salvage excavation as detailed in the Addendum CHAR (Appendix D of the Submissions/ Preferred Infrastructure Report) and in consultation with RAPs. All cultural material recovered will be subject to detailed analysis, interpretation and reporting.	10	Pre-construction	RMS and Contractor	Open	Salvage completed. Additional mitigations outlined in the site clearance letter received.
AH38	Aboriginal Heritage	Impacts to Corridors of Movement	Educational and cultural signage will be placed at viable locations along the highway in this locality, potentially describing the history of Aboriginal occupation of the area. At a minimum, signage will include acknowledging the area as the traditional lands of the Gumbaynggir peoples. Any signage will be subject to approval by the registered Aboriginal stakeholders.	1	Pre-construction and construction	RMS and Contractor	NA	This Tracking Program applies to sections 3 to 11. For Sections 1 and 2, refer to Stage 1 Compliance Program.
AH39	Aboriginal Heritage	Impacts to Corridors of Movement	Tyndale and Woodford Island Corridors of Movement: <ul style="list-style-type: none"> <li>• Pedestrian access across the project will be provided, if reasonable and feasible within the existing local road network, to maintain the connectivity of this corridor of movement.</li> </ul>	3	Pre-construction and construction	RMS and Contractor	Open	This will be covered during detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete will review detailed design lot reports to ensure compliance with relevant CoAs. This requirement is also addressed in the Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan). Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with this measure.
AH40	Aboriginal Heritage	Impacts to Corridors of Movement	Pillar Valley Corridors of Movement: <ul style="list-style-type: none"> <li>• Pedestrian access across the project will be provided, if reasonable and feasible within the existing local road network, to maintain the connectivity of this corridor of movement.</li> </ul>	3	Pre-construction and construction	RMS and Contractor	Open	This will be covered during detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete will review detailed design lot reports to ensure compliance with relevant CoAs. This requirement is also addressed in the Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan). Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with this measure.
AH41	Aboriginal Heritage	Direct impact on culturally significant places	Place B: <ul style="list-style-type: none"> <li>• To maintain connectivity, access will be provided across the project area, from the end of Richmond Road, Pine Tree Road, or Fischer Street to Broadwater National Park during construction and operation, in consultation with the traditional owners.</li> <li>• Pedestrian access within the project boundary will be provided, where feasible and reasonable from the eastern side of the project to the western side of Broadwater National Park. A connection from the existing Pacific Highway to Broadwater National Park along Eversons Lane be considered, in consultation with traditional owners and relevant land owners.</li> </ul>	9, 10	Pre-construction and construction	RMS and Contractor	Open	This will be covered during detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete will review detailed design lot reports to ensure compliance with relevant CoAs. This requirement is also addressed in the Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan). Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with this measure.
AH42	Aboriginal Heritage	Direct impact on culturally significant places	Place D: <ul style="list-style-type: none"> <li>• Welcome to country signage will be installed within the highway corridor between Woodburn and Wardell and information on culture installed at the rest area in Section 10, as agreed with the registered Aboriginal parties.</li> </ul>	9, 10	Pre-construction and construction	RMS and Contractor	Open	This will be covered during detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete will review detailed design lot reports to ensure compliance with relevant CoAs. This requirement is also addressed in the Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan). Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with this measure.
AH43	Aboriginal Heritage	Direct impact on culturally significant places	Place K: <ul style="list-style-type: none"> <li>• A geomorphological assessment will be undertaken, including the geomorphological setting of the archaeological sites within this landscape, and how the landscape has formed and changed over the last 40,000 years. This take into account both the cultural and scientific significance of the place.</li> <li>• A report will be produced by a geomorphologist in conjunction with an archaeologist / anthropologist.</li> </ul>	11	Pre-construction and construction	RMS	Open	To be carried out as per RMS salvage program of works (prior to construction).
AH44	Aboriginal Heritage	Indirect impact on culturally significant places	Place E: <ul style="list-style-type: none"> <li>• This place will be fenced prior to and during construction to avoid incidental impact.</li> <li>• Surface water runoff from the construction site or from the highway pavement during operation of the project will be prevented from directly entering into Place E.</li> </ul>	9	Pre-construction and construction	RMS and Contractor	Open	Also known as LilyPad. Covered under E2/2 clearance letter. Fencing to be established.
AH45	Aboriginal Heritage	Indeterminate impact on culturally significant places	Place C: <ul style="list-style-type: none"> <li>• An education package will be prepared. This will include at a minimum a printed document detailing the story of the occupation of this area and the ensuing massacre. Further research and interviews will be undertaken for this purpose. Where possible, oral recordings and/or video footage will also be compiled into the package.</li> <li>• Caution will be undertaken in and around the project in this area with regard to potential human remains.</li> </ul>	9, 10	Pre-construction and construction	RMS and Contractor	Open	RMS carrying out consultation at AFGs.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Reference / Comment
AH46	Aboriginal Heritage	Mororo Road cutting site	Before construction at Mororo Road, between station 97.45 and 98.9, a field inspection of the area to be cleared and excavated will be undertaken by an Aboriginal heritage consultant with Registered Aboriginal Parties.	6	Pre-construction	RMS	Open	Works carried out as per RMS salvage program of works.
AH47	Aboriginal Heritage	Old Bagotville Road Lot 109 DP1137975	As the property occurs in an area of low-moderate Aboriginal heritage potential, survey, and if necessary test excavation, should be undertaken to determine the presence and extent of potential archaeological evidence. This will be conducted in accordance with the methodology agreed with RAPs, and prior to ground disturbing works for the project and/or proposed design change. Further recommendations for the site will then be made in consultation with the RAPs.	10	Pre-construction	RMS	Open	Works carried out as per RMS salvage program of works.
AH48	Aboriginal Heritage	Saezza 1 artefact scatter: salvage excavation	The area of this site to be impacted will be subject to salvage excavation as detailed in the Addendum CHAR (Appendix D of the Submissions/ Preferred Infrastructure Report) and in consultation with RAPs. All cultural material recovered will be subject to detailed analysis, interpretation and reporting. The portion of the site that not be impacted (at least 70%), will be protected by fencing as per management measure AH2.	10	Pre-construction	RMS	Open	Works to be carried out as per RMS salvage program of works. This requirement is addressed in Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan). Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with this measure.
<b>NON-ABORIGINAL (HISTORICAL HERITAGE)</b>								
HH1	Non-Aboriginal (Historical) heritage	Unidentified historical heritage materials, features and/or deposits	If at any time during construction associated with the project, unidentified historical heritage materials, features and/or deposits are found, the Roads and Maritime Standard Management Procedure: Unexpected Archaeological Finds (20121) will be followed.	All	Construction	Contractor	Open	This requirement is addressed in Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan, Appendix B Roads and Maritime Standard Management Procedure - Unexpected Archaeological Finds). Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with this measure. Separate and approved CEMP documentation is in place for soft soil works (i.e. Waves 1 and 2).
HH2	Non-Aboriginal (Historical) heritage	Awareness of non-Aboriginal heritage items	Contractors will be given awareness training on non-Aboriginal historical heritage prior to commencement of construction works to ensure understanding of potential heritage items and the procedure in the event of discovery of historical heritage materials, features or deposits, or the discovery of human remains.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan, Appendix A Aboriginal and Non-Aboriginal Heritage Education and Training Package). Pacific Complete will conduct site induction/awareness training of all contractors to ensure compliance with this requirement. Separate and approved CEMP documentation is in place for soft soil works (i.e. Waves 1 and 2). All staff inducted onto the project have received Aboriginal and non-Aboriginal induction training.
HH3	Non-Aboriginal (Historical) heritage	Awareness of non-Aboriginal heritage items	The Heritage management plan will be developed in consultation with the Heritage Council of NSW.	All	Construction	Contractor	Closed	This requirement was addressed during the preparation of the Pacific Complete Construction Heritage Management Plan which forms Appendix B5 of the Pacific Complete CEMP for Sections 3 to 11. Pacific Complete CEMP was approved by DPE on 23 October 2015. Separate and approved CEMP documentation is in place for soft soil works (i.e. Waves 1 and 2).
HH4	Non-Aboriginal (Historical) heritage	Awareness of non-Aboriginal heritage items	Should the impact to any historic heritage item change during detailed design, further assessment of impacts on the items will be undertaken.	All	Pre- construction	RMS and Contractor	Open	This will be covered during detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete will review detailed design lot reports to ensure compliance with relevant CoAs.
HH5	Non-Aboriginal (Historical) heritage	Ancillary facilities	At project section 1, site 2: a temporary barrier fence will be erected between item 39 and the ancillary site. The fence will remain in place until the conclusion of the use of the ancillary site at which time it will be removed.	1	Construction	Contractor	NA	This Tracking Program applies to sections 3 to 11. For Sections 1 and 2, refer to Stage 1 Compliance Program.
HH6	Non-Aboriginal (Historical) heritage	Ancillary facilities	At project section 10, site 4: a temporary barrier fence will be erected to protect the drainage channel that is not directly impacted by the project (item 43). The fence will remain in place until the conclusion of the use of the ancillary site at which time it will be removed.	10	Construction	Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detailed how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. Specific ancillary facility management plans will be prepared by Pacific Complete in accordance with the requirements of Appendix B9 Ancillary Facilities Management Plan (ER approved 10 February 2016). An ancillary facility management plan/checklist has not been prepared for the site.
HH7	Non-Aboriginal (Historical) heritage	Ancillary facilities	Where local or state significant heritage items not previously identified are identified on an ancillary site and use of the site will impact on the heritage significance of the item, the site will not be used for ancillary facilities.	All	Pre- construction	Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detailed how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. Specific ancillary facility management plans will be prepared by Pacific Complete in accordance with the requirements of Appendix B9 Ancillary Facilities Management Plan (ER approved 10 February 2016).
HH8	Non-Aboriginal (Historical) heritage	Ancillary facilities	Where local or state significant heritage items are identified on an ancillary site and use of the site will not impact on the heritage significance of the item, appropriate management measures (such as barrier fencing) will be put in place to clearly identify the heritage item and exclude use of the ancillary site within the heritage item's curtilage. Use of these ancillary facilities may commence: • When the appropriate protective measures have been implemented. • When the relevant records have been updated and/or completed.	All	Pre- construction	Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detailed how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. Specific ancillary facility management plans will be prepared by Pacific Complete in accordance with the requirements of Appendix B9 Ancillary Facilities Management Plan (ER approved 10 February 2016).
HH9	Non-Aboriginal (Historical) heritage	Ancillary facilities	Any new ancillary facility and spoil placement locations not identified as part of this EIS will require a non-Aboriginal heritage assessment, with a database search and site walkover to identify any potential heritage items. If items are found, HH4, HH7-HH8 will be followed.	All	Pre- construction	Contractor	Open	Pacific Complete has an approved Ancillary Facilities Management Plan (Appendix B9 of the Pacific Complete CEMP). The AFMP was approved by the Environmental Representative on 10 February 2016. The purpose of the AFMP is to detailed how Pacific Complete will assess, consult, gain approval and manage individual ancillary facility sites during the project. Specific ancillary facility management plans will be prepared by Pacific Complete in accordance with the requirements of Appendix B9 Ancillary Facilities Management Plan (ER approved 10 February 2016).
HH10	Non-Aboriginal (Historical) heritage	Impacts on item 2: House, sheds and stockyards, Milleera	A temporary barrier fence will be erected between the stockyards and the works area prior to road construction works commencing. The fence will remain in place until the conclusion of the works in the vicinity of the items at which time it will be removed. The batter slope will not be constructed within five metres of the stockyards.	1	Pre- construction and construction	Contractor	NA	This Tracking Program applies to sections 3 to 11. For Sections 1 and 2, refer to Stage 1 Compliance Program.



Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Reference / Comment
HH11	Non-Aboriginal (Historical) heritage	Impacts on item 2: House, sheds and stockyards, Milleera	Architectural noise treatment to the house will be investigated and provided where reasonable and feasible and in consultation with a qualified heritage consultant. Consideration will be given for the need to revise the SOHI for this item when the specific architectural noise treatment options are identified.	1	Pre- construction	Contractor	NA	This Tracking Program applies to sections 3 to 11. For Sections 1 and 2, refer to Stage 1 Compliance Program.
HH12	Non-Aboriginal (Historical) heritage	Impacts on item 7: Service station complex, Halfway Creek	Salvage excavation (of the coach way station and early coach road) will be undertaken from the project boundary along the front of the complex buildings to the edge of the existing highway before construction starts in the vicinity of the heritage item. Excavations will be undertaken in accordance with Heritage Branch guidelines and under the supervision of an appropriately qualified and experienced historical archaeologist. An appropriate research design and methodology will be prepared to best realise the research potential of this area of the site.	2	Pre- construction and construction	RMS and Contractor	NA	This Tracking Program applies to sections 3 to 11. For Sections 1 and 2, refer to Stage 1 Compliance Program.
HH13	Non-Aboriginal (Historical) heritage	Impacts on item 7: Service station complex, Halfway Creek	The batter slope for the motorway upgrade will not be constructed within eight metres of the bar/restaurant building.	2	Construction	Contractor	NA	This Tracking Program applies to sections 3 to 11. For Sections 1 and 2, refer to Stage 1 Compliance Program.
HH14	Non-Aboriginal (Historical) heritage	Impacts on item 7: Service station complex, Halfway Creek	A temporary fence will be erected between the bar/restaurant building and the motorway upgrade construction before work starts in the vicinity of the heritage item. The fence will remain in place until construction is completed, at which time it will be removed.	2	Pre- construction and construction	Contractor	NA	This Tracking Program applies to sections 3 to 11. For Sections 1 and 2, refer to Stage 1 Compliance Program.
HH15	Non-Aboriginal (Historical) heritage	Impacts on item 7: Service station complex, Halfway Creek	A photographic condition survey will be undertaken of the current condition of the heritage items with any damage to the item from construction to be repaired once construction is complete.	2	Pre- construction and construction	RMS and Contractor	NA	This Tracking Program applies to sections 3 to 11. For Sections 1 and 2, refer to Stage 1 Compliance Program.
HH16	Non-Aboriginal (Historical) heritage	Impacts on item 7: Service station complex, Halfway Creek	Architectural noise treatment to the house will be investigated and provided where reasonable and feasible and in consultation with a qualified heritage consultant. Consideration will be given for the need to revise the SOHI for this item when the specific architectural noise treatment options are identified.	2	Pre- construction	RMS	NA	This Tracking Program applies to sections 3 to 11. For Sections 1 and 2, refer to Stage 1 Compliance Program.
HH17	Non-Aboriginal (Historical) heritage	Impacts on item 36: North Coast Railway Branch Tramway	Archival photographic recording will be undertaken in accordance with the Heritage Branch guidelines How To Prepare Archival Records Of Heritage Items (NSW Heritage Office, 1998) prior to its removal.	2	Pre- construction	RMS	NA	This Tracking Program applies to sections 3 to 11. For Sections 1 and 2, refer to Stage 1 Compliance Program.
HH18	Non-Aboriginal (Historical) heritage	Impacts on item 11: Tyndale residence, Tyndale	Prior to the start of construction, the location and condition of the mature bunya trees will be recorded by an arborist. In consultation with an arborist, protective fencing will be erected adjacent to the property boundary to control impacts on the trees.	3	Pre- construction and construction	RMS and Contractor	Open	This requirement is addressed in Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan). Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with this measures.
HH19	Non-Aboriginal (Historical) heritage	Impacts on item 11: Tyndale residence, Tyndale	Architectural noise treatment to the house will be investigated and provided where reasonable and feasible and in consultation with a qualified heritage consultant. Consideration will be given for the need to revise the SOHI for this item when the specific architectural noise treatment options are identified.	3	Pre- construction	RMS and Contractor	Open	To be addressed during detailed design. Pacific Complete will review the relevant detailed design lot deliverable to ensure compliance with this measure. This requirement is also addressed in the Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
HH20	Non-Aboriginal (Historical) heritage	Impacts on item 12: Cane barge and former Ashby ferry, Maclean	A photographic condition survey will be undertaken of the current condition of the heritage items with any damage to the item from construction to be repaired once construction is complete.	4	Pre- construction	RMS and Contractor	Open	Pacific Complete will arrange for an appropriate photographic survey of heritage items to be undertaken in accordance with the requirements of this measure. This requirement is also addressed in the Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
HH21	Non-Aboriginal (Historical) heritage	Impacts on item 12: Cane barge and former Ashby ferry, Maclean	Where appropriate, and before construction commences, any loose or unstable components of the heritage item will be secured to minimise vibration impacts and remain secured until the conclusion of construction, at which time the securing mechanism/s will be removed. Any methods to secure the heritage item will be reversible and not cause damage to the item.	4	Pre- construction and construction	RMS and Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
HH22	Non-Aboriginal (Historical) heritage	Impacts on item 17: Harwood tram tracks, Harwood	The Petticoat Lane tram tracks section will have a protective covering placed over them, (e.g. a geo textile fabric and heavy duty metal sheeting or similar) to minimise impacts from construction in the area. The covering will be secured before construction and will remain in place until the end of construction.	5	Pre- construction and construction	RMS and Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
HH23	Non-Aboriginal (Historical) heritage	Impacts to item 20: Harwood Bridge, Harwood	The design of the new bridge will be undertaken in accordance with Bridge Aesthetics: Design Guidelines to Improve the Appearance of Bridges in NSW Roads and Maritime 2012 with specific reference to section 6.1, New bridges next to existing bridges.	5	Pre- construction	RMS and Contractor	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
HH24	Non-Aboriginal (Historical) heritage	Impacts on item 21: Convent, Harwood	An archival photographic recording will be made of the convent building and its surrounds in accordance with the Heritage Branch guidelines How to Prepare Archival Records of Heritage Items (NSW Heritage Office, 1998) prior to its removal or relocation.	5	Pre- construction	RMS and Contractor	Closed	Archival photographic record has been prepared for Item 21: Convent, Harwood. Report has been received.
HH25	Non-Aboriginal (Historical) heritage	Impacts on item 21: Convent, Harwood	The feasibility of relocating the building to an appropriate site within the Harwood Heritage Conservation Area will be investigated. The investigation will be undertaken in consultation with an appropriately qualified house removal contractor and an appropriately qualified heritage consultant.	5	Pre- construction	RMS and Contractor	Open	Further historical research and investigation has been carried out for options to relocate the convent building. Community and agency consultation has been carried out. No compliant tenders were received for the removal and relocation of the Harwood Convent building and no suitable land in or adjacent to the Harwood Heritage Conservation Area where the building could be relocated to was identified. DPE has provided approval for the demolition of the convent building, letter dated 5 December 2016.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Reference / Comment
HH26	Non-Aboriginal (Historical) heritage	Impacts on item 34 Townsend Residence, Townsend	Architectural noise treatment to the house will be investigated and provided where reasonable and feasible and in consultation with a qualified heritage consultant. Consideration will be given for the need to revise the SOHI for this item when the specific architectural noise treatment options are identified.	5	Pre- construction	RMS and Contractor	Open	To be addressed during detailed design. For detailed design Portion B that covers Section 5, an Operational Noise Review is to be completed in accordance with CoA D11. Pacific Complete will review the relevant detailed design lot deliverable to ensure compliance with this measure. This requirement is also addressed in the Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan). Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with this measure.
HH27	Non-Aboriginal (Historical) heritage	Impacts on New Italy Settlement (State Heritage Register 1648), New Italy Museum Complex (item 23: New Italy Settlement sites, New Italy)	A photographic condition survey will be undertaken of the current condition of the heritage items with any damage to the item from construction to be repaired once construction is complete.	7	Pre- construction and construction	RMS and Contractor	Open	Noted. Pacific Complete will arrange for an appropriate photographic survey of heritage items to be undertaken in accordance with the requirements of this measure. This requirement is also addressed in the Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan). Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with this measure.
HH28	Non-Aboriginal (Historical) heritage	Impacts on New Italy Settlement (State Heritage Register 1648), New Italy Museum Complex (item 23: New Italy Settlement sites, New Italy)	Monitoring of dust will be undertaken at this location in accordance with the project dust management plan.	7	Pre- construction and construction	Contractor	Open	Pacific Complete will establish a dust monitoring station (deposition gauge) at this location to ensure compliance with this measure. This requirement is addressed in the Pacific Complete CEMP (Appendix B4 Construction Heritage Management Plan). Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with this requirement.
HH29	Non-Aboriginal (Historical) heritage	Impacts on New Italy Settlement (State Heritage Register 1648), New Italy Museum Complex (item 23: New Italy Settlement sites, New Italy)	A temporary fence will be erected between the State Heritage Register boundary and the construction works before work starts in the vicinity of the heritage item. The fence will remain in place until construction is completed at which time it be removed.	7	Pre-construction and Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
HH30	Non-Aboriginal (Historical) heritage	Impacts on New Italy Settlement (State Heritage Register 1648), New Italy Museum Complex (item 23: New Italy Settlement sites, New Italy)	Appropriate directional signage to the New Italy Museum Complex will be installed at both the interchange at Woodburn and interchange at Iluka Road to divert visitors onto the service road in order to access the museum complex. Signage will comply with relevant Pacific Highway signage policy.	7	Operation	RMS	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
HH31	Non-Aboriginal (Historical) heritage	Impacts on New Italy Memorial and Stone-lined well (item 23: New Italy Settlement sites, New Italy)	Monitoring of dust will be undertaken at this location in accordance with the project dust management plan.	7	Pre- construction and construction	Contractor	Open	Pacific Complete will establish a dust monitoring station (deposition gauge) at this location to ensure compliance with this measure. This requirement is addressed in the Pacific Complete CEMP (Appendix B6 Construction Heritage Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
HH32	Non-Aboriginal (Historical) heritage	Impacts on New Italy Memorial and Stone-lined well (item 23: New Italy Settlement sites, New Italy)	A temporary fence will be erected between the location of the memorial and flagpole and the construction works (within five metres of the heritage items) before work starts in the vicinity of the heritage item. The fence will remain in place until conclusion is completed at which time it will be removed.	7	Pre- construction and construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
HH33	Non-Aboriginal (Historical) heritage	Impacts on Roder's stone-lined well and orchard (item 23: New Italy Settlement sites, New Italy)	Salvage excavation will be undertaken to salvage any subsurface artefacts related to the well and adjacent wall. Excavations will be undertaken under the supervision of an appropriately qualified and experienced historical archaeologist and in accordance with the Heritage Branch guidelines, including an appropriate research design and methodology to best realise the research potential of this area of the site. Consideration will be given to providing salvaged artefacts to the New Italy Museum.	7	Pre- construction and construction	RMS and Contractor	Closed	Investigation and photogrammetric recording of the stone-lined well, and excavation and recording of the adjacent stone wall structure has been completed. Glass and ceramic artefacts recovered from the excavation were collected from the site for artefact analysis. Timber and metal artefacts were recorded and left on site. Letter of completion dated 14 April 2016
HH34	Non-Aboriginal (Historical) heritage	Impacts on Roder's stone-lined well and orchard (item 23: New Italy Settlement sites, New Italy)	Before construction starts in the vicinity of the orchard, the location and condition of each of the mango trees will be recorded by an arborist.	7	Pre- construction and construction	RMS and Contractor	Closed	Arborist survey of the mango orchard has been completed. Report received.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Reference / Comment
HH35	Non-Aboriginal (Historical) heritage	Impacts on Roder's stone-lined well and orchard (item 23: New Italy Settlement sites, New Italy)	Protective barrier fencing to protect the mango orchard will be erected between the construction area and the trees with a buffer of at least five metres. This will be erected before construction starts in the vicinity of the items and remain in place until the end of construction at which time it will be removed.	7	Pre- construction and construction	RMS and Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
HH36	Non-Aboriginal (Historical) heritage	Impacts on Roder's stone-lined well and orchard (item 23: New Italy Settlement sites, New Italy)	An archival photographic recording will be made of the mango orchard and its surrounds in accordance with the Heritage Branch guidelines How To Prepare Archival Records Of Heritage Items (NSW Heritage Office, 1998) prior to its demolition.	7	Pre- construction	RMS and Contractor	Closed	archival photographic recording completed. Report has been prepared.
HH37	Non-Aboriginal (Historical) heritage	Impacts on Historic New Italy Village Area	If any historical heritage remains are discovered at the New Italy Village Area during construction, management measure HH1 will be applied.	7	Pre- construction and construction	Contractor	Open	Noted. This requirement is addressed in the Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan). Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with this measure.
HH38	Non-Aboriginal (Historical) heritage	Impacts on item 26, Broadwater	An archival photographic recording will be made of the buttery/creamery, the dairy and its surrounds in accordance with the Heritage Branch guidelines How To Prepare Archival Records Of Heritage Items (NSW Heritage Office, 1998) prior to demolition.	9	Pre- construction	RMS and Contractor	Closed	Archival photographic record has been prepared. Report has been received.
HH39	Non-Aboriginal (Historical) heritage	Impacts on item 26, Broadwater	Architectural noise treatment to the house will be investigated and provided where reasonable and feasible and in consultation with a qualified heritage consultant. Consideration will be given for the need to revise the SOHI for this item when the specific architectural noise treatment options are identified.	9	Pre- construction	RMS and Contractor	Open	This is being considered as part of detailed design. For detailed design Portion C that covers Section 9, an Operational Noise Review is to be completed in accordance with CoA D11. Pacific Complete will review the relevant detailed design lot deliverable to ensure compliance with this measure. This requirement is also addressed in the Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
HH40	Non-Aboriginal (Historical) heritage	Impacts on item 26, Broadwater	Further investigations for gold shafts within and adjacent to the project corridor will occur near item 26.	9	Pre- construction	RMS and Contractor	Closed	Investigation carried out. Report received. Report determined that gold shafts are not considered to be heritage items and are located well outside the W2B project corridor, therefore there will be no heritage impacts to the Broadwater Gold Shafts. No management measures required.
HH41	Non-Aboriginal (Historical) heritage	Impacts on item 27: Meerscham Vale brickworks, Wardell	If brick material or any other historical heritage remains are discovered during works, management measure HH1 will be applied.	10	Construction	Contractor	Open	Noted. This requirement is addressed in the Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan). Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with this measure.
HH42	Non-Aboriginal (Historical) heritage	Impacts on item 28, Broadwater	An archival photographic recording will be made of the stone quarry and small clay pit in accordance with the Heritage Branch guidelines How To Prepare Archival Records Of Heritage Items (NSW Heritage Office, 1998) prior to construction.	9	Pre- construction	RMS and Contractor	Closed	Archival photographic record has been prepared. Report has been received.
HH43	Non-Aboriginal (Historical) heritage	Impacts on item 28, Broadwater	Salvage excavations to the south of the quarry will be undertaken under the supervision of an appropriately qualified and experienced historical archaeologist. Salvage excavation will be undertaken in accordance with the Heritage Branch guidelines including an appropriate research design and methodology to best realise the research potential of this area of the site.	9	Pre- construction	RMS and Contractor	Closed	Archaeological investigation report has been prepared. Report has been received.
HH44	Non-Aboriginal (Historical) heritage	Impacts on item 28, Broadwater	A photographic condition survey and structural audit of the brick-lined well will be undertaken of the current condition of the heritage item with any damage to the item from construction to be repaired once construction is complete.	9	Pre- construction	RMS and Contractor	Closed	Structural inspection report has been prepared. Report has been received.
HH45	Non-Aboriginal (Historical) heritage	Impacts on item 28, Broadwater	Should blasting be required in the vicinity of this item, a detailed assessment of the level of vibration at the brick-lined well will be undertaken based on factors including distance from the blast site and the quantity of the explosive, and modelling of the predicted vibration levels. This assessment may result in additional mitigation measures for the structure including, but not limited to: <ul style="list-style-type: none"> <li>• Construction of temporary or permanent supports or shoring within the brick-lined well.</li> <li>• Stabilisation of the brick-lined well.</li> <li>• Installation of vibration monitoring devices.</li> </ul>	9	Pre- construction and construction	Contractor	Open	Noted. This requirement is addressed in Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
HH46	Non-Aboriginal (Historical) heritage	Impacts on item 28, Broadwater	Protective barrier fencing will be erected around the brick-lined well with a 15-metre buffer before the start of construction and will remain in place until the conclusion of the work, at which time it will be removed.	9	Pre- construction and construction	Contractor	Open	This requirement is addressed in Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
HH47	Non-Aboriginal (Historical) heritage	Impacts on item 28, Broadwater	Due to the proximity of the well to the roadway, the well may be closed for safety reasons. Any measures to close the well will enable access in the future for heritage research or other purposes and that no detrimental physical impact on the well occurs.	9	Construction	Contractor	Open	This requirement is addressed in Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan). Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with this measure.
HH48	Non-Aboriginal (Historical) heritage	Impacts on item 29: 'Stonehenge' Property, Wardell	An archival photographic recording will be made of the main residence and the drainage system and its surrounds in accordance with the Heritage Branch guidelines How To Prepare Archival Records Of Heritage Items (NSW Heritage Office, 1998) prior to its demolition. A detailed survey and recording of the location of the drainage system within the 'Stonehenge' property will also be undertaken.	10	Pre- construction	RMS and Contractor	Open	Archaeological investigation report has been prepared. Report has been received.
HH49	Non-Aboriginal (Historical) heritage	Impacts on item 29: 'Stonehenge' Property, Wardell	Architectural noise treatment to the house will be investigated and provided where reasonable and feasible and in consultation with a qualified heritage consultant. Consideration will be given for the need to revise the SOHI for this item when the specific architectural noise treatment options are identified.	10	Pre- construction	RMS and Contractor	Open	This is being considered as part of detailed design. For detailed design Portion D that covers Section 10, an Operational Noise Review is to be completed in accordance with CoA D11. Pacific Complete will review the relevant detailed design lot deliverable to ensure compliance with this measure. This requirement is also addressed in the Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
HH50	Non-Aboriginal (Historical) heritage	Impacts on item 38: Cemetery reserve	To protect the heritage item from construction activities, the boundary of the reserve will be clearly identified on site/construction plans as an area of exclusion, and temporary barrier fencing will be constructed continuously along the project boundary: <ul style="list-style-type: none"> <li>• Immediately south of the cemetery reserve.</li> <li>• Where it crosses the south east corner of the cemetery reserve.</li> <li>• Where it follows the east boundary of the cemetery reserve.</li> </ul>	9	Pre- construction and construction	Contractor	Open	Noted. Fencing to be established. This requirement is addressed in the Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Reference / Comment
HH51	Non-Aboriginal (Historical) heritage	Impacts on Item 33: High Conservation Value Old Growth Forest	Detailed design will consider the extent to which clearing High Conservation Value Old Growth Forest within the project boundary may be minimised.	2, 6 and 7	Pre-construction	RMS and Contractor	Open	This will be covered during detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
HH52	Non-Aboriginal (Historical) heritage	Impacts on Item 33: High Conservation Value Old Growth Forest	The area to be cleared will be clearly identified on-site. High Conservation Value Old Growth Forest adjacent to areas to be cleared will be delineated to avoid accidental disturbance on further areas.	2, 6 and 7	Construction	Contractor	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
HH53	Non-Aboriginal (Historical) heritage	Impacts on Item 43: Drainage channels, Broadwater	An archival photographic recording be made of the drainage channels and its surrounds in accordance with the Heritage Branch guidelines prior to its destruction.	10	Pre-construction	RMS and Contractor	Open	Archaeological investigation report has been prepared. Report has been received.
<b>TRAFFIC AND TRANSPORT</b>								
T&T1	Traffic and Transport	Construction traffic management	<p>Construction traffic management plans will be prepared and implemented for work sites. They will include:</p> <ul style="list-style-type: none"> <li>• Identification of all public roads to be used by construction traffic.</li> <li>• Management methods to direct construction traffic to use identified roads.</li> <li>• Identification of all public roads that may be partially or completely closed during construction, and the expected timing and duration of closures.</li> <li>• Details on likely impacts on existing traffic (including pedestrians, vehicles, cyclists and disabled persons).</li> <li>• Temporary traffic arrangement measures, including property access.</li> <li>• Details on access to construction sites, including entry and exit locations, and measures to prevent construction vehicles queuing on public roads.</li> <li>• A response plan for any incident involving construction traffic.</li> <li>• Mechanisms for monitoring, reviewing and amending the success of the plans.</li> </ul> <p>The traffic management plans be prepared in consultation with councils.</p>	All	Pre-construction and construction	Contractor	Open	This requirement is addressed in Pacific Complete CEMP (Appendix B1 Construction Traffic and Access Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
T&T2	Traffic and Transport	Bulk earthworks haulage	A strategy will be prepared for bulk earthworks haulage between the crossing of the Richmond River and the interchange at Wardell. The strategy will seek to maximise the extent of haulage within the project boundary and limit the need to haul material through the town of Wardell.	10	Pre-construction and construction	Contractor	Open	Pacific Complete will plan and execute it material haulage works with the aim of maximising the extent of haulage within the Project Boundary and limit the need to haul material through the town of Wardell. This requirement is addressed in the Pacific Complete CEMP (Appendix B1 Construction Traffic and Access Management Pan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
T&T3	Traffic and Transport	Inspection of roadwork traffic schemes	<p>Traffic control schemes will be inspected as follows:</p> <ul style="list-style-type: none"> <li>• Pre-start and pre-closedown inspections of short-term traffic controls.</li> <li>• Weekly inspections of long-term traffic controls.</li> <li>• Night-time inspections of long-term traffic controls.</li> </ul>	All	Construction	Contractor	Open	Pacific Complete will plan and execute it material haulage works with the aim of maximising the extent of haulage within the Project Boundary and limit the need to haul material through the town of Wardell. This requirement is addressed in the Pacific Complete CEMP (Appendix B1 Construction Traffic and Access Management Pan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
T&T4	Traffic and Transport	Vehicle movement	<p>Vehicle movement plans and haulage route plans will be prepared. Drivers will be briefed on these vehicle movement plans during project induction. Deliveries be planned to occur outside peak traffic periods, where possible. To minimise queuing of construction vehicles on the highway, site personnel use two-way radios to call up haulage trucks from layover areas on a 'just in time' basis.</p>	All	Construction	Contractor	Open	Pacific Complete will plan and execute it material haulage works with the aim of maximising the extent of haulage within the Project Boundary and limit the need to haul material through the town of Wardell. This requirement is addressed in the Pacific Complete CEMP (Appendix B1 Construction Traffic and Access Management Pan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
T&T5	Traffic and Transport	Road occupancy	Applications for Road Occupancy licences will be submitted to Roads and Maritime Services and the relevant council at least 10 working days prior to proposed occupancy.	All	Pre-construction and construction	Contractor	Open	Pacific Complete will plan and execute it material haulage works with the aim of maximising the extent of haulage within the Project Boundary and limit the need to haul material through the town of Wardell. This requirement is addressed in the Pacific Complete CEMP (Appendix B1 Construction Traffic and Access Management Pan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
T&T6	Traffic and Transport	Road damage	<p>Pre-construction road dilapidation reports will be prepared for all roads likely to be used by construction traffic. Post-construction road dilapidation reports will be prepared following the completion of construction for all roads assessed prior to construction. Dilapidation resulting from construction activity will be repaired. Copies of road dilapidation reports will be sent to the relevant roads authority.</p>	All	Pre-construction and construction	Contractor	Open	Pacific Complete will plan and execute it material haulage works with the aim of maximising the extent of haulage within the Project Boundary and limit the need to haul material through the town of Wardell. This requirement is addressed in the Pacific Complete CEMP (Appendix B1 Construction Traffic and Access Management Pan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
T&T7	Traffic and Transport	Property and road access	<p>Access be maintained to properties during construction including, where necessary and feasible, temporary alternative access unless otherwise agreed with property owners. Where any legal access is permanently affected, alternative access to an equivalent standard to and from a public road will be provided where a property has no other legal means of access and where such alternative access is feasible and practical. 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 owner for acquisition of the property in accordance with the provisions of the Land Acquisition (Just Terms Compensation) Act 1991.</p>	All	Construction	Contractor	Open	Pacific Complete will plan and execute it material haulage works with the aim of maximising the extent of haulage within the Project Boundary and limit the need to haul material through the town of Wardell. This requirement is addressed in the Pacific Complete CEMP (Appendix B1 Construction Traffic and Access Management Pan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Reference / Comment
T&T8	Traffic and Transport	Bus services	Where changes in access affect bus stop locations, temporary alternatives will be provided in conjunction with bus operators and affected schools to maintain access during construction.	All	Construction	Contractor	Open	Pacific Complete will plan and execute its material haulage works with the aim of maximising the extent of haulage within the Project Boundary and limit the need to haul material through the town of Wardell. This requirement is addressed in the Pacific Complete CEMP (Appendix B1 Construction Traffic and Access Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
T&T9	Traffic and Transport	Access to State forests	Where access to State forest land is affected during construction, a new access route will be provided in consultation with the Department of Primary Industries (Forests NSW).	All	Construction	Contractor	Open	Pacific Complete will plan and execute its material haulage works with the aim of maximising the extent of haulage within the Project Boundary and limit the need to haul material through the town of Wardell. This requirement is addressed in the Pacific Complete CEMP (Appendix B1 Construction Traffic and Access Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
T&T10	Traffic and Transport	Maritime traffic	Where maritime traffic access to the Clarence and Richmond rivers is affected during construction of bridge crossings, appropriate signage will be provided indicating alternative means of access and the timing of the works.	5 and 10	Construction	Contractor	Open	Pacific Complete will plan and execute its material haulage works with the aim of maximising the extent of haulage within the Project Boundary and limit the need to haul material through the town of Wardell. This requirement is addressed in the Pacific Complete CEMP (Appendix B1 Construction Traffic and Access Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
T&T11	Traffic and Transport	Waterway access	Access to the Clarence and Richmond rivers will be maintained for industry and recreational waterway users.	5 and 10	Construction	Contractor	Open	Pacific Complete will plan and execute its material haulage works with the aim of maximising the extent of haulage within the Project Boundary and limit the need to haul material through the town of Wardell. This requirement is addressed in the Pacific Complete CEMP (Appendix B1 Construction Traffic and Access Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
T&T12	Traffic and Transport	Access and connectivity	Access to Glenugie State Forest around the interchange at Eight Mile Lane and Lookout Road will be further reviewed in consultation with State Forest Corporation.	3	Pre-construction and construction	RMS and Contractor	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
T&T13	Traffic and Transport	Access and connectivity	The layout of the intersection at Yamba Road will be reviewed to better meet the needs of truck movements from Harwood Mill, where reasonable and feasible.	5	Pre-construction	RMS and Contractor	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
T&T14	Traffic and Transport	Access and connectivity	The need for a full interchange at Yamba Road will be investigated should traffic growth warrant it in the future and when funding is available.	5	Pre-construction	RMS and Contractor	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
T&T15	Traffic and Transport	Access and connectivity	The need for a full interchange with south facing ramps at Watts Lane, Harwood will be investigated should traffic growth warrant it in the future and when funding is available.	5	Pre-construction	RMS and Contractor	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
T&T16	Traffic and Transport	Access and connectivity	The need for the overpass and the arrangement of local access at Chatsworth Road will be reviewed at the detailed design stage depending on specific staging and delivery of the highway.	5	Pre-construction	RMS and Contractor	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
T&T17	Traffic and Transport	Access and connectivity	The need for the overpass and arrangement of local access at Carrols Lane will be reviewed at the detailed design stage depending on specific staging and delivery of the highway.	5	Pre-construction	RMS and Contractor	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
T&T18	Traffic and Transport	Access and connectivity	Connectivity between the shared user path from Harwood Bridge to Yamba Road would be reviewed to refine pedestrian and cyclist access	5	Pre-construction	RMS and Contractor	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
<b>CONSTRUCTION NOISE AND VIBRATION</b>								
CNV1	Construction Noise and Vibration	Noise	Affected receivers will be notified prior to the commencement of out of hours work. Notification includes contact details of project personnel in charge of the out of hours works.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan), in particular Appendix C out of hours works procedure. Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
CNV2	Construction Noise and Vibration	Noise	Construction will be timetabled to minimise noise impacts where feasible and reasonable. This may include time and duration restrictions and respite periods. These measures will be considered after consultation with affected receivers.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Reference / Comment
CNV3	Construction Noise and Vibration	Noise	Haulage routes will be located as far away as possible from residential receivers, where this is reasonable and feasible.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
CNV4	Construction Noise and Vibration	Noise	Equipment will be maintained in efficient working order.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
CNV5	Construction Noise and Vibration	Noise	Quieter construction methods will be used, where there are sensitive receivers potentially affected and where this is considered reasonable and feasible. These may include grinding, rock splitting or terrain levelling instead of hydraulic rock breaking.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
CNV6	Construction Noise and Vibration	Noise	Where acceptable from a work health and safety perspective, quieter alternatives to reversing alarms (such as spotters, closed circuit television monitors and 'smart' reversing alarms) will be used, particularly during night-time activities.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
CNV7	Construction Noise and Vibration	Noise	All noise complaints received will be dealt with promptly. Construction methods may need to be altered to reduce noise impacts at the affected locations.	All	Construction	Contractor	Open	All complaints (including noise) will be managed as per the Pacific Complete CEMP (main document - Section 6.3.2) which is aligned to the Communications and Stakeholder Engagement Strategy. Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
CNV8	Construction Noise and Vibration	Noise	Machinery will not be turned on prior to the work hours outlined in this EIS. This will include daily maintenance activities and/or 'warming up' of engines.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). During the reporting period unapproved out of hours works occurred within the Wave 4 site in September 2016. Category 2 incident was reported. No environmental harm occurred.
CNV9	Construction Noise and Vibration	Noise	Truck movements will be restricted to identified haulage routes and the routes outlined in the Construction Traffic Management Plan.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B1 Construction Traffic and Access Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
CNV10	Construction Noise and Vibration	Noise	Where it has been identified as necessary (e.g. in response to community complaints), noise monitoring will be undertaken to check that the noise mitigation measures are effective.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
CNV11	Construction Noise and Vibration	Noise	The use of temporary noise shielding will be considered at locations where substantial exceedances of noise criteria are predicted.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
CNV12	Construction Noise and Vibration	Noise	Static noise sources, such as generators, pumps and lighting towers, will be located as far as possible from sensitive receivers.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
CNV13	Construction Noise and Vibration	Noise	Regular noise monitoring will be undertaken during proposed construction hours at a representative receiver location, between: • 6am to 7pm, Monday to Friday. • 8am to 5pm, Saturday	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
CNV14	Construction Noise and Vibration	Noise	The selection of plant and equipment will be based on noise emission levels. This equipment will be operated and maintained so that noise emissions are minimised.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Reference / Comment
CNV15	Construction Noise and Vibration	Vibration	Where piling, hydraulic hammering or dynamic compaction is proposed within 50 metres of any structure or service, a building condition survey will be conducted and preliminary vibration monitoring undertaken by a qualified contractor.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
CNV16	Construction Noise and Vibration	Vibration	Where piling, hydraulic hammering or dynamic compaction is proposed within 50 metres of any heritage structure or potentially structurally unsound service, a building condition survey will be conducted and preliminary vibration monitoring undertaken by a qualified contractor. A follow-up survey will be conducted in response to any vibration complaints.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
CNV17	Construction Noise and Vibration	Vibration	Appropriately sized equipment will be selected to minimise vibration emissions, where required.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
CNV18	Construction Noise and Vibration	Blasting (controlled)	A blast management plan will be prepared prior to the start of blasting activities.	All	Pre-construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). A blast management plan for Wave 3 has been prepared and approved by PC.
CNV19	Construction Noise and Vibration	Blasting (controlled)	Where sensitive receivers are located close to the blast site, a series of trials will be undertaken at a reduced scale to determine site-specific blast response characteristics, to define allowable blast sizes to occur within the criteria.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). A blast management plan for Wave 3 has been prepared and approved by PC. Trial blasts were carried out prior to production blasts to inform the blast design.
CNV20	Construction Noise and Vibration	Blasting (controlled)	Controlled blasting activities will only be undertaken between the hours of: • 9am to 5pm, Monday to Friday. • 9am to 1pm, Saturday. These times may be increased with the written agreement of affected residents. Where the blast management plan has identified potential impacts on sensitive receivers, these hours will be subject to change.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). Blasts that occurred during the reporting period took place within the Wave 3 works. All blasts were carried out within the appropriate time periods.
CNV21	Construction Noise and Vibration	Blasting (controlled)	A minimum of 24 hours' notice will be provided to all residences located within 500 metres of any blast, including an indication of blasting times and a contact name and telephone number.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). Blasts that occurred during the reporting period took place within the Wave 3 works. All residences within 500m of the blast radius were actively consulted before, during and after each blast.
CNV22	Construction Noise and Vibration	Construction Blasting (controlled)	Monitoring of overpressure and vibration levels will be undertaken for each blast at the potentially most affected receivers.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). Blasts that occurred during the reporting period took place within the Wave 3 works. Overpressure and vibration monitors were utilised during every blast.
CNV23	Construction Noise and Vibration	Blasting (controlled)	A building condition survey will be undertaken for all buildings located within 200 metres of the proposed blasting area prior to the start of blasting. The proponent will be responsible for rectifying any damage occurring from the blasting, with the cost to be borne by the proponent.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). Building condition surveys were completed (as required) as per Pacific Complete specifications.
CNV24	Construction Noise and Vibration	Blasting (controlled)	Should blasting be required within 200 metres of the water reservoirs at the Lang Hill borrow source, a dilapidation or preconstruction condition survey will be undertaken before blasting work commences in consultation with Richmond Valley Council and Rous Water.	8	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). No blasting in this area during the reporting period.
CNV25	Construction Noise and Vibration	Blasting (controlled)	The maximum instantaneous charge (MIC) will be reduced to the lowest possible level by the use of delays, reduced diameter holes, and/or deck loading.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Reference / Comment
CNV26	Construction Noise and Vibration	Blasting (controlled)	Adequate stemming will be provided and exposed detonating cord be eliminated (by covering with at least 300 millimetres of quarry dust or road base).	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
CNV27	Construction Noise and Vibration	Blasting (controlled)	Secondary blasting will be eliminated. (A rock breaker or drop hammer will be used instead of popping). Effort will be made to eliminate the need for toe shots (e.g. by better control of drill patterns).	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan). Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with this measure. Separate and approved CEMP documentation is in place for soft soil works (i.e. Waves 1 and 2).
CNV28	Construction Noise and Vibration	Blasting (controlled)	Weather conditions at the time of the blast will be assessed. Blasting will be avoided where possible during heavy cloud cover and/or if a strong wind is blowing towards residences. Days of severe temperature inversion will be avoided where possible or, (if not possible) blasting will occur between 11am and 1pm.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
CNV29	Construction Noise and Vibration	Blasting (controlled)	Strict control will be exercised over the spacing and orientation of all blast drill holes. Holes will be spaced in such a manner that the explosive force is just sufficient to break the stone to the required size.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
CNV30	Construction Noise and Vibration	Blasting (controlled)	Controlled blasting times will be determined in consideration of site-specific conditions and in consultation with affected residents and take place, where possible, when impacts are likely to be the least intrusive (e.g. all blasts be fired at a set time acceptable to residents and preferably when the background noise is highest).	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
CNV31	Construction Noise and Vibration	Consultation	Identified receivers will be notified by letter of the proposed hours and asked for comment and feedback. This will include justification for the proposed extended working hours along with the benefits the community can expect. Where the community or individual residents wish to receive further clarification on the proposed hours, individual interviews or public meetings will be organised to address any further issues. Discussions will be sufficiently detailed to provide a general summary of the expected impacts but also how this relates to individual receivers. At this stage, more detail will be available regarding the proposed construction activities to be undertaken in the extended hours.  Property owners will be provided with the complaints management procedures to be in place for extended working hours.  Feedback will be collected to help determine the final adopted working hours for the project, with community consultation continuing throughout the project.	All	Pre-construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
<b>OPERATION NOISE AND VIBRATION</b>								
ONV1	Operation Noise and Vibration	Road traffic noise	Architectural treatments will be considered for noise-affected receivers identified in the EIS and Submissions / Preferred Infrastructure Report (Appendix F), subject to confirmation at the detailed design stage.	All	Pre-operation	RMS and Contractor	Open	This is being considered as part of detailed design. Detailed Design Portions A, B, C and D which covers Section 3 through to Section 11 will produce an Operational Noise Review in accordance with CoA D11. Pacific Complete will review relevant detailed design deliverables and design lot reports to ensure compliance with this measure.
ONV2	Operation Noise and Vibration	Road traffic noise	Low noise wearing surface will be implemented in areas identified in section 5.3.21 of the EIS.	1,3,4,5,8, and 10	Pre-operation	RMS and Contractor	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
ONV3	Operation Noise and Vibration	Road traffic noise	No later than one year after commencement of operation of the project stages as they are constructed, Roads and Maritime will undertake operational noise monitoring to compare the actual noise performance of the project against predicted noise performance. The report will include, but not necessarily be limited to: • Noise monitoring to assess compliance with the operational noise levels predicted. • A review of the operational noise levels in terms of criteria and noise goals. • Methodology, location and frequency of noise monitoring undertaken. • Details of any complaints and enquiries received in relation to operational noise. • Any required recalibrations of the noise model. • An assessment of the performance and effectiveness of applied noise mitigation measures. • Any additional feasible and reasonable measures required.	All	Post-operation	RMS	Open	RMS will arrange for the Operational Noise Compliance Report as per MCoA D28 to be undertaken to ensure compliance with this measure.
<b>LAND USE AND PROPERTY</b>								
LU1	Land use and property	Property acquisition and managing surplus land	Ongoing communication and consultation will be undertaken with directly affected property owners about the property acquisition process. This includes the provision of information on the timing of acquisitions, and the process for property acquisitions under the <i>Land Acquisition (Just Terms Compensation) Act 1991</i> and Roads and Maritime' Land Acquisition Policy (RTA, 1999).	All	Pre-construction	RMS	Open	RMS is managing the ongoing communication and consultation requirements with support from Pacific Complete.
LU2	Land use and property	Property acquisition and managing surplus land	Ongoing consultation will be undertaken with directly affected property owners during the detailed design phase to identify measures to mitigate potential impacts on the use and viability of land. This will relate to matters such as adjustments to fencing, access, farm infrastructure and relocation of impacted ancillary structures, as required.	All	Pre-construction	RMS	Open	RMS is managing the ongoing consultation requirement with support from Pacific Complete. During detailed design, Pacific Complete will review relevant detailed design deliverables/design lot reports to ensure compliance with this requirement.
LU3	Land use and property	Fencing Strategy	Property adjustments will be completed for fencing, access tracks, cattle underpasses and other farm infrastructure in consultation with the impacted land owner.	All	Pre-construction	RMS	Open	RMS is managing the ongoing consultation requirement with support from Pacific Complete. During detailed design, Pacific Complete will review relevant detailed design deliverables/design lot reports to ensure compliance with this requirement.
LU4	Land use and property	Fencing Strategy	The Fencing Strategy will be further developed during detailed design, in consultation with relevant stakeholders. This will build upon the principles of the strategy described in Chapter 3 of the Submissions and Preferred Infrastructure Report (Roads and Maritime, 2013).	All	Pre-construction	RMS	Open	RMS and Pacific Complete are working together to ensure a consistent, practical, environmentally efficient and cost effective fencing strategy is developed and applied to the project. Pacific Complete will review relevant detailed design deliverables/design lot reports to ensure compliance with this requirement.



Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Reference / Comment
LU5	Land use and property	Property acquisition and managing surplus land	Sterilisation and severance of land uses and lots will be minimised by amalgamating severed parcels of land together, where possible, with provision of road access, in accordance with the project's remnant land use strategy.	All	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
LU6	Land use and property	Property acquisition and managing surplus land	Where required, acquisition of State forests will be minimised in accordance with the provisions of the <i>Forestry Act 2012</i> . Revocation of land dedicated or reserved as national parks or nature reserves will be in accordance with the <i>National Parks and Wildlife Act 1974</i> . Acquisition of land owned by Local Aboriginal Land Councils will be in accordance with the provisions of the <i>Aboriginal Land Rights Act 1983</i> .	All	Pre-construction	RMS	Open	RMS is managing the property acquisition process. During detailed design, Pacific Complete will review relevant detailed design deliverables/design lot reports to ensure compliance with this measure.
LU7	Land use and property	Property acquisition and managing surplus land	A remnant land strategy to minimise land use severance and sterilisation, and a mitigation strategy for final land uses will be developed in consultation with cane industry stakeholders, Coffs Harbour City, Clarence Valley, Richmond Valley and Ballina Councils.	All	Pre-construction	RMS	Open	RMS is managing this process. Pacific Complete will support RMS via the detailed design phase.
LU8	Land use and property	Property acquisition and managing surplus land	The requirement for a retaining wall structure at station 83.2, between the road reserve and adjoining property, will be confirmed during detailed design.	5	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
LU9	Land use and property	Property access during construction	Access to properties near construction works will be maintained, including where required for the movement of farm equipment and livestock between properties, unless otherwise agreed with landowners.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B1 Construction Traffic and Access Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
LU10	Land use and property	Property access during construction	Where temporary changes to property access are required during construction, alternative access will be determined in consultation with affected property owners and tenants.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B1 Construction Traffic and Access Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
LU11	Land use and property	Property access during construction	There will be ongoing communication with local communities about changes to the local road network, including likely delays and disruptions and alternative accesses if required.	All	Construction	RMS and Contractor	Open	Ongoing communication will be managed in accordance with the Communications and Stakeholder Engagement Strategy which the Pacific Complete CEMP (main document) is aligned too. Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). During the reporting period notification letters have been sent out to residents where required.
LU12	Land use and property	Construction impacts to primary industry, including forestry, and agriculture uses	Where possible, onsite reuse of any spoil is the preferred solution for managing the impacts, although alternative options for the reuse or disposal of spoil will be identified in the surplus material management plan.	All	Construction	Contractor	Open	During detailed design, each design Portion (A, B, C and D) which covers Section 3 through to Section 11 is required to prepare a Surplus Spoil Strategy which outlines the decision making framework to manage excess spoil that may be potentially generated during the construction phase of the project. Pacific Complete CEMP (Appendix B7 Construction Waste, Resources and Energy Management Plan) is in place. Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with this requirement. Separate and approved CEMP documentation is in place for soft soil works (i.e. Waves 1 and 2).
LU13	Land use and property	Construction impacts to primary industry, including forestry, and agriculture uses	The management of surplus material will be further developed during detailed design, in consultation with relevant stakeholders. This will build upon the principles of the strategy described in Chapter 3 of the Submissions and Preferred Infrastructure Report (Roads and Maritime, 2013).	All	Pre-construction	RMS	Open	During detailed design, each design Portion (A, B, C and D) which covers Section 3 through to Section 11 is required to prepare a Surplus Spoil Strategy which outlines the decision making framework to manage excess spoil that may be potentially generated during the construction phase of the project. Pacific Complete CEMP (Appendix B7 Construction Waste, Resources and Energy Management Plan) is in place. Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
LU14	Land use and property	Construction impacts to primary industry, including forestry, and agriculture uses	Forestry Corporation of NSW will be able to harvest millable timber in affected State forests prior to works commencing. However, consideration will also be given to opportunities for the productive use of trees removed from non-State forest areas of the project, including ancillary facilities where necessary.	All	Construction	Contractor	Open	Pacific Complete Mulch Management Strategy. Pacific Complete CEMP (Appendix B7 Construction Waste, Resources and Energy Management Plan). Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with this requirement. Separate and approved CEMP documentation is in place for soft soil works (i.e. Waves 1 and 2). Harvest of millable timber maximised during clearing operations.
LU15	Land use and property	Construction impacts to primary industry, including forestry, and agriculture uses	Environmental management measures will be implemented to minimise potential for impacts on adjoining agricultural uses, including from changes in water quality and spread of weeds and pests.	All	Construction	Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B2 Construction Flora and Fauna Management Sub-Pan and Appendix B4 Construction Soil and Water Quality Management Plan). Separate and approved CEMP documentation is in place for soft soil works (i.e. Waves 1 and 2).
LU16	Land use and property	Construction impacts to primary industry, including forestry, and agriculture uses	Where pesticides are required during construction, implement appropriate environmental management measures to avoid potential impacts on adjoining agricultural properties.	All	Construction	Contractor	Open	Pesticide use must be in accordance with the requirements of the Pesticides Act 1999, Protection of the Environment Operations Act 1997 and the Pacific Complete CEMP (main document). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). Herbicides are only applied by appropriately qualified personnel.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Reference / Comment
LU17	Land use and property	Construction impacts to primary industry, including forestry, and agriculture uses	There will be ongoing consultation and communication with managers of agricultural properties to identify any potential impacts on nearby construction workers from farm operations (i.e. use of pesticides on agricultural properties).	All	Construction	RMS and Contractor	Open	Ongoing communication will be managed in accordance with the Communications and Stakeholder Engagement Strategy. Pacific Complete will undertake the coordination of communications and engagement with managers of agricultural properties in the vicinity of construction work sites.
LU18	Land use and property	Construction impacts to primary industry, including forestry, and agriculture uses	Ongoing consultation and communication will be undertaken with commercial fishing and relevant aquaculture operators about construction activities within and near the Clarence and Richmond rivers. Stakeholders include the estuary prawn trawl fishery, and estuary general fishery within the Clarence River, the NSW Department of Primary Industries (Fisheries) and licensed fishing interests within the Richmond River regarding the timing and duration of construction, potential impacts (including changes to river access) and proposed mitigation measures.	All	Construction	RMS and Contractor	Open	Ongoing consultation and communication will be undertaken in accordance with the Communications and Stakeholder Engagement Strategy. Pacific Complete will implement the Strategy.
LU19	Land use and property	Utilities and infrastructure	Relocation or adjustment of infrastructure will be planned to minimise disruptions and impacts on surrounding properties.	All	Construction	Contractor	Open	Pacific Complete will liaise and co-ordinate with utility/service owners to ensure any relocation or adjustment is planned and undertaken so as to minimise disruption and impacts on surrounding properties.
LU20	Land use and property	Utilities and infrastructure	Communication will be undertaken with nearby communities about the timing and duration of potential disruptions to infrastructure.	All	Construction	RMS and Contractor	Open	Communication will be managed in accordance with the Communications and Stakeholder Engagement Strategy. Pacific Complete's CEMP is aligned to the Strategy. Pacific Complete will implement the Strategy.
LU21	Land use and property	Property management	Roads and Maritime land that is required for the project will be appropriately maintained. This will be undertaken by regional Roads and Maritime officers or a designated local authority. Roads and Maritime manage the leasing and maintenance of property identified as suitable for tenants.	All	Operation	RMS	Open	Noted. Operational phase requirement.
LU22	Land use and property	Property management	Excavation works near Lot7008 DP92609 will be carefully managed in consultation with Richmond Valley Council to minimise potential impacts on any unknown heritage items including potential burials.	9	Construction	Contractor	Open	Noted. Pacific Complete CEMP (Appendix B5 Construction Heritage Management Plan - Appendix B Roads and Maritime Standard Management Procedures - Unexpected Archaeological Finds). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA.
LU23	Land use and property	Operational impacts to primary industries	Ongoing consultation will be undertaken with owners of agricultural properties affected by the project – through acquisition, changes to local access or fragmentation of properties – about potential impacts on farming operations and potential measures to manage or mitigate identified impacts.	All	Operation	RMS	Open	Noted. Operational phase requirement.
LU24	Land use and property	Operational impacts to primary industries	Consultation with Forestry Corporation will be undertaken regarding access to and within State forests where required, in accordance with the <i>Forestry Act 2012</i> .	All	Operation	RMS	Open	Noted. Operational phase requirement.
LU25	Land use and property	Operational impacts to primary industries	Consultation with Forestry Corporation will be undertaken regarding the relocation of fire trails directly impacted by the project's construction or operation.	All	Operation	RMS	Open	Noted. Operational phase requirement.
LU26	Land use and property	Cane Farm Strategy	The Cane Farm Strategy will be further developed during detailed design, in consultation with relevant stakeholders. This will build upon the principles of the strategy described in Chapter 3 of this Submissions and Preferred Infrastructure Report.	All	Pre-construction	RMS	Open	This is being considered as part of detailed design. Consultation held with relevant stakeholders to capture design requirements. Property acquisition plans include drainage.
LU27	Land use and property	Property access	As far as possible, property accesses will be reinstated or new access provided, in consultation with impacted landowners.	All	Operation	RMS and Contractor	Open	New property accesses have been designed to replace those that are lost or modified. This has been undertaken in consultation with impacted landowners.
LU28	Land use and property	Property access	Access to national parks and nature reserves will be reinstated in consultation with the relevant department in Office of Environment and Heritage.	All	Operation	RMS and Contractor	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
LU29	Land use and property	Mining and petroleum production	Consultation will be undertaken with land owners operating quarries adjacent to the project, including those near Tucabia, Broadwater and Bagotville, and relevant NSW State government agency. Consultation aim to identify appropriate management measures for each affected quarry, particularly regarding operational approvals in terms of site access, extraction limits, blasting limits, and timing of works, noise and vibration.	3, 9 and 10	Pre-construction	RMS	Open	This requirement is addressed in the Pacific Complete CEMP (Appendix B3 Construction Noise and Vibration Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
LU30	Land use and property	Mining and petroleum production	Consultation will be undertaken with the relevant State Government agency to consider any future coal seam gas production in the vicinity of the project.	All	Pre-construction	RMS	Open	Noted.
LU31	Land use and property	Utilities and infrastructure	Consultation will be undertaken with service and utility providers to verify locations, impacts and any relocation or construction protection work required.	All	Operation	RMS	Open	Noted. It is anticipated that during detailed design consultation with utility owners will be undertaken where the project design interfaces/interacts with existing utilities.
LU32	Land use and property	Utilities and infrastructure	Consultation will be undertaken with Rous Water and local Aboriginal stakeholders before the removal of part or any of the abandoned pipelines through Lang Hill will be undertaken in consultation	8	Pre-construction	RMS	Open	This requirement is addressed in the Pacific Complete CEMP (main document). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA.
LU33	Land use and property	Utilities and infrastructure	Consultation will be undertaken with Richmond Valley Council during the detailed design phase, regarding the location and timing of the Broadwater Sewerage Scheme rising pump station, located off Broadwater-Evans Head Road.	9	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
<b>SOCIAL AND ECONOMIC</b>								
SE1	Social and economic	Consultation	Consultation will be undertaken with local business owners, industry and tourism operators directly affected by construction and located closest to construction works. The focus will be on the timing, duration and likely impact of construction activities, to identify appropriate measures to manage potential impacts.	All	Pre-construction and construction	RMS and Contractor	Open	Consultation will be managed in accordance with the Communications and Stakeholder Engagement Strategy. Pacific Complete will implement the strategy. The Pacific Complete CEMP is aligned to the strategy. Separate and approved CEMP documentation is in place for soft soil works (i.e. Waves 1 and Waves 2).
SE2	Social and economic	Consultation	Consultation will be undertaken with managers of community services and facilities near the proposed construction works, to ensure that potential impacts are appropriately managed.	All	Pre-construction and construction	RMS and Contractor	Open	Consultation will be managed in accordance with the Communications and Stakeholder Engagement Strategy. Pacific Complete will implement the strategy. The Pacific Complete CEMP is aligned to the strategy. Separate and approved CEMP documentation is in place for soft soil works (i.e. Waves 1 and Waves 2).

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Reference / Comment
SE3	Social and economic	Consultation	Consultation will be undertaken with residents and local communities closest to construction works about construction activities, including timing, duration and likely impacts.	All	Pre-construction and construction	RMS and Contractor	Open	Consultation will be managed in accordance with the Communications and Stakeholder Engagement Strategy. Pacific Complete will implement the strategy. The Pacific Complete CEMP is aligned to the strategy. Separate and approved CEMP documentation is in place for soft soil works (i.e. Waves 1 and Waves 2). During the reporting period notification letters have been sent out to residents where required.
SE4	Social and economic	By-passed towns	Signage will be implemented for bypassed towns in accordance with Roads and Maritime signage guidelines and in consultation with relevant councils. Signage on the project will identify bypassed townships (Grafton, Ulmarra, Tyndale, Maclean, New Italy, Woodburn, Broadwater and Wardell) as places for 'stopovers' for fuel, supplies and short term accommodation, to support demand for goods and services within these townships.	All	Construction and operation	RMS	Open	Noted. RMS Responsibility (Signage Policy as per CoA D17)
SE5	Social and economic	By-passed towns	Roads and Maritime will work with Councils affected by the upgrade, where relevant, to support strategies by local councils and/or chamber of commerce and industry to promote townships and villages as stopovers for tourist.	All	Construction and operation	RMS	Open	Noted. RMS responsibility (Business Access Strategy as per CoA D18).
SE6	Social and economic	Existing Pacific Highway	Roads and Maritime will work with Councils affected by the upgrade, during detailed design, to discuss the classification of the existing Pacific Highway and, where appropriate, the required transfer process of state road assets to Council.	All	Pre-construction	RMS	Open	Noted. To be addressed during detailed design by RMS.
SE7	Social and economic	Access and connectivity	Maintain access to properties near to the project during construction, including, where required, for the movement of farm equipment and livestock between properties, and for access to the Berry Exchange and other affected agribusinesses.	All	Construction	RMS and Contractor	Open	Pacific Complete CEMP (Appendix B1 Construction Traffic and Access Management Plan). Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs to ensure compliance with this measure. Separate and approved CEMP documentation is in place for soft soil works (i.e. Waves 1 and 2).
SE8	Social and economic	Access and connectivity	Where temporary changes to property access are required during construction, alternative access will be determined in consultation with affected property owners and tenants.	All	Construction	Contractor	Open	To be addressed during detailed design. Pacific Complete will review relevant detailed design deliverables / design lot reports to ensure compliance with this measure. Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). Consultation was carried out with affected landowners during the reporting period.
SE9	Social and economic	Access and Connectivity	Undertake consultation with the Harwood Island Public School and other community facilities located adjacent to the project about proposed changes to local access.	All	Operation	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
SE10	Social and economic	Access and Connectivity	Undertake early and ongoing communication and consultation with emergency services to allow planning for potential changes to response patterns and input into the design development.	All	Operation	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
SE11	Social and economic	Access and Connectivity	Access to Broadwater mill land between MacDonalds Street and River Road will be reviewed at the detailed design stage.	9	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
SE12	Social and economic	Access and Connectivity	The access arrangements for local traffic at Whytes Lane and the tie into the Ballina bypass upgrade will be reviewed together with any potential boundary refinements at the detailed design stage.	11	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
<b>GREENHOUSE GAS EMISSIONS</b>								
GH1	Greenhouse gas emissions	Embodied carbon in concrete production	Flyash content within concrete will be specified where feasible. Contractors will be required to propose recycled content construction materials where they are cost, quality and performance competitive.	All	Pre-construction and construction	RMS and Contractor	Open	This requirement is addressed in the approved Pacific Complete CEMP (Appendix B7 Construction Waste, Resources and Energy Management). Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs and apply relevant RMS/Pacific Complete specifications to ensure compliance with this measure. Separate and approved CEMP documentation is in place for soft soil works (i.e. Waves 1 and 2). Fly ash is included in concrete mix designs where feasible.
GHG2	Greenhouse gas emissions	Re-use of excavated road materials	Reuse of excavated road materials will be maximised as far as possible where they are cost, quality and performance competitive to reduce use of materials (with embedded energy).	All	Pre-construction and construction	RMS and Contractor	Open	This requirement is addressed in the approved Pacific Complete CEMP (Appendix B7 Construction Waste, Resources and Energy Management). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). Where feasible, unsuitable material excavated on site has been reused under stockpile pads and under the rock drainage layer.
GHG3	Greenhouse gas emissions	Embodied carbon in steel	Steel with high recycled content will be specified where feasible where they are cost, quality and performance competitive. Contractors will be required to propose recycled content construction materials where they are cost, quality and performance competitive.	All	Pre-construction and construction	RMS and Contractor	Open	This requirement is addressed in approved Pacific Complete CEMP (Appendix B7 Construction Waste, Resources and Energy Management). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). Where available from commercial steel suppliers within RMS specification and cost, quality and performance competitive; recycled steel will be sourced
GHG4	Greenhouse gas emissions	Carbon in fuel	The feasibility of using biofuels (biodiesel, ethanol, or blends such as E10 or B80) will be investigated by the contractor, taking into consideration the capacity of plant and equipment to use these fuels, ongoing maintenance issues and local sources. Works will be planned to minimise fuel use.	All	Construction	Contractor	Closed	This requirement is addressed in Pacific Complete CEMP (Appendix B7 Construction Waste, Resources and Energy Management). Pacific Complete will approve Contractor EMPs, EWMSs and ESCPs and apply relevant RMS/Pacific Complete specifications to ensure compliance with this measure. Separate and approved CEMP documentation is in place for soft soil works (i.e. Waves 1 and 2). Assessed and not considered feasible for large scale infrastructure projects.

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Reference / Comment
GHG5	Greenhouse gas emissions	Energy consumption: construction	An energy management plan will be developed during the construction of the project. The plan will include a commitment to monitor on-site energy consumption and identify and address on-site energy waste.	All	Pre-construction and construction	RMS and Contractor	Closed	This requirement is included in the approved Pacific Complete CEMP (Appendix B7 Construction Waste, Resources and Energy Management). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). Energy consumption is recorded in accordance with reporting requirements of the National Greenhouse and Energy Reporting Act and the National Pollution Inventory, as applicable. Contractors have implemented energy saving measures in accordance with their Construction Waste Management Plans
GHG6	Greenhouse gas emissions	Energy consumption: operation	Roads and Maritime will investigate the use of LED lighting in place of incandescent lamps as part of the project's detailed design, and use them where practicable to reduce electrical energy consumption. Any energy-efficient alternatives will have to meet lighting standards for major roads.	All	Pre-construction	RMS	Open	This is being considered as part of detailed design. Detailed design is currently underway for all portions of the project. Pacific Complete reviews detailed design lot reports to ensure compliance with relevant MCoAs.
GHG7	Greenhouse gas emissions	Education	An education program will be developed and delivered to the construction personnel to promote energy-efficient work practices.	All	Construction	RMS and Contractor	Open	Requirements for site environmental inductions are addressed in the Pacific Complete CEMP (main document). Pacific Complete will conduct site environmental inductions for all personnel undertaking activities at project work sites. Included as part of project inductions.
<b>AIR QUALITY</b>								
AQ1	Air Quality	Air quality management during construction	An air quality management plan will be prepared and implemented by the contractor during construction to mitigate dust. The air quality management plan will address all aspects of construction including spoil handling, machinery operating procedures, soft soil treatments, stockpile management, traffic management, haulage, dust suppression and monitoring. The following dust mitigation measures will be used on-site and included as part of the management plan: <ul style="list-style-type: none"> <li>Covering materials transported to and from construction sites.</li> <li>Covering or spraying water on stockpiles of soil or other potential dust generating materials, particularly during dry or windy conditions.</li> <li>Temporarily seed and stabilise temporary stockpiles that are planned to be in place for long periods.</li> <li>Imposing speed limits for vehicles and equipment travelling on unsealed surfaces.</li> <li>Minimising the extent of disturbed areas as far as practicable. This will be achieved by staging the works to minimise the number of disturbed areas at any one time.</li> <li>Progressively rehabilitating disturbed areas as soon as practicable.</li> <li>Suppressing dust on unsealed surfaces, temporary roadways, stockpiles and other exposed areas using water trucks, hand held hoses, temporary vegetation and other practices.</li> <li>Modifying or stopping dust generating activities during very windy conditions.</li> <li>Installing wheel wash facilities at appropriate locations to reduce tracking of mud and soil off-site.</li> <li>Monitoring air quality, both visually, using instrumentation and/or depositional dust gauges, near representative sensitive receptors to verify the effectiveness of controls.</li> <li>Amend controls where necessary to minimise any impacts identified through monitoring, consider the use of mitigation measures (such as covers) where dust is impacting water tanks or other drinking water sources, and cannot be controlled at the dust source.</li> </ul>	All	Construction	Contractor	Closed	This requirement is addressed in the Pacific Complete CEMP (Appendix B6 Construction Air Quality Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
<b>WASTE MANAGEMENT</b>								
WM1	Waste management	Sustainable management of resources	The cut-and-fill balance of the project will be further refined to obtain as much material as possible for reuse on the project.	All	Pre-construction	RMS and Contractor	Open	The cut and fill balance of the project will be continually assessed and refined through the duration of the project and project phases (e.g. detailed design and construction) by Pacific Complete.
WM2	Waste management	Sustainable management of resources	A resource management strategy will be prepared for construction of the project to identify the hierarchy for sourcing and use of resources. It include the following provisions: <ul style="list-style-type: none"> <li>Available project cutting material (including Select Material Zone (SMZ) and verge material) will be used for the construction of embankments, SMZ and verge within that section to the extent that it is suitable.</li> <li>Project sections with a deficit in material import surplus material from other project sections in preference to external sources.</li> <li>Where possible, the distances that earthworks materials are moved across the project as a whole be minimised, notwithstanding the above two requirements.</li> <li>Contractors will reduce the amount of unsuitable waste generated during excavations, where feasible (e.g. treatment at source).</li> <li>The generation and management of unsuitable material during project earthworks will be monitored to ensure appropriate management of the issue.</li> </ul> The resource management strategy will also identify: <ul style="list-style-type: none"> <li>Details on materials that be sourced from the project (including location and type).</li> <li>Viable material suppliers (including water) near the project.</li> <li>Proposed sustainable material sources practices (such as use of recycled materials or wastewater).</li> <li>Materials that could be recycled and re-used on-site or transferred to other project sections.</li> </ul>	All	Pre-construction and construction	Contractor	Closed	Pacific Complete CEMP (Appendix B7 Construction Waste, Resources and Energy Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
WM3	Waste management	Minimising construction waste	A waste register will be maintained by each contractor, detailing types of waste collected, amounts, date, time, and details of disposal.	All	Construction	Contractor	Open	Pacific Complete CEMP (Appendix B7 Construction Waste, Resources and Energy Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). The project maintains a current waste register which is continually updated.
WM4	Waste management	Minimising construction waste	Where possible, materials will be bought in bulk to minimise the amount of package required. Sources of material that have sustainable packaging design, recycled and recyclable packaging will be favoured over other material sources where cost effective.	All	Construction	Contractor	Open	Pacific Complete CEMP (Appendix B7 Construction Waste, Resources and Energy Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). All materials are purchased in bulk where possible to reduce packaging
WM5	Waste management	Minimising construction waste	Waste material generated on-site (including chemical, fuel and lubricant containers, and solid and liquid wastes) will be classified and disposed of in accordance with the Protection of the <i>Environment Operations Act 1997</i> and Waste Classification Guidelines Part 1: Classifying Waste (DECCW, 2009).	All	Construction	Contractor	Open	Included in the approved Pacific Complete CEMP (Appendix B7 Construction Waste, Resources and Energy Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).

Mitigation No.	Aspect	Issue	Management Measure	Stage 2 (Section 3-11)	Timing	Responsibility	Status	Reference / Comment
WM6	Waste management	Minimising construction waste	Waste minimisation and management measures will be developed based on the principles in the Waste Avoidance and Resource Recovery Act 2001, the NSW Government's Waste Reduction and Purchasing Policy, and waste exemptions including: <ul style="list-style-type: none"> <li>Excavated Natural Material Exemption (EPA, 2008)).</li> <li>Excavated Public Road Material Exemption (EPA, 2012)).</li> <li>Raw Mulch Exemption (EPA, 2008).</li> <li>Reclaimed Asphalt Pavement Exemption (EPA, 2012).</li> <li>Recovered Aggregate Exemption (EPA, 2010).</li> <li>Stormwater Exemption (EPA, 2008).</li> <li>Treated Drilling Mud Exemption (EPA, 2011).</li> </ul> Measures seek to avoid, minimise, re-use, recycle, treat or dispose of waste streams during construction and address transport and disposal arrangements.	All	Construction	Contractor	Open	Included in the approved Pacific Complete Mulch Management Strategy. Pacific Complete CEMP (Appendix B7 Construction Waste, Resources and Energy Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
WM7	Waste management	Minimising construction waste	Millable timber will be harvested for reuse off site. All other felled timber will be reused on-site in the form of habitat recreation or mulch in landscaping and erosion and sedimentation controls. Where mulch cannot be reused on-site, consideration will be given to making the mulch available to the public in accordance with the Roads and Maritime Environmental Direction 25 (2012) and the Raw Mulch Exemption (EPA, 2008).	All	Construction	Contractor	Open	Pacific Complete Mulch Management Strategy. Pacific Complete CEMP (Appendix B7 Construction Waste, Resources and Energy Management Plan). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
WM8	Waste management	Minimising construction waste	Sediment removed from sedimentation basins will be used, where appropriate, on-site in landscaping and/or flattening of batters.	All	Construction	Contractor	Open	This requirement is addressed by approved Pacific Complete CEMP (Appendix B7 Construction Waste, Resources and Energy Management). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). Where appropriate, accumulated sediment removed from sediment basins check dams has been used within the general fill layers.
WM9	Waste management	Minimising construction waste	Where feasible, the contractor will be required to re-use materials. This could include, but is not limited to, concrete formwork or surplus concrete pours.	All	Construction	Contractor	Open	This requirement is addressed in the approved Pacific Complete CEMP (Appendix B7 Construction Waste, Resources and Energy Management). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). Reuse of concrete, timber, plastic, fabric regularly occurs on the project within the various disciplines wherever possible.
WM10	Waste management	Minimising construction waste	Site inductions and on-site training will be required to include waste minimisation principles and measures.	All	Construction	Contractor	Open	Requirements for site environmental inductions are addressed in the approved Pacific Complete CEMP (main document). Pacific Complete will conduct site environmental inductions for all personnel undertaking activities at project work sites.
WM11	Waste management	Minimising construction waste	At site compounds, on-site recycling facilities will be provided for recycling paper, plastic, glass and other re-useable materials.	All	Construction	Contractor	Open	This requirement is addressed in the approved Pacific Complete CEMP (Appendix B7 Construction Waste, Resources and Energy Management). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
WM12	Waste management	Minimising construction waste	Regular visual inspections will be conducted to ensure that work sites are kept tidy and to identify opportunities for reuse and recycling.	All	Construction	Contractor	Open	This requirement is addressed in the approved Pacific Complete CEMP (Appendix B7 Construction Waste, Resources and Energy Management). Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2). Site housekeeping is regularly discussed at daily toolboxes, induction, pre-starts and continually enforced by Pacific Complete.
WM13	Waste management	Management of waste water	Water captured in excavations will be required to be either: <ul style="list-style-type: none"> <li>Managed in accordance with the construction Soil and Water Management Plan.</li> <li>Transferred to a licensed sediment basin, treated and discharged in accordance with any licence conditions that apply to the discharge of water, or,</li> <li>Re-used for construction water or dust suppression.</li> </ul>	All	Construction	Contractor	Open	This requirement is addressed in the approved Pacific Complete CEMP (Appendix B4 Construction Soil and Water Quality Management Plan) and by the Environment Protection Licence for Sections 3 to 11 obtained for the project. Pacific Complete approves Contractor EMPs and EWMSs and RMS/PC specifications are used to ensure compliance with this MCoA. Separate and approved CEMP documentation is in place for soft soil works (Wave 1 and Wave 2).
WM14	Waste management	Management of operational wastes	Appropriate waste and recycling facilities will be provided at rest areas and heavy vehicle checking stations.	All	Operation	RMS	Open	Noted. Operational phase requirement.
WM15	Waste management	Management of operational wastes	All operational waste will be managed in accordance with the Roads and Maritime waste management procedures and Environmental Management System.	All	Operation	RMS	Open	Noted. Operational phase requirement.
WM16	Waste management	Management of operational wastes	Collection and removal of roadside litter will be undertaken in accordance with the Roads and Maritime Environmental Management System.	All	Operation	RMS	Open	Noted. Operational phase requirement.
WM17	Waste management	Management of operational wastes	Sediment removed from operational water quality basins will , where appropriate, be classified in accordance with the Waste Classification Guidelines (DECCW, 2009), and be disposed of in accordance with the <i>Protection of the Environment Operations (Waste) Regulation 2005</i> .	All	Operation	RMS	Open	Noted. Operational phase requirement.

# **Appendix B1    Surface Water Monitoring Results**









July Surface Water Monitoring



		Field Observations												Lab Analysis								Comments	Report number	Tested By		
Location	Wave	Date	Time	Temp	us/cm	ms/cm	SAL ppt	Do % Sat	Do mg/L	pH	orp mV	NTU	Permit issued?	Labs taken?	pH	EC ds/m	TDS mg/L	TSS	NTU	DO mg/L	DO % sat					
100m upstream southern drain crossing	Wave 1	7/4/2016	10:59:48	11.86	2	2211	1.02	30.3	3.3	4.03	596	3.6	N	N												Test Taken by B. Larence (Yeo-Kal 611 Water Quality Analyser - Ser # 436)
20m upstream southern drain crossing	Wave 1	7/4/2016	11:21:24	12.05	2.5	2623	1.31	25.5	2.7	3.77	632	7.1	N	N												Test Taken by J. Clarke (Yeo-Kal 611 Water Quality Analyser - Ser # 436)
50m downstream southern drain crossing	Wave 1	7/4/2016	11:37:31	12.38	2.6	2633	1.33	26.9	2.9	3.92	631	3.6	N	N												Test Taken by B. Larence (Yeo-Kal 611 Water Quality Analyser - Ser # 436)
50m upstream southern drain crossing	Wave 1	7/4/2016	11:09:03	11.73	2.1	2337	1.1	30	3.2	3.93	629	4.3	N	N												Test Taken by J. Clarke (Yeo-Kal 611 Water Quality Analyser - Ser # 436)
Northern culvert upstream	Wave 1	7/4/2016	12:32:19	15.58	14.7	8000	8.54	300	20	6.73	546	40.7	N	N												Test Taken by J. Clarke (Yeo-Kal 611 Water Quality Analyser - Ser # 436)
northern culvert downstream	Wave 1	7/4/2016	12:45:52	14.13	3.5	3318	1.86	52.5	5.3	4.87	540	25	N	N												Test Taken by B. Larence (Yeo-Kal 611 Water Quality Analyser - Ser # 436)
5-4 southern new drain	Wave 1	7/5/2016	7:29:41	13.27	0.5	1053	0.24	83.5	8.7	7.75	441	42.9	N	N												Test Taken by B. Larence (Yeo-Kal 611 Water Quality Analyser - Ser # 436)
5-4 southern drain	Wave 1	7/6/2016	11:49:17	12.68	2.5	2605	1.32	27.1	2.9	4.44	590	7.1	N	N												Test Taken by B. Larence (Yeo-Kal 611 Water Quality Analyser - Ser # 436)
5-4 southern new drain	Wave 1	7/6/2016	11:56:08	14.85	7.4	6190	4.05	79.3	7.8	6.9	513	18.6	N	N												Test Taken by B. Larence (Yeo-Kal 611 Water Quality Analyser - Ser # 436)
5-4 southern drain	Wave 1	7/7/2016	7:19:35	10.26	2.2	2445	1.14	31.4	3.5	3.82	514	1.4	N	N												Test Taken by J. Clarke (Yeo-Kal 611 Water Quality Analyser - Ser # 436)
5-4 southern new drain	Wave 1	7/7/2016	7:28:31	11.66	7.2	6235	3.97	67	7.1	7.22	368	9.3	N	N												Test Taken by J. Clarke (Yeo-Kal 611 Water Quality Analyser - Ser # 436)
100m upstream of southern drain crossing	Wave 1	7/11/2016	11:43:23	14.55	2	2182	1.05	23.5	2.4	3.79	691	8.6														Test Taken by J. Clarke (Yeo-Kal 611 Water Quality Analyser - Ser # 436)
20m upstream of southern drain crossing	Wave 1	7/11/2016	11:51:33	15	2.8	2759	1.48	33.7	3.4	3.55	696	5.7														Test Taken by J. Clarke (Yeo-Kal 611 Water Quality Analyser - Ser # 436)
50m downstream of southern drain crossing	Wave 1	7/11/2016	11:58:45	15.38	2.6	2615	1.36	27.3	2.7	3.53	692	0.7														Test Taken by J. Clarke (Yeo-Kal 611 Water Quality Analyser - Ser # 436)
50m upstream of southern drain crossing	Wave 1	7/11/2016	11:46:53	13.98	2.1	2222	1.07	21.8	2.2	3.69	706	2.1														Test Taken by J. Clarke (Yeo-Kal 611 Water Quality Analyser - Ser # 436)
Northern culvert upstream	Wave 1	7/11/2016	12:43:45	18.95	13.8	8000	7.93	176.4	15.6	7.52	511	6.4														Test Taken by J. Clarke (Yeo-Kal 611 Water Quality Analyser - Ser # 436)
northern culvert downstream	Wave 1	7/11/2016	12:59:50	16.59	3.7	3380	1.95	51.3	4.9	4.87	512	22.9														Test Taken by J. Clarke (Yeo-Kal 611 Water Quality Analyser - Ser # 436)
20m upstream southern drain crossing	Wave 1	7/19/2016	11:54:26	16.94	3.7	2476	1.97	99.2	9.5	3.27	526	23.1	N	N												Test Taken by J. Clarke (Yeo-Kal 611 Water Quality Analyser - Ser # 436)
50m downstream southern drain crossing	Wave 1	7/19/2016	12:00:09	19.34	3.5	2305	1.86	27.4	2.5	2.98	540	8.3	N	N												Test Taken by J. Clarke (Yeo-Kal 611 Water Quality Analyser - Ser # 436)
northern culvert upstream	Wave 1	7/19/2016	12:45:44	22.91	13	8000	7.46	300	20	7.15	432	34.3	N	N												Test Taken by J. Clarke (Yeo-Kal 611 Water Quality Analyser - Ser # 436)
Northern culvert downstream clean water drain	Wave 1	7/19/2016	12:57:23	20.6	6.2	4031	3.38	58.3	5.1	5.56	450	36.1	N	N												Test Taken by J. Clarke (Yeo-Kal 611 Water Quality Analyser - Ser # 436)
5-4 northern culvert upstream	Wave 1	7/25/2016	10:49:40	16.26	13.9	8000	8.02	166.4	15.6	7.12	397	131.5	N	N												Test Taken by J. Clarke (Yeo-Kal 611 Water Quality Analyser - Ser # 436)
5-4 northern culvert downstream	Wave 1	7/25/2016	10:57:53	15.31	6.9	4549	3.77	54.3	5.3	6.14	362	63.9	N	N												Test Taken by J. Clarke (Yeo-Kal 611 Water Quality Analyser - Ser # 436)
5-4 southern drain 20m upstream	Wave 1	7/25/2016	9:20:37	14.51	4.1	2772	2.21	40.2	4	4.02	438	12	N	N												Test Taken by J. Clarke (Yeo-Kal 611 Water Quality Analyser - Ser # 436)
5-4 southern drain 50m downstream	Wave 1	7/25/2016	9:27:24	14.44	3.8	2546	2.03	40.4	4.1	3.55	529	0.9	N	N												Test Taken by J. Clarke (Yeo-Kal 611 Water Quality Analyser - Ser # 436)



September Surface Water Monitoring



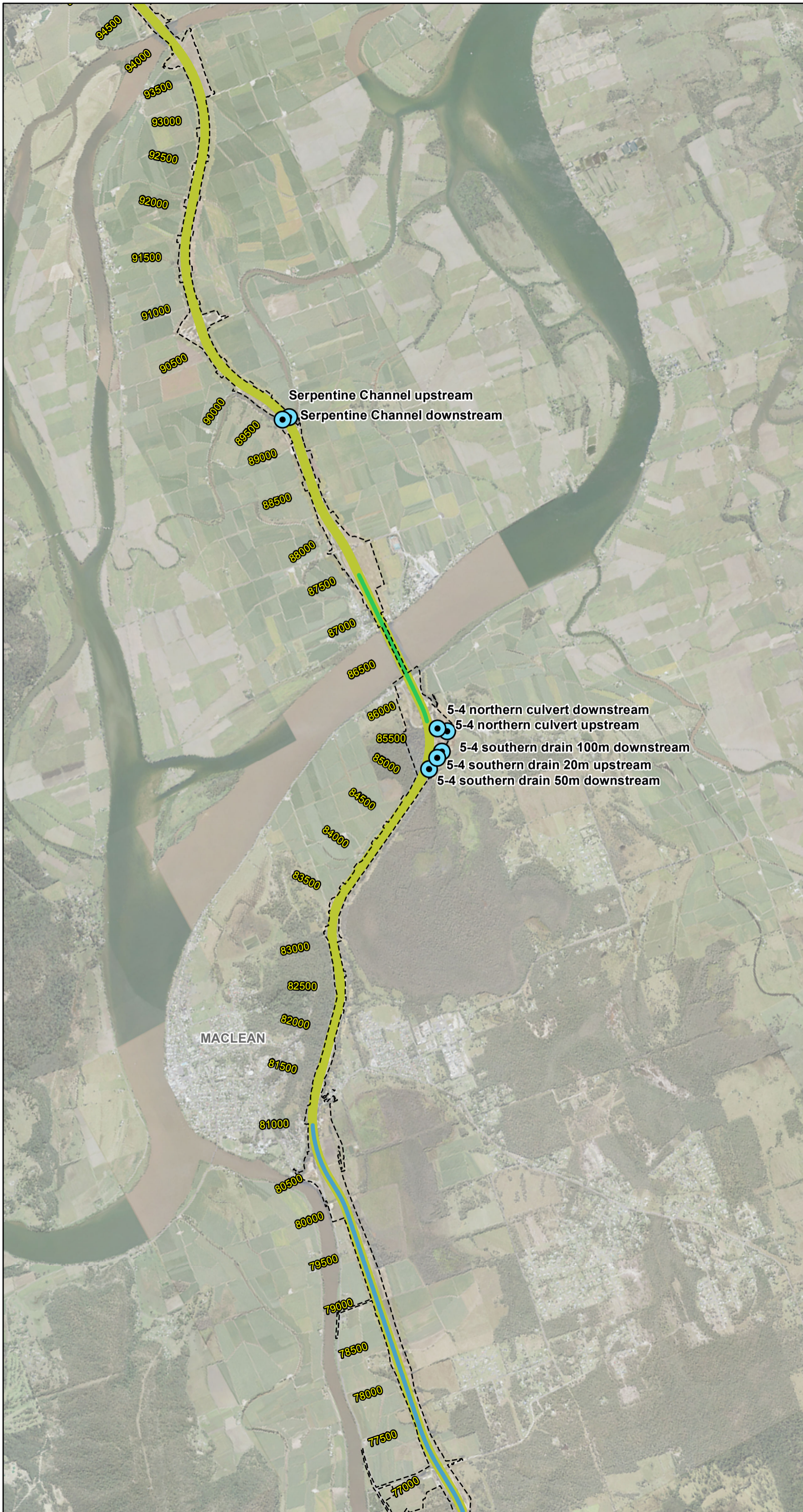
		Field Observations											Lab Analysis								Comments	Report number	Tested By												
Location	Wave	Date	Time	Temp	us/cm	ms/cm	SAL ppt	Do % Sat	Do mg/L	pH	orp mV	NTU	Permit issued?	Labs taken?	pH	EC ds/m	TDS mg/L	TSS	NTU	DO mg/L				DO % sat											
5-4 northern culvert downstream	Wave 1	9/5/2016	10:20:30	16.74	2	1550	1.03	49.1	4.7	6.12	403	53.5	N	N																			Test taken by J. Clarke (Yeo-Kal 611 Water Quality Analyser - Ser # 436)		
5-4 northern culvert upstream	Wave 1	9/5/2016	10:15:38	18.4	11.9	8000	6.81	50	4.5	6.54	432	66.3	N	N																			Test taken by J. Clarke (Yeo-Kal 611 Water Quality Analyser - Ser # 436)		
5-4 southern drain 20m upstream	Wave 1	9/5/2016	9:47:40	15.02	1.6	1283	0.84	30.2	3	6.31	362	25.7	N	N																			Test taken by J. Clarke (Yeo-Kal 611 Water Quality Analyser - Ser # 436)		
5-4 southern drain 50m downstream	Wave 1	9/5/2016	9:51:19	15.94	1.5	1233	0.79	35	3.4	5.5	415	27.8	N	N																			Test taken by J. Clarke (Yeo-Kal 611 Water Quality Analyser - Ser # 436)		
5-4 northern culvert downstream	Wave 1	9/12/2016	10:03:59	19.4	8	6123	4.43	35.6	3.2	6.26	308	86.6	N	N																			Test taken by J. Clarke (Yeo-Kal 611 Water Quality Analyser - Ser # 436)		
5-4 northern culvert upstream	Wave 1	9/12/2016	10:00:42	20.94	15.6	8000	9.09	121.4	10.3	6.47	392	64.2	N	N																			Test taken by J. Clarke (Yeo-Kal 611 Water Quality Analyser - Ser # 436)		
5-4 southern drain 100m downstream	Wave 1	9/12/2016	9:54:10	18.4	2.6	2011	1.33	30.7	2.9	5.73	352	78.1	N	N																				Test taken by J. Clarke (Yeo-Kal 611 Water Quality Analyser - Ser # 436)	
5-4 southern drain 20m upstream	Wave 1	9/12/2016	9:32:43	17.42	1.8	1442	0.95	30.4	2.9	5.91	340	32.1	N	N																				Test taken by J. Clarke (Yeo-Kal 611 Water Quality Analyser - Ser # 436)	
5-4 southern drain 50m downstream	Wave 1	9/12/2016	9:35:19	17.75	1.8	1412	0.91	30.7	2.9	5.57	374	38.5	N	N																				Test taken by J. Clarke (Yeo-Kal 611 Water Quality Analyser - Ser # 436)	
5-4 northern culvert downstream	Wave 1	9/20/2016	9:17:05	16.36	3.5	2725	1.83	29.9	2.9	6.32	312	152.9	N	N																				Test taken by J. Clarke (Yeo-Kal 611 Water Quality Analyser - Ser # 436)	
5-4 northern culvert upstream	Wave 1	9/20/2016	9:13:15	17.6	18.3	8000	10.78	49.5	4.4	6.4	295	197.9	N	N																				Test taken by J. Clarke (Yeo-Kal 611 Water Quality Analyser - Ser # 436)	
5-4 southern drain 20m upstream	Wave 1	9/20/2016	8:42:31	15.77	2	1615	1.06	26.5	2.6	6.49	284	53.5	N	N																					Test taken by J. Clarke (Yeo-Kal 611 Water Quality Analyser - Ser # 436)
5-4 southern drain 50m downstream	Wave 1	9/20/2016	8:45:48	16.95	2.2	1761	1.15	25.5	2.5	6.08	322	59.9	N	N																					Test taken by J. Clarke (Yeo-Kal 611 Water Quality Analyser - Ser # 436)
5-4 northern culvert downstream	Wave 1	9/26/2016	9:35:56	18.35	3.5	2740	1.87	28.9	2.7	6.44	329	253.5	N	N																				Test taken by B. Larance (Yeo-Kal 615 water quality analyser - Ser # 545)	
5-4 northern culvert upstream	Wave 1	9/26/2016	9:32:59	20.18	19	8000	11.24	99.2	8.4	6.32	326	302.7	N	N																				Test taken by B. Larance (Yeo-Kal 611 Water Quality Analyser - Ser # 436)	
5-4 southern drain 20m upstream	Wave 1	9/26/2016	9:11:39	17.51	74.9	1753	51.79	19.2	1.3	6.27	285	62	N	N																				Test taken by B. Larance (Yeo-Kal 611 Water Quality Analyser - Ser # 436)	
5-4 southern drain 50m downstream	Wave 1	9/26/2016	9:15:10	18.96	2.1	1602	1.07	24.6	2.3	6.03	323	70.6	N	N																				Test taken by B. Larance (Yeo-Kal 611 Water Quality Analyser - Ser # 436)	
Wave 4: Woodburn town drain (upstream) Lat:-29.08288 Long:153.35180	Wave 4	9/1/2016		19.56	1570					4.88		3.4																						Surface water quality was monitored at two (2) sites (upstream and downstream of the project alignment) using a water quality monitoring probe during temporary creek crossing construction works. During each monitoring event, the upstream is used as an indicator of the background water quality. The water quality of creeks and rivers has no defined parameters in the EPL.	
Wave 4: Woodburn town drain (downstream) Lat:-29.08288 Long:153.35180	Wave 4	9/1/2016		19.56	1570					4.88		3.4																						No changes to water quality attributable to construction activities were detected.	


# PACIFIC HIGHWAY UPGRADE

*Woolgoolga to Ballina*








**Surface water  
monitoring locations  
wave 1, 2, 3, 4 & 5c**

**Map 1 of 4**



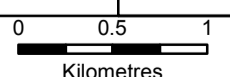
 Surface water monitoring locations wave 1, 2, 3, 4 & 5c

**Soft Soil Sites And Wave Locations (Apr to Sept, 2016)**

-  Wave 1
-  Wave 2
-  Wave 3
-  Wave 4
-  Wave 5a
-  Wave 5c
-  Harwood Bridge



**1:40,000**  
at A3



Print Date:	2/11/2016
Author:	LABRUYEREA

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# PACIFIC HIGHWAY UPGRADE

Woolgoolga to Ballina

Surface water  
monitoring locations  
wave 1, 2, 3, 4 & 5c

Map 2 of 4



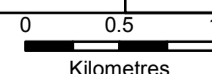
Surface water monitoring locations wave 1, 2, 3, 4 & 5c

**Soft Soil Sites And Wave Locations (Apr to Sept, 2016)**

- Wave 1
- Wave 2
- Wave 3
- Wave 4
- Wave 5a
- Wave 5c
- Harwood Bridge



1:40,000  
at A3



Print Date:	2/11/2016
Author:	LABRUYEREA

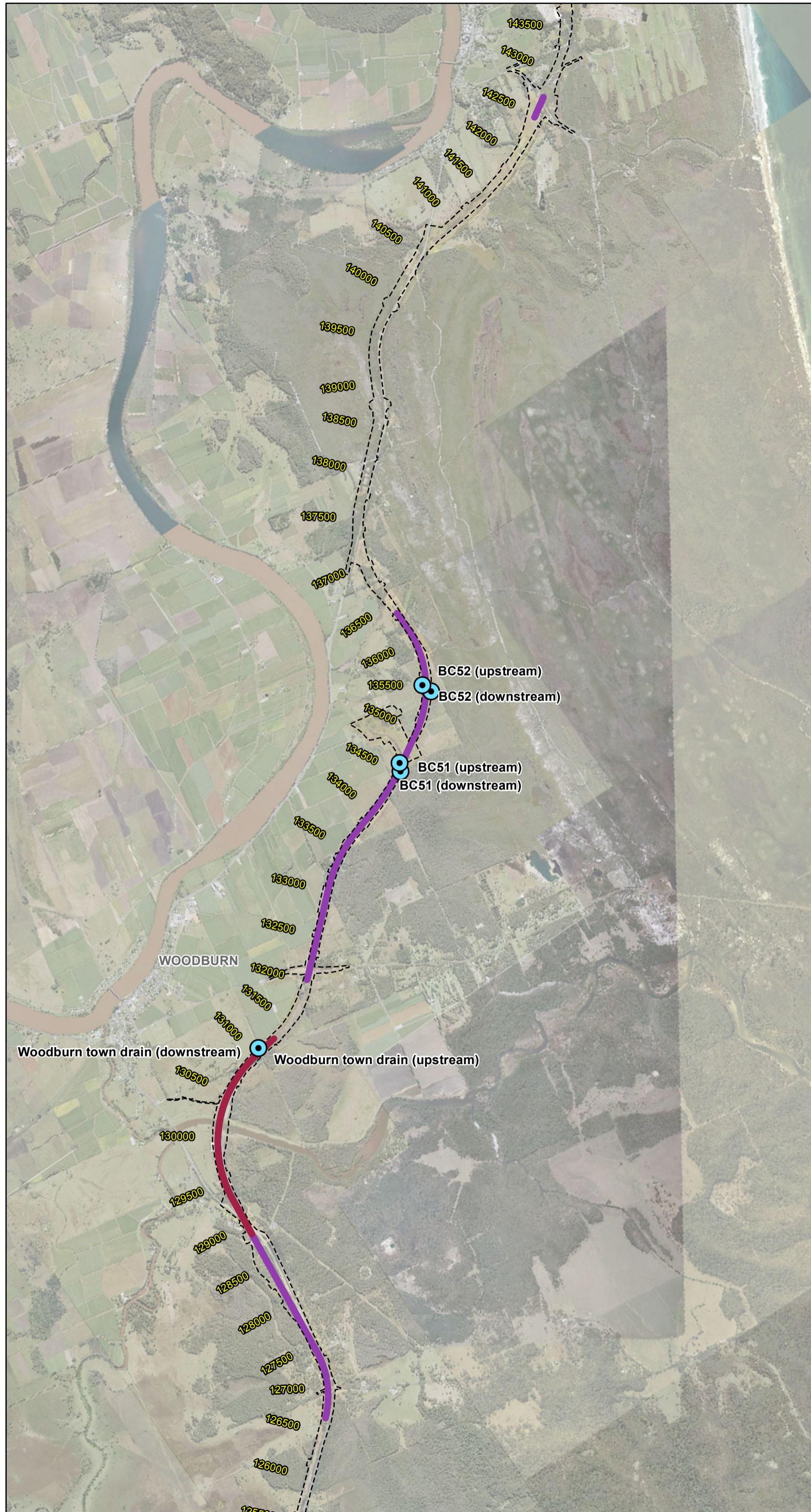
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# PACIFIC HIGHWAY UPGRADE

## Woolgoolga to Ballina





**Surface water  
monitoring locations  
wave 1, 2, 3, 4 & 5c**

**Map 3 of 4**



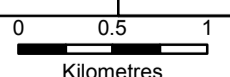
 Surface water monitoring locations wave 1, 2, 3, 4 & 5c

**Soft Soil Sites And Wave Locations (Apr to Sept, 2016)**

-  Wave 1
-  Wave 2
-  Wave 3
-  Wave 4
-  Wave 5a
-  Wave 5c
-  Harwood Bridge



**1:40,000**  
at A3



Print Date:	2/11/2016
Author:	LABRUYEREA

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# PACIFIC HIGHWAY UPGRADE

*Woolgoolga to Ballina*







**Surface water  
monitoring locations  
wave 1, 2, 3, 4 & 5c**

**Map 4 of 4**



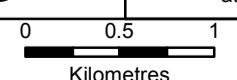
 Surface water monitoring locations wave 1, 2, 3, 4 & 5c

**Soft Soil Sites And Wave Locations (Apr to Sept, 2016)**

-  Wave 1
-  Wave 2
-  Wave 3
-  Wave 4
-  Wave 5a
-  Wave 5c
-  Harwood Bridge



**1:40,000**  
at A3



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Author: LABRUYEREA

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## **Appendix B2 Sediment Basin Monitoring**

## June Sediment Basin Water Monitoring



Basin Location	Basin name	Date of treatment	Date of discharge	Volume discharged (m3)	EPL water quality parameter (Job No. F1290)			Comments
					Visible oil & grease	pH	TSS	
							EPL concentration limit ≤ 50	
Wave 1	Greenhill cutting	N/A	23-24 June 2016	1097	Nil	6.96	24	There were two basin discharges during June 2016. Discharges were for the rainfall event on the 19 and 20 June 2016. Dewatering at Portion B using water carts for dust suppression and earthworks was undertaken in conjunction with discharging from the licensed discharge point.
	Tyndale Cutting	N/A	23-24 June 2016	450	Nil	7.5	15	

## August Sediment Basin Water Monitoring



Basin Location	Basin name	Date of treatment	Date of discharge	Volume discharged (m3)	EPL water quality parameter (Job No. F1290)			Comments
					Visible oil & grease	pH	TSS	
							EPL concentration limit ≤ 50	
Wave 1	Greenhill - DBGH4	8/6/2016	Basin was not discharged	N/A	N/A	N/A	N/A	
	Mororo - MC01	8/6/2016	Basin was not discharged	N/A	N/A	N/A	N/A	
	Mororo - MC01	8/8/2016	10/08	790	Nil	7.77	7	
			11/08	1308		7.29	9	
			12/08	179		7.09	12	
	Greenhill - DBGH4	TBC	9/08	147	Nil	7	7	
			10/08	425		7.22	6	
			11/08	529		7.29	9	
			12/08	249		7.38	10	
	Mororo - MC01	25/08/2016 26/08/2016	26/08	419	Nil	6.65	26	
			27/08	551		7.5	8	
			29/08	179		7.05	7	
Greenhill - DBGH4	25/08/2016 26/08/2016	26/08	291	Nil	7.32	24		
		27/08	551		7.50	8		
		29/08	259		7.70	10		
Wave 3	Tyndale	8/5/2016	8/10/2016	550	Nil	N/A	11	
	Tyndale	8/25/2016	8/30/2016	400	Nil	6.6	15	
	Causleys (77500)	8/25/2016	8/30/2016	500	Nil	6.7	7	
	Causleys (78000)	8/25/2016	8/30/2016	450	Nil	7	14	

## **Appendix B3 Noise Monitoring Results**



# June Noise Monitoring



Date	Time	Location	Ambient Traffic Noise (dB)	Peak Traffic Noise (dB)	Comments
28/06/2016	1125	124 Farlows Lane, Maclean (residents front balcony) (Wave 1)	47	52.2	Traffic noise
28/06/2017	1127	125 Farlows Lane, Maclean (residents front balcony) (Wave 1)	44.5	59.3	Non project truck on highway
28/06/2018	1129	126 Farlows Lane, Maclean (residents front balcony) (Wave 1)	48.2	56	Non project truck on highway
28/06/2019	1130	127 Farlows Lane, Maclean (residents front balcony) (Wave 1)	45.1	60.5	Non project truck on highway
28/06/2020	1131	128 Farlows Lane, Maclean (residents front balcony) (Wave 1)	46.4	65.2	Non project truck on highway
28/06/2021	1132	129 Farlows Lane, Maclean (residents front balcony) (Wave 1)	51.6	57.3	Traffic noise
28/06/2022	1133	130 Farlows Lane, Maclean (residents front balcony) (Wave 1)	52.7	61.2	Non project truck on highway
28/06/2023	1134	131 Farlows Lane, Maclean (residents front balcony) (Wave 1)	54.6	59.1	Traffic noise
28/06/2024	1135	132 Farlows Lane, Maclean (residents front balcony) (Wave 1)	44.5	59.3	Birds
28/06/2025	1136	133 Farlows Lane, Maclean (residents front balcony) (Wave 1)	51.2	58.4	Birds
28/06/2026	1137	134 Farlows Lane, Maclean (residents front balcony) (Wave 1)	45.4	56.6	Non project truck on highway
28/06/2027	1138	135 Farlows Lane, Maclean (residents front balcony) (Wave 1)	48.8	61.6	Non project truck on highway
28/06/2028	1139	136 Farlows Lane, Maclean (residents front balcony) (Wave 1)	53.1	55.6	Project trucks & background house noise
28/06/2029	1140	137 Farlows Lane, Maclean (residents front balcony) (Wave 1)	51.7	61.7	Project trucks & background house noise
28/06/2030	1141	138 Farlows Lane, Maclean (residents front balcony) (Wave 1)	54.4	60.8	Public trucks & traffic
28/06/2031	1142	139 Farlows Lane, Maclean (residents front balcony) (Wave 1)	50.8	61.1	Public trucks & traffic
28/06/2032	1143	140 Farlows Lane, Maclean (residents front balcony) (Wave 1)	47.8	53.8	Traffic noise
28/06/2033	1144	141 Farlows Lane, Maclean (residents front balcony) (Wave 1)	53.1	63	Motor bike and traffic noise
28/06/2034	1145	142 Farlows Lane, Maclean (residents front balcony) (Wave 1)	50.8	58.9	Traffic noise
		<b>Average</b>	<b>49.6</b>	<b>59</b>	



# August Noise Monitoring



Date of noise monitoring	Time of Noise Monitoring	Location	Noise reading dB (A)			Comments
			Lamin	Lafmax	Laeq	
21/08/2016	12:50-1:05PM	Mitchell Road (-29.73,153.13)	28.5	51.4	37.5	This monitoring was for out of hours works. Noise sources from drilling rig was not audible at the compliance noise monitoring location. Audible noise sources included wildlife and water running a nearby stream. Noise levels at this location were found to be below the out-of-hours noise criteria level of 39 dBA and therefore compliant with the out of hours noise criteria.



# September Noise Monitoring



Date of noise monitoring	Time of Noise Monitoring	Location	Noise reading dB (A)						Comments
			Laeq	Lafmax	Lzpk	Lafmin	Laf10	Laf90	
9/23/2016	11:09am	2826 Pacific Highway, Tyndale Dwelling. SR DW1511 (Wave 3)	56.2	84.6	111.3	43.9	59	48.5	FKG activities at time of sample: Watercart, bobcat and dump truck Seymour Whyte activities at time of sample: 32 tn excavator, beeping machinery Construction noise audible: Yes Dominant noise source: Main highway traffic
9/23/2016	11:31am	2826 Pacific Highway, Tyndale Dwelling. SR DW1511 (Wave 3)	55.9	65	98.9	43.6	49.5	59	FKG activities at time of sample: Watercart, bobcat and dump truck Seymour Whyte activities at time of sample: 32 tn excavator, grader Construction noise audible: Yes Dominant noise source: Main highway traffic
9/26/2016	15:20	2826 Pacific Highway, Tyndale Dwelling. SR DW1511 (Wave 3)	54.1	72.3	104.6	45.5	57	49	FKG activities at time of sample: Unloading delivery trucks and spreading of materials (bobcat, roller, 8tn digger and loader) Seymour Whyte activities at time of sample: Continued topsoil stripping and site preparation (32tn excavator and grader) Construction noise audible: Yes Dominant noise source: Main highway traffic
9/26/2016	15:39	2826 Pacific Highway, Tyndale Dwelling. SR DW1511 (Wave 3)	53.1	67.5	96.8	44.1	56	48	FKG activities at time of sample: Delivery of DGB materials, roller, bobcat, 12tn excavator and loader. Spreading out haul road. Seymour Whyte activities at time of sample: Continued topsoil stripping and site preparation (32 tn excavator, grader) Construction noise audible: Yes Dominant noise source: Main highway traffic

## **Appendix B4 Blast Monitoring Results**

## July Blast Monitoring



Date of blast monitoring	Location	Overpressure Reading (dB)L	Ground Vibration peak particle velocity (PPV) (mm/s)	Comments
		EPA requirements: - Readings must not >125dB at any time - Overpressure level must not exceed 120dB for 95% of blasts over each reporting period (calendar month)	EPA Requirements: c) PPV must not >10mm/second at any time d) GPPV must not exceed 5mm/s for 95% of blasts over each reporting period (calendar month)	
7/28/2016	Wave 3 (FKG) Tyndale Cut - Location A - 2991 PHWY	131.6	4.191	Exceedence at monitor A. Corrective actions such as ensuring the full depth of blast is within sound rock material and a revised stemming aggregate size have been implemented.
	Wave 3 (FKG) Tyndale Cut - Location B	137.0	2.956	Exceedence at monitor B. Corrective actions such as ensuring the full depth of blast is within sound rock material and a revised stemming aggregate size have been implemented.
	Wave 3 (FKG) Tyndale Cut - Location C - 130 Fitz	128.2	4.445	Exceedence at monitor C. Corrective actions such as ensuring the full depth of blast is within sound rock material and a revised stemming aggregate size have been implemented.
	Wave 3 (FKG) Tyndale Cut - Location D - 2963 PHWY	130.3	3.048	Exceedence at monitor D. Corrective actions such as ensuring the full depth of blast is within sound rock material and a revised stemming aggregate size have been implemented.

## August Blast Monitoring



Date of blast monitoring	Location	Overpressure Reading (dB)L	Ground Vibration peak particle velocity (PPV) (mm/s)	Comments
		EPA requirements: - Readings must not >125dB at any time - Overpressure level must not exceed 120dB for 95% of blasts over each reporting period (calendar month)	EPA Requirements: c) PPV must not >10mm/second at any time d) GPPV must not exceed 5mm/s for 95% of blasts over each reporting period (calendar month)	
8/10/2016	Wave 3 (FKG) Tyndale Cut - Location A - 2991 PHWY	108.8	3.048	Shot No. PB002
	Wave 3 (FKG) Tyndale Cut - Location B	Not monitored	Not monitored	
	Wave 3 (FKG) Tyndale Cut - Location C - 130 Fitz	106.3	2.018	
	Wave 3 (FKG) Tyndale Cut - Location D - 2963 PHWY	No trigger (<88dB)	No trigger (<0.5mm/s)	
	Wave 3 (FKG) Tyndale Cut C4-2 - Location E	No trigger (<88dB)	No trigger (<0.5mm/s)	
8/12/2016	Wave 3 (FKG) Tyndale Cut - Location A - 2991 PHWY	113.5	3.405	Shot No. PB003
	Wave 3 (FKG) Tyndale Cut - Location B	Not monitored	Not monitored	
	Wave 3 (FKG) Tyndale Cut - Location C - 130 Fitz	107.9	2.262	
	Wave 3 (FKG) Tyndale Cut - Location D - 2963 PHWY	114	1.651	
	2919 Pacific Highway	105.5	0.508	
8/18/2016	Wave 3 (FKG) Tyndale Cut - Location A - 2991 PHWY	114.2	2.42	Shot No. PB004
	Wave 3 (FKG) Tyndale Cut - Location B	Not monitored	Not monitored	
	Wave 3 (FKG) Tyndale Cut - Location C - 130 Fitz	109.3	1.639	
	Wave 3 (FKG) Tyndale Cut - Location D - 2963 PHWY	113.3	2.159	
	Wave 3 (FKG) Tyndale Cut - Location A - 2991 PHWY	109.1	5.21	
8/31/2016	Wave 3 (FKG) Tyndale Cut - Location B	Not monitored	Not monitored	Shot No. PB005
	Wave 3 (FKG) Tyndale Cut - Location C - 130 Fitz	106	5.588	
	Wave 3 (FKG) Tyndale Cut - Location D - 2963 PHWY	111.2	4.445	
	Wave 3 (FKG) Tyndale Cut - Location E - 2878 PHWY	No trigger (<88dB)	No trigger (<0.5mm/s)	
	Wave 3 (FKG) Tyndale Cut - Location F - 2860 PHWY	No trigger (<88dB)	No trigger (<0.5mm/s)	

## September Blast Monitoring



Date of blast monitoring	Location	Overpressure Reading (dB)L	Ground Vibration peak particle velocity (PPV) (mm/s)	Comments
		EPA requirements: - Readings must not >125dB at any time - Overpressure level must not exceed 120dB for 95% of blasts over each reporting period (calendar month)	EPA Requirements: c) PPV must not >10mm/second at any time d) GPPV must not exceed 5mm/s for 95% of blasts over each reporting period (calendar month)	
9/8/2016	Wave 3 (FKG) Tyndale Cut - Location A - 2991 PHWY	114.6	1.86	Shot No. PB006
	Wave 3 (FKG) Tyndale Cut - Location B	Not monitored	Not monitored	
	Wave 3 (FKG) Tyndale Cut - Location C - 130 Fitz	109.2	2.413	
	Wave 3 (FKG) Tyndale Cut - Location D - 2963 PHWY	103.5	0.635	
9/14/2016	Wave 3 (FKG) Tyndale Cut - Location E - 2878 PHWY	No trigger (<88dB)	No Trigger (<0.5mm/s)	Shot No. PB007
	Wave 3 (FKG) Tyndale Cut - Location A - 2991 PHWY	113.1	4.064	
	Wave 3 (FKG) Tyndale Cut - Location C - 130 Fitz	113.8	4.318	
	Wave 3 (FKG) Tyndale Cut - Location D - 2963 PHWY	112.8	1.876	
	Wave 3 (FKG) Tyndale Cut - Location E - 2878 PHWY	No trigger (<88dB)	No Trigger (<0.5mm/s)	
9/28/2016	Wave 3 (FKG) Tyndale Cut - Location F - 2860 PHWY	No trigger (<88dB)	No Trigger (<0.5mm/s)	Shot No. PB008
	Wave 3 (FKG) Tyndale Cut - Location A - 2991 PHWY	114.6	3.048	
	Wave 3 (FKG) Tyndale Cut - Location B	Not monitored	Not monitored	
	Wave 3 (FKG) Tyndale Cut - Location C - 130 Fitz	101	3.09	
	Wave 3 (FKG) Tyndale Cut - Location D - 2963 PHWY	108.8	2.159	

## **Appendix B5 Air Quality Monitoring Results**

# April Dust Monitoring Register



Air Monitoring for Solid Particles is conducted monthly - Units of measure: g/m2/month

Location	Sample Name	Sample Number	Sample Comments	Sampling Days	Sample Volume (L)	Target Total Suspended Solids (g/m2/month)	Total Suspended Solids (g/m2/month)
Wave 2	1	E9976/1	Cloudy, organic matter present	32	2.2	≤ 4	4.5
Wave 2	2	E9976/2	light brown/organic matter present	32	1.6	≤ 4	4.8
Wave 2	3	E9976/3	light brown/organic matter present	32	1.8	≤ 4	6.2
Wave 2	4	E9976/4	-	32	2.45	≤ 4	0.1
Wave 2	5	E9976/5	Cloudy, organic matter present	32	2.2	≤ 4	4.6

# May Dust Monitoring Register



Air Monitoring for Solid Particles is conducted monthly - Units of measure: g/m2/month

Location	Sample Name	Sample Number	Sample Comments	Sampling Days	Sample Volume (L)	Target Total Suspended Solids (g/m2/month)	Total Suspended Solids (g/m2/month)
Wave 2	1	F0924/1	Dirt in sample	32	0.24	≤ 4	5.3
Wave 2	2	F0924/2	Cloudy	32	1.13	≤ 4	2.2
Wave 2	3	F0924/3	Dirt in sample	32	0.66	≤ 4	4.5
Wave 2	4	F0924/4	-	32	0.54	≤ 4	0.4
Wave 2	5	F0924/5	Dirt in sample	32	0.5	≤ 4	1.5



# June Dust Monitoring Register



Air Monitoring for Solid Particles is conducted monthly - Units of measure: g/m2/month

Location	Sample Name	Sample Number	Sample Comments	Sampling Days	Sample Volume (L)	Target Total Suspended Solids (g/m2/month)	Total Suspended Solids (g/m2/month)
Wave 1	Dust-Tyn-June	F1293/1	-	28	4.1	≤ 4	0.23
Wave 1	Dust-Grn-June	F1293/4	-	28	4	≤ 4	0.33
Wave 1	Dust-Mororo-June	F1293/5	Organic matter/bee	28	3.95	≤ 4	0.45
Wave 2	DDG 01	F1702/1	-	35	5.3	≤ 4	1.4
Wave 2	DDG 02	F1702/2	-	35	5.4	≤ 4	0.8
Wave 2	DDG 03	F1702/3	-	35	4.25	≤ 4	0.6
Wave 2	DDG 04	F1702/4	-	35	5.4	≤ 4	0.6
Wave 2	DDG 05	F1702/5	Cloudy, some dirt	35	5.3	≤ 4	4.1
Wave 3	DG-01	Private: Lot 2 DP1185493 (Tyndale Caravan Park)	Two significant rainfall events over monitoring period. Lawn mowing immediately around gauge; localised clearing of native vegetation to the south-west (private land).	28	Not available	≤ 4	0.33
Wave 3	DG-02	Private: Lot 1 DP613245 (Tenanted house)	Two significant rainfall events over monitoring period.	28	Not available	≤ 4	0.41
Wave 3	DG-03	Private: Lot 700 DP1199716	Two significant rainfall events over monitoring period. Golding works at Tyndale Cutting. Looks like cane ash in sample.	28	Not available	≤ 4	1.26
Wave 3	DG-04	RMS: Lot 300 DP1176209	Two significant rainfall events over monitoring period. Recently tilled paddock 80m to northeast	28	Not available	≤ 4	0.4
Wave 3	DG-05	Private: Lot 519 DP1199729	Two significant rainfall events over monitoring period. Cane harvesting 250-300m to west;	28	Not available	≤ 4	0.57
Wave 3	DG-06	RMS: Lot 52 DP1014027	PC to provide. Golding works at Green Hill.	28	Not available	≤ 4	N/A
Wave 3	DG-07	RMS: Lot 2201 DP823599	Two significant rainfall events over monitoring Period. Mosquitos/ Organic matter in sample.	28	Not available	≤ 4	3.6

Wave 3	DG-08	RMS: Lot 22 DP794013	Two significant rainfall events over monitoring period. Mowing within 15 m to south. Organic matter in sample.	32 (28)	Not available	≤ 4	5.82
Wave 3	DG-09	RMS: Lot 112 DP842062	Two significant rainfall events over monitoring period. Ants in sample.	38 (28)	Not available	≤ 4	1.27
Wave 3	DG-10	Private: Lot 434 DP823599	Two significant rainfall events over monitoring period.	18 (28)	Not available	≤ 4	1.15
Wave 3	DG-11	Private: Lot 2 DP1094871 (Maclean Hotel)	Two significant rainfall events over monitoring period. Lawn mowing within 5m to west and east. period. Lawn mowing within 5m to west and east.	28	Not available	≤ 4	0.32

# July Dust Monitoring Register



**Air Monitoring for Solid Particles is conducted monthly - Units of measure: g/m2/month**

Location	Sample Name	Sample Number	Sample Comments	Sampling Days	Sample Volume (L)	Target Total Suspended Solids (g/m2/month)	Total Suspended Solids (g/m2/month)
Wave 1	Tyndale July	F2139/1	Cloudy, organic matter present	28	0.05	≤ 4	0.66
Wave 1	Fischer Lane July	F2139/2	Cloudy, organic matter present	28	0.18	≤ 4	2.1
Wave 1	Greenhill Lane July	F2139/4	DRY, 0.20L milli-Q added, organic matter present	28	0.2	≤ 4	1.46
Wave 1	Mororo July	F2139/5	Light organic matter present	28	0.39	≤ 4	1.14
Wave 2	MP1	F8371/1	Light brown, organic matter present	26	1.2	≤ 4	2.9
Wave 2	MP2	F8371/2	organic matter present	26	1.25	≤ 4	1.2
Wave 2	MP3	F8371/3	brown, organic matter present	26	1.23	≤ 4	3.8
Wave 2	MP4	F8371/4	brown, organic matter present	26	1.4	≤ 4	3
Wave 2	MP5	F8371/5	brown, organic matter present	26	0.6	≤ 4	3.5
Wave 3	Private: Lot 2 DP1185493	DG-01	Pluver excreta in gauge glass, ant activity, cane ash	29	0.4	≤ 4	0.41
Wave 3	(Tyndale Caravan Park)						
Wave 3	Private: Lot 1 DP613245	DG-02	-	29	0.35	≤ 4	0.28
Wave 3	Tenanted House)						
Wave 3	Private: Lot 700 DP1199716	DG-03	Cane ash	29	0.35	≤ 4	0.31
Wave 3	RMS: Lot 300 DP1176209	DG-04	Harvesting activities at time of sample collection	30	0.35	≤ 4	0.59
Wave 3	Private: Lot 519 DP1199729	DG-05	Paddock being tilled at time of sample collection	30	0.4	≤ 4	0.37
Wave 3	RMS: Lot 52 DP1014027	DG-06		n/a	n/a	≤ 4	n/a
Wave 3	Private: Lot 2201 DP823599	DG-07	Bird excreta in sample glass, cane ash	29	0.35	≤ 4	0.57
Wave 3	RMS: Lot 22 DP794013	DG-08	Cane ash, organic matter and beetles	30	0.3	≤ 4	0.95
Wave 3	RMS: Lot 112 DP842062	DG-09	-	30	0.3	≤ 4	0.79
Wave 3	Private: Lot 434 DP823599	DG-10	-	30	0.27	≤ 4	0.36
Wave 3	Private: Lot 2 DP1094871	DG-11	Bird excreta in sample glass, organic matter	29	0.26	≤ 4	0.22
Wave 3	(Maclean Motel)						
Wave 4	DDG 01	F1701/1	N/A	32	0.25	≤ 4	0.9
Wave 4	DDG 02	F1701/2	N/A	32	0.3	≤ 4	0.8
Wave 4	DDG 03	F1701/3	Dirty/Cloudy	32	0.5	≤ 4	1.9

Wave 5C	Area 1	F1867/1	-	33	0.3	≤ 4	1.4
Wave 5C	Area 2	F1867/2	-	33	0.4	≤ 4	0.8
Wave 5C	Area 4	F1867/3	-	33	0.25	≤ 4	2.6
Wave 5C	Area 5	F1867/4	-	33	0.4	≤ 4	2.4
Wave 5C	Area 6	F1867/5	Cloudy	33	0.3	≤ 4	0.6

# August Dust Monitoring Register



Air Monitoring for Solid Particles is conducted monthly - Units of measure: g/m2/month

Location	Sample Name	Sample Number	Sample Comments	Sampling Days	Sample Volume (L)	Target Total Suspended Solids (g/m2/month)	Total Suspended Solids (g/m2/month)
Wave 1	Fischer Lane	F2944/1	Brown colour/ants present/organic matter	28	0.313	≤ 4	7.36
Wave 1	Watts Lane	F2944/2	Bits of plastic	28	0.42	≤ 4	4.57
Wave 1	Greenhill	F2944/3	Few mosquitoes	28	0.33	≤ 4	2.96
Wave 1	Mororo	F2944/4	-	28	0.395	≤ 4	0.71
Wave 2	MP1	F3218/1	Light brown, organic matter present	31	1.8	≤ 4	2.7
Wave 2	MP2	F3218/2	Organic matter present	31	0.25	≤ 4	1.1
Wave 2	MP3	F3218/3	Brown, organic matter present	31	1.23	≤ 4	5.9
Wave 2	MP4	F3218/4	fine organic matter present	31	1.1	≤ 4	4
Wave 2	MP5	F3218/5	Brown, organic matter present	31	0.6	≤ 4	8.5
Wave 3	DG-01	-	Bird faeces in dust glass & ant activity. Organic matter present	30	2.8	≤ 4	17.43
Wave 3	DG-02	-		30	2.8	≤ 4	0.29
Wave 3	DG-03	-		30	2.8	≤ 4	1.87
Wave 3	DG-04	-	Fly and nats in dust collection cone	29	2.8	≤ 4	0.92
Wave 3	DG-05	-		29	2.8	≤ 4	0.54
Wave 3	DG-06	-	n/a	n/a	n/a	≤ 4	n/a
Wave 3	DG-07	-	Bird faeces in dust collection cone	30	2.8	≤ 4	0.6
Wave 3	DG-08	-	Organic matter present	29	2.8	≤ 4	1.2
Wave 3	DG-09	-		29	2.8	≤ 4	0.6
Wave 3	DG-10	-	Cane ash in collection cone	29	2.8	≤ 4	1.2
Wave 3	DG-11	-	Organic matter present	30	2.8	≤ 4	0.7
Wave 3	DG-12 (control)	-	Organic matter present	53	2.8	≤ 4	1.27
Wave 3	DG-13	-	Bird faeces in dust collection cone	55	2.8	≤ 4	0.67
Wave 4	DDG 01	F1866/1		31	0.3	≤ 4	2.1
Wave 4	DDG 02	F1866/2		31	0.3	≤ 4	1.3
Wave 4	DDG 03	F1866/3	Dirty/cloudy	31	0.4	≤ 4	1.9
Wave 5C	Area 1	F1867/1		33	0.3	≤ 4	1.4
Wave 5C	Area 2	F1867/2		33	0.4	≤ 4	0.8
Wave 5C	Area 4	F1867/3		33	0.25	≤ 4	2.6
Wave 5C	Area 5	F1867/4		33	0.4	≤ 4	2.4
Wave 5C	Area 6	F1867/5	Cloudy	33	0.3	≤ 4	0.6

# September Dust Monitoring Register



Air Monitoring for Solid Particles is conducted monthly - Units of measure: g/m2/month

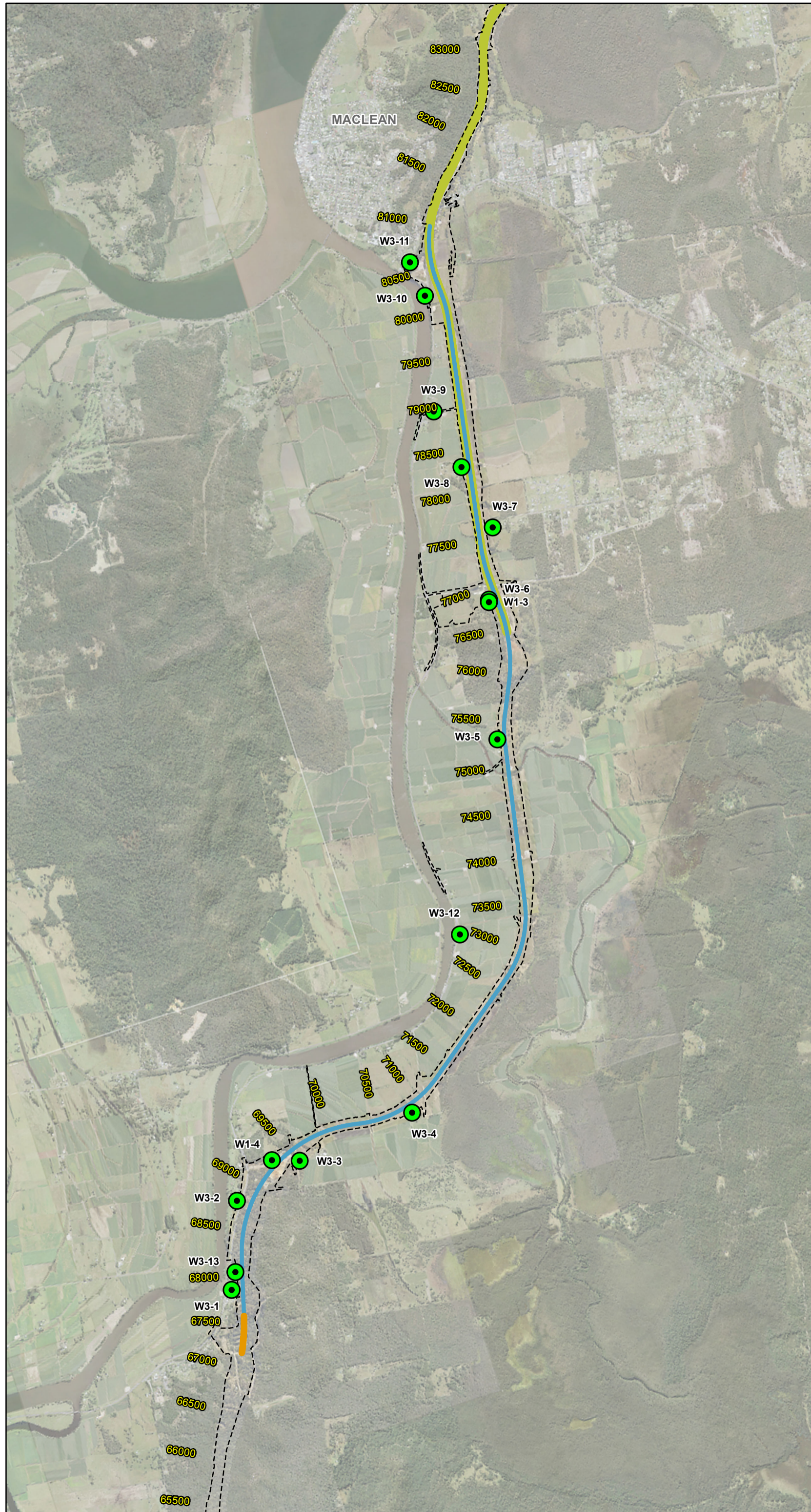
Location	Sample Name	Sample Number	Sample Comments	Sampling Days	Sample Volume (L)	Target Total Suspended Solids (g/m2/month)	Total Suspended Solids (g/m2/month)
Wave 1	Fischer Lane Sept	F3705/1	Dry- 0.50mL milli-q added	28	0.5	<4	1.08
Wave 1	Watts Lane Sept	F3705/2	Dry- 0.50mL milli-q added	28	0.5	<4	0.49
Wave 1	Greenhill Sept	F3705/3	Organic matter present/cloudy	28	0.17	<4	2.37
Wave 1	Mororo Sept	F3705/4	A few ants	28	0.35	<4	0.65
Wave 4	DDG1	F3768/1	Heaps of ants	31	0.43	<4	1.6
Wave 4	DDG2	F3768/2	Dirty, bees and ants	31	0.57	<4	1.1
Wave 4	DDG3	F3768/3	Yellow/orange in colour, big leaf and dirty	31	0.73	<4	2.3
Wave 5C	A1	F3767/1		30	0.3	<4	1.1
Wave 5C	A2	F3767/2		30	0.22	<4	1.7
Wave 5C	A4	F3767/3	Dirty	30	0.5	<4	2.4
Wave 5C	A6	F3767/4	Spider and ants	30	0.55	<4	0.9
Wave 5C	A6	F3767/5		30	0.45	<4	0.2
Wave 3	DG02-04	F3745/2	Clean with dead bugs	33	Not supplied	<4	0.37
Wave 3	DG03-04	F3745/3	Clean with dead bugs	33	Not supplied	<4	0.75
Wave 3	DG04-04	F3745/4	Clean with broken glass inside	33	Not supplied	<4	0.42
Wave 3	DG05-04	F3745/5	dead bugs and floaties	33	Not supplied	<4	0.84
Wave 3	DG07-04	F3745/6	yellow colour, dead bugs	33	Not supplied	<4	3.05
Wave 3	DG08-04	F3745/7	Clean with dead bugs	33	Not supplied	<4	0.35
Wave 3	DG09-04	F3745/8	Clean with dead bugs	33	Not supplied	<4	0.56
Wave 3	DG11-04	F3745/9	Clean with dead bugs	33	Not supplied	<4	0.25
Wave 3	DG12-04	F3745/10	clean with a few bits of dirt	33	Not supplied	<4	0.51
Wave 3	DG13-04	F3745/11	clean with a few bits of dirt	33	Not supplied	<4	0.74

# PACIFIC HIGHWAY UPGRADE

*Woolgoolga to Ballina*

**Air quality  
monitoring locations  
wave 1, 2, 3, 4 & 5c**

**Map 1 of 5**



Air quality monitoring locations wave 1, 2, 3, 4 & 5c

**Soft Soil Sites And Wave Locations (Apr to Sept, 2016)**

- Wave 1
- Wave 2
- Wave 3
- Wave 4
- Wave 5a
- Wave 5c
- Harwood Bridge



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at A3



Print Date:	2/11/2016
Author:	LABRUYEREA

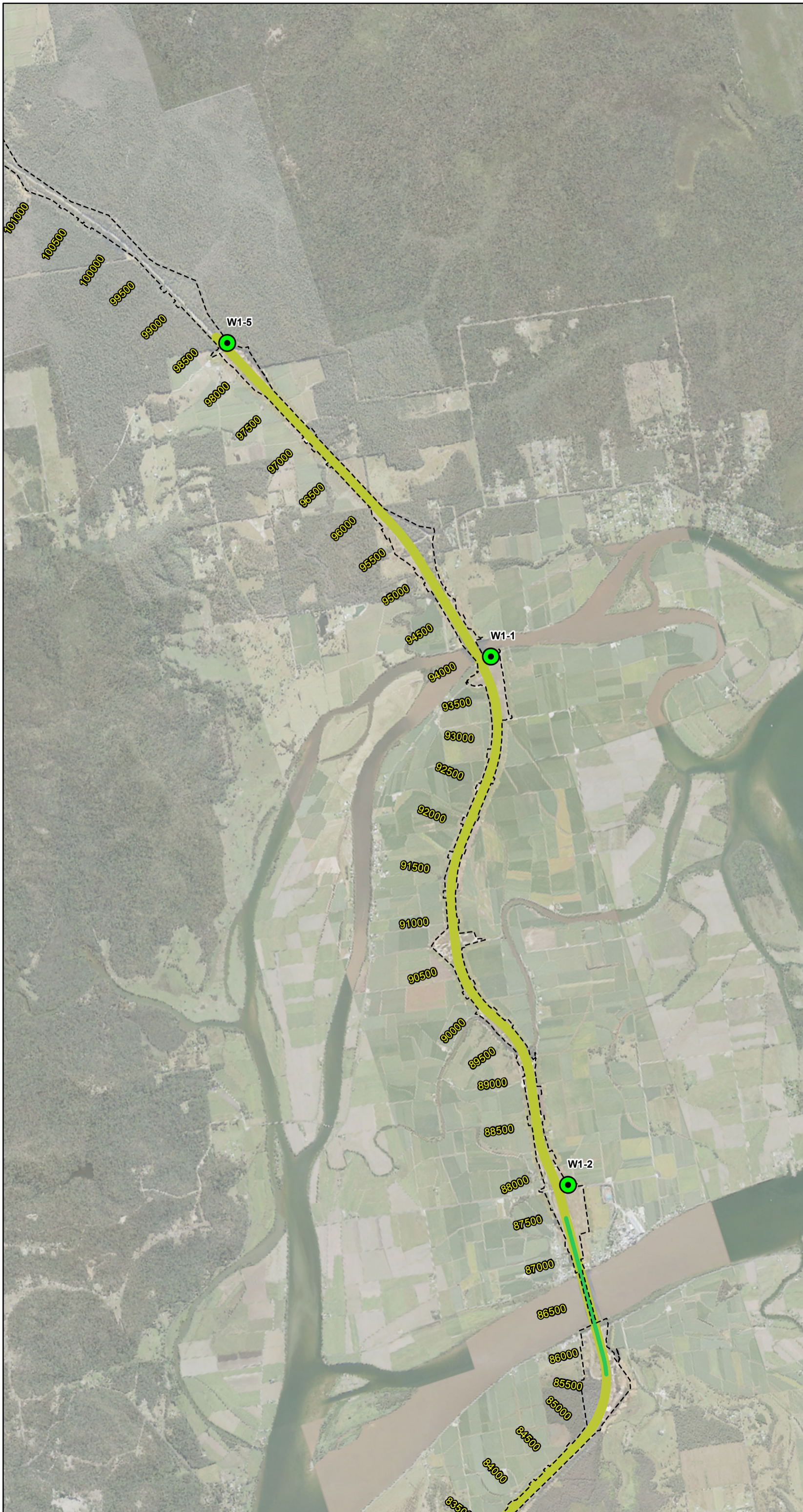
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# PACIFIC HIGHWAY UPGRADE

*Woolgoolga to Ballina*

**Air quality  
monitoring locations  
wave 1, 2, 3, 4 & 5c**

**Map 2 of 5**



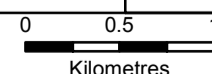
Air quality monitoring locations  
wave 1, 2, 3, 4 & 5c

**Soft Soil Sites And Wave  
Locations (Apr to Sept, 2016)**

- Wave 1
- Wave 2
- Wave 3
- Wave 4
- Wave 5a
- Wave 5c
- Harwood Bridge



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# PACIFIC HIGHWAY UPGRADE

Woolgoolga to Ballina

**Air quality  
monitoring locations  
wave 1, 2, 3, 4 & 5c**

Map 3 of 5



Air quality monitoring locations  
wave 1, 2, 3, 4 & 5c

**Soft Soil Sites And Wave  
Locations (Apr to Sept, 2016)**

- Wave 1
- Wave 2
- Wave 3
- Wave 4
- Wave 5a
- Wave 5c
- Harwood Bridge



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at A3



Print Date: 2/11/2016

Author: LABRUYEREA

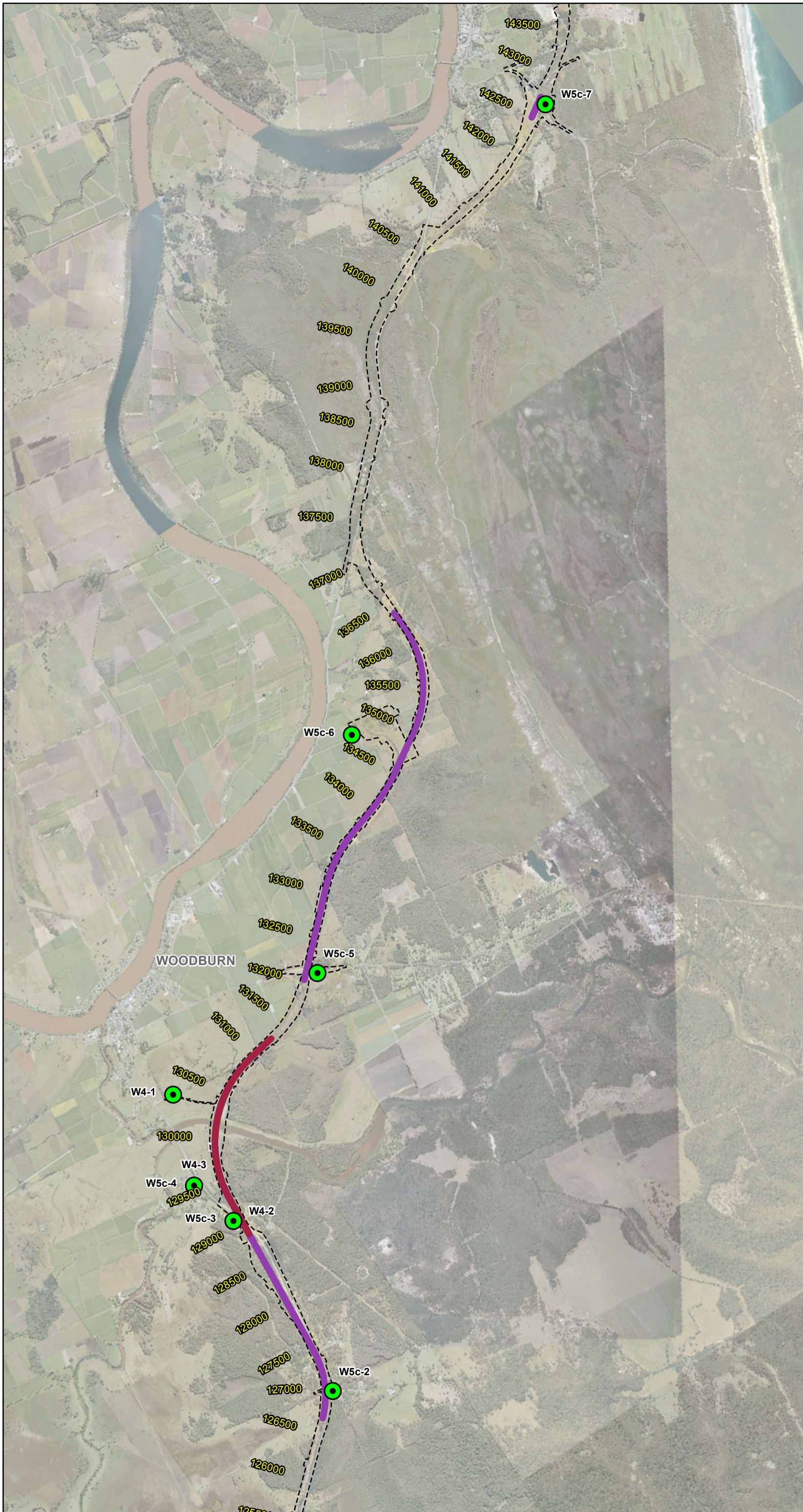
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# PACIFIC HIGHWAY UPGRADE

*Woolgoolga to Ballina*

**Air quality  
monitoring locations  
wave 1, 2, 3, 4 & 5c**

**Map 4 of 5**



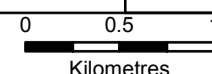
Air quality monitoring locations wave 1, 2, 3, 4 & 5c

**Soft Soil Sites And Wave Locations (Apr to Sept, 2016)**

- Wave 1
- Wave 2
- Wave 3
- Wave 4
- Wave 5a
- Wave 5c
- Harwood Bridge



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at A3



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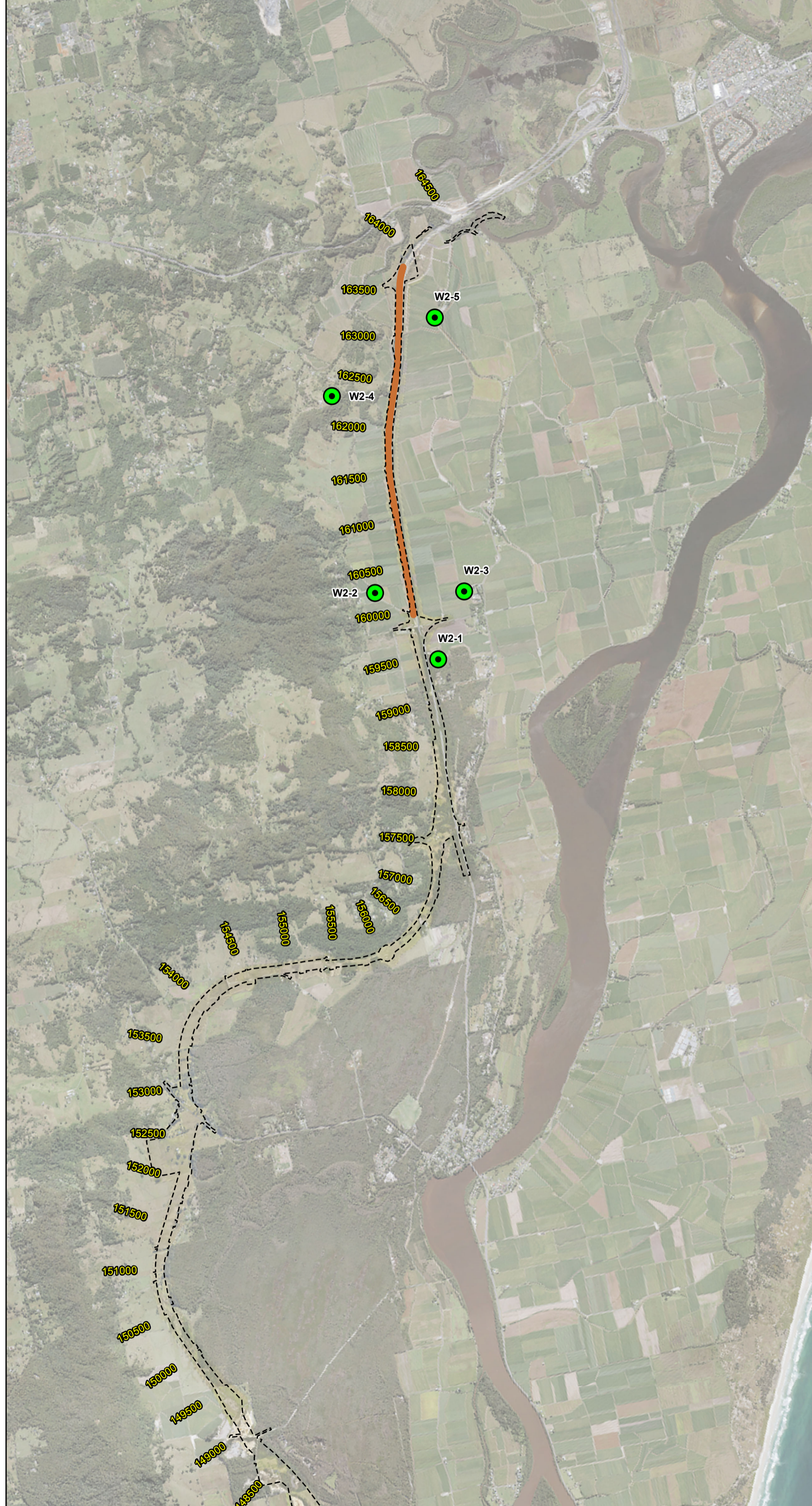
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# PACIFIC HIGHWAY UPGRADE

*Woolgoolga to Ballina*

**Air quality  
monitoring locations  
wave 1, 2, 3, 4 & 5c**

**Map 5 of 5**



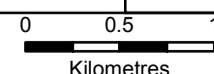
Air quality monitoring locations  
wave 1, 2, 3, 4 & 5c

**Soft Soil Sites And Wave  
Locations (Apr to Sept, 2016)**

- Wave 1
- Wave 2
- Wave 3
- Wave 4
- Wave 5a
- Wave 5c
- Harwood Bridge



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## **Appendix C      Complaints Register**

Comment number	Event Type	Event Date	End Date	Location	Summary	Issues	Status	Mediation	Action
1	Call in (1800 778 900)	9/28/2016 9:33	10/06/2016	A	Portion A Section 4: Complaint about traffic control set up north of Tyndale	04- Complaint, Traffic and transport: Journey management construction	Closed	No	TCP reviewed and next implementation was monitored. No further complaints received on signage in this area.
2	Email	9/23/2016 9:12	9/23/2016 9:12	A	Portion A Section 4:Complaint about construction noise	04- Complaint, Noise and Vibration: Noise construction	Closed	No	Attended noise monitoring and meeting to discuss results
3	Property access	9/20/2016 13:55	9/20/2016 13:55	A	Portion A Section 3: Complaint about access through gate adjoining property	Property and land use: Access approved, 04- Complaint, Construction: Clearing	Closed	No	Stakeholder meeting
4	Call in (1800 778 900)	9/19/2016 10:17	9/19/2016 10:17	A	Portion A Section 4: Complaint about construction traffic impacts on Shark Creek Road	04- Complaint, Traffic and transport: Damage to local roads	Closed	No	Local road repair
5	Call out	9/09/2016	9/09/2016	A	Portion A Section 4: Complaint about fencing of leased property	04- Complaint	Closed	No	Stakeholder meeting and design review
6	Meeting	8/31/2016 17:00	8/31/2016 17:00	A	Portion A Section 4: Complaint about inadequate consultation about design, clearing and future construction impacts	04- Complaint, Water: Flooding, Air Quality: Dust, Consultation process: Inadequate consultation, Construction: Clearing	Closed	N	Stakeholder meetings and complaint referred to independent hydrologist
7	Drop in - PHO	8/29/2016 16:42	8/29/2016 16:42	A	Portion A Section 4: Complaint about reversing beepers with request to replace with squawker	04- Complaint, Noise and Vibration: Noise construction	Closed	No	Reversing beeper replaced with squawker
8	Meeting	8/26/2016 14:00	8/26/2016 14:00	A	Portion A Section 4: Complaint about lack of notice of cane clearing and confusion about property boundary	04- Complaint, Property and land use: Impact to agricultural activities, Consultation process: Inadequate consultation	Closed	No	Lease agreement executed
9	Call out	8/26/2016 13:26	8/26/2016 13:26	A	Portion A Section 3: Complaint about timeframe for completion of permanent fencing	04- Complaint, Property and land use: Adjacent land use	Closed	No	Clarification of contractual obligations and consultation with stakeholder to ensure security of cattle prior to construction of permanent boundary fence
10	Call in (1800 778 900)	8/18/2016 16:50	8/18/2016 16:50	A	Portion A Section 4: Complaint about unauthorised access and property damage	04- Complaint, Construction: Damage (to property/environment)	Closed	No	Process reminder
11	Call in (1800 778 900)	8/18/2016 16:00	8/18/2016 16:00	A	Portion A Section 4: Complaint about unauthorised access	Property and land use: Access for investigations, 04- Complaint	Closed	No	Process investigated, apology provided

12	Call in (1800 778 900)	8/08/2016	8/08/2016	A	Portion A Section 4: Complaint about unauthorised access and property damage	Property and land use: Access denied, 04- Complaint, Construction: Damage (to property/environment)	Closed	No	Property flagged and boundary post installed
13	Call in (1800 778 900)	8/04/2016	8/04/2016	A	Portion A Section 4: Request for relocation of VMS notifying of Goodwood Street closure	04- Complaint, Traffic and transport: Traffic safety	Closed	No	VMS relocated
14	Call in (1800 778 900)	7/21/2016 12:00	7/21/2016 12:30	A	Portion A Section 4: Complaint about unauthorised access, future noise and dust and possible property damage.	04- Complaint, Consultation process: Inadequate consultation	Closed	N	Process reminder
15	Call out	7/04/2016	7/04/2016	A	Portion A: Complaint about access, lack of notification and potential impact to livestock	04- Complaint, Property and land use: Impact to agricultural activities, Project components: Access, Consultation process: Inadequate consultation	Closed	N	Apology and process reminder
16	Call in (1800 778 900)	5/31/2016 9:15	5/31/2016 9:15	A	Portion A: [resident] called to complain about restricted access to their property.	04- Complaint, Project components: Access	Closed	N	Work completed and stakeholder kept informed during work.
17	Call in (specify team member)	5/11/2016	5/11/2016	A	Portion A complaint - access to property without permission	04- Complaint	Closed	No	Investigation and apology
18	Phone	4/28/2016 11:15	5/09/2016	A	Portion A: The complaint was provided to the SCLT by HR after a complaint to LOR HR by a business claiming on two separate occasions bags of trash had been placed in their commercial waste bins that they pay for to have emptied.	04- Complaint, Project components: Project personnel behaviour	Closed	No	Process reminder
19	Community information session	4/12/2016	4/12/2016	A	Portion A: Discussion at CIS re: workers on his property, concerns about blasting and flooding at planned interchange	04- Complaint, Project components: Access, Project components: Project personnel behaviour, Consultation process: Inadequate consultation	Closed		
20	Call in (specify team member)	6/09/2016	6/09/2016	A/ B	Complaint Portion A B - access to property still not rectified	04- Complaint, Project components: Access	Closed	No	Work completed and stakeholder kept informed during work.
21	Email	8/19/2016 11:00	8/19/2016 11:00	All	Request for an extension to comment on the Urban Design and Concept Plan. (UDLP and Design Refinements Process).  Consultation Process.	Consultation process: Request for project information, 04- Complaint, Consultation process: Consultation process	Closed		Extension of comment period.
22	Call in (1800 778 900)	9/26/2016 16:00	9/26/2016 16:00	B	Left voice mail	04- Complaint, Water supply	Closed	No	Site inspection Police informed Repairs to property carried out

23	Call in (1800 778 900)	9/12/2016	9/12/2016	B	Portion B - Complaint - visual amenity and consultation process	Design: Visual amenity, 04- Complaint, Consultation process: Inadequate consultation	Closed	No	Updated stakeholder contact details. Stakeholder feedback included and considered as part of the UDLP.
24	Meeting	5/31/2016 14:00	5/31/2016 15:00	B	Portion B: Meeting to discuss concerns about creek running dry.	04- Complaint, Biodiversity: Aquatic environment, Biodiversity: General environment issues/concerns	Closed		Stakeholder meeting.
25	Call in (specify team member)	4/14/2016 7:30	4/14/2016 7:30	B	Portion B - complaint - project team removing wire currently used to secure gate at property	04- Complaint, Property and land use: Impact to agricultural activities	Closed	No	Maintain closure of gates in accordance with land owner and leasee request. Process reminder - team toolbox
26	Door knock - at home	8/26/2016 15:00	8/26/2016 15:00	B/E	Portion B/E complaint - project personnel behaviour during property condition survey	04- Complaint, Project components: Project personnel "behaviour"	Closed	No	Reported to contactor. Reiterated importance carrying out work in accordance with communications protocols.
27	Call in (specify team member)	6/30/2016 14:47	6/30/2016 14:47	C	Portion C: dust complaint	04- Complaint, Air Quality: Dust	Closed	No	No action required.
28	Call in (specify team member)	9/27/2016 7:10	9/27/2016 7:10	B	Portion B - complaint - water not connected	04- Complaint, Water: Drainage	Closed	No	Plumber attended site and reinstated water connection 27/09/2017
29	Call in (specify team member)	9/19/2016 8:30	9/19/2016 8:30	B	Portion B - complaint - damage to property	04- Complaint, Water: Drainage, Construction: Damage (to property/environment)	Closed	No	Site inspection Police informed Repairs to property carried out and ATF fencing around property reinstated.
30	Meeting	9/15/2016 11:05	9/15/2016 11:05	B	Portion B - complaint regarding drainage	04- Complaint, Water: Drainage	Closed	No	ERSED controls and drain cleared.
31	Call out	8/22/2016 16:18	8/22/2016 16:18	B	Portion B: water line on property hit due to geotech work	04- Complaint, Water: Drainage	Closed	No	Water service reconnected 22/08/2017
32	Call out	7/14/2016 9:18	7/14/2016 9:18	B/E	Portion B/E - Complaint tree removal without consultation	04- Complaint, Consultation process: Inadequate consultation, Construction: Clearing	Closed	No	Stakeholder meeting.
33	Call out	6/27/2016 14:51	6/27/2016 14:51	B	Portion B complaint - [contractor] - Dust complaint - called requesting access for survey	04- Complaint, Air Quality: Dust, Consultation process: Inadequate consultation	Closed	No	Water truck to contain dust and a sweeper to clear it from the highway. Arranged for a dust monitor to be placed at the property.
34	Call out	6/22/2016 16:48	6/22/2016 16:48	B	Called to follow up on enquiry re project signage obstructing line of site for property entry and exit.	04- Complaint, Traffic and transport: Traffic management local roads, Traffic and transport: Traffic safety	Closed	No	Apology.

35	Call out	8/06/2016	8/06/2016	B	Complaint Portion B - water extraction (quarry) - called to arrange meeting	04- Complaint, Water: Surface water quality	Closed	No	
36	Call in (1800 778 900)	4/13/2016 10:00	4/13/2016 10:00	B	Portion B - follow up on complaint regarding use of ground water	04- Complaint, Water: Ground water quality, Water: Water licence	Closed	N	Consultation with complainant, relevant agency (DPI) and contractor. No further action required. Information supplied to DPI. DPI formalised outcome with complainant.
37	Call out	42708.36458	4/12/2016	B	Portion B - complaint received via [project staff member] - advised was nearly hit by rock coming off load not properly covered	04- Complaint, Traffic and transport: Traffic safety, Construction: Heavy vehicles	Closed	No	Process reminder, process adapted to include additional visual inspection of vehicles from above.
38	Meeting	8/24/2016 9:00	8/24/2016 9:00	B	Portion B - Complaint - safety and access for buses at Garrets Lane	04- Complaint, Project components: Access, Traffic and transport: Traffic safety	Closed	No	Process reminder. Consultation with residents in the area and bus service. No issues reported. works in the area completed within 2 days of the complaint and no further work planned in the area at that time which would impact on the bus services. No further action - complaint received anonymously and complainant advised no further follow up required.
39	Meeting	9/23/2016 8:00	9/23/2016 8:30	B	Portion B - complaint regarding drainage, community consultation	Property and land use: Property adjustment, 04- Complaint, Project components: Access, Water: Drainage, Consultation process: Inadequate consultation	Closed	No	No rock is to be installed for the head road Boundary flagging moved in 6m from current location and reinstated. Installation of drainage Single point of contact nominated for stakeholder
40	Meeting	9/13/2016 15:30	9/13/2016 16:15	B	Portion B - complaint - drainage concerns	04- Complaint, Water: Drainage	Closed	No	Drains cleared and maintenance to be arranged
41	Call in (specify team member)	8/08/2016	8/08/2016	C	Portion C - Wave 5c - Complaint - Resident behaviour	Complaint	Closed	No	No action required
42	Letter	12/08/2016	25/10/2016	C	Portion C - Complaint - Coraki quarry	Complaint	Closed	No	No action required
43	Meeting	7/09/2016	12/09/2016	C	Portion C - Wave 5c - Complaint - Drainage	Complaint	Closed	No	No action required
44	Email	7/10/2016	7/10/2016	C	Portion C - Contractor- Complaint - Resident behaviour	Complaint	Closed	No	No action required
45	Call in (specify team member)	2/12/2016	2/12/2016	C	Portion C - Wave 4 - Complaint - Water not draining	Complaint	Closed	No	No action required
46	Call in (specify team member)	2/12/2016	2/12/2016	C	Portion C - Wave 4 - Complaint - Gate latch installed did not keep cows in paddock	Complaint	Closed	No	No action required
47	Call in (specify team member)	15/12/2016	16/12/2016	C	Portion C - Telstra - Complaint - Resident behaviour	Complaint	Closed	No	No action required



48	Call out	19/12/2016		C	Portion C - Wave 5c - Complaint - Glencoe Road intersection upgrade	Complaint	Open	No	Currently preparing consultation close-out and start of work notification to reinstate full intersection functionality
49	Call in (specify team member)	19/12/2016	19/12/2016	C	Portion C - Wave 4 - Complaint - Fencing required	Complaint	Closed	No	No action required
50	Call in (1800 778 900)	21/12/2016	21/12/2016	C	Portion C - Wave 4 - Complaint - Truck movements	Complaint	Closed	No	No action required
51	Call in (specify team member)	23/12/2016	24/12/2016	C	Portion C - Wave 4 - Complaint - Impatient drivers at Trustums Hill	Complaint	Closed	No	No action required
52	Email	9/21/2016 8:15	9/21/2016 8:15	D	Email requesting information re-flooding at the Pimlico area	04- Complaint, Website access to document	Closed	No	No action required. Flooding information not available at time of request.
53	Meeting	9/01/2016	9/01/2016	D	Boundary pegs	04- Complaint, Property and land use: Adjacent land use, Biodiversity: Fauna	Closed	No	
54	Call in (1800 778 900)	8/26/2016 14:38	8/26/2016 14:41	D	Surveyors placing pegs along the boundary of his property.	Property and land use: Access for investigations, 04- Complaint, Property and land use: Adjacent land use, Consultation process: Inadequate consultation	Closed	No	
55	Call in (1800 778 900)	7/08/2016	7/08/2016	D	Portion D: Complaint road condition in Old Bagotville Road following Contractor hauling from quarry	04- Complaint, Traffic and transport: Damage to local roads	Closed	No	
56	Call in (1800 778 900)	7/06/2016	7/06/2016	D	Speeding work trucks in Wardell.	04- Complaint, Traffic and transport: Increase in heavy vehicles	Closed	No	
57	Call in (1800 778 900)	5/06/2016	5/06/2016	D	Portion D: trucks speeding along Carlisle St Wardell	04- Complaint	Closed	No	
58	Email	5/06/2016	5/06/2016	D	Rocks and Debris falling from Contractor Vehicles	04- Complaint	Closed	No	
59	Email	9/16/2016 9:00	9/23/2016 11:41	D	Disappointed with the decision to proceed with Highway in Section 10	04- Complaint, Biodiversity: Fauna	Closed	No	